STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION

BULLETIN No. 5

FLOW IN CALIFORNIA STREAMS

BEING

APPENDIX "A"

TO

Report to the Legislature of 1923

ON THE

Water Resources of California

CALIFORNIA STATE PRINTING OFFICE
FRANK J. SMITH, Superintendent
SACRAMENTO, 1923

20273

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FOREWORD.

The legislature of 1921 appropriated $200,000 for an investigation of California's water resources by the State Department of Public Works, Division of Engineering and Irrigation. Accordingly, an engineering investigation has been completed and a report transmitted to the legislature on January 1, 1923. The great mass of data collected and the complex analyses thereof made it advisable to present much of this information in separate volumes. Four of these are in print, entitled:

APPENDIX "A" "Flow in California Streams." Bulletin No. 5, State Department of Public Works.

APPENDIX "B" "Irrigation Requirements of California Lands." Bulletin No. 6, State Department of Public Works.

APPENDIX "C" "Utilization of the Water Resources of California." Bulletin No. 7, State Department of Public Works.

APPENDIX "D" "Relation of Settlement to Irrigation Development." Bulletin No. 8, State Department of Public Works.

Chapter 889 of the 1921 Statutes, which authorized this investigation, provided for the appointment by the Governor of a Consulting Board to advise with the Department in their endeavors. The following were appointed by Governor Stephens:

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The investigation of the water resources of the state and the preparation of the report thereon, was planned, directed and brought to completion by

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CHAPTER I.

MOUNTAINS.

Three-fifths of the land expanse of California is a rugged, upturned, mountainous region. Although comprising an area of 100,000 square miles, upheaved into waves of earth through which the jagged rocks protrude in peaks that attain to elevations of two and three-quarter miles, they are but wrinkles and creases of the crust on the vast surface of the earth. The foldings extend in a general northwesterly and southeasterly direction, with the highest ridges forming the crests of the state's principal mountain ranges. The innumerable parallel ridges and folds of lesser elevation give breadth to the massive mountain structure that rises out of the sea or up from the valley plain and covers the major portion of this state. Folded into parallel corrugations, the bases of which extend half the width of the state, these mountains are deeply cut by transverse grooves that shape and isolate their apexes into angular peaks and rounded domes.

The mountains extend from the ocean's edge to the state's eastern boundary, and from the Oregon line to the Mexican border. So vast is this mountainous expanse and so dense is the distribution, that the flat lands, excepting the long central valley of the Sacramento and San Joaquin, occur as scattering patches, sprinkled along the ocean margin to the west or sparsely apportioned through mountain plateau, or in the barren desert on the eastern border of the state. Most of the mountainous region is non-tillable, being deficient in soil or too steep of slope. A tenth of it, however, is agricultural, and this lies in the mountain valleys and on the sloping, rolling foothills which effect the compromise between the flat valley lands and the labyrinth of ridges and tangle of gorges, constituting the highland area of this state. The fretwork of wrinkles, folds, and creases that compose the relief work of the mountain structure, is so disposed that the greater part of California's mountains is comprised within two ranges. These ranges traverse the state from the northwest to the southeast and are approximately parallel to each other and to the state's western border.

The two ranges diverge in their southerly course at Mount Shasta, within forty miles of the Oregon line. In their deviation from each other they leave between their bases a long, flat valley. This valley, one-quarter the breadth of the state and half its length, lies on the state's median line and includes two-thirds of California's flat land. The two mountain ranges skirt this central valley, proceeding in long, sweeping curves to a convergence at Tehachapi Pass, three-quarters the way down the state from its north boundary. From this point on to the Mexican border, the mountains are grouped in a complex aggregation which apportions the south part of this state between the Pacific slope and the desert expanse that is the southeast corner of California.

Undifferentiated at the state's northern and southern extremities, the two ranges are definitely separated in the middle of their course, where they enclose the nearly sea-level valley within a rock wall which is cleft in but one place to valley-floor level. Through this cutting the interior drainage issues, flowing westwardly, and mingles with the waters of the Pacific Ocean. Exit from this mountain-engirdled valley by other than this sea-level cut is over passes that traverse the mountain chains. These passes, limited in number, are approached by tortuous ascents to attain their elevation, for the lowest of these notches that give egress to the east is 5200 feet in elevation.

The easterly mountains, the Sierra Nevada Range, originating toward Mount Shasta and terminating at Tehachapi Pass, have a long and somewhat uniform slope from their crest toward the west. This westerly slope is broken by a series of ridges forming crests secondary to the main crest of the range. These subsidiary ridges, paralleling the course of the dominating heights of the mountain chain, have crumpled crests, are broken down in places and cross-cut by surface drainage, and are monumented by erosion-resisting peaks. The westerly slope occupies from a quarter to a third of the breadth of the state in descending to the plains level of the great central valley, from the line of crests on the axis of the range. To the east the Sierra Nevadas present a steep escarpment composed of abruptly rising rock walls, precipitous cliffs and talus slopes with few discernible foldings, secondary to the main ridge. The crests of this range increase in altitude from north to south. Lassen Peak, in the northern quarter of this range, the one active volcano in the United States, overlooks the adjacent mountains, and is 10,580 feet high. To the south, the crest of the range, increasing in height culminates the upreared crust of the earth in Mount Whitney in the southern quarter of the range, at 14,500 feet high, the highest mountain in the United States, excluding Alaska.

The Sierra Nevada Range is very diverse in surface features. The crests are serrated, rocky, soilless and precipitous. The slopes are generally tree-covered wherever soil has found lodgment. The troughs between the successive folds of the earthen crust form mountain meadows, marshy flats and upland lakes, and intricately interlaced throughout the entire extent of this range are brooks, streams and rivers.

The main drainage channels cross the secondary ridges in the water's descent from the crest of the range, while the tributary streams largely traverse the grooves between the successive folds that parallel the axis of the range. The main stream channels, in crossing the subsidiary corrugations of the mountain chain and cutting through the intervening ridges, are deeply eroded into the mountain structure, and flow through water-worn canyons and gorges that expose the seams and layers of the mountain stratification as etchings on their precipitous cliffs. The beds of the cross channels are cut and lowered until they are often far below the beds of the tributary channels which empty the lateral drainage from the troughs between the lines of the secondary crests that corduroy the mountain slopes. The abrupt descent of the tributary waters that flow into the cross-cut gorges, forms cascades and waterfalls, and of these, the Yosemite Falls in the heart of the Sierra Nevadas, is the highest in the world, leaping 2500 feet from the mouth of a tributary valley into the Merced River gorge. So potent has been the eroding force in cutting these canyons and gorges across the folds of the mountain structure, that many of these deeply incised channels have cut back to the very base of culminating peaks of the range, where their low-lying beds at the bottom of the chasms are but half as high as the dominating peaks that tower above them.

The streams in the Sierra Nevadas, except where flowing in the valleys and meadows between the mountain folds, are turbulent waters, flowing over boulder-strewn beds, through shadowy gorges, swirling down steep descents in foaming cascades until, approaching the valley floor, they sweep out upon the plains to pursue their oceanward journey over gravelly beds of more moderate gradients. The drainage of the westerly slope of this range collects into the Sacramento and San Joaquin rivers, the two largest rivers in the state. These rivers, two meandering channels with tree-covered banks, sandy beds, and swampy flats of tule growth, follow the axis of the great central valley that is fenced by the mountain ranges. One river originating in the north and flowing southerly, and the other rising in the south and flowing northerly, unite to the eastward of the sea inlet, through which their combined waters enter the Pacific Ocean through the Golden Gate.

The easterly slope of the Sierra Nevadas presents a rocky rampart of abrupt acclivities and precipitous walls which has, because of its greater steepness, a smaller water collecting area than the opposite slope on the west. So much smaller is this area in the greater water-producing regions of the high altitudes, that no rivers are formed on the eastern slopes of the Sierra Nevadas that compare in magnitude to those on the west. This easterly slope of the Sierra Nevadas is but a twentieth to a tenth of the width of the state, in descending from the predominating crests along the axis of the range to the agricultural valleys that skirt the mountain edges and fringes of the talus slopes along the easterly border of the state. These agricultural valleys are located at from four to seven thousand feet in elevation and are on the westerly margin of the Great Basin which extends easterly from the Sierra Nevadas to the Rocky Mountains. The waters of the streams draining the eastern slope of the Sierra Nevadas collect for a quarter of the length of the mountain chain by flowing into Owens River in Owens Valley, which parallels the range along its eastern toe. Beyond this confluence of waters, there is no great collection of drainage into large rivers, and none of these waters reach the ocean, but instead, lose themselves in sinks or by entering land-locked lakes where they are dissipated through evaporation.

The westerly of the two mountain chains, called the Coast Range Mountains, after separating at Mount Shasta from the mass of mountains in the northern part of the state, parallels the Pacific Ocean's margin and takes a narrower and straighter path in its southerly course than does the Sierra Nevada range. These Coast Mountains do not attain the elevations reached by the Sierra Nevada Mountains, neither are they so diverse or massive in structure. The highest peaks between the Oregon line and the Tehachapi are less than 9000 feet in elevation, and the peaks above 5000 feet are but few in number. A third of the way down the state from the Oregon line, Mount Diablo and Mount Hamilton surmount the range at 3850 and 4210 feet, respectively. Two-thirds the way down the state, Pinos Mountain reaches to 8826 feet in height, and from this the range continues easterly with occasional crests almost as high until reaching Tehachapi Pass, 4000 feet above sea level. The traveled passes in the Coast Range Mountains are considerably lower than those of the Sierra Nevadas. They are located at elevations of from 750 to 4200 feet and are passable throughout the year, while through the Sierras the lowest pass is 5200 feet, and railroad communication only, is maintained through tunnels and snowsheds.

The Coast Range Mountains are largely composed of sedimentary rocks. The igneous rocks, where they exist, are seamed, friable and easily broken down. The crests of this range present a more rounded profile and the hills are more rolling and less rugged than the Sierra Nevadas. In the northern parts these mountains are forest-clad, but are only scatteringly timbered in the south. The base of this range is a quarter to a third of the width of the state, being broader toward the northerly end.

This range is penetrated by a salt water inlet at about its middle point between Mount Shasta and Tehachapi Pass and one-third the distance down the state from its north boundary. This inlet is cut to depths below sea level and admits salt or brackish water almost into the state's central valley. Land-locked and encircled by hills and mountains, the bays of San Francisco and San Pablo make this inlet one of the great harbors of the world. Through this cutting in the Coast Range Mountains. the drainage of the great central valley, the east slope of the Coast Range Mountains, the west slope of the Sierra Nevada Mountains, and the plateau regions in the northeastern corner of the state finds its way to the Pacific Ocean. These waters, the drainage of one-third the area of California, comprise a half of all the waters of the state.

The folds of the earth's crust which form the Coast Mountains are approximately parallel to each other and to the axis of the range. These corrugations in the earth's crust are clearly defined, and compared to the Sierra Nevadas, the valleys between the folds are of a more regular surface conformation and of an extended length. The agricultural lands of the Pacific region are located in these valleys and on the detrital flats near the ocean margin.

Exclusive of Klamath River, the main drainage channels of the Coast Range follow the troughs between the mountain folds and receive the waters of streams which drain the slopes of the ridges to either side. These waters flowing in the major channels of the valleys all drain northward and northwesterly, excepting Russian River, which flows southward throughout most of its course until it turns west and cuts the axis of secondary ridges of the Coast Mountains to empty its waters into the Pacific Ocean. The Coast Range has fewer crosscut water channels transverse to the secondary ridges than the Sierra Nevadas, but the principal axis of the chain is deeply cut in two places: at the salt water inlet through the Golden Gate, and at Klamath River which enters the state from the north, cuts through the main axis of the Coast Mountains west of Mount Shasta, and carries the drainage of the eastern slope of the Coast Mountains in California and Oregon, across the main mountain range and into the Pacific Ocean.

Between the Pacific littoral and the western foldings of the Coast Mountains are coastal plains, deltas, and detrital flats, formed from the attrition of the mountain structure. These coastal flats are located at the ocean outlet of the streams and are scattered rather meagerly along the Pacific margin from the Oregon line to the Santa Barbara Channel. Their continuity is interrupted by extensive stretches of precipitous shore line that rises abruptly from the water's edge. Southerly from the Santa Barbara Channel, these coastal plains are more extensive and proceed almost continuously from near Los Angeles to the Mexican border, a strip one-sixth the length of the state.

The streams draining the west slope of the Coast Mountains are mostly perennial, but the eastern slope of this range is drained by water courses which seldom flow continuously throughout the year. In that portion of the Coast Range that lies between the Golden Gate and Tehachapi Pass, the water in the eastwardly flowing streams is so meagre during the summer season that few have surface water, and none of them ever maintain a continuous thread of water in their channels to a confluence with the great river of the central valley.

All the streams of this westerly range have a more moderate gradient than do the water channels of the Sierra Nevada Mountains. Arising in mountains of lesser elevation and flowing over a rocky formation that is more easily eroded, the streams pass through their detrital-filled valleys and wend their way toward the sea following a more dilatory course than the deeply cut major channels of the Sierras.

The slopes of the Coast Mountains toward the Pacific Ocean that lie north of the Golden Gate are generally heavily forested, but back from the coast the timbering is less dense. This range north of Clear Lake and particularly the region west of Mount Shasta, is clothed in almost continuous forest. Northerly from the Golden Gate the agricultural areas are relatively small in size. The largest of the coastal valleys, the Eel River Valley, at the mouth of the Eel River, contains 90 square miles of agricultural land. In the interior the agricultural areas are in the valleys adjacent to Clear Lake, and between that lake and San Francisco Bay. The most extensive area of agricultural land is in the group of valleys contiguous to Santa Rosa and comprises 140 square miles of tillable land. Between San Francisco Bay and Tehachapi Pass the timbering is often sparse and the forests there are entirely confined to the Pacific slope of the range.

The assemblage of mountains in the northern part of the state, which include the conjunction of the Coast Range and Sierra Nevada Mountains, extends from the sea coast to the Nevada line and from Honey Lake to the Oregon boundary. They are interspersed with peaks and cones, having sharply cut notches and scalloped slopes, and so dense are they aggregated in the region between Mount Shasta and the Pacific Ocean that there are almost no flat areas. East of Mount Shasta, and extending a fifth of the way down the state from the north border, is a lava cap that forms a mountain plateau on the easterly side of the Sierras, 4000 to 6000 feet in elevation. Divided by Pit River and extending northerly to Oregon and southerly to Lake Almanor and Honey Lake, this region presents a surface of hummocks and hills of lava, irregularly interspersed over an extensive plains-area of lava soil. This lava is shattered into angular-shaped, jagged chunks, and covers the surface of the region to undertermined depths. These beds of eruptive rock have been cleft into fissures that extend many miles in length. Spread over this region are cinder cones, extinct craters, steam vents and hot springs.

On this area the precipitation easily penetrates the absorptive covering of lava and the interstices and apertures between the rock fragments, or into the cellular honeycomb structure of the steam blown volcanic rock. This portion of the state contrasts itself with the remainder of California in having an abundance of subterranean waters that appear as springs. These furnish a substantial and perennial supply of water to the streams draining the region; some of the springs pouring out their waters uniformly and in volumes of one hundred cubic feet per second or more, give immediate and considerable flow to the water channels having them as their source. The largest of these streams, Pit River, which drains half of this lava cap, rises in the extreme northeastern part of the state, crosses the axis of the Sierra Nevada Mountains to a confluence with the Sacramento River, and is the only stream that carries any drainage from the easterly slope of this range into the long, central valley which lies between the Coast Range and the Sierras.

Klamath River, which drains the mountainous region north and west of Mount Shasta, is one of the few rivers of the United States that carries any drainage of the Great Basin through the axis of a mountain range. It has its source in Oregon where it drains a portion of the eastern slope of the Cascades, flows southerly into California to the northward of the Pit drainage and thence westerly, crossing the axis of the Coast Mountains through the Klamath Gorge, and empties its waters into the Pacific Ocean within 35 miles of Oregon.

Strung chain-like from the lower end of Goose Lake along Pit River is a group of agricultural valleys. The tillable lands are on the floors of the valleys and on the slopes rising from them. Between this cordon of valleys and Honey Lake are located Madeline Plains, Round and Honey Lake valleys. The largest of these, Honey Lake Valley, contains 320 square miles of tillable land. East of the Pit River chain of valleys is Surprise Valley, which contains Upper, Lower and Middle Lakes on the margins of which agricultural lands are located.

Covering the major portion of Southern California is the southward continuation of the state's two main mountain ranges, which after their convergence at Tehachapi Pass proceed in a diversified aggregation of mountains that extend to the Mexican border. These partake of the characteristics of both the Coast Range and Sierra Nevada Mountains, as some are angular protusions of rock; others are rounded, soil-covered and rolling. Usually steep of slope, almost precipitous, these mountains are deeply furrowed by sharp-cut gullies and ravines, and have canyons filled with underbrush, and water courses lined with alders, sycamore and willows. A dense brush cover clothes their rugged slopes, but timber grows only at the higher elevations.

The crest of this range is lower than that of the Sierra Nevada Mountains, with less continuity of arrangement. A few dominating peaks rise to heights of more than 10,000 feet, but their general altitude is comparable to that of the Coast Range. The passes over them are intermediate in elevation between those of the Coast Range and Sierra Nevada Mountains, are snowless except at intervals, and traversible throughout the entire year. This mountain range divides, and the routes through the passes connect, two diverse regions. To the west, the Pacific slope, the agricultural lands of which extend from the ocean margin well up to the mountain flanks, is a developed, fertile, productive area of moderate climatic fluctuation; to the east is the desert, an undeveloped region of great extent, almost rainless and non-productive through lack of an accessory water supply. The only extensive productive areas are the Imperial, Palo Verde and Coachella valleys which have acquired irrigation supplies and are realizing on the great fertility of the desert soil. In this expanse of rainless desert is Salton Sink, an inland sea, the surface of which is more than 250 feet below the ocean level. Its surface is gradually lowering through evaporation.

The stream channels draining into the desert from the mountains that separate it from the Pacific region, are dry throughout most of the year. Excepting those streams that have their source at high elevations, flow in the water channels occurs only after an appreciable precipitation has fallen upon the slopes of the tributary drainage basins. No large streams are formed by the waters drained from this eastern slope and none of its drainage reaches the ocean; instead, it is lost by seeping into the arid, desert soil and through evaporation. The streams draining the western slope of these mountains are perennial and, after descending the steeper mountain slopes, pass through broad, detrital-filled valleys, pursuing generally a direct course to the ocean. Large areas of fertile agricultural land border the streams in these valleys and extend to the ocean's shore which the streams approach between banks but slightly above their beds.

With three-fifths of the surface of California disposed in mountains, the extreme range of altitude is from 275 feet below sea level in Death Valley, to 14,500 feet above, attaining this elevation at Mount Whitney but seventy-five miles distant from the lowest depression. The greater part of the flat lands of the state, or about one-fifth of its total area. lies between the elevation of the ocean's edge and 500 feet above. They comprise the gently sloping ocean littoral, an extensive mountain-girdled valley known as the Sacramento-San Joaquin, and desert areas in the southeastern part of the state. This region, 33,000 square miles in extent, includes the bulk of California's agricultural area. Higher in elevation than these flat lands, are gentle slopes lying between the plain-like areas and the base of the mountains. These are the rolling foothills and detrital-filled valleys, lands that are transitional to plain and highland regions. These are located mostly between 500 and 2500 feet above sea-evel, and 53,000 square miles, or about one-third the area of the state, lie between these elevations. One-quarter of the agricultural land of the state is in this region and only the scattered parcels in high mountain valleys and that on the plateau of northeastern California lie above it.

The area above the 2500-foot elevation, 72,000 square miles in extent or about half the state's area, the mountains proper, comprise the rock-strewn slopes, steep acclivities, sheer cliffs, rocky extrusions, serrated ridges, and mountain crests—surmounted by storm-swept pinnacles. Of this region, 35,000 square miles or one-fifth the surface of California, lies above 5000 feet. The mountain and foothill regions together, are over triple the area of the agricultural lands and receive a greater precipitation. This mountain water-producing area sheds its run-off into streams and rivers which traverse the valley and plains areas in their course to the water channel's mouth at the ocean margin.

CHAPTER II.

PRECIPITATION.

Man, in common with all other life on this earth, is born, passes his entire existence and dies without ever emerging from water in which he is surrounded. Covering the earth from pole to pole and extending from the ocean's greatest depths to far over the tops of the highest mountains, even penetrating to a considerable distance the soils and rocks upon which it rests, this fluid fills the lower depressions of the earth's surface in the liquid form; but above the sea and the land, it wraps the entire globe in an all-pervading sheath of water-vapor that mingles with the atmosphere. Although invisible, this sea of water-vapor extends many miles upward from the surface of the earth; in sensible concentrations, however, it is confined within the lower five miles. The liquid water, one eighth-hundredth the bulk of the earth, is of sufficient volume to blanket the globe with a continuous sheet of water that submerges three-quarters of the solid crust. In the cold of the polar regions this water-blanket is rigid and solid, and mantles the earth with ice floes which attain the dimensions of continents.

Ceaselessly changing, one into another, the liquid and solid waters of the earth evaporate and enter the invisible vapor-envelope, and at all times, somewhere, atmospheric waters are precipitating from this vapor-envelope to rejoin the bulk of the waters of this planet in the liquid or solid state. This interchange between the visible and the invisible waters is in progress continually, differing in degree of activity, but ever striving to effect an equilibrium between the natural tendencies of the liquid and solid water to diffuse as vapor, and the vaporized waters to liquify or congeal.

The physical phenomenon inciting the interchange between the visible and invisible waters of the globe, is the temperature of the atmosphere and of the lithosphere which the vaporous waters contact. Fluctuating with the rotation of the earth, these temperatures pass through a daily cycle of alternate warmth and coolness. With the rising and setting of the sun, all parts of the earth are subject to cyclic changes of temperature, and these fluctuations progress around the globe as the sun's rays sweep over its surface. The atmosphere and lithosphere are warmed by the heat of sunshine during the day, and cooled by the radiation of heat during the darkness of night hours. Varying quantities of heat are absorbed by the air, the water, and the soil and rocks of the earth's crust, as the sun's rays pierce the enshrouding gas envelope and penetrate to the bottom of the atmospheric ocean. The rocks and soils, endowed with a greater capacity for absorbing heat, rise in temperature more slowly than the gases of the air, but the liquid waters of the lakes and oceans, having a still larger absorptive power than either, are the most sluggish in their thermal change. In the absence of the warming rays of the sun, the atmosphere is lowered in temperature the more rapidly, having less heat to radiate, the soil and rocks next, and the waters of the earth the least rapidly of all.

It thus occurs that the air, the earth, and the sea are constantly in the process of thermal change, ever endeavoring to reach like temperature to the heat of day or the cold of night. With each temperature rise, the ability of the atmosphere to occlude water-vapor becomes greater and the tendency for solid or liquid water to vaporize increases, so that as temperatures rise, the liquid and solid waters tend to diffuse into the air as aqueous vapor; but as the temperatures fall, vaporized waters of the air tend to liquidize or congeal. The daily thermal cycle, therefore, in sweeping around the surface of the earth at the rate of 1500 feet per second, leaves behind it a riotous endeavor on the part of the earthly elements to adjust themselves to their ever changing heat environment and to reconcile the disturbed balance between the visible and invisible waters of the globe. These interchanges, continuing unceasingly, are called dews, fogs, mists, rain, downpours, or cloudbursts as the precipitation of condensed moisture from the invisible vaporous envelope becomes more intense; but as the visible liquid or solid waters diffuse to join the vaporous envelope the interchanges are called evaporation, and this is said to be slow or rapid in accord with the readines of diffusion.

Coincident with these thermal agitations, areas of low pressure appear in the atmosphere as this swirls with the rotation of the earth. Meteorological observations of the United States Weather Bureau show that areas make their appearance along the Alaskan Coast, in which the pressure of the atmospheric envelope surrounding the earth is less than in adjacent regions. Successive observations, taken subsequently, reveal these low pressure areas in movement southeasterly across the continent, to be finally dissipated by equalization of pressure through air movements, or to endure and pass out into the ocean from the Atlantic shore of this continent. With the formation and progress of these areas of low pressure, winds arise that are directed toward them, and the air flows from hundreds of miles distant to equalize the variant pressures.

In California the prevailing winds are from the south, southwest, and west, rushing toward the areas of low pressure as these pursue their diagonal course across the continent. Sometimes, however, centers of low pressure enter the state from off the Pacific Ocean at which times easterly or northerly winds may blow over parts of the state. These air movements may be concentrated in volume or altered in direction locally, by hills or mountains or the passes between them, so that the winds of the lower atmosphere may often be at variance with the direction of the more widespread air movements.

The winds may blow as gentle breezes or attain to the velocity of gales, in accord with their nearness to the low pressure areas or the degree to which their pressures are below those of the surrounding regions, and they are called zephyrs, breezes, winds, gales, or cyclones as they have greater speed of movement. Velocities of air movement have been recorded as great as 130 miles per hour before the instruments of observation were demolished, but velocities exceeding thirty miles per hour are unusual.

This movement of air from one locality to another to equalize differences of barometric pressure in the earth's atmosphere, is the primary feature of storms. Transporting air from one area to another exposes it to new temperature conditions, and as adjustment takes place by the flow of heat from the warmer element to the cooler, if the temperature of the air is reduced, its vapor content for the lowered temperature may exceed its new holding-capacity, and the excess moisture may then be expelled from the atmosphere and fall to the earth's surface as rain or snow. It is the lowering of the temperature of the atmosphere so much, that at its new temperature it is unable to hold all the water-vapor present, that creates the change of the invisible waters of the earth to the visible. When this change attracts the attention of man, because of the inconvenience caused him in his daily pursuits by the wetting of his environment, it is commonly named a "storm," but minor precipitations are continually in occurrence from similar causes and, not being culminations of aerial disturbances nor violent in their intensity, they pass unnoticed. The daily fluctuation of temperature in one locality is often sufficient to lessen the water-vapor holding-capacity of the atmosphere at the coldest phase of the cycle; then the cold of the night may cause slight precipitation, and dew, fog, or frost may form, but for precipitation to occur in volume, a movement is necessary of vapor-saturated air to localities of a cooler temperature.

California, spread out along the shore of the Pacific Ocean for a length of 900 miles, experiences favorable meteorological conditions for precipitation in sufficient volume to be called a "storm," only during the season when vapor-saturated air from off the ocean is carried overland to contact with the cooler lithosphere. This season is winter, being one part of the annual cycle of exchange of heat between the sun, earth, sky, rocks, and sea, which gives variance to the daily cycle of exchange from day to night. This annual cycle is caused by the changing inclination of the earth's axis of daily rotation in circling its yearly orbit.

Throughout the summer season, quantities of heat reach the surface of the earth, and this warms the rocks, the soil, and the water. The rocks and soil, requiring as they do a less amount of heat than does water to increase their temperature to an equivalent degree, soon become the warmer. With the coming of the winter season, less quantities of heat penetrate the atmosphere to the earth's crust and a radiation of heat occurs from both land and water. As the rocks and soil readily give up their heat and, having less stored heat than the waters of the ocean, the land area sooon reaches a condition of temperature that is lower than that of the water. It is only at this time of the year that the translation of the ocean air to contact with the cooler land, lowers its temperature enough to produce over-saturation. Thus conditions favorable to precipitation occur as this air, heavy in water-vapor, is moved over the cooler land by the winter winds. Of the seasons intermediate between summer and winter, it may be observed that rains generally fall over the land during the cold of night, since at this time only, is there sufficient contrast in temperature with the inflowing ocean air, to cool the winds enough for precipitation to occur. Even in the dead of winter the heaviest showers occur more frequently at night.

The warmer temperature of the ocean air during winter, compared to the inland atmosphere, is easily perceptible when traveling from San Francisco on the ocean's shore, to Sacramento which is eighty-five miles inland. The United States Weather Bureau records show the mean temperature for January, the mid-winter month, to be 3 degrees higher in San Francisco than in Sacramento, but the temperature changes of ocean winds traveling northerly and landward would be still greater than this. It thus comes about that the rain-producing winds of California are generally from the southwest and south. Flowing off the Pacific, where the air has become heavy with water-vapor through contact with the ocean, the winter winds traveling northward and inland, enter regions of lower temperature, and the capacity of the moving air to hold moisture is reduced, so, heavy with moisture for their temperature as they leave the ocean, clouds are formed as the winds progress inland. If the change is sufficiently pronounced, the watery particles coalesce and are precipitated earthward as rain, snow or hail.

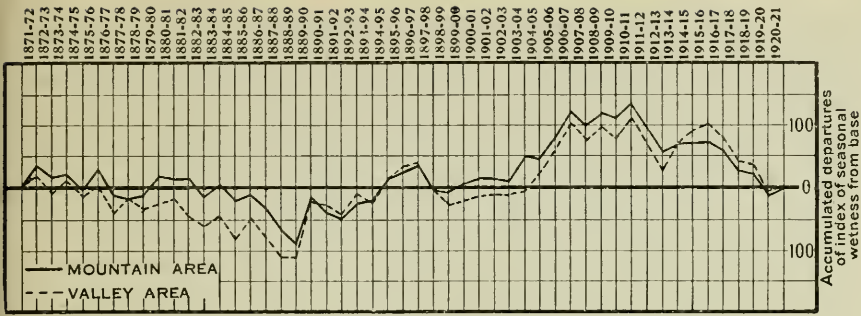
Winds blowing from a land area are not favorable to precipitation, even though their temperature may be reduced on entering a cooler region, for the usual variation of temperature between night and day over the continent, where the air begins its movement, is greater than over the ocean and prohibits its being so nearly saturated with moisture as it starts on its journey. For this reason, in California the southeasterly winds usually produce lighter showers, while southerly and southwesterly winds produce the heavy downpours. Westerly winds may produce light showers but, without northward travel, variations of temperature great enough to discharge large volumes of water from the atmosphere, are not apt to be experienced. Similarly, easterly and especially northerly winds are dry and, except under special local circumstances, they would never undergo a lowering of temperature sufficient to cause precipitation of even a small portion of their moisture. For a like reason, the southerly and southwesterly winds of summer, blowing from off the cooler ocean to the warmer land, do not experience a lowering of their capacity to hold moisture, so that no precipitation occurs. On the contrary, these inflowing winds, warmed by contact with the land, may have their water-vapor holding-capacity increased and become dry winds.

All these air movements toward the low-pressure areas, in sweeping in from long distances, are extensive as to the areas traversed. Impelled by the same power and rushing to the same low-pressure area, similar winds blow over areas of thousands of square miles. In passing over the land, varying quantities of moisture are precipitated along the way, as the winds are cooled to varying degrees, or deflected or diverted by local topography. So rain gages in adjacent locations may register different quantities of rain, all produced from the same widespread storm. The shelter of knolls, of hills or mountains, or of ridges or spurs, may lessen the quantity precipitated on leeward areas, while the more exposed regions may receive an increased rainfall. The greater cooling of the air on moving up slopes and arriving at higher elevations, usually increases the precipitation as well. Since these variations in quantitiy of precipitation vary with topography and elevation, which are fixed in their influence and unchanged with the arrival of new storms in future years, the precipitation taking place in adjacent areas and over which the same storm winds customarily sweep, while not alike in quantity falling, is quite similar in magnitude relative to the precipitation of other years. So the magnitude of precipitation, relative to that of other years, is found to be very nearly alike over whole regions, so much so, that the term "index of seasonal wetness" has been evolved to express this magnitude of the total rainfall for a season relative to the magnitude of other seasons, and this index has like values over entire sections of the state.

The numerical value for the "index of seasonal wetness" at any rainfall station, is the total rainfall for that season expressed in per cent of its annual mean. This mean is the average value for several years of record, and the number of years should be extensive enough that their average approaches a value, which the rains of succeeding years exceed and fall short of in like amounts. The index of seasonal wetness, computed from such a mean, expresses the degree of wetness of the rainfall experienced that season by any locality, in terms of their customary or normal precipitation. These indices for successive years form a series of numbers which bear a relation, one to the other, identical to that of the actual values of seasonal rainfall, but instead of expressing volumes of water as do the precipitation records themselves, they express the degree of normalcy of each season's rainfall. To convert the indices to actual volumes of water, they must be multiplied by the value of the mean sasonal rainfall.

Plate I, "Comparison of Index of Seasonal Wetness in Mountain and Valley Areas," illustrates the similarity in value of relative precipitation in adjacent areas. A mountain area in the Sierra Nevadas is here compared to a portion of the Sacramento Valley which, although several thousand feet lower in elevation, is located in the same storm paths. The indices for six stations of the United States Weather Bureau in each of these areas are averaged and plotted on the diagram. To accentuate any cumulative difference in the values of these compared average indices for the mountain and valley areas, as the years succeed themselves, they are plotted as sums; each value plotted being the sum of all indices for its area, beginning with the initial year and including the value of each successive year up to the one for which the value is plotted. In originally expressing these indices in per cent, each one contains the number 100, which represents the wetness of a year of normal rainfall; the years that had a precipitation above normal are represented by numbers greater than 100; and those that had less, by numbers smaller than 100. In the diagram, Plate I, the transverse heavy line about midway between the top and bottom lines, represents this datum of 100, and this heavy line is intercepted by lightly drawn lines at right angles to it in direction, one to a year, on which are plotted the successive accumulated sums above or below the datum line. But since, in summing the indices of successive years to obtain values for plotting on this diagram, the adding into the sums of the value 100 contained in every index would serve no useful purpose, all the indices had their numerical values decreased by subtracting 100 from them before the additions were made. This, in effect, makes the general direction of the lines on the graph, progress transversely across the paper from left to right, instead of continuously inclining upward as the multiple additions of 100 would have caused them to do, if the 100 had not been first subtracted from each value. The sum plotted on each yearly line becomes greater than the sum plotted for the previous year, if the index representing the intervening season is larger than 100; and similarly the sum becomes less than that plotted for the previous year, when the index of the intervening season is smaller than 100. So the plotted lines traverse the chart parallel to the datum line when the precipitation for the year is normal, slope upward with

PLATE I.



Season	Mountain Area—Auburn, Grass Valley, Colfax, Nevada City, Summit, Truckee		Valley Area—Davis, Sacramento, Woodland, Folsom, Willows, Marysville	
	Mean precipitation at stations, inches	Mean index of seasonal wetness*	Mean index of seasonal wetness*	Mean precipitation at stations, inches
1871-1872	55.50	137	120	24.66
1872-1873	30.87	75	70	13.73
1873-1874	45.20	107	120	23.28
1874-1875	33.44	77	76	14.49
1875-1876	55.48	130	117	22.95
1876-1877	25.70	60	51	9.47
1877-1878	41.21	95	128	24.06
1878-1879	45.39	103	85	16.88
1879-1880	56.95	133	108	20.53
1880-1881	40.86	94	106	20.08
1881-1882	42.55	102	71	13.59
1882-1883	33.57	75	84	16.13
1883-1884	49.55	116	116	22.08
1884-1885	32.03	74	59	11.12
1885-1886	48.16	110	137	26.07
1886-1887	33.67	80	70	13.39
1887-1888	27.96	63	68	12.81
1888-1889	32.63	74	102	19.25
1889-1890	76.98	178	188	35.68
1890-1891	32.80	77	94	17.63
1891-1892	38.43	89	88	16.76
1892-1893	53.46	125	133	24.98
1893-1894	45.48	107	79	15.14
1894-1895	57.08	132	142	26.88
1895-1896	49.90	114	123	23.05
1896-1897	47.33	110	105	19.99
1897-1898	25.85	60	51	9.66
1898-1899	39.43	92	81	15.39
1899-1900	49.95	114	104	20.01
1900-1901	47.83	109	109	20.63
1901-1902	44.24	100	104	19.67
1902-1903	41.56	97	97	18.45
1903-1904	60.04	140	108	20.35
1904-1905	40.91	98	134	25.05
1905-1906	57.25	132	136	25.88
1906-1907	63.50	148	141	27.05
1907-1908	29.49	72	73	13.68
1908-1909	53.61	123	122	23.12
1909-1910	38.98	90	81	15.43
1910-1911	55.32	124	132	25.29
1911-1912	24.39	56	57	10.85
1912-1913	28.01	61	59	11.22
1913-1914	49.71	115	143	26.77
1914-1915	44.65	102	124	23.55
1915-1916	45.18	102	108	20.67
1916-1917	38.04	87	77	14.75
1917-1918	28.34	66	61	11.65
1918-1919	39.90	93	97	18.44
1919-1920	28.59	65	53	10.21
1920-1921	54.42	114	108	20.62
Mean	43.23	------------------	------------------	19.06

*Mean index of seasonal wetness is the mean of the indices of the several stations in the group

MASS DIAGRAMS OF INDICES OF WETNESS SHOWING COMPARISON OF INDEX OF SEASONAL WETNESS IN MOUNTAIN AND VALLEY AREAS

above normal season precipitation, and downward with subnormal precipitation. The steepness of the upward inclinations and the sharpness of descent of the downward slopes, indicate the degree of wetness compared to the mean or normal, of these two areas. The plotted lines pass above the heavy datum line or below it, as the accumulated precipitation, beginning with the initial year, is greater or less than it would have been had all seasons for which the indices are summed, been normal; and the passage across the heavy datum line is without relation to the normality of the year in which the line crosses the datum.

These plotted lines on Plate I, one for a mountain area and one for a valley area several thousand feet below, picture the sequence in values of the indices for the two areas as the lines progress from left to right. The downward slope of a section of a line, where values for successive years continually plot lower and lower approaching the bottom of the chart, indicates a period of consecutive years during which the precipitation is less than normal; in an analogous manner, the oppositely directed sections that pursue a course continually directed upward, show the occurrence of wet periods. Of these inclined sections, their length, distinguished by the number of yearly lines intercepted, represent the duration of these periods and their steepness shows the degree of their departure from normal.

Should it be that the magnitude of the precipitation was not proportional in these two regions which are here compared; that the sequence of values of seasonal precipitation in the one was not duplicated by a like sequence in the other; or that with the appearance of a group of wet years in one area, a group of equally wet years did not appear in the other; then these two lines, one representing a mountain region, the other a valley area, would have deviated from each other as they cross the chart, and as unlike rainfall continued to have occurred in the two regions during the same years, the lines would have departed wider and wider. Instead, the approximate coincidence of the two lines throughout their entire course across the diagram, shows that the slight numerical differences in values of sums, plotted for the two areas in the same seasons, are variables that are wholly circumstantial and are greater or less than zero without preference. The close proximity of these two diagrammatic lines as the precipitation occurrences over one area are duplicated over the other area several thousand feet lower on the valley floor and some fifty miles distant, shows how widespread are the rain-producing meteorological phenomena and how they cause proportionally like events to occur at widely separated places, diversely situated both topographically and geographically and one receiving almost twice the total precipitation of the other.

By constructing like diagrams to present the cumulative sums of the indices of seasonal wetness for every one of the 277 rainfall stations that the United States Weather Bureau has maintained in California for more than ten years, the sequence of magnitude of seasonal precipitation relative to its mean, has been compared over all the state. In so doing, it was found that, although the indices of wetness in all parts of the state tend toward like values, there were groups into which the stations naturally fell. By superimposing these lines in all the various possible combinations of station comparison, it was disclosed that the lines of certain groups were in approximate coincidence, while they diverged, often widely, from the lines of other stations outside the group. Twenty-six natural groups were so distinguished, each with the diagrammatic lines in the group approaching coincidence with the mean line of the group, more closely than they approached, with similar coincidence, the diagrammatic lines of the stations in other groups. These twenty-six groups, segregated solely by the similarity in shape of the diagrammatic lines of adjoining rainfall stations, then, represent the aggregate precipitation records on twenty-six areas, each customarily swept by the same storms. The magnitude relative to the mean, of the rainfall in successive seasons over each of these areas, is alike. The average index for all the stations of a group also represents, with a close degree of approximation, the magnitude of the precipitation at all the stations within the group. This average magnitude relative to the mean, of the seasonal precipitation over the area represented by each of the twenty-six groups of rainfall stations, is set forth in Table 1, "Indices of Seasonal Wetness for Twenty-six Precipitation Divisions." These indices of seasonal wetness express this magnitude of seasonal precipitation in all parts of the state for each of the fifty years tabulated and for each area of the state customarily swept by the same storms.

Plates II to X, "Mass Diagrams of Indices of Wetness Showing Comparison of Station Precipitation to Mean Sequence of Division," present diagrammatic lines similar to those just described, for each of two hundred and sixty United States Weather Bureau Stations that have more than ten years of record. These diagrammatic lines are superimposed one on the other, for all the stations in a group. Twenty-six plats are so presented in these nine plates, one plat to a group or division of the state, and the mean diagrammatic line for each group is shown thereon as a heavy black line. Each group or division of the state has been named for its locality and labeled with a letter of the alphabet, while each rainfall station bears a reference number. The name of each division and its letter symbol are tabulated in Table 1.

Table 4, "Alphabetical List of Rainfall Stations and Summary of Precipitation Data," records every rainfall station used in these comparisons, together with its reference number, its precipitation division, elevation above sea-level, years of record, mean of the years of record, and the fifty year mean obtained by proportional comparison with the longer records at other stations in the same precipitation division.

This table also contains references to Tables 5 to 30, "Records of Precipitation and Table of Computed Indices of Seasonal Wetness for Precipitation Divisions." This series of twenty-six tables, one each to a precipitation division, lists the names of the rainfall stations falling in the group within the limits of each division. The measured seasonal precipitation is there tabulated and alongside is shown the index of seasonal wetness computed from the records of that station. The index is tabulated for each one of fifty years, including those in which no precipitation measurements were made. These indices were all obtained by dividing the seasonal precipitation, either measured, or computed when no measurements existed, by the mean seasonal rainfall for the fifty year period. The rainfall for the years of missing record at each station was computed through simple proportion, by comparing it to the rainfall of other stations in the same group that had

TABLE 1.

TABLE 1. INDICES OF SEASONAL WETNESS FOR 26 PRECIPITATION DIVISIONS.

(See Plate XII, Map showing boundaries of 26 Precipitation Divisions.)

Season	A Upper Pit-Tule Lake-Great Basin Area	B Upper Sacramento Area	C Klamath-Trinity Area	D North Pacific Coast Area	E Upper Eel-Russian River Area	F West Central Sacramento Area	G Feather River Area	H Yuba-Bear River Area	I Tahoe-Carson Area	J American River Area	K Mokelumne-Merced Area	L Mt. Diablo Area	M Marin-Napa-Woodland Area
1871-72	81	111	110	104	125	116	126	141	123	120	122	130	124
1872-73	75	53	54	62	79	63	74	74	65	75	86	79	79
1873-74	71	85	83	100	103	120	105	118	118	100	87	86	101
1874-75	62	51	51	69	73	82	66	72	74	64	61	69	72
1875-76	73	154	118	166	110	112	122	124	124	124	154	131	112
1876-77	197	69	73	92	59	60	61	63	53	62	34	43	52
1877-78	84	182	115	132	164	142	96	98	81	93	112	129	143
1878-79	81	92	87	105	116	78	104	105	85	104	78	79	100
1879-80	150	107	100	131	118	91	123	125	125	125	105	99	109
1880-81	181	127	115	113	104	83	107	112	80	108	87	107	111
1881-82	121	75	80	101	78	65	95	88	120	103	85	69	70
1882-83	74	75	76	90	78	70	80	79	48	82	88	87	83
1883-84	158	98	92	92	75	99	113	112	123	118	135	125	107
1884-85	119	58	83	69	55	54	77	92	68	73	67	66	62
1885-86	165	124	107	142	119	125	116	114	93	115	129	115	128
1886-87	118	60	90	99	63	64	63	72	96	75	68	70	71
1887-88	91	55	88	85	69	66	64	54	43	68	64	78	73
1888-89	116	104	69	74	75	91	100	73	46	76	74	98	96
1889-90	162	198	178	157	150	177	180	182	227	169	174	192	195
1890-91	95	66	81	82	66	93	77	77	101	77	86	86	85
1891-92	89	77	88	81	95	92	103	83	97	90	90	91	90
1892-93	128	117	101	104	120	138	125	121	162	123	132	139	117
1893-94	93	92	158	110	115	80	89	95	115	104	122	111	96
1894-95	100	125	83	100	145	149	125	136	123	128	148	147	138
1895-96	116	120	120	99	114	117	131	125	120	114	104	106	115

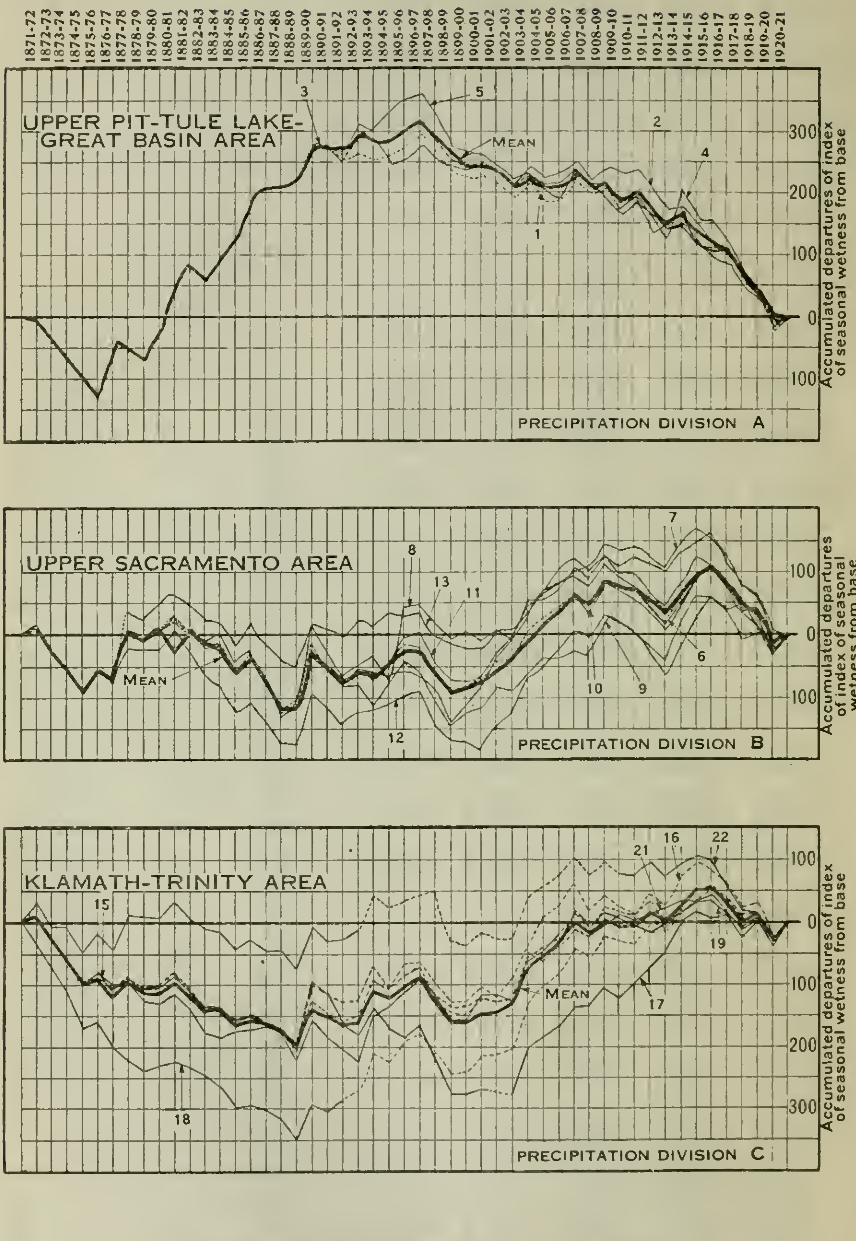
Season	N Santa Clara-Coast Area	O Monterey Bay Area	P Los Banos-Modesto Area	Q San Joaquin-Kings River Area	R Kern River Area	S Southwestern San Joaquin Valley Area	T Salinas-Santa Maria Area	U Santa Barbara-Santa Monica Coast Area	V Tehachapi Area	W Los Angeles Area	X Riverside-Santa Ana Area	Y San Diego Area	Z Owens Valley Area
1871-72	129	127	119	119	120	119	125	79	79	69	56	72	155
1872-73	76	69	91	74	75	74	59	56	56	72	94	65	46
1873-74	89	87	87	100	101	100	95	84	84	134	148	170	162
1874-75	52	73	83	64	64	64	79	96	96	79	84	58	90
1875-76	129	147	123	124	125	124	147	125	125	117	123	102	124
1876-77	32	32	30	60	53	43	35	27	28	44	59	46	43
1877-78	128	149	108	109	140	100	138	116	147	140	137	129	125
1878-79	109	77	59	41	25	36	51	63	56	75	52	56	58
1879-80	91	95	98	134	137	90	106	128	145	134	117	112	123
1880-81	82	103	94	122	96	118	97	73	66	86	73	81	73
1881-82	86	82	65	69	83	56	87	76	44	68	63	82	69
1882-83	94	77	92	85	88	72	85	69	65	80	54	83	62
1883-84	159	124	158	178	181	138	178	214	204	251	229	225	51
1884-85	105	64	71	78	71	66	72	58	65	61	68	78	33
1885-86	124	123	133	169	123	110	150	141	167	147	120	150	61
1886-87	77	60	50	88	86	72	72	83	120	92	74	70	72
1887-88	85	84	59	67	60	74	88	118	134	91	127	110	114
1888-89	92	81	74	92	78	89	113	118	146	127	128	129	99
1889-90	201	191	178	153	119	130	192	166	180	229	164	153	97
1890-91	95	81	80	79	87	83	89	99	91	88	117	130	150
1891-92	88	87	93	102	107	96	72	70	104	77	78	111	89
1892-93	146	129	130	101	94	95	128	139	107	154	117	98	137
1893-94	84	87	81	83	88	58	45	41	101	52	58	67	57
1894-95	136	138	137	119	139	122	110	99	126	116	138	130	92
1895-96	97	93	100	82	91	81	90	65	70	53	58	60	53

TABLE 1.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1896-97	113	97	112	101	105	110	106	111	109	110	124	112	110	105	102	111	107	125	114	99	107	96	102	116	117	92
1897-98	67	60	60	72	67	54	66	60	69	59	62	57	62	50	49	48	56	54	62	34	38	33	49	56	64	36
1898-99	71	68	68	75	87	80	74	84	108	86	89	91	82	89	86	73	82	73	81	71	51	30	40	47	54	52
1899-00	93	112	99	118	100	110	117	109	106	111	103	104	94	86	86	106	102	82	104	73	58	64	58	58	72	77
1900-01	102	102	121	97	100	108	114	106	111	112	129	121	105	117	109	134	137	119	127	142	86	103	111	102	96	135
1901-02	85	131	95	120	122	129	107	95	83	100	97	91	113	96	93	86	75	97	96	89	83	87	63	69	79	87
1902-03	77	108	105	114	101	95	95	94	86	99	108	99	95	94	91	100	81	97	78	78	114	84	110	116	110	46
1903-04	118	144	173	147	151	126	140	139	106	137	108	105	128	98	89	73	81	71	78	73	61	63	56	61	51	65
1904-05	80	121	115	92	116	141	109	103	79	100	108	124	122	115	126	135	132	118	147	130	148	140	123	140	143	148
1905-06	99	117	118	91	119	132	130	133	121	138	139	120	122	121	125	144	148	169	189	113	124	154	125	135	147	122
1906-07	131	123	135	110	126	119	153	138	171	150	148	144	131	137	164	160	131	123	131	147	160	140	139	138	115	122
1907-08	73	85	82	79	78	75	73	71	66	71	64	72	73	73	82	74	81	90	109	93	97	81	78	88	84	131
1908-09	102	147	123	117	145	126	136	130	113	124	119	124	135	133	145	114	113	165	142	144	158	117	128	117	111	145
1909-10	77	82	93	94	88	83	87	99	106	95	98	93	85	84	103	99	95	102	104	101	102	63	87	97	98	123
1910-11	113	100	97	79	88	110	126	127	150	129	133	121	110	133	122	125	132	103	117	152	154	119	113	105	98	144
1911-12	65	76	118	89	72	61	59	60	57	60	62	64	59	64	76	65	73	76	85	77	79	101	75	81	92	87
1912-13	80	81	90	84	87	79	77	72	71	67	58	52	68	45	49	48	66	67	79	46	78	85	74	61	66	103
1913-14	123	140	135	109	141	156	130	120	135	120	117	128	152	125	142	152	123	135	131	140	163	96	156	141	103	257
1914-15	62	130	115	122	132	143	99	101	104	111	114	126	128	128	141	145	124	111	174	147	128	128	110	136	148	117
1915-16	86	106	102	103	102	105	99	104	121	104	94	120	109	105	122	136	123	153	121	118	136	135	129	146	151	209
1916-17	88	76	80	75	78	81	83	87	84	89	82	78	75	82	87	83	88	98	107	108	111	111	94	91	97	131
1917-18	58	66	65	68	59	66	58	61	67	67	77	53	54	51	54	94	91	62	80	84	117	117	83	86	86	92
1918-19	69	86	110	101	89	94	80	85	92	91	89	105	99	111	114	100	81	88	109	82	75	75	61	73	77	91
1919-20	60	48	56	55	51	57	54	64	64	70	76	66	53	65	76	82	91	99	106	71	80	80	99	111	105	89
1920-21	108	119	133	129	128	133	105	112	111	110	110	98	107	104	104	120	95	92	119	85	89	89	101	93	69	60

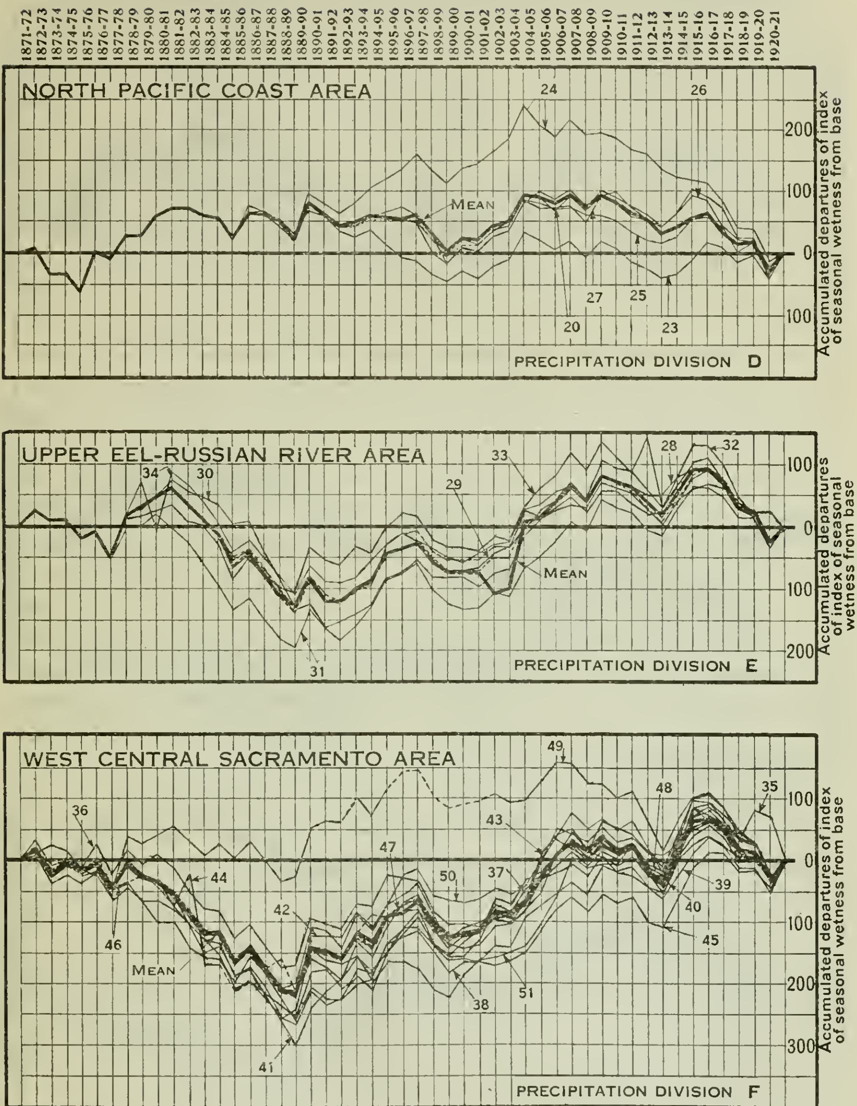
NOTE.—The index of seasonal wetness for a division is the mean of the indices of the individual rainfall stations included within the division.
See Tables 5 to 30, inclusive, for detail data on precipitation and index of seasonal wetness for the individual stations within the division boundaries.

PLATE II.



MASS DIAGRAMS OF INDICES OF WETNESS
SHOWING COMPARISON OF SEQUENCE OF STATION PRECIPITATION
TO MEAN SEQUENCE OF DIVISION

STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES



MASS DIAGRAMS OF INDICES OF WETNESS
SHOWING COMPARISON OF SEQUENCE OF STATION PRECIPITATION
TO MEAN SEQUENCE OF DIVISION

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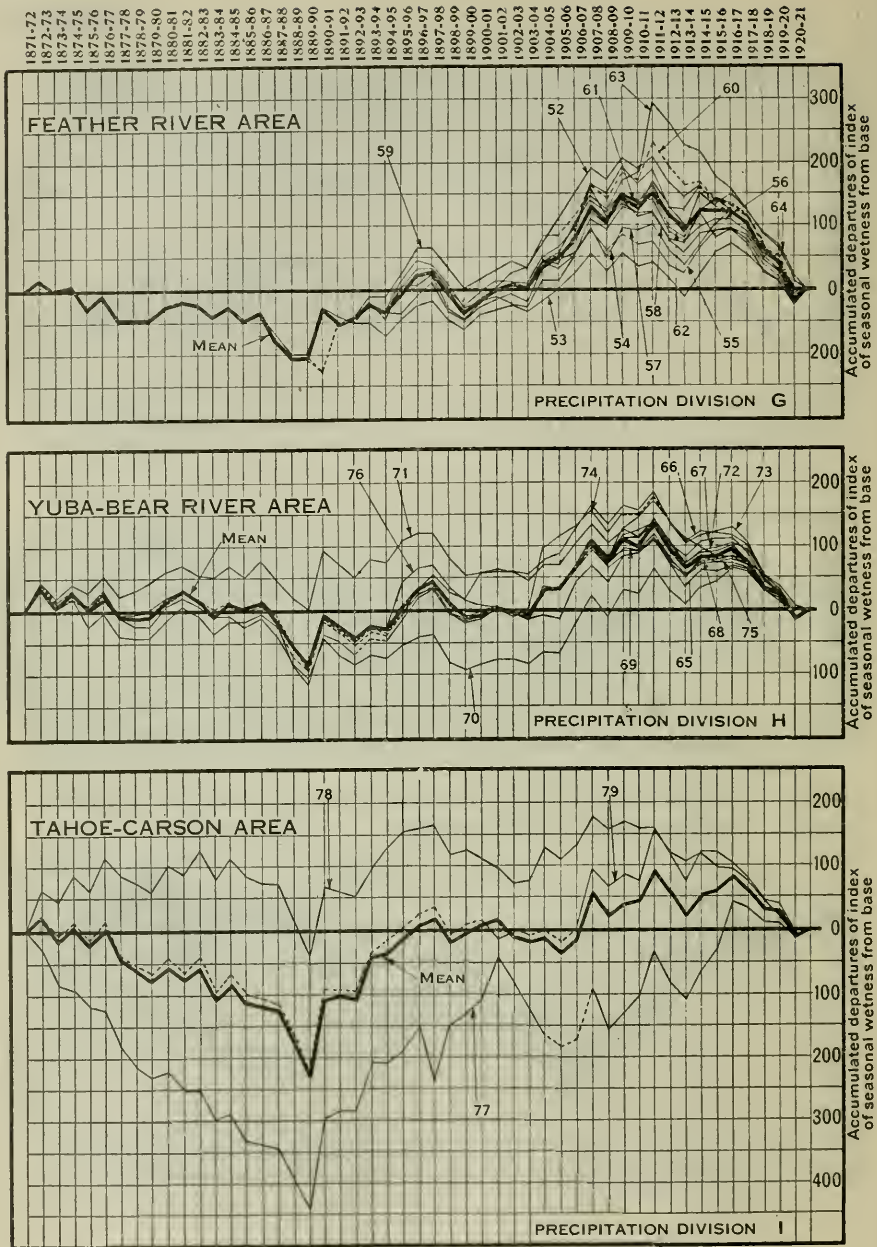
PLATE IV.



MASS DIAGRAMS OF INDICES OF WETNESS
SHOWING COMPARISON OF SEQUENCE OF STATION PRECIPITATION
TO MEAN SEQUENCE OF DIVISION

STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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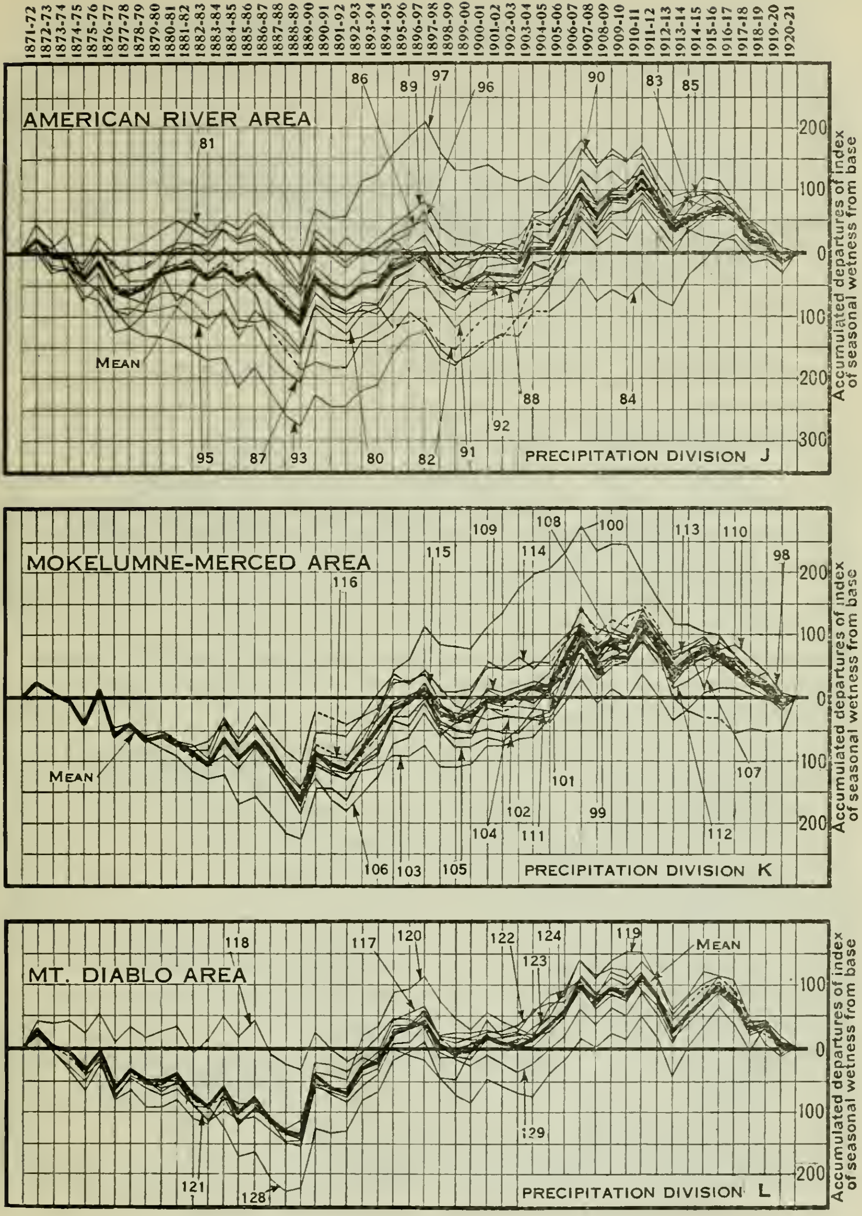

MASS DIAGRAMS OF INDICES OF WETNESS
SHOWING COMPARISON OF SEQUENCE OF STATION PRECIPITATION
TO MEAN SEQUENCE OF DIVISION

STATE DEPARTMENT OF PUBLIC WORKS
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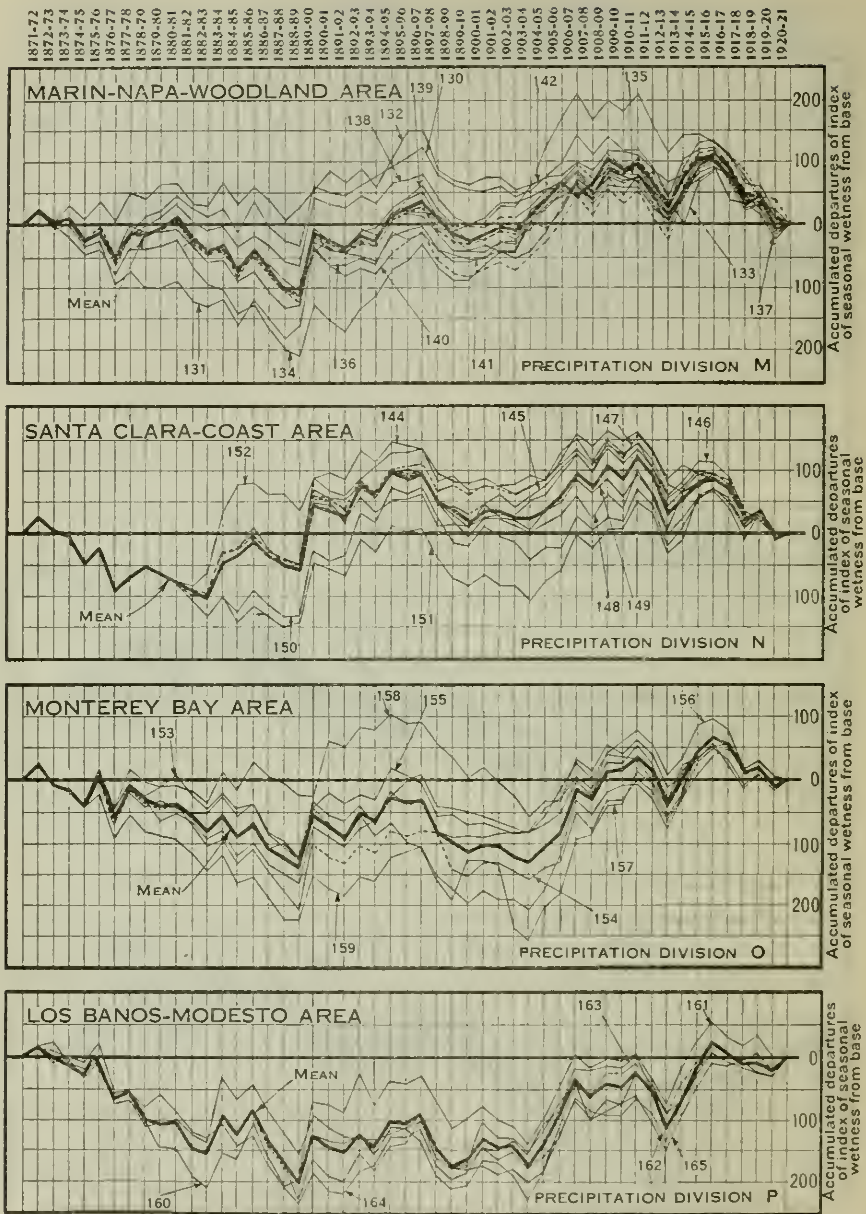
PLATE VI.



MASS DIAGRAMS OF INDICES OF WETNESS
SHOWING COMPARISON OF SEQUENCE OF STATION PRECIPITATION
TO MEAN SEQUENCE OF DIVISION

STATE DEPARTMENT OF PUBLIC WORKS
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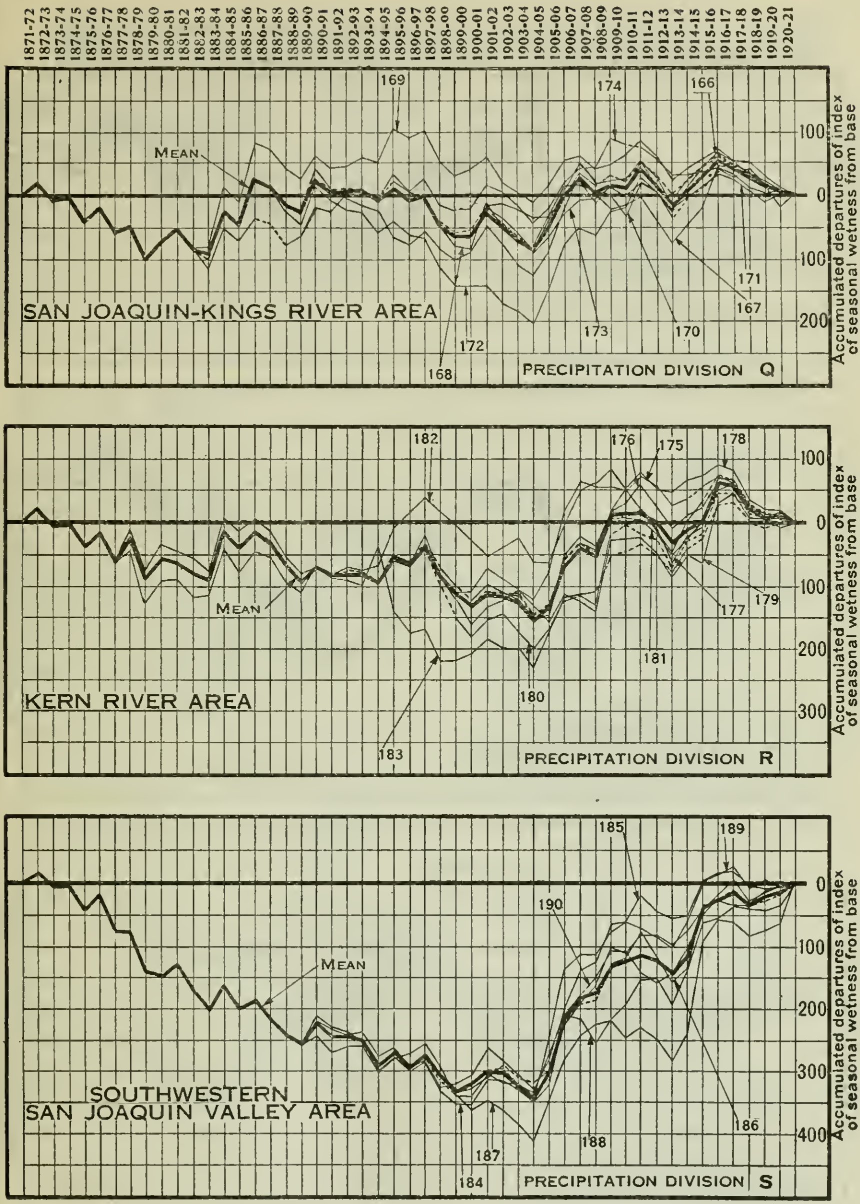

MASS DIAGRAMS OF INDICES OF WETNESS
SHOWING COMPARISON OF SEQUENCE OF STATION PRECIPITATION
TO MEAN SEQUENCE OF DIVISION

STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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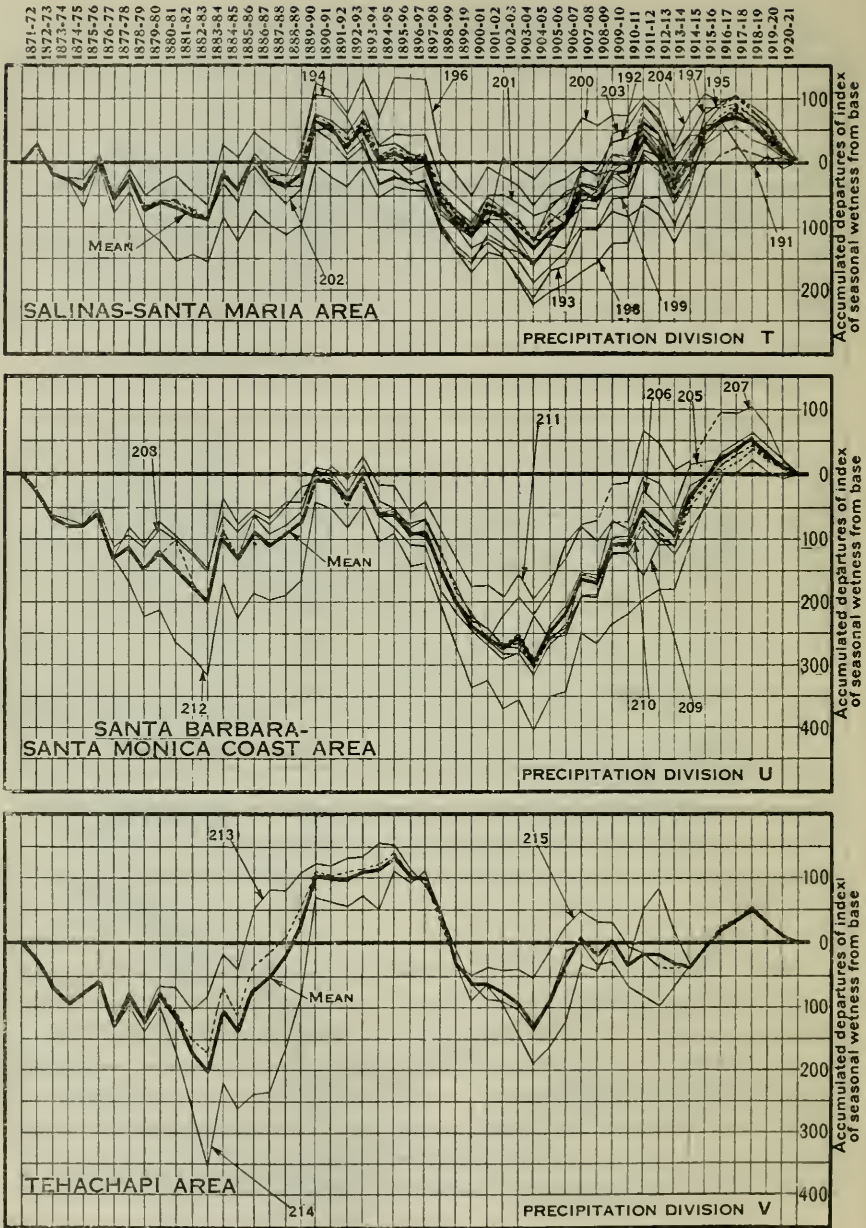
PLATE VIII.



MASS DIAGRAMS OF INDICES OF WETNESS
SHOWING COMPARISON OF SEQUENCE OF STATION PRECIPITATION
TO MEAN SEQUENCE OF DIVISION

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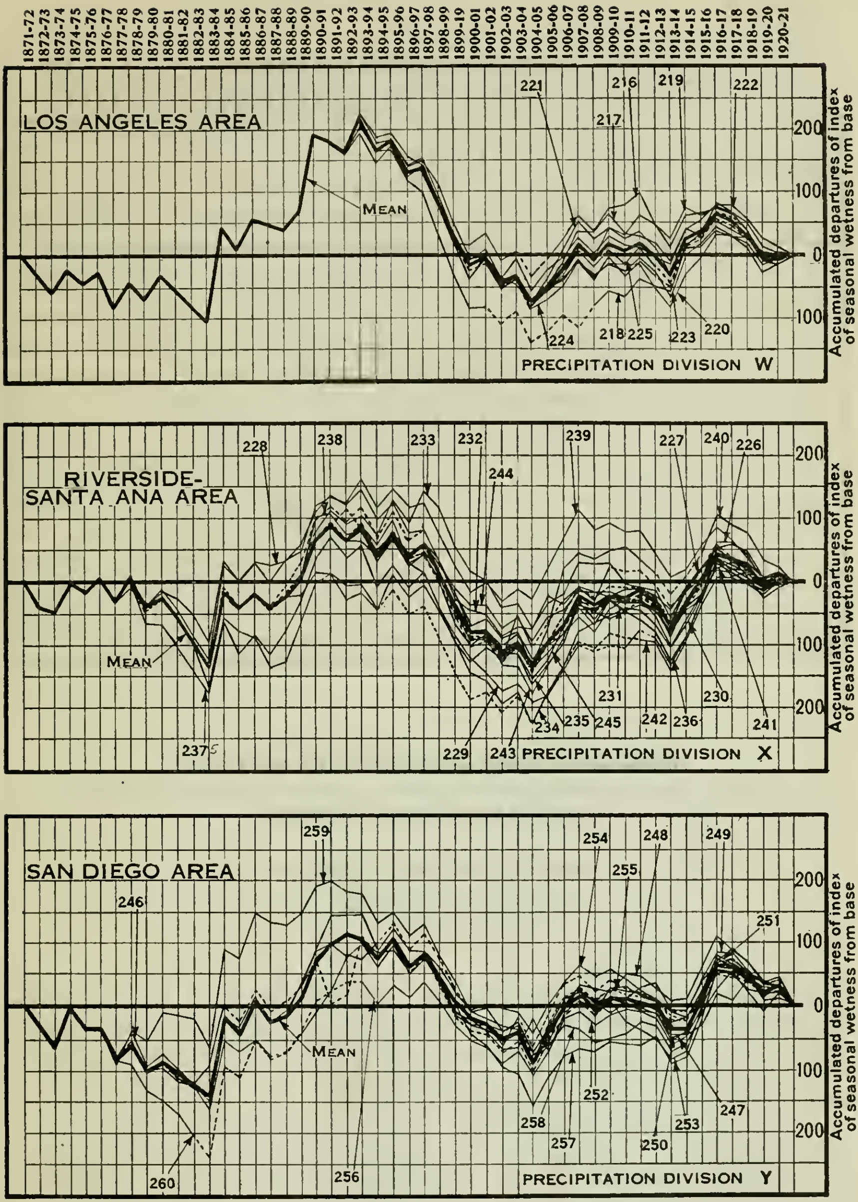

MASS DIAGRAMS OF INDICES OF WETNESS
SHOWING COMPARISON OF SEQUENCE OF STATION PRECIPITATION
TO MEAN SEQUENCE OF DIVISION

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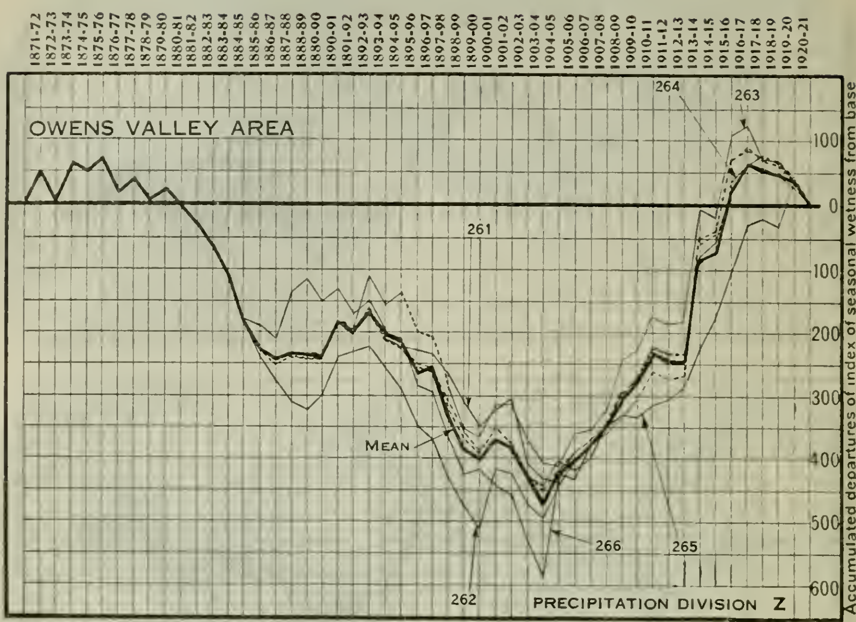
PLATE X.



MASS DIAGRAMS OF INDICES OF WETNESS
SHOWING COMPARISON OF SEQUENCE OF STATION PRECIPITATION
TO MEAN SEQUENCE OF DIVISION

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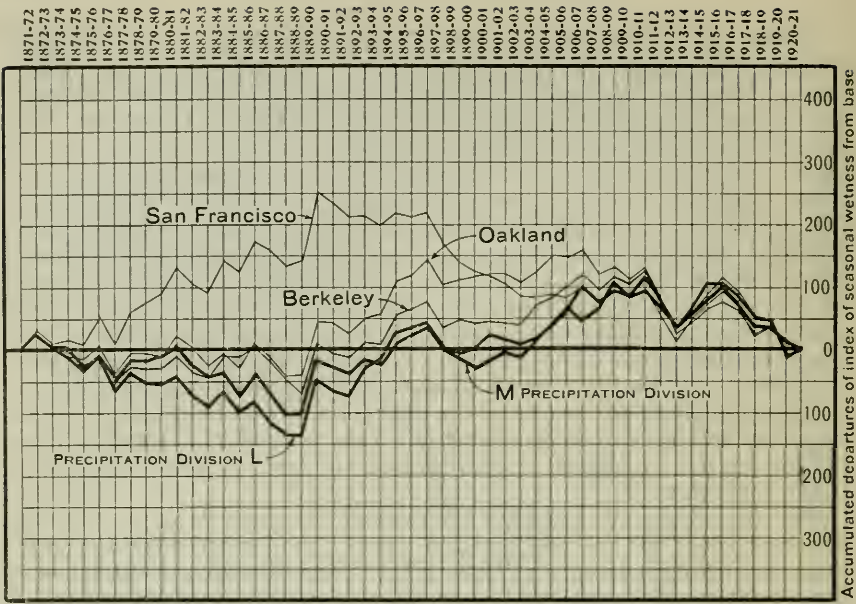
a greater number of years of record. The precipitation for the season of missing record in each case was taken to bear the same ratio to the precipitation for the same season at the stations of longer record, that the average precipitation for the years of record at the short time station bore to the average precipitation for the same period of years, at all the stations of longer record. The fifty year mean seasonal precipitation here used is the average of the fifty seasonal quantities so obtained. It includes all the measured values as well as those computed for the years that lacked a record. The extreme right hand column of each of these twenty-six tables lists the average value for each season, of the indices of wetness of all the rainfall stations in the group. This average value is the index of seasonal wetness for the precipitation division tabulated in Table 1, "Index of Seasonal Wetness for Twenty-six Precipitation Divisions," and used in constructing the diagrammatic lines showing the sequence of precipitation in the division on Plates II to X.

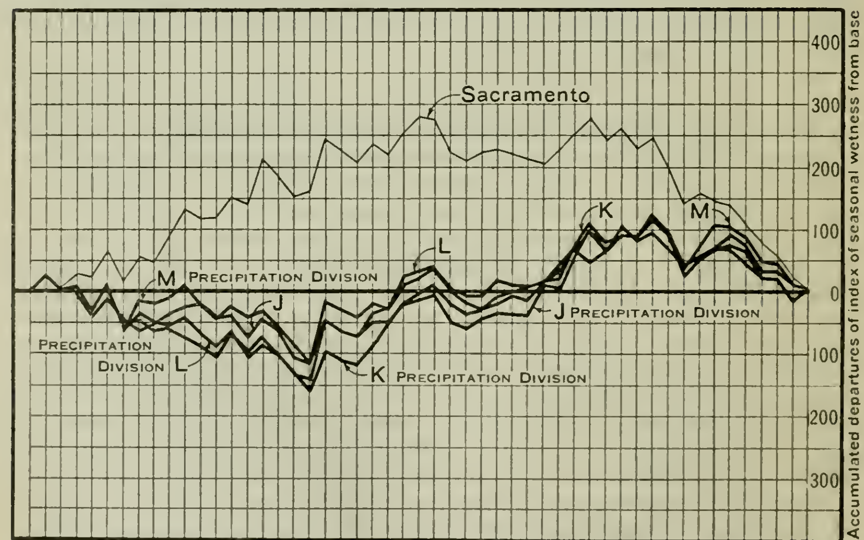
Table 31, "Miscellaneous Precipitation Records, U. S. Weather Bureau," tabulates the precipitation for all stations of the United States Weather Bureau with more than ten years of record, not used in the compilation of indices of seasonal wetness. Excepting those located in the desert region in the southeastern corner of the state, for which no study was made, Tehama, Sacramento, San Francisco, Oakland, Berkeley, and Point Reyes are the only ones omitted. Plate XI, "Comparison of Sequences of Precipitation at San Francisco, Oakland, Berkeley and Sacramento with Mean Sequence of Adjacent Precipitation Divisions," shows why these stations were not included in the study. Although having long years of record, these stations are not like adjoining ones. The decided difference in shape of their diagrammatic lines from those of adjacent stations, of which there are many, and the divergence of these lines from the average lines of adjoining stations as they cross the plat from left to right, show that the sequence of measured precipitation from season to season at these stations is out of harmony with that at the large number of adjacent rainfall stations.

The twenty-six precipitation divisions of the state, developed through the analysis of all the precipitation data of the United States Weather Bureau, are delineated on Plate XII, "Map Showing Boundaries of Precipitation Divisions." The location of all the rainfall stations is shown on this map by red dots and the number close to the dot is the station reference number. On the map, and at the top, the names of all these stations are listed opposite the station reference numbers, which are arranged in numerical order.

This map sets forth the boundaries of these areas of the state, twenty-six in number, which are swept by the same storms. Dissimilar in topography but alike in being customarily traversed by the same moisture laden winds, the land in each area enjoys wet seasons or suffers droughts, in unison. With startling differences in the magnitude of precipitation at the several stations within each area, still their relative magnitude in succeeding years is so much alike that it can be expressed quite accurately by one index number for all the stations within the area. These indices, named "indices of seasonal wetness" show the relation of the seasonal precipitation to the long time mean for every part of the division and for each year of the past, and are a measure of the degree of conformity of each season to the mean. Seasons having indices greater than 100 are wet years, and are wetter the higher the value of the index. Occasionally, years of extremely heavy precipitation have values as high as 200. The dry years have indices falling below 100. and extreme droughts have values of 50 to 60.

Here then, encompassed within the small limits of Table 1, "Indices of Seasonal Wetness for Twenty-six Precipitation Divisions," and Plate XII, "Map Showing Boundardies of Precipitation Divisions," is recorded the history of the variation of seasonal rainfall during the past half century and in every part of the state.





MASS DIAGRAMS OF INDICES OF WETNESS
SHOWING
COMPARISON OF SEQUENCE OF PRECIPITATION
AT SAN FRANCISCO, OAKLAND, BERKELEY AND SACRAMENTO
WITH MEAN SEQUENCE OF ADJACENT PRECIPITATION DIVISIONS

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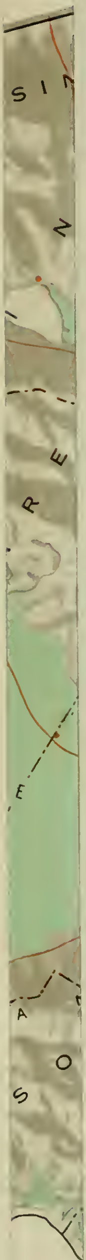
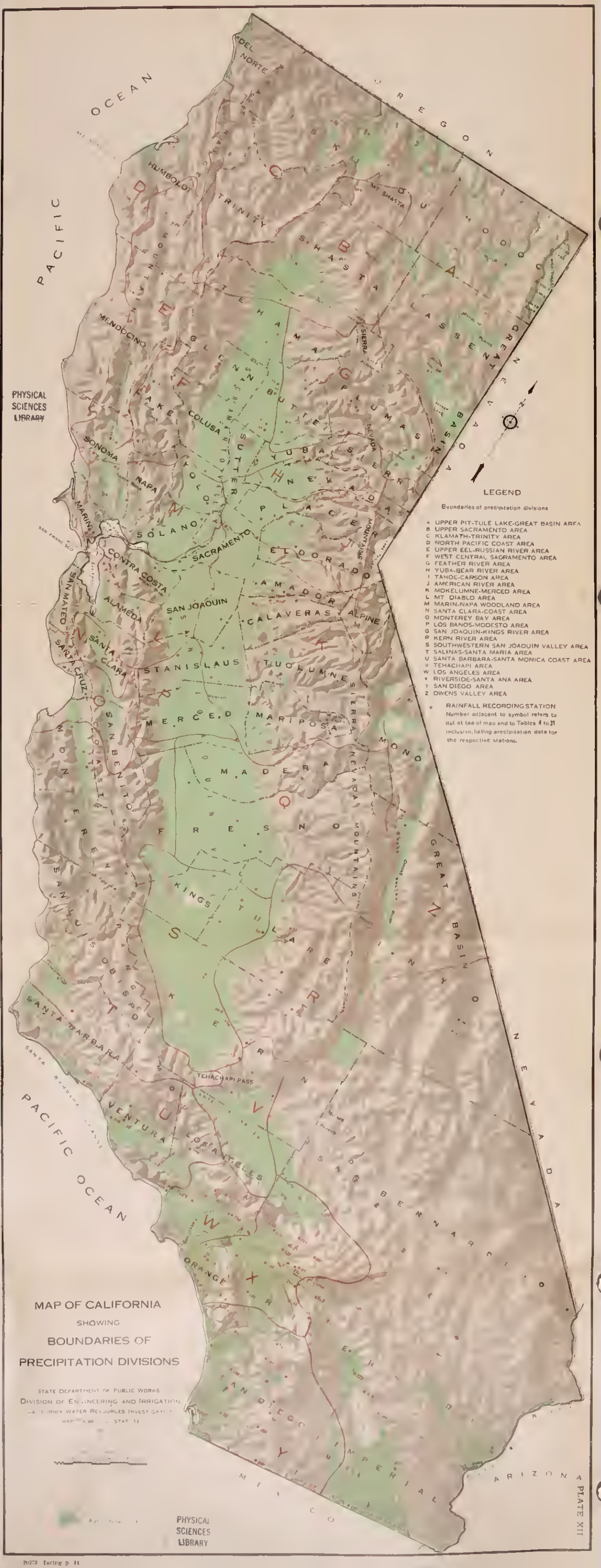


RAINFALL STATIONS—Listed in numerical order

1	Fort Bidwell
2	Cedarville
3	Alturas
4	Madeline
5	Susanville
6	McCloud
7	Sisson
8	Dunsmuir
9	Delta
10	Kennett
11	Shasta
12	Redding
13	Red Bluff
14	Tehama
15	Hornbrook
16	Yreka
17	Montague
18	Walla Walla Creek
19	Orleans
20	Fort Gaston
21	China Flat
22	Weaverville
23	Crescent City
24	Eureka
25	Rhonerville
26	Upper Mattole
27	Fort Bragg
28	Blocksburg
29	Branscomb
30	Willits
31	Ukiah
32	Cloverdale
33	Healdsburg
34	Fort Ross
35	Helen Mine
36	Lakeport (Kono Tayee)
37	North Lakeport
38	Upper Lake
39	Hullville
40	East Park
41	Willows
42	Fruto
43	Orland
44	Corning
45	Chico
46	Durham
47	Biggs
48	Gridley
49	Colusa
50	[illegible]
51	Marysville
52	Palermo
53	Oroville
54	Magalia
55	De Sabla
56	West Branch
57	Inskip
58	Sterling City
59	Edmanton
60	Greenville
61	Quincy
62	Stanwood
63	La Porte
64	Sierraville
65	Downieville
66	Camptonville
67	Head Dam
68	Dobbins (near)
69	Colgate
70	Grass Valley
71	Nevada City
72	Deer Creek
73	North Bloomfield
74	Bowman's Dam
75	Lake Spaulding
76	Fordyce Dam
77	Boca
78	Truckee
79	Tamarack
80	Summit
81	Cisco
82	Emigrant Gap
83	Blue Canyon
84	Towle
85	Gold Run
86	Iowa Hill
87	Colfax
88	Pilot Creek
89	Georgetown
90	Auburn
91	Wheatland
92	Newcastle
93	Rocklin
94	Sacramento
95	[illegible]
96	Shingle Springs
97	Placerville
98	Mill Creek No. 1
99	West Point
100	Kennedy Mine
101	Electra
102	Mokelumne Hill
103	Ione
104	Galt
105	Valley Springs
106	Milton
107	Sonora
108	Groveland
109	Crockers
110	Yosemite
111	Summerdale
112	Merced Falls
113	La Grange
114	Denair
115	Oakdale
116	Farmington
117	Lodi
118	Stockton
119	Tracy
120	Livermore
121	Niles
122	San Mateo
123	San Leandro
124	Mills College
125	San Francisco
126	Oakland
127	Berkeley
128	Antioch
129	Rio Vista
130	Suisun
131	Davis
132	Woodland
133	Guinda
134	Calistoga
135	St. Helena
136	Santa Rosa
137	Peachland
138	Napa
139	Sonoma
140	Petaluma
141	Kentfield
142	Mt. Tamalpais
143	Point Reyes
144	Boulder Creek
145	Ben Lomond
146	Felton
147	Laurel
148	Los Gatos
149	Campbell
150	San Jose
151	Santa Clara
152	Lick Observatory
153	Gilroy
154	Watsonville
155	Aptos
156	Santa Cruz
157	Monterey
158	Salinas
159	Hollister
160	Los Banos
161	Newman
162	Westley
163	Modesto
164	Merced
165	Le Grand
166	North Fork
167	Storey
168	Mendota
169	Fresno
170	Sanger
171	Reedley
172	Selma
173	Hanford
174	Visalia
175	Lemon Cove
176	Milo
177	Springville
178	Hot Springs
179	Kernville
180	Isabella
181	Glennville
182	Caliente
183	Delano
184	Porterville
185	Tulare
186	Angiola
187	Wasco
188	Bakersfield
189	[illegible]
190	Bear Valley
191	Spreckels
192	Gonzales
193	Soledad
194	King City
195	Priest Valley
196	Jolon
197	Parkfield
198	San Miguel
199	Paso Robles
200	Santa Margarita
201	San Luis Obispo
202	Santa Maria
203	Sisquoc Ranch
204	[illegible]
205	Pine Crest
206	Santa Barbara
207	San Miguel Island
208	Ventura
209	Ojai Valley
210	West Saticoy
211	Santa Monica
212	Newhall
213	Tehachapi
214	Mojave
215	Montecito
216	Lowe Observatory
217	Mt. Wilson
218	Pasadena
219	Sierra Madre
220	Azusa
221	Lordsburg
222	Los Angeles
223	Claremont
224	Glendora
225	Upland
226	Lytle Creek
227	Arrowhead Springs
228	San Bernardino
229	Bear Valley Dam
230	Seven Oaks
231	Mill Creek No. 2
232	Craftonville
233	Redlands
234	Riverside
235	Chino
236	Corona
237	Anaheim
238	Santa Ana
239	Tustin (near)
240	Elsinore
241	Beaumont (near)
242	Beaumont
243	Cabazon
244	San Jacinto
245	Idyllwild
246	Fallbrook
247	Aguanga
248	Warner Springs
249	Nellie
250	[illegible]
251	Mesa Grande
252	Escondido
253	Julian
254	Cuyamaca
255	Descanso
256	Poway
257	El Cajon
258	Point Loma
259	San Diego
260	Campo
261	Bodie
262	Bishop
263	Bishop Creek
264	Independence
265	Lone Pine
266	Keeler
267	Glenn Ranch
268	Barstow
269	Bagdad
270	Needles
271	Palm Springs
272	Indio
273	Mecca
274	Salton
275	Blythe
276	Steeley
277	Calexico



CHAPTER III.

RUN-OFF FROM THE MOUNTAIN AREA.

The water-bearing winds that traverse California during the rainy winter season precipitate three hundred billion tons of water annually upon the surface of the State. Most of this falls as rain or snow upon the mountain area. Higher in elevation and cooler in temperature, the mountains are more effective in reducing the moisture holding-capacity of the vapor-laden winds than are the flat lands, so that these winds in rushing toward the low pressure areas, give up much more water to the mountains than to the lower regions. This precipitation, as rain, strikes the surface of their slopes to flow toward lower elevations; as snow, it mantles the earth's surface or collects in wind-blown drifts to await warmer temperatures for conversion to mobile, liquid water that may pursue a like downhill course toward the ocean.

The moving waters, ever journeying to lower elevations, concentrate in the ravines and gullies toward which the surfaces slope. Continually enhanced in volume by confluence with the like accumulations in intercepted channels, they restlessly pursue their downward course, following the most deeply cut depressions or the steepest gradients, until they finally become engulfed in the earth's vast reservoir of waters, the ocean. These ever-journeying waters, falling on the drainage area as precipitation, concentrated on the land surface as run-off, and coursing down the water-channels as stream-flow, reach the ocean as drainage; and so by returning to the storehouse of waters from which they were first vaporized and carried to the mountainous area by the moisture laden winds, they have completed their circuit of travel.

California's water producing area, the mountains, although nearly state-wide, is not uniform in water yield. Influenced by the topography, the elevation, and the exposure of the divers localities, varying amounts of precipitation fall on the collecting areas, and the run-off derived from it also varies in a similar manner. Generally, the run-off is least from the regions near the Mexican border, and greatest in those northward areas of the Coast Range Mountains that are contiguous to the Oregon line. It ranges from less than an inch in depth over the land annually from the least productive regions of the south, to over a hundred inches in depth from the greatest water-producing areas of the north. Between these two extreme regions separated by the length of the state, is the water-producing mountain area, three-fifths the surface of the state.

The variation of run-off in the geographical divisions of this water-producing area, however, is quite similar to the variation in elevation above sea-level, for the higher altitudes, in being most effective in intercepting and cooling the moisture laden winds, are recipient of the largest amounts of precipitation. The cold of their great heights precipitates excess atmospheric water-vapors as snow, solid crystaline water; while the lower regions, warmer in temperature, are recipient of liquid water only, as rain. Distinguishable by the form in which the

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The most elevated of the two great water-producing regions lies above altitudes of 5000 feet, and comprises the peaks and slopes of the highest mountains and the highland flats and meadows. Through receiving a greater precipitation and almost wholly in the form of snow, this region yields the largest volumes of water and sustains the flow in the streams for a more protracted period of time than do the other portions of the State. This water-producing expanse of high mountains, 22,400,000 acres in extent, lies between the 5000 foot contour and its highest elevation, the tip of Mount Whitney, United States' culminating peak, 14,500 feet above the sea. Most of this elevated region lies in the Sierra Nevada Mountains, between Tehachapi Pass and Mount Shasta. Other portions, far less extensive, lie in the Coast Mountains between Clear Lake and the Oregon boundary, and small areas lie in the mountains south of the Tehachapi Pass.

The precipitation on these areas is almost entirely snow, and this, beginning earlier, extends throughout the winter and continues later into the spring months than it does in other regions. Through the dead of winter the entire surface is clothed in a mantle of snow, and huge drifts collect in the more sheltered recesses of the mountain flanks to smooth their outlines and throw the protruding rocks into high relief. Nestling among the crags and crests and filling pockets eroded in their sides, are sixty-five glaciers. These bodies of perennial ice grow in size during the winter months, through the consolidation of the snow falling and drifting on them, but shrink during the summer and deplete their mass, yielding the melted ice and snow waters that give source to the streams which issue from them. The waters of this region remain congealed until the summer warmth melts them, and so, retarded in their run-off, they do not reach the stream channels until May, June and July. Since large amounts of heat are required to release these waters from their chill bondage, the run-off from these areas does not contribute to large floods, but rather enhances the stream flow with fair uniformity during the melting period, fluctuating with the alterations of warm and cool weather.

Below these highland regions, but more than 2500 feet above the sea, is an area 23,700,000 acres in extent, mountainous and rugged of structure, and comprising about one-half the upland area of the state. This expanse includes the eminences of foothills, the secondary ridges, the sloping sides of major mountain chains, the smaller ranges in their entirety, and most of the plateaus and mountain valleys of California. The precipitation over these lands occurs both as snow and rain, though the mantle of snow is of but short duration. Elevated and generally receiving a large precipitation, the wide expanses of this region yield large volumes of run-off. Sometimes melting with subsequent warm rains, the snows of this region join with the run-off of heavy rainstorms and swell the streams to extreme flood height. But since most of the precipitation falls as rain, run-off usually follows quickly after the storms. Streams attain their flood stage during or shortly after the heavier downpours. Most of the run-off occurs during the months of heavy rain, December, January, February and March, but the flow is usually well sustained, nevertheless, from lesser showers and drainage from water-soaked portions of the region, during April and May.

The third region, entirely below elevation 2500, includes the low-lying flat lands of the State, the foothills and rolling slopes of the marginal lands, and the lower mountains. Much of this area is agricultural. Except for occasional light snow storms, the precipitation falling here is entirely rain. Receiving a lighter precipitation and being soil covered and less steep of slope, this region contributes the least to the State's run-off. Its flat lands, lacking the surface inclination to put the water in motion, largely absorb the rains falling upon them, or detain them in pools and puddles or in the saturated top-soil, to be evaporated back into the atmosphere. Only during extremely heavy downpours of infrequent occurrence, do the flat lands contribute run-off to the stream channels. The rains falling on the foothill and mountainous areas of this region, however, usually find their way quickly into the stream channels after the ground surface has become wet. But with a third of the seasonal rainfall often required to soak the surface soil before appreciable run-off may occur, the contribution to stream flow from this area is much less than from the higher regions, it does not begin until mid-winter, and is confined principally to the months of January, February and March. Most of the run-off from this lower region takes place on lands too low in elevation for the shed waters to be caught in mountain reservoirs and. being of short duration and coming at times when all the agricultural lands are soaked with water, is of little value, but rather it is an inconvenience, especially on the flats, where often the construction of flood control or drainage works is required to relieve farming lands of a surfeit of water

The storms traversing California precipitate varying quantities of water upon all of these regions, but in each area a portion only of the falling waters reach the stream channels; the rest is dissipated through evaporation to the atmosphere. This division of waters takes place as soon as precipitation starts and continues throughout the entire course of the water movement. Moisture is evaporated from the falling particles of rain or snow, from the surface of pools or puddles, or snow fields, and from wetted soil areas. Water is also vaporized from the vegetation that grows on the watershed slopes. Much of the water that wets the surface soils is absorbed by the root systems of vegetation so that where trees, bushes and undergrowth are dense, large volumes of water are vaporized into the atmosphere through transpiration from the plant-surfaces. Evaporation from fallen snow may also be large, as it often lies upon the ground for months, exposing vast surfaces from which vapor may enter the atmosphere. Even while the run-off is collecting in the stream channels, and continuing throughout the river's course, additional fractions of these waters are dissipated through evaporation. The aggregate precipitation which may be returned to the atmosphere without becoming stream flow in the lower reaches of the channels, may therefore be as small as one-fourth or as large as three-fourths of the total, according to the contingencies of the season's weather and the circumstances of topography and geology of the area upon which it falls.

Except as it falls on frozen or non-absorbent surfaces, precipitation upon striking the earth must first moisten its top-covering, and it is only after this has become saturated that water gathers on the surface to journey down the slopes of the catchment area. The first rains of the season, less continuous and less intense, are usually taken up in wetting the surface upon which they fall, and run-off occurs only after several inches of moisture have been precipitated. Collecting in puddles and pools or moving down the slopes in streamlets, some of the run-off trickles into seams and cracks of the mountains' rocky structure while other quantities are absorbed by pervious soil coverings. Advancing by the attractions of gravity and capillarity and filling the pores and interstices of the earth's crust, this percolating moisture penetrates to great depths. It finds its way into the rocks, working slowly through the seams and along the faults, sometimes penetrating to the heart of the mountainous structure. Although usually a small portion of the total, these percolating waters are especially valuable to man in their reappearance at lower elevations as perennial springs to moisten meadow lands or to increase the waning summer flow of brooks and streams. For these tardy waters, in penetrating the subsurface regions and pursuing a more dilatory underground course, wet the beds of the stream channels the year round and furnish all or a large part of the dry season flow: they fill the subterranean gravels and reservoirs, and are the principal waters available, excepting in lakes and reservoirs, when the great volumes of run-off that pass in flood flows have subsided. They thus carry over volumes of water, for deferred use during the hot, dry summers, that would otherwise pass down the water channels at a time when not needed. The aggregate run-off from all these regions, however, appears in the stream channels in fluctuating flows having a striking similarity to the periodic occurrence of seasonal precipitation in California. Plate XIII, "Characteristics of Run-off from California Mountains," presents the hydrographs of five streams, each typical of a separate section of the State. These hydrographs show the run-off in each of the five streams, month by month, for a year of maximum flow and for one of minimum flow, as well as the hydrograph of the mean monthly flow of all the years of record. For convenience of comparison, these hydrographs are plotted to show the monthly run-off in per cent of the annual mean. The hydrographs show that in all streams of the State, the bulk of the run-off occurs during the winter months, with meagre quantities flowing in the middle and late summer. The extreme variation between the run-off of the maximum and minimum years, shows the wide limits between which the seasonal run-off occurs in successive seasons, and how, in the minimum year, the usual scanty summer flow is much reduced, and that this takes place much earlier in the season. In general, the water-production of very wet seasons may be as great as four times that of the years of drouth; the average season producing about one-half the run-off of maximum years; and of all the water which wets the stream channels of the State, only one-sixth flows during the five months of August to December, and but one-third during May, June and July, while one-half of all the waters course down the stream channels to empty into the ocean during the four months of January, February, March and April.

This run-off, in draining from the mountains, concentrates at the lowest parts of the many topographic basins comprising their vast expanse. For convenience of study, the smallest of these have been united in groups, and Plate XV, "Map Showing Boundaries of Drainage Basins," delineates the boundaries of these drainage basins or groups of minor basins. Each basin bears a number on this map referring to a table at the side, which gives the name of the stream draining it, or the group of small basins.

Table 32, "Drainage Areas of California," presents a detailed enumeration of the areas in all these drainage basins. These are arranged in the table in the order of their geographic location, grouped in six large topographic divisions of the State. In addition to the total area in each basin, the area draining into each tributary stream is also given, as well as the total area draining to the point of confluence of each tributary with the main stream.

The water production of all these areas has been determined and, of the total run-off from this 52,000,000 acres, two-thirds passes down the channels of the three largest rivers of the State, the Sacramento, the Klamath and the San Joaquin. One half of the remaining waters flow in the six next largest streams.

The State's total water production sufficient in volume to cover 73,000,000 acres one foot in depth, is nearly one-half (forty-eight per cent) derived from the western slope of the Sierra Nevada Mountains. This runs off to join the two large rivers of the State, the Sacramento and San Joaquin. The eastern slope of the Sierras produces only one-tenth as much as the western, or five per cent of the total waters of the State. Similarily, the Coast Range Mountains shed nine-tenths of their run-off on the western side, but their total production is slightly less than that of the Sierras, being forty-five per cent of that for the whole State. The remaining two per cent of the total waters of the State runs off the mountains south of the Tehachapi Pass and this is likewise apportioned, nine-tenths to the western slope and one-tenth to the eastern.

These waters, copious enough to submerge California's agricultural lands to a depth of three and one-quarter feet each year, are shed from mountain slopes replete with moisture, to rush through canyons and to course by agricultural lands of the valleys where they would be invaluable for irrigation if the flow occurred during the dry season. But derived from precipitation, the run-off closely follows the storms and culminates during the rainy season or shortly thereafter, and these waters largely flow past the farming lands while they are surfeited with moisture from the winter rains, to pass into the ocean unused.

CHAPTER IV.

MEAN SEASONAL RUN-OFF FROM THE MOUNTAINS.

Varying from the rush of winter's inundating floods to the meagre flow of summer waters that exude from the pores, seams and crevices, or shallow earth or gravel covering of the mountain structures, the run-off from the mountainous areas of the State concentrates in stream channels, usually in a continuous flow but capriciously periodic in volume. In fluctuating annually with California's wet and dry seasons, the precipitation of meteoric waters to the earth not only furnishes volumes of water to the streams at yearly intervals, but, wave-like, the run-off during each season journeys to regions of lower altitude, swelling the stream channels subsequent to each culmination in intensity and dwindling with each cessation of rainfall. These surface waters moving down the stream channels, are a concentration of precipitation that has fallen on drainage basins many times the areas of the stream beds, so that their gathering in the constricted channels accentuates the varying intensities of precipitation with wave-like swells in the flowing streams.

These waves move down the stream channels as long, slim wedges of water each sliding on a base of length, many times its height. The downstream toes of these wedges are the first storm-waters which find their way into the channels, and the climax in intensity of run-off forms their apex-height, while their upstream edges are the last of the storm's waters draining off the collecting areas. The inclination of their advancing fronts increases with the rapidity of arrival of the culminating intensity of precipitation, and the apex-height of a wedge is proportional to this culminating intensity and the base-length is proportional to the duration of precipitation. In passing down the water channels, these wedges have their speed of movement retarded by the friction of sliding on the bottom and sides of the water courses. With increasing roughness, the advancing front of the wedge becomes steeper and steeper as it progresses downstream and the faster moving waters of the apex-height rush and tumble onward to pile up over the toe-waters of the wedge struggling in their shallower depth to make progress down the rough stream bed. Thus, in extreme instances, "walls of water" appear in rough channels of steep slope after sharp, heavy down-pours.

A new wedge being launched with each fluctuation in intensity of precipitation during a storm, and with each new storm, the seasonal flow occurring in the state's streams is composed of many wedges of water sliding down toward the ocean; some closely superimposed on the rearward slopes of preceding wedges, others separated by wide intervals of time, and all having apex-heights and lengths of base whose magnitude range between wide limits. Increasing variety is also given to the size and sequence of successive water-wedges by the vastly innumerable meteoric occurrences that enhance or restrict the portion of the total precipitation reaching the stream channels. Falling as rain, on water-soaked earth precipitation quickly fills the stream channels but, falling on mountain covering parched by sunshine or dry winds of preceding days, lesser portions of the total precipitation reach them and that more slowly. Falling as snow, but little or none of the precipitation may immediately find its way into streams but rather may be held in banks and drifts, or in fields of ice or snow, until later warm rains or the melting summer sun releases it to start on its oceanward journey. So, the chaotic sequence of rain, snow or hail, winds and storms, or clouds or sunshine, with their changeable intensities and manifold durations, produce successive waves of flow in the stream channels of infinite variation. The average rate at which the volumes of water in these multiformed waves or water-wedges course down the stream channels in any season, including the dwindling, diminutive summer flow after precipitation has ceased or the season's snow is largely melted, is called the mean flow of the stream for the season.

This mean flow for a season, while comprised of many variable wave-like rushes of water, is nevertheless above all, distinguished throughout California by its marked periodic characteristic which recurs regularly each year. Stream flow, derived from precipitation, varies in volume following an annual cycle much like that of the rains with their distinctly wet season and equally pronounced dry season. Plate XIII, "Characteristics of Run-off from California Mountains," presents the average flow, month by month, for five typical California streams. The monthly flow of each stream being expressed on this plat in per cent of the mean annual flow, permits the five graphs to be compared, and their singular likeness in shape for not only the mean year, but also for the year of maximum and the year of minimum run-off, well illustrates the annual cyclic characteristic of the run-off from the state's mountain area.

The general semblance of shape of the hydrographs of the many streams of the State, which are exemplified by those of the five typical streams on Plate XIII, is given variety by minor irregularities caused principally by the geographical position of the catchment area and its elevation above sea level. The drainage basins sheltered by mountain ranges likewise those of lower elevation, in receiving a smaller precepitation, have a greater proportion used in wetting their surface covering so that run-off does not follow precipitation so quickly, especially in early winter, as on the more exposed and elevated areas. However, in the very high altitudes, the snowfall remains congealed in banks and drifts until the occurrence of melting temperatures, so that much of the precipitation on such drainage areas does not run off until several months after its fall, and it is only in stream channels draining these areas high in elevation or those of extensive area that flow persists in large volume for an interval subsequent to the cessation of the winter's storms; but the flow in all streams soon diminishes with the ending of the wet season and the coming of the period during which no moisture is precipitated on the catchment area, and reaches the low flow generally, by the first of August. This extreme depreciation in volume of flow down the stream channels of the state during the late summer is statewide, and is the characteristic of the annual stream flow cycle in California equally marked to the usual great increase in volume of flow during the mid-winter and spring months.

Seasons of heavy precipitation as well as of light precipitation have water running down the stream channels with this same general periodic variation in volume, but the total volume is widely different in succeeding years. The exceedingly great variety of sequences of rain or snow, winds, and clouds or sunshine, their differing intensities and uneven durations in each winter season, all combine in divers relations to make each season's run-off variant. In this irregularly varying volume of total seasonal run-off, that of extremely wet years may be four to six times as large as in seasons of small run-off and the recurring order of sequence of the waves of run-off may never be twice alike as the years succeed themselves.

The average or mean seasonal flow of any drainage basin is the average value of this variable seasonal run-off and is an expression for the water-yield of drainage basins. That this expression may truly represent the average water-production, it is requisite that a sufficiently large number of years of record should be grouped for averaging, that the extreme irregularity in the fluctuation of successive seasonal values may be suppressed; for the mean value obtained from a small number of years of record may alter as additional annual records are included in the group for which the average is taken. A true expression of the water-yield will therefore include so many years in the average, that the inclusion of additional years will not greatly change the mean value. However desirable it may be to encompass long periods of time in this determination of the mean seasonal volume of water running down the stream channels, the number of years of record available is limited by the years during which measurements of the flow in the streams have been made.

The United States Geological Survey through its Water Resources Branch began the measurement of flow in California streams as early as 1894, but observations of flow were made only on the larger streams and not very many gaging stations were established and maintained prior to 1903. In this year, regular measurements were being made on fifty-five streams of the State. Since 1903, this number has been increased to more than 200 stream gaging stations regularly maintained at the present time, and some records are available at about 500 stations. Table 33, "Publications of the United States Geological Survey Containing California Stream Flow Data," sets forth the references to all these data on stream flow observations. In addition to the Survey's gagings, there are many records of flow in various streams throughout the State that have been made by parties other than the United States Geological Survey, but most of the observations made, either appear in the publications of the Survey, or the chronicles are of such short duration that they are of small utility.

The years of stream flow record at each of these gaging stations is graphically portrayed on Plate XVI, "Stream Measurements in California by United States Geological Survey." Here the black cross-bars, opposite the name of each gaging station, are drawn transverse to the lines that extend from the top to the bottom of the page, one to each year. The transverse bars, in intercepting the yearly lines, present pictorially the periods of years through which stream gaging records have been maintained at every station. The longer bars, in intercepting a larger number of yearly lines, represent a longer period of record than the shorter bars, and the years of the calendar during which the stream gagings were made are denoted at the extremities of the intercepted yearly lines. Upon scanning the columns of years on this plate, it may be observed that only sixteen records comprise a period of more than twenty years and that the longest is twenty-eight years. It is also noticeable that there are a large number of records from ten to fifteen years in length.

The vicissitudes of precipitation, and of the meteoric phenomena which determine the amount of water that will run off a collecting area when precipitation falls upon it, are too great for it to be probable that these measurements covering but little more than a decade, would include years representative of all possible values. Their average, therefore, would not truly express the mean annual water-production of their drainage area. That greater numbers of values of seasonal fluctuation might be included in the groups to be averaged, resort was had to the chronicles of precipitation which extend over many more years than the measurements of stream-flow. The United States Weather Bureau has maintained precipitation gages at one hundred and fourteen stations for more than thirty years, at sixty-two stations for more than forty years, and the records of sixteen stations extend to fifty years while three comprise a period of over seventy years. Besides, there are many more with records less than thirty years in length. Of those greater than ten years, there are two hundred and seventy-four.

Plate XVII, "Precipitation Records of the United States Weather Bureau," depicts graphically the years comprised in the record of each station and when it began. The continuance of these measurements through the years is shown by means of black bars opposite the name of the station at which they were made in a manner similar to the display of stream gaging records on Plate XVI. These bars extend transversely across the page from left to right and mark between their extremities on the intercepted yearly lines, the interval during which the precipitation observations were made.

Since the origin of all stream flow is in the precipitation on the drainage areas, its annual volume bears a relation to the annual volume of precipitation. However, the proportion of the precipitation reaching the water channels is not always the same. In years of many light showers, especially if drying winds blow during the intervals between them, a greater fraction of the total evaporates back to the atmosphere than in years of more concentrated precipitation and of dark, dull days separating the storms. Evaporation from snow fields may be great if weather conditions favor it because of their vast areas exposed to the drying atmosphere, and it is apt to be greater if the arrival of melting temperatures is deferred by a long winter season. Also, the division of the precipitation between stream flow and water that never reaches the drainage channels, is influenced by the porosity of the earth's crust and the ease with which precipitation, striking its surface, may percolate to depths beyond the reach of vegetation or of the capillary powers of the soil to bring it back again to be evaporated to the atmosphere. But the waters, which sink into the earth's surface-cover to follow the minute conduits formed by connecting pore spaces in soils or gravels or to traverse the devious seams and fissures in the rocky formation of the earth's outer crust, later appear as hillside springs or seepage at lower elevations and much of them find their way into the stream channels. Because of many such variable influences dissipating precipitation, the portion of the total finally reaching the stream channels may be practically zero in some regions of light rainfall or as large as nine-tenths in areas where the rains are very heavy. A comparison of stream flow measurements with precipitation data reveals that this fractional part of the seasonal precipitation which finally becomes stream flow, varies principally with the total amount falling and that there is a distinct relation between this amount and the quantity running off each drainage area, which differs from that of adjoining areas largely in the degree to which mountain ranges shelter or expose them to storm winds or to which their elevation causes precipitation as snow or rain. This relation is so predominant that it suppresses to a great extent the minor variations in this division of total seasonal precipitation occasioned by the changing manner and order of occurrence during each season of storms and clear weather.

It so becomes possible to develop graphically this relation between the fluctuating values of seasonal precipitation and the amount of run-off from each drainage basin. A ready means of expressing the fluctuating values of precipitation on each drainage basin is afforded by the "indices of seasonal wetness" developed for all parts of the State in Chapter II, "Precipitation." This presentation shows how the precipitation on California lands occurs mostly in storms that sweep over wide areas, and the water-producing region of the State is there divided into twenty-six parts, called precipitation divisions, over which these storms sweep and precipitate annually proportional amounts of rain or snow throughout each division, which are approximately alike through succeeding years. The series of numbers named "indices of seasonal wetness," express this amount of rain or snow for each of the twenty-six divisions of the state in terms of the normal or customary precipitation occurring in that division, and these numbers are tabulated for each of the past fifty years. These series of numbers then represent the numerical relation between the fluctuating values of seasonal precipitation during the half century just past and, in their being a series of numbers proportional to the actual values falling in each of the divisions, are equally as useful as the actual precipitation records for studying their relation to the amount of water running off the drainage basins in each season.

Plates XVIII to LIII, entitled "Curves of Probable Run-off," are graphs of the relation between the wetness or normality of the season's precipitation and the amount of run-off on each of the one hundred and forty major drainage basins or groups of minor drainage basins in California. In constructing these run-off curves the margins of cross-lined paper were numbered beginning at the lower and left corners. On the upper margin they proceed in increasing values transversely across the sheet and represent the values of the "index of seasonal wetness." They extend upward on the side margin and represent the depth of seasonal run-off in inches flowing off the drainage areas. For each simultaneous value of measured seasonal run-off from a drainage basin and of the "index of seasonal wetness" for the precipitation division in which the drainage basin is located, a point was plotted on one of these cross-ruled sheets which is at a distance across the paper equal to the value of the "index of seasonal wetness" on the upper margin scale, and at a distance upward from the lower margin equal to the value of the seasonal run-off on the side margin scale. Points were so plotted on these cross-lined sheets for every available measurement of seasonal stream flow in every one of the hundred and forty major streams or groups of minor streams, and smooth curves were drawn which, passing among the points, average their departures from exact positions upon the curves drawn. Numbers adjacent to the plotted points indicate the calendar year of the last part of the season during which that run-off was measured.

These curves show the trend of the relation between the "index of seasonal wetness" and the run-off from each drainage basin. They pass through many of the plotted points, but due to the variable weather in successive seasons which causes different fractions of the precipitation to evaporate before running off the collecting area into the stream channels, some of the points fall to the side of the mean curves. The sequence of the storms, their intensity, the weather conditions between the occurrence of storms, and the character of successive seasons, all influence this relation to an indeterminate degree. For seasons in which these conditions favor a greater fractional part of the meteoric waters evaporating to the atmosphere, the points tend to lie on the lower side of the mean curve, and for seasons favoring a small evaporation, the points tend to lie on the upper side. Successive seasons of drought or heavy floods may also influence the position of the points, for the quantity of ground water feeding the streams does not change immediately with variations in the annual precipitation. Instead, there is a certain tardiness in response which places these points on either side of the mean curve, according to very recondite relations that obtain in the sequence of seasonal rains and snows, and any one seasonal precipitation may affect the quantity of ground water reaching a stream for a period as long as three years.

Although there are these minor influences which tend to make the relation between the "index of seasonal wetness" and run-off an approximate one, nevertheless the data reveal that when a reasonable number of measurements of seasonal run-off are at hand, a mean curve may be drawn which will not change much in position by procuring and plotting additional measurements.

On this series of plates, XVIII to LIII, which exhibits the amounts of run-off entering all the stream channels of the State in seasons having different "indices of seasonal wetness," some streams have many points on their diagrams indicating that records of their flow have been kept for as many years; whereas others, on which the records are short, have but few points, and a large number of the small streams have no points at all. There are, however, sufficient points on the diagrams to define curves for streams in which seven-eights of the entire run-off of the mountainous area of the State drains off into the ocean.

For the large number of small streams on which measurements have never been made, and for those on which the measurements have been made for too few years to define a curve among the small number of points on their diagrams, the run-off curves were developed through comparison of the characteristics of their drainage areas with the characteristics of the areas for which there are ample records to construct curves. The effect of the magnitude of mean seasonal precipitation, of the usual storm intensities, of the elevation of watershed, and of the absorbency of its surface, upon the shape and position of these run-off curves was investigated, and the comparison of these characteristics of each drainage area provided the means for locating estimated run-off curves on the diagrams for areas from which the run-off had either not been measured at all, or had been measured only for a year or two.

These curves for drainage basins in all parts of the State are generally similar to each other in shape and somewhat similar in position on the diagrams. Because of the unit of value selected to represent rainfall, the index of seasonal wetness, and to represent run-off, the inches in depth over the land; these diagrams as drafted are comparable one with the other and may be superimposed to study the effect of the characteristics of their several drainage areas upon the shape and position of their curves. For purpose of comparing this effect of their characteristics, several plates were prepared which assemble the curves superimposed on each other in different groupings. Plate LIV, "Comparison of Run-off Curves Grouped Geographically," (run-off plotted to inches depth on drainage basin), makes an assembly, placing on one diagram those curves whose drainage basins lie in adjacent localities. Plate LV, "Comparison of Run-off Curves Grouped by Types," (run-off plotted to inches in depth on drainage basin), makes a second comparison of the run-off curves assembling on one diagram those curves which are most alike in shape and position. Comparisons are again made of these curves, first by locality groups and second by similarity of shape and position, on Plates LVI and LVII, but on these plates the unit of value representing the run-off from the drainage basins was changed from inches in depth, used on the two other comparison plates and on all the run-off curves, to per cent of the mean seasonal run-off. By making this change in the unit to which the data are plotted, the resulting curves have an altered relation one with another which affords added means of studying the effect of the characteristics of their drainage areas in changing their shape and position relative to one another on the diagrams.

It was by making the comparisons afforded by these four plates that the run-off curves were developed for every drainage basin in the State of California. Those curves constructed directly from measurements of run-off are for streams which have an aggregate drainage area of two-thirds of the entire mountainous area of the state and which have an aggregate run-off of seven-eights of the total from the state's water-producing area. The curves developed by comparison are greater in number than those constructed directly from measurements, but their drainage areas are the smaller ones and have the lesser run-off. The curves developed by comparison were all obtained by following a uniform procedure and identical scientific principles, and they are based not only on all the information available concerning their own drainage areas, but also upon the knowledge gained from the gagings of run-off on all the measured streams of the State.

These curves indicate the depth of run-off from their respective drainage areas which may occur in a season having a precipitation bearing a relation to the mean, indicated by the "Index of Seasonal Wetness." By the use of the "Indices of Seasonal Wetness" derived for all divisions of the state and presented in Chapter II, the amount of run-off in every stream was obtained from these curves for each year that the flow was not measured, of the fifty for which indices were developed. In Tables 34 to 173, "Seasonal Run-off Data," the values of seasonal run-off for every drainage area in the State are tabulated for the full fifty-year period. The "Indices of Seasonal Wetness" for the precipitation division in which each stream is located, are also tabulated there. In addition, in the column to the right, are printed the values of seasonal run-off measured at the stream-gaging stations and the average fraction of this expresesd in per cent, that occurs in each of the twelve months of the year. Footnotes to the tables show in what way the measured quantities were altered to obtain the total run-off above the main body of agricultural land on the stream, for in many instances the entire drainage area is not tributary to the stream at the gaging station and in others water has been diverted at points upstream. For all seasons in which no measurements were made, the run-off was obtained by entry on the run-off curve with the index of seasonal wetness for that season.

In these tables, 140 in number and one to a stream or group of small streams, is assembled the seasonal flow, either measured or determined by comparison, for fifty years and for the entire water-producing area of the State. The mean value for this fifty-year period is presented as the mean seasonal flow of the stream, since so far as is known the inclusion of additional records would not materially alter this average. The only direct information on this is the rainfall records at Sacramento, San Francisco and San Diego. At these points only, have precipitation records been kept much longer than fifty years and these are for over seventy years. The average value for fifty years in Sacramento is one per cent greater than that for seventy-three years, in San Francisco it is two per cent greater, and in San Diego it is three per cent less.

Table 2, "Mean Seasonal Run-off in California Streams," which follows herewith, presents the values of mean seasonal flow summarized from tables 34 to 173, and gives for each stream or group of streams the reference to the table number in which the detail information is tabulated, and the plate number of the run-off curve used in developing the tabular detail is given in the tables of seasonal run-off data. These values of mean seasonal run-off average the widely fluctuating values of successive years and represent the average quantity to be expected year in and year out, including the large floods of unusual occurrence as well as the floods of lesser magnitude which occur frequently, and also the diminutive flow of the seasons of drought. This is a comprehensive statement of the volumes of water in all the rivers and streams of the state without exception. The geographic location of their drainage basins is shown on Plate XV, "Map Showing Boundaries of Drainage Basins."

TABLE 2. MEAN SEASONAL RUN-OFF OF CALIFORNIA STREAMS.

Run-off table number.	Name of drainage basin.	Drainage area, in square miles.	Mean seasonal run-off.		
			Acre-feet.	Acre-feet per square mile.	Depth in inches.
34	Sacramento River (Upper) above Pit River	568	1,486,300	2,616	49.1
35	Pit River	5,346	4,204,600	786	14.7
36	McCloud	669	1,591,200	2,378	44.6
37	Churn Creek Group	100	83,100	828	15.5
38	Cow Creek	444	510,200	1,150	21.6
39	Bear Creek	137	103,700	756	14.2
40	Battle Creek	366	421,800	1,151	21.6
41	Ink's Creek	34	28,200	825	15.5
42	Payne's Creek	80	84,200	1,048	19.6
43	Backbone Creek Group	178	207,500	1,166	21.8
44	Clear Creek	251	294,900	1,175	22.0
45	Cottonwood Creek	937	913,300	974	18.3
46	Sacramento River at Red Bluff*	9,258	9,929,000	1,072	20.1
47	Mill Creek Group	971	1,157,400	1,192	22.4
48	Butte Creek Group	251	358,400	1,427	26.8
49	Feather River	3,627	5,283,500	1,456	27.3
50	Honcut Creek Group	314	199,400	636	11.9
51	Yuba River	1,200	2,652,600	2,210	41.4
52	Dry Creek	79	49,700	627	11.8
53	Bear River	262	412,500	1,574	29.5
54	Coon Creek Group	210	34,100	162	3.0
55	American River	1,919	3,181,900	1,658	31.1
56	Red Bank Creek Group	109	73,000	672	12.6
57	Elder Creek Group	414	213,000	515	9.7
58	Stony Creek	710	555,000	782	14.6
59	Willow Creek Group	394	92,200	234	4.4
60	Cache Creek	1,195	586,000	490	9.2
61	Putah Creek	655	421,800	644	12.1
62	Orestimba Creek Group	1,340	110,800	83	1.6
63	Panoche Creek	295	27,100	92	1.7
64	Cantua Creek Group	208	12,500	60	1.1
65	Los Gatos Creek	119	9,750	82	1.5
66	Tejon Creek Group	1,341	95,600	71	1.3
67	Caliente Creek	471	45,000	96	1.8
68	Kern River	2,410	760,400	316	5.9
69	Poso Creek Group	576	47,200	82	1.5
70	Deer Creek	110	20,650	187	3.5
71	Tule River	390	141,500	363	6.8
72	Yokohl Creek Group	98	14,800	151	2.8
73	Kaweah River	514	407,900	794	14.9
74	Limekiln Creek Group	201	62,200	310	5.8
75	Kings River	1,694	1,925,100	1,136	21.3
76	Dry Creek	48	4,500	94	1.8
77	San Joaquin River (Upper)	1,631	2,056,900	1,261	23.6
78	Cottonwood Creek	28	2,300	81	1.5
79	Fresno River	270	68,300	253	4.7
80	Daulton Creek Group	66	5,200	78	1.5
81	Chowchilla River	238	67,700	284	5.3
82	Dutchman Creek Group	72	8,300	115	2.2
83	Mariposa Creek	103	12,800	125	2.3
84	Owens Creek	66	6,500	98	1.8
85	Bear Creek	71	7,500	105	2.0
86	Burns Creek Group	171	24,400	143	2.7
87	Merced River	1,054	1,133,500	1,075	20.2
88	Tuolumne River	1,543	2,055,800	1,332	24.9
89	Wildcat Creek Group	59	8,850	151	2.8
90	Stanislaus River	983	1,376,000	1,400	26.2
91	Littlejohns Creek	41	8,150	201	3.8
92	Martells Creek Group	122	14,300	117	2.2
93	Calaveras River	391	316,500	803	15.1
94	Mokelumne River	632	898,100	1,421	26.7
95	Sutter Creek Group	285	93,200	327	6.1
96	Cosumnes River	534	482,000	903	16.9
97	Petaluma Creek Group	139	75,300	542	10.2
98	Sonoma Creek Tributaries	78	35,600	455	8.5
99	Napa River Tributaries	226	115,200	510	9.6
100	Suisun Creek Group	125	52,500	421	7.9
101	Mt. Diablo Creek Group	200	69,800	350	6.6
102	San Pablo Creek	41	17,200	421	7.9
103	San Leandro Creek	44	18,900	433	8.1
104	Claremont Creek Group	83	24,600	297	5.6
105	San Lorenzo Creek	38	16,700	441	8.3
106	Alameda Creek	654	140,900	215	4.0
107	Mission Creek Group	77	25,000	324	6.1
108	Penitencia Creek	22	5,200	232	4.4
109	Coyote River	197	80,100	407	7.6
110	Guadalupe River	52	22,000	421	7.9
111	Los Gatos Creek Group	121	68,500	566	10.6

*Includes all streams listed above and also 145 square miles of agricultural land.

TABLE 2—(Concluded). MEAN SEASONAL RUN-OFF OF CALIFORNIA STREAMS.

Run-off table number.	Name of drainage basin.	Drainage area, in square miles.	Mean seasonal run-off. Acre-feet.	Acre-feet per square mile	Depth in inches.
112	San Francisquito Creek	38	20,700	550	10.3
113	San Mateo Creek Group	84	37,100	439	8.2
114	Smith River	627	3,406,200	5,433	101.9
115	Klamath River	2,320	3,410,700	1,470	27.6
116	Shasta River	803	242,600	302	5.7
117	Scott River	813	521,100	641	12.0
118	Salmon River	734	1,256,400	1,712	32.1
119	Trinity River	2,965	4,447,700	1,500	28.1
120	Redwood Creek	275	837,400	3,042	57.1
121	Mad River	457	1,182,500	2,588	48.5
122	Eel River	3,547	6,040,000	1,703	31.8
123	Bear Creek	82	227,000	2,785	52.2
124	Mattole River	264	1,060,600	4,017	75.3
125	Noyo River Group	780	1,305,300	1,674	31.4
126	Navarro River	273	391,600	1,435	26.9
127	Gualala River Group	623	849,700	1,364	25.6
128	Russian River	1,508	1,416,600	940	17.6
129	Lagunitas Creek	84	89,200	1,062	19.9
130	Salmon Creek Group	230	113,900	495	9.3
131	Bolinas Creek Group	158	36,600	232	4.3
132	San Diego River	207	35,400	171	3.2
133	Santa Ysabel Creek	126	33,000	262	4.9
134	San Luis Rey River	325	59,400	183	3.4
135	Santa Margarita River	690	31,900	46	0.9
136	San Jacinto River Tributaries	330	48,600	148	2.8
137	Santa Ana River Tributaries	460	253,400	551	10.3
138	San Gabriel River Tributaries	280	150,200	536	10.1
139	Los Angeles River Tributaries	167	71,000	426	8.0
140	Malibu River Group	379	54,700	144	2.7
141	Santa Clara River Tributaries	911	222,100	244	4.6
142	Ventura River	226	66,200	293	5.5
143	Jalama Creek Group	242	48,000	198	3.7
144	Santa Ynez River	797	205,500	258	4.8
145	San Antonio Creek	138	22,600	163	3.1
146	Santa Maria River	1,634	207,200	127	2.4
147	San Luis Obispo Creek Group	1,019	222,700	219	4.1
148	Salinas River Tributaries	4,042	961,900	238	4.5
149	Pajaro River Tributaries	1,070	278,800	261	4.9
150	Soquel Creek Group	324	279,900	864	16.2
151	Pescadero Creek Group	222	189,300	853	16.0
152	Tule Lake Group	901	275,200	305	5.7
153	Goose Lake Group	275	32,200	117	2.2
154	Cowhead Lake Basin	24	5,400	222	4.2
155	Surprise Valley Group	379	84,900	224	4.2
156	Madeline Plains Group	548	110,600	202	3.8
157	Smoke Creek Group	188	37,600	200	3.8
158	Eagle Lake Group	498	91,000	183	3.4
159	Honey Lake Group	1,507	330,800	220	4.1
160	Lake Tahoe Basin	499	261,000	523	9.8
161	Truckee River	447	506,000	1,133	21.3
162	West Fork Carson River	67	115,200	1,714	32.1
163	East Fork Carson River	323	309,000	957	17.9
164	West Walker River	405	313,800	775	14.5
165	East Walker River	411	312,300	759	14.2
166	Mono Lake Group	166	215,650	1,301	24.4
167	Adobe Meadows Group	453	53,100	117	2.2
168	Owens River (Upper)	524	278,100	531	10.0
169	Bishop Creek Group	446	341,500	766	14.4
170	Owens Lake Group	216	83,600	388	7.3
171	Mojave River	211	98,200	466	8.7
172	Antelope Valley Group	119	29,700	249	4.7
173	Whitewater River	269	13,500	50	0.9

SUMMARY OF MEAN SEASONAL RUN-OFF OF CALIFORNIA STREAMS.

Name of Drainage Area.	Drainage area, in square miles.*	Mean seasonal run-off, in acre-feet.
SACRAMENTO BASIN	21,420	25,199,500
SAN JOAQUIN BASIN	18,178	12,331,300
SAN FRANCISCO BAY BASINS	2,219	825,300
NORTH PACIFIC BASINS	16,543	26,835,100
SOUTH PACIFIC BASINS	13,589	3,441,800
GREAT BASIN	8,876	3,898,350
Totals	80,825	72,531,350

*These are the sums of the water-producing drainage areas of their streams and groups of streams and are not the total areas of the basins named.

CHAPTER V.

FLOOD FLOW IN STREAMS

Coincident with the progress of civilization, growth of industry, and extension of agriculture that accompanies increase in population, man and his improvements encroach upon new lands hitherto unoccupied. On areas of recent encroachment, attracted there by the superior fertility of the farming lands, man is now waging a contest with the waters of nature for occupancy of hundreds of thousands of acres of river-bottom soil. The conflict, more hazardous in not being continuous, rages at irregular intervals of time, and often several entire seasons pass with man and his works left in peaceable possession of these areas, undisturbed by rising floods. But always, though at intervals, huge volumes of water are poured into the stream-channels from climaxes of precipitation, both prolonged and severe, and these waters, too great to be confined between the low banks of the river-bottom lands, renew the strife with man for occupancy by threatened inundation of these areas. In the contest for occupancy of these regions, man has constructed many miles of earth dykes to stem the overflowing waters; river channels have been enlarged, their crooked courses straightened, relief channels excavated, and divers works built to combat the attacking waters and prevent them from spreading out over the river-bottom lands in the way of the past. In the more advanced communities, these works protect well-kept orchards and acres of high-priced vegetable crops whose wealth-producing powers, abetted by the unusual fertility of the soils, have created many beautiful homes, villages, and towns with substantial public improvements; and well-paved highways interconnect all. Secure in having successfully withstood many attacks, these regions are nevertheless imperiled at times by the rise of waters to heights but rarely experienced, for the occurrence of floods, their size and duration, are the resultant of varying sequential combinations of weather occurrences which produce at their climax, precipitation of unusual intensity or of continuance for protracted periods of time. That these flood-producing precipitations may occur, the atmosphere must be lowered in temperature so much that it becomes greatly oversaturated with water-vapor and precipitates the excess earthward as rain. Unless this temperature is markedly reduced below that at which the atmosphere is saturated, the resulting showers are light and of short duration. Marked reductions in atmospheric temperature take place only when the warm air from the ocean is transported over the cool land by winter winds, and for strong thermal contrasts to occur, air off the ocean is usually transported many miles. To have these winds blow over vast areas and follow previous occurrences of sunshine and clouds in proper order to induce strong temperature contrasts requires such a coordinated sequence of these many meteorological phenomena, that it seldom happens. For every increased degree of thermal contrast produced coincident to widespread wind movements from off the ocean, a more extraordinary coordination of the weather must occur over a large territory for months preceding.

So to create storms of flood-producing magnitude, the sequence of atmospheric disturbances over many localities must have coincidence for considerable periods of time. With the extension of the locality wet by storms, and their increasing intensity, a more complete coordination of weather is required over greater areas for a longer time, and so the less likely is it to occur. Also, the rain-producing tendencies in the atmosphere during the storms must predominate over the influences tending toward their dispersal or toward abation of their violence, in order that the storms may be exceedingly great in intensity or of long duration, and these are least apt to occur in the most complete predominance. Therefore the chance that meteoric events occuring over large areas will unite in harmonious combination to produce great storms, becomes smaller and smaller as the storms become greater. So it is that the storms of great magnitude visit a drainage area at but infrequent intervals, and so it is that precipitations, in visiting the drainage basins in all variations from the almost insignificant summer showers that barely dampen a few acres of ground before again becoming vapor of the air, to the driving, widespread storms that continue in fluctuating intensity through a fortnight or more and drench thousands of square miles of the mountain area, are separated in time by intervals increasingly long on the average as the storms become greater in magnitude. For these reasons, the waters of flood-creating storms pass down the stream channels less frequently as their volumes increase, for generally the magnitude of floods corresponds to the magnitude of the storms creating them.

However, to further complicate the occurrence of conditions that increase the volume of flood waters, the portion of the precipitation shed to the stream channels is not alike for all storms. The absorbency of the surface-covering of the drainage area at the time when the storm waters are precipitated upon it, is most important in determining the apportionment. Often heavy storms have such a large fraction of their waters used in wetting the catchment area, that they do not contribute excessively to stream flow. It is only when a sodden soil, wet to saturation from previous downpours, or when the earth's crust is frozen, that all of the rainfall reaching the earth's surface runs off to the waterways. If, falling instead. on a dry soil or on a surface that is absorbent because of an open and porous structure and whose interstices are not already filled with rain or snow-water, large portions and sometimes all of the precipitation are taken up by the earth's covering and little or none reaches the stream channel to produce floods. But with long-continued storms, even the more porous coverings may become moisture-saturated before their cessation and shed great quantities of water to the drainage channels during the latter part of the downpour. In other instances, when warm rains fall on snow-covered regions, the rain-water may be joined by melting snow to further swell the rising streams and a volume of water may pass down the channels greater than the entire rainfall. These conditions of the earth's surface-covering at the time of the storm, favorable or unfavorable to shed the meteoric waters cast upon it, are largely resultant from the previous weather happenings in the locality; so that to produce large floods, the preceding weather occurrences must not only coordinate to make heavy downpours, but must also coordinate to render the earth's surface on the collecting area capable of quickly turning off nearly all the water it receives. The simultaneous culmination of weather conditions on the drainage area favorable to large and rapid run-off, may be reached in all conceivable degrees of value and so result in floods varying in severity and frequency of occurrence between equally wide limits.

That the long series of meteorological storm-inciting events should so transpire that their climax may precipitate waters on a drainage basin at the time its surface is in favorable condition to shed nearly all the precipitation falling upon it, is an expectancy of still more remote occurrence than that the flood-producing storm should occur. The likelihood of precipitation falling on and running off a drainage area in flood volumes is therefore unusual and the greater the magnitude of the flood, the less usual may be its occurrence. This frequency with which floods of the varying magnitudes may be expected, is therefore of prime interest to man who wages contest with nature for occupancy of the river-bottom lands.

To view the frequency of occurrence of floods in their various volumes and to draw deductions therefrom, special diagrams were prepared to display all the flood-measurements from the records of the United States Geological Survey. These diagrams are Plates LVIII to XCIII, "Probable Frequency of Flood Discharge," and there is one for each of the one hundred and forty streams or groups of minor streams in the state. Points are plotted on these diagrams in such a manner that their position indicates the frequency during the period of stream measurement with which floods passed down the channels, in volumes exceeding certain magnitudes. The scale on the side or longer margin, numbered consecutively from 0.4 to 800, expresses this frequency as the average number of occurrences during one hundred years. While number 1.0 stands for an average occurrence of once a century, the extreme number of 0.4 represents an occurrence once in two hundred and fifty years, and the extreme of 800 represents an occurrence of eight hundred times a century, the equivalent of eight times in one year. The top or shorter margin scale of these diagrams has divisions expressing the magnitude of flood flows in terms of inches of depth to which the volume of water running off in twenty-four hours would submerge the drainage area if spread evenly over its surface. The scale divisions are numbered consecutively from 0.1 inch to 10.0 inches in depth. These values may be converted to the more usual terms of cubic feet per second through their multiplication by the conversion factor that is on the diagrams immediately adjacent to the top margin scale. The less usual unit of inches in depth on the drainage area running off in twenty-four hours was employed to express the volume of flood flows, however, so that all the one hundred and forty streams in the state would have diagrams with scale divisions which are equal in value and numbered alike. This makes all the diagrams comparable, one with another.

The cross-ruled lines on these digrams have not the equal spacing customarily used for technical exposition, but instead, are separated by intervals growing progressively smaller for each successive unit of the scale. The rate of progression by which these intervals become smaller is uniform on all diagrams and is known mathematically as the "logarithmic scale." The artifice of using this special scale is of great value in drawing the curved lines on the diagrams in a mean position to the plotted points and in extending the extremities of the curves to the parts of the sheets where no points are found.

Each point plotted on the diagrams stands for all the flood flows which crested at volumes greater than that shown by the top margin scale, and which occurred a number of times during the period of measurement equivalent to the number of times in one hundred years indicated on the side margin scale. These points cluster on the lower part of the diagrams since the records disclose only the floods which occurred once or more during the period of measurement, and the longest record is twenty-eight years. The point nearest the top on any of the diagrams therefore lies close to the line numbered 4.0 which is an expectancy of four times within one hundred years or once in twenty-five years. Flood occurrences that may not be expected as often as this, are indicated by the parts of the smooth curves extending beyond the positions of the uppermost points. It was to enable the accurate extension of these curves through the mean positions of the points, to parts of the diagrams depicting frequencies of once in one hundred to once in two hundred and fifty years, that the "logarithmic scale" was adopted in spacing the cross-ruled lines. It may be observed that the employment of this scale causes all the curves to take the conformation of a parabola, and that the portion of sharper curvature is well defined by points representing measurements on the diagrams of measured streams, while the extended portion of the curves is gentle in its change of direction and approaches a straight line. Therefore the extension of the curves to the parts of the diagrams without points was accomplished with precision.

Because of the great similarity in shape of the curves when plotted on logarithmic scales, and their comparability resulting from the expression of the volume of flood flows in terms of inches in depth on the drainage area, curves could be developed for streams which have not been measured. Such curves were developed through comparison of the physical and precipitation characteristics of the drainage areas throughout the state. To reveal the effect of these physical characteristics and the usual storm features of the drainage areas, upon the shape of the curve and its position on the diagram, Plate XCIV, was prepared. This plate, "Comparison of Curves of Probable Frequency of Floor Discharge," compares on one sheet, the curves of all the streams. By means of these comparisons, curves were developed for the many smaller streams of California on which no measurements have been made. The curves prepared from measurements as well as all the interpolated curves, are shown on this comparison plate.

All of these curves sweep upwardly from the lower left hand corners of the diagrams, first bearing to the right but rapidly swerving towards the tops of the sheets. Although they approach positions parallel with the up-and-down margin, none of them become vertical even at their upper extremities. Should they have arrived at vertical directions, the values of the flood volumes intersected by them on the upper margin scales would represent the maximum floods which might ever occur regardless of their infrequency. As the curves approach the vertical, their further extensions become so nearly the direction of the side margin scales which are marked off to indicate frequency of floods, that their values on the top margin scales do not alter much as the curves advance on the frequency scales; so that the more nearly vertical these curves become, the less do the infrequent floods exceed the more usual ones in magnitude. The broad swing to the right at the lower end of these curves, in having direction well apart from the vertical, show that the smaller floods mount rapidly in size for slightly lengthening average lapses of time between them.

The continued slight inclination to the right of all these curves at their extreme upper ends and their failure ever to become straight up and down, reveals that the maximum flood flow has not occurred in any stream of the state since white man has resided here, and that the greatest flood yet observed in any of the streams may be exceeded at any time, but only at average intervals that are increasingly long as the magnitude of the flood is greater. The diagram representing the flood flows on Sacramento River at Red Bluff shows that the expectancy of a flood flow having a volume exceeding 250,000 cubic feet per second, is four times in a century; of one exceeding 300,000 cubic feet per second, is once in a century; and a flood exceeding 330,000 cubic feet per second has an expected occurrence of but once in two hundred years; and that still larger volumes may flow down the channel at average intervals greater than this. In general, the diagrams show that floods will occur once in four years in more than double the size that is not exceeded on an average more often than once a year; more than treble this volume once in twenty years; exceeding quadruple this volume once in two hundred years; and at intervals of a few thousand years a flood may be expected in at least quintriple the volume which is exceeded not oftener on the average than once yearly, for even at times of occurrence that are as infrequent as once in two centuries, the curves depicting these natural laws, in still progressing on the diagrams farther and farther into the region of greater floods, indicate that most extraordinary floods may occur at average intervals of once in many thousands of years.

Table 175, "Flood Flow in California Streams," tabulates the greatest flood flows which have been measured, giving the name of the stream, date of measurement, and allied information. The table also gives estimates of the "maximum" flood flow in various streams and presents all the information on measurements and estimates of the larger floods which could be collected.

CHAPTER VI.

EQUALIZATION OF THE PERIODIC RUN-OFF FROM THE MOUNTAINS.

Three-fourths of California's waters run off their mountainous catchment areas to concentrate in the stream channels, hurry down their courses, and pass by the low-lying agricultural lands within forty-five days after their precipitation from the atmosphere. Following the sporadic precipitation so closely, run-off is also irregular in its occurrence but much less so. The lapse of time between precipitation and almost complete run-off, although not long, is still sufficient to merge the stream flow derived from successive storms and run-off passes wave-like down the stream channels, and is fairly continuous through the winter months. However, the long dry summers without rain to replete the supply, cause interruptions in the flow at regular yearly intervals so that run-off is periodic in its occurrence. Still, much of the precipitation on the collecting areas does not join the stream flow quickly, but is withheld by wetting the earth's crust and covering, and were it not that the ever-acting process of evaporation so reduces the volume of retarded waters, their quantities would be sufficient to largely equalize the periodicity of flow. Instead, only minor parts of these retained waters ever reach the stream channels and these are so small in quantity that they do not nearly equalize the floods that quickly follow precipitation.

Of the storm waters that do not immediately collect in the ravines and gullies to start on their oceanward journey, some wet the earth's surface or sink into its porous structure, some are absorbed by the cover of vegetation finding support in the shattered rocks and top-soil, while others remain frozen in snow fields, drifts, or banks until release comes with warmer weather, and they all have continuous contact with the atmosphere except those that percolate to depths belows the earth's surface. This contact with the atmosphere is uninterrupted during the entire period of the water's detention on its catchment area. It occurs over surfaces vastly greater in area than that of the earth upon which the waters were precipitated; for the atmosphere, in adapting its shape with facile consonance to minute irregularities of contacting solids, not only envelops every protruding rock or clod, mound of soil or snow, and every branch, stem or leaf of the grass and trees, but even penetrates the pores separating the structural particles of the snow, soil, and rocks, to still further enlarge the contacting areas. All these surfaces when wet by rain or snow, contact liquid or solid water with the air, and evaporation takes place unless the air be already saturated with water vapor. The saturation in the zones of contact for any but limited periods of time, is prevented however, by the continually moving zephyrs and breezes which mix the atmosphere about and, should any of these surfaces become dry, the moisture within the pores of the soils or rocks, and grass or trees, is drawn to the surface by their capillary powers and remoistens the solid surfaces in contact with the air.

In this way moisture may be brought back to the surface to be evaporated, even after penetrating several feet into the earth's crust. So evaporation is persistently in progress and, effectively and without respite, is reducing the volume of waters delayed in running off the catchment area, and from one-fourth to three-fourths of all the waters that fall from the atmosphere are evaporated.

Evaporation is so active everywhere and at all times, that even the percolating waters, which penetrate below the earth's surface too far for the capillary powers of its covering to draw them back and which are the only delayed waters not subject unceasingly to evaporation, are finally exposed to the air at the springs, meadows, and marshes where they again make their appearance, and give up moisture to the atmosphere. Therefore, although the waters that are delayed more than forty-five days from completing their journey to the ocean's shore, are often large portions of the total precipitation on the drainage basins, they are so immensely depleted in volume before reaching the stream channels, that those finally becoming run-off constitute only one-fourth of the state's waters.

The storms that precipitate these waters on California's mountains in billions of tons annually, especially the large ones in which the greatest volumes of water are ejected from the atmosphere, extend over regions of thousands of square miles and give up proportional amounts of their vaporous burden to the localities traversed. Data are presented in Chapter II, "Precipitation," to show how these storms sweep over great areas including both mountains and valleys alike, and Plate I, "Comparison of Seasonal Index of Wetness in Mountain and Valley Areas," shows how proportional amounts of storm waters fall both upon the low-lying agricultural lands of the Sacramento Valley and upon the mountains thousands of feet higher and distant many miles to the east. So the bulk of the run-off from the mountain area, in occurring within forty-five days after the storms originating it, passes down the waterways at a time when the state's agricultural lands are already replete with moisture, for the same wide-spread storms that drench the mountains precipitate some of their waters upon the lower flat-lands. Therefore the state's waters in the natural regimen of the streams, are largely unavailable for use on the agricultural lands, which need them, but not within forty-five days after the winter rains.

To detain these waters on their catchment area until the summer drouth arrives and then release them to augment the waning stream flow, requires that reservoirs be provided to temporarily store them. With space provided to capture the storm waters which would otherwise immediately hurry down the stream channels, the rapid rush of the state's waters back to the ocean may be arrested. The winter floods may thus be reduced and their useless volumes of water subjected to man's direction in flowing down the water courses. In this way they may be used to wet the dry agricultural lands during the long California summers, or for industrial and domestic purposes that require water during the months of the year in which the stream flow is naturally small.

Artificial storage capacity may thus be made to equalize the erratic flow in the state's water courses for the convenience of man's industrial enterprises, although nature, in retaining large portions of the precipitation on the catchment area, does not substantially alter the periodicity of flow; and should storage be provided in adequate amounts, the entire annual water-production could be made to flow at times useful to man if it were not that some of the waters artificially retarded, return to the atmosphere even as those detained by nature do. However, by providing storage space in concentrated volumes and with small water-surface exposure, man may limit the part evaporated to less than ten per cent. This is very much smaller than the evaporation losses from the vastly greater surfaces of nature's delayed waters; but if floods are held in storage on the collecting areas for more than one season amounts larger than ten per cent may diffuse into the earth's gaseous envelope, although even then they are never as large as from the waters detained by nature.

With the run-off of very wet years as much as four times that of dry ones and the succeeding seasons attaining all manner of intermediate values, the excess waters of very copious winters must often be carried over several years to supplement the flow of deficient seasons in order to completely equalize the periodic run-off. Since the percentage evaporated becomes larger and larger with the lengthening time of detention, the fraction of the total waters of a drainage basin which may be made subservient to man, becomes smaller and smaller as the stream-flow is more erratic in occurrence. In very erratic streams therefore, even when unlimited storage space is provided, not more than fifty per cent of its total waters may be made to subserve man, while in streams of uniform discharge as much as ninety per cent may be utilized.

The degree to which the waters in all the streams of the state appear in erratic volumes, has been analyzed and the amounts made available to man by filling various volumes of storage capacity with flood waters for deferred use, have been determined. To do this, fifty-four plates were prepared, Plates XCV to CXLVIII, "Mass Diagrams of Run-off."

The monthly flow in every stream or group of streams is delineated on these plates for the past fifty years and in such a manner that the sequence of their fluctuating volumes is pictured by the inclinations and curvatures of lines drawn across the diagrams from left to right. These sinuous lines in their cross-wise progress, incline upward during periods of run-off greater than normal and turn downward during times that are below normal run-off; the steepness of their slopes in either case indicates the extent of departure from the average rate for a mean season. Sections that parallel the heavy-drawn zero lines and incline neither up nor down, are periods which have exactly the average monthly rate of mean seasonal flow. These lines sometimes mount higher and higher toward the tops of the diagrams as the accumulated run-off of successive above-normal seasons becomes greater than the simultaneous accumulation would have been with average flow all the while. At other times they turn downward and during series of below-normal years, approach the lower margins. In pursuing these flexural paths, the sinuous lines cross the heavy zero lines whenever the summation of run-off, accumulated since the first year of the diagrams, exactly equals the accumulation had the rate of run-off always been average; and this may occur on either upward or downward inclinations.

To give values to these departures from the average rates of stream flow, the plates have numbers spread along their margins. The upper margins represent time and the fifty equal intervals intercepted by the heavier up-and-down lines, are each a season of the half century of run-off portrayed on them. The years of the successive seasons are printed along these margins, starting from the left border. Also, each seasonal space is divided into three-month periods by lightly drawn up-and-down lines. The side margins of the plates have numbers increasingly large as they extend above and below the heavy zero lines which cross the sheets. In multiples of ten, one for each equally spaced cross line, these numbers denote volumes of water and the space between their lines represents ten per cent of the mean annual flow in the streams.

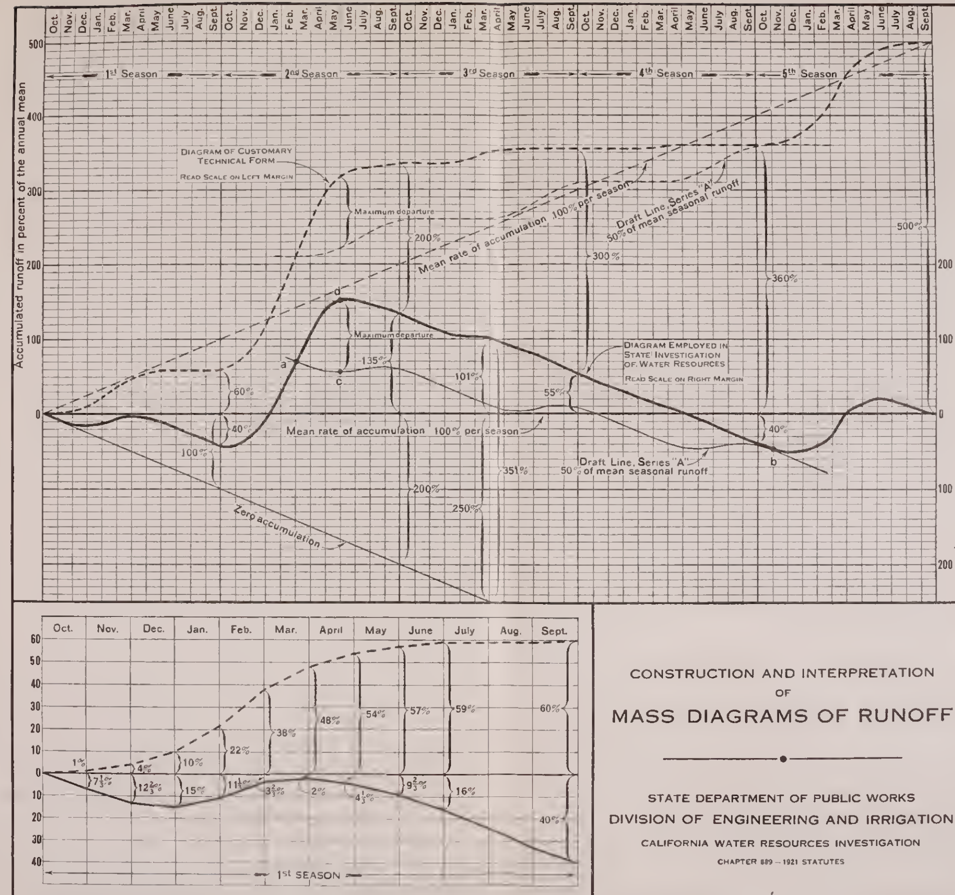
Beginning at the left in the first of the fifty years, the values of the successive total accumulations of water were plotted month by month, and the sinuous lines of the diagrams drawn through them. These values were summed progressively while expressed for each month in per cent of the mean seasonal run-off, but instead of retaining the superfluously cumbersome number one hundred in the summations of these percentages, one-twelfth of it was subtracted from each progressive monthly sum. Then, the actual net value added in each instance, was the departure during each month from one-twelfth of the mean seasonal run-off which is the average monthly rate of flow for the mean season. This mode of expressing amounts of accumulating waters in percentage values of their departures from amounts that would have accumulated at the average rate of flow, is a technical device to reduce labor in the arduous study of equalizing the periodic stream flow, which would otherwise be so voluminous in figures by the time computations were made for all the streams of the state and for every desired location on each stream, that years of labor would be required to complete it. The artifice in effect, so reduces the size of plates necessary to delineate the mass diagrams that it has become possible to print them in this volume, and it so decreases their total number, that only one-sixth as many diagrams had to be drafted as would have been necessary if the customary method of technical expression had been employed.

Plate XIV, "Construction and Interpretation of Mass Diagrams of Run-off," graphically compares the diagram of accumulating masses of water resulting from this adopted mode of expression, to the form of the mass diagram of customary technical procedure. In both cases, however, the monthly run-off is expressed in per cent of the mean seasonal; but in the mass diagram of usual construction, the values do not have the one hundred per cent eliminated from the sums, so that its form is identical to the ones of common practice which are constructed in standard units of run-off such as the acre-foot or gallon. The plate has dimension lines and figures which show the relation between the two mass diagrams and their component parts, and how they were both drafted from values of monthly run-off which are tabulated to one side of the sheet. Although the standard diagram is not in the usual unit of volume, it will be readily recognized as customary graphics and the perusal of Plate XIV will show that the form of diagram used in these investigations is identical in principle to the usual form and differs from it only in mode of expression, and that both may be employed in the art in exactly the same way.

DATA FOR CONSTRUCTION OF EXPLANATORY MASS DIAGRAMS.

Month	Monthly run-off in acre-feet.	Monthly run-off in per cent of mean seasonal run-off.	Progressive monthly summations of actual run-off while expressed in per cent of mean seasonal run-off. (Summation of column 3.)	Progressive amounts that would have accumulated at the average rate of run-off, in per cent of mean seasonal run-off.	Departures of progressively accumulated actual run-off from amounts that would have accumulated at the average rate of run-off, in per cent of mean seasonal run-off. (Difference of columns 4 and 5.)
1	2	3	4	5	6
First season—					
October	1,200	1	1	8⅓	— 7⅓
November	3,600	3	4	16⅔	—12⅔
December	7,200	6	10	25	—15
January	14,400	12	22	33⅓	—11⅓
February	19,200	16	38	41⅔	— 3⅔
March	12,000	10	48	50	— 2
April	7,200	6	54	58⅓	— 4⅓
May	3,600	3	57	66⅔	— 9⅔
June	2,400	2	59	75	—16
July	0	0	59	83⅓	—24⅓
August	0	0	59	91⅔	—32⅔
September	1,200	1	60	100	—40
Second season—					
October	9,600	8	68	108⅓	—40⅓
November	22,800	19	87	116⅔	—29⅔
December	37,200	31	118	125	— 7
January	52,800	44	162	133⅓	+28⅔
February	54,000	45	207	141⅔	65⅓
March	57,600	48	255	150	105
April	50,400	42	297	158⅓	138⅔
May	25,200	21	318	166⅔	151⅓
June	10,800	9	327	175	152
July	3,600	3	330	183⅓	146⅔
August	2,400	2	332	191⅔	140⅓
September	3,600	3	335	200	135
Third season—					
October	0	0	335	208⅓	126⅔
November	0	0	335	216⅔	118⅓
December	1,200	1	336	225	111
January	2,400	2	338	233⅓	104⅔
February	6,000	5	343	241⅔	101⅓
March	9,600	8	351	250	101
April	4,800	4	355	258⅓	96⅔
May	0	0	355	266⅔	88⅓
June	0	0	355	275	80
July	0	0	355	283⅓	71⅔
August	0	0	356	291⅔	63⅓
September	0	0	355	300	55
Fourth season—					
October	0	0	355	308⅓	46⅔
November	0	0	355	316⅔	38⅓
December	0	0	355	325	30
January	1,200	1	356	333⅓	22⅔
February	1,200	1	357	341⅔	15⅓
March	2,400	2	359	350	9
April	1,200	1	360	358⅓	+ 1⅔
May	0	0	360	366⅔	— 6⅔
June	0	0	360	375	—15
July	0	0	360	383⅓	—23⅓
August	0	0	360	391⅔	—31⅔
September	0	0	360	400	—40
Fifth season—					
October	3,600	3	363	408⅓	—45⅓
November	3,600	3	366	416⅔	—50⅔
December	10,800	9	375	425	—50
January	20,400	17	392	433⅓	—41⅓
February	26,400	22	414	441⅔	—27⅔
March	45,600	38	452	450	+ 2
April	24,000	20	472	458⅓	13⅔
May	18,000	15	487	466⅔	20⅓
June	8,400	7	494	475	19
July	3,600	3	497	483⅓	13⅔
August	1,200	1	498	491⅔	6⅓
September	2,400	2	500	500	0

Mean seasonal run-off, 120,000 acre-feet.



CONSTRUCTION AND INTERPRETATION
OF
MASS DIAGRAMS OF RUNOFF

STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 — 1921 STATUTES

These mass diagrams, Plates XCV to CXLVIII, in expressing the manner of occurrence of flow in all the streams of the state during the past fifty years, are emblematic of its irregularities and were used to determine the part of the entire flow that might be equalized by providing various volumes of storage capacity on each stream. That such uniform equalization might be attained and so completely that it would, without question, be of the greatest service to man, waters flowing at irregular intervals were not included in that part of the stream flow which was regarded as equalized. Instead, with the storage in operation, only the fraction of all the waters in the streams was regarded as equalized that would have passed down the channels apportioned among the months of the year in accordance with irrigation needs, year after year, without fail, throughout the entire fifty seasons. These irrigation needs have been taken from Appendix B[1] of this report, in which the seasonal water requirements for all localities of the state have been apportioned among the months of the year. From these apportionments, expressed in per cent of the requirements for the entire season, five typical monthly divisions have been evolved. These were selected so that the needs of every locality are closely represented by one of the five types.

Plate CXLIX, "Irrigation Draft Lines for Storage Studies," presents these five typical monthly divisions of the total seasonal waters needed for irrigation. They are expressed as drafts or demands on the streams for waters to supply them. For each one, a series of lines graphically delineates the way masses of water would accumulate if the rates of accumulation were always adequate to supply these demands. Each series of lines is labeled with one of the letters A to E and they are all plotted in identical units and to the same scales as plates XCV to CXLVIII, "Mass Diagrams of Run-off." The several lines in each series represent different total seasonal drafts but have the same apportionment of water among the months. Since the total seasonal drafts are always less than the average stream flow, the draft lines have a general slope downward to the right and away from their zero lines; for their accumulating masses of water differ by ever increasing amounts from the simultaneous accumulations of average stream flow.

The draft lines were successively superimposed on the mass diagrams to compare them with the various sections of the sinuous lines depicting run-off, and to see how the actual manner of passing of the waters down the streams is like the manner which would have been necessary to put portions of the flow to complete use. Comparisons were made on the diagrams of every stream in the state and the differences noted between the erratic orders of actual stream flow and the uniform orders of flow that would enable complete use to be made of specific portions of their waters. In these comparisons, only one series of draft lines was superimposed on the diagram of each stream and the series was used which has a monthly division of the seasonal supply most nearly fitting the needs of the areas irrigable from that stream.

When placed on the mass diagrams, the draft lines, in taking more regular courses on the sheets, intersect the windings of the sinuous lines representing the run-off. The distances between successive points of

[1]Irrigation requirements of California lands.

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When placed on the mass diagrams, the draft lines, in taking more regular courses on the sheets, intersect the windings of the sinuous lines representing the run-off. The distances between successive points of

[1]Irrigation requirements of California lands.

intersection of these two lines, referred to the upper margin scales, are the periods of time during which total run-off and total drafts are exactly equal. That the two lines depart from each other between the intersection points, shows that the run-off during these periods of equal totals did not occur at the draft rates but at other rates either greater or less. When greater, the sinuous lines of run-off climb upward above the draft lines and when less, descend toward them. The departures of these two lines from one another then represent total volumes of water that the natural regimen of the streams may be in excess of, or in deficiency to, the total drafts since the beginning of the period; and the maximum departures, when the run-off is in excess, represent the amounts of water which would have to be caught in storage on the upper course of the stream and released later for augmenting deficient natural flows, in order to equalize the run-off during this period of time with complete uniformity. By superimposing the draft lines on the mass diagrams so that they just touch the sinuous lines at the lowest part of their long downward inclinations to the right where they are about to turn upward, the draft lines intersect, somewhere off to the left, steep upward inclinations of the sinuous lines. The periods of equal total flow and draft represented by the space between these two intersections, then close at times when the stream flow is changing from below normal to above normal, for the run-off lines ascend upward from the draft lines for distances to the right. The equalization of stream flow through all periods which have such closures, completes the equalization for the entire fifty years of diagrammed run-off except for occasional time intervals during which the run-off was greater than normal and consequently in excess of the draft and not requiring equalization.

Plate XIV, "Construction and Interpretation of Mass Diagrams of Run-off," shows a draft line superimposed on a mass diagram of run-off so that it is just tangent at one of these lower points of contra-flexure, marked "b." The intersection to the left is marked "a." The maximum departure of the run-off line from the draft line is labeled "cd." Then, if storage capacity in the amount of "cd" to the scale of the drawing, is provided on the stream, the flow during the period of time "ab" may be equalized by it to yield the uniform demand represented by the draft line which is superimposed on the mass diagram. Since the sinuous line turns upward to the right at the point "b" and continues above the draft line for times after, the run-off will be more than sufficient to supply the draft following the close of the period "ab."

Superimposing in this way, the various draft lines on the mass diagrams so that they touch the sinuous lines at all the lower points of contraflexure, the greatest departures between their intersections were scaled. The largest of these departures for all trials of one draft line, was recorded as the storage capacity required to equalize the run-off sufficiently to yield the draft according to the line used. In being adequate to equalize the flow during the period in which the actual stream flow departed most widely from the uniform draft, this capacity would be more than adequate for all other periods between intersections and so through its operation, would make possible without fail, a uniform draft on the stream throughout the entire fifty years in accordance with the rates expressed by the draft line which was superimposed on the mass diagram.

The findings from all the superimpositions, made in this way for all the streams and for all rates of draft, are plotted on thirty-six plates, CL to CLXXXV, "Storage Development Curves." On them, is one diagram for each stream or group of minor streams which show by curved lines, the fractions of the average flow in the streams that may be equalized by constructing storage capacities in any volumes. The fractions of the average flow are expressed in per cent of the mean seasonal run-off by the numbers on the left margins. The numbers on the upper margins express the storage capacity also in per cent of the mean seasonal run-off. The values on these two scales corresponding to the same point on a curve, define that part of the run-off which will be made available for irrigation draft in uniformly equalized flow by construction of the storage capacity indicated on the upper margin.

These curves are seen to be parabolic in shape and much alike for all streams. As they mount upward to show yields of larger portions of the total run-off, they become flatter and spread out more to the right and make continually greater advances in the direction representing greater storage for each unit advance on the run-off scale. The flatter these curves become as they approach the top of the sheets, the more storage capacity must be provided to obtain each unit increase in equalized flow. On the streams of very erratic flow, the curves become quite flat near the top; for much more storage capacity must be provided to hold their excess waters over from the years of plenty to those of need, than on the streams with a steady flow. So on the steadier streams, the curves rise the more directly toward the top of the sheets.

The full lines on the diagrams indicate these relations taken directly from the mass diagrams. However, evaporation would be ever active from the surfaces of the reservoired waters, so that to secure the net per cent of run-off that would be available for use, certain deductions must be made from it for losses by evaporation. To evaluate these deductions, the average area of surface exposed to the atmosphere was determined for several hundred reservoirs and, from statistics on evaporation, the average annual loss was obtained for all localities. Curves of dashed lines were then drafted on the diagrams; these fall below the full line curves. The ordinates parallel to the run-off scale, which are intercepted between these dashed and the full curves, are the values of these evaporation losses from the reservoired waters. The storage capacity and available run-off, disclosed by these dashed curves, are then the ones for practical use for they show the net quantities of water which could be diverted from the streams for irrigation use. Both the storage capacity and the equalized flow made available by constructing it, are in terms of per cent of the mean annual run-off. To evaluate them in acre-feet, the per cent obtained from the diagrams should be multiplied by the mean annual run-off of the stream, and this is printed on each diagram. Then, these one hundred and forty storage development curves set forth the quantities of water made available for irrigation use through the construction of any volume of storage that might be desired on California's streams.

CHAPTER VII.

WATER RESOURCES OF THE STATE.

Only one-half of the wide expanse of California contributes to the waters of its streams. The other half, lower in altitude and more even of surface, is favorably disposed for the occupancy of man, and its populated sections need water in order that their industrial expansion may continue and communal civilization progress steadily onward. The production of food, the generation of power, and the supply of water for domestic use, in the drier half of the state, are largely dependent upon the waters of the streams which have their source in the more elevated regions. The farmer relies upon the streams during the warm, dry summers for supplementary moisture to mature his crops and upon their hydro-electric energy to pump his irrigation waters. The electric energy, generated by the waters of the streams as they descend the mountain's slopes, furnishes power and illumination to the industrial centers, and light and heat and means of operating many conveniences, to the entire social organization. But most of all, the cities, towns, and villages, the pleasures and comforts of their congregated people, require these waters in abundance for drinking and washing purposes, and the expansion of all these benefits to include larger populations, demands increased supplies for the future and the uninterrupted service of water in purity and plenty, at all times of the year, and in all successive years alike.

However, California's waters, fluctuating in amount not alone throughout the year, but markedly from one year to another, drain off its mountain lands in concentrated winter floods or in dwindling and meager summer flows. This erratic behavior of the state's streams, whereby their courses are intermittently deluged by rising floods or emptied by vanishing waters, necessitates that their regimen be rectified if man is to utilize their powers in accelerating his advancement. The capricious irregularity of natural flow has to be equalized to make waters available at the times and in the quantities needed.

To discern the reliable amounts which may be made available by equalizing these variable supplies, as well as to discover the most favorable sources from which waters may be transported, are equally important in planning works to accomplish man's desires. For these purposes, it is imperative that full knowledge be gained of the location of the state's waters, their amounts, and the variability of their production. That these features might be revealed Table 3, "Water Resources of California," lists hydrographic quantities concerning every stream of the state. In this table, one hundred forty streams or groups of minor streams are arranged in geographic order and segregated by the six large topographic divisions of the state: the basins of the Sacramento and San Joaquin; and the regions of San Francisco Bay, of the north and south Pacific coasts, and of the Great Basin. The location of each one of these streams or groups of minor streams, is shown on the map of California, Plate XV, "Map Showing Boundaries of Drainage Basins."

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TABLE 3. WATER RESOURCES OF CALIFORNIA.

Number of drainage basin (1)	Stream (2)	Area of drainage basin above main body of agricultural lands in square miles (3)	Seasonal run-off, year of mean run-off: Total in acre-feet (4)	Mean: Average acre-feet per square mile of drainage area (5)	Mean: Average depth in inches on drainage area (6)	Year of maximum run-off: Total in acre-feet (7)	Maximum: Average acre-feet per square mile of drainage area (8)	Maximum: Average depth in inches on drainage area (9)	Year of minimum run-off: Total in acre-feet (10)	Minimum: Average acre-feet per square mile of drainage area (11)	Minimum: Average depth in inches on drainage area (12)	Run-off during July: Mean of all months of July, acre-feet (13)	July: Maximum of all months of July, acre-feet (14)
	SACRAMENTO BASIN												
34	Sacramento River (Upper) above Pit River	[illegible]	1,456,300	2,616	49.1	3,500,900	6,102	115.5	573,800	1,010	18.9	31,200	73,500
35	Pit River	[illegible]	4,204,600	766	14.7	8,220,000	1,538	28.8	2,355,200	441	8.3	252,300	493,200
36	McCloud River	669	1,591,200	2,378	44.6	3,270,000	4,888	91.6	800,500	1,197	22.4	87,500	179,800
37	*Churn Creek Group	100	83,100	828	15.5	294,500	2,935	55.1	3,200	32	0.6	1,700	6,200
38	Cow Creek	444	510,200	1,150	21.6	1,531,300	3,452	64.7	35,900	88	1.6	10,700	32,200
39	*Bear Creek Group	137	103,700	756	14.2	312,800	2,280	42.7	1,400	10	0.2	2,200	6,600
40	Battle Creek	366	421,500	1,151	21.6	1,025,700	2,799	52.5	138,300	377	7.1	8,900	21,500
41	Inks Creek	34	28,200	825	15.5	96,400	2,821	52.8	200	6	0.1	590	2,020
42	Payne's Creek	80	84,200	1,048	19.6	257,930	3,208	60.1	7,700	96	1.8	1,590	5,400
43	*Backbone Creek Group	178	207,500	1,166	21.8	642,300	3,609	67.7	2,000	11	0.2	4,400	13,500
44	Clear Creek	251	294,000	1,175	22.0	850,800	3,390	63.6	43,300	173	[illegible]	6,200	17,930
45	Cottonwood Creek	937	913,300	974	18.3	2,697,100	2,877	53.9	104,400	111	2.1	19,200	56,600
46	†Sacramento River at Red Bluff	9,258	9,929,000	1,072	20.1	22,700,000	2,452	46.0	4,068,800	439	8.2	397,200	905,000
47	*Mill Creek Group	971	1,157,400	1,192	22.4	2,610,000	2,688	50.4	513,000	528	9.9	40,500	91,400
48	*Butte Creek Group	251	358,400	1,428	26.8	839,000	3,343	62.7	142,000	566	10.6	6,800	15,900
49	Feather River	[illegible]	5,283,500	1,456	27.3	12,090,000	3,333	62.5	2,073,900	572	10.7	163,800	377,400
50	*Honcut Creek Group	314	199,400	630	11.0	522,000	1,664	31.2	59,000	188	1.5	1,600	4,200
51	Yuba River	1,200	2,652,600	2,210	41.4	6,176,000	5,147	96.5	998,400	832	15.6	69,000	194,800
52	Dry Creek	70	49,700	627	11.8	137,300	1,733	32.5	14,800	187	3.5	350	960
53	Bear River	262	412,500	1,574	29.5	1,117,900	4,267	80.0	118,600	453	8.5	4,125	11,600
54	*Coon Creek Group	210	34,100	162	3.0	124,200	591	11.1	6,700	32	0.6	0	
55	American River	1,910	3,161,900	1,658	31.1	7,725,200	4,026	75.5	1,186,900	618	11.6	117,700	392,500
56	*Red Bank Creek Group	109	73,000	672	12.6	202,300	1,861	34.9	20,300	187	3.5	510	1,420
57	*Elder Creek Group	414	213,000	515	9.7	611,000	1,476	37.7	57,000	145	2.6	1,490	4,250
58	Stony Creek	710	555,000	782	14.6	1,495,500	2,106	30.5	124,900	176	3.3	3,890	10,500
59	*Willow Creek Group	144	92,200	634	[illegible]	265,000	672	12.6	27,000	68	1.3	650	1,860
60	Cache Creek	1,195	586,000	490	9.2	1,638,000	1,371	25.7	174,600	146	2.7	52,740	147,400
61	Putah Creek	655	421,800	644	12.1	1,239,000	1,892	35.5	17,000	26	0.5	1,270	3,720
	Totals and means for Sacramento Basin	21,420	25,199,500	1,176	22.1		2,777	52.1		448	8.4		
	SAN JOAQUIN BASIN												
62	*Orestimba Creek Group	1,340	110,830	83	1.6	450,200	336	6.3	0	0	0.0	4,800	19,400
63	Panoche Creek	295	27,100	92	1.7	105,500	358	6.7	0	0	0.0	1,170	4,510
64	*Cantua Creek Group	208	12,500	60	1.1	55,500	267	5.0	0	0	0.0	540	2,400
65	Los Gatos Creek	119	9,750	82	1.5	41,300	347	6.5	0	0	0.0	420	1,780
66	*Tejon Creek Group	1,341	95,600	71	1.3	414,000	309	5.8	0	0	0.0	4,100	17,810
67	Caliente Creek	471	45,000	96	1.8	201,000	427	8.0	0	0	0.0	1,900	5,600
68	Kern River	[illegible]	760,400	316	5.9	2,474,500	1,027	19.2	283,000	117	2.2	82,000	402,300
69	*Poso Creek Group	576	47,300	82	1.5	184,300	320	6.0	0	0	0.0	2,000	7,900
70	Deer Creek	110	20,650	187	3.5	67,000	606	11.4	4,100	37	0.7	830	2,680
71	Tule River	390	141,500	363	6.8	448,800	1,152	21.6	27,000	69	1.3	4,390	29,740
72	*Yokohl Creek Group	98	14,830	151	2.8	58,500	598	11.2	0	0	0.0	640	2,520
73	Kaweah River	513	407,900	794	14.9	1,088,400	2,118	39.7	49,130	96	1.8	14,700	211,000
74	*Limekiln Creek Group	201	62,200	310	5.8	198,100	987	18.5	7,500	37	0.7	2,700	8,500
75	Kings River	1,694	1,925,100	1,136	21.3	5,221,000	3,082	57.8	334,000	197	3.7	221,400	1,033,100
76	Dry Creek	48	4,500	94	1.8	18,100	379	7.1	0	0	0.0	100	420
77	San Joaquin River (Upper)	1,631	[illegible]	1,261	23.6	5,732,000	1,514	65.9	470,000	288	5.4	205,690	587,000
78	Cottonwood Creek	28	2,300	81	1.5	10,500	368	6.9	0	0	0.0	50	210
79	Fresno River	270	68,300	251	4.7	233,600	867	16.3	4,800	18	0.3	1,570	5,370
80	*Daulton Creek Group	66	5,200	78	1.5	24,100	363	6.8	0	0	0.0	120	550
81	Chowchilla River	238	67,700	284	5.1	195,100	820	15.4	1,300	5	0.1	1,360	4,400
82	*Dutchman Creek Group	72	8,300	115	2.2	31,500	438	8.2	0	0	0.0	190	720
83	Mariposa Creek	103	12,800	125	2.3	42,200	409	8.6	0	0	0.0	290	1,110
84	*Owens Creek	66	6,500	98	1.8	27,900	421	7.9	0	0	0.0	150	610
85	Bear Creek	71	7,500	105	2.0	29,700	410	7.8	0	0	0.0	170	680
86	*Burns Creek Group	171	24,400	143	2.7	80,200	468	8.8	0	0	0.0	70	240
87	Merced River	1,051	1,130,500	1,075	20.2	2,955,000	2,811	52.6	220,000	209	3.9	99,390	385,000
88	Tuolumne River	1,543	2,055,800	1,332	24.9	5,029,000	3,260	61.8	561,000	363	6.8	166,520	712,000
89	*Wildcat Creek Group	59	8,950	151	2.8	32,900	560	10.5	0	0	0.0	30	100
90	Stanislaus River	983	1,376,000	1,399	26.1	[illegible]	3,612	68.2	62,900	64	1.2	76,700	316,200
91	Littlejohns Creek	41	8,150	201	3.8	28,700	700	13.3	400	10	0.2	20	90
92	*Martells Creek Group	122	14,300	117	2.2	44,900	368	6.9	0	0	0.0	40	130
93	Calaveras River	394	316,500	803	15.1	1,003,000	2,516	47.7	29,400	75	1.4	950	3,030
94	Mokelumne River	632	898,100	1,421	26.7	2,181,000	[illegible]	64.7	179,000	283	5.3	52,100	214,900
95	*Sutter Creek Group	285	93,200	327	6.1	277,000	971	18.2	0	0	0.0	280	830
96	Cosumnes River	534	482,000	903	16.9	1,412,000	2,644	49.6	108,000	202	3.8	3,370	10,900
	Totals and means for San Joaquin Basin	18,178	12,431,100	678	12.7		1,87[illegible]	35.1		129	2.4		
	SAN FRANCISCO BAY BASINS.												
97	*Petaluma Creek Group	139	75,300	542	10.2	263,300	1,894	35.5	8,900	64	1.2	230	780
98	*Sonoma Creek Tributaries	78	35,000	455	8.5	124,400	1,589	29.8	7,900	101	1.9	110	370
99	*Napa River Tributaries	226	115,200	510	9.6	410,400	1,856	34.8	9,600	42	0.8	350	1,260
100	*Suisun Creek Group	125	52,500	421	7.9	190,700	1,530	28.7	10,600	85	1.6	160	570
101	*Mt. Diablo Creek Group	200	69,800	350	6.6	262,000	1,317	24.7	1,100	6	0.1	350	1,310
102	San Pablo Creek	41	17,200	424	7.9	59,500	1,466	27.5	0	0	0.0	90	300
103	San Leandro Creek	44	18,900	433	8.1	70,000	1,626	30.5	0	0	0.0	90	350
104	*Claremont Creek Group	83	24,600	297	5.6	115,800	1,397	26.2	0	0	0.0	120	580
105	San Lorenzo Creek	38	16,700	441	8.3	63,700	1,681	31.5	200	5	0.1	80	320
106	Alameda Creek	654	140,900	215	4.0	547,200	837	15.7	0	0	0.0	1,800	3,740
107	*Mission Creek Group	77	25,000	324	6.1	115,100	1,493	28.0	0	0	0.0	130	540
108	Penitencia Creek	22	5,200	232	4.4	22,700	1,013	19.0	200	9	0.2	30	110
109	Coyote River	197	80,100	407	7.6	351,000	1,782	33.5	0	0	0.0	400	1,800
110	Guadalupe River	52	22,000	421	7.9	94,700	1,814	34.0	0	0	0.0	110	470
111	*Los Gatos Creek Group	121	68,500	566	10.6	210,400	1,813	34.0	0	0	0.0	340	1,100
112	San Francisquito Creek	35	20,700	550	10.3	64,200	1,707	32.0	800	21	0.4	100	300
113	*San Mateo Creek Group	81	37,100	429	8.2	129,300	1,531	28.7	3,600	43	0.8	190	650
	Totals and means for San Francisco Bay Basins	2,219	825,300	372	7.0		1,40[illegible]	26.3		19	0.4		
	NORTH PACIFIC BASINS												

Number of drainage basin (1)	Stream (2)	Run-off during July: Minimum of all months of July, acre-feet (15)	Run-off during August: Mean of all months of August, acre-feet (16)	August: Maximum of all months of August, acre-feet (17)	August: Minimum of all months of August, acre-feet (18)	Water-yield for irrigation use of equalized flow in streams. Maximum net yield possible: In acre-feet per season (19)	Maximum: In per cent of mean seasonal run-off (20)	Maximum: Storage capacity required to equalize flow of stream, in acre-feet (21)	Maximum: Storage, acre-feet for one acre-foot of net yield (22)	Net yield of 40 per cent of mean seasonal run-off: In acre-feet per season (23)	40 per cent: Storage capacity required, in acre-feet (24)	40 per cent: Storage, acre-feet for one acre-foot of net yield (25)	Net yield of 50 per cent of mean seasonal run-off: In acre-feet per season (26)	50 per cent: Storage capacity required, in acre-feet (27)	50 per cent: Storage, acre-feet for one acre-foot of net yield (28)
	SACRAMENTO BASIN														
34	Sacramento River (Upper) above Pit River	12,000	22,300	52,500	8,600	1,278,220	56.0	3,715,750	2.91	594,520	549,930	0.93	743,150	787,740	1.06
35	Pit River	154,200	218,600	427,400	133,600	3,658,000	87.0	7,358,050	2.01	1,681,840	882,970	0.53	2,102,300	1,303,430	0.62
36	McCloud River	45,700	79,600	163,500	41,500	1,384,340	87.0	2,784,600	2.01	636,480	334,150	0.53	795,600	493,270	0.62
37	*Churn Creek Group	70	1,200	4,400	50	61,190	74.0	415,500	6.76	33,240	73,960	2.23	41,550	115,510	2.78
38	Cow Creek	820	7,700	21,000	580	392,850	77.0	2,530,590	6.44	204,081	302,850	1.03	255,100	617,340	2.42
39	*Bear Creek Group	30	1,600	4,700	20	79,650	77.0	518,500	6.49	41,480	98,520	2.38	51,850	142,070	2.74
40	Battle Creek	2,900	6,400	15,400	2,100	345,830	82.0	1,623,930	4.70	168,720	168,720	1.00	210,900	253,080	1.20
41	Inks Creek	Trace	420	1,450	Trace	19,740	70.0	141,000	7.14	11,280	29,330	2.60	14,100	45,680	3.24
42	Payne's Creek	160	1,300	3,900	120	61,470	73.0	421,000	6.85	33,680	69,890	2.08	42,100	111,110	2.64
43	*Backbone Creek Group	10	3,100	9,600	30	157,700	76.0	1,037,500	6.58	83,000	178,450	2.15	103,750	259,380	2.50
44	Clear Creek	910	1,400	12,800	650	232,970	70.0	1,356,540	5.82	117,960	191,690	1.63	147,450	300,800	2.04
45	Cottonwood Creek	2,200	11,700	40,500	1,000	648,410	71.0	4,018,520	6.20	365,320	593,650	1.63	456,650	940,700	2.06
46	†Sacramento River at Red Bluff	175,600	337,600	771,800	140,300	8,042,490	81.0	34,751,590	4.32	3,971,600	2,680,830	0.68	4,964,500	3,971,000	0.80
47	*Mill Creek Group	18,000	21,300	54,900	10,800	891,200	77.0	2,314,800	2.60	462,960	370,370	0.80	578,700	567,130	0.98
48	*Butte Creek Group	2,700	5,000	11,700	2,000	272,380	76.0	752,640	2.76	143,360	143,360	1.00	179,200	215,040	1.20
49	Feather River	75,500	100,400	229,700	46,300	4,226,800	80.0	10,567,000	2.50	2,113,400	1,810,230	0.85	2,641,750	2,694,500	1.02
50	*Honcut Creek Group	470	200	520	60	141,570	72.0	408,500	3.47	70,760	106,650	1.33	[illegible]	165,600	1.66
51	Yuba River	20,000	21,200	49,400	8,000	2,175,130	82.0	5,039,940	2.32	1,061,040	1,007,990	0.95	1,326,300	1,458,930	1.10
52	Dry Creek	100	100	270	30	37,770	76.0	124,250	3.29	19,880	22,360	1.15	24,850	34,200	1.38
53	Bear River	650	2,475	8,900	560	325,880	79.0	1,113,750	3.42	165,000	206,250	1.25	206,250	305,250	1.48
54	*Coon Creek Group	0	0		0	23,190	68.0	88,660	3.83	13,640	22,850	1.68	17,050	34,100	2.00
55	American River	22,800	28,600	92,800	9,500	2,577,310	81.0	5,091,040	1.98	1,272,760	1,113,670	0.88	1,590,950	1,527,310	0.96
56	*Red Bank Creek Group	140	370	1,010	100	48,910	67.0	219,000	4.48	20,200	35,040	1.20	30,500	54,750	1.50
57	*Elder Creek Group	400	1,070	3,080	290	140,580	66.0	511,200	3.61	85,200	106,500	1.25	106,500	170,400	1.60
58	Stony Creek	900	2,780	11,400	640	360,730	65.0	1,470,750	4.06	222,000	321,900	1.45	277,500	499,500	1.80
59	*Willow Creek Group	190	400	1,320	140	61,770	67.0	230,500	3.73	36,880	46,100	1.25	46,100	69,150	1.50
60	Cache Creek	17,200	42,750	119,600	13,900	404,340	69.0	1,172,000	2.90	234,400	175,800	0.75	293,000	263,700	0.90
61	Putah Creek	50	810	2,480	30	253,080	60.0	1,265,400	5.00	168,720	368,070	2.18	210,900	603,170	2.86
	Totals and means for Sacramento Basin					20,263,640	80.4	50,380,930	2.78	10,079,900	9,458,680	0.94	12,599,750	14,032,050	1.11
	SAN JOAQUIN BASIN														
62	*Orestimba Creek Group	0	0		0	66,480	60.0	387,800	5.83	44,320	110,800	2.50	55,400	171,740	3.10
63	Panoche Creek	0	0		0	10,830	63.0	59,430	5.32	10,810	30,350	2.80	13,550	44,720	3.30
64	*Cantua Creek Group	0	0		0	7,250	58.0	42,500	5.86	5,000	13,130	2.63	6,250	22,500	3.60
65	Los Gatos Creek	0	0		0	5,950	61.0	34,130	5.74	3,000	11,600	2.98	4,880	16,870	3.46
66	*Tejon Creek Group	0	0		0	51,190	57.0	382,400	7.02	38,240	119,500	3.13	47,800	205,540	4.30
67	Caliente Creek	0	0		0	23,400	52.0	225,000	9.62	18,000	92,250	5.12	22,500	189,030	8.40
68	Kern River	17,300	31,200	143,110	9,700	577,900	76.0	1,745,920	3.03	304,160	193,100	0.63	380,200	342,180	0.90
69	*Poso Creek Group	0	0		0	31,220	66.0	141,900	4.55	18,920	41,150	2.18	23,650	60,070	2.54
70	Deer Creek	160	410	1,310	80	15,280	74.0	51,630	3.38	8,260	8,470	1.03	10,330	12,600	1.22
71	Tule River	810	1,560	7,010	300	107,510	76.0	353,750	3.29	50,600	49,530	0.98	70,750	84,900	1.20
72	*Yokohl Creek Group	0	0		0	9,920	67.0	48,810	4.93	5,020	11,840	2.00	7,400	16,580	2.24
73	Kaweah River	4,100	5,570	42,500	1,010	342,640	81.0	815,800	3.38	163,160	171,320	1.05	203,950	216,100	1.06
74	*Limekiln Creek Group	320	0		0	46,050	75.0	155,600	3.33	24,880	32,070	1.33	31,100	49,760	1.60
75	Kings River	38,400	67,400	261,000	11,700	1,540,080	80.0	5,101,520	3.31	770,040	577,530	0.75	962,550	866,390	0.90
76	Dry Creek	0	20	90	0	3,150	70.0	11,250	3.57	1,800	2,700	1.50	2,250	3,690	1.64
77	San Joaquin River (Upper)	47,000	65,800	153,400	15,030	1,615,520	80.0	4,113,800	2.50	822,760	575,930	0.70	1,028,450	843,330	0.82
78	Cottonwood Creek	0	10	50	0	1,470	64.0	8,280	5.63	920	1,810	2.00	1,150	2,810	2.44
79	Fresno River	110	340	1,170	14	40,860	73.0	204,000	1.11	27,320	35,520	1.30	34,150	40,860	1.46
80	*Daulton Creek Group	0	30	120	0	3,430	66.0	20,810	6.06	2,083	3,890	1.83	2,600	6,240	2.40
81	Chowchilla River	28	310	976	4	48,740	72.0	121,680	2.50	27,080	40,620	1.50	33,850	54,810	1.62
82	*Dutchman Creek Group	0	40	160	0	5,150	62.0	21,580	4.19	3,320	8,300	2.50	4,150	12,010	2.90
83	Mariposa Creek	0	60	210	0	8,190	64.0	30,720	3.75	5,120	10,210	2.00	6,400	14,720	2.30
84	*Owens Creek	0	60	140	0	4,030	62.0	19,500	4.84	2,600	6,180	2.38	3,250	8,780	2.70
85	Bear Creek	0	40	150	0	4,730	63.0	21,000	4.44	3,000	7,880	2.63	3,750	11,250	3.00
86	*Burns Creek Group	0	0		0	15,620	64.0	68,320	4.36	9,760	29,280	3.00	12,200	40,260	3.30
87	Merced River	13,000	23,910	58,300	800	695,170	79.0	1,613,000	2.00	453,400	413,730	0.95	566,750	612,030	1.08
88	Tuolumne River	16,900	12,830	195,900	2,530	1,085,760	82.0	3,491,860	2.07	822,320	472,860	0.58	1,027,900	719,530	0.70
89	*Wildcat Creek Group	0	0		0	5,190	62.0	25,670	4.68	3,540	9,740	2.75	4,430	14,160	3.20
90	Stanislaus River	3,520	16,400	61,000	0	1,032,000	75.0	3,027,240	2.93	550,400	412,810	0.75	688,000	550,400	0.80
91	Littlejohns Creek	Trace	0		0	5,380	60.0	18,750	3.48	3,260	6,760	2.06	4,080	9,540	2.34
92	*Martells Creek Group	0	0		0	9,300	65.0	42,910	4.62	5,720	13,870	2.43	7,150	19,310	2.70
93	Calaveras River	0	120	740	0	199,400	63.0	821,900	4.13	126,630	300,080	2.38	158,250	427,280	2.70
94	Mokelumne River	2,420	8,080	40,400	820	718,480	80.0	1,347,150	1.88	359,240	314,340	0.88	449,050	449,050	1.00
95	*Sutter Creek Group	0	0		0	63,380	68.0	233,010	3.68	37,280	81,080	2.18	46,600	111,810	2.40
96	Cosumnes River	500	480	2,180	0	322,010	67.0	1,108,630	3.47	192,800	313,300	1.63	241,000	472,360	1.96
	Totals and means for San Joaquin Basin					9,573,090	78.4	26,155,760	2.73	4,932,560	4,538,090	0.92	6,165,720	6,732,110	1.00
	SAN FRANCISCO BAY BASINS.														
97	*Petaluma Creek Group	30	150	530	20	53,491	79.0	323,790	5.41	40,120	48,950	1.63	37,650	73,700	1.96
98	*Sonoma Creek Tributaries	20	70	250	20	28,120	79.0	142,400	5.06	14,240	21,300	1.50	17,800	30,970	1.74
99	*Napa River Tributaries	30	230	940	20	89,860	78.0	506,880	5.64	40,080	88,400	1.88	57,600	126,720	2.20
100	*Suisun Creek Group	30	110	380	20	39,900	78.0	210,000	5.26	21,000	31,500	1.50	26,250	48,830	1.86
101	*Mt. Diablo Creek Group	10	210	790	Trace	48,160	69.0	209,400	4.35	27,920	60,730	2.18	34,900	83,760	2.40
102	San Pablo Creek	0	50	180	0	12,380	72.0	49,880	4.03	6,880	14,980	2.18	8,600	20,610	2.40
103	San Leandro Creek	0	60	210	0	12,100	64.0	49,110	4.06	7,560	17,960	2.38	9,450	24,570	2.60
104	*Claremont Creek Group	0	70	150	0	15,500	63.0	88,560	5.72	9,810	22,140	2.25	12,300	33,210	2.70
105	San Lorenzo Creek	Trace	50	190	Trace	11,190	67.0	50,100	4.48	6,680	15,030	2.25	8,350	20,880	2.50
106	Alameda Creek	0	1,500	4,000	0	95,610	68.0	394,520	4.12	56,360	110,080	2.08	70,450	169,080	2.40
107	*Mission Creek Group	0	80	350	0	15,750	63.0	70,000	4.44	10,000	25,500	2.55	12,500	35,750	2.86
108	Penitencia Creek	Trace	20	70	Trace	3,480	67.0	11,980	3.44	2,080	4,810	2.22	2,600	6,400	2.46
109	Coyote River	0	240	1,100	0	53,670	67.0	288,360	5.38	32,040	96,120	3.00	40,050	126,560	3.16
110	Guadalupe River	0	70	280	0	15,160	60.0	70,400	4.64	8,800	25,300	2.88	11,000	33,000	3.00
111	*Los Gatos Creek Group	0	210	860	0	52,750	77.0	230,750	4.55	27,400	60,070	2.23	34,250	82,200	2.40
112	San Francisquito Creek	Trace	60	200	Trace	14,900	72.0	49,080	3.33	8,280	15,530	1.88	10,350	20,700	2.00
113	*San Mateo Creek Group	20	110	390	10	27,080	73.0	96,460	3.60	14,840	28,040	1.05	18,550	39,330	2.12
	Totals and means for San Francisco Bay Basins					595,320	72.1	2,851,280	4.79	330,120	693,180	2.10	413,650	976,300	2.37
	NORTH PACIFIC BASINS														

Number of drainage basin (1)	Stream (2)	Net yield of 60 per cent of mean seasonal run-off: In acre-feet per season (29)	60 per cent: Storage capacity required, in acre-feet (30)	60 per cent: Storage, acre-feet for one acre-foot of net yield (31)	Net yield of 70 per cent of mean seasonal run-off: In acre-feet per season (32)	70 per cent: Storage capacity required, in acre-feet (33)	70 per cent: Storage, acre-feet for one acre-foot of net yield (34)	Frequency of flood flows. Expected occurrence of once in 25 years of average flows for 24 hours equal in magnitude or greater than tabulated value: In cubic feet per second per square mile of drainage area (35)	25 years: In cubic feet per second (36)	Once in 50 years: In cubic feet per second per square mile of drainage area (37)	50 years: In cubic feet per second (38)	Once in 75 years: In cubic feet per second per square mile of drainage area (39)	75 years: In cubic feet per second (40)	Once in 100 years: In cubic feet per second per square mile of drainage area (41)	100 years: In cubic feet per second (42)	Stream (43)	Number of drainage basin (44)
	SACRAMENTO BASIN															**SACRAMENTO BASIN**	
34	Sacramento River (Upper) above Pit River	891,780	1,189,040	1.33	1,040,410	1,557,880	1.70	75	42,600	81	50,400	97	54,900	101	57,300	Sacramento River (Upper) above Pit River	34
35	Pit River	2,522,700	1,602,070	0.75	2,943,220	2,732,900	0.93	8	44,400	4	48,100	9	48,500	9	49,600	Pit River	35
36	McCloud River	954,720	716,040	0.75	1,113,840	1,113,840	1.00	75	50,200	89	50,400	97	64,600	101	67,500	McCloud River	36
37	*Churn Creek Group	49,860	188,640	3.78	58,170	328,250	5.64	113		124		129		133		*Churn Creek Group	37
38	Cow Creek	306,120	1,020,400	3.33	357,140	1,887,740	5.29	97	42,900	108	47,700	111	49,500	114	51,600	Cow Creek	38
39	*Bear Creek Group	62,220	222,900	3.58	72,590	388,860	5.36	112	15,300	121	16,600	126	17,300	131	17,900	*Bear Creek Group	39
40	Battle Creek	253,080	404,930	1.60	295,260	717,060	2.43	103	37,830	113	41,400	118	43,200	121	44,200	Battle Creek	40
41	Inks Creek	16,920	77,550	4.58	19,740	141,000	7.14	133	4,520	145	4,920	149	5,070	153	5,220	Inks Creek	41
42	Payne's Creek	50,520	191,080	3.80	58,940	370,480	6.29	122	9,770	125	10,750	140	11,200	144	11,500	Payne's Creek	42
43	*Backbone Creek Group	124,500	425,380	3.42	145,250	809,250	5.57	89		105		113		120		*Backbone Creek Group	43
44	Clear Creek	176,940	471,840	2.67	206,430	884,700	4.29	78	19,550	91	22,990	100	24,950	105	26,300	Clear Creek	44
45	Cottonwood Creek	547,980	1,598,280	2.92	630,310	3,653,200	5.71	63	50,200	69	64,100	73	68,000	75	70,500	Cottonwood Creek	45
46	†Sacramento River at Red Bluff	5,957,400	6,155,980	1.03	6,950,300	12,690,830	1.81	27	240,000	31	280,000	32	299,000	34	311,000	†Sacramento River at Red Bluff	46
47	*Mill Creek Group	694,410	868,050	1.25	810,180	1,331,010	1.61	98		113		120		122		*Mill Creek Group	47
48	*Butte Creek Group	215,040	329,730	1.53	250,880	530,430	2.11	109		122		130		134		*Butte Creek Group	48
49	Feather River	3,170,100	4,121,130	1.30	3,698,450	5,970,360	1.61	47	171,000	52	190,000	57	205,000	59	215,000	Feather River	49
50	*Honcut Creek Group	119,640	243,270	2.00	139,580	408,770	2.93	103		113		121		124		*Honcut Creek Group	50
51	Yuba River	1,591,560	2,095,550	1.32	1,856,820	2,917,800	1.57	106	127,500	121	145,500	128	153,000	133	160,000	Yuba River	51
52	Dry Creek	29,820	51,190	1.72	34,790	79,520	2.29	103	8,170	114	9,020	121	9,550	124	9,770	Dry Creek	52
53	Bear River	247,500	445,500	1.80	288,750	635,250	2.20	112	29,200	121	31,700	126	33,100	129	33,800	Bear River	53
54	*Coon Creek Group	20,460	51,150	2.50				75		82		86		89		*Coon Creek Group	54
55	American River	1,909,140	2,068,240	1.08	2,227,330	2,990,990	1.34	62	119,000	73	139,000	81	154,500	83	160,000	American River	55
56	*Red Bank Creek Group	43,800	94,900	2.17				74		82		86		89		*Red Bank Creek Group	56
57	*Elder Creek Group	127,800	298,200	2.33				52		58		61		63		*Elder Creek Group	57
58	Stony Creek	333,000	888,000	2.67				63	45,000	69	48,600	73	51,600	75	53,500	Stony Creek	58
59	*Willow Creek Group	55,320	124,470	2.25				60		74		77		79		*Willow Creek Group	59
60	Cache Creek	351,600	468,800	1.34				17	20,550	18	20,900	18	21,500	18	21,850	Cache Creek	60
61	Putah Creek	253,080	1,265,400	5.00				70	45,800	75	49,300	77	50,200	78	51,100	Putah Creek	61
	Totals and means for Sacramento Basin	15,110,700	21,812,690	1.44				54		60		64		66		Totals and means for Sacramento Basin	
	SAN JOAQUIN BASIN															**SAN JOAQUIN BASIN**	
62	*Orestimba Creek Group	66,480	387,800	5.83				32		36		39		41		*Orestimba Creek Group	62
63	Panoche Creek	16,260	74,530	4.55				34	9,000	38	11,100	40	11,900	41	12,700	Panoche Creek	63
64	*Cantua Creek Group							24		25		31		[illegible]		*Cantua Creek Group	64
65	Los Gatos Creek	5,850	20,740	5.08				30	1,520	18	4,170	30	4,320	18	4,480	Los Gatos Creek	65
66	*Tejon Creek Group							26		31		34		37		*Tejon Creek Group	66
67	Caliente Creek							36	17,100	43	20,300	16	21,600	45	22,800	Caliente Creek	67
68	Kern River	456,240	593,110	1.30	532,280	1,064,560	2.00	6	14,040	7	16,400	7	16,850	7	17,600	Kern River	68
69	*Poso Creek Group	28,380	96,560	3.05				22		24		25		26		*Poso Creek Group	69
70	Deer Creek	12,390	19,410	1.57	14,460	35,110	2.43	32	3,560	35	3,850	36	4,000	38	4,150	Deer Creek	70
71	Tule River	84,900	134,430	1.58	99,050	222,160	2.24	24	9,250	26	10,070	27	10,610	28	11,090	Tule River	71
72	*Yokohl Creek Group	5,880	25,160	2.83				32		35		36		38		*Yokohl Creek Group	72
73	Kaweah River	244,740	285,530	1.17	285,530	387,500	1.36	23	11,780	26	13,400	27	14,100	28	14,500	Kaweah River	73
74	*Limekiln Creek Group	17,320	71,530	1.92	43,540	108,850	2.50	32		35		36		38		*Limekiln Creek Group	74
75	Kings River	1,155,060	1,155,060	1.00	1,347,570	1,540,080	1.14	20	34,200	23	38,200	24	40,900	25	41,600	Kings River	75
76	Dry Creek	2,700	5,760	2.13	3,150	11,250	3.57	46	2,190	48	2,320	50	2,380	51	2,450	Dry Creek	76
77	San Joaquin River (Upper)	1,234,140	1,151,860	0.93	1,439,830	1,601,560	1.11	22	35,600	24	38,000	25	40,800	26	42,100	San Joaquin River (Upper)	77
78	Cottonwood Creek	1,380	5,060	3.67				43	1,230	47	1,340	50	1,420	51	1,460	Cottonwood Creek	78
79	Fresno River	40,990	71,030	1.73	47,810	114,080	2.39	40	10,850	43	11,620	45	12,010	48	12,300	Fresno River	79
80	*Daulton Creek Group	3,120	11,960	3.83				43		47		50		51		*Daulton Creek Group	80
81	Chowchilla River	40,620	74,470	1.83	47,390	108,320	2.29	38	8,780	41	9,530	43	10,000	44	10,350	Chowchilla River	81
82	*Dutchman Creek Group	4,980	18,680	3.75				44		50		52		54		*Dutchman Creek Group	82
83	Mariposa Creek	7,680	21,760	2.83				47	4,840	51	5,260	54	5,550	56	5,820	Mariposa Creek	83
84	*Owens Creek	3,900	15,600	4.00				36	2,390	40	2,660	43	2,840	44	2,930	*Owens Creek	84
85	Bear Creek	4,500	16,130	3.58				40	2,670	46	[illegible]	48	3,430	50	3,540	Bear Creek	85
86	*Burns Creek Group	14,640	53,680	3.67				54		61		63		66		*Burns Creek Group	86
87	Merced River	680,100	881,130	1.30	793,450	1,221,180	1.54	35	16,000	18	18,900	40	41,600	43	44,100	Merced River	87
88	Tuolumne River	1,233,480	1,110,130	0.90	1,439,060	1,644,640	1.14	26	40,400	31	47,700	34	51,800	35	54,000	Tuolumne River	88
89	*Wildcat Creek Group	5,310	21,240	4.00				78		89		94		97		*Wildcat Creek Group	89
90	Stanislaus River	825,600	560,880	1.05	963,200	1,651,200	1.71	51	50,200	60	58,200	66	64,600	69	67,500	Stanislaus River	90
91	Littlejohns Creek	4,890	13,200	2.70				61	3,310	94	3,960	101	4,130	107	4,400	Littlejohns Creek	91
92	*Martells Creek Group	8,580	27,830	3.25				76		89		94		97		*Martells Creek Group	92
93	Calaveras River	183,900	633,000	3.33				195	76,500	215	84,000	223	88,000	229	90,000	Calaveras River	93
94	Mokelumne River	538,800	583,770	1.08	628,670	816,200	1.29	28	17,800	31	19,500	33	20,400	34	21,200	Mokelumne River	94
95	*Sutter Creek Group	55,920	151,920	2.72				61		67		71		75		*Sutter Creek Group	95
96	Cosumnes River	289,200	698,900	2.42				46	24,100	51	27,300	54	28,700	55	29,400	Cosumnes River	96
	Totals and means for San Joaquin Basin							32		35		38		40		Totals and means for San Joaquin Basin	
	SAN FRANCISCO BAY BASINS.															**SAN FRANCISCO BAY BASINS.**	
97	*Petaluma Creek Group	45,150	109,190	2.43	52,710	169,430	3.21	50		54		55		57		*Petaluma Creek Group	97
98	*Sonoma Creek Tributaries	21,300	46,280	2.17	24,920	71,200	2.86	57		61		64		66		*Sonoma Creek Tributaries	98
99	*Napa River Tributaries	69,120	190,090	2.75	80,640	209,520	2.71	51		56		59		61		*Napa River Tributaries	99
100	*Suisun Creek Group	31,500	72,450	2.30	36,750	120,750	3.29	47		50		51		53		*Suisun Creek Group	100
101	*Mt. Diablo Creek Group	41,880	116,570	2.78				52		58		61		63		*Mt. Diablo Creek Group	101
102	San Pablo Creek	10,320	28,380	2.75	12,040	42,140	3.50	42	1,710	46	1,870	48	1,990	50	2,010	San Pablo Creek	102
103	San Leandro Creek	11,310	35,910	3.17				42	1,830	46	2,010	48	2,130	50	2,190	San Leandro Creek	103
104	*Claremont Creek Group	14,700	61,500	4.17				42		46		48		50		*Claremont Creek Group	104
105	San Lorenzo Creek	10,020	20,230	2.92				36	1,380	40	1,530	43	1,630	44	1,690	San Lorenzo Creek	105
106	Alameda Creek	84,540	249,390	2.95				24	15,500	26	17,050	27	17,900	28	18,400	Alameda Creek	106
107	*Mission Creek Group	15,000	53,750	3.58				48		54		58		59		*Mission Creek Group	107
108	Penitencia Creek	3,120	8,420	2.70				66	1,450	73	1,600	78	1,720	81	1,775	Penitencia Creek	108
109	Coyote River	48,060	169,610	3.53				57	11,120	65	12,700	67	13,250	69	13,500	Coyote River	109
110	Guadalupe River	13,200	44,000	3.33				62	3,210	69	3,560	73	3,770	75	3,920	Guadalupe River	110
111	*Los Gatos Creek Group	41,100	106,180	2.58	47,950	142,480	2.97	51		56		61		62		*Los Gatos Creek Group	111
112	San Francisquito Creek	12,420	26,910	2.17	14,490	40,170	2.79	51	1,940	56	2,150	61	2,300	62	2,350	San Francisquito Creek	112
113	*San Mateo Creek Group	22,200	52,680	2.37	25,970	74,200	2.86	45		54		56		58		*San Mateo Creek Group	113
	Totals and means for San Francisco Bay Basins	405,160	1,400,730	2.83				43		47		49		51		Totals and means for San Francisco Bay Basins	
	NORTH PACIFIC BASINS															**NORTH PACIFIC BASINS.**	

	San Francisquito Creek	35	20 700	550	10 3	64,[illegible]	1 707	32 0	[illegible]	[illegible]	0 4
	*San Mateo Creek Group	54	37 100	439	8 2	129 300	1,531	28 7	3 680	43	0 8
	Totals and means for San Francisco Bay Basins	2,219	[illegible]	72	7 0		1 403	26 3		19	0 4
	NORTH PACIFIC BASINS										
	[illegible] River	627	3 400 200	5 4[illegible]	101 9	5 711,600	9 10[illegible]	170 8	1 922 800	[illegible]	17 5
	[illegible]	[illegible]	3 410 700	1 470	27 6	7 100 900	3 061	57 1	1,218 000	525	9 9
	[illegible]	[illegible]	212 600	312	5 7	[illegible]	736	13 8	102 800	128	2 4
	[illegible]	811	521 100	611	12 0	[illegible]	1 517	28 4	172 200	212	4 0
	[illegible]	734	1 250 400	1 712	[illegible]	[illegible]	3,360	63 0	508 900	693	11 0
	[illegible]	[illegible]	4 447 700	1 [illegible]	[illegible]	9 646 100	3 253	61 0	1 423 200	480	9 0
	[illegible]	275	[illegible]	[illegible]	[illegible]	1 [illegible] 100	4,951	[illegible] 4	475 600	1 720	32 4
	[illegible]	457	1 182 500	[illegible]	[illegible]	1 995 600	4,373	82 0	548 400	1 200	22 5
	[illegible]	3 547	6,010 000	1 703	31 8	11 016 000	3,115	58 4	2,379 000	671	12 5
	[illegible]	82	227 000	2 785	52 2	392 500	4 816	90 3	110 500	1 466	27 5
	Mattole River	261	1 060 000	4 017	[illegible]	1 828 200	6,928	129 9	576 400	2 183	40 9
	*Noyo River Group	781	1 3[illegible] 300	1 674	[illegible]	2 8[illegible] 100	3,603	68 8	428 400	549	10 1
	Navarro River	273	191 600	1 415	26 9	866 300	3,173	59 5	119 400	437	8 2
	*Gualala River	625	849 700	1 364	25 6	1 281 500	2,055	55 4	272 500	437	8 2
	Russian River	1 505	1 416 600	940	17 6	1 367,600	2,235	41 9	64,300	43	0 8
	Lagunitas Creek	54	49 200	1,062	19 9	204 700	2 437	45 7	25 100	299	5 6
130	*Salmon Creek Group	279	113 000	405	4 3	281 600	1 237	23 2	24 500	107	2 0
131	*Bolinas Creek Group	158	36 600	232	4 3	107 000	677	12 7	7 600	48	0 9
	Totals and means for North Pacific Basins	16 543	26 835 100	1 622	30 4		3,199	60 0		628	11 8
	SOUTH PACIFIC BASINS										
	San Diego River	207	35 400	171	[illegible]	232 000	1,121	21 0	1 100	5	0 1
	Santa Ysabel Creek	126	31 000	252	4 9	200 000	1,590	29 9	1 000	10	0 2
134	San Luis Rey River	35	59 100	161	4	88 300	1,172	22 0	3 500	11	0 2
135	Santa Margarita River	680	1 000	16	0 9	162 200	245	4 6	700	1	0 0
136	*San Jacinto River Tributaries	430	48 000	117	2 8	218 200	601	12 4	10,000	32	0 6
137	*Santa Ana River Tributaries	460	253 400	551	10 3	720 500	1,566	29 4	66,200	144	2 7
138	*San Gabriel River Tributaries	280	160 200	530	10 1	553 400	1,976	7 1	9,700	35	0 6
139	*Los Angeles River Tributaries	167	71 000	426	8 0	307 000	1,841	34 5	0	0	0 0
140	*Malibu River Group	379	54 700	144	2 7	230 500	605	11 4	0	0	0 0
141	*Santa Clara River Tributaries	911	222,100	244	4 6	752 900	620	15 5	0	0	0 0
142	Ventura River	226	[illegible]	233	5	269 900	1 189	22 3	0	0	0 0
143	*Jalama Creek Group	242	48 000	198	7	202,000	837	15 7	0	0	0 0
144	Santa Ynez River	797	205 500	258	4 8	1 007,700	1 264	23 7	0	0	0 0
145	San Antonio Creek	138	22 000	161	3 1	136,400	987	18 5	0	0	0 0
146	Santa Maria River	1 634	207,200	127	2 4	993,400	608	11 4	0	0	0 0
147	*San Luis Obispo Creek Group	1 018	222 700	219	4 1	852,000	837	15 7	0	0	0 0
148	*Salinas River Tributaries	4 042	961 900	238	4 5	3 770,000	933	17 5	21,500	5	0 1
149	*Pajaro River Tributaries	1 070	278 800	261	4 9	1,111,800	1 010	19 3	0	0	0 0
150	*Soquel Creek Group	324	279 900	861	16 2	916 000	2 827	53 0	10,400	32	0 6
151	*Pescadero Creek Group	222	189 300	853	16 0	599 000	2 698	50 5	22,500	101	1 9
	Totals and means for South Pacific Basins	13 569	3 441 800	251	4 7		1011	18 9		11	0 2
	GREAT BASIN										
152	*Tule Lake Group	901	275 200	305	5 7	1,138,900	1,264	23 7	43 200	48	0 9
153	*Goose Lake Group	276	32 300	117	2 2	146,700	533	10 0	4 400	16	0 3
154	*Cowhead Lake Basin	24	5,400	222	4 2	17,500	718	13 5	1 900	78	1 5
155	*Surprise Valley Group	379	84 900	224	4 2	268,600	709	13 3	30,300	80	1 5
156	*Madeline Plains Group	545	110 600	202	3 6	362 700	401	12 4	32 200	59	1 1
157	*Smoke Creek Group	188	37,000	200	3 8	124,300	661	12 4	10,000	53	1 0
158	*Eagle Lake Group	498	91,000	183	3 4	337,300	677	12 7	15,900	32	0 6
159	*Honey Lake Group	1,507	330 800	220	4 1	1,117 000	741	13 0	80,000	53	1 0
160	*Lake Tahoe Basin	499	261 000	523	9 8	1 198 300	2 400	45 0	0	0	0 0
161	Truckee River	447	506 000	1 132	21	1 443 100	3,232	60 6	157 200	352	6 6
162	West Fork Carson River	67	115 200	1,714	32 1	270,000	4,107	77 0	60 000	893	16 7
163	East Fork Carson River	323	309,000	957	17 9	568,500	2 689	60 4	91 300	283	5 3
164	West Walker River	405	313 800	776	14 5	1,079 000	2 664	50 0	110,000	272	5 1
165	East Walker River	411	312 300	758	14 2	1 031 300	2 507	47 0	153 000	373	7 0
166	*Mono Lake Group	166	315 050	1,401	24 4	402 100	2 427	45 5	51,300	310	5 8
167	*Adobe Meadows Group	453	53 100	117	2 2	284 900	629	11 8	0	0	0 0
168	*Owens River (Upper)	524	278 100	531	10 0	516 600	987	18 5	181 800	347	6 5
169	*Bishop Creek Group	446	341 500	766	14 4	712 000	1,600	30 0	154 500	347	6 5
170	*Owens Lake Group	216	83 400	388	7 3	224 300	1,040	19 5	28,600	134	2 5
171	Mojave River	211	98 200	466	8 7	407,700	1 936	36 3	14 600	69	1 3
172	*Antelope Valley Group	119	29 700	249	4 7	104,200	907	17 0	1,300	11	0 2
173	Whitewater River	269	1 300	60	0 9	80 500	299	5 6	1 400	5	0 1
	Totals and means for Great Basin	8,876	3 808 350	419	8 2		1,368	25 7		138	2 6
	Grand totals and means for State	80,825	72 531 350	897	16 8		2 169	40 7		294	5 5

‡Sacramento River at Red Bluff includes all streams preceding it in the list, and its area includes 145 square miles additional See Table 46

*STREAMS GROUPED IN ONE ENTRY IN TABLE

37. Churo Creek, Stillwater Creek.
39. Ash Creek, Bear Creek.
43. Backbone Creek, Rock Creek, Olney Creek.
47. Mill Creek, Deer Creek, Antelope Creek, Big Chico Creek, Little Chico Creek, Sycamore Hollow, Sheep Hollow, Grizzly Hollow, Mud Creek, Rock Creek, Pine Creek, Zimmershed Creek, Camel Creek, Rattlesnake Creek, Stoger Creek, Brush Creek, Rio de Los Berrendos.
48. Butte Creek, Little Dry Creek, Clear Creek, Gold Run Creek, Chambers Ravine, Coal Canyon.
50. North Honcut Creek, South Honcut Creek, Wyman Creek, Wyandotte Creek, Dry Creek.
54. Coon Creek, Antelope Creek, Auburn Ravine.
56. Reeds Creek, North Fork Red Bank Creek, South Fork Red Bank Creek.
57. Elder Creek, Thomes Creek, Rice Creek.
59. Hambright Creek, Willow Creek, Logan Creek, Hunters Creek, Funks Creek, Stone Corral Creek, Sand Creek, Freshwater Creek, Salt Creek, Spring Creek, Cortina Creek.
62. Little Panoche Creek, Laguna Seca, Ortigalita Creek, Los Banos Creek, San Luis Creek, Romero Creek, Quinto Creek, Mustang Creek, Garzas Creek, Crow Creek, Orestimba Creek, Little Salada Creek, Salada Creek, Puerto Creek, Ingram Creek, Hospital Creek, Buenos Aires Creek, Mountain House Creek, Bushy Creek, Kellogg Creek, Marsh Creek, Lone Tree Creek, Sand Creek, Dry Creek, Deer Creek.
64. Domengine Creek, Martinez Creek, Salt Creek, Cantua Creek, Arroyo Hondo, Arroyo Cicrvo.
66. Waltham Creek, Jacalitos Creek, Zapato Creek, Bitterwater Creek, Devil water Creek, Media Agua, Chico Martinez Creek, Salt Creek, Bitter Creek, Santiago Creek, Liveoak Creek, San Emigdio Creek, Pleito Creek, Tecuja Creek, Grapevine Creek, Pastoria Creek, Tunis Creek, El Paso Creek, Tejon Creek, Santos Creek, Canoas Creek, Garza Creek, Avenal Creek, Cottonwood Canyon, Franciscan Creek, Packwood Creek, Buena Vista Creek, Bitterwater Creek, Salt Creek.
69. White River, Poso Creek, Rag Gulch.
72. Yokohl Creek, Lewis Creek, Horse Creek.
74. Lımekiln Creek, Rattlesnake Creek, Stokes Creek, Sand Creek, Wa-to-ke Creek, Greasy Creek.
80. Dry Creek, Daulton Creek.
82. Dutchman Creek, Deadman's Creek.
84. Owens Creek, Miles Creek.
86. Burns Creek, Black Rascal Creek, Fahrens Creek.
89. Wildcat Creek, Dry Creek.
92. Martells Creek, Bear Creek, Rock Creek, Big Spring Creek, Peachyn Creek.
95. Dry Creek, Willow Creek, Sutter Creek.
97. Novato Creek, Gallinas Creek, San Antonio Creek, Adobe Creek, Lynch Creek, Haggin Creek, Tolay Creek.
98. Lovall Valley, Agua Caliente, Hooker Creek, Stewart Creek, Nun's Canyon Creek, Sonoma Creek, Sonoma Canyon.
99. Conn Creek, Rector Canyon, Soda Creek, Milliken Creek, Sarco Creek, Tulucay Creek, Suscol Creek, Lake Chabot System, North Branch Napa Creek, South Branch Napa Creek, Dry Creek, Sulphur Springs.
100. Suisun Creek, Ulatis Creek, Ledgewood Creek, Green Valley Creek, Sulphur Springs Creek.
101. Kirker Creek, Mt. Diablo Creek, Walnut Creek, Rodeo Creek, Pinole Creek.
104. Wildcat Creek, Cerrito Creek, Strawberry Creek, Claremont Creek, Tamescal Creek, Hayes Creek, Indian Creek, Diamond Creek, East Creek, Arroyo Viejo.
107. Musico Creek, Agua Caliente Creek, Agua Fria Creek, Toroges Creek, Scott Creek, Calera Creek, Arroyo de los Coches, Berryessa Creek, Dry Creek, Silver Creek.
111. Los Gatos Creek, San Tomas Creek, Campbell Creek, Calabazas Creek, Stevens Creek, Permanente Creek.
113. Islais Creek, San Bruno Creek, San Mateo Creek, Laurel Creek, Belmont Creek, Pulgas Creek, Cordilleras Creek.
125. Usal Creek, Wade Creek, Ten Mile Creek, Noyo River, Big River, Albion Creek.
127. Donahoe Creek, Elk Creek, Alder Creek, Brush Creek, Garcia River, Gualala River.
130. Walker Creek, San Antonio Creek, Salmon Creek.
131. Bolinas Creek, Inverness Creek, Olema Creek.
136. San Jacinto River, Indian Creek, Poppett Creek, Potrero Creek, Bautiste Creek, Cactus Valley Creek.
137. Santa Ana River, Mill Creek, Sand Creek, City Creek, Plunge Creek, Strawberry Creek, Waterman Canyon, Devil Canyon Creek, Cajon Canyon, Lone Pine Creek, Lytle Creek, San Antonio Creek, Cucamonga Canyon.
138. San Gabriel River, Eaton Creek, Little Santa Anita Creek, Santa Anita Creek, Sawpit Creek, Fish Creek, San Dimas Creek, Big Dalton Canyon.
139. Pacoima Creek, Tujunga Creek, Arroyo Seco, Little Tujunga Canyon.
140. Dume Creek, Ramera Creek, Solstice Creek, Calleguas Creek, Sycamore Creek, Arroyo Sequit, Trancas Canyon, Malibu River, Topanga Creek, Rustic Creeks.
141. Santa Paula Creek, Sespe Creek, Piru Creek, Castaic Creek, San Francisquito Creek, Bouquet Creek.
143. Rincon Creek, San Antonio Creek, Jalama Creek, Honda Creek.
147. Grande Creek, San Luis Obispo Creek, Diablo Creek, Coon Creek, Islay Creek, San Bernardo Creek, Murro Creek, Toro Creek, Villa Creek, Santa Rosa Creek, San Simeon Creek, Arroyo de la Cruz, Big Sur Creek, Little Sur Creek, Carmel River, San Carpajo River, Corral de Piedra Creek, Brisenian Creek, Steiner Creek, Pennington Creek, San Luisito, Davis Canyon, Wild Cherry Canyon, Diablo Canyon, Harford Canyon, Crow Bar Canyon, Pecho Creek, Willow Creek, Old Creek, Cuyucos Creek, Pico Creek, Little Pico Creek, Sierra Creek, Arroyo Hondo, Arroyo de los Chinos, Joshua Creek, Salmon Creek, Villa Creek, Alder Creek, Willow Creek, Prewillitt Creek, Wild Cattle Creek, Mill Creek, Palo Colorado Canyon, Doud Creek, Wild Cat Creek, Granite Canyon, Malpaso Creek, Soberanes Creek.
148. Toro Creek, Pine Canyon, Limekiln Creek, Alisal Creek, Quail Creek, Parsons Creek, Johnson Canyon, Arroyo Seco, Reliz Creek, Shirttail Creek, Chalone Creek, San Carlos Canyon, Aqua Grande Canyon, Monroe Canyon, Thompson Canyon, Branstatter Canyon, Pine Canyon, Cherry Canyon, Keot Canyon, Seven Well Canyon, Felis Canyon, Espinosa Canyon, Broadhurst Canyon, Barrel Canyon, San Lorenzo Creek, Sweetwater Canyon, Wild Horse Canyon, Hamilton Canyon, Long Valley Creek, Pine Valley Creek, Redwood Canyon, Lynch Canyon, Sargent Canyon, Salinas River, San Antonio Creek, Nacimiento River, San Marcos Creek, Huerhuero Creek, Estrella Creek, Vineyard Canyon, Stone Canyon.
149. Pescadero Creek, La Brea Creek, Bodfish Creek, Little Arthur Creek, Uvas Creek, Llagas Creek, Pacheco Creek, Arroyo de las Viboras, Arroyo dos Pichacos, Santa Ana Creek, Tres Pinos Creek, San Benito Creek, Bird Creek, San Juan Creek.
150. San Vicente Creek, Liddell Creek, Respini Creek, Laguna Creek, Coja Creek, Baldwin Creek, Meder Creek, Arroyo de los Frijoles, White House Creek, Cascade Creek, Green Oaks Creek, Ano Nuevo Creek, Finny Creek, Gazos Creek, Waddell Creek, Scott Creek, San Lorenzo Creek, Soquel Creek, Aptos Creek.
151. Pilarcitos Creek, Purisima Creek, Tunitas Creek, San Gregorio Creek, Pomponio Creek, Pescadero Creek, Lobitos Creek, Frenchman's Creek, Denniston Creek, San Vicente Creek, San Pedro Creek.
152. Butte Creek, Antelope Creek, Cottonwood Creek, Lost River.
153. Cottonwood Creek, Myrtle Creek, Fandango Creek, Lassen Creek, Davis Creek.
154. Eight Mile Creek.
155. Dry Creek, Cottonwood Creek, Owl Creek, Rader Creek, Eagle Creek, Barns Creek.
156. Red Rock Creek, Cold Springs Creek, Van Loan Creek.
157. Smoke Creek, Rush Creek.
158. Pine Creek.
159. Susan River, Baxter Creek, Long Valley Creek.
160. Meigs Creek, Ward Creek, Blackwood Creek, Madden Creek, McKinney Creek, General Creek, Lonely Gulch, Upper Truckee River, Taylor Creek.
166. Mill Creek, Gibbs Canyon, Leevining Creek, Parker Creek, Rush Creek, Walker Canyon.
167. Chidago Canyon, Montgomery Creek, Marble Creek, Coldwater Canyon, Lone Tree Creek, Milner Creek, Piute Creek, Birch Creek, Willow Creek, Sacramento Canyon, McGee Canyon, Black Canyon.
168. Owens River (Upper), Rock Creek.
169. Pine Creek, Huckleberry Creek, Horton Creek, McGee Canyon, Birch Creek, Bishop Creek, Rawson Creek, Freeman Creek, Shannon Creek, Baker Creek, Big Pine Creek, Little Pine Creek, Birch Creek, Fuller Creek, Tinemaha Creek, Red Mountain Creek, Taboose Creek, Goodale Creek, Division Creek, Sawmill Creek, Thibaut Creek, Oak Creek, Independence Creek, Pinyon Creek, Symmes Creek.
170. Shepard Creek, Bairs Creek, George Creek, Hogback Creek, Lone Pine Creek, Tuttle Creek, Diaz Creek, Richer Creek, Carroll Creek, Cottonwood Creek, Ash Creek, Braley Creek, Carthage Creek, Olancha Creek, Walker Creek, Summit Creek, Ibanez Creek, Hogback Creek.
172. Amargosa Creek, Little Rock Creek, Big Rock Creek.

The features of all these streams, the amounts of their waters, and the variability of their production, are characterized in Table 3, by values listed in forty columns extending out to the right from the first two, which contain their names and reference numbers. Through these reference numbers, information may be traced in the diagrams and tables of the previous chapters, which is too voluminous to incorporate in this summary tabulation. The values which are listed in the forty columns, all concern the run-off from the drainage areas lying upstream from the main bodies of agricultural land along their lower reaches. The areas of these drainage basins are printed in the third column and in the fourth to the twelfth are values of their run-off expressed in several different units. These entries include the quantity of water running off their collecting areas in an average season, and also in the seasons of greatest and least run-off. The quantities affixed to each stream, definitely locate all the state's waters and show between what limits the flow of sucessive seasons may vary. The mean seasonal quantities express the average amounts in which they may be expected to appear and constitute a statement of all existent waters.

While the average annual water production of all these streams is 72,500,000 acre-feet, this invoice of California's waters shows that the maximum yield is two and three-quarters times this amount, and that the least season's yield is but three-eighths as much. The total run-off in successive seasons, then, fluctuates between limits, one seven times the other, and the value of any one season lies at random between them.

In addition to changing from year to year, all the streams of the state have a fluctuating daily flow. Inclusions have been made in columns 13 to 18, and 35 to 42, of Table 3, to define the extremes between which the daily flows are accustomed to range. Columns 13 to 18 give values to the run-off during the months of July and August. These two midsummer months are times of the year of nearly the least flow and in which water is of much value agriculturally. The quantities include the entire month's run-off, and when divided by sixty, afford values of the average daily flow during the low water periods in cubic feet per second. Contrasting them, are the values of flood flows in columns 35 to 42. These entries are of especial import in not only indicating the upper limits of variability in stream flow, but also in indicating the maximum volumes of water which flood protection works may have to withstand. Comparisons of these flood values with the low water flows of July and August, disclose a surprisingly great range in the rate of flow in California's streams.

As an average over the whole state, the greatest daily flow exceeds five hundred times the least. In taking values between these wide limits for all the days of successive years, the greater flows exceed the least in all degrees of magnitude, but the very large ones are the most infrequent in occurrence. To give perspective to the occurring frequency of exceedingly great flows, the sizes that may be surpassed within intervals of twenty-five, fifty, seventy-five, and one hundred years, are tabulated in columns 35 to 42. These greatest values of mean daily flow constitute the floods of California's streams and it is to be observed in general, that once in twenty-five years the extraordinary values of daily flow swell at least forty-fold, the average volume in their channels; and that once in one hundred years, even these may be exceeded by flows that are one-quarter larger.

So large are the volumes of water that pass down the state's waterways during these great floods, that the rate, which would only be exceeded on an average of four times a century, would send a plethora of waters into the ocean within four days whose aggregate is equivalent to the entire production of every drainage basin in the state for their seasons of least flow. During but one of these days, the total flow would be ample to supply an urban population of seventy millions of people with domestic water for a year, or to irrigate four million acres of agricultural land through an entire season, or still, to generate one hundred thousand horsepower continuously for twelve months when dropping through a height of one hundred feet. Nevertheless, these volumes of water are useless to man because of their extremely infrequent appearance in the stream channels. The waters of lesser floods, however, may be caught by storage works constructed in the mountainous regions and be detained for later release to supplement the waning natural flow in the streams. By such detention of the flood waters for subsequent use, the erratic run-off may be equalized and made available to man at times convenient to his special purposes.

The greatest fractions of the mean seasonal flow which may be constrained to man's service through retention in storage reservoirs, are set forth for all the streams, in column 20 of Table 3, and in column 21 are found the storage capacities required to do this. The yields from lesser amounts of storage are given in columns 23 to 34. The maximum yield possible from the entire water-producing areas of the state is 58,300,000 acre-feet annually, or 80 per cent of the mean seasonal run-off. To secure this maximum yield would require storage of 184,900,000 acre-feet total capacity. This volume is slightly greater than three times the annual equalized yield. Such large proportional amounts of storage are not needed if smaller fractions only, of the mean seasonal flow are equalized. Capacity for storage of two times the net annual yield, will develop 70 per cent of the mean annual run-off from the state's drainage areas, and when this capacity is just equal to the yield in volume, it will develop 40 per cent of the mean annual run-off.

All these hydrographic quantities of Table 3, while having characteristics which qualify the state's waters as a whole, vary considerably for the separate drainage basins. Nevertheless, adjacent basins are sufficiently alike to render distinction to whole regions by reasons of their special values. These regional values, in departing from those for the entire state, are still only indicative of the predominating characteristics of the region, and individual basins may have features widely different from the predominant ones.

The six large topographic divisions of the state have such predominant regional characteristics. Of these, the Sacramento Drainage Basin is the largest. It comprises not only all the area lying between the Coast Range and Sierra Nevada mountains as far south as Suisun Bay, but also the drainage area of Pit River to the east of the mountains in the northeastern corner of the state. This large basin contains one-quarter of the state's water-producing area, and with the exception of the north Pacific Coast region, it produces more than any other of the six divisions and one-third of all California's waters.

The San Joaquin drainage basin is second largest of the six topographic divisions, but only produces one-sixth of the waters. This basin comprises all the area between the Coast Range and Sierra Nevada mountains, southerly from Suisun Bay to Tehachapi Pass. The third largest division is the north Pacific Coast region which includes all the streams draining into the Pacific Ocean northward from San Francisco Bay. It contains only one-fifth of the water-producing area, but over one-third of all the waters of the state run off its drainage area. This is a greater yield than in any other of the divisions. For equal area, it produces one-third more water than the Sacramento Basin and over twice that of the San Joaquin. This region contains the most productive drainage basin in the state, the Smith River. Although it is only 627 square miles in extent, the mean annual run-off is nearly three and one-half million acre-feet.

The region southward from San Francisco Bay which drains into the Pacific Ocean, is called the south Pacific Basin and is the region of smallest water yield. Although containing one-sixth of the drainage area, but one-twentieth of the state's waters run off its slopes. Next in size, is the region of the Great Basin which comprises the areas easterly from California's principal mountain system, and whose waters do not reach the ocean. One-tenth the water-producing area of the state is in this region but it yields only one-twentieth of the waters; its increment is about equal to that of the South Pacific region. The smallest of the six topographic divisions is the area draining into San Francisco Bay which contributes only one per cent to the total waters of the state.

There is a great difference between these six regions in the manner in which their waters run off the collecting areas. Generally, the regions of least total production have the greatest variability in run-off and demand more capacity in storage works to equalize their stream flow. The south Pacific region, the least productive of the six, requires three times the capacity necessary on the Sacramento and San Joaquin streams, to obtain equal effects. The north Pacific region, the most productive of the six, requires slightly more storage than in the Sacramento and San Joaquin basins since it has a smaller summer flow in its streams. The San Francisco Bay region has the least summer flow of the six divisions, but, having a smaller annual fluctuation than the south Pacific region, it falls intermediate in the effectiveness of storage on its streams, between the south Pacific region and the three largest water-producing regions for which storage capacity is nearly equally effective. Almost twice as much capacity is required to gain equal results in the San Francisco Bay region as on the Sacramento and San Joaquin rivers.

The amounts of storage required to equalize the flow, relate largely to the variation between years of maximum and minimum runoff and to the apportionment of the annual run-off between the winter and summer months. The North Pacific region has the smallest variation in annual run-off, and there the maximum is only five times that of the minimum season. The maximum year in the Sacramento Basin is six times the least, while in all the other regions the variation is much larger than in these two: in the San Joaquin it is fifteen times the least, in the San Francisco Bay region it is seventy times the least, and in the south Pacific, the year of maximum run-off is one hundred times the least year. While the San Francisco Bay region has the smallest portion of its waters wetting the stream channels during the summer months, the Great Basin drainage is distinguished by having the largest apportionment of summer flow of any of the six regions. The streams of the San Joaquin Basin are next in order and those of the Sacramento not far behind. The north Pacific region has an intermediate apportionment in the summer months between that of the San Joaquin and that of the South Pacific region.

Similar comparisons may be made between any of the individual drainage basins in the state by entering Table 3 in the proper columns. The flow in all streams during the largest, the smallest, and the average season, as well as during the midsummer months, is there. Also the storage capacity required to equalize their variant flows and the size of extreme floods are enumerated. So, comprised within Table 3, is a complete inventory of all the waters of the state which includes their locations, their quantities, and their variabilities. The values entered in the table are averages for the past half century and should be indicative of future expectancies, so that this table presents in full the water resources of the State of California with their characterizations.

TABLE 4. RAINFALL STATIONS AND SUMMARY OF PRECIPITATION DATA.

This table presents, in alphabetical order, the rainfall stations of the United States Weather Bureau which have records of precipitation covering periods of ten years or longer.

The reference numbers appearing in the first column identify the stations n Tables 2 to 31, inclusive, and on Plates II to XII, inclusive, and XVII. The stations are listed in numerical order on Plates XII and XVII.

The table number in column four refers to Tables 2 to 30, inclusive, Records of Precipitation and Table of Computed Indices of Wetness, and Table 31, Miscellaneous Precipitation Records of U. S. Weather Bureau. These tables present the measured seasonal precipitation at the stations listed, and the computed index of seasonal wetness for each season of the 50-year period from 1871-72 to 1920-21.

In column five is given the designating letter of the precipitation division in which the respective stations are located, the boundaries of which are shown on Plate XII, Map Showing Boundaries of Precipitation Divisions.

In column eight is presented the mean precipitation for the 50-year period for the respective stations. This value is computed for those stations having less than fifty years of record.

Reference number.	Rainfall station.	County.	Table number.	Precipitation Division.	Years of record.	Mean precipitation in inches.		Elevation above sea level in feet.
						Period of record.	50 year period.	
247	Aguanga	Riverside	29	Y	13	13.76	13.8	1,986
3	Alturas	Modoc	5	A	15	12.34	14.2	4,460
237	Anaheim	Orange	28	X	29	11.80	12.0	134
186	Angiola	Tulare	23	S	15	6.51	6.2	208
128	Antioch	Contra Costa	16	L	42	12.52	12.4	46
155	Aptos	Santa Cruz	19	O	30	28.12	26.8	102
227	Arrowhead Springs	San Bernardino	28	X	7	24.30	22.7	2,000
90	Auburn	Placer	14	J	50	33.72	33.7	1,360
220	Azusa	Los Angeles	27	W	22	19.63	20.4	540
269	Bagdad	San Bernardino	31		18	2.17	....	784
188	Bakersfield	Kern	23	S	31	5.58	5.2	394
268	Barstow	San Bernardino	31		24	4.26	....	2,105
190	Bear Valley	Kern	23	S	13	20.02	16.0	4,400
229	Bear Valley Dam	San Bernardino	28	X	22	35.96	36.4	6,500
242	Beaumont	Riverside	28	X	16	19.22	18.5	2,558
241	Beaumont (near)	Riverside	28	X	10	23.34	22.8	3,045
145	Ben Lomond	Santa Cruz	18	N	16	55.55	54.4	300
127	Berkeley	Alameda	31		34	25.72	....	320
47	Biggs	Butte	10	F	17	22.20	20.0	98
262	Bishop	Inyo	30	Z	31	5.43	5.5	4,450
263	Bishop Creek	Inyo	30	Z	7	14.09	15.3	8,500
28	Blocksburg	Humboldt	9	E	11	67.37	63.1	1,700
83	Blue Canyon	Placer	14	J	22	66.17	64.6	4,695
275	Blythe	Riverside	31		9	4.34	....	268
77	Boca	Nevada	13	I	44	21.05	21.1	5,531

TABLE 4—(Continued). RAINFALL STATIONS AND SUMMARY OF PRECIPITATION DATA.

Reference number.	Rainfall station.	County.	Table number.	Precipitation Division.	Years of record.	Mean precipitation in inches.		Elevation above sea level in feet.
						Period of record.	50 year period.	
261	Bodie	Mono	30	Z	11	14.58	17.3	8,248
141	Boulder Creek	Santa Cruz	18	N	28	55.59	53.0	470
74	Bowmans Dam	Nevada	12	H	39	74.38	73.0	5,500
29	Branscomb	Mendocino	9	E	21	85.25	82.4	2,000
243	Cabezon	Riverside	28	X	11	11.60	12.0	1,779
277	Calexico	Imperial	31		16	2.91	....	0
182	Caliente	Kern	22	R	39	10.94	10.8	1,290
134	Calistoga	Napa	17	M	48	36.50	36.5	363
149	Campbell	Santa Clara	18	N	24	15.39	16.1	217
260	Campo	San Diego	29	Y	31	20.50	20.3	2,543
66	Camptonville	Yuba	12	H	14	68.17	74.0	3,500
2	Cedarville	Modoc	5	A	27	13.13	14.7	4,675
45	Chico	Butte	10	F	50	23.78	23.78	189
21	China Flat	Humboldt	7	C	12	45.92	46.5	600
235	Chino	San Bernardino	28	X	22	15.71	16.3	714
81	Cisco	Placer	14	J	46	50.57	50.9	5,939
223	Claremont	Los Angeles	27	W	30	18.10	19.3	1,200
32	Cloverdale	Sonoma	9	E	21	41.73	39.6	340
87	Colfax	Placer	14	J	51	47.81	48.2	2,421
69	Colgate	Yuba	12	H	12	42.77	45.0	700
49	Colusa	Colusa	10	F	40	16.12	16.4	60
44	Corning	Tehama	10	F	34	20.59	19.9	277
236	Corona	Riverside	28	X	12	13.06	13.0	615
232	Craftonville	San Bernardino	28	X	17	14.10	14.9	1,759
23	Crescent City	Del Norte	8	D	30	75.95	73.9	50
109	Crockers	Tuolumne	15	K	13	54.97	50.9	4,452
254	Cuyamaca	San Diego	29	Y	33	38.95	38.8	4,667
131	Davis	Yolo	17	M	49	17.04	17.1	51
72	Deer Creek	Nevada	12	H	14	68.07	73.9	3,700
183	Delano	Kern	22	R	32	6.38	6.6	319
9	Delta	Shasta	6	B	39	63.93	64.0	1,138
114	Denair	Stanislaus	15	K	18	10.39	9.8	126
55	De Sabla	Butte	11	G	17	67.37	69.2	2,500
255	Descanso	San Diego	29	Y	12	22.72	25.4	3,400
68	Dobbins (near)	Yuba	12	H	17	43.76	44.7	1,650
65	Downieville	Sierra	12	H	13	63.55	67.8	3,150
50	Dunnigan	Yolo	10	F	39	20.27	19.7	65
8	Dunsmuir	Siskiyou	6	B	32	53.82	51.8	2,285
46	Durham	Butte	10	F	24	24.96	24.0	160
40	East Park	Colusa	10	F	10	16.98	17.3	1,200
189	Edison	Kern	23	S	16	11.21	9.4	2,500
59	Edmanton	Plumas	11	G	13	73.28	66.5	4,750
257	El Cajon	San Diego	29	Y	22	13.75	13.7	482
101	Electra	Amador	15	K	17	32.44	32.7	725
240	Elsinore	Riverside	28	X	22	13.16	13.5	1,234
82	Emigrant Gap	Placer	14	J	41	52.91	54.5	5,230
252	Escondido	San Diego	29	Y	24	16.00	16.6	650
24	Eureka	Humboldt	8	D	34	42.52	42.3	64
246	Fallbrook	San Diego	29	Y	27	17.27	17.2	700
116	Farmington	San Joaquin	15	K	38	16.49	15.9	111
146	Felton	Santa Cruz	18	N	26	46.88	44.7	275
95	Folsom	Sacramento	14	J	50	24.37	24.4	252
76	Fordyce Dam	Nevada	12	H	27	68.43	67.8	6,500
1	Fort Bidwell	Modoc	5	A	36	18.31	17.2	4,640
27	Fort Bragg	Mendocino	8	D	21	38.66	40.7	74
20	Fort Gaston	Humboldt	8	D	25	50.45	50.3	397
34	Fort Ross	Sonoma	9	E	45	53.87	53.2	100
169	Fresno	Fresno	21	Q	40	9.78	9.6	293
42	Fruto	Glenn	10	F	22	21.67	19.5	624
104	Galt	Sacramento	15	K	42	18.26	18.1	49
89	Georgetown	El Dorado	14	J	46	57.92	57.3	2,650
153	Gilroy	Santa Clara	19	O	47	19.90	19.8	193
224	Glendora	Los Angeles	27	W	11	23.66	23.2	740
267	Glen Ranch	San Bernardino	31		16	35.40	....	3,256
181	Glennville	Kern	22	R	12	20.96	21.2	5,500

TABLE 4—(Continued). RAINFALL STATIONS AND SUMMARY OF PRECIPITATION DATA.

Reference number.	Rainfall station.	County.	Table number.	Precipitation Division.	Years of record.	Mean precipitation in inches.		Elevation above sea level in feet.
						Period of record.	50 year period.	
85	Gold Run	Placer	14	J	20	51.09	49.3	3,222
192	Gonzales	Monterey	24	T	16	12.60	11.6	127
70	Grass Valley	Nevada	12	H	46	53.00	52.8	2,490
60	Greenville	Plumas	11	G	20	43.66	39.7	3,600
48	Gridley	Butte	10	F	10	22.31	21.9	97
108	Groveland	Tuolumne	15	K	8	43.96	38.0	1,400
133	Guinda	Yolo	17	M	20	21.92	21.0	350
173	Hanford	Kern	21	Q	19	8.49	8.5	249
67	Head Dam	Yuba	12	H	14	54.23	58.8	1,500
33	Healdsburg	Sonoma	9	E	44	41.84	41.4	52
35	Helen Mine	Lake	10	F	21	87.67	83.0	2,750
159	Hollister	San Benito	19	O	47	13.19	13.1	284
15	Hornbrook	Siskiyou	7	C	28	14.74	13.6	2,154
178	Hot Springs	Tulare	22	R	10	25.65	23.5	3,300
39	Hullville	Lake	10	F	14	51.23	52.3	2,250
245	Idyllwild	Riverside	28	X	10	27.80	26.1	5,250
264	Independence	Inyo	30	Z	30	4.87	4.3	3,957
272	Indio	Riverside	31		43	2.91	....	—20
57	Inskip	Butte	11	G	14	80.08	88.5	4,975
103	Ione	Amador	15	K	43	20.39	20.2	287
86	Iowa Hill	Placer	14	J	31	52.63	50.1	2,825
180	Isabella	Kern	22	R	13	10.62	10.3	2,500
196	Jolon	Monterey	24	T	37	18.09	17.7	960
253	Julian	San Diego	29	Y	22	32.85	32.1	4,500
266	Keeler	Inyo	30	Z	24	3.01	3.2	3,620
100	Kennedy Mine	Amador	15	K	29	32.14	30.9	1,500
10	Kennett	Shasta	6	B	14	63.35	66.3	730
141	Kentfield	Marin	17	M	33	48.25	46.7	65
179	Kernville	Kern	22	R	27	10.30	10.0	2,600
194	King City	Monterey	24	T	32	11.12	11.0	330
36	Kono Tayee (Lakeport)	....	10	....	....	....	....	....
113	La Grange	Stanislaus	15	K	36	16.46	16.8	293
36	Lakeport	Lake	10	F	21	22.77	23.6	1,325
75	Lake Spaulding	Nevada	12	H	27	70.25	69.6	4,600
63	La Porte	Plumas	11	G	25	76.62	77.5	5,000
147	Laurel	Santa Cruz	18	N	25	49.10	48.2	910
165	Le Grand	Merced	20	P	21	12.67	12.0	255
175	Lemon Cove	Tulare	22	R	21	14.66	14.0	600
152	Lick Observatory	Santa Clara	18	N	40	30.60	30.0	4,209
120	Livermore	Alameda	16	L	50	15.30	15.30	485
117	Lodi	San Joaquin	16	L	24	19.46	17.9	35
265	Lone Pine	Inyo	30	Z	16	5.70	4.3	3,728
221	Lordsburg	Los Angeles	27	W	14	21.00	19.4	1,320
222	Los Angeles	Los Angeles	27	W	44	15.50	15.2	361
160	Los Banos	Merced	20	P	39	7.95	8.2	121
148	Los Gatos	Santa Clara	18	N	36	33.09	32.8	600
216	Lowe Observatory	Los Angeles	27	W	21	27.50	28.9	3,420
226	Lytle Creek	San Bernardino	28	X	16	38.40	36.0	2,250
4	Madeline	Lassen	5	A	13	14.60	17.5	5,270
54	Magalia	Butte	11	G	13	85.24	81.5	2,321
51	Marysville	Yuba	10	F	50	19.71	19.71	67
6	McCloud	Siskiyou	6	B	10	46.72	50.0	3,270
273	Mecca	Riverside	31		16	3.22	....	—185
168	Mendota	Fresno	21	Q	13	6.54	6.3	177
164	Merced	Merced	20	P	49	11.02	11.1	173
112	Merced Falls	Merced	15	K	11	15.87	16.2	351
251	Mesa Grande	San Diego	29	Y	13	30.39	30.4	3,350
98	Mill Creek No. 1	Amador	15	K	14	44.42	48.0	2,450
231	Mill Creek No. 2	San Bernardino	28	X	18	24.36	23.0	2,950
124	Mills College	Alameda	16	L	21	26.41	24.8	200
176	Milo	Tulare	22	R	20	22.85	21.3	1,600
106	Milton	Calaveras	15	K	33	21.56	20.7	660
163	Modesto	Stanislaus	20	P	44	10.66	10.7	90
214	Mojave	Kern	26	V	37	4.93	4.8	2,751
102	Mokelumne Hill	Calaveras	15	K	36	31.93	31.0	1,550

TABLE 4—(Continued). RAINFALL STATIONS AND SUMMARY OF PRECIPITATION DATA.

Reference number.	Rainfall station.	County.	Table number.	Precipitation Division.	Years of record.	Mean precipitation in inches.		Elevation above sea level in feet.
						Period of record.	50 year period.	
17	Montague	Siskiyou	7	C	30	12.26	11 6	2,450
157	Monterey	Monterey	19	O	41	16.25	16.3	15
215	Monterio	Kern	26	V	13	17.87	18.0	4,500
142	Mt. Tamalpais	Marin	17	M	22	26.80	26.8	2,375
217	Mt. Wilson	Los Angeles	27	W	17	33.30	31.8	5,850
138	Napa	Napa	17	M	41	23.66	23.4	20
270	Needles	San Bernardino	31		29	4 28	...	477
249	Nellie	San Diego	29	Y	13	48.38	45 4	5,350
71	Nevada City	Nevada	12	H	57	53 89	52.21	2,580
92	New Castle	Placer	14	J	14	34 27	29.7	970
212	Newhall	Los Angeles	25	U	38	17 87	17.5	1,268
161	Newman	Stanislaus	20	P	32	10 83	10.2	91
121	Niles	Alameda	16	L	42	19.05	18.7	87
73	North Bloomfield	Nevada	12	H	43	53.98	54.6	3,200
166	North Fork	Madera	21	Q	12	35.52	35.9	3,000
37	North Lakeport	Lake	10	F	18	30.40	28.5	1,450
115	Oakdale	Stanislaus	15	K	34	14.27	14 0	156
126	Oakland	Alameda	31		47	23.84	...	36
250	Oceanside	San Diego	29	Y	10	12.87	12.8	60
209	Ojai Valley	Ventura	25	U	16	23.87	20.6	900
43	Orland	Glenn	10	F	38	18.02	17.5	254
19	Orleans	Humboldt	7	C	18	50.00	46.8	520
53	Oroville	Butte	11	G	36	28 03	27.7	250
204	Ozena	Ventura	24	T	15	17.10	15.8	3,680
52	Palermo	Butte	11	G	23	23.98	22.0	213
271	Palm Springs	Riverside	31		26	4.50	...	584
197	Parkfield	Monterey	24	T	11	17.64	16.8	2,800
218	Pasadena	Los Angeles	27	W	22	18.52	19.8	827
199	Paso Robles	San Luis Obispo	24	T	34	16.35	16.3	800
137	Peachland	Sonoma	17	M	25	41.11	41.4	190
140	Petaluma	Sonoma	17	M	29	23.93	24.2	10
88	Pilot Creek	El Dorado	14	J	20	69.21	65.9	4,000
205	Pine Crest	Santa Barbara	25	U	17	27.95	25.3	1,000
97	Placerville	El Dorado	14	J	43	42.65	42.5	1,875
258	Point Loma	San Diego	29	Y	17	11.20	10.7	302
143	Point Reys	Marin	31		38	20.98	...	490
184	Porterville	Tulare	23	S	32	10.13	9.4	464
256	Poway	San Diego	29	Y	24	13.96	13.9	460
195	Priest Valley	Monterey	24	T	19	21.54	20.3	2,240
61	Quincy	Plumas	11	G	26	42 14	42.0	3,400
13	Red Bluff	Tehama	6	B	44	25.19	24.7	307
12	Redding	Shasta	6	B	46	38.52	37.7	552
233	Redlands	San Bernardino	28	X	32	14.64	14.7	1,352
171	Reedley	Fresno	21	Q	20	11.65	11.5	347
129	Rio Vista	Solano	16	L	24	17.87	17.3	35
234	Riverside	Riverside	28	X	40	10.89	10.7	851
93	Rocklin	Placer	14	J	48	22.01	22.4	249
25	Rohnerville	Humboldt	8	D	19	42.86	42.8	75
94	Sacramento	Sacramento	31		72	18.72	...	71
135	St. Helena	Napa	17	M	13	35.42	37.0	255
158	Salinas	Monterey	19	O	47	14.05	14.0	40
274	Salton	Riverside	31		18	2.66	...	—263
228	San Bernardino	San Bernardino	28	X	51	16.11	16.15	1,054
259	San Diego	San Diego	29	Y	71	9.66	9 94	87
125	San Francisco	San Francisco	31		72	22.49	...	207
170	Sanger	Fresno	21	Q	25	10.66	10 3	371
244	San Jacinto	Riverside	28	X	28	12.98	13 4	1,550
150	San Jose	Santa Clara	18	N	47	15.11	15 1	95
123	San Leandro	Alameda	16	L	14	23 77	22 7	48
201	San Luis Obispo	San Luis Obispo	24	T	52	21 27	21 62	201
122	San Mateo	San Mateo	16	L	47	20.61	20 6	22
198	San Miguel	San Luis Obispo	24	T	28	11.84	11 6	616
207	San Miguel Island	Santa Barbara	25	U	23	13.40	13.5	500
238	Santa Ana	Orange	28	X	11	12 98	12 6	133
206	Santa Barbara	Santa Barbara	25	U	54	18.54	18 82	130

TABLE 4—(Concluded). RAINFALL STATIONS AND SUMMARY OF PRECIPITATION DATA.

Reference number.	Rainfall station.	County.	Table number.	Precipitation Division.	Years of record.	Mean precipitation in inches.		Elevation above sea level in feet.
						Period of record.	50 year period.	
151	Santa Clara	Santa Clara	18	N	38	16.19	15.9	90
156	Santa Cruz	Santa Cruz	19	O	43	27.23	27.1	20
200	Santa Margarita	San Luis Obispo	24	T	27	28.32	27.4	996
202	Santa Maria	Santa Barbara	24	T	30	14.16	14.2	220
211	Santa Monica	Los Angeles	25	U	36	14.99	14.4	110
136	Santa Rosa	Sonoma	17	M	33	30.38	29.4	181
172	Selma	Fresno	21	Q	29	9.11	9.0	311
230	Seven Oaks	San Bernardino	28	X	10	28.26	27.6	5,000
11	Shasta	Shasta	6	B	17	53.80	51.2	1,049
96	Shingle Springs	El Dorado	14	J	35	33.72	34.1	1,415
219	Sierra Madre	Los Angeles	27	W	24	24.22	25.7	1,400
64	Sierraville	Sierra	11	G	12	23.12	26.2	5,000
203	Sisquoc Ranch	Santa Barbara	24	T	10	19.92	17.6	600
7	Sisson	Siskiyou	6	B	32	36.56	35.2	3,555
193	Soledad	Monterey	24	T	45	9.48	9.4	188
139	Sonoma	Sonoma	17	M	17	28.46	26.5	30
107	Sonora	Tuolumne	15	K	26	33.96	32.5	1,825
191	Spreckles	Monterey	24	T	16	13.98	13.2	43
177	Springville	Tulare	22	R	14	35.14	34.3	4,000
62	Stanwood	Butte	11	G	15	67.66	65.1	2,140
276	Sterling	Imperial	31		43	2.32	....	255
58	Stirling City	Butte	11	G	14	75.85	70.5	3,525
118	Stockton	San Joaquin	16	L	54	14.08	14.18	23
167	Storey	Madera	21	Q	21	9.63	9.4	296
130	Suisun	Solano	17	M	46	19.66	19.8	20
111	Summerdale	Mariposa	15	K	14	55.00	51.3	5,000
80	Summit	Placer	14	J	50	46.38	46.38	7,017
5	Susanville	Lassen	5	A	28	20.70	21.9	4,195
79	Tamarack	Alpine	13	I	18	49.02	49.6	8,030
213	Tehachapi	Kern	....	V	37	10.69	10.4	3,964
14	Tehama	Tehama	31		44	20.53	....	220
84	Towle	Placer	14	J	30	57.36	56.4	3,704
119	Tracy	San Joaquin	16	L	40	10.13	9.8	64
78	Truckee	Nevada	13	I	50	26.13	26.3	5,819
185	Tulare	Tulare	23	S	44	8.39	8.4	289
239	Tustin (near)	Orange	28	X	44	13.13	13.0	200
31	Ukiah	Mendocino	9	E	44	36.82	36.4	620
225	Upland	San Bernardino	27	W	20	21.00	23.1	1,750
38	Upper Lake	Lake	10	F	28	28.25	26.8	1,350
26	Upper Mattole	Humboldt	8	D	33	85.04	84.1	244
105	Valley Springs	Calaveras	15	K	26	24.37	22.5	673
208	Ventura	Ventura	25	U	35	15.94	16.5	50
174	Visalia	Tulare	21	Q	41	9.89	9.6	334
18	Walla Walla Creek	Siskiyou	7	C	34	25.32	30.6	2,570
248	Warner Springs	San Diego	29	Y	15	17.67	17.7	3,165
187	Wasco	Kern	23	S	18	6.43	5.4	336
154	Watsonville	Santa Cruz	19	O	31	21.71	21.1	23
22	Weaverville	Trinity	7	C	31	37.81	39.2	2,162
56	West Branch	Butte	11	G	14	72.35	80.0	3,216
162	Westley	Stanislaus	20	P	26	10.70	10.0	90
99	West Point	Calaveras	15	K	24	41.85	40.2	2,326
210	West Saticoy	Ventura	25	U	19	14.72	15.1	150
91	Wheatland	Yuba	14	J	29	22.21	21.3	84
30	Willits	Mendocino	9	E	29	55.91	54.9	1,364
41	Willows	Glenn	10	F	42	16.65	16.6	136
132	Woodland	Yolo	17	M	48	17.49	17.5	63
110	Yosemite	Mariposa	15	K	15	32.68	35.1	3,945
16	Yreka	Siskiyou	7	C	40	17.57	18.1	2,625

TABLE 5. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION A—UPPER PIT-TULE LAKE-GREAT BASIN AREA.

Rainfall stations, depth or precipitation in inches and index of seasonal wetness.

Season.	Fort Bidwell.		Cedarville.		Alturas.		Madeline.		Susanville.		Index of seasonal wetness. Division A.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	13.94	81	......	81	......	81	......	81	......	81	81
1872-1873	12.95	75	......	75	......	75	......	75	......	75	75
1873-1874	12.27	71	......	71	......	71	......	71	......	71	71
1874-1875	10.63	62	......	62	......	62	......	62	......	62	62
1875-1876	12.64	73	......	73	......	73	......	73	......	73	73
1876-1877	34.02	197	......	197	......	197	......	197	......	197	197
1877-1878	14.55	84	......	84	......	84	......	84	......	84	84
1878-1879	13.98	81	......	81	......	81	......	81	......	81	81
1879-1880	25.94	150	......	150	......	150	......	150	......	150	150
1880-1881	31.29	181	......	181	......	181	......	181	......	181	181
1881-1882	20.94	121	......	121	......	121	......	121	......	121	121
1882-1883	12.84	74	......	74	......	74	......	74	......	74	74
1883-1884	27.16	158	......	158	......	158	......	158	......	158	158
1884-1885	20.46	119	......	119	......	119	......	119	......	119	119
1885-1886	28.45	165	......	165	......	165	......	165	......	165	165
1886-1887	20.41	118	......	118	......	118	......	118	......	118	118
1887-1888	15.63	91	......	91	......	91	......	91	......	91	91
1888-1889	20.02	116	......	116	......	116	......	116	......	116	116
1889-1890	27.30	158	......	163	......	163	......	163	36.26	166	162
1890-1891	16.80*	98	......	95	......	95	......	95	20.31	93	95
1891-1892	14.38*	83	......	89	......	89	......	89	20.32	94	89
1892-1893	18.79*	109	......	129	......	129	......	129	31.55	144	128
1893-1894	......	94	......	93	......	93	......	93	20.23	93	93
1894-1895	......	104	9.18	62	......	103	......	103	28.07	129	100
1895-1896	......	117	16.37	112	......	116	......	116	25.70	118	116
1896-1897	......	114	17.54	120	......	113	......	113	23.59	108	113
1897-1898	......	68	10.91	74	......	67	......	67	13.41	61	67
1898-1899	......	70	13.10	89	......	70	......	70	12.24	56	71
1899-1900	......	94	14.22	97	......	93	......	93	19.59	90	93
1900-1901	......	103	16.01	109	......	102	......	102	21.05	96	102

TABLE 5.

1901-1902	......	86	12.50	85	......	85	......	85	18.31	84	85
1902-1903	......	78	12.48	85	......	77	......	77	15.65	71	77
1903-1904	......	119	18.62	127	......	118	......	118	24.27	111	118
1904-1905	......	77	12.20	83	12.58	89	......	79	15.50	71	80
1905-1906	......	99	15.63	107	14.18	100	......	98	19.76	90	99
1906-1907	......	137	17.21	117	17.05	120	......	133	32.42	148	131
1907-1908	......	74	9.88	67	10.28	73	......	73	16.62	76	73
1908-1909	......	109	18.26	124	11.71	83	17.48	100	21.02	96	102
1909-1910	......	75	13.60	93	10.26	72	12.33	71	13.46	61	77
1910-1911	......	114	15.04	103	17.05	120	19.20	110	26.00	119	113
1911-1912	12.73	74	9.21	63	10.71	76	12.19	70	9.44	43	65
1912-1913	12.26	71	10.63	73	11.92	84	10.40	59	24.90	114	80
1913-1914	17.86	104	15.63	106	14.61	103	31.70	182	25.69	118	123
1914-1915	12.59	73	10.21	69	9.32	66	9.50	54	10.32	47	62
1915-1916	13.36	77	10.02	68	12.39	87	17.36	100	21.40	98	86
1916-1917	14.58	85	12.80	87	15.08	106	11.04	63	......	97	88
1917-1918	10.41	60	9.22	63	7.77	55	9.31	53	12.43	57	58
1918-1919	13.57	79	9.34	63	10.13	71	11.18	64	......	67	69
1919-1920	11.85	69	11.36	77	......	54	5.98	34	......	66	60
1920-1921	19.11	111	13.33	91	......	111	22.15	127	......	101	108
Years of record	36		27		15		13		28		
Mean of record	18.31		13.13		12.34		14.60		20.70		
50-year mean	17.20		14.70		14.20		17.50		21.90		
County	Modoc		Modoc		Modoc		Lassen		Lassen		
Elevation	4,640		4,675		4,460		5,270		4,195		
Station reference number	1		2		3		4		5		

Precipitation data are from U. S. Weather Bureau records unless otherwise noted.
*From Water Supply Paper No. 81
Streams within boundaries of Precipitation Division A: Pit River, Sacramento River, Tule Lake Group, Goose Lake Group, Cowhead Lake Group, Surprise Valley Group, Madeline Plains Group, Smoke Creek Group, Eagle Lake Group, Honey Lake Group.

TABLE 6. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION B—UPPER SACRAMENTO AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	McCloud.		Sisson.		Dunsmuir.		Delta.		Kennett.		Shasta.		Redding.		Red Bluff.		Index of seasonal wetness. Division B.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	111	......	111	......	111	......	111	......	111	......	111	......	111	......	111	111
1872-1873	......	53	......	53	......	53	......	53	......	53	......	53	......	53	......	53	53
1873-1874	......	85	......	85	......	85	......	85	......	85	......	85	......	85	......	85	85
1874-1875	......	51	......	51	......	51	......	51	......	51	......	51	......	51	......	51	51
1875-1876	......	154	......	154	......	154	......	154	......	154	......	154	58.02	154	......	154	154
1876-1877	......	69	......	69	......	69	......	69	......	69	......	69	26.01	69	......	69	69
1877-1878	......	181	......	181	......	181	......	181	......	181	......	181	59.49	158	53.22	215	182
1878-1879	......	93	......	93	......	93	......	93	......	93	......	93	37.06	98	21.17	85	92
1879-1880	......	107	......	107	......	107	......	107	......	107	......	107	36.60	97	30.26	122	107
1880-1881	......	128	......	128	......	128	......	128	......	128	......	128	50.77	135	28.90	117	127
1881-1882	......	75	......	75	......	75	......	75	......	75	......	75	25.44	67	21.12	85	75
1882-1883	......	76	......	76	......	76	55.27	86	......	76	......	76	22.01	58	18.58	75	75
1883-1884	......	99	......	99	......	99	71.48	112	......	99	......	99	29.09	77	24.01	97	98
1884-1885	......	58	......	58	......	58	34.71	54	......	58	......	58	24.35	65	14.69	59	58
1885-1886	......	123	......	123	......	123	75.84	118	......	123	......	123	44.83	119	35.16	142	124
1886-1887	......	60	......	60	......	60	35.50	55	......	60	......	60	24.35	65	15.72	63	60
1887-1888	......	54	......	54	......	54	25.50	40	......	54	......	54	25.10	67	17.27	70	55
1888-1889	......	105	......	105	......	105	73.52	115	......	105	......	105	35.86	95	23.41	95	104
1889-1890	......	200	73.47	208	119.02	230	124.47	195	......	200	......	200	68.55	182	41.87	169	198
1890-1891	......	65	19.64	56	25.74	49	43.81	68	......	65	......	65	27.20	72	22.44	90	66
1891-1892	......	76	28.93	82	38.04	73	42.97	67	......	76	......	76	29.71	79	21.57	87	77
1892-1893	......	116	43.02	122	60.74	117	66.98	105	......	116	......	116	45.53	121	32.32	130	117
1893-1894	......	92	30.98	88	60.38	116	43.75	68	......	92	......	92	38.51	102	22.21	90	92
1894-1895	......	128	34.71	98	79.15	152	86.89	136	......	128	......	128	41.74	111	29.71	120	125
1895-1896	......	122	38.58	109	64.98	125	82.32	129	......	122	71.28	139	43.53	115	23.56	95	120
1896-1897	......	97	30.54	87	51.36	99	54.30	85	......	97	55.22	108	39.58	105	25.44	103	97
1897-1898	......	60	28.31	80	39.38	76	35.90	56	......	60	25.37	49	15.66	42	15.18	61	60
1898-1899	......	68	15.97	45	38.24	74	39.05	61	......	68	35.19	68	29.15	77	21.68	88	68
1899-1900	......	113	48.21	137	59.14	114	76.40	119	......	113	52.93	103	37.67	100	23.88	97	112
1900-1901	......	102	45.17	128	43.11	83	67.32	105	......	102	55.26	108	33.22	88	24.64	99	102

TABLE 6.

1901-1902	......	131	49.63	141	59.68	115	85.31	133	......	131	70.72	138	50.72	135	31.74	128	131
1902-1903	......	107	44.62	127	48.53	93	60.04	94	......	107	61.05	119	45.33	120	24.22	98	108
1903-1904	......	145	50.14	142	81.31	157	83.16	130	......	145	78.60	153	59.04	157	31.50	127	144
1904-1905	......	121	48.71	138	52.45	101	80.23	125	......	121	62.02	121	45.12	120	33.82	137	121
1905-1906	......	115	38.76	110	59.51	115	63.69	99	......	115	59.38	116	48.07	127	34.59	140	117
1906-1907	......	122	42.30	120	71.65	138	71.57	112	......	122	58.36	114	47.60	126	27.97	113	123
1907-1908	......	85	37.24	106	38.20	74	55.77	87	48.00	72	44.36	86	36.08	96	20.08	81	85
1908-1909	......	142	49.70	141	73.77	142	104.99	164	99.02	150	67.99	132	49.57	131	31.13	126	147
1909-1910	......	82	30.19	85	42.99	83	50.29	79	56.96	86	40.81	79	33.19	88	17.64	71	82
1910-1911	......	95	38.61	109	58.68	113	61.19	96	54.56	82	40.96	80	31.42	83	24.70	100	100
1911-1912	36.15	72	27.99	79	44.84	86	44.79	70	51.63	78	35.17	68	29.76	79	16.81	68	76
1912-1913	40.64	81	30.23	86	48.48	93	40.21	63	47.99	72	......	79	30.30	80	18.95	77	81
1913-1914	70.34	140	48.66	138	68.97	133	95.27	149	97.98	148	......	143	58.82	156	34.48	139	140
1914-1915	65.30	131	42.59	121	60.67	117	98.81	154	95.07	144	......	137	54.86	146	34.79	141	130
1915-1916	59.39	119	33.85	96	58.84	113	79.04	123	73.09	110	......	108	38.00	101	21.35	86	106
1916-1917	32.31	65	22.86	65	28.07†	54	52.18†	81	43.84	66	......	71	29.15	77	19.25	78	76
1917-1918	34.19	68	18.47	52	32.48†	63	72.37†	113	36.58	55	......	73	21.36	57	12.11	49	66
1918-1919	42.02	84	29.44	83	41.03†	79	41.03†	64	56.52	85	......	84	41.33	110	26.19	106	86
1919-1920	25.42	51	15.99	45	15.02†	29	31.95†	50	35.73	54	......	47	25.78	68	11.27	45	48
1920-1921	61.46	123	33.33	94	57.84†	112	85.47†	133	89.86	136	......	118	47.18	125	27.92	113	119
Years of record	10		32		32		39		14		17		46		44		
Mean of record	46.72		36.56		53.82		63.93		63.35		53.80		38.52		25.19		
50-year mean	50.00		35.20		51.80		64.00		66.30		51.20		37.70		24.70		
County	Siskiyou		Siskiyou		Siskiyou		Shasta		Shasta		Shasta		Shasta		Tehama		
Elevation	3,270		3,555		2,285		1,138		730		1,049		552		307		
Station reference number	6		7		8		9		10		11		12		13		

Precipitation data are from U. S. Weather Bureau records unless otherwise noted.

†From records of Southern Pacific Railroad.

Streams within boundaries of Precipitation Division B: Sacramento River (Upper), Pit River, McCloud River, Churn Creek Group, Cow Creek, Bear Creek, Battle Creek, Ink's Creek, Payne's Creek, Backbone Creek Group, Clear Creek, Cottonwood Creek, Sacramento River (at Red Bluff).

TABLE 7. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION C—KLAMATH-TRINITY AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Hornbrook.		Yreka.		Montague.		Walla Walla Creek.		Orleans.		China Flat.		Weaverville.		Index of seasonal wetness. Division C.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	111	......	111	......	111	23.21	76	......	111	......	111	54.57	139	110
1872-1873	......	53	12.04	66	......	53	13.82	45	......	53	......	53	21.06	54	54
1873-1874	......	85	12.77	70	......	85	21.81	71	......	85	......	85	40.24	103	83
1874-1875	......	51	10.20	56	......	51	12.72	42	......	51	......	51	21.72	55	51
1875-1876	......	118	22.04	122	......	118	31.13	102	......	118	......	118	51.13	131	118
1876-1877	......	73	14.02	77	......	73	19.12	62	......	73	......	73	32.24	82	73
1877-1878	......	117	18.73	103	......	117	23.47	77	......	117	......	117	60.70	155	115
1878-1879	......	88	13.32	74	......	88	26.05	85	......	88	......	88	38.21	97	87
1879-1880	......	100	17.57	97	......	100	33.31	109	......	100	......	100	37.00	94	100
1880-1881	......	115	20.48	113	......	115	31.37	103	......	115	......	115	49.72	127	115
1881-1882	......	81	13.08	72	......	81	28.08	92	......	81	......	81	28.93	74	80
1882-1883	......	77	12.16	67	......	77	24.36	80	......	77	......	77	31.32	80	76
1883-1884	......	92	16.20	89	......	92	26.41	86	......	92	......	92	38.09	97	92
1884-1885	......	81	19.68	109	......	81	22.49	73	......	81	......	81	29.41	75	83
1885-1886	......	108	18.95	104	......	108	30.92	101	......	108	......	108	44.96	115	107
1886-1887	......	88	19.03	105	......	88	27.42	90	......	88	......	88	31.35	80	90
1887-1888	......	89	15.70	87	......	89	25.20	82	......	89	......	89	37.54	96	88
1888-1889	11.50	84	10.42	57	7.37	64	20.24	66	......	70	......	70	29.74	76	69
1889-1890	25.65	189	30.42	168	24.19	210	49.97	163	......	174	......	174	67.04	171	178
1890-1891	12.12	89	12.92	71	9.87	85	26.51	87	......	81	......	81	30.18	77	81
1891-1892	11.85	87	14.12	78	5.63	49	36.72	120	......	93	......	93	36.51	93	88
1892-1893	12.96	95	16.53	91	9.26	80	......	110	......	105	......	105	46.16	118	101
1893-1894	21.15	155	30.50	168	17.27	149	......	166	......	159	......	159	......	153	158
1894-1895	9.80	72	19.75	109	7.05	61	......	88	......	84	......	84	......	81	83
1895-1896	18.77	138	23.28	129	10.35	88	......	126	......	121	......	121	......	116	120
1896-1897	13.71	101	20.84	115	13.99	121	......	116	......	112	......	112	......	107	112
1897-1898	9.17	67	13.05	72	4.22	36	......	64	......	61	......	61	......	59	60
1898-1899	10.87	80	12.41	68	6.31	54	......	71	......	68	......	68	......	66	68
1899-1900	13.18	97	18.11	100	11.42	99	......	103	......	99	......	99	......	95	99
1900-1901	15.63	115	23.55	130	......	113	......	126	......	121	......	121	......	117	121

TABLE 7.

1901-1902	11.69	86	19.34	107	......	89	......	100	......	96	......	96	......	92	95
1902-1903	17.63	130	16.12	89	......	97	......	109	......	104	......	104	......	100	105
1903-1904	21.49	158	31.29	173	21.71	187	......	179	81.93	175	......	173	......	166	173
1904-1905	18.48	136	20.28	112	12.68	109	......	124	44.10	94	......	112	......	115	115
1905-1906	16.09	118	22.10	122	13.17	114	......	124	52.96	113	......	117	......	115	118
1906-1907	18.68	137	......	137	15.16	131	......	142	61.75	132	......	135	......	131	135
1907-1908	7.46	55	......	79	12.05	104	......	81	44.94	96	......	83	......	75	82
1908-1909	16.98	125	......	127	14.37	124	......	131	52.28	112	......	121	......	121	123
1909-1910	11.95	88	......	89	10.11	87	......	92	54.49	117	44.00	94	......	85	93
1910-1911	11.21	82	......	102	13.89	120	......	104	42.01	90	39.58	85	......	96	97
1911-1912	16.27	120	......	126	14.97	129	......	130	51.11	109	43.22	93	......	120	118
1912-1913	6.85	50	......	83	13.69	118	......	87	50.45	108	49.21	106	31.55	80	90
1913-1914	17.98	132	......	150	19.04	164	......	142	51.98	111	57.87	124	46.02	118	135
1914-1915	16.91	124	......	120	12.99	112	......	123	46.18	99	54.28	117	43.87	112	115
1915-1916	16.63	122	17.29	95	11.03	95	......	102	49.20	105	49.02	106	34.60	88	102
1916-1917	......	80	12.67	70	11.07	96	......	78	41.20	88	39.34	84	26.17	67	80
1917-1918	......	64	11.08	61	7.93	68	......	65	32.95	71	32.52	70	22.46	57	65
1918-1919	......	114	19.63	108	14.12	122	......	113	50.60	108	49.18	106	38.58	98	110
1919-1920	......	54	9.25	51	6.84	59	......	56	29.01	62	27.90	60	20.52	52	56
1920-1921	......	129	21.96	121	16.16	139	......	136	62.79	135	64.87	139	50.41	129	133
Years of record	28		40		30		34		18		12		31		
Mean of record	14.74		17.57		12.26		25.32		50.00		45.92		37.81		
50-year mean	13.60		18.10		11.60		30.60		46.80		46.50		39.20		
County	Siskiyou.		Siskiyou.		Siskiyou.		Siskiyou.		Humboldt.		Humboldt.		Trinity.		
Elevation	2,154		2,625		2,450		2,570		520		600		2,162		
Station reference number	15		16		17		18		19		21		22		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division C: Klamath River, Shasta River, Scott River, Salmon River, Trinity River.

TABLE 8. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION D—NORTH PACIFIC COAST AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Fort Gaston.		Crescent City.		Eureka.		Rhonerville.		Upper Mattole.		Fort Bragg.		Index of seasonal wetness. Division D.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	52.21	104	......	104	......	104	......	104	......	104	......	104	104
1872-1873	31.09	62	......	62	......	62	......	62	......	62	......	62	62
1873-1874	50.30	100	......	100	......	100	......	100	......	100	......	100	100
1874-1875	34.71	69	......	69	......	69	......	69	......	69	......	69	69
1875-1876	83.46	166	......	166	......	166	......	166	......	166	......	166	166
1876-1877	46.05	92	......	92	......	92	......	92	......	92	......	92	92
1877-1878	66.57	132	......	132	......	132	......	132	......	132	......	132	132
1878-1879	52.53	105	......	105	......	105	......	105	......	105	......	105	105
1879-1880	65.72	131	......	131	......	131	......	131	......	131	......	131	131
1880-1881	56.64	113	......	113	......	113	......	113	......	113	......	113	113
1881-1882	50.93	101	......	101	......	101	......	101	......	101	......	101	101
1882-1883	45.50	90	......	90	......	90	......	90	......	90	......	90	90
1883-1884	46.22	92	......	92	......	92	......	92	......	92	......	92	92
1884-1885	34.84	69	......	69	......	69	......	69	......	69	......	69	69
1885-1886	69.85	139	109.59	145	......	142	......	142	......	142	......	142	142
1886-1887	52.26	104	72.62	96	......	99	......	99	......	99	......	99	99
1887-1888	41.20	82	65.21	86	34.47	79	......	86	79.03	92	......	86	85
1888-1889	37.17	74	53.83	71	34.14	79	......	74	63.09	73	......	74	74
1889-1890	77.01	153	113.06	149	74.10	171	......	156	134.92	157	......	156	157
1890-1891	43.84	87	64.63	85	35.41	82	......	81	63.81	74	......	81	82
1891-1892	......	81	58.56	77	38.14	88	......	81	69.13	80	......	81	81
1892-1893	......	103	71.14	94	49.15	114	......	103	91.98	107	......	103	104
1893-1894	......	109	79.39	105	55.20	127	......	109	88.09	102	......	109	110
1894-1895	......	100	61.40	81	45.97	106	......	100	98.62	115	......	100	100
1895-1896	......	98	59.04	78	52.45	121	......	98	90.01	105	40.02	96	99
1896-1897	......	99	72.29	96	51.10	118	......	99	79.12	92	41.41	99	101
1897-1898	......	74	57.61	76	35.12	81	......	72	59.96	70	24.34	58	72
1898-1899	......	74	66.95	88	35.72	82	......	74	48.38	56	32.30	78	75
1899-1900	......	118	87.35	115	51.73	119	......	118	103.25	120	......	118	118
1900-1901	......	96	66.88	88	47.58	110	......	96	82.98	96	......	96	97

TABLE 8.

1901-1902	......	119	89.42	118	51.96	120	55.26	126	103.60	120	......	119	120
1902-1903	......	114	86.87	115	51.73	119	48.35	110	95.86	111	......	114	114
1903-1904	......	148	107.70	142	65.21	150	61.49	140	130.64	152	......	148	147
1904-1905	......	94	64.71	85	32.74	76	41.19	94	95.49	111	39.30	94	92
1905-1906	......	89	66.73	88	39.04	90	41.83	95	77.21	90	39.28	94	91
1906-1907	......	114	86.70	115	50.54	116	43.91	100	96.34	112	43.65	105	110
1907-1908	......	78	60.54	80	35.99	83	36.70	84	63.23	73	32.10	77	79
1908-1909	......	117	......	117	42.96	99	45.88	104	108.97	126	56.88	136	117
1909-1910	......	91	......	91	40.36	93	39.06	89	77.72	90	44.44	107	94
1910-1911	......	80	......	80	32.09	74	35.08	80	72.04	84	32.60	78	79
1911-1912	......	91	......	91	38.70	89	39.84	91	79.29	92	34.14	82	89
1912-1913	......	82	......	82	36.03	83	38.85	89	70.25	82	35.50	85	84
1913-1914	......	106	......	106	37.32	86	47.95	109	100.75	117	52.86	127	109
1914-1915	......	120	89.74	119	42.42	98	56.37	129	113.82	132	56.07	135	122
1915-1916	......	105	97.56	129	39.99	92	46 63	106	77.75	90	38.85	93	103
1916-1917	......	73	69.73	92	31.36	72	35.16	80	49.48	57	31.44	75	75
1917-1918	......	74	63.50	84	24.34	56	27.48	63	......	74	22.34	54	68
1918-1919	......	100	78.62	104	39.80	92	47.86	109	86.44	100	42.42	102	101
1919-1920	......	57	48.47	64	23.95	55	25.49	58	43.73	51	19.45	47	55
1920-1921	......	131	107.77	142	48.81	113	......	130	111.50	130	52.42	126	129
Years of record	25		30		34		19		33		21		
Mean of record	50.45		75.95		42.52		42.86		85.04		38.66		
50-year mean	50.27		75.70		43.37		43.85		86.11		41.67		
County	Humboldt.		Del Norte.		Humboldt.		Humboldt.		Humboldt.		Mendocino.		
Elevation	397		50		64		75		244		74		
Station reference number	20		23		24		25		26		27		

Precipitation data are from U. S. Weather Bureau records.

Streams included within boundaries of Precipitation Division D: Smith River, Redwood Creek, Mad River, Bear Creek, Mattola River, Noyo River Group, Navarro River, Gualala River Group, Lagunitas Creek, Salmon Creek Group, Bolinas Creek Group.

TABLE 9. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION E—UPPER EEL-RUSSIAN RIVER AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Blocksburg. Inches.	Blocksburg. Index.	Branscomb. Inches.	Branscomb. Index.	Willits. Inches.	Willits. Index.	Ukiah. Inches.	Ukiah. Index.	Cloverdale. Inches.	Cloverdale. Index.	Healdsburg. Inches.	Healdsburg. Index.	Fort Ross. Inches.	Fort Ross. Index.	Index of seasonal wetness. Division E.
1871-1872	......	125	......	125	......	125	......	125	......	125	......	125	......	125	125
1872-1873	......	79	......	79	......	79	......	79	......	79	......	79	......	79	79
1873-1874	......	103	......	103	......	103	......	103	......	103	......	103	......	103	103
1874-1875	......	73	......	73	......	73	......	73	......	73	......	73	......	73	73
1875-1876	......	110	......	110	......	110	......	110	......	110	......	110	58.28	110	110
1876-1877	......	59	......	59	......	59	......	59	......	59	......	59	31.42	59	59
1877-1878	......	164	......	164	......	164	54.88	151	......	164	67.27	163	92.86	175	164
1878-1879	......	118	......	118	87.34	159	36.23	100	......	118	42.60	103	52.84	99	116
1879-1880	......	118	......	118	64.00	117	42.86	118	......	118	45.11	109	67.27	127	118
1880-1881	......	105	......	105	54.31	99	29.49	81	......	105	45.44	110	65.74	124	104
1881-1882	......	78	......	78	43.60	79	26.70	73	......	78	31.35	76	44.20	83	78
1882-1883	......	78	......	78	37.20	68	23.93	66	......	78	38.02	92	45.48	85	78
1883-1884	......	75	......	75	35.42	64	24.41	67	......	75	31.14	75	48.54	91	75
1884-1885	......	56	......	56	31.35	57	19.88	55	......	56	16.35	39	36.53	69	55
1885-1886	......	119	......	119	64.81	118	45.69	125	......	119	54.05	131	56.00	105	119
1886-1887	......	63	......	63	38.54	70	22.33	61	......	63	29.57	71	26.69	50	63
1887-1888	......	69	......	69	39.37	72	25.42	70	......	69	34.86	84	28.50	53	69
1888-1889	......	74	......	74	39.53	72	30.82	85	......	74	37.15	90	29.46	55	75
1889-1890	......	148	......	148	83.21	152	60.48	166	......	148	72.37	175	59.27	112	150
1890-1891	......	66	......	66	37.17	68	24.50	67	......	66	31.50	76	29.75	56	66
1891-1892	......	96	......	96	51.75	94	29.49	81	......	96	39.36	95	57.55	108	95
1892-1893	......	119	......	119	63.63	116	43.53	120	......	119	53.63	130	60.45	114	120
1893-1894	......	115	......	115	68.25	124	47.93	132	43.87	111	36.85	89	62.11	117	115
1894-1895	......	144	......	144	70.10	128	52.55	144	66.24	167	59.91	145	75.68	143	145
1895-1896	......	114	......	114	64.41	117	40.85	112	......	114	49.57	120	57.51	108	114
1896-1897	......	105	......	105	48.57	88	43.31	119	......	105	39.27	95	63.98	120	105
1897-1898	......	68	......	68	43.48	79	19.83	54	......	68	23.31	56	39.07	73	67
1898-1899	......	87	......	87	45.73	83	27.60	76	......	87	37.18	90	51.86	98	87
1899-1900	......	100	......	100	56.73	103	33.69	92	......	100	42.33	102	53.54	101	100
1900-1901	......	100	84.86	103	60.61	110	37.09	102	......	99	39.79	96	47.00	88	100

TABLE 9.

1901-1902	......	122	101.00	122	65.43	119	45.07	124	......	122	52.22	126	63.63	120	122
1902-1903	......	102	89.07	108	55.50	101	34.55	95	38.20	96	39.17	95	59.37	112	101
1903-1904	......	153	132.62	161	86.60	158	54.73	150	53.78	136	63.20	153	79.17	149	151
1904-1905	......	112	72.62	88	57.58	105	42.93	118	50.60	128	52.98	128	69.14	130	116
1905-1906	72.68	115	90.80	110	65.74	120	44.75	123	46.28	117	52.12	126	62.43	118	119
1906-1907	81.41	129	101.09	123	61.48	112	48.64	134	50.56	127	54.50	132	67.55	127	126
1907-1908	57.42	91	66.86	81	......	74	29.67	81	29.04	73	28.83	70	39.07	73	78
1908-1909	77.92	123	111.09	135	......	147	57.39	158	64.86	164	61.07	148	73.81	139	145
1909-1910	62.20	98	76.84	93	......	85	29.89	82	34.81	88	30.27	73	50.62	95	88
1910-1911	55.88	89	70.22	85	......	85	32.99	91	38.96	98	32.86	79	45.91	86	88
1911-1912	59.00	93	67.95	82	......	67	25.73	71	24.85	63	24.73	60	36.53	69	72
1912-1913	63.32	100	84.54	103	......	83	33.40	92	29.33	74	30.27	73	45.53	86	87
1913-1914	81.96	130	97.90	119	......	143	54.85	151	64.25	162	60.28	146	72.60	137	141
1914-1915	71.70	114	98.01	119	......	138	49.28	135	56.73	143	56.94	138	74.40	140	132
1915-1916	57.55	91	88.39	107	......	105	34.80	96	38.26	96	44.55	108	58.10	109	102
1916-1917	......	80	75.99	92	......	77	30.23	83	27.37	69	27.39	66	43.16	81	78
1917-1918	......	61	58.51	71	......	60	23.43	64	17.17	43	23.22	56	......	60	59
1918-1919	......	89	71.50	87	......	90	37.23	102	33.88	85	33.58	81	46.66	88	89
1919-1920	......	52	46.12	56	......	51	19.05	52	19.04	48	19.25	46	28.48	53	51
1920-1921	......	128	104.23	127	......	130	47.94	132	48.23	122	55.40	134	66.26	125	128
Years of record	11		21		29		44		21		44		45		
Mean of record	67.37		85.25		55.91		36.82		41.73		41.84		53.87		
50-year mean	63.10		82.40		54.90		36.40		39.60		41.40		53.20		
County	Humboldt.		Mendocino.		Mendocino.		Mendocino.		Sonoma.		Sonoma.		Sonoma.		
Elevation	1,700		2,000		1,364		620		340		52		100		
Station reference number	28		29		30		31		32		33		34		

Precipitation data are from U. S. Weather Bureau records.
Streams included within boundaries of Precipitation Divsion E: Mad River, Eel River, Russian River.

TABLE 10. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION F—WEST CENTRAL SACRAMENTO AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season	Helen Mine.		Lakeport.		North Lakeport.		Upper Lake.		Hullville.		East Park.		Willows.		Fruto.		Orland.	
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches	Index.
1871-1872	......	116	......	116	......	116	......	116	......	116	......	116	......	116	......	116	......	116
1872-1873	......	63	......	63	......	63	......	63	......	63	......	63	......	63	......	63	......	63
1873-1874	......	120	......	120	......	120	......	120	......	120	......	120	......	120	......	120	......	120
1874-1875	......	82	21.96	93	......	82	......	82	......	82	......	82	......	82	......	82	......	82
1875-1876	......	112	31.96	136	......	112	......	112	......	112	......	112	......	112	......	112	......	112
1876-1877	......	60	12.08	51	......	60	......	60	......	60	......	60	......	60	......	60	......	60
1877-1878	......	142	......	141	......	142	......	142	......	142	......	142	......	142	......	142	......	142
1878-1879	......	78	18.86	80	......	78	......	78	......	78	......	78	......	78	......	78	......	78
1879-1880	......	91	25.81	109	......	91	......	91	......	91	......	91	13.96	84	......	91	......	91
1880-1881	......	83	19.50	83	......	83	......	83	......	83	......	83	13.85	84	......	83	......	83
1881-1882	......	65	14.52	62	......	65	......	65	......	65	......	65	8.28	50	......	65	......	65
1882-1883	......	70	16.63	71	......	70	......	70	......	70	......	70	8.45	51	......	70	......	70
1883-1884	......	98	22.23	94	......	98	......	98	......	98	......	98	18.84	114	......	98	17.83	102
1884-1885	......	54	......	55	......	54	......	54	......	54	......	54	7.80	47	......	54	8.78	50
1885-1886	......	125	......	125	......	125	......	125	......	125	......	125	19.45	118	......	125	21.96	125
1886-1887	......	64	......	67	......	64	14.80	55	......	64	......	64	8.07	49	......	64	10.18	58
1887-1888	......	66	......	63	......	66	15.45	58	......	66	......	66	9.92	60	......	66	13.52	77
1888-1889	......	91	......	102	......	91	17.80	67	......	91	......	91	10.30	62	......	91	14.62	84
1889-1890	......	176	......	178	......	176	42.70	159	......	176	......	176	29.94	181	38.04	195	27.75	159
1890-1891	......	92	......	88	......	92	21.39	80	......	92	......	92	18.91	114	19.53	100	15.12	86
1891-1892	......	92	......	93	......	92	25.55	96	......	92	......	92	18.82	114	18.80	96	14.03	80
1892-1893	......	137	......	138	......	137	31.78	119	......	137	......	137	27.30	165	27.80	142	24.00	137
1893-1894	......	81	22.57	95	......	81	31.01	116	......	81	......	81	11.45	69	14.80	76	12.78	73
1894-1895	......	150	35.18	149	......	150	40.40	151	......	150	......	150	26.04	157	27.45	140	24.66	141
1895-1896	......	117	22.81	97	......	117	29.65	111	......	117	......	117	22.18	134	21.55	110	21.95	125
1896-1897	......	110	23.45	99	......	110	29.86	112	......	110	......	110	18.82	114	22.65	116	22.95	131
1897-1898	......	55	12.36	52	......	55	15.56	58	......	55	......	55	6.58	40	8.32	43	7.89	45
1898-1899	......	80	17.99	76	......	80	20.56	77	......	80	......	80	13.05	79	15.45	79	15.39	88
1899-1900	......	110	23.91	101	......	110	31.75	119	......	110	......	110	15.23	92	18.35	94	18.07	103
1900-1901	88.74	107	22.91	97	......	107	28.08	105	......	107	......	107	17.49	106	22.10	113	21.13	121

TABLE 10.

1901-1902	126.70	152	26.03	110	34.44	121	31.13	116	......	127	......	127	21.67	131	26.70	137	25.31	145
1902-1903	75.35	91	22.53	95	26.30	92	25.84	96	......	95	......	95	17.10	103	17.40	89	17.33	99
1903-1904	114.54	138	28.94	123	43.15	151	39.73	149	......	129	......	129	20.28	123	24.00	123	21.59	123
1904-1905	94.36	114	......	136	36.27	127	33.19	124	......	136	......	136	24.55	148	34.40	176	29.18	167
1905-1906	104.71	126	......	144	37.33	131	31.70	118	......	131	......	131	19.85	120	25.80	132	23.31	133
1906-1907	117.94	142	......	128	34.33	120	30.73	115	......	123	......	123	17.88	108	21.30	109	14.91	85
1907-1908	54.55	66	......	75	21.65	76	21.80	81	30.94	59	......	72	13.44	81	14.28	73	14.19	81
1908-1909	126.29	152	......	113	44.47	156	39.21	146	62.53	120	......	130	22.09	133	22.61	116	22.17	127
1909-1910	66.56	80	......	86	23.22	82	24.83	93	37.71	72	......	82	14.03	85	13.85	71	14.49	83
1910-1911	77.16	93	......	116	25.99	91	28.15	105	52.04	99	......	106	19.60	118	21.52	110	20.83	119
1911-1912	56.28	68	......	52	19.22	68	17.99	67	40.42	77	10.44	60	11.26	68	......	59	11.45	65
1912-1913	68.61	83	......	70	23.47	83	24.86	93	43.82	84	11.03	64	13.18	80	......	76	13.51	77
1913-1914	123.19	148	......	154	44.56	157	45.48	170	78.47	150	28.85	166	29.28	177	......	158	28.77	164
1914-1915	108.84	131	......	132	40.37	142	......	144	69.72	133	31.09	179	27.19	164	......	144	27.78	159
1915-1916	97.48	117	......	110	26.25	92	......	104	59.59	114	18.04	104	18.11	109	......	104	17.30	99
1916-1917	69.45	84	......	84	21.75	76	......	81	48.98	94	12.73	74	11.43	69	......	81	12.27	70
1917-1918	49.38	60	......	65	17.49	61	......	67	35.52	68	11.74	68	11.90	72	......	67	12.42	71
1918-1919	71.38	86	......	98	27.02	95	......	95	56.61	108	15.05	87	12.90	78	......	95	15.52	89
1919-1920	45.23	55	......	63	......	58	......	60	27.80	53	8.63	50	7.70	47	......	60	8.22	47
1920-1921	104.37	126	35.99	152	......	132	......	134	73.05	140	22.15	128	21.28	129	......	135	21.76	130
Years of record	21		21		18		28		14		10		42		22		38	
Mean of record	87.67		22.77		30.40		28.25		51.23		16.98		16.65		21.67		18.02	
50-year mean	83.00		23.60		28.50		26.80		52.30		17.30		16.60		19.50		17.50	
County	Lake.		Lake.		Lake.		Lake.		Lake.		Colusa.		Glenn.		Glenn.		Glenn.	
Elevation	2,750		1,325		1,450		1,350		2,250		1,200		136		624		254	
Station reference number	35		36		37		38		39		40		41		42		43	

Precipitation data are from U. S. Weather Bureau records.

TABLE 10—(Concluded). RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION F—WEST CENTRAL SACRAMENTO AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Corning.		Chico.		Durham.		Biggs.		Gridley.		Colusa.		Dunnigan.		Marysville.		Index of seasonal wetness. Division F.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	116	31.32	132	......	116	......	116	......	116	16.76	102	......	116	21.57	109	116
1872-1873	......	63	14.64	62	......	63	......	63	......	63	10.18	62	......	63	13.10	66	63
1873-1874	......	120	25.30	106	......	120	......	120	......	120	18.82	115	......	120	27.74	141	120
1874-1875	......	82	18.76	79	......	82	......	82	......	82	14.34	87	......	82	13.68	69	82
1875-1876	......	112	24.70	104	......	112	......	112	......	112	19.35	118	......	112	17.36	88	112
1876-1877	......	60	16.32	69	......	60	......	60	......	60	9.74	59	......	60	12.16	62	60
1877-1878	......	142	34.72	146	......	142	......	142	......	142	33.01	201	22.12	112	23.74	120	142
1878-1879	......	78	19.47	82	......	78	......	78	......	78	14.11	86	12.41	63	15.76	80	78
1879-1880	......	91	17.55	74	......	91	......	91	......	91	19.21	117	13.93	71	18.93	96	91
1880-1881	9.55	48	17.62	74	......	83	......	83	......	83	17.96	110	19.65	100	17.43	88	83
1881-1882	12.14	61	16.93	71	......	65	......	65	......	65	12.66	77	11.61	59	14.38	73	65
1882-1883	11.94	60	17.20	72	......	70	......	70	......	70	11.66	71	16.23	82	15.25	77	70
1883-1884	19 10	96	21.44	90	......	98	......	98	......	98	20.36	124	19.67	100	15.28	78	99
1884-1885	......	55	12.97	54	......	54	......	54	......	54	11.69	71	11.69	59	8.15	41	54
1885-1886	......	125	26.99	113	......	125	......	125	......	125	21.64	132	29.50	150	22.27	113	125
1886-1887	14.35	72	15.76	66	......	64	......	64	......	64	11.37	69	13.86	70	12.86	65	64
1887-1888	15.38	77	12.97	54	......	66	......	66	......	66	10.65	65	14.35	73	14.28	73	66
1888-1889	17.21	86	20.22	85	......	91	......	91	......	91	17.77	108	21.33	108	23.28	118	91
1889-1890	34 64	174	37.39	157	......	176	......	176	......	176	30.00	183	37.45	190	38.91	197	177
1890-1891	20.79	104	18.81	79	......	92	......	92	......	92	17.85	109	18.51	94	15.72	80	93
1891-1892	13.40	67	25.43	107	......	92	......	92	......	92	......	97	14.85	75	18.99	96	92
1892-1893	24.16	121	34.42	145	......	137	......	137	......	137	......	143	30.58	155	22.93	116	138
1893-1894	15.79	79	21.54	91	......	81	......	81	......	81	10.98	67	14.29	72	10.27	52	80
1894-1895	33.90	170	37.23	156	......	150	......	150	......	150	......	147	28.39	144	26.83	136	149
1895-1896	25.25	127	27.33	115	26.01	108	......	117	......	117	......	122	28.96	147	19.61	99	117
1896-1897	25.15	126	26.44	111	25.01	104	......	110	......	110	......	105	21.60	109	17.77	90	110
1897-1898	9.11	46	15.86	67	16.31	68	......	55	......	55	......	58	11.68	59	12.74	65	54
1898-1899	16.34	82	18.85	79	17.38	73	......	80	......	80	......	80	16.82	85	16.53	84	80
1899-1900	25.73	129	23.72	100	28.12	117	23.95	120	......	110	......	107	19.06	96	28.07	143	110
1900-1901	23.76	119	22.12	93	25.39	106	20.98	105	......	107	......	105	21 08	107	24.02	122	108

TABLE 10.

1901-1902	26.65	134	23.59	99	28.53	119	23.17	116	......	127	......	110	23.28	118	20.54	104	129
1902-1903	18.65	94	24.27	102	22.78	95	19.16	96	......	95	14.83	90	17.92	91	21.26	108	95
1903-1904	24.35	122	27.74	117	32.46	135	22.95	115	......	129	16.99	103	22.74	115	22.50	114	126
1904-1905	32.30	162	33.00	139	32.11	134	29.06	145	......	136	21.42	130	29.12	147	26.50	135	141
1905-1906	29.30	147	30.99	130	30.59	127	28.09	141	......	131	21.08	128	27.34	138	27.76	141	132
1906-1907	19.05	96	28.61	120	29.52	123	23.14	116	......	123	16.26	99	26.46	134	32.25	164	119
1907-1908	16.75	84	18.46	78	17.98	75	13.74	69	16.37	75	11.36	69	14.14	72	16.91	86	75
1908-1909	25.03	125	30.61	129	29.31	122	27.35	137	25.76	118	16.67	101	23.00	117	20.72	105	126
1909-1910	15.32	77	21.05	89	21.71	91	16.30	82	19.04	87	12.24	75	16.27	82	19.48	99	83
1910-1911	20.94	105	24.93	105	23.75	99	22.85	114	25.29	115	18.64	113	23.97	121	26.42	134	110
1911-1912	14.45	72	14.26	60	15.30	64	12.29	62	12.78	58	7.18	44	8.45	43	11.76	60	61
1912-1913	16.29	85	21.55	91	24.31	101	16.76	84	19.14	87	9.68	59	11.07	56	13.76	70	79
1913-1914	26.63	134	38.19	161	35.44	148	31.20	156	33.81	152	27.00	165	30.16	153	28.54	145	156
1914-1915	32.97	165	32.73	138	32.48	135	24.09	121	30.63	144	20.21	123	26.16	132	27.57	140	143
1915-1916	13.55	68	28.91	122	26.70	111	22.25	111	22.22	101	17.44	106	21.01	106	21.69	110	105
1916-1917	......	82	23.88	100	20.79	87	......	82	18.10	83	11.11	68	......	83	16.17	82	81
1917-1918	......	67	16.55	70	15.64	65	......	67	......	65	9.72	59	......	70	12.56	64	66
1918-1919	......	96	23.66	99	21.36	89	......	95	......	95	15.01	91	......	96	21.52	109	94
1919-1920	......	61	18.17	76	......	60	......	60	......	58	7.59	46	......	61	12.90	66	57
1920-1921	......	136	33.78	142	......	135	......	135	......	133	20.30	124	......	132	25.08	127	133
Years of record	34		50		24		17		10		40		39		50		
Mean of record	20.59		23.78		24.96		22.20		22.31		16.12		20.27		19.71		
50-year mean	19.90		23.78		24.00		20.00		21.90		16.40		19.70		19.71		
County	Tehama.		Butte.		Butte.		Butte.		Butte.		Colusa.		Yolo.		Yuba.		
Elevation	277		189		160		98		97		60		65		67		
Station reference number	44		45		46		47		48		49		50		51		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division F: Red Bank Creek Group, Elder Creek Group, Stony Creek, Willow Creek Group, Cache Creek, Putah Creek.

TABLE 11. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION G—FEATHER RIVER AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Palermo.		Oroville.		Magalia.		De Sabla.		West Branch.		Inskip.		Stirling City.	
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.
1871-1872	......	126	......	126	......	126	......	126	......	126	......	126	......	126
1872-1873	......	74	......	74	......	74	......	74	......	74	......	74	......	74
1873-1874	......	106	......	106	......	106	......	106	......	106	......	106	......	106
1874-1875	......	66	......	66	......	66	......	66	......	66	......	66	......	66
1875-1876	......	122	......	122	......	122	......	122	......	122	......	122	......	122
1876-1877	......	61	......	61	......	61	......	61	......	61	......	61	......	61
1877-1878	......	96	......	96	......	96	......	96	......	96	......	96	......	96
1878-1879	......	104	......	104	......	104	......	104	......	104	......	104	......	104
1879-1880	......	123	......	123	......	123	......	123	......	123	......	123	......	123
1880-1881	......	107	......	107	......	107	......	107	......	107	......	107	......	107
1881-1882	......	95	......	95	......	95	......	95	......	95	......	95	......	95
1882-1883	......	80	......	80	......	80	......	80	......	80	......	80	......	80
1883-1884	......	113	......	113	......	113	......	113	......	113	......	113	......	113
1884-1885	......	77	......	77	......	77	......	77	......	77	......	77	......	77
1885-1886	......	116	32.01	116	......	116	......	116	......	116	......	116	......	116
1886-1887	......	63	17.44	63	......	63	......	63	......	63	......	63	......	63
1887-1888	......	64	17.76	64	......	64	......	64	......	64	......	64	......	64
1888-1889	......	100	27.56	100	......	100	......	100	......	100	......	100	......	100
1889-1890	......	180	49.64	180	......	180	......	180	......	180	......	180	......	180
1890-1891	......	77	21.37	77	......	77	......	77	......	77	......	77	......	77
1891-1892	24.02	109	26.90	97	......	103	......	103	......	103	......	103	......	103
1892-1893	27.02	123	28.46	103	......	126	......	126	......	126	......	126	......	126
1893-1894	16.32	74	21.86	79	......	91	......	91	......	91	......	91	......	91
1894-1895	32.10	146	34.48	125	......	123	......	123	......	123	......	123	......	123
1895-1896	23.22	106	34.22	124	......	133	......	133	......	133	......	133	......	133
1896-1897	25.68	117	29.60	107	......	106	......	106	......	106	......	106	......	106
1897-1898	10.94	50	17.97	65	......	66	......	66	......	66	......	66	......	66
1898-1899	17.70	81	23.47	85	......	74	......	74	......	74	......	74	......	74
1899-1900	27.86	126	34.71	126	......	116	......	116	......	116	......	116	......	116
1900-1901	25.90	118	30.17	109	......	114	......	114	......	114	......	114	......	114

TABLE 11.

1901-1902	26.75	122	29.73	107	......	107	......	107	......	107	......	107	......	107
1902-1903	25.17	115	24.25	88	......	94	......	94	......	94	......	94	......	94
1903-1904	28.92	132	32.69	118	......	142	......	142	......	142	......	142	100.79	143
1904-1905	32.77	149	33.44	121	73.20	90	67.36	97	......	106	......	106	67.35	95
1905-1906	29.51	134	33.47	121	98.78	121	79.62	115	......	130	......	130	101.40	144
1906-1907	31.67	144	37.03	134	112.42	138	94.50	137	......	153	......	153	125.20	178
1907-1908	18.12	83	19.43	70	46.61	57	45.80	66	55.76	70	60.81	69	38.75	54
1908-1909	28.47	130	34.11	123	122.51	150	88.02	127	115.35	144	121.06	137	92.67	131
1909-1910	19.09	87	22.53	82	76.90	95	57.92	84	70 19	88	71.62	81	50.12	71
1910-1911	25.64	117	29.06	105	86.21	106	72.57	105	83.89	105	89.12	101	73.13	104
1911-1912	13.55	62	19.50	71	49.86	61	43.95	63	45.60	57	52.64	59	41.51	59
1912-1913	16.45	75	21.05	76	60.68	74	59.75	86	61.68	77	67.07	76	64.00	91
1913-1914	24.59	112	38.90	141	106.63	131	97.88	142	99.96	125	115.11	130	99.91	142
1914-1915	......	72	36.82	133	110.55	136	86.33	125	87.83	110	93.97	106	94.40	134
1915-1916	......	95	31.33	113	100.54	123	70.96	103	80.42	100	92.17	104	50.82	72
1916-1917	......	80	23.81	86	63.23	78	62.19	90	69.46	87	80.16	90	61.87	88
1917-1918	......	55	18.38	66	......	56	39.37	57	47.11	59	52 69	59	......	56
1918-1919	......	81	22.95	83	......	80	57.72	83	61.38	77	71.64	81	......	79
1919-1920	......	53	17.79	64	......	54	36.97	53	42.01	52	51.27	58	......	54
1920-1921	......	102	35.24	128	......	105	84.33	122	92.32	115	101.74	115	......	102
Years of record	23		36		13		17		14		14		14	
Mean of record	23.98		28.03		85.24		67.37		72.35		80.08		75.85	
50-year mean	22.00		27.70		81.50		69.20		80.00		88.50		70.50	
County	Butte.		Butte.		Butte.		Butte.		Butte.		Butte.		Butte.	
Elevation	213		250		2,321		2,500		3,216		4,975		3,525	
Station reference number	52		53		54		55		56		57		58	

Precipitation data are from U. S. Weather Bureau records.

TABLE 11—(Concluded). RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION G—FEATHER RIVER AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Edmanton.		Greenville.		Quincy.		Stanwood.		La Porte.		Sierraville.		Index of seasonal wetness. Division G.
	Inches.	Index.	Inches	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	126	......	126	......	126	......	126	......	126	......	126	126
1872-1873	......	74	......	74	......	74	......	74	......	74	......	74	74
1873-1874	......	106	......	106	......	106	......	106	......	106	......	106	106
1874-1875	......	66	......	66	......	66	......	66	......	66	......	66	66
1875-1876	......	122	......	122	......	122	......	122	......	122	......	122	122
1876-1877	......	61	......	61	......	61	......	61	......	61	......	61	61
1877-1878	......	96	......	96	......	96	......	96	......	96	......	96	96
1878-1879	......	104	......	104	......	104	......	104	......	104	......	104	104
1879-1880	......	123	......	123	......	123	......	123	......	123	......	123	123
1880-1881	......	107	......	107	......	107	......	107	......	107	......	107	107
1881-1882	......	95	......	95	......	95	......	95	......	95	......	95	95
1882-1883	......	80	......	80	......	80	......	80	......	80	......	80	80
1883-1884	......	113	......	113	......	113	......	113	......	113	......	113	113
1884-1885	......	77	......	77	......	77	......	77	......	77	......	77	77
1885-1886	......	116	......	116	......	116	......	116	......	116	......	116	116
1886-1887	......	63	......	63	......	63	......	63	......	63	......	63	63
1887-1888	......	64	......	64	......	64	......	64	......	64	......	64	64
1888-1889	......	100	......	100	......	100	......	100	......	100	......	100	100
1889-1890	......	180	......	180	......	180	......	180	......	180	......	180	180
1890-1891	......	77	......	77	......	77	......	77	......	77	......	77	77
1891-1892	......	103	......	103	......	103	......	103	......	103	......	103	103
1892-1893	91.18	137	......	126	......	126	......	126	......	126	......	126	125
1893-1894	66.99	101	......	91	......	91	......	91	......	91	......	91	89
1894-1895	88.93	134	57.05	144	......	123	......	123	74.29	96	......	123	125
1895-1896	95.01	143	52.81	133	58.85	140	......	133	101.65	131	......	133	131
1896-1897	67.13	101	37.95	95	42.56	101	......	106	87.93	113	......	106	106
1897-1898	42.04	64	30.30	75	32.05	76	......	66	48.12	62	......	66	66
1898-1899	47.65	72	23.30	59	28.33	68	......	74	64.05	83	......	74	74
1899-1900	73.52	111	42.64	105	50.84	121	......	116	90.60	117	......	116	117
1900-1901	77.64	117	43.34	109	48.90	116	......	114	88.19	114	......	114	114

TABLE 11.

1901-1902	72.95	110	36.36	92	42.04	100	......	107	86.13	111	......	107	107
1902-1903	61.68	93	36.56	92	41.95	100	......	94	69.38	90	......	94	95
1903-1904	101.30	152	56.75	143	57.78	138	91.87	141	113.35	146	......	142	140
1904-1905	66.65	100	39.80	100	46.64	111	72.49	111	......	124	......	106	109
1905-1906	......	130	51.05	129	54.75	130	87.65	135	......	136	......	130	130
1906-1907	......	151	67.34	169	73.22	174	97.78	150	119.07	154	......	153	153
1907-1908	......	79	32.00	81	34.92	83	49.56	76	64.27	83	......	71	73
1908-1909	......	135	53.98	136	59.67	142	87.27	134	110.59	143	......	137	136
1909-1910	......	93	35.73	90	29.73	71	55.78	86	88.39	114	24.54	94	87
1910-1911	......	159	59.91	151	52.80	126	75.43	116	165.05	213	34.14	130	126
1911-1912	......	61	22.61	57	20.25	48	32.32	49	52.28	67	14.18	54	59
1912-1913	......	66	36.77	93	26.01	62	52.67	81	50.13	64	19.12	73	77
1913-1914	......	107	56.88	143	51.45	123	89.15	137	69.45	90	43.80	167	130
1914-1915	......	71	......	75	24.21	58	81.86	126	45.58	59	20.89	80	99
1915-1916	......	94	......	92	47.18	112	57.80	89	63.11	81	29.86	114	99
1916-1917	......	79	......	80	34.93	83	......	80	60.85	78	19.96	76	83
1917-1918	......	54	......	56	22.04	52	......	56	42.04	54	17.73	67	58
1918-1919	......	80	......	81	36.06	86	44.34	68	61.98	80	21.55	82	80
1919-1920	......	52	......	50	28.83	68	38.99	60	32.20	41	12.83	49	54
1920-1921	......	101	......	99	49.53	118	......	102	66.88	86	18.81	72	105
Years of record	13		20		26		15		25		12		
Mean of record	73.28		43.66		42.14		67.66		76.62		23.12		
50-year mean	66.50		39.70		42.00		65.10		77.50		26.20		
County	Plumas.		Plumas.		Plumas.		Butte.		Plumas.		Sierra.		
Elevation	4,750		3,600		3,400		2,140		5,000		5,000		
Station reference number	59		60		61		62		63		64		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division G: Mill Creek Group, Butte Creek Group, Feather River, Honcut Creek Group.

TABLE 12. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION H—YUBA-BEAR RIVER AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season	Downieville.		Camptonville.		Head Dam.		Dobbins (near).		Colgate.		Grass Valley.		Nevada City.	
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.
1871-1872	......	141	......	141	......	141	......	141	......	141	......	141	78.22	150
1872-1873	......	74	......	74	......	74	......	74	......	74	......	74	38.70	74
1873-1874	......	118	......	118	......	118	......	118	......	118	60.09	114	62.91	121
1874-1875	......	72	......	72	......	72	......	72	......	72	44.78	85	45.95	88
1875-1876	......	124	......	124	......	124	......	124	......	124	65.31	124	66.67	128
1876-1877	......	63	......	63	......	63	......	63	......	63	30.09	57	32.31	62
1877-1878	......	98	......	98	......	98	......	98	......	98	53.78	102	57.15	110
1878-1879	......	105	......	105	......	105	......	105	......	105	56.82	108	58.88	113
1879-1880	......	125	......	125	......	125	......	125	......	125	63.20	120	62.97	121
1880-1881	......	112	......	112	......	112	......	112	......	112	57.46	109	57.87	111
1881-1882	......	88	......	88	......	88	......	88	......	88	43.48	82	43.51	83
1882-1883	......	79	......	79	......	79	......	79	......	79	40.79	77	48.70	93
1883-1884	......	112	......	112	......	112	......	112	......	112	54.59	103	61.34	118
1884-1885	......	92	......	92	......	92	......	92	......	92	43.19	82	44.88	86
1885-1886	......	114	......	114	......	114	......	114	......	114	59.41	112	65.78	126
1886-1887	......	72	......	72	......	72	......	72	......	72	36.28	69	37.38	71
1887-1888	......	54	......	54	......	54	......	54	......	54	31.25	59	35.42	68
1888-1889	......	73	......	73	......	73	......	73	......	73	39.77	75	43.86	84
1889-1890	......	182	......	182	......	182	......	182	......	182	89.82	170	100.17	192
1890-1891	......	77	......	77	......	77	......	77	......	77	35.77	68	38.56	74
1891-1892	......	83	......	83	......	83	......	83	......	83	45.19	85	44.88	86
1892-1893	......	121	......	121	......	121	......	121	......	121	61.25	116	65.88	126
1893-1894	......	95	......	95	......	95	......	95	......	95	50.55	96	49.35	94
1894-1895	......	136	......	136	......	136	......	136	......	136	64.17	122	68.79	132
1895-1896	......	125	......	125	......	125	......	125	......	125	58.50	111	58.31	112
1896-1897	......	111	......	111	......	111	......	111	......	111	55.10	104	53.18	102
1897-1898	......	60	......	60	......	60	......	60	......	60	28.45	54	29.70	57
1898-1899	......	84	......	84	......	84	......	84	......	84	45.81	87	38.62	74
1899-1900	......	109	......	109	......	109	......	109	......	109	58.07	110	56.09	107
1900-1901	......	106	......	106	......	106	......	106	......	106	55.81	106	53.07	102

TABLE 12.

1901-1902	......	95	......	95	......	95	......	95	......	95	52.58	99	49.99	96
1902-1903	......	94	......	94	......	94	......	94	......	94	48.77	92	46.43	89
1903-1904	......	139	......	139	......	139	......	139	......	139	64.56	122	65.88	126
1904-1905	......	103	......	103	......	103	45.63	102	......	103	......	98	52.03	100
1905-1906	......	133	......	133	......	133	54.16	121	......	133	71.69	136	67.42	129
1906-1907	......	138	......	138	......	138	64.28	144	......	138	79.28	150	70.98	136
1907-1908	......	72	56.21	76	42.83	73	30.16	68	30.61	68	......	73	35.48	68
1908-1909	80.88	119	108.30	147	78.10	133	51.74	116	56.07	125	72.70	138	62.57	120
1909-1910	64.55	95	83.89	114	62.20	106	44.57	100	44.40	99	50.33	95	44.64	85
1910-1911	81.48	120	97.40	132	74.34	126	56.52	127	54.72	122	73.59	139	70.54	135
1911-1912	38.25	57	46.88	64	35.74	61	26.92	60	26.46	59	33.86	64	28.77	55
1912-1913	47.82	71	51.92	70	45.77	78	35.38	79	32.93	73	40.14	76	36.19	69
1913-1914	85.15	126	84.63	115	71.29	121	56.83	127	54.07	120	68.03	129	61.18	117
1914-1915	66.48	98	72.68	98	63.67	108	47.64	107	46.67	104	60.27	114	56.32	108
1915-1916	73.02	108	69.58	94	57.68	98	46.10	103	48.35	108	62.10	117	53.88	103
1916-1917	61.64	91	63.79	86	47.92	82	37.20	83	......	87	51.01	96	39.90	76
1917-1918	44.32	66	35.42	48	30.77	53	25.43	57	......	62	34.87	66	30.85	59
1918-1919	57.91	86	56.54	77	51.09	87	39.26	88	37.62	84	48.23	91	44.76	86
1919-1920	45.45	67	45.44	61	35.92	61	29.45	66	29.93	67	32.98	62	33.12	63
1920-1921	79.18	117	81.65	111	61.90	105	52.60	118	51.44	114	64.09	121	60.37	115
Years of record	13		14		14		17		12		46		57	
Mean of record	63.55		68.17		54.23		43.76		42.77		53.00		53.89	
50-year mean	67.80		74.00		58.80		44.70		45.00		52.80		52.21	
County	Sierra.		Yuba.		Yuba.		Yuba.		Yuba.		Nevada.		Nevada.	
Elevation	3,150		3,500		1,500		1,650		700		2,490		2,580	
Station reference number	65		66		67		68		69		70		71	

Precipitation data are from U. S. Weather Bureau records.

TABLE 12—(Concluded). RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION H—YUBA RIVER AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Deer Creek.		North Bloomfield.		Bowmans Dam.		Lake Spaulding.		Fordyce Dam.		Index of seasonal wetness.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Division H.
1871-1872	......	141	74.53	137	101.34	139	......	141	......	141	141
1872-1873	......	74	38.65	71	56.27	77	......	74	......	74	74
1873-1874	......	118	62.62	115	88.23	121	......	118	......	118	118
1874-1875	......	72	27.89	51	49.95	68	......	72	......	72	72
1875-1876	......	124	64.56	118	92.14	126	......	124	......	124	124
1876-1877	......	63	37.82	69	45.65	62	......	63	......	63	63
1877-1878	......	98	52.59	96	64.50	88	......	98	......	98	98
1878-1879	......	105	55.52	102	73.67	101	......	105	......	105	105
1879-1880	......	125	69.28	127	95.75	131	......	125	......	125	125
1880-1881	......	112	63.51	116	81.55	112	......	112	......	112	112
1881-1882	......	88	50.41	92	66.67	91	......	88	......	88	88
1882-1883	......	79	40.38	74	53.52	73	......	79	......	79	79
1883-1884	......	112	61.65	113	84.09	115	......	112	......	112	112
1884-1885	......	92	55.44	102	70.34	96	......	92	......	92	92
1885-1886	......	114	61.62	113	79.37	109	......	114	......	114	114
1886-1887	......	72	42.86	78	50.79	70	......	72	......	72	72
1887-1888	......	54	......	54	29.40	40	......	54	......	54	54
1888-1889	......	73	......	73	45.79	63	......	73	......	73	73
1889-1890	......	182	......	183	134.95	185	......	182	......	182	182
1890-1891	......	77	......	77	62.83	86	......	77	......	77	77
1891-1892	......	83	......	83	57.75	79	......	83	......	83	83
1892-1893	......	121	......	121	......	122	......	121	......	121	121
1893-1894	......	95	......	95	......	96	......	95	......	95	95
1894-1895	......	136	......	130	98.99	136	84.58	122	116.52	176	136
1895-1896	......	125	77.02	141	99.21	136	88.07	127	82.98	122	125
1896-1897	......	111	67.01	123	85.62	117	79.97	115	71.99	106	111
1897-1898	......	60	40.71	74	41.35	57	40.85	59	40.08	59	60
1898-1899	......	84	49.88	91	64.45	88	59.51	85	55.67	82	84
1899-1900	......	109	75.03	138	80.17	110	72.97	105	59.93	89	109
1900-1901	......	106	57.38	105	79.48	109	81.21	117	64.79	96	106

TABLE 12.

1901-1902	......	95	52.26	96	65.92	90	66.83	95	65.76	97	95
1902-1903	......	94	51.97	95	76.16	104	63.73	91	59.57	88	94
1903-1904	......	139	69.93	128	142.07	195	102.56	148	70.90	105	139
1904-1905	......	103	58.71	107	89.88	123	65.55	94	64.78	96	103
1905-1906	......	133	73.13	134	85.16	117	94.15	135	104.62	154	133
1906-1907	......	138	77.84	143	91.32	125	99.75	143	88.93	131	138
1907-1908	55.72	75	38.85	71	48.22	66	51.63	74	48.26	71	71
1908-1909	99.94	135	70.24	129	92.93	127	94.26	136	94.80	140	130
1909-1910	71.29	97	48.53	89	......	99	73.17	105	73.89	109	99
1910-1911	89.80	122	73.81	135	......	129	80.27	116	79.54	117	127
1911-1912	44.99	61	29.49	54	......	60	41.75	60	44.06	65	60
1912-1913	50.32	68	34.14	62	53.14	73	44.91	64	52.95	78	72
1913-1914	94.12	128	59.51	109	64.22	88	87.13	125	89.84	133	120
1914-1915	77.12	105	59.17	108	57.91	79	59.16	85	69.00	102	101
1915-1916	76.22	103	57.92	106	......	107	71.93	103	67.96	100	104
1916-1917	66.96	91	41.64	76	......	88	62.93	91	62.22	92	87
1917-1918	44.09	60	30.14	55	......	65	43.94	63	52.21	77	61
1918-1919	58.17	79	40.57	74	......	87	63.16	91	57.79	85	85
1919-1920	47.08	64	32.30	59	......	64	46.45	67	43.31	64	64
1920-1921	77.18	105	58.96	108	......	111	76.39	110	65.26	96	112
Years of record	14		43		39		27		27		
Mean of record	68.07		53.98		74.38		70.25		68.43		
50-year mean	73.90		54.60		73.00		69.60		67.80		
County	Nevada.		Nevada.		Nevada.		Nevada.		Nevada.		
Elevation	3,700		3,200		5,500		4,600		6,500		
Station reference number	72		73		74		75		76		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division H: Yuba River, Dry Creek, Bear River

TABLE 13.

TABLE 13. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION I—TAHOE-CARSON AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Boca.		Truckee.		Tamarack.		Index of seasonal wetness. Division I.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	15.50	73	44.35	168	......	126	123
1872-1873	9.65	46	21.67	82	......	66	65
1873-1874	19.00	90	37.67	143	......	120	118
1874-1875	15.10	72	19.86	75	......	74	74
1875-1876	19.93	94	39.87	152	......	126	124
1876-1877	7.60	36	18.06	69	......	54	53
1877-1878	14.77	70	23.85	91	......	81	81
1878-1879	18.56	88	21.53	82	......	85	85
1879-1880	21.96	104	37.72	143	......	126	125
1880-1881	16.12	76	21.97	84	......	80	80
1881-1882	21.00	99	36.55	139	......	121	120
1882-1883	10.05	48	12.86	49	......	48	48
1883-1884	23.15	110	35.52	135	......	124	123
1884-1885	12.00	57	20.54	78	......	69	68
1885-1886	20.78	98	23.31	89	......	93	93
1886-1887	20.10	95	25.58	97	......	96	96
1887-1888	10.86	51	9.35	36	......	43	43
1888-1889	9.77	46	13.08	50	......	48	46
1889-1890	52.15	247	54.84	209	......	226	227
1890-1891	23.25	110	24.20	92	......	100	101
1891-1892	21.45	102	24.38	93	......	97	97
1892-1893	37.50	178	38.70	147	......	161	162
1893-1894	21.70	103	33.21	126	......	116	115
1894-1895	24.52	116	34.07	130	......	124	123
1895-1896	29.41	139	27.16	103	......	119	120
1896-1897	23.85	113	27.87	106	......	109	109
1897-1898	18.22	86	14.20	54	......	68	69
1898-1899	24.11	114	26.76	102	......	107	108
1899-1900	26.25	125	23.35	89	......	105	106
1900-1901	35.30	167	24.19	92	36.20	73	111

TABLE 13.

1901-1902	12.80	60	20.29	77	55.44	112	83
1902-1903	13.77	65	25.91	99	47.06	95	86
1903-1904	11.68	55	40.26	153	......	110	106
1904-1905	......	79	20.68	79	......	79	79
1905-1906	......	121	31.93	121	......	121	121
1906-1907	35.84	170	40.17	153	93.99	189	171
1907-1908	9.32	44	20.22	77	39.00	78	66
1908-1909	24.82	118	28.01	107	56.25	113	113
1909-1910	26.93	127	25.01	95	47.04	95	106
1910-1911	36.59	174	25.95	99	87.66	177	150
1911-1912	10.82	51	14.30	54	33.36	67	57
1912-1913	14.13	67	15.52	59	42.49	86	71
1913-1914	31.29	149	38.15	145	54.42	110	135
1914-1915	28.39	135	25.81	98	39.23	79	104
1915-1916	37.55	178	23.16	88	48.41	97	121
1916-1917	......	92	19.61	74	42.53	86	84
1917-1918	......	72	17.60	67	30.87	62	67
1918-1919	......	98	25.74	98	39.83	80	92
1919-1920	......	71	13.48	51	34.13	69	64
1920-1921	......	121	......	101	54.50	110	111
Years of record	44		50		18		
Mean of record	21.05		26.13		49.02		
50-year mean	21.10		26.30		49.60		
County	Nevada.		Nevada.		Alpine.		
Elevation	5,531		5,819		8,030		
Station reference number	77		78		79		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division I: Lake Tahoe Basin, Truckee River, West Fork Carson River, East Fork Carson River, West Walker River, East Walker River.

TABLE 14. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION J—AMERICAN RIVER AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Summit.		Cisco.		Emigrant Gap.		Blue Canyon.		Towle.		Gold Run.		Iowa Hill.		Colfax.		Pilot Creek.	
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.
1871-1872	68.10	147	62.94	124	......	120	......	120	......	120	......	120	......	120	46.85	97	......	120
1872-1873	35.22	76	37.59	74	48.77	90	......	75	......	75	......	75	......	75	33.58	70	......	75
1873-1874	22.33	48	52.20	103	65.58	120	......	101	......	101	......	101	......	101	53.62	111	......	101
1874-1875	26.13	56	28.19	55	17.35	32	......	64	......	64	......	64	......	64	36.21	75	......	64
1875-1876	57.33	124	75.40	148	45.80	84	......	125	......	125	......	125	......	125	59.53	124	......	125
1876-1877	27.29	59	43.04	85	34.20	63	......	63	......	63	......	63	......	63	27.61	57	......	63
1877-1878	33.54	72	35.87	70	51.54	95	......	92	......	92	......	92	......	92	42.83	89	......	92
1878-1879	54.71	118	49.56	97	68.35	125	......	106	......	106	......	106	......	106	45.46	94	......	106
1879-1880	80.10	173	54.59	107	75.65	139	......	126	......	126	......	126	64.58	129	56.14	117	......	126
1880-1881	22.65	49	78.34	154	59.82	110	......	109	......	109	......	109	63.57	127	48.03	100	......	109
1881-1882	55.35	119	69.95	137	57.52	105	......	105	......	105	......	105	57.23	114	42.83	89	......	105
1882-1883	40.69	88	41.20	81	39.49	72	......	82	......	82	......	82	48.30	96	32.73	68	......	82
1883-1884	52.29	113	55.09	108	58.57	107	......	118	......	118	......	118	64.21	128	52.61	109	......	118
1884-1885	22.39	48	39.75	78	44.79	82	......	74	......	74	......	74	38.02	76	35.61	74	......	74
1885-1886	47.10	102	55.92	110	68.42	125	......	113	41.40	73	......	113	55.25	110	51.01	106	......	113
1886-1887	47.25	102	41.50	82	44.64	82	......	74	22.91	41	......	74	37.61	75	27.92	58	......	74
1887-1888	38.87	84	34.02	67	47.44	87	......	69	......	70	......	69	31.94	64	31.20	65	......	69
1888-1889	31.42	68	32.71	64	36.15	66	......	74	......	74	......	74	38.42	77	40.89	85	......	74
1889-1890	78.60	170	97.63	192	89.01	163	......	168	59.54	106	......	168	91.04	182	89.80	187	......	168
1890-1891	33.50	72	41.79	82	29.46	54	......	77	53.20	94	......	77	38.45	77	39.99	83	......	77
1891-1892	38.25	82	43.26	85	43.38	80	......	89	55.67	99	......	89	44.74	89	45.70	95	......	89
1892-1893	61.30	132	48.85	96	65.12	119	......	123	78.18	139	......	123	56.89	114	52.85	110	......	123
1893-1894	50.75	110	53.05	104	52.20	96	......	105	57.79	103	......	105	52.12	104	53.68	112	......	105
1894-1895	68.50	148	60.10	118	36.70	67	......	125	63.08	112	......	125	61.06	122	62.53	130	89.52	136
1895-1896	54.40	117	37.00	73	54.90	101	......	113	74.14	132	......	113	58.85	117	65.25	135	76.68	116
1896-1897	56.28	121	43.70	86	......	109	......	109	46.46	82	......	109	54.43	109	51.65	107	71.95	109
1897-1898	30.28	65	31.90	63	......	62	......	59	33.29	59	......	59	29.47	59	32.10	67	37.46	57
1898-1899	50.20	108	47.19	93	......	93	......	87	46.56	82	......	87	39.71	79	45.43	94	58.27	88
1899-1900	61.52	133	71.31	140	......	128	61.35	95	63.05	112	46.61	95	48.23	96	63.36	132	60.44	92
1900-1901	51.60	111	71.73	141	......	122	65.47	101	65.25	116	56.46	115	51.56	103	65.33	136	66.20	100

TABLE 14.

1901-1902	46.70	101	43.49	85	......	102	65.41	101	65.25	116	44.68	91	49.01	98	50.34	105	62.57	95
1902-1903	42.70	92	40.45	79	......	99	58.98	91	......	97	52.85	107	48.74	97	49.22	102	62.61	95
1903-1904	73.28	158	89.57	176	......	146	98.94	153	......	140	77.55	157	65.03	130	71.56	148	95.54	145
1904-1905	47.71	103	46.12	91	......	102	58.32	90	......	98	49.05	100	46.82	93	48.78	101	58.41	89
1905-1906	56.57	122	58.21	114	85.60	157	93.26	144	68.70	122	71.93	146	70.85	141	69.29	144	94.28	143
1906-1907	66.76	144	67.99	134	94.30	173	100.47	156	76.25	135	63.29	128	75.99	152	66.10	137	94.89	144
1907-1908	36.78	79	40.92	80	50.54	93	49.05	76	37.83	67	28.06	57	39.36	78	32.31	67	45.87	70
1908-1909	55.16	119	62.94	124	67.63	124	87.07	135	65.12	116	60.75	123	59.48	119	58.76	122	90.37	137
1909-1910	35.15	76	58.85	116	56.28	103	64.11	99	53.02	94	48.34	98	50.69	101	49.69	103	67.63	103
1910-1911	65.11	140	58.30	115	62.39	114	73.86	115	67.27	119	60.90	124	......	129	61.56	128	81.03	127
1911-1912	24.85	54	30.93	61	35.48	65	41.17	64	40.27	71	34.65	70	......	58	27.96	58	43.77	66
1912-1913	32.76	70	35.87	70	32.59	60	52.59	82	50.38	89	43.20	88	......	62	24.65	51	47.82	73
1913-1914	52.39	113	52.86	104	65.32	120	82.77	128	85.86	152	70.00	142	......	111	52.10	108	75.90	115
1914-1915	42.28	91	51.16	101	66.50	122	78.89	122	68.30	121	53.79	109	......	107	53.68	111	......	109
1915-1916	48.93	105	53.00	104	54.01	99	65.12	101	72.84	129	40.56	82	......	104	50.27	105	......	106
1916-1917	38.15	82	......	88	56.80	104	55.09	85	62.30	111	45.76	93	......	89	49.60	103	......	91
1917-1918	29.83	64	......	67	31.81	58	40.78	63	42.35	75	36.35	74	......	66	31.59	66	......	67
1918-1919	42.57	92	......	93	53.77	99	49.34	76	50.20	92	37.01	75	......	93	43.15	89	......	93
1919-1920	34.30	74	......	68	39.43	72	36.26	56	52.23	93	......	70	......	69	32.05	66	......	72
1920-1921	49.29	106	......	114	49.06	90	77.44	120	......	109	......	110	......	110	53.25	110	......	109
Years of record	50		46		40		22		30		20		31		51		20	
Mean of record	46.38		50.57		52.91		66.17		57.36		51.09		52.63		47.81		69.21	
50-year mean	46.38		50.90		54.50		64.60		56.40		49.30		50.10		48.20		65.90	
County	Placer.		Placer.		Placer.		Placer.		Placer.		Placer.		Placer.		Placer.		El Dorado.	
Elevation	7,017		5,939		5,230		4,695		3,704		3,222		2,825		2,421		4,000	
Station reference number	80		81		82		83		84		85		86		87		88	

Precipitation data are from U. S. Weather Bureau records.

TABLE 14—(Concluded). RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION J—AMERICAN RIVER AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Georgetown.		Auburn.		Wheatland.		Newastle.		Rocklin.		Folsom.		Shingle Springs.		Placerville.		Index of seasonal wetness. Division J.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	120	39.98	119	......	120	......	120	23.90	107	28.77	118	......	120	......	120	120
1872-1873	......	75	25.19	75	......	75	......	75	15.80	70	15.69	64	......	75	......	75	75
1873-1874	63.67	111	34.55	102	......	101	......	101	22.78	102	24.46	100	......	101	......	101	100
1874-1875	47.08	82	27.73	82	......	64	......	64	11.94	53	15.70	64	......	64	33.76	80	64
1875-1876	80.47	140	44.15	131	......	125	......	125	20.92	93	30.24	124	......	125	61.25	144	124
1876-1877	41.25	72	18.86	56	......	63	......	63	10.71	48	10.19	42	......	63	......	63	62
1877-1878	61.31	107	36.11	107	......	92	......	92	24.21	108	25.00	103	......	92	......	92	93
1878-1879	60.96	106	34.94	104	......	106	......	106	19.05	89	21.91	90	......	106	......	106	104
1879-1880	70.40	123	41.55	123	......	126	......	126	21.52	96	25.09	103	......	126	......	126	125
1880-1881	65.82	115	37.18	110	......	109	......	109	21.32	95	25.91	107	......	109	48.04	113	108
1881-1882	54.13	95	33.60	100	......	105	......	105	18.52	83	18.68	77	......	105	42.46	100	103
1882-1883	45.94	80	25.64	76	......	82	......	82	19.24	86	22.22	91	......	82	36.56	86	82
1883-1884	72.65	127	40.96	121	......	118	......	118	22.66	101	31.02	127	......	118	57.36	135	118
1884-1885	49.99	87	25.56	76	......	74	......	74	12.57	56	13.58	56	......	74	36.56	86	73
1885-1886	73.08	128	42.32	126	......	113	......	113	27.81	124	34.75	143	......	113	54.63	129	115
1886-1887	41.32	72	27.59	82	......	74	......	74	17.33	77	20.11	82	......	74	33.32	78	75
1887-1888	33.47	58	21.68	64	11.07	52	......	69	12.21	54	16.28	67	......	69	32.83	77	68
1888-1889	36.83	64	26.75	79	17.20	81	......	74	17.44	78	20.43	84	28.79	85	35.77	84	76
1889-1890	95.27	166	48.08	144	33.69	158	......	168	34.12	152	43.31	178	71.01	208	78.13	184	169
1890-1891	39.82	69	24.78	73	14.83	70	......	77	17.45	78	20.14	82	30.10	88	34.80	82	77
1891-1892	44.07	79	32.17	95	19.21	90	......	89	22.44	100	21.21	87	27.59	81	44.43	105	90
1892-1893	74.93	131	40.79	121	23.33	110	37.14	125	29.30	130	30.38	125	41.37	122	63.54	150	123
1893-1894	65.93	115	35.31	105	20.12	94	29.95	101	24.21	108	24.83	102	32.13	94	48.22	114	104
1894-1895	72.09	126	44.42	132	29.02	136	42.09	142	32.13	143	35.83	147	41.73	123	59.68	140	128
1895-1896	65.31	114	35.78	106	24.43	115	30.63	103	29.90	133	26.90	110	38.34	112	51.79	122	114
1896-1897	70.94	124	39.89	118	21.22	100	32.54	109	24.24	108	29.27	120	45.72	134	50.56	119	119
1897-1898	31.94	56	20.36	60	12.45	58	......	59	14.00	62	12.76	52	14.60	43	21.86	51	59
1898-1899	46.56	81	29.77	88	15.83	74	......	87	18.64	83	19.38	79	28.50	84	31.96	75	86
1899-1900	55.73	97	37.32	111	24.98	117	30.68	103	......	125	27.85	114	35.23	103	41.67	98	111
1900-1901	51.28	90	36.96	110	25.43	119	30.69	103	......	117	24.66	101	......	115	46.70	110	112

TABLE 14.

1901-1902	49.08	86	45.53	120	22.73	107	......	100	......	107	25.69	106	......	100	34.08	80	100
1902-1903	55.12	96	36.30	108	23.30	109	......	98	29.61	132	25.16	103	......	98	37.21	87	99
1903-1904	79.48	139	44.72	133	22.20	104	37.61	127	25.37	113	25.66	105	......	139	49.59	117	137
1904-1905	49.32	86	35.35	105	24.43	115	33.66	113	27.61	123	26.20	107	......	98	36.60	86	100
1905-1906	76.31	133	46.57	138	28.23	132	41.49	140	36.13	161	33.93	140	......	135	54.19	128	138
1906-1907	82.76	144	57.73	168	32.59	153	48.05	162	38.63	172	39.65	163	50.63	148	59.85	141	150
1907-1908	38.06	66	22.66	67	15.46	72	20.78	70	16.70	74	15.57	64	20.59	60	27.11	64	71
1908-1909	72.19	126	44.44	132	25.38	119	37.59	126	32.49	145	29.06	120	37.09	109	46.65	110	124
1909-1910	57.73	101	29.04	83	19.51	91	26.90	90	21.06	94	20.20	83	32.35	95	38.50	91	95
1910-1911	79.08	138	35.15	104	29.95	140	......	128	35.46	158	38.21	157	43.54	128	55.31	130	129
1911-1912	34.78	61	16.61	49	13.76	65	......	59	12.25	54	15.21	62	18.24	53	21.55	51	60
1912-1913	35.53	62	18.77	56	14.04	66	......	65	13.99	62	14.75	61	......	65	25.65	60	67
1913-1914	66.51	116	26.43	78	31.37	147	......	117	30.46	136	30.01	123	......	117	45.40	107	120
1914-1915	59.41	104	29.52	88	25.59	120	......	109	29.62	132	31.39	129	......	109	41.60	98	111
1915-1916	60.23	105	32.77	97	22.70	106	......	106	21.75	97	29.67	122	......	106	43.09	101	104
1916-1917	......	91	29.99	89	......	91	......	91	15.70	70	20.80	85	......	91	29.19	69	89
1917-1918	......	65	25.29	75	......	67	......	67	15.08	67	15.50	64	......	67	29.32	69	67
1918-1919	52.28	91	34.95	104	......	93	......	93	19.00	85	22.88	94	......	93	36.57	86	91
1919-1920	40.02	70	25.61	76	......	72	......	72	11.42	51	14.99	61	......	72	30.32	71	70
1920-1921	63.10	110	45.10	134	......	110	......	109	24.37	108	27.20	112	......	109	46.13	109	110
Years of record	46		50		29		14		48		50		35		43		
Mean of record	57.92		33.72		22.21		34.27		22.01		24.37		33.72		42.65		
50-year mean	57.30		33.70		21.30		29.70		22.40		24.40		34.10		42.50		
County	El Dorado.		Placer.		Yuba.		Placer.		Placer.		Sacramento.		El Dorado.		El Dorado.		
Elevation	2,650		1,360		84		970		249		252		1,415		1,875		
Station reference number	89		90		91		92		93		95		96		97		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division J: Coon Creek Group, American River.

TABLE 15.

TABLE 15. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION K—MOKELUMNE-MERCED AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Mill Creek No. 1.		West Point.		Kennedy Mine.		Electra.		Mokelumne Hill.		Ione.		Galt.		Valley Springs.		Milton.		Sonora.	
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.
1871-1872	......	122	......	122	......	122	......	122	......	122	......	122	......	122	......	122	......	122	......	122
1872-1873	......	86	......	86	......	86	......	86	......	86	......	86	......	86	......	86	......	86	......	86
1873-1874	......	87	......	87	......	87	......	87	......	87	......	87	......	87	......	87	......	87	......	87
1874-1875	......	61	......	61	......	61	......	61	......	61	......	61	......	61	......	61	......	61	......	61
1875-1876	......	154	......	154	......	154	......	154	......	154	......	154	......	154	......	154	......	154	......	154
1876-1877	......	34	......	34	......	34	......	34	......	34	......	34	......	34	......	34	......	34	......	34
1877-1878	......	112	......	112	......	112	......	112	......	112	......	112	......	112	......	112	......	112	......	112
1878-1879	......	78	......	78	......	78	......	78	......	78	17.00	84	13.54	75	......	78	......	78	......	78
1879-1880	......	105	......	105	......	105	......	105	......	105	21.79	108	16.40	91	......	105	......	105	......	105
1880-1881	......	87	......	87	......	87	......	87	......	87	17.26	85	15.93	88	......	87	......	87	......	87
1881-1882	......	85	......	85	......	85	......	85	......	85	19.11	95	12.92	71	......	85	......	85	......	85
1882-1883	......	87	......	87	......	87	......	87	21.15	68	16.08	80	16.06	89	......	87	......	87	......	87
1883-1884	......	135	......	135	......	135	......	135	38.99	126	30.89	153	19.05	105	......	135	......	135	......	135
1884-1885	......	67	......	67	......	67	......	67	24.04	78	14.06	70	9.61	53	......	67	......	67	......	67
1885-1886	......	129	......	129	......	129	......	129	41.84	135	25.14	125	20.35	113	......	129	......	129	......	129
1886-1887	......	68	......	68	......	68	......	68	20.86	67	14.72	73	13.16	73	......	68	......	68	......	68
1887-1888	......	64	......	64	......	64	......	64	19.61	63	11.35	56	12.16	67	......	64	......	64	......	64
1888-1889	......	74	......	74	......	74	......	74	20.14	65	14.41	71	16.14	89	14.58	65	13.21	64	25.66	79
1889-1890	......	175	......	175	......	175	......	175	54.59	176	32.38	160	33.60	186	38.15	170	30.38	147	67.39	207
1890-1891	......	86	......	86	......	86	......	86	26.52	86	13.66	68	17.28	96	19.49	87	13.06	63	32.29	99
1891-1892	......	90	......	90	......	90	......	90	28.95	93	19.53	97	15.11	84	19.03	85	17.00	82	30.40	94
1892-1893	......	132	......	132	43.60	141	......	132	39.45	127	21.69	107	28.81	159	28.33	126	26.70	129	43.76	135
1893-1894	......	122	......	122	44.25	143	......	122	37.24	120	20.54	102	20.62	114	26.32	117	25.39	123	37.51	115
1894-1895	......	148	59.91	149	54.07	175	......	148	45.73	148	23.66	117	28.16	156	33.80	150	32.31	156	45.97	141
1895-1896	......	104	40.98	102	37.29	121	......	104	31.52	102	20.03	99	23.58	130	20.88	93	23.98	116	30.16	93
1896-1897	......	124	46.17	115	46.07	149	......	124	41.01	132	23.60	117	21.51	119	30.35	135	27.33	132	39.24	121
1897-1898	......	61	22.78	57	22.42	73	......	61	18.23	59	13.77	68	12.59	70	12.34	55	13.30	64	21.04	65
1898-1899	......	88	34.47	86	29.30	95	......	88	27.23	88	20.03	99	15.80	87	17.02	76	24.58	119	32.73	101
1899-1900	......	101	39.70	99	30.10	97	......	101	29.87	96	21.51	107	17.94	99	23.00	102	22.33	108	33.19	102
1900-1901	......	133	53.07	132	42.26	137	......	133	33.73	109	25.48	126	16.79	93	25.09	112	24.25	117	46.78	144

TABLE 15.

1901-1902	......	96	38.02	95	37.55	121	......	96	28.18	91	20.19	100	18.71	104	21.94	98	17.84	86	28.45	87
1902-1903	......	108	......	109	43.10	139	......	108	31.28	101	22.39	111	18.05	100	26.03	116	19.62	95	33.04	102
1903-1904	......	110	52.68	131	37.74	122	......	110	38.06	123	21.42	106	17.74	98	30.02	134	20.27	98	34.45	106
1904-1905	......	104	38.19	95	33.27	108	29.35	90	31.73	102	25.95	128	19.83	110	29.89	133	20.39	98	32.85	101
1905-1906	......	142	57.06	142	37.22	121	42.60	130	42.97	139	30.93	153	24.37	135	28.52	127	26.59	129	......	139
1906-1907	......	146	58.39	145	46.15	149	50.97	156	49.30	159	33.82	168	27.19	151	35.76	159	28.88	140	......	158
1907-1908	23.75	50	22.71	56	18.94	61	19.59	60	18.93	61	14.27	71	13.40	74	14.32	64	13.00	63	......	66
1908-1909	51.25	107	46.68	116	33.43	108	38.95	119	37.71	122	26.01	129	21.97	122	25.53	113	25.03	121	35.98	111
1909-1910	48.11	100	39.56	98	29.96	97	33.50	103	33.03	107	20.39	101	......	101	......	97	17.13	83	29.86	92
1910-1911	66.37	138	57.54	143	17.38	56	47.82	146	44.58	144	30.46	151	26.27	145	34.47	153	29.88	144	43.37	133
1911-1912	32.73	68	25.17	62	18.41	59	20.18	62	20.50	66	12.68	63	13.11	73	13.35	59	13.19	64	19.72	61
1912-1913	33.53	70	28.27	70	17.57	57	21.73	66	20.56	66	14.26	71	9.05	50	13.19	59	11.77	57	18.38	56
1913-1914	57.87	120	48.91	122	30.91	100	38.00	117	36.44	118	22.86	113	23.18	128	26.37	117	26.59	129	38.51	118
1914-1915	49.54	103	44.16	110	28.42	92	34.43	105	36.57	118	22.80	113	22.31	124	25.95	115	23.47	113	......	122
1915-1916	51.32	107	41.90	104	28.89	93	34.69	106	30.65	99	12.10†	60	20.12†	111	......	90	23.09	111	......	87
1916-1917	46.41	97	......	79	21.37	69	29.14	89	24.77	80	16.20†	80	13.74†	76	......	81	20.61	100	......	78
1917-1918	36.79	77	......	75	22.56	73	26.51	81	23.51	76	14.65†	72	11.38†	63	......	75	18.68	90	......	73
1918-1919	38.97	81	30.40	75	26.18	85	27.48	84	......	99	18.35†	91	20.26†	112	......	90	19.55	94	18.79	58
1919-1920	35.20	73	31.03	77	21.99	71	24.81	76	......	68	16.10†	80	9.42†	52	......	75	16.95	82	31.89	98
1920-1921	50.09	104	46.56	116	31.62	102	31.79	97	......	112	23.37†	116	19.55†	108	......	111	25.27	122	31.60	97
Years of record	14		24		29		17		36		43		42		26		33		26	
Mean of record	44.42		41.85		32.14		32.44		31.93		20.39		18.26		24.37		21.56		33.96	
50-year mean	48.00		40.20		30.90		32.70		31.00		20.20		18.10		22.50		20.70		32.50	
County	Amador.		Calaveras.		Amador.		Amador.		Calaveras.		Amador.		Sacramento.		Calaveras.		Calaveras.		Tuolumne.	
Elevation	2,450		2,326		1,500		725		1,550		287		49		673		381		1,825	
Station reference number	98		99		100		101		102		103		104		105		106		107	

Precipitation data are from U. S. Weather Bureau records unless otherwise noted.
†From records of Southern Pacific Railroad.

TABLE 15—(Concluded). RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION K—MOKELUMNE-MERCED AREA.

Rainfall stations, depth of precipiation in inches and index of seasonal wetness.

Season.	Groveland.		Crockers.		Yosemite.		Summerdale.		Merced Falls.		La Grange.		Denair.		Oakdale.		Farmington.		Index of seasonal wetness. Division K.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	122	......	122	......	122	......	122	......	122	20.48	122	......	122	......	122	......	122	122
1872-1873	......	86	......	86	......	86	......	86	......	86	14.35	86	......	86	......	86	......	86	86
1873-1874	......	87	......	87	......	87	......	87	......	87	14.63	87	......	87	......	87	......	87	87
1874-1875	......	61	......	61	......	61	......	61	......	61	10.29	61	......	61	......	61	......	61	61
1875-1876	......	154	......	154	......	154	......	154	......	154	25.87	154	......	154	......	154	......	154	154
1876-1877	......	34	......	34	......	34	......	34	......	34	5.74	34	......	34	......	34	......	34	34
1877-1878	......	112	......	112	......	112	......	112	......	112	18.90	113	......	112	......	112	17.73	112	112
1878-1879	......	78	......	78	......	78	......	78	......	78	11.54	69	......	78	......	78	13.46	85	78
1879-1880	......	105	......	105	......	105	......	105	......	105	19.50	116	......	105	......	105	16.94	107	105
1880-1881	......	87	......	87	......	87	......	87	......	87	15.12	90	......	87	......	87	13.20	83	87
1881-1882	......	85	......	85	......	85	......	85	......	85	14.51	87	......	85	12.79	91	13.09	82	85
1882-1883	......	87	......	87	......	87	......	87	......	87	15.98	95	......	87	14.92	107	16.80	106	88
1883-1884	......	135	......	135	......	135	......	135	......	135	25.01	149	......	135	18.57	133	23.34	147	135
1884-1885	......	67	......	67	......	67	......	67	......	67	11.89	71	......	67	......	63	9.27	58	67
1885-1886	......	129	......	129	......	129	......	129	......	129	24.09	144	......	129	......	127	20.40	129	129
1886-1887	......	68	......	68	......	68	......	68	......	68	11.01	66	......	68	......	68	9.44	59	68
1887-1888	......	64	......	64	......	64	......	64	......	64	11.41	68	......	64	8.04	57	11.39	72	64
1888-1889	......	74	......	74	......	74	......	74	......	74	14.45	86	......	74	10.83	77	11.49	72	74
1889-1890	......	175	......	175	......	175	......	175	......	175	30.34	181	......	175	......	171	24.83	156	174
1890-1891	......	86	......	86	......	86	......	86	......	86	......	86	......	86	......	86	15.46	97	86
1891-1892	......	90	......	90	......	90	......	90	......	90	......	91	......	90	......	91	14.38	91	90
1892-1893	......	132	......	132	......	132	......	132	......	132	19.37	116	......	132	18.60	133	23.11	146	132
1893-1894	......	122	......	122	......	122	......	122	......	122	22.77	136	......	122	18.80	134	18.75	118	122
1894-1895	......	148	......	148	......	148	......	148	......	148	22.36	133	......	148	22.05	158	21.46	135	148
1895-1896	......	104	......	104	......	104	......	104	......	104	14.28	85	......	104	13.90	99	16.01	101	104
1896-1897	......	124	66.54	131	......	124	55.26	108	......	124	20.23	121	......	124	15.90	114	18.65	117	124
1897-1898	......	61	31.37	62	......	61	29.34	57	......	61	10.57	63	......	61	7.21	52	9.30	59	62
1898-1899	......	88	42.43	83	......	88	39.75	78	......	88	12.81	76	......	88	11.51	82	13.99	88	89
1899-1900	......	101	48.40	95	......	101	49.58	97	......	101	15.68	93	13.69	140	16.05	115	18.04	114	103
1900-1901	......	133	75.04	148	......	133	85.46	167	......	133	......	114	13.86	141	16.80	120	19.76	124	129

TABLE 15.

1901-1902	......	96	48.52	95	......	96	45.84	89	......	96	......	100	9.85	100	13.35	95	15.31	96	97
1902-1903	......	108	55.46	109	......	108	49.83	97	......	108	......	105	11.14	114	15.49	111	16.41	103	108
1903-1904	......	110	55.09	108	......	110	49.38	96	......	110	......	100	8.20	83	14.50	104	15.11	95	108
1904-1905	34.45	91	48.73	96	36.23	103	50.24	98	......	104	......	120	12.48	127	16.52	118	19.04	120	108
1905-1906	55.46	146	83.54	164	......	142	84.84	165	......	142	......	137	12.36	126	20.72	148	19.46	123	139
1906-1907	45.55	120	66.51	131	......	148	71.70	140	......	146	......	158	11.42	116	22.62	162	24.37	154	148
1907-1908	......	65	31.79	62	21.66	62	42.28	82	11.34	70	......	70	5.93	60	8.41	60	10.04	63	64
1908-1909	48.62	128	61.20	120	49.55	141	66.56	130	18.50	114	......	127	10.42	106	13.75	98	20.84	131	119
1909-1910	41.68	110	......	97	42.75	122	49.93	97	12.54	77	15.17	90	......	97	13.20	94	16.45	104	98
1910-1911	59.75	157	......	131	38.18	109	......	131	20.58	127	22.65	135	12.29	125	17.68	126	20.20	127	133
1911-1912	......	62	......	62	20.39	58	......	62	10.08	62	10.46	62	......	62	8.10	58	7.93	50	62
1912-1913	18.32	48	......	60	25.08	71	......	60	......	60	9.63	57	3.26	33	6.42	46	8.31	52	58
1913-1914	47.88	126	......	119	39.47	112	......	119	18.00	111	20.44	122	8.30	84	17.40	125	21.22	134	117
1914-1915	......	113	......	115	38.08	109	......	115	19.69	122	19.42	116	8.85	90	18.52	132	21.46	135	114
1915-1916	......	93	......	93	32.05	91	......	93	18.69	115	......	84	......	93	10.51†	75	......	84	94
1916-1917	......	82	......	79	37.30	106	......	79	......	82	......	78	......	79	10.48†	75	......	78	82
1917-1918	......	76	......	75	27.36	78	......	75	......	76	......	67	10.28	105	12.94†	93	......	68	77
1918-1919	......	86	......	87	25.52	73	......	87	15.17	94	......	101	9.51	97	12.31	88	......	102	89
1919-1920	......	75	......	75	24.39	70	......	75	14.89	92	......	66	9.98	102	10.32	74	......	67	76
1920-1921	......	109	......	111	32.13	92	......	111	15.08	93	......	112	15.20	155	15.91	114	......	112	110
Years of record	8		13		15		14		11		36		18		34		38		
Mean of record	43.96		54.97		32.68		55.00		15.87		16.46		10.39		14.27		16.49		
50-year mean	38.00		50.90		35.10		51.30		16.02		16.80		9.80		14.00		15.90		
County	Tuolumne.		Tuolumne.		Mariposa.		Mariposa.		Merced.		Stanislaus.		Stanislaus.		Stanislaus.		San Joaquin.		
Elevation	1,400		4,452		3,945		5,000		351		293		126		156		111		
Station reference number	108		109		110		111		112		113		114		115		116		

Precipitation data are from U. S. Weather Bureau records unless otherwise noted.

†From records of Southern Pacific Railroad.

Streams within boundaries of Precipiation Division K: Chowchilla River, Dutchman Creek Group, Mariposa Creek, Owens Creek, Bear Creek, Burns Creek Group, Merced River, Tuolumne River, Martell's Creek Group, Wildcat Creek Group, Stanislaus River, Littlejohns Creek, Calaveras River, Mokelumne River, Sutter Creek Group, Cosumnes River, Mono Lake Group.

TABLE 16. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION L—MT. DIABLO AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Lodi.		Stockton.		Tracy.		Livermore.		Niles.		San Mateo.		San Leandro.		Mills College.		Antioch.		Rio Vista.		Index of seasonal wetness. Division L.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	130	20.80	147	......	130	19.06	124	22.65	121	......	130	......	130	......	130	......	130	......	130	130
1872-1873	......	79	13.28	94	......	79	10.69	70	14.31	77	......	79	......	79	......	79	......	79	......	79	79
1873-1874	......	86	15.17	107	......	86	12.26	80	14.10	75	......	86	......	86	......	86	......	86	......	86	86
1874-1875	......	68	11.14	79	......	68	11.67	76	11.81	63	12.24	59	......	68	......	68	......	68	......	68	69
1875-1876	......	131	18.26	129	......	131	19.99	131	25.88	139	26.27	128	......	131	......	131	......	131	......	131	131
1876-1877	......	43	7.10	50	......	43	6.01	39	9.34	50	7.34	36	......	43	......	43	......	43	......	43	43
1877-1878	......	129	18.76	132	......	129	17.66	115	24.67	132	27.49	134	......	129	......	129	......	129	......	129	129
1878-1879	......	79	11.46	81	......	79	10.11	66	14.54	78	18.37	89	......	79	......	79	......	79	......	79	79
1879-1880	......	99	15.34	108	9.20	93	15.98	104	17.70	95	21.17	103	......	99	......	99	10.80	87	......	99	99
1880-1881	......	107	14.68	104	10.68	109	16.45	108	20.06	107	21.12	103	......	107	......	107	14.29	115	......	107	107
1881-1882	......	69	9.69	68	7.27	74	11.70	76	13.55	72	12.70	62	......	69	......	69	7.49	61	......	69	69
1882-1883	......	86	15.26	108	8.10	83	13.86	91	13.80	74	15.47	75	......	86	......	86	11.90	96	......	86	87
1883-1884	......	126	20.36	143	12.85	131	22.75	149	26.25	140	23.58	115	......	126	......	126	8.35	68	......	126	125
1884-1885	......	67	9.59	68	4.91	50	12.01	78	10.60	57	17.17	83	......	67	......	67	6.63	54	......	67	66
1885-1886	......	115	17.39	123	12.30	125	16.17	106	23.53	126	21.77	106	......	115	......	115	13.25	107	......	115	115
1886-1887	......	71	7.83	55	7.27	74	11.17	73	14.85	80	16.25	79	......	71	......	71	7.11	57	......	71	70
1887-1888	......	78	10.81	76	6.65	68	13.13	86	14.88	80	15.78	77	......	78	......	78	9.63	78	......	78	78
1888-1889	17.00	95	12.99	92	10.31	105	15.81	103	16.97	91	20.01	97	......	98	......	98	13.21	107	......	98	98
1889-1890	33.45	187	22 37	158	21.92	223	28.66	187	35.91	192	40.82	198	......	191	......	191	24.57	198	......	191	192
1890-1891	16.56	92	10.09	71	9.34	95	14.16	93	14.83	79	17.89	87	......	86	......	86	10.96	89	......	86	86
1891-1892	16.91	95	12.21	86	8.98	91	14.25	93	16.39	87	17.58	86	......	91	......	91	12.73	103	......	91	91
1892-1893	25.89	145	15.89	112	11.63	119	26.29	172	23.46	126	30.24	147	......	140	......	140	18.85	153	......	140	139
1893-1894	21.44	120	15.83	112	9.17	93	17.16	112	21.91	117	22.58	110	......	112	28.52	115	13.82	112	18.27	106	111
1894-1895	27.05	151	19.78	139	12.11	123	24.37	159	27.30	146	32.38	157	......	149	37.19	150	18.55	150	25.42	147	147
1895-1896	19.02	106	14 70	104	8.86	90	16.35	107	19.58	105	22.25	108	24.42	108	25.82	104	13.67	111	20.19	117	106
1896-1897	19.25	108	12 62	89	9.39	95	17.28	113	24.02	128	21.45	119	28.14	124	30.45	123	14.18	115	18.31	106	112
1897-1898	9.30	52	6.94	49	7.20	73	9.11	60	11.99	64	11.97	58	12.97	57	14.44	58	5.30	43	8.78	51	57
1898-1899	15.19	85	14 40	102	9.11	93	11.54	75	15.89	85	20.28	99	22.04	97	26.15	106	9.22	75	15.25	88	91
1899-1900	19.04	107	16.29	115	14.42	147	12.93	84	18.55	99	21.54	105	22.16	98	24.32	98	10.70	87	16.44	95	104
1900-1901	19.40	109	16.74	118	14.10	143	19.82	130	24.87	133	23.05	112	23.16	102	26.43	107	17.15	139	19.46	113	121

TABLE 16.

1901-1902	16.36	91	14.03	99	7.72	78	12.48	82	17.47	93	21.27	103	21.03	93	23.48	95	10.88	88	14.94	87	91
1902-1903	19.26	108	14.54	102	10.28	105	14.25	93	17.17	92	23.85	116	22.67	100	25.69	104	11.27	91	14.34	83	99
1903-1904	17.69	99	14.23	100	8.68	88	13.33	87	18.53	99	23.14	112	28.89	128	32.19	130	11.67	94	20.17	117	105
1904-1905	21.19	119	18.19	128	15.15	154	15.81	103	23.47	126	26.64	129	25.59	113	27.80	112	16.77	136	21.01	122	124
1905-1906	24.42	137	18.68	132	11.77	120	19.32	126	23.89	128	21.76	105	23.44	103	26.28	106	14.99	121	21.14	123	120
1906-1907	25.98	145	22.49	159	15.73	160	22.99	150	28.35	152	24.02	117	......	142	33.05	134	17.05	138	......	144	144
1907-1908	12.81	72	11.09	78	7.00	71	9.93	65	12.90	69	13.53	66	......	72	17.80	72	10.63	86	......	72	72
1908-1909	18.57	104	15.89	112	12.26	125	18.58	121	22.64	121	29.91	145	29.92	132	31.78	129	15.25	123	21.83	127	124
1909-1910	15.44	86	13.81	98	10.81	110	14.50	95	18.33	98	18.62	90	19.35	85	21.82	88	11.03	89	15.39	89	93
1910-1911	24.49	137	9.93	70	10.07	102	21.28	139	20.58	110	27.27	132	28.99	128	30.28	122	16.75	136	23.73	138	121
1911-1912	11.34	63	9.06	64	5.55	56	9.60	63	12.37	66	14.69	71	......	65	......	65	7.66	62	11.58	67	64
1912-1913	......	52	7.30	51	4.60	47	8.23	54	......	53	11.15	54	......	53	14.87	60	5.60	45	8.86	51	52
1913-1914	......	126	17.89	126	12.35	126	17.20	112	......	123	26.15	127	......	127	29.88	121	18.07	146	24.51	142	128
1914-1915	......	127	17.46	123	11.45	117	19.51	128	......	127	26.58	129	......	126	......	126	16.63	135	20.95	122	126
1915-1916	......	118	18.04	127	11.07†	113	20.42	134	......	117	20.01†	97	......	118	26.39	107	15.79	128	23.69	137	120
1916-1917	......	78	10.87	77	......	80	10.58	69	......	80	18.75†	91	......	78	......	78	8.32	67	......	78	78
1917-1918	......	52	8.79	62	......	50	8.73	57	......	50	7.31†	35	......	52	......	52	7.82	63	......	52	53
1918-1919	......	103	15.89	112	10.13†	103	17.99	117	20.27	108	11.86†	58	......	103	......	103	17.16	139	18.02	104	105
1919-1920	......	69	7.79	55	6.63†	68	8.82	58	......	70	18.23†	88	......	67	......	67	7.88	64	9.33	54	66
1920-1921	......	99	15.06	106	8.37†	85	13.28	87	......	101	22.16†	108	......	99	......	99	12.28	99	17.17	99	98
Years of record	24		54		40		50		42		47		14		21		42		24		
Mean of record	19.46		14.08		10.13		15.30		19.05		20.61		23.77		26.41		12.52		17.87		
50-year mean	17.90		14.18		9.80		15.30		18.70		20.60		22.70		24.80		12.40		17.30		
County	San Joaquin.		San Joaquin.		San Joaquin.		Alameda.		Alameda.		San Mateo.		Alameda.		Alameda.		Contra Costa.		Solano.		
Elevation	35		23		64		485		87		22		48		200		46		35		
Station reference number	117		118		119		120		121		122		123		124		128		129		

Precipitation data are from U. S. Weather Bureau records unless otherwise noted.
†From records of Southern Pacific Railroad.
Streams within boundaries of Precipitation Division L: Orestimba Creek Group, Mt. Diablo Creek Group, Claremont Creek Group, San Pablo Creek, San Leandro Creek, San Lorenzo Creek, Alameda Creek, Mission Creek Group, Penitencia Creek, San Francisquito Creek, San Mateo Creek Group, Pescadero Creek Group.

TABLE 17. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION M—MARIN-NAPA-WOODLAND AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Suisun.		Davis.		Woodland.		Guinda.		Calistoga.		St. Helena.		Santa Rosa.	
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.
1871-1872	......	124	......	124	......	124	......	124	......	124	......	124	......	124
1872-1873	17.06	86	11.95	70	......	79	......	79	......	79	......	79	......	79
1873-1874	18.43	93	18.30	107	23.00	131	......	100	30.82	84	......	100	......	100
1874-1875	15.18	77	11.18	65	14.18	81	......	72	24.60	67	......	72	......	72
1875-1876	......	113	18.72	109	22.14	126	......	111	39.48	108	......	111	......	111
1876-1877	......	53	5.12	30	10.67	61	......	53	22.00	60	......	53	......	53
1877-1878	26.73	135	20.00	117	26.69	152	......	143	50.40	138	......	143	......	143
1878-1879	26.18	132	12.93	75	15.93	91	......	100	36.32	100	......	100	......	100
1879-1880	21.96	111	17.03	100	21.67	124	......	108	38.10	104	......	108	......	108
1880-1881	24.52	124	18.85	110	17.87	102	......	111	40.48	111	......	111	......	111
1881-1882	15.93	80	11.63	68	12.05	69	......	70	22.85	63	......	70	......	70
1882-1883	17.57	89	15.78	92	16.95	97	......	82	24.98	68	......	82	......	82
1883-1884	21.17	107	18.80	110	23.74	136	......	106	33.62	92	......	106	......	106
1884-1885	12.65	64	9.79	57	10.82	62	......	62	22.45	61	......	62	......	62
1885-1886	29.30	148	24.50	143	23.20	132	......	127	41.72	114	......	127	......	127
1886-1887	12.29	62	12.23	71	13.07	75	......	71	23.00	63	......	71	......	71
1887-1888	14.55	73	12.00	70	12.79	73	......	73	24.50	67	......	73	......	73
1888-1889	17.96	91	20.13	118	21.42	122	......	94	31.63	87	......	94	23.78	81
1889-1890	39.38	199	37.41	218	30.69	175	......	194	67.51	185	......	194	56.06	191
1890-1891	17.68	89	21.38	125	13.80	79	......	83	26.79	73	......	83	20.71	70
1891-1892	19.39	98	12.42	72	13.92	79	......	91	30.07	82	......	91	30.36	103
1892-1893	22.62	114	24.31	142	21.03	120	......	115	48.43	133	......	115	30.51	104
1893-1894	19.20	97	15.16	89	12.80	73	......	97	44.75	123	......	97	27.12	92
1894-1895	26.35	133	22.58	132	25.88	148	......	139	52.22	143	......	139	45.80	156
1895-1896	22.83	115	21.71	127	24.65	141	......	113	40.95	112	......	113	26.42	90
1896-1897	22.94	116	18.82	110	17.91	102	21.40	102	46.86	129	......	110	29.92	102
1897-1898	11.38	57	8.96	52	6.43	37	19.86	95	24.64	67	......	62	22.64	77
1898-1899	17.37	88	13.19	77	15.15	87	16.15	77	27.52	75	......	82	24.15	82
1899-1900	17.40	88	13.29	78	15.53	89	17.35	83	37.37	102	......	95	29.37	100
1900-1901	19.32	97	17.79	104	19.63	112	21.20	101	45.15	124	......	106	30.51	104

TABLE 17.

1901-1902	21.30	108	15.72	92	17.12	98	22.94	110	42.76	117	......	115	33.93	115
1902-1903	16.49	83	16.19	95	14.34	82	18.21	87	37.09	102	......	96	29.21	99
1903-1904	21.22	107	18.47	108	18.30	105	24.72	118	52.97	145	......	133	44.11	150
1904-1905	24.32	123	22.75	133	28.29	162	28.88	138	34.47	95	......	118	35.99	122
1905-1906	25.02	126	24.46	143	25.33	145	26.03	124	45.17	124	......	121	33.18	113
1906-1907	......	144	23.93	140	24.53	140	28.20	134	53.77	148	......	129	34.44	117
1907-1908	13.97	70	13.16	77	10.79	62	15.71	75	27.00	74	......	73	20.93	71
1908-1909	25.93	131	22.07	129	23.00	131	26.70	127	54.43	149	51.03	138	38.75	132
1909-1910	15.17	76	11.77	69	14.92	85	15.42	74	33.60	92	31.62	86	29.00	98
1910-1911	20.01	101	23.18	135	22.37	128	25.39	121	41.00	112	36.64	99	29.54	100
1911-1912	13.80	70	9.46	55	7.85	45	10.08	48	20.52	56	20.16	54	18.44	63
1912-1913	11.19	56	8.74	51	8.86	51	12.78	61	28.40	78	26.88	72	24.01	82
1913-1914	31.60	160	28.70	168	23.62	135	36.90	176	59.51	163	58.94	159	42.83	146
1914-1915	22.35	113	20.05	117	17.92	102	24.26	116	50.42	138	49.65	134	42.56	145
1915-1916	20.66†	104	20.88	122	15.35	88	26.27	125	39.00	107	42.67	115	31.58	107
1916-1917	12.99†	66	14.11	83	13.05†	75	......	75	27.46	75	29.81	80	22.44	76
1917-1918	8.59†	43	9.66	56	9.67†	55	......	56	21.15†	58	18.26	49	18.18	62
1918-1919	21.54†	109	19.40	113	16.72†	96	......	98	27.93†	76	33.51	90	27.21	92
1919-1920	11.80†	60	8.94	52	7.85†	45	......	53	15.92†	43	18.84	51	13.25	45
1920-1921	19.13†	97	17.17	100	16.20†	92	......	108	40.02†	110	42.48	115	35.70	121
Years of record	46		49		48		20		48		13		33	
Mean of record	19.66		17.04		17.49		21.92		36.50		35.42		30.38	
50-year mean	19.80		17.10		17.50		21.00		36.50		37.00		29.40	
County	Solano.		Yolo.		Yolo.		Yolo.		Napa.		Napa.		Sonoma.	
Elevation	20		51		63		350		363		255		181	
Station reference number	130		131		132		133		134		135		136	

Precipitation data are from U. S. Weather Bureau records unless otherwise noted.
†From records of Southern Pacific Railroad.
Streams within boundaries of Precipitation Division M: Petaluma Creek Group, Sonoma Creek Tributaries, Napa River Tributaries, Suisun Creek Group.

TABLE 17.

TABLE 17—(Concluded). RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION M—MARIN-NAPA-WOODLAND AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Peachland.		Napa.		Sonoma.		Petaluma.		Kentfield.		Mt. Tamalpais.		Index of seasonal wetness. Division M.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	124	......	124	......	124	......	124	......	124	......	124	124
1872-1873	......	79	......	79	......	79	......	79	......	79	......	79	79
1873-1874	......	100	......	100	......	100	......	100	......	100	......	100	101
1874-1875	......	72	......	72	......	72	18.18	75	......	72	......	72	72
1875-1876	......	111	......	111	......	111	25.59	106	......	111	......	111	112
1876-1877	......	53	......	53	......	53	12.79	53	......	53	......	53	52
1877-1878	......	143	34.69	148	......	143	39.23	162	......	143	......	143	143
1878-1879	......	100	26.15	112	......	100	21.62	89	......	100	......	100	100
1879-1880	......	108	26.49	114	......	108	25.00	103	......	108	......	108	109
1880-1881	......	111	28.19	121	......	111	24.55	102	......	111	......	111	111
1881-1882	......	70	17.08	73	......	70	17.04	71	......	70	......	70	70
1882-1883	......	82	19.94	85	......	82	18.69	77	......	82	......	82	83
1883-1884	......	106	24.53	105	......	106	24.64	102	......	106	......	106	107
1884-1885	......	62	15.16	65	......	62	15.03	62	......	62	......	62	62
1885-1886	......	127	28.22	121	......	127	28.96	120	......	127	......	127	128
1886-1887	......	71	19.51	83	20.75	78	16.42	68	......	71	......	71	71
1887-1888	......	73	17.39	74	20.67	78	18.10	75	......	73	......	73	73
1888-1889	......	94	22.16	95	22.44	85	24.43	101	42.98	92	......	94	96
1889-1890	......	194	48.29	206	53.24	201	46.04	192	88.25	189	......	194	195
1890-1891	......	83	21.30	91	22.20	84	18.09	75	37.61	81	......	83	85
1891-1892	......	91	22.98	98	23.60	89	19.79	82	46.44	99	......	91	90
1892-1893	......	115	26.75	114	33.28	125	26.91	111	44.71	96	......	115	117
1893-1894	......	97	21.49	92	27.97	105	22.15	92	43.50	93	......	97	96
1894-1895	......	139	30.35	130	......	136	30.99	128	64.44	138	......	139	138
1895-1896	......	113	24.92	107	......	119	......	121	51.27	110	......	113	115
1896-1897	40.49	98	25.49	109	......	116	......	117	50.82	109	......	110	110
1897-1898	24.89	60	13.30	57	......	56	......	56	28.41	61	......	62	62
1898-1899	33.32	81	17.11	73	20.81	79	......	80	42.37	91	25.51	95	82
1899-1900	40.83	99	20.65	88	26.09	98	......	92	43.40	93	30.67	114	94
1900-1901	41.12	99	24.95	107	26.84	101	......	112	47.26	101	27.19	101	105

TABLE 17.

1901-1902	47.68	115	29.42	126	29.52	111	......	107	57.88	124	34.88	130	113
1902-1903	42.61	103	23.38	100	25.85	97	......	92	46.27	99	25.45	95	95
1903-1904	63.65	154	25.97	111	32.77	123	......	122	69.48	148	36.92	138	128
1904-1905	48.07	116	26.06	111	32.58	123	......	121	50.33	108	29.48	110	122
1905-1906	49.47	119	23.64	101	28.20	106	......	132	59.89	128	28.25	106	122
1906-1907	46.65	113	30.96	132	36.98	139	......	144	53.48	114	30.13	113	131
1907-1908	29.95	72	14.92	64	......	70	......	71	34.10	73	24.99	93	73
1908-1909	58.40	141	30.35	130	......	136	......	138	65.40	140	35.62	133	135
1909-1910	36.77	89	20.65	88	......	84	......	83	41.55	89	26.26	98	85
1910-1911	36.73	89	25.16	107	......	116	......	117	52.33	112	25.35	95	110
1911-1912	21.48	59	14.92	64	......	58	......	57	30.47	65	19.39	72	59
1912-1913	32.29	78	16.95	73	......	64	......	63	33.71	72	21.36	80	68
1913-1914	61.63	149	34.51	148	......	157	40.29	167	66.83	143	29.11	109	152
1914-1915	55.09	133	......	128	......	128	36.51	151	60.97	130	34.71	130	128
1915-1916	43.85	106	......	109	......	109	29.24	121	51.59	111	24.95	93	109
1916-1917	31.96	77	......	75	......	75	18.16	75	32.77	70	20.56	77	75
1917-1918	26.10	63	13.10	56	......	54	12.33	51	24.87	53	12.81	48	54
1918-1919	36.58	88	26.86	115	......	98	23.65	98	51.78	111	29.08	109	99
1919-1920	23.83	57	12.40	53	......	50	11.67	48	31.07	67	16.91	63	53
1920-1921	51.22	124	23.91	102	......	104	27.91	115	45.89	98	......	108	107
Years of record	25		41		17		29		33		22		
Mean of record	41.11		23.66		28.46		23.93		48.25		26.80		
50-year mean	41.40		23.40		26.50		24.20		46.70		26.80		
County	Sonoma.		Napa.		Sonoma.		Sonoma.		Marin.		Marin.		
Elevation	190		20		30		10		65		2,375		
Station reference number	137		138		139		140		141		142		

Precipitation data are from U. S. Weather Bureau records.

TABLE 18. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION N—SANTA CLARA-COAST AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Boulder Creek. Inches.	Boulder Creek. Index.	Ben Lomond. Inches.	Ben Lomond. Index.	Felton. Inches.	Felton. Index.	Laurel. Inches.	Laurel. Index.	Los Gatos. Inches.	Los Gatos. Index.	Campbell. Inches.	Campbell. Index.	San Jose. Inches.	San Jose. Index.	Santa Clara. Inches.	Santa Clara. Index.	Lick Observatory. Inches.	Lick Observatory. Index.	Index of seasonal wetness. Division N.
1871-1872	......	129	......	129	......	129	......	129	......	129	......	129	......	129	......	129	......	129	129
1872-1873	......	76	......	76	......	76	......	76	......	76	......	76	......	76	......	76	......	76	76
1873-1874	......	89	......	89	......	89	......	89	......	89	......	89	......	89	......	89	......	89	89
1874-1875	......	52	......	52	......	52	......	52	......	52	......	52	7.90	52	......	52	......	52	52
1875-1876	......	129	......	129	......	129	......	129	......	129	......	129	19.47	129	......	129	......	129	129
1876-1877	......	32	......	32	......	32	......	32	......	32	......	32	4.83	32	......	32	......	32	32
1877-1878	......	128	......	128	......	128	......	128	......	128	......	128	19.28	128	......	128	......	128	128
1878-1879	......	109	......	109	......	109	......	109	......	109	......	109	16.40	109	......	109	......	109	109
1879-1880	......	91	......	91	......	91	......	91	......	91	......	91	13.77	91	......	91	......	91	91
1880-1881	......	82	......	82	......	82	......	82	......	82	......	82	12.45	82	......	82	......	82	82
1881-1882	......	87	......	87	......	87	......	87	......	87	......	87	11.75	78	12.18	77	29.15	97	86
1882-1883	......	97	......	97	......	97	......	97	......	97	......	97	10.59	70	11.25	71	37.26	124	94
1883-1884	......	162	......	162	......	162	......	162	......	162	......	162	20.08	133	20.37	128	58.09	194	159
1884-1885	......	109	......	109	......	109	......	109	......	109	......	109	11.27	75	10.42	66	44.67	149	105
1885-1886	......	123	......	123	......	123	......	123	43.02	131	......	123	20.63	137	......	127	31.42	105	124
1886-1887	......	77	......	77	......	77	......	77	24.36	74	......	77	11.36	75	......	80	21.08	80	77
1887-1888	......	85	......	85	......	85	......	85	24.17	74	......	85	12.17	81	13.39	84	30.03	100	85
1888-1889	49.14	93	......	91	......	91	......	91	29.87	91	......	91	15.71	104	16.49	104	21.85	73	92
1889-1890	123.65	233	......	208	100.64	224	......	208	67.22	205	......	208	30.30	201	31.20	197	45.16	151	204
1890-1891	61.27	115	......	97	41.51	93	......	97	31.97	98	......	97	12.88	85	14.06	89	24.05	80	95
1891-1892	47.73	90	......	86	44.56	99	33.24	69	23.11	70	......	86	16.51	109	14.09	89	27.49	92	88
1892-1893	77.15	146	......	142	52.24	117	66.46	138	56.84	172	......	142	25.17	167	25.61	162	37.93	127	146
1893-1894	43.29	81	......	84	38.84	87	37.67	78	21.25	65	......	84	12.92	86	11.70	74	35.84	120	84
1894-1895	69.84	132	......	133	63.47	141	55.92	116	47.18	144	......	133	23.32	155	23.31	147	36.61	122	136
1895-1896	50.41	95	......	98	......	97	19.44	102	34.48	105	......	98	13.69	91	13.92	88	29.76	99	97
1896-1897	51.72	97	......	104	49.70	111	51.21	106	32.49	99	......	104	16.56	110	17.02	107	32.22	108	105
1897-1898	24.25	46	......	49	......	49	24.84	51	15.18	46	8.20	51	6.87	46	7.86	50	17.66	59	50
1898-1899	55.75	105	......	95	50.46	113	50.74	105	24.93	76	13.17	82	10.02	66	11.29	71	25.73	86	89
1899-1900	43.10	81	48.87	90	......	85	45.80	95	24.24	74	12.28	76	13.87	92	13.55	85	29.31	98	86
1900-1901	54.49	103	......	114	......	113	53.41	110	41.35	126	21.29	133	19.88	132	18.79	118	31.64	105	117

TABLE 18.

1901-1902	54.52	102	59.27	109	......	96	51.90	107	33.23	101	13.93	87	12.98	86	13.23	83	27.62	92	96
1902-1903	47.68	90	46.21	85	......	93	47.80	99	28.98	88	15.74	98	13.89	92	15.66	99	30.29	101	94
1903-1904	57.90	109	64.12	118	48.22	108	58.89	122	29.25	89	12.25	76	10.47	69	12.89	81	33.78	113	98
1904-1905	60.34	114	60.83	112	52.62	117	53.50	111	35.88	110	20.98	131	17.96	119	20.13	127	28.55	95	115
1905-1906	73.58	139	70.95	130	52.56	117	65.69	136	38.13	116	17.51	109	15.12	100	18.71	117	38.43	128	121
1906-1907	65.25	123	65.01	119	56.94	127	63.87	132	43.42	132	23.38	146	22.71	151	25.19	159	43.34	144	137
1907-1908	33.73	62	37.63	69	33.30	74	33.05	68	22.38	68	12.46	77	11.69	77	12.77	80	23.92	80	73
1908-1909	73.03	137	78.49	144	63.06	141	69.92	145	44.75	137	18.52	115	18.31	121	20.39	128	37.42	125	133
1909-1910	43.15	81	41.26	76	37.20	83	38.30	79	25.78	76	12.51	78	14.52	96	15.89	100	26.02	87	84
1910-1911	59.91	113	69.55	128	51.51	115	68.64	142	52.63	161	21.89	136	22.65	150	22.66	143	33.29	111	133
1911-1912	29.49	56	34.84	64	28.55	64	29.55	61	19.46	59	10.74	67	10.58	70	12.21	77	18.24	61	64
1912-1913	21.37	40	27.96	51	19.44	43	25.65	53	15.53	47	5.29	33	6.35	42	6.57	41	19.48	65	45
1913-1914	67.54	127	67.33	124	59.78	133	41.58	86	52.98	161	19.87	124	19.45	129	19.50	123	35.61	119	125
1914-1915	67.47	127	63.76	117	56.21	125	56.31	117	36.81	112	21.93	137	22.71	151	26.97	170	27.75	92	128
1915-1916	49.70	94	52.69	97	44.64	100	54.15	112	38.53	118	17.87	111	16.31	108	17.46	110	29.48	98	105
1916-1917	......	84	......	82	34.81†	78	......	83	29.29	89	12.58	78	12.63	84	12.58	79	24.58	82	82
1917-1918	......	52	......	50	19.26†	43	......	50	14.53	44	7.39	46	9.36	62	9.06	57	15.96	53	51
1918-1919	......	108	......	106	39.83†	89	......	101	34.55	105	22.43	140	18.89	125	20.84	131	27.40	91	111
1919-1920	......	65	......	67	33.13†	74	......	67	20.55	62	9.63	60	8.81	58	9.77	62	21.48	72	65
1920-1921	......	103	......	104	46.44†	103	......	103	33.62	103	17.55	109	15.01	100	16.24	102	31.54	105	104
Years of record	28		16		26		25		36		24		47		38		40		
Mean of record	55.59		55.55		46.88		49.10		33.09		15.39		15.11		16.19		30.60		
50-year mean	53.00		54.40		44.70		48.20		32.80		16.10		15.10		15.90		30.00		
County	Santa Cruz.		Santa Cruz.		Santa Cruz.		Santa Cruz.		Santa Clara.		Santa Clara.		Santa Clara.		Santa Clara.		Santa Clara.		
Elevation	470		300		275		910		600		217		95		90		4,209		
Station reference number	144		145		146		147		148		149		150		151		152		

Precipitation data are from U. S. Weather Bureau records unless otherwise noted.
†From records of Southern Pacific Railroad.
Streams within boundaries of Precipitation Division N: Coyote River, Guadalupe River, Los Gatos Creek Group, Soquel Creek Group.

TABLE 19. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION O—MONTEREY BAY AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Gilroy.		Watsonville.		Aptos.		Santa Cruz.		Monterey.		Salinas.		Hollister.		Index of seasonal wetness. Division O.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	127	......	127	......	127	......	127	......	127	......	127	......	127	127
1872-1873	......	69	......	69	......	69	......	69	......	69	......	69	......	69	69
1873-1874	......	87	......	87	......	87	......	87	......	87	12.20	87	......	87	87
1874-1875	15.12	76	......	73	......	73	......	73	......	73	9.98	71	9.37	71	73
1875-1876	31.04	157	......	148	......	148	......	148	......	148	22.94	164	15.57	118	147
1876-1877	6.53	33	......	33	......	33	......	33	......	33	4.44	32	4.69	36	32
1877-1878	28.03	141	......	149	......	149	......	149	......	149	23.82	170	18.12	138	149
1878-1879	16.76	85	......	78	......	78	22.11	82	11.89	73	10.94	78	8.81	67	77
1879-1880	22.38	113	......	93	......	93	18.22	67	17.74	109	13.22	95	12.38	94	95
1880-1881	23.42	118	......	104	......	104	30.64	113	13.76	85	14.07	101	12.48	95	103
1881-1882	14.09	71	15.26	72	......	81	22.83	84	15.16	93	12.93	93	10.44	79	82
1882-1883	15.19	77	13.82	65	......	76	19.62	72	16.49	102	10.74	77	9.62	73	77
1883-1884	24.60	124	21.20	103	......	122	30.68	113	21.38	131	21.29	152	16.54	126	124
1884-1885	14.74	75	12.73	60	......	64	6.50	61	11.18	69	9.48	68	6.95	53	64
1885-1886	21.45	108	27.00	128	34.62	129	32.75	121	18.50	114	20.81	149	14.44	110	123
1886-1887	11.11	56	12.85	61	15.40	57	17.17	63	9.16	56	9.88	71	7.47	57	60
1887-1888	16.78	85	14.13	67	28.65	107	22.91	84	12.78	78	12.70	91	10.12	77	84
1888-1889	14.44	73	14.97	71	20.34	76	23.35	86	12.87	79	11.66	83	12.81	98	81
1889-1890	37.75	190	44.90	212	49.07	183	54.68	201	29.32	180	27.59	197	22.48	171	191
1890-1891	14.84	75	......	76	33.30	124	19.21	71	12.30	76	12.19	87	10.10	77	84
1891-1892	18.91	95	......	88	21.89	81	24.43	90	11.90	73	12.93	93	11.58	88	87
1892-1893	24.50	124	......	130	31.13	116	34.89	129	22.87	141	18.03	129	17.42	133	129
1893-1894	12.91	65	......	88	25.35	94	29.90	110	10.62	65	13.70	98	12.01	92	87
1894-1895	28.81	145	......	138	39.83	149	39.91	147	20.17	124	17.25	123	18.53	141	138
1895-1896	24.70	125	......	93	23.88	89	21.90	81	11.21	69	12.42	89	14.06	107	93
1896-1897	21.82	110	......	104	24.29	90	28.77	106	15.29	94	14.02	100	14.04	107	102
1897-1898	10.44	53	......	50	11.51	43	12.49	46	6.95	43	8.07	58	7.15	54	49
1898-1899	19.44	98	......	85	26.79	100	25.04	92	10.33	62	12.18	87	9.88	75	86
1899-1900	14.54	73	19.88	94	24.01	89	28.43	105	12.47	76	9.65	69	10.92	83	86
1900-1901	23.17	117	24.95	118	26.52	99	26.27	97	16.00	98	15.98	114	15.76	120	109

TABLE 19.

1901-1902	18.41	93	21.35	101	24.40	91	29.35	108	14.98	92	10.60	76	11.47	87	93
1902-1903	17.48	88	18.54	88	24.89	93	26.70	99	15.12	95	11.05	79	12.64	96	91
1903-1904	18.26	92	18.31	87	27.17	101	28.40	105	12.75	78	9.60	69	11.79	90	89
1904-1905	23.25	117	24.69	117	29.46	110	35.88	132	25.25	155	16.57	119	17.24	131	126
1905-1906	29.42	148	23.58	112	31.56	118	32.26	119	20.19	124	14.14	101	20.45	156	125
1906-1907	28.98	146	37.41	177	42.04	157	35.85	132	29.80	183	23.99	172	23.80	181	164
1907-1908	14.25	72	14.00	66	20.17	75	23.47	86	17.78	109	11.41	82	10.94	83	82
1908-1909	27.81	140	31.99	151	40.94	153	41.63	154	23.43	144	18.99	136	17.63	134	145
1909-1910	19.47	98	22.04	104	25.02	93	31.25	115	17.78	109	12.10	87	14.67	112	103
1910-1911	19.41	98	28.19	134	35.08	131	33.50	123	24.39	150	16.42	118	13.39	102	122
1911-1912	13.87	70	16.73	79	18.94	71	19.88	73	13.28	82	......	79	10.06	76	76
1912-1913	9.75	49	10.79	51	12.70	47	14.09	52	8.13	50	7.03	50	6.73	51	49
1913-1914	33.70	170	30.61	145	37.87	141	34.65	128	23.17	142	15.99	114	19.85	151	142
1914-1915	21.22	107	31.49	149	36.68	137	42.42	156	26.28	162	19.07	137	18.20	138	141
1915-1916	23.94†	121	26.73	127	......	120	29.57	109	......	119	17.21	123	17.38	132	122
1916-1917	21.88†	110	18.02	85	......	86	19.17	71	......	86	8.98	64	14.18	108	87
1917-1918	9.35†	47	11.65	55	......	53	12.03	44	......	53	8.30	59	9.32	71	54
1918-1919	23.80†	120	23.50	111	......	112	27.71	102	......	113	17.01	122	15.17	115	114
1919-1920	14.53†	73	18.82	89	......	77	20.85	77	......	74	11.22	80	8.38	64	76
1920-1921	19.02†	96	22.78	108	......	104	29.39	108	......	104	15.48	111	12.94	99	104
Years of record	47		31		30		43		41		47		47		
Mean of record	19.90		21.71		28.12		27.23		16.25		14.05		13.19		
50-year mean	19.80		21.10		26.80		27.10		16.30		14.00		13.10		
County	Santa Clara.		Santa Cruz.		Santa Cruz.		Santa Cruz.		Monterey.		Monterey.		San Benito.		
Elevation	193		23		102		20		15		40		284		
Station reference number	153		154		155		156		157		158		159		

Precipitation data are from U. S. Weather Bureau records unless otherwise noted.
†From records of Southern Pacific Railroad.
Streams within boundaries of Precipitation Division O: Pajaro River, Soquel Creek Group.

TABLE 20. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION P—LOS BANOS-MODESTO AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Los Banos.		Newman.		Westley.		Modesto.		Merced.		Le Grand.		Index of seasonal wetness. Division P.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	119	......	119	......	119	12.71	119	......	119	......	119	119
1872-1873	......	91	......	91	......	91	7.65	72	12.21	110	......	91	91
1873-1874	7.56	93	......	86	......	86	11.36	106	6.94	63	......	86	87
1874-1875	7.36	90	......	83	......	83	7.40	69	10.00	90	......	83	83
1875-1876	10.48	128	......	122	......	122	13.39	125	12.68	115	......	122	123
1876-1877	1.60	20	......	31	......	31	4.45	42	3.20	29	......	31	30
1877-1878	8.92	109	......	108	......	108	11.51	108	11.81	107	......	108	108
1878-1879	3.49	43	......	60	......	60	8.48	79	5.83	53	......	60	59
1879-1880	4.91	60	......	99	......	99	12.88	121	11.89	107	......	99	98
1880-1881	8.00	98	......	94	......	94	8.40	79	11.59	105	......	94	94
1881-1882	4.31	53	......	65	......	65	6.64	62	8.58	77	......	65	65
1882-1883	7.52	92	......	92	......	92	10.03	94	9.81	89	......	92	92
1883-1884	12.52	153	......	159	......	159	12.87	120	22.08	200	......	159	158
1884-1885	7.32	90	......	70	......	70	6.40	60	7.18	65	......	70	71
1885-1886	13.08	160	......	131	......	131	12.79	120	13.43	122	......	131	133
1886-1887	3.24	40	......	51	......	51	5.72	53	6.20	56	......	51	50
1887-1888	4.20	51	......	60	......	60	6.58	62	7.08	64	......	60	59
1888-1889	9.17	112	......	73	4.60	46	7.61	71	7.80	71	......	73	74
1889-1890	14.21	174	23.67	233	17.01	169	16.40	154	17.81	161	......	178	178
1890-1891	7.01	86	9.68	95	7.09	71	7.49	70	8.51	77	......	79	80
1891-1892	8.16	100	9.08	89	8.98	89	10.35	97	9.64	87	......	92	93
1892-1893	9.04	111	16.28	160	14.65	146	14.17	133	10.98	99	......	130	130
1893-1894	6.29	77	4.88	48	7.62	76	11.40	107	10.86	98	......	82	81
1894-1895	11.49	141	14.11	139	13.92	138	16.40	154	12.63	114	......	137	137
1895-1896	7.51	92	10.23	101	10.44	104	10.30	96	11.83	107	......	101	100
1896-1897	6.71	82	11.27	111	14.06	140	11.93	112	12.08	109	......	112	111
1897-1898	4.33	53	5.67	56	4.18	42	3.87	36	5.76	52	......	48	48
1898-1899	5.89	72	6.27	61	7.84	78	9.35	87	7.68	69	......	74	73
1899-1900	8.80	108	11.58	114	10.14	101	11.91	112	11.39	103	11.73	98	106
1900-1901	11.37	139	12.08	119	13.71	136	14.62	137	11.42	103	20.07	168	134

TABLE 20.

1901-1902	7.82	96	8.27	81	7.87	78	10.10	94	9.98	90	9.29	77	86
1902-1903	6.34	78	9.26	91	11.08	110	12.23	114	11.89	107	11.91	99	100
1903-1904	4.93	60	7.04	69	7.68	76	8.72	81	8.26	75	9.16	76	73
1904-1905	11.96	147	14.85	146	11.65	116	15.77	148	13.30	120	16.09	134	135
1905-1906	13.23	162	14.73	145	13.18	131	12.55	117	17.76	161	17.42	146	144
1906-1907	14.41	177	15.99	157	16.87	168	19.04	178	16.38	148	15.66	131	160
1907-1908	6.80	83	7.68	75	7.64	76	9.79	91	8.41	76	4.87	41	74
1908-1909	11.21	137	11.50	113	9.78	97	11.16	104	14.38	130	13.81	115	114
1909-1910	......	97	9.83	97	......	97	10.93	102	10.19	92	12.91	108	99
1910-1911	9.74	119	11.36	112	12.84	128	12.69	119	17.12	155	14.14	118	125
1911-1912	5.15	63	6.72	66	8.47	84	5.81	54	7.86	71	6.55	55	65
1912-1913	4.14	51	5.52	54	3.96	39	3.58	33	6.54	59	6.34	53	48
1913-1914	......	146	16.38	161	17.23	172	16.29	152	14.07	127	......	152	152
1914-1915	......	141	14.00	138	15.60	155	15.29	143	15.77	143	17.68	148	145
1915-1916	......	134	13.67	134	......	134	......	136	14.62	132	17.16	143	136
1916-1917	......	80	7.43	73	......	82	......	81	9.35	84	11.52	96	83
1917-1918	......	91	8.73	86	......	93	......	92	10.49	95	12.89	107	94
1918-1919	......	105	12.27	121	......	100	......	106	9.90	89	9.65	81	100
1919-1920	......	79	6.05	59	......	85	......	79	10.55	95	11.49	96	82
1920-1921	......	117	10.34	102	......	122	......	118	14.36	130	15.72	131	120
Years of record	39		32		26		44		49		21		
Mean of record	7.95		10.83		10.70		10.66		11.02		12.67		
50-year mean	8.20		10.20		10.00		10.70		11.10		12.00		
County	Merced.		Stanislaus.		Stanislaus.		Stanislaus.		Merced.		Merced.		
Elevation	121		91		90		90		173		255		
Station reference number	160		161		162		163		164		165		

Precipitation data are from U. S. Weather Bureau records.

NOTE—Indices of this Division are used in the computation of run-off of Orestimba Creek Group, in combination with Indices of Precipitation Division L.

TABLE 21. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION Q—SAN JOAQUIN-KINGS RIVER AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	North Fork.		Storey.		Mendota.		Fresno.		Sanger.		Reedley.		Selma.		Hanford.		Visalia.		Index of seasonal wetness. Division Q.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	119	......	119	......	119	......	119	......	119	......	119	......	119	......	119	......	119	119
1872-1873	......	74	......	74	......	74	......	74	......	74	......	74	......	74	......	74	......	74	74
1873-1874	......	100	......	100	......	100	......	100	......	100	......	100	......	100	......	100	......	100	100
1874-1875	......	64	......	64	......	64	......	64	......	64	......	64	......	64	......	64	......	64	64
1875-1876	......	124	......	124	......	124	......	124	......	124	......	124	......	124	......	124	......	124	124
1876-1877	......	60	......	60	......	60	......	60	......	60	......	60	......	60	......	60	......	60	60
1877-1878	......	109	......	109	......	109	......	109	......	109	......	109	......	109	......	109	10.49	109	109
1878-1879	......	41	......	41	......	41	......	41	......	41	......	41	......	41	......	41	3.95	41	41
1879-1880	......	134	......	134	......	134	......	134	......	134	......	134	......	134	......	134	12.81	134	134
1880-1881	......	122	......	122	......	122	......	122	......	122	......	122	......	122	......	122	11.67	122	122
1881-1882	......	69	......	69	......	69	6.60	68	......	69	......	69	......	69	......	69	6.76	70	69
1882-1883	......	85	......	85	......	85	9.84	102	......	85	......	85	......	85	......	85	6.58	68	85
1883-1884	......	178	......	178	......	178	18.71	194	......	178	......	178	......	178	......	178	15.65	163	178
1884-1885	......	78	......	78	......	78	7.20	75	......	78	......	78	......	78	......	78	7.75	80	78
1885-1886	......	169	......	169	......	169	19.45	202	......	169	......	169	......	169	......	169	13.10	136	169
1886-1887	......	88	......	88	......	88	8.47	88	......	88	......	88	7.79	86	......	88	......	89	88
1887-1888	......	67	......	67	......	67	6.73	70	......	67	......	67	5.71	63	......	67	......	69	67
1888-1889	......	92	......	92	......	92	7.99	83	......	92	......	92	7.35	81	......	92	10.67	111	92
1889-1890	......	153	......	153	......	153	13.01	135	17.24	168	......	153	14.43	160	......	153	14.22	148	153
1890-1891	......	79	......	79	......	79	8.25	85	6.23	61	......	79	6.96	77	......	79	9.15	95	79
1891-1892	......	102	......	102	......	102	9.93	103	9.68	94	......	102	7.48	83	......	102	12.31	128	102
1892-1893	......	101	......	101	......	101	11.10	115	8.91	87	......	101	8.65	96	......	101	10.27	107	101
1893-1894	......	83	......	83	......	83	8.59	89	9.69	94	......	83	5.91	65	......	83	7.80	81	83
1894-1895	......	118	......	118	8.46	134	14.67	152	5.58	54	......	118	10.95	121	......	118	13.41	140	119
1895-1896	......	82	......	82	5.31	84	8.20	85	6.10	89	......	82	6.67	74	......	82	7.39	77	82
1896-1897	......	108	......	108	5.21	82	10.54	110	12.51	122	......	108	9.07	100	......	108	11.29	118	107
1897-1898	......	56	......	56	4.15	66	4.96	51	6.66	65	......	56	3.96	44	......	56	5.44	57	56
1898-1899	......	83	......	83	4.19	66	7.84	81	9.29	90	......	83	6.91	76	......	83	9.07	94	82
1899-1900	......	103	9.30	99	5.88	93	10.28	107	11.28	110	......	103	9.34	103	8.74	102	9.83	102	102
1900-1901	......	135	13.68	145	10 85	171	11.33	118	14.77	144	......	135	9.16	101	12.51	146	12.88	134	137

TABLE 21.

1901-1902	......	76	9.81	104	3.62	57	6.15	64	6.49	63	8.24	72	6.48	72	6.73	79	8.83	92	75
1902-1903	......	82	8.36	89	......	80	8.15	84	7.19	70	9.97	87	7.82	86	6.49	76	7.56	79	81
1903-1904	......	80	8.32	88	5.84	92	8.04	83	8.88	86	8.47	74	7.57	84	5.99	70	6.74	70	81
1904-1905	......	132	9.59	102	9.53	150	12.09	125	13.76	134	18.12	158	12.83	142	10.47	122	11.49	120	132
1905-1906	......	149	13.69	145	7.95	125	13.52	140	17.79	173	17.31	150	15.23	169	11.72	137	13.85	144	148
1906-1907	......	130	10.21	108	9.74	154	10.85	113	15.93	155	15.28	133	12.26	136	10.76	126	11.85	123	131
1907-1908	22.97	64	8.24	87	4.25	67	7.64	79	7.36	72	8.00	69	8.27	91	8.47	99	10.01	104	81
1908-1909	43.43	121	6.83	72	......	119	9.87	103	10.23	100	11.92	104	12.13	134	9.89	116	13.83	144	113
1909-1910	34.58	96	9.66	102	......	92	10.99	114	5.83	57	11.59	101	9.83	109	7.61	89	18.87	92	95
1910-1911	53.48	149	10.93	116	......	133	11.82	123	16.52	162	15.26	133	13.27	147	11.06	129	9.57	100	132
1911-1912	23.60	66	6.18	65	......	78	7.34	76	......	78	7.01	60	7.20	80	6.39	75	......	80	73
1912-1913	......	67	6.39	68	......	68	6.28	65	7.21	70	7.22	63	6.01	66	5.57	65	6.90	72	66
1913-1914	48.54	135	......	122	......	122	11.04	115	14.47	141	13.44	117	12.11	134	......	122	9.54	99	123
1914-1915	......	124	12.19	129	......	124	10.92	113	13.95	136	13.48	117	12.83	142	......	125	10.08	105	124
1915-1916	42.07	117	15.24	162	......	115	11.75	122	......	115	13.80	120	......	115	......	130	10.38	108	123
1916-1917	33.87	94	9.72	103	......	84	7.25	75	......	84	10.65	92	......	84	7.35	86	8.95	93	88
1917-1918	26.96	75	8.90	94	......	92	10.26	106	......	92	9.29	81	......	92	9.30	109	7.44	77	91
1918-1919	31.49	88	7.98	84	......	79	6.90	72	......	79	10.22	89	......	79	6.29	74	8.35	87	81
1919-1920	31.30	87	5.88	62	......	94	8.24	85	......	94	12.43	108	......	94	8.13	95	9.82	102	91
1920-1921	33.98	94	11.11	118	......	90	8.19	85	......	90	11.26	98	......	90	7.83	92	9.14	95	95
Years of record	12		21		13		40		25		20		29		19		41		
Mean of record	35.52		9.63		6.54		9.78		10.66		11.65		9.11		8.49		9.89		
50-year mean	35.90		9.40		6.30		9.60		10.30		11.50		9.00		8.50		9.60		
County	Madera.		Madera.		Fresno.		Fresno.		Fresno.		Fresno.		Fresno.		Kern.		Tulare.		
Elevation	3,000		296		177		293		371		347		311		249		334		
Station reference number	166		167		168		169		170		171		172		173		174		

Precipitation data are from U. S. Weather Bureau records.

Streams within boundaries of Precipitation Division Q: Kings River, Dry Creek, San Joaquin River (upper), Cottonwood Creek, Fresno River, Daulton Creek Group, Owens River (upper), Bishop Creek Group.

TABLE 22. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION R—KERN RIVER AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Lemon Cove.		Milo.		Springville.		Hot Springs.		Kernville.		Isabella.		Glennville.		Caliente.		Delano.		Index of seasonal wetness. Division R.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	120	......	120	......	120	......	120	......	120	......	120	......	120	......	120	......	120	120
1872-1873	......	75	......	75	......	75	......	75	......	75	......	75	......	75	......	75	......	75	75
1873-1874	......	101	......	101	......	101	......	101	......	101	......	101	......	101	......	101	......	101	101
1874-1875	......	64	......	64	......	64	......	64	......	64	......	64	......	64	......	64	......	64	64
1875-1876	......	125	......	125	......	125	......	125	......	125	......	125	......	125	......	125	......	125	125
1876-1877	......	52	......	52	......	52	......	52	......	52	......	52	......	52	4.94	46	4.15	63	53
1877-1878	......	141	......	141	......	141	......	141	......	141	......	141	......	141	17.35	161	7.09	108	140
1878-1879	......	26	......	26	......	26	......	26	......	26	......	26	......	26	3.16	29	1.41	21	25
1879-1880	......	137	......	137	......	137	......	137	......	137	......	137	......	137	15.04	139	8.75	133	137
1880-1881	......	96	......	96	......	96	......	96	......	96	......	96	......	96	9.84	91	6.75	103	96
1881-1882	......	84	......	84	......	84	......	84	......	84	......	84	......	84	10.13	94	4.51	69	83
1882-1883	......	87	......	87	......	87	......	87	......	87	......	87	......	87	8.18	76	6.91	105	88
1883-1884	......	181	......	181	......	181	......	181	......	181	......	181	......	181	19.96	185	11.52	175	181
1884-1885	......	72	......	72	......	72	......	72	......	72	......	72	......	72	8.47	78	3.99	61	71
1885-1886	......	123	......	123	......	123	......	123	......	123	......	123	......	123	12.83	119	8.59	131	123
1886-1887	......	86	......	86	......	86	......	86	......	86	......	86	......	86	8.89	82	5.98	91	86
1887-1888	......	60	......	60	......	60	......	60	......	60	......	60	......	60	6.43	58	4.03	61	60
1888-1889	......	78	......	78	......	78	......	78	......	78	......	78	......	78	8.05	74	5.50	84	78
1889-1890	......	118	......	118	......	118	......	118	......	118	......	118	......	118	11.17	104	9.35	142	119
1890-1891	......	87	......	87	......	87	......	87	......	87	......	87	......	87	9.84	91	5.27	80	87
1891-1892	......	107	......	107	......	107	......	107	......	107	......	107	......	107	12.20	113	6.41	98	107
1892-1893	......	94	......	94	......	94	......	94	......	94	......	94	......	94	10.36	96	6.00	91	94
1893-1894	......	89	......	89	......	89	......	89	......	89	......	89	......	89	11.45	106	3.97	61	88
1894-1895	......	141	......	141	......	141	......	141	14.74	149	......	141	......	141	17.21	159	6.66	101	139
1895-1896	......	92	......	92	......	92	......	92	7.97	80	......	92	......	92	13.24	123	4.04	62	91
1896-1897	......	125	......	125	......	125	......	125	14.71	148	......	125	......	125	13.41	124	6.98	106	125
1897-1898	......	54	......	54	......	54	......	54	3.66	37	4.47	43	......	51	8.90	82	3.36	51	54
1898-1899	......	72	16.39	77	......	72	......	72	6.23	63	5.38	52	......	72	8.04	74	6.57	100	73
1899-1900	13.89	99	......	82	......	82	......	82	5.96	60	6.60	64	......	82	8.79	81	7.05	108	82
1900-1901	19.46	139	26.43	124	......	120	......	120	12.33	124	12.75	124	......	120	7.98	74	8.24	125	119

TABLE 22.

1901-1902	11.04	79	18.08	85	......	95	......	95	11.17	112	11.49	111	......	95	12.08	112	5.72	87	97
1902-1903	12.89	92	19.76	93	......	97	......	97	11.24	113	7.77	75	......	97	12.39	115	6.40	98	97
1903-1904	11.09	79	14.14	67	......	71	......	71	7.70	77	7.16	69	......	71	7.01	65	4.45	68	71
1904-1905	19.71	141	22.72	107	......	116	......	116	7.88	79	12.80	124	......	116	11 13	103	10.52	160	118
1905-1906	27.58	197	42.06	197	......	173	......	173	13.87	139	15.77	153	......	173	17.01	157	10.10	154	169
1906-1907	20.65	148	27.10	127	......	125	......	125	9.27	93	11.28	109	......	125	16.11	149	7.05	107	123
1907-1908	13.29	95	19.11	90	25.99	76	20.49	87	8.12	82	8.09	78	......	87	12.34	114	6.89	105	90
1908-1909	14.02	100	33.43	157	57.45	167	38.59	164	21.22	214	23.60	228	......	162	13.42	124	......	156	165
1909-1910	13.22	94	23.49	110	34.27	100	20.04	85	10.05	101	10.91	106	30.50	144	7.73	72	......	104	102
1910-1911	17.17	123	27.29	128	38.23	111	23.24	99	8.96	90	......	85	25.97	122	6.64	61	......	114	103
1911-1912	12.11	86	13.65	64	22.60	66	18.50	79	8.52	86	......	80	14.74	70	7.95	73	......	81	76
1912-1913	9.67	69	14.21	67	14.29	42	14.46	62	6.29	63	......	66	21.06	99	7.06	65	......	72	67
1913-1914	15.27	109	27.01	127	51.91	151	31.21	133	13.83	139	......	144	25.38	119	16.35	151	......	139	135
1914-1915	......	115	22.94	108	38.04	111	28.25	121	8.52	86	......	110	23.18	109	13.75	127	......	116	111
1915-1916	16.73	119	29.53	139	62.65	183	36.46	155	19.57	197	......	165	25.14	118	......	142	......	155	153
1916-1917	12.51	89	......	95	31.48	92	25.22	108	11.16	112	......	103	18.77	88	......	93	......	104	98
1917-1918	9.20	66	......	61	21.85	64	......	63	6.19	62	......	63	11 16	53	......	61	......	67	62
1918-1919	11.64	83	18.29	86	28.21	82	......	87	9.95	100	......	93	17.77	84	......	85	......	93	88
1919-1920	14.18	101	19.40	91	34.15	99	......	98	10.48	105	......	101	20.52	97	......	94	......	104	99
1920-1921	12.58	90	21.89	103	30.88	90	......	93	8.58	86	......	93	17.36	82	......	93	......	101	92
Years of record	21		20		14		10		27		13		12		39		32		
Mean of record	14.66		22.85		35.14		25.65		10.30		10.62		20.96		10.94		6.38		
50-year mean	14.00		21.30		34.30		23.50		10.00		10.30		21.20		10.80		6.60		
County	Tulare.		Tulare.		Tulare.		Tulare.		Kern.		Kern.		Kern.		Kern.		Kern.		
Elevation	600		1,600		4,000		3,300		2,600		2,500		5,500		1,290		319		
Station reference number	175		176		177		178		179		180		181		182		183		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division R: Kern River, Poso Creek Group, Deer Creek, Tule River, Yokohl Creek Group, Kaweah River, Limekiln Creek Group, Owens Lake Group.

TABLE 23. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION S.—SOUTHWESTERN SAN JOAQUIN VALLEY AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Porterville.		Tulare.		Angiola.		Waseo.		Bakersfield.		Edison.		Bear Valley.		Index of seasonal wetness. Division S.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	119	......	119	......	119	......	119	......	119	......	119	......	119	119
1872-1873	......	74	......	74	......	74	......	74	......	74	......	74	......	74	74
1873-1874	......	100	......	100	......	100	......	100	......	100	......	100	......	100	101
1874-1875	......	64	......	64	......	64	......	64	......	64	......	64	......	64	64
1875-1876	......	124	......	124	......	124	......	124	......	124	......	124	......	124	124
1876-1877	......	43	3.65	43	......	43	......	43	......	43	......	43	......	43	43
1877-1878	......	100	8.41	100	......	100	......	100	......	100	......	100	......	100	100
1878-1879	......	36	3.07	36	......	36	......	36	......	36	......	36	......	36	36
1879-1880	......	90	7.62	90	......	90	......	90	......	90	......	90	......	90	90
1880-1881	......	118	9.98	118	......	118	......	118	......	118	......	118	......	118	118
1881-1882	......	56	4.71	56	......	56	......	56	......	56	......	56	......	56	56
1882-1883	......	72	6.07	72	......	72	......	72	......	72	......	72	......	72	72
1883-1884	......	138	11.65	138	......	138	......	138	......	138	......	138	......	138	138
1884-1885	......	66	5.56	66	......	66	......	66	......	66	......	66	......	66	66
1885-1886	......	110	9.25	110	......	110	......	110	......	110	......	110	......	110	110
1886-1887	......	72	6.06	72	......	72	......	72	......	72	......	72	......	72	72
1887-1888	......	74	6.27	74	......	74	......	74	......	74	......	74	......	74	74
1888-1889	......	89	7.55	89	......	89	......	89	......	89	......	89	......	89	89
1889-1890	12.63	135	11.92	141	......	131	......	131	5.67	109	......	131	......	131	130
1890-1891	8.26	88	6.77	80	......	83	......	83	4.00	77	......	83	......	83	83
1891-1892	8.58	91	7.88	93	......	95	......	95	5.51	106	......	95	......	95	96
1892-1893	9.77	104	6.49	77	......	94	......	94	5.42	104	......	91	......	94	95
1893-1894	5.57	59	4.95	59	......	58	......	58	2.77	53	......	58	......	58	58
1894-1895	10.97	117	10.62	126	......	122	......	122	6.44	124	......	122	......	122	122
1895-1896	5.99	64	6.43	76	......	79	......	79	5.67	109	......	79	......	79	81
1896-1897	10.35	110	9.64	114	......	114	......	114	6.23	119	......	114	......	114	114
1897-1898	5.51	59	5.51	65	......	62	......	62	3.20	61	......	62	......	62	62
1898-1899	7.06	75	9.03	107	......	82	......	82	2.80	54	......	82	......	82	81
1899-1900	9.24	99	9.83	116	7.77	126	4.16	76	5.21	100	......	105	......	105	104
1900-1901	12.76	136	11.30	134	......	135	6.27	115	......	135	......	123	17.95	113	127

TABLE 23.

1901-1902	9.37	100	6.92	82	......	90	4.59	81	4.51	86	......	103	20.52	128	96
1902-1903	8.25	88	6.49	77	3.15	51	4.31	79	4.98	96	......	78	......	78	78
1903-1904	7.47	80	6.62	78	4.50	73	4.11	76	4.33	83	......	78	......	78	78
1904-1905	11.86	126	13.42	159	......	146	8.37	154	8.40	161	14.28	152	21.05	132	147
1905-1906	17.90	191	15.31	181	......	182	9.08	167	8.72	167	22.92	244	30.32	190	189
1906-1907	13.44	143	12.69	150	......	134	......	134	4.85	93	......	134	21.35	133	131
1907-1908	11.70	125	9.49	112	......	106	6.75	124	3.31	64	9.84	105	20.44	128	109
1908-1909	14.95	159	13.70	162	......	156	5.79	106	7.39	142	12.34	132	22.32	140	142
1909-1910	8.96	95	8.94	106	7.01	114	4.25	78	6.19	119	11.23	120	15.51	97	104
1910-1911	12.06	129	11.65	138	8.89	145	6.21	114	7.27	140	8.29	89	10.21	64	117
1911-1912	8.75	93	6.71	79	3.49	57	......	83	5.19	100	8.47	90	14.70	92	85
1912-1913	8.34	89	7.37	87	4.12	67	3.30	61	3.05	59	7.53	80	17.92	112	79
1913-1914	11.32	121	8.84	105	7.20	117	7.59	140	7.92	152	12.83	137	22.79	143	131
1914-1915	12.62	135	......	150	11.68	190	13.50	248	9.30	178	15.06	161	25.23	158	174
1915-1916	11.60	124	9.62†	114	7.93	129	7.46	137	5.60	107	10.87	116	......	122	121
1916-1917	11.65	124	9.06†	107	5.06	82	5.19	96	6.27	120	10.82	116	......	107	107
1917-1918	6.20	66	6.43†	76	6.16	100	......	81	4.95	95	6.06	65	......	81	80
1918-1919	10.69	114	8.35†	99	7.72	125	......	109	4.97	95	10.32	110	......	109	109
1919-1920	10.74	115	8.50†	101	6.46	105	5.92	109	5.84	112	8.65	92	......	108	106
1920-1921	9.49	101	8.75†	104	6.46	105	8.93	164	7.02	135	9.84	105	......	117	119
Years of record	32		41		15		18		31		16		13		
Mean of record	10.13		8.39		6.51		6.43		5.58		11.21		20.02		
50-year mean	9.40		8.40		6.20		5.40		5.20		9.40		16.00		
County	Tulare.		Tulare.		Tulare.		Kern.		Kern.		Kern.		Kern.		
Elevation	464		289		208		336		394		2,500		4,400		
Station reference number	181		185		186		187		188		189		190		

Precipitation data are from U. S. Weather Bureau records unless otherwise noted.
†From records of Southern Pacific Railroad
NOTE—Indices of Precipitation Division S were not used in computation of stream run-off.

TABLE 24. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION T—SALINAS–SANTA MARIA AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Spreckels.		Gonzales.		Soledad.		King City.		Priest Valley.		Jolon.		Parkfield.		San Miguel.	
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.
1871-1872	......	125	......	125	......	125	......	125	......	125	......	125	......	125	......	125
1872-1873	......	59	......	59	......	59	......	59	......	59	......	59	......	59	......	59
1873-1874	......	95	......	95	......	95	......	95	......	95	......	95	......	95	......	95
1874-1875	......	80	......	80	5.01	53	......	80	......	80	......	80	......	80	......	80
1875-1876	......	146	......	146	15.34	163	......	146	......	146	......	146	......	146	......	146
1876-1877	......	35	......	35	2.65	28	......	35	......	35	......	35	......	35	......	35
1877-1878	......	138	......	138	12.22	130	......	138	......	138	......	138	......	138	......	138
1878-1879	......	51	......	51	4.15	44	......	51	......	51	......	51	......	51	......	51
1879-1880	......	107	......	107	7.38	78	......	107	......	107	......	107	......	107	......	107
1880-1881	......	98	......	98	6.78	72	......	98	......	98	......	98	......	98	......	98
1881-1882	......	86	......	86	9.74	103	......	86	......	86	......	86	......	86	......	86
1882-1883	......	85	......	85	8.64	91	......	85	......	85	15.93	90	......	85	......	85
1883-1884	......	179	......	179	16.26	172	......	179	......	179	28.40	161	......	179	......	179
1884-1885	......	73	......	73	5.89	62	......	73	......	73	12.00	68	......	73	......	73
1885-1886	......	150	......	150	14.43	153	......	150	......	150	31.42	178	......	150	......	150
1886-1887	......	72	......	72	6.76	71	......	72	......	72	12.42	70	......	72	......	72
1887-1888	......	88	......	88	8.15	86	8.83	80	......	88	16.77	95	......	88	11.03	96
1888-1889	......	112	......	112	10.68	113	16.12	146	......	112	24.74	140	......	112	11.29	98
1889-1890	......	191	......	191	18.94	201	23.59	214	......	191	36.91	208	......	191	20.13	174
1890-1891	......	89	......	89	7.50	79	9.08	82	......	89	15.00	85	......	89	12.16	105
1891-1892	......	72	......	72	8.15	86	7.76	70	......	72	11.54	65	......	72	7.42	64
1892-1893	......	132	......	132	12.02	127	5.63	51	......	132	27.23	154	......	132	13.63	118
1893-1894	......	45	......	45	5.20	55	4.81	43	......	45	7.17	41	......	45	4.03	35
1894-1895	......	111	......	111	10.84	115	12.22	111	......	111	19.68	111	......	111	12.79	111
1895-1896	......	90	......	90	8.95	95	10.65	97	......	90	17.78	101	......	90	10.44	90
1896-1897	......	99	......	99	9.21	98	9.59	87	......	99	17.00	96	......	99	11.50	100
1897-1898	......	33	......	33	4.26	45	3.97	36	......	33	5.33	30	......	33	3.47	30
1898-1899	......	72	......	72	5.39	57	7.07	64	......	72	12.00	68	......	72	8.15	70
1899-1900	......	73	8.69	75	6.68	71	8.57	78	15.70	77	11.90	67	......	73	8.73	75
1900-1901	......	145	13.29	114	12.39	131	16.32	148	31.73	156	26.12	148	......	145	15.18	131

TABLE 24.

1901-1902	......	90	9.87	85	8.74	92	9.21	83	17.11	84	14.77	83	......	90	9.08	78
1902-1903	......	80	9.32	80	6.45	68	8.19	74	15.71	77	14.74	83	......	80	7.45	64
1903-1904	......	75	8.05	69	6.21	66	7.07	64	13.83	68	12.49	71	......	75	6.47	56
1904-1905	......	129	15.17	130	13.21	140	14.33	130	21.82	107	23.83	135	......	129	13.67	118
1905-1906	15.92	121	14.74	126	10.28	109	12.91	117	23.16	114	18.41	104	......	113	12.59	109
1906-1907	21.57	164	22.29	191	15.08	160	20.54	186	32.57	160	21.84	124	......	144	14.61	126
1907-1908	11.80	88	11.57	99	9.52	101	12.92	117	17.06	84	14.60	82	......	91	11.89	103
1908-1909	17.81	135	18.30	157	12.11	128	13.51	123	24.94	123	23.94	136	27.16	162	16.76	145
1909-1910	16.74	127	11.68	100	8.91	95	9.17	83	20.09	99	15.49	88	15.70	93	11.79	102
1910-1911	15.99	121	13.26	114	10.93	116	17.41	158	31.60	156	31.04	176	27.42	163	19.69	170
1911-1912	11.30	86	8.68	75	8.18	87	9.69	88	......	77	12.45	70	12.50	74	12.41	107
1912-1913	6.50	49	5.60	48	5.54	59	3.97	36	8.66	43	6.67	38	8.11	48	5.29	46
1913-1914	14.51	110	15.47	133	13.61	144	15.40	140	30.82	152	25.39	143	26.03	155	18.53	160
1914-1915	19.43	147	15.60	134	16.26	172	21.87	198	28.53	140	23.56	133	23.89	142	21.37	185
1915-1916	15.19	115	......	124	11.21†	119	11.94	108	24.23	119	22.81	129	16.76	100	......	125
1916-1917	8.95	68	......	111	......	113	......	111	......	111	......	110	......	108	......	111
1917-1918	7.31	55	......	86	......	89	......	86	......	86	......	86	......	84	......	86
1918-1919	15.66	119	......	79	8.36†	88	8.88	80	16.84	83	12.97	73	11.19	67	......	79
1919-1920	10.40	79	......	70	9.51†	101	5.29	48	15.08	74	10.06	57	12.38	74	......	69
1920-1921	14.56	111	......	87	9.00†	95	9.23	84	19.77	97	14.78	83	12.93	77	......	85
Years of record	16		16		45		32		19		37		11		28	
Mean of record	13 98		12.60		9.48		11.12		21.54		18.09		17.64		11.84	
50-year mean	13.20		11.60		9.40		11.00		20.30		17.70		16.80		11.60	
County	Monterey.		Monterey.		Monterey.		Monterey.		Monterey.		Monterey.		Monterey.		San Luis Obispo.	
Elevation	43		127		188		333		2,240		960		2,800		616	
Station reference number	191		192		193		194		195		196		197		198	

Precipitation data are from U. S. Weather Bureau records unless otherwise noted.
†From records of Southern Pacific Railroad.

TABLE 24—(Concluded). RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION T—SALINAS-SANTA MARIA AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Paso Robles.		Santa Margarita.		San Luis Obispo.		Santa Maria.		Sisquoc Ranch.		Ozena.		Index of seasonal wetness. Division T.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	125	......	125	27.02	125	......	125	......	125	......	125	125
1872-1873	......	59	......	59	12.79	59	......	59	......	59	......	59	59
1873-1874	......	95	......	95	20.52	95	......	95	......	95	......	95	95
1874-1875	......	80	......	80	19.69	91	......	80	......	80	......	80	79
1875-1876	......	146	......	146	30.12	139	......	146	......	146	......	146	147
1876-1877	......	35	......	35	8.15	38	......	35	......	35	......	35	35
1877-1878	......	138	......	138	30.60	143	......	138	......	138	......	138	138
1878-1879	......	51	......	51	11.66	54	......	51	......	51	......	51	51
1879-1880	......	107	......	107	25.82	119	......	107	......	107	......	107	106
1880-1881	......	98	......	98	23.69	110	......	98	......	98	......	98	97
1881-1882	......	86	......	86	17.03	79	......	86	......	86	......	86	87
1882-1883	......	85	......	85	17.01	79	......	85	......	85	......	85	85
1883-1884	......	179	......	179	42.40	196	......	179	......	179	......	179	178
1884-1885	......	73	......	73	17.59	82	......	73	......	73	......	73	72
1885-1886	......	150	......	150	29.30	135	19.48	137	......	150	......	150	150
1886-1887	......	72	......	72	16.54	77	9.36	66	......	72	......	72	72
1887-1888	14.30	88	......	88	18.35	85	11.77	82	......	88	......	88	88
1888-1889	15.84	97	......	112	19.54	90	16.04	113	......	112	......	112	113
1889-1890	30.57	188	49.79	182	38.73	179	27.81	195	......	191	......	191	192
1890-1891	16.42	101	23.77	87	19.51	90	12.10	85	......	89	......	89	89
1891-1892	11.98	74	20.52	75	16.33	76	9.83	69	......	72	......	72	72
1892-1893	22.55	139	41.68	152	30.40	140	17.69	124	......	132	......	132	128
1893-1894	5.94	36	12.95	47	9.81	45	8.52	60	......	45	......	45	45
1894-1895	16.93	104	34.58	126	22.82	105	13.66	96	......	111	......	111	110
1895-1896	13.14	81	25.87	94	17.75	82	11.51	81	......	90	......	90	90
1896-1897	17.96	111	27.25	99	20.75	96	15.14	106	......	99	......	99	99
1897-1898	4.77	29	8.44	31	7.20	33	5.70	40	......	33	......	33	34
1898-1899	11.53	71	19.19	70	17.33	80	12.52	88	......	72	......	72	71
1899-1900	11.66	72	19.62	72	17.21	80	9.23	65	......	73	......	73	73
1900-1901	22.80	140	48.82	178	31.40	145	16.28	114	......	145	......	145	142

TABLE 24.

1901-1902	12.75	78	29.80	109	21.96	102	12.32	86	......	90	......	90	89
1902-1903	11.24	69	23.85	87	18.49	86	12.79	90	......	80	......	80	78
1903-1904	14.51	89	24.00	88	16.99	79	11.18	78	......	75	......	75	73
1904-1905	19.89	122	34.00	124	23.56	109	20.65	145	27.47	156	23.38	148	130
1905-1906	15.23	94	34.86	127	28.11	130	17.86	125	19.68	112	11.89	75	113
1906-1907	22.00	136	39.17	143	24.89	115	18.02	127	21.96	125	24.02	152	147
1907-1908	15.31	94	22.92	84	18.06	84	13.96	98	14.92	85	14.63	93	93
1908-1909	24.21	149	33.27	121	31.38	145	22.81	160	34.52	196	22.42	142	144
1909-1910	17.09	105	26.53	97	20.85	97	16.58	117	18.20	103	17.12	109	101
1910-1911	26.64	164	36.83	135	34.42	159	20.69	145	25.98	147	31.41	200	152
1911-1912	12.37	76	18.00	66	17.14	79	9.53	67	10.16	58	10.49	66	77
1912-1913	8.06	50	10.78	39	8.58	40	......	43	6.44	37	10.21	65	46
1913-1914	22.02	136	35.01	128	31.21	144	......	143	19.85	113	24.46	156	140
1914-1915	24.96	154	29.34	107	28.17	130	......	152	......	141	20.13	128	147
1915-1916	22.02	136	33.76	123	26.93	125	......	126	......	121	13.97	88	118
1916-1917	18.51	114	......	111	23.03	106	......	112	......	111	......	111	108
1917-1918	14.37	88	......	86	18.06	83	......	87	......	86	......	86	84
1918-1919	11.91	73	......	79	18.09	83	10.99	77	......	80	12.93	82	82
1919-1920	12.81	79	......	69	14.86	68	9.60	67	......	69	10.52	67	71
1920-1921	13.70	84	......	85	19.27	89	11.04	77	......	84	8.91	56	85
Years of record	34		27		52		30		10		15		
Mean of record	16.35		28.32		21.27		14.16		19.92		17.10		
50-year mean	16.30		27.40		21.62		14.20		17.60		15.80		
County	San Luis Obispo.		San Luis Obispo.		San Luis Obispo.		Santa Barbara.		Santa Barbara.		Ventura.		
Elevation	800		996		201		220		600		3,680		
Station reference number	199		200		201		202		203		204		

Precipitation data are from U. S. Weather Bureau records.

Streams within boundaries of Precipitation Division T: Tejon Creek Group, Pajaro River Tributaries, Cantua Creek Group, Panoche Creek, Los Gatos Creek, Santa Maria River, San Luis Obispo Creek Group, Salinas River.

TABLE 25. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION U.—SANTA BARBARA–SANTA MONICA COAST AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Pine Crest.		Santa Barbara.		San Miguel Island.		Ventura.		Ojai Valley.		West Saticoy.		Santa Monica.		Newhall.		Index of seasonal wetness. Division U.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	79	14.94	79	......	79	......	79	......	79	......	79	......	79	......	79	79
1872-1873	......	56	10.52	56	......	56	......	56	......	56	......	56	......	56	......	56	56
1873-1874	......	84	14.44	77	......	84	15.02	91	......	84	......	84	......	84	......	84	84
1874-1875	......	96	18.71	100	......	96	15.24	93	......	96	......	96	......	96	......	96	96
1875-1876	......	125	23.07	123	......	125	21.00	128	......	125	......	125	......	125	......	125	125
1876-1877	......	27	4.49	24	......	27	5.22	32	......	27	......	27	......	27	......	27	27
1877-1878	......	116	29.51	157	......	116	20.22	123	......	116	......	116	......	116	11.44	66	116
1878-1879	......	63	13.58	72	......	63	12.79	78	......	63	......	63	......	63	6.77	39	63
1879-1880	......	128	25.64	136	......	128	22.06	134	......	128	......	128	......	128	19.52	112	128
1880-1881	......	73	15.23	81	......	73	13.91	85	......	73	......	73	......	73	9.15	52	73
1881-1882	......	76	14.27	76	......	76	11.98	73	......	76	......	76	......	76	13.99	80	76
1882-1883	......	69	13.41	71	......	69	11.51	70	......	69	......	69	......	69	11.62	67	69
1883-1884	......	214	34.47	183	......	214	36.13	219	......	214	......	214	......	214	42.11	241	214
1884-1885	......	58	13.08	70	......	58	9.46	58	......	58	......	58	......	58	7.94	45	58
1885-1886	......	140	24.24	129	......	140	20.22	123	......	140	......	140	24.68	171	24.57	141	141
1886-1887	......	83	12.99	69	......	83	14.75	90	......	83	......	83	12.10	81	15.70	90	83
1887-1888	......	118	21.71	115	......	118	20.31	123	......	118	......	118	18.29	127	18.84	108	118
1888-1889	......	118	21.58	115	......	118	16.85	102	......	118	......	118	19.32	134	21.54	123	118
1889-1890	......	168	32.43	172	......	168	25.65	156	......	168	......	168	15.37	106	39.09	224	166
1890-1891	......	99	17.36	92	......	99	15.39	93	......	99	......	99	18.02	125	15.39	88	99
1891-1892	......	69	10.76	57	......	69	11.10	67	......	69	......	69	11.90	83	12.80	73	70
1892-1893	......	139	26.97	143	......	139	23.49	143	......	139	......	139	19.65	136	23.14	133	139
1893-1894	......	41	7.02	37	......	41	6.39	39	......	41	6.17	41	7.43	51	7.19	41	41
1894-1895	......	99	16.34	87	13.00	96	15.13	92	......	99	16.01	106	14.75	102	19.86	114	99
1895-1896	......	65	13.37	71	11.60	86	9.90	60	......	65	10.37	68	8.30	57	8.76	50	65
1896-1897	......	106	18.50	98	14.50	107	15.89	96	......	106	17.43	115	17.10	118	18.42	106	107
1897-1898	......	37	4.99	27	5.65	42	6.44	39	......	37	5.25	35	7.93	55	5.62	32	38
1898-1899	14.22	56	12.35	66	......	50	9.13	55	......	52	7.91	52	7.00	48	5.44	31	51
1899-1900	16.91	6,	12.66	67	7.59	56	9.48	58	......	59	8.45	56	8.69	60	7.59	43	58
1900-1901	22.57	89	15.40	82	7.56	56	14.05	85	......	87	12.32	81	14.70	102	19.08	109	86

TABLE 25.

1901-1902	17.72	70	14.21	76	19.48	144	12.69	77	......	80	11.65	77	11.70	81	9.89	56	83
1902-1903	25.43	101	20.74	110	17.36	128	16.26	99	......	112	......	113	19.36	134	19.64	113	114
1903-1904	16.20	64	11.58	61	9.72	72	10.64	65	......	61	......	59	9.06	63	8.22	47	61
1904-1905	41.60	164	29.64	158	18.78	139	24.30	147	......	149	20.50	135	18.80	130	27.53	158	148
1905-1906	32.92	130	22.70	120	22.52	167	19.23	117	23.71	115	16.33	108	18.58	129	18.39	105	124
1906-1907	39.38	156	27.72	147	18.43	136	......	160	37.44	182	24.02	158	21.84	151	33.06	189	160
1907-1908	24.68	98	19.21	102	14.62	108	17.31	105	18.95	92	15.72	104	11.89	82	15.31	88	97
1908-1909	44.15	174	36.29	193	......	159	28.73	174	29.24	142	25.32	167	18.08	125	22.63	130	158
1909-1910	......	103	19.62	104	13.88	103	......	102	19.64	95	14.86	98	13.43	93	19.85	114	102
1910-1911	45.38	179	31.94	170	25.49	189	......	138	33.91	165	21.88	145	17.36	120	22.22	127	154
1911-1912	21.35	85	14.35	76	10.17	75	......	84	13.34	65	10.71	71	9.21	64	20.03	115	79
1912-1913	15.44	61	12.58	67	6.82	50	......	79	18.12	88	15.40	102	10.71	74	17.79	102	78
1913-1914	43.48	172	31.52	167	16.78	124	......	161	39.60	192	......	163	20.44	142	31.24	179	163
1914-1915	26.00	103	21.25	113	......	134	......	132	24.02	117	......	134	19.64	136	27.50	158	128
1915-1916	27.68	109	25.90	138	......	140	......	140	28.32	137	19.41	128	21.27	147	......	146	136
1916-1917	......	112	22.56	120	13.41	99	......	113	22.15	107	......	114	15.30	106	......	117	111
1917-1918	......	117	21.68	115	14.37	106	......	117	24.99	121	......	119	17.62	122	......	122	117
1918-1919	......	76	14.46	77	9.05	67	......	77	13.55	66	......	78	11.12	77	......	80	75
1919-1920	......	80	14.68	78	6.69	49	......	84	16.64	81	......	85	13.46	93	......	87	80
1920-1921	......	88	14.31	76	10.69	79	......	89	18.30	89	......	90	15.54	108	......	92	89
Years of record	17		54		23		35		16		19		36		38		
Mean of record	27.95		18.54		13.40		15.94		23.87		14.72		14.99		17.87		
50-year mean	25.30		18.82		13.50		16.50		20.60		15.10		14.40		17.50		
County	Santa Barbara		Santa Barbara.		Santa Barbara.		Ventura.		Ventura.		Ventura.		Los Angeles.		Los Angeles.		
Elevation	1,000		130		500		50		900		150		110		1,268		
Station reference number	205		206		207		208		209		210		211		212		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division U: Malibu River Group, Santa Clara River Tributaries, Ventura River, Jalama Creek Group, Santa Ynez River, San Antonio Creek.

TABLE 26. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION V—TEHACHAPI AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Tehachapi.		Mojave.		Monterio.		Index of seasonal wetness. Division V.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	79	......	79	......	79	79
1872-1873	......	56	......	56	......	56	56
1873-1874	......	84	......	84	......	84	84
1874-1875	......	96	......	96	......	96	96
1875-1876	......	125	......	125	......	125	125
1876-1877	......	28	......	28	......	28	28
1877-1878	16.40	157	6.42	134	......	150	147
1878-1879	5.84	56	2.67	56	......	56	56
1879-1880	15.53	149	6.79	141	......	147	145
1880-1881	10.20	98	1.27	26	......	75	66
1881-1882	7.08	68	.63	13	......	51	44
1882-1883	12.00	115	T	0	......	79	65
1883-1884	18.09	174	11.64	242	......	195	204
1884-1885	7.16	69	2.84	59	......	66	65
1885-1886	20.89	200	5.97	124	......	176	167
1886-1887	13.68	131	5.07	106	......	123	120
1887-1888	10.43	100	8.50	177	......	124	134
1888-1889	13.24	127	8.22	171	......	141	146
1889-1890	12.25	118	12.47	260	......	162	180
1890-1891	9.86	95	4.40	92	......	94	94
1891-1892	11.75	113	4.46	93	......	106	104
1892-1893	10.51	101	5.48	114	......	105	107
1893-1894	12.56	121	3.65	76	......	106	101
1894-1895	10.08	97	7.88	164	......	118	126
1895-1896	6.30	60	3.92	82	......	67	70
1896-1897	8.20	79	5.66	118	......	91	96
1897-1898	5.21	50	.60	12	......	38	33
1898-1899	3.70	35	1.14	24	......	32	30
1899-1900	6.05	58	2.81	58	13.60	76	64
1900-1901	7.77	74	5.85	122	20.47	114	103

TABLE 26.

1901-1902	9.68	93	3.51	73	17.35	96	87
1902-1903	9.29	89	2.92	61	18.53	103	84
1903-1904	6.64	64	1.96	41	15.20	84	63
1904-1905	15.86	152	6.10	127	25.43	141	140
1905-1906	18.61	179	6.75	141	25.64	143	154
1906-1907	11.29	108	9.09	189	22.13	123	140
1907-1908	7.08	68	4.28	89	15.51	86	81
1908-1909	10.98	105	7.13	149	17.27	96	117
1909-1910	6.43	62	2.97	62	11.68	65	63
1910-1911	8.21	79	9.12	190	15.68	87	119
1911-1912	9.35	90	6.50	135	13.81	77	101
1912-1913	13.99	134	1.10	23	......	99	85
1913-1914	13.49	129	2.53	53	......	105	96
1914-1915	......	128	......	128	......	128	128
1915-1916	......	135	......	135	......	135	135
1916-1917	......	111	......	111	......	111	111
1917-1918	......	117	......	117	......	117	117
1918-1919	......	75	......	75	......	75	75
1919-1920	......	80	......	80	......	80	80
1920-1921	......	89	......	89	......	89	89
Years of record	37		37		13		
Mean of record	10.69		4.93		17.87		
50-year mean	10.40		4.80		18.00		
County	Kern.		Kern.		Kern.		
Elevation	3,964		2,751		4,500		
Station reference number	213		214		215		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division V: Caliente Creek, Antelope Valley Group.

TABLE 27. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION W—LOS ANGELES AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Lowe Observatory.		Mount Wilson.		Pasadena.		Sierra Madre.		Azusa.		Lordsburg.		Los Angeles.		Claremont.		Glendora.		Upland.		Index of seasonal wetness. Division W.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	69	......	69	......	69	......	69	......	69	......	69	......	69	......	69	......	69	......	69	69
1872-1873	......	72	......	72	......	72	......	72	......	72	......	72	......	72	......	72	......	72	......	72	72
1873-1874	......	134	......	134	......	134	......	134	......	134	......	134	......	134	......	134	......	134	......	134	134
1874-1875	......	79	......	79	......	79	......	79	......	79	......	79	......	79	......	79	......	79	......	79	79
1875-1876	......	117	......	117	......	117	......	117	......	117	......	117	......	117	......	117	......	117	......	117	117
1876-1877	......	44	......	44	......	44	......	44	......	44	......	44	......	44	......	44	......	44	......	44	44
1877-1878	......	140	......	140	......	140	......	140	......	140	......	140	21.26	140	......	140	......	140	......	140	140
1878-1879	......	75	......	75	......	75	......	75	......	75	......	75	11.35	75	......	75	......	75	......	75	75
1879-1880	......	134	......	134	......	134	......	134	......	134	......	134	20.34	134	......	134	......	134	......	134	134
1880-1881	......	86	......	86	......	86	......	86	......	86	......	86	13.13	86	......	86	......	86	......	86	86
1881-1882	......	68	......	68	......	68	......	68	......	68	......	68	10.40	68	......	68	......	68	......	68	68
1882-1883	......	80	......	80	......	80	......	80	......	80	......	80	12.11	80	......	80	......	80	......	80	80
1883-1884	......	251	......	251	......	251	......	251	......	251	......	251	38.18	251	......	251	......	251	......	251	251
1884-1885	......	61	......	61	......	61	......	61	......	61	......	61	9.21	61	......	61	......	61	......	61	61
1885-1886	......	147	......	147	......	147	......	147	......	147	......	147	22.31	147	......	147	......	147	......	147	147
1886-1887	......	92	......	92	......	92	......	92	......	92	......	92	14.05	92	......	92	......	92	......	92	92
1887-1888	......	91	......	91	......	91	......	91	......	91	......	91	13.87	91	......	91	......	91	......	91	91
1888-1889	......	127	......	127	......	127	......	127	......	127	......	127	19.28	127	......	127	......	127	......	127	127
1889-1890	......	229	......	229	......	229	......	229	......	229	......	229	34.84	229	......	229	......	229	......	229	229
1890-1891	......	88	......	88	......	88	......	88	......	88	......	88	13.36	88	......	88	......	88	......	88	88
1891-1892	......	77	......	77	......	77	......	77	......	77	......	77	11.85	78	13.58	71	......	77	18.77	81	77
1892-1893	......	154	......	154	30.71	155	......	154	......	154	......	154	26.28	173	25.28	131	39.27	169	33.23	144	154
1893-1894	......	52	......	52	8.91	45	......	52	......	52	......	52	6.73	44	11.37	59	......	52	13.07	57	52
1894-1895	......	116	......	116	21.53	109	......	116	......	116	......	116	16.11	106	21.41	127	......	116	27.87	121	116
1895-1896	......	53	......	53	9.61	49	......	53	......	53	......	53	8.51	56	9.58	49	12.94	56	12.51	54	53
1896-1897	27.93	96	......	102	16.64	84	......	102	......	102	......	102	16.86	111	23.14	120	22.23	96	24.09	108	102
1897-1898	13.63	47	......	49	7.93	40	11.54	45	......	49	......	49	7.06	46	11.03	57	......	50	12.75	55	49
1898-1899	10.72	37	......	35	6.64	33	9.54	37	7.11	35	......	35	5.59	37	7.85	41	6.39	27	8.37	36	40
1899-1900	28.02	97	......	60	8.54	43	12.88	50	12.20	60	......	60	7.91	52	10.65	55	......	52	12.93	56	58
1900-1901	34.11	118	......	111	21.85	110	30.65	123	22.49	110	......	111	16.29	107	21.02	109	......	107	23.63	103	111

TABLE 27.

1901-1902	18.77	65	......	63	......	64	16.23	63	11.82	58	......	63	10.60	70	12.45	64	......	64	14.08	61	63
1902-1903	......	110	......	110	......	110	28.17	110	23.08	113	......	110	19.32	127	18.81	98	......	110	25.15	109	110
1903-1904	......	57	......	56	......	57	13.22	51	10.91	53	......	56	8.72	57	10.89	56	......	57	13.32	58	56
1904-1905	36.94	128	39.90	125	......	118	32.10	125	26.58	130	26.31	136	19.52	128	22.75	118	26.39	114	25.62	111	123
1905-1906	36.89	128	44.30	139	......	122	32.66	127	22.35	109	28.22	145	18.65	123	21.65	112	27.03	117	30.23	131	125
1906-1907	40.51	140	46.02	145	......	134	37.74	147	28.24	138	29.09	150	19.30	127	26.29	136	33.07	142	31.67	137	139
1907-1908	21.35	74	31.83	100	......	79	20.57	80	13.74	67	14.33	74	11.72	77	15.64	81	17.39	75	18.29	79	78
1908-1909	41.04	142	41.66	131	26.53	134	38.86	151	25.87	127	22.46	116	19.18	126	22.28	116	29.48	127	26.76	116	128
1909-1910	29.26	101	24.13	76	17.99	91	22.53	87	19.35	95	16.58	85	12.63	83	17.18	89	17.78	77	20.11	87	87
1910-1911	30.95	107	31.51	99	24.15	122	32.63	127	20.92	102	21.56	111	16.18	106	22.59	117	28.30	122	26.63	115	113
1911-1912	15.83	55	26.96	85	17.80	90	23.21	90	13.08	64	13.38	69	11.60	76	14.06	73	......	78	......	74	75
1912-1913	20.95	72	21.28	67	18.04	91	18.52	72	13.78	67	11.02	57	13.42	88	13.28	69	......	81	......	77	74
1913-1914	43.45	150	48.92	154	32.12	162	40.16	156	32.85	161	29.07	150	23.65	156	30.87	160	......	159	......	158	156
1914-1915	29.94	103	30.43	95	22.02	111	21.95	85	24.38	119	22.59	116	17.05	112	23.50	122	......	116	......	118	110
1915-1916	31.68	110	36.70	115	25.02	126	29.73	115	28.96	142	29.03	150	19.92	131	26.06	135	......	131	......	133	129
1916-1917	28.08	97	28.44	89	19.08	96	24.94	97	19.67	96	17.23	89	15.26	100	17.21	89	......	95	......	94	94
1917-1918	19.88	69	28.16	88	19.83	100	20.38	79	18.31	89	13.11	68	13.86	91	14.79	77	......	87	......	83	83
1918-1919	17.51	60	20.62	65	13.61	68	15.09	59	12.93	63	......	61	8.58	56	11.37	59	......	61	......	58	61
1919-1920	......	99	31.19	98	19.39	98	23.67	92	23.28	114	......	99	12.52	82	21.76	113	......	99	......	99	99
1920-1921	......	102	34.06	107	19.41	98	24.32	94	......	101	......	102	13.65	90	21.79	113	......	102	......	103	101
Years of record	21		17		22		24		22		14		44		30		11		20		
Mean of record	27.50		33.30		18.52		24.22		19.63		21.00		15.50		18.10		23.66		21.00		
50-year mean	28.90		31.80		19.80		25.70		20.40		19.40		15.20		19.30		23.20		23.10		
County	Los Angeles.		Los Angeles.		Los Angeles.		Los Angeles.		Los Angeles.		Los Angeles.		Los Angeles.		Los Angeles.		Los Angeles.		San Bernardino.		
Elevation	3,420		5,850		827		1,400		540		1,320		361		1,200		740		1,750		
Station reference number	216		217		218		219		220		221		222		223		224		225		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division W: San Gabriel River, Los Angeles River Tributataries.

TABLE 28. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION X—RIVERSIDE–SANTA ANA AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Lytle Creek.		Arrowhead Springs.		San Bernardino.		Bear Valley Dam.		Seven Oaks.		Mill Creek No. 2.		Craftonville.		Redlands.		Riverside.		Chino.		Corona.	
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.
1871-1872	.....	56	.....	56	8.98	56	.....	56	.....	56	.....	56	.....	56	.....	56	.....	56	.....	56	.....	56
1872-1873	.....	94	.....	94	15.10	91	.....	94	.....	94	.....	94	.....	94	.....	94	.....	94	.....	94	.....	94
1873-1874	.....	148	.....	148	23.81	148	.....	148	.....	148	.....	148	.....	148	.....	148	.....	148	.....	148	.....	148
1874-1875	.....	84	.....	84	13.65	84	.....	84	.....	84	.....	84	.....	84	.....	84	.....	84	.....	84	.....	84
1875-1876	.....	123	.....	123	19.90	123	.....	123	.....	123	.....	123	.....	123	.....	123	.....	123	.....	123	.....	123
1876-1877	.....	59	.....	59	9.52	59	.....	59	.....	59	.....	59	.....	59	.....	59	.....	59	.....	59	.....	59
1877-1878	.....	137	.....	137	20.33	126	.....	137	.....	137	.....	137	.....	137	.....	137	.....	137	.....	137	.....	137
1878-1879	.....	53	.....	53	11.54	71	.....	53	.....	53	.....	53	.....	53	.....	53	.....	53	.....	53	.....	53
1879-1880	.....	117	.....	117	20.36	126	.....	117	.....	117	.....	117	.....	117	.....	117	.....	117	.....	117	.....	117
1880-1881	.....	73	.....	73	13.50	84	.....	73	.....	73	.....	73	.....	73	.....	73	.....	73	.....	73	.....	73
1881-1882	.....	63	.....	63	11.54	71	.....	63	.....	63	.....	63	.....	63	.....	63	6.31	59	.....	63	.....	63
1882-1883	.....	54	.....	54	9.17	57	.....	54	.....	54	.....	54	.....	54	.....	54	2.91	27	.....	54	.....	54
1883-1884	.....	229	.....	229	37.51	232	.....	229	.....	229	.....	229	.....	229	.....	229	22.74	212	.....	229	.....	229
1884-1885	.....	68	.....	68	10.81	67	.....	68	.....	68	.....	68	.....	68	.....	68	8.97	83	.....	68	.....	68
1885-1886	.....	120	.....	120	21.93	136	.....	120	.....	120	.....	120	.....	120	.....	120	9.42	87	.....	120	.....	120
1886-1887	.....	74	.....	74	14.50	90	.....	74	.....	74	.....	74	.....	74	.....	74	5.92	55	.....	74	.....	74
1887-1888	.....	127	.....	127	17.76	110	.....	127	.....	127	.....	127	.....	127	.....	127	11.76	110	.....	127	.....	127
1888-1889	.....	127	.....	127	20.97	130	.....	127	.....	127	.....	127	.....	127	.....	127	15.55	145	.....	127	.....	127
1889-1890	.....	161	.....	161	25.45	158	.....	161	.....	161	.....	161	.....	161	25.78	176	18.21	169	.....	161	.....	161
1890-1891	.....	117	.....	117	18.08	112	.....	117	.....	117	.....	117	.....	117	19.06	130	12.89	120	.....	117	.....	117
1891-1892	.....	79	.....	79	14.35	89	.....	79	.....	79	.....	79	.....	79	11.54	79	6.44	60	.....	79	.....	79
1892-1893	.....	118	.....	118	19.82	123	44.31	122	.....	118	.....	118	15.19	102	16.67	114	12.46	116	.....	118	.....	118
1893-1894	.....	59	.....	59	8.13	50	24.86	68	.....	59	.....	59	10.01	67	10.18	69	7.12	66	8.90	54	.....	59
1894-1895	.....	138	.....	138	20.98	130	50.29	139	.....	138	.....	138	21.06	141	22.90	156	16.39	152	23.06	142	.....	138
1895-1896	.....	56	.....	56	8.11	50	11.29	31	.....	56	.....	56	9.09	61	9.51	65	7.51	70	7.91	48	.....	56
1896-1897	.....	114	.....	114	16.74	104	33.25	91	.....	114	.....	114	18.84	127	21.88	149	12.85	120	19.94	122	.....	114
1897-1898	.....	56	.....	56	8.24	51	20.22	56	.....	56	.....	56	11.34	76	10.33	70	5.88	55	8.76	54	.....	56
1898-1899	.....	46	.....	46	7.49	46	13.93	38	.....	46	.....	46	5.93	40	6.30	43	5.70	53	6.28	38	.....	46
1899-1900	.....	58	.....	58	8.64	53	20.47	56	.....	58	.....	58	11.57	77	7.90	54	6.01	56	8.61	53	.....	58
1900-1901	.....	101	.....	101	17.36	107	31.52	87	.....	101	.....	101	14.22	95	13.11	89	8.86	82	20.08	123	.....	101

TABLE 28.

1901-1902	......	70	......	70	11.15	69	26.68	73	......	70	......	70	9.83	66	8.80	60	6.50	60	12.27	75	......	70
1902-1903	......	114	......	114	17.42	108	40.42	111	......	114	......	114	16.95	114	15.82	108	12.74	119	16.02	98	......	114
1903-1904	......	63	......	63	9.37	58	25.15	69	......	63	15.69	68	14.22	95	8.45	58	5.75	53	7.82	48	......	63
1904-1905	......	137	......	137	20.78	129	44.36	122	......	137	29.56	129	23.00	154	20.53	140	16.52	154	21.40	131	......	137
1905-1906	44.29	123	......	134	19.88	123	48.25	133	......	134	29.53	128	12.53	84	16.61	113	15.14	141	21.62	132	......	134
1906-1907	46.21	128	......	137	23.17	143	48.38	133	......	137	32.69	142	19.21	129	21.85	149	16.31	152	26.36	161	......	137
1907-1908	27.52	76	......	88	15.62	97	......	90	......	88	22.42	97	13.84	93	14.36	98	11.94	111	14.99	92	......	88
1908-1909	48.16	134	......	118	17.36	107	......	116	......	118	27.14	118	12.80	86	14.47	99	12.02	112	19.85	121	12.54	96
1909-1910	42.71	119	20.64	91	15.02	93	......	91	......	97	18.26	79	......	94	10.47	71	11.93	111	18.04	111	13.53	104
1910-1911	42.01	117	......	109	16.34	101	49.21	135	......	109	25.96	113	......	107	13.93	95	10.73	100	17.00	104	12.54	96
1911-1912	29.56	82	......	83	13.84	86	......	82	17.78	64	21.39	93	......	82	14.25	97	8.37	78	12.07	74	9.69	74
1912-1913	21.71	60	17.75	78	11.08	69	22.00	61	13.73	50	14.54	63	......	62	7.96	54	7.16	67	7.44	46	7.36	57
1913-1914	57.98	161	35.98	158	21.45	133	53.05	146	38.60	140	35.62	155	......	138	20.44	140	14.89	139	25.55	156	......	144
1914-1915	39.12	109	29.83	131	19.64	122	54.93	151	41.44	150	28.74	125	......	141	19.77	135	15.07	140	21.55	132	19.19	147
1915-1916	57.46	160	26.50	117	24.72	153	60.68	167	42.88	156	26.78	117	......	150	18.20	124	16.88	157	......	148	24.73	190
1916-1917	36.76	102	24.26	107	13.79	85	31.58	87	20.03	72	21.66	94	......	89	14.07	96	9.11	85	......	89	13.21	102
1917-1918	26.64	74	......	86	13.33	82	36.30	100	29.49	107	19.70	86	......	88	11.90	81	8.92	83	......	88	11.84	91
1918-1919	19.57	54	15.14	67	13.62	84	......	77	19.87	72	19.09	83	......	77	12.22	83	9.85	92	......	78	7.32	56
1919-1920	37.00	103	......	110	19.28	119	......	111	32.49	118	26.78	117	......	111	15.82	108	12.00	112	......	111	13.38	103
1920-1921	37.75	105	......	93	16.46	102	......	91	26.30	95	23.02	100	......	91	13.29	91	9.93	93	......	90	11.43	88
Years of record	16		7		51		22		10		18		17		32		40		22		12	
Mean of record	38.40		24.30		16.11		35.96		28.26		24.36		14.10		14.64		10.89		15.71		13.06	
50-year mean	36.00		22.70		16.15		36.40		27.60		23.00		14.90		14.70		10.70		16.30		13.00	
County	San Bernardino.		San Bernardino.		San Bernardino.		San Bernardino.		San Bernardino.		San Bernardino.		San Bernardino.		San Bernardino.		Riverside.		San Bernardino.		Riverside.	
Elevation	2,250		2,000		1,054		6,500		5,000		2,950		1,759		1,352		851		714		615	
Station reference number	226		227		228		229		230		231		232		233		234		235		236	

Precipitation data are from U. S. Weather Bureau records.

TABLE 28—(Concluded). RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DVISION X—RIVERSIDE-SANTA ANA AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Anaheim.		Santa Ana.		Tustin.		Elsinore.		Beaumont. (near)		Beaumont.		Cabezon.		San Jacinto.		Idyllwild.		Index of seasonal wetness.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Division X.
1871-1872	......	56	......	56	......	56	......	56	......	56	......	56	......	56	......	56	......	56	56
1872-1873	......	94	......	94	......	94	......	94	......	94	......	94	......	94	......	94	......	94	94
1873-1874	......	148	......	148	......	148	......	148	......	148	......	148	......	148	......	148	......	148	118
1874-1875	......	84	......	84	......	84	......	84	......	84	......	84	......	84	......	84	......	84	84
1875-1876	......	123	......	123	......	123	......	123	......	123	......	123	......	123	......	123	......	123	123
1876-1877	......	59	......	59	......	59	......	59	......	59	......	59	......	59	......	59	......	59	59
1877-1878	......	137	......	137	19.60	150	......	137	......	137	......	137	......	137	......	137	......	137	137
1878-1879	4.35	36	......	53	5.75	44	......	53	......	53	......	53	......	53	......	53	......	53	52
1879-1880	11.31	95	......	117	16.58	127	......	117	......	117	......	117	......	117	......	117	......	117	117
1880-1881	7.08	59	......	73	9.49	73	......	73	......	73	......	73	......	73	......	73	......	73	73
1881-1882	7.12	59	......	63	7.74	59	......	63	......	63	......	63	......	63	......	63	......	63	63
1882-1883	8.60	72	......	54	7.56	58	......	54	......	54	......	54	......	54	......	54	......	54	54
1883-1884	26.17	218	......	229	32.65	251	......	229	......	229	......	229	......	229	......	229	......	229	229
1884-1885	5.76	48	......	68	9.61	74	......	68	......	68	......	68	......	68	......	68	......	68	68
1885-1886	14.75	123	......	120	16.38	126	......	120	......	120	......	120	......	120	......	120	......	120	120
1886-1887	8.68	72	......	74	9.11	70	......	74	......	74	......	74	......	74	......	74	......	74	74
1887-1888	16.94	142	......	127	17.53	135	19.17	142	......	127	......	127	......	127	......	127	......	127	127
1888-1889	18.14	151	......	127	15.42	118	......	135	......	127	18.18	98	......	127	......	127	......	127	128
1889-1890	20.00	167	24.97	198	22.21	171	......	165	......	161	25.10	136	......	161	......	161	......	161	164
1890-1891	15.93	133	12.86	102	14.76	113	......	119	......	117	18.43	99	......	117	......	117	......	117	117
1891-1892	7.42	62	8.18	65	12.13	93	......	78	......	79	14.92	81	......	79	......	79	......	79	78
1892-1893	13.95	116	13.95	111	18.10	139	......	124	......	118	19.30	104	......	118	......	118	......	118	117
1893-1894	4.42	37	6.61	52	6.42	49	......	50	......	59	9.46	51	......	59	8.93	67	......	59	58
1894-1895	16.07	134	16.86	133	17.00	131	......	136	......	138	......	136	......	138	16.67	125	......	138	138
1895-1896	7.73	65	......	63	9.47	73	......	63	......	56	......	63	......	56	9.20	69	......	56	58
1896-1897	14.52	121	14.28	113	14.51	111	......	113	......	114	......	113	......	114	15.51	116	......	114	116
1897-1898	5.65	47	......	49	5.82	45	6.62	49	......	56	......	49	......	56	9.46	71	......	56	56
1898-1899	5.45	45	......	49	6.64	51	6.47	48	......	46	......	49	5.79	48	8.40	63	......	46	47
1899-1900	8.37	70	......	55	7.29	56	5.98	44	......	58	......	55	6.56	55	9.58	72	......	58	58
1900-1901	14.65	122	......	108	15.46	119	14.29	105	......	101	......	108	11.32	95	13.40	100	......	101	102

TABLE 28.

1901-1902	10.08	84	......	71	8.84	68	9.65	71	......	70	......	71	7.70	64	8.24	61	19.43	75	69
1902-1903	19.47	163	......	125	15.85	122	16.08	119	......	114	......	125	11.62	97	15.75	118	26.48	102	116
1903-1904	6.45	54	......	59	10.56	81	6.65	49	......	63	......	59	6.67	56	7.90	59	14.95	57	61
1904-1905	......	136	......	143	18.78	144	21.47	159	......	137	......	143	17.88	150	18.59	139	35.01	134	140
1905-1906	......	133	......	147	19.00	146	25.96	192	......	134	......	147	18.36	154	14.79	111	41.66	159	135
1906-1907	15.00	125	......	141	19.68	151	18.02	133	......	137	......	141	16.64	139	18.02	135	30.66	118	138
1907-1908	9.32	78	......	88	9.04	69	11.90	88	......	88	......	88	8.40	70	12.67	95	21.31	82	88
1908-1909	18.79	157	......	119	14.45	111	15.03	112	......	118	......	119	16.67	140	13.76	103	35.34	135	117
1909-1910	......	92	......	98	11.87	91	14.14	105	......	97	......	98	......	95	12.52	94	25.35	97	97
1910-1911	......	101	......	98	13.05	100	11.63	86	......	109	......	98	......	108	15.44	116	27.82	107	105
1911-1912	......	74	......	80	7.89	60	10.47	77	19.34	85	17.56	95	......	82	12.64	94	......	82	81
1912-1913	......	66	......	64	8.11	62	......	66	11.91	52	10.23	55	......	60	8.62	64	......	60	61
1913-1914	......	127	......	134	15.66	120	......	129	31.90	140	27.48	148	......	140	18.87	141	......	140	141
1914-1915	......	130	......	137	18.31	141	......	132	27.90	123	28.61	154	......	139	18.09	135	......	139	136
1915-1916	......	139	......	147	15.87	122	22.71	167	31.95	140	26.19	141	......	148	16.60	124	......	148	146
1916-1917	......	83	......	88	10.38	80	11.49	85	25.07	110	19.44	105	......	89	11.45	86	......	89	91
1917-1918	......	78	8.48	67	9.49	73	11.97	88	19.50	85	17.08	92	......	88	12.27	92	......	88	86
1918-1919	......	76	7.86	62	8.47	65	7.44	55	14.98	66	15.68	85	......	78	10.55	79	......	78	73
1919-1920	......	111	15.35	122	13.03	100	12.66	93	27.23	119	22.93	124	......	111	14.61	109	......	111	111
1920-1921	......	98	13.40	106	12.23	94	9.61	71	23.65	104	16.88	91	......	90	10.82	81	......	90	93
Years of record	29		11		44		22		10		16		11		28		10		
Mean of record	11.80		12.98		13.13		13.16		23.34		19.22		11.60		12.98		27.80		
50-year mean	12.00		12.60		13.00		13.50		22.80		18.50		12.00		13.40		26.10		
County	Orange.		Orange.		Orange.		Riverside.		Riverside.		Riverside.		Riverside.		Riverside.		Riverside.		
Elevation	134		133		200		1,234		3,045		2,558		1,779		1,550		5,250		
Station reference number	237		238		239		240		241		242		243		244		245		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division X: San Jacinto River Tributaries, Santa Ana River Tributaries, Mojave River, Whitewater River.

TABLE 29.

TABLE 29. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION Y—SAN DIEGO AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Fallbrook.		Aguanga.		Warner Springs.		Nellie.		Oceanside.		Mesa Grande.		Escondido.		Julian.	
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.
1871-1872	......	72	......	72	......	72	......	72	......	72	......	72	......	72	......	72
1872-1873	......	65	......	65	......	65	......	65	......	65	......	65	......	65	......	65
1873-1874	......	170	......	170	......	170	......	170	......	170	......	170	......	170	......	170
1874-1875	......	58	......	58	......	58	......	58	......	58	......	58	......	58	......	58
1875-1876	......	102	......	102	......	102	......	102	......	102	......	102	......	102	......	102
1876-1877	8.67	50	......	46	......	46	......	46	......	46	......	46	......	46	......	46
1877-1878	24.84	144	......	128	......	128	......	128	......	128	......	128	......	128	......	128
1878-1879	7.70	45	......	55	......	55	......	55	......	55	......	55	......	55	......	55
1879-1880	20.45	119	......	111	......	111	......	111	......	111	......	111	......	111	......	111
1880-1881	13.47	78	......	81	......	81	......	81	......	81	......	81	......	81	25.89	81
1881-1882	12.24	71	......	82	......	82	......	82	......	82	......	82	......	82	29.28	91
1882-1883	13.32	77	......	87	......	87	......	87	......	87	......	87	......	87	41.31	129
1883-1884	40.77	237	......	222	......	222	......	222	......	222	......	222	......	222	61.52	192
1884-1885	12.70	74	......	78	......	78	......	78	......	78	......	78	......	78	......	78
1885-1886	26.23	153	......	150	......	150	......	150	......	150	......	150	......	150	......	150
1886-1887	10.82	63	......	70	......	70	......	70	......	70	......	70	......	70	......	70
1887-1888	20.10	117	......	110	......	110	......	110	......	110	......	110	......	110	......	110
1888-1889	23.46	137	......	129	......	129	......	129	......	129	......	129	......	129	......	127
1889-1890	26.91	157	......	153	......	153	......	153	......	153	......	153	......	153	......	151
1890-1891	19.68	115	......	132	......	132	......	132	......	132	......	132	......	132	38.00	118
1891-1892	13.49	78	......	111	......	111	......	111	......	111	......	111	......	111	37.03	115
1892-1893	21.27	124	......	98	......	98	......	98	......	98	......	98	......	98	28.16	88
1893-1894	9.81	57	......	66	......	66	......	66	......	66	......	66	......	66	23.94	75
1894-1895	23.85	139	......	130	......	130	......	130	......	130	......	130	......	130	36.66	114
1895-1896	9.27	54	......	59	......	59	......	59	......	59	......	59	......	59	17.30	54
1896-1897	21.58	126	......	116	......	116	......	116	......	116	......	116	......	116	......	124
1897-1898	10.98	64	......	65	......	65	......	65	......	65	......	65	8.68	52	......	60
1898-1899	8.70	51	......	54	......	54	......	54	......	54	......	54	9.47	57	......	52
1899-1900	13.47	78	......	72	......	72	......	72	......	72	......	72	13.89	84	......	74
1900-1901	16.60	98	......	97	......	97	......	97	......	97	......	97	14.46	87	......	94

TABLE 29.

1901-1902	12.45	72	......	82	......	82	42.45	94	......	82	......	82	11.66	70	......	75
1902-1903	23.49	137	......	109	......	109	......	109	......	109	......	109	17.69	107	......	117
1903-1904	......	57	......	52	......	52	......	52	......	52	......	52	8.15	49	......	50
1904-1905	......	149	......	142	......	142	54.01	119	......	142	......	142	23.49	142	......	149
1905-1906	......	146	......	149	......	149	77.40	171	......	149	......	149	25.43	154	......	144
1906-1907	......	115	......	116	23.23	131	......	116	......	116	......	116	17.89	108	......	118
1907-1908	......	80	......	83	15.91	90	......	82	......	83	......	83	13.52	82	......	82
1908-1909	......	115	11.94	86	17.68	100	......	115	......	113	34.35	113	18.21	110	......	115
1909-1910	......	89	15.42	112	22.45	127	44.21	97	11.12	87	29.61	97	18.83	114	23.85	74
1910-1911	......	91	13.33	97	17.49	99	44.96	99	12.26	96	27.75	91	15.44	93	28.35	88
1911-1912	......	88	12.83	93	14.06	80	39.06	86	11.67	92	27.60	91	14.70	89	26.70	83
1912-1913	......	76	8.19	59	13.83	78	39.59	87	6.50	51	25.64	84	10.31	62	20.82	65
1913-1914	......	92	15.43	112	18.48	104	......	100	14.15	111	31.77	105	19.11	115	35.51	111
1914-1915	......	145	20.69	150	27.16	154	67.19	148	22.12	174	44.46	146	25.37	153	52.38	163
1915-1916	......	143	22.92	166	26.14	148	65.12	144	17.42	137	48.27	159	27.94	169	53.92	168
1916-1917	......	103	10.89	79	13.19	74	44.57	98	14.29	112	27.08	89	17.04	103	30.63	96
1917-1918	......	77	14.02	102	14.77	83	30.85	68	10.50	82	19.47	64	13.87	84	22.04	69
1918-1919	......	80	10.17	74	11.62	66	28.83	64	8.62	68	21.05	69	12.28	74	23.97	75
1919-1920	......	101	15.02	109	17.32	98	50.70	112	......	107	33.20	109	15.17	92	39.49	123
1920-1921	......	71	8.10	59	11.65	66	......	70	......	70	24.76	82	11.40	69	25.94	81
Years of record	27		13		15		13		10		13		24		22	
Mean of record	17.27		13.76		17.67		48.38		12.87		30.39		16.00		32.85	
50-year mean	17.20		13.80		17.70		45.40		12.80		30.40		16.60		32.10	
County	San Diego.		Riverside.		San Diego.		San Diego.		San Diego.		San Diego.		San Diego.		San Diego.	
Elevation	700		1,986		3,165		5,350		60		3,350		650		4,500	
Station reference number	246		247		248		249		250		251		252		253	

Precipitation data are from U. S. Weather Bureau records.

TABLE 29—(Concluded). RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATION DIVISION Y—SAN DIEGO AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Cuyamaca.		Descanso.		Poway.		El Cajon.		Point Loma.		San Diego.		Campo.		Index of seasonal wetness. Division Y.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	72	......	72	......	72	......	72	......	72	7.18	72	......	72	72
1872-1873	......	65	......	65	......	65	......	65	......	65	6.50	65	......	65	65
1873-1874	......	170	......	170	......	170	......	170	......	170	16.88	170	......	170	170
1874-1875	......	58	......	58	......	58	......	58	......	58	5.73	58	......	58	58
1875-1876	......	102	......	102	......	102	......	102	......	102	10.11	102	......	102	102
1876-1877	......	46	......	46	......	46	......	46	......	46	3.75	38	......	46	46
1877-1878	......	128	......	128	......	128	......	128	......	128	16.10	162	20.03	99	129
1878-1879	......	55	......	55	......	55	......	55	......	55	7.88	79	10.59	52	56
1879-1880	......	111	......	111	15.39	110	......	111	......	111	14.36	144	17.94	88	112
1880-1881	......	81	......	81	10.61	76	......	81	......	81	9.66	97	15.87	78	81
1881-1882	......	82	......	82	13.36	96	......	82	......	82	9.51	96	12.66	62	82
1882-1883	......	87	......	87	8.42	60	......	87	......	87	4.92	49	......	67	83
1883-1884	......	222	......	222	29.45	212	......	222	......	222	25.97	261	......	246	225
1884-1885	......	78	......	78	10.69	77	......	78	......	78	8.67	87	......	79	78
1885-1886	......	150	......	150	16.80	121	......	150	......	150	16.96	171	......	159	150
1886-1887	......	70	......	70	9.47	68	......	70	......	70	8.32	84	......	71	70
1887-1888	......	110	......	110	......	110	......	110	......	110	9.82	99	......	110	110
1888-1889	52.83	136	......	129	......	127	......	129	......	129	11.02	111	......	127	129
1889-1890	61.51	159	......	153	......	151	......	153	......	153	15.02	151	29.90	147	153
1890-1891	63.84	165	......	132	......	120	......	132	......	132	10.47	105	26.67	131	130
1891-1892	39.61	102	......	111	......	115	......	111	......	111	8.70	88	32.51	160	111
1892-1893	39.21	101	......	98	......	102	......	98	......	98	9.26	93	17.67	87	98
1893-1894	15.05	39	......	66	8.32	60	......	66	......	66	4.97	50	25.31	125	67
1894-1895	54.78	141	......	130	18.81	135	......	130	......	130	11.90	120	......	132	130
1895-1896	23.38	60	......	59	10.76	77	......	59	......	59	6.21	62	......	57	60
1896-1897	38.96	100	27.31	107	17.77	127	......	116	......	116	11.78	118	......	123	117
1897-1898	27.69	71	20.88	82	9.15	66	......	65	......	65	4.99	50	......	59	64
1898-1899	23.35	60	11.94	47	7.96	57	......	54	......	54	5.24	53	......	51	54
1899-1900	27.70	72	16.46	65	11.27	81	8.05	58	......	72	5.97	60	......	72	72
1900-1901	42.81	110	25.28	99	13.15	94	11.60	84	......	97	10.45	105	17.46	86	96

TABLE 29.

1901-1902	36.00	93	21.57	85	9.88	71	9.19	67	......	82	6.17	62	17.44	86	79
1902-1903	37.60	97	......	111	16.55	119	11.46	83	......	109	11.76	118	20.00	99	110
1903-1904	23.37	60	......	53	8.24	59	5.71	42	......	52	4.40	44	8.79	43	51
1904-1905	57.89	149	......	149	19.84	142	20.50	149	13.46	126	14.32	144	31.61	156	143
1905-1906	56.24	145	......	144	21.77	156	18.62	136	13.67	128	14.68	148	27.07	134	147
1906-1907	44.91	116	......	117	16.73	120	15.24	111	10.14	95	10.62	107	25.42	125	115
1907-1908	30.35	78	......	81	12.69	91	13.52	98	8.68	82	8.55	86	15.57	77	84
1908-1909	45.65	118	......	116	18.02	129	15.50	113	11.32	106	10.23	103	22.87	113	111
1909-1910	33.40	86	27.54	108	......	90	13.29	97	11.13	104	9.79	98	17.42	86	98
1910-1911	32.15	83	21.65	85	......	101	13.75	100	12.84	120	11.99	121	20.39	101	98
1911-1912	31.90	82	23.40	92	......	95	15.10	110	10.27	96	10.72	108	19.07	94	92
1912-1913	31.02	80	16.02	63	......	67	8.04	58	5.92	56	5.87	59	12.83	63	66
1913-1914	34.82	90	23.46	92	......	96	15.25	111	11.86	112	9.83	99	20.02	99	103
1914-1915	55.79	144	37.16	146	......	132	21.71	158	16.06	151	14.41	145	23.23	115	148
1915-1916	56.87	147	......	151	......	143	24.52	178	15.17	142	12.55	126	30.79	152	151
1916-1917	39.82	103	......	96	......	94	13.40	98	13.32	125	10.13	102	16.52	82	97
1917-1918	29.53	76	......	89	......	109	10.62	77	9.36	88	8.04	81	30.18	149	86
1918-1919	29.93	77	......	79	......	82	12.44	90	9.01	85	8.74	88	16.56	82	77
1919-1920	40.15	103	......	108	......	104	14.62	106	10.60	100	8.91	90	22.98	113	105
1920-1921	27.18	70	......	69	......	62	10.39	76	7.62	72	7.08	71	10.17	50	69
Years of record	33		12		24		22		17		71		31		
Mean of record	38.95		22.72		13.96		13.75		11.20		9.66		20.50		
50-year mean	38.80		25.40		13.90		13.70		10.70		9.94		20.30		
County	San Diego.		San Diego.		San Diego.		San Diego.		San Diego.		San Diego.		San Diego.		
Elevation	4,667		3,400		460		482		302		87		2,543		
Station reference number	254		255		256		257		258		259		260		

Precipitation data are from U. S. Weather Bureau records.
Streams within boundaries of Precipitation Division Y: San Diego River, Santa Ysabel Creek, San Luis Rey River, Santa Margarita River.

TABLE 30.

TABLE 30. RECORDS OF PRECIPITATION AND TABLE OF COMPUTED INDICES OF SEASONAL WETNESS—PRECIPITATON DIVISION Z—OWENS VALLEY AREA.

Rainfall stations, depth of precipitation in inches and index of seasonal wetness.

Season.	Bodie.		Bishop.		Bishop Creek.		Independence.		Lone Pine.		Keeler.		Index of seasonal wetness. Division Z.
	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	Inches.	Index.	
1871-1872	......	155	......	155	......	155	6.66	155	......	155	......	155	155
1872-1873	......	46	......	46	......	46	1.98	46	......	46	......	46	46
1873-1874	......	162	......	162	......	162	6.96	162	......	162	......	162	162
1874-1875	......	90	......	90	......	90	......	90	......	90	......	90	90
1875-1876	......	124	......	124	......	124	......	124	......	124	......	124	124
1876-1877	......	43	......	43	......	43	......	43	......	43	......	43	43
1877-1878	......	126	......	126	......	126	......	126	......	126	......	126	126
1878-1879	......	58	......	58	......	58	......	58	......	58	......	58	58
1879-1880	......	123	......	123	......	123	......	123	......	123	......	123	123
1880-1881	......	73	......	73	......	73	......	73	......	73	......	73	73
1881-1882	......	69	......	69	......	69	......	69	......	69	......	69	69
1882-1883	......	62	......	62	......	62	......	62	......	62	......	62	62
1883-1884	......	51	2.86*	51	......	51	......	51	......	51	......	51	51
1884-1885	......	33	1.81*	33	......	33	......	32	......	33	......	33	33
1885-1886	......	61	2.28*	41	......	61	......	63	......	61	3.00	95	64
1886-1887	......	71	3.68*	66	......	71	......	74	......	71	2.42	76	72
1887-1888	......	109	3.69*	66	......	109	......	111	......	109	5.76	182	114
1888-1889	......	97	4.80*	87	......	97	......	100	......	97	3.58	113	99
1889-1890	......	100	6.62*	119	......	100	......	102	......	100	1.98	63	97
1890-1891	......	151	9.07*	164	......	151	......	156	......	151	3.92	124	150
1891-1892	......	91	5.89*	106	......	91	......	93	......	91	1.95	62	89
1892-1893	......	136	6.38*	115	......	136	7.61	177	......	136	3.74	118	137
1893-1894	......	57	3.37*	61	......	57	2.48	57	......	57	1.61	51	57
1894-1895	......	90	3.78*	68	......	90	5.07	118	......	90	2.91	92	92
1895-1896	15.93	92	2.34*	42	......	67	......	35	......	67	.60	19	53
1896-1897	16.61	96	4.70*	85	......	93	......	91	......	93	2.92	92	92
1897-1898	9.97	57	1.69*	30	......	44	......	25	......	44	.53	17	36
1898-1899	10.15	59	3.10*	56	......	54	1.58	37	......	54	1.66	52	52
1899-1900	11.35	65	3.39*	61	......	72	3.69	86	......	72	3.39	107	77
1900-1901	21.45	124	10.97*	198	......	135	6.17	143	......	135	2.39	75	135

TABLE 30.

1901-1902	11.97	69	5.29*	95	......	81	4.35	101	......	81	2.90	92	87
1902-1903	9.12	53	2.80	50	......	49	2.36	55	......	49	.70	22	46
1903-1904	12.99	75	4.35	79	......	70	2.59	60	......	70	1.20	38	65
1904-1905	17.25	100	7.70	139	......	128	4.05	94	6.72	155	8.60	272	148
1905-1906	23.62	137	8.52	154	......	129	6.44	150	3.41	78	2.80	88	122
1906-1907	......	121	6.51	117	......	120	4.56	106	5.09	117	4.69	148	122
1907-1908	......	125	6.74	122	......	129	5.30	123	6.82	157	4.18	132	131
1908-1909	......	149	6.51	117	......	145	8.08	188	5.03	116	4.85	154	145
1909-1910	......	129	7.61	137	......	125	5.08	118	4.34	100	......	129	123
1910-1911	......	149	......	149	......	146	6.39	149	5.34	123	......	149	144
1911-1912	......	85	......	85	12.20	80	3.65	85	4.47	103	......	85	87
1912-1913	......	102	......	102	15.55	101	4.41	102	4.76	109	......	103	103
1913-1914	......	278	......	278	......	264	11.97	278	7.14	165	......	278	257
1914-1915	......	110	7.03	127	......	115	3.83	89	6.64	153	......	110	117
1915-1916	......	219	11.44	206	......	212	10.14	236	7.05	163	......	219	209
1916-1917	......	118	6.88	124	19.67	128	4.77	111	8.04	185	......	118	131
1917-1918	......	89	6.57	118	14.07	92	2.23	52	4.86	112	......	89	92
1918-1919	......	93	......	93	14.13	92	4.01	93	3.74	86	......	93	91
1919-1920	......	71	......	71	11.15	73	3.07	71	7.74	178	......	71	89
1920-1921	......	57	......	57	11.90	78	2.46	57	......	57	......	57	60
Years of record	11		31		7		30		16		24		
Mean of record	14.58		5.43		14.09		4.87		5.70		3.01		
50-year mean	17.30		5.50		15.30		4.30		4.30		3.20		
County	Mono.		Inyo.		Inyo.		Inyo.		Inyo.		Inyo.		
Elevation	8,248		4,450		8,500		3,957		3,728		3,620		
Station reference number	261		262		263		264		265		266		

Precipitation data are from U. S. Weather Bureau records unless otherwise noted.
*From Water Supply Paper No. 81, page 426, table headed Bishop Creek, Elevation 4450.
Streams within boundaries of Precipitation Division Z: Adobe Meadows Group.

TABLE 31.

TABLE 31. MISCELLANEOUS PRECIPITATION RECORDS, U. S. WEATHER BUREAU.

Data given in this table were not used in developing indices of seasonal wetness presented in Tables 5 to 30, inclusive. All other U. S. Weather Bureau records covering periods of ten years or over were used.

Season	Stations and precipitation in inches.																
	Tehama	Sacramento	San Francisco	Oakland	Berkeley	Point Reyes	Glenn Ranch	Barstow	Bagdad	Needles	Palm Springs	Indio	Mecca	Salton	Blythe	Sterling	Calexico
1871-72		23.65	30.78														
1872-73	11.05	14.19	15.66														
1873-74	14.60	22.92	24.73														
1874-75	5.95	17.70	20.56	21.57													
1875-76	21.19	26.30	31.19	28.56													
1876-77	10.57	9.19	11.04	12.33													
1877-78	29.94	24.86	35.18	32.33													
1878-79	9.35	17.85	24.44	23.47								1.90				1.89	
1879-80	15.65	26.47	26.66	23.84								.40				1.34	
1880-81	10.40	26.57	29.86	31.76		28.79						4.65				1.74	
1881-82	12.82	16.51	16.14	18.13		19.45						1.50				2.71	
1882-83	14.53	18.11	20.12	17.22								3.04				1.65	
1883-84	18.20	24.78	32.38	31.10		19.20						5.60				3.11	
1884-85	11.32	16.58	18.10	17.95		11.04						.80				.89	
1885-86	23.14	32.27	33.05	32.21		16.48						.90				2.70	
1886-87	10.51	13.97	19.04	18.55		9.74						1.35				1.77	
1887-88	16.18	11.56	16.74	17.10	17.49							.95				.82	
1888-89	24.76	19.95	23.86	21.37	18.29							3.83				4.55	
1889-90	38.16	33.80	45.85	45.71	46.00	47.45		5.58			5.86	5.56		4.37		4.00	
1890-91	19.07	15.81	17.58	23.91	23.96	18.30		3.83			8.57	2.42		4.51		3.81	
1891-92	23.34	15.18	18.53	20.87	23.38	27.31					3.99	4.24		3.88		2.85	
1892-93	51.98	23.95	21.75	28.07	29.91	27.58				.95	1.68	1.63		.92		1.82	
1893-94	15.02	16.35	18.47	25.41	26.65	27.01		2.55		4.67	3.96	1.01		1.59		.37	
1894-95	27.83	24.11	25.70	36.89	39.01	31.33		2.18		4.06	7.75	6.01		1.53		2.44	
1895-96	26.62	23.23	21.25	26.65	27.72	25.29		.57		.50	4.34	.92		T		.37	

TABLE 31.

1896-97	21.39	17.32	23.43	30.16	28.94	26.91	....	5.95	....	4.07	0	1.29	....	3.87	....	.01	....
1897-98	10.03	10.51	9.38	13.58	14.40	17.18	....	....	....	1.57	1.69	2.50	....	.85	....	T	....
1898-99	16.92	15.04	16.87	25.02	27.66	20.18	....	....	....	2.19	2.03	1.70	....	.89	....	.06	....
1899-00	20.61	20.24	18.47	24.81	25.34	29.05	....	....	....	2.33	4.78	2.35	....	.84	....	2.18	....
1900-01	24.23	20.21	21.17	25.02	25.11	27.76	29.27	....	....	1.59	4.79	3.04	....	3.70	....	3.66	....
1901-02	22.69	17.27	18.98	23.92	25.86	21.19	15.00	....	....	.60	1.50	.60	....	1.38	....	2.86	....
1902-03	20.87	16.62	18.28	21.16	25.41	17.46	29.75	....	....	4.86	2.10	2.35	....	3.25	....	1.08	....
1903-04	24.51	16.87	20.59	28.99	33.59	24.57	18.53	.90	T	.88	.35	2.05	....	.40	....	.25	....
1904-05	30.57	21.98	23.45	27.61	29.35	26.55	38.41	5.90	10.20	8.64	9.35	5.18	....	9.29	....	3.77	....
1905-06	28.79	23.93	20.42	23.38	27.75	19.91	37.36	1.80	3.50	7.01	5.70	4.70	4.21	.58	....	2.80	4.79
1906-07	21.99	24.04	26.17	25.97	31.87	22.79	49.69	4.50	3.40	7.92	4.57	5.83	6.84	5.97	....	1.20	3.26
1907-08	17.74	12.20	17.35	15.75	19.16	13.94	25.95	7.03	2.21	1.36	3.03	3.18	3.49	....	....	2.26	2.21
1908-09	26.63	21.78	25.57	25.78	31.55	23.83	33.88	4.81	3.90	4.46	4.35	3.13	1.69	....	....	3.60	1.95
1909-10	16.13	12.18	19.52	19.75	22.28	17.28	34.67	4.16	1.00	12.48	5.16	3.60	3.41	....	4.63	7.11	3.98
1910-11	25.80	21.98	25.49	27.76	30.41	15.91	45.86	2.90	T	3.95	6.47	2.44	2.40	....	....	3.47	2.17
1911-12	13.76	9.55	14.06	11.58	14.73	12.28	36.45	3.67	1.75	3.35	4.05	2.62	1.65	....	....	7.85	2.14
1912-13	18.31	8.03	11.97	11.89	15.63	11.82	34.77	3.28	1.18	4.60	5.38	3.01	2.02	....	2.03	.69	1.44
1913-14	30.82	20.44	29.60	27.89	33.37	21.30	53.62	7.51	0	6.93	5.72	2.45	3.95	....	5.63	2.81	3.67
1914-15	32.20	17.20	27.41	27.98	30.95	26.49	37.81	5.08	4.96	7.06	9.90	5.43	7.03	....	6.91	1.11	4.78
1915-16	17.18	18.29	27.12	27.28	31.79	19.04	45.31	5.30	2.42	3.24	....	4.34	2.95	....	....	1.10	2.81
1916-17	....	12.95	15.78	20.05	20.08	12.75	....	3.85	.70	3.77	....	3.56	1.77	....	3.06	1.87	3.31
1917-18	....	10.61	11.48	14.21	13.94	10.81	....	7.65	0	3.84	....	1.51	1.27	....	2.35	1.87	1.63
1918-19	....	17.20	25.64	28.90	25.35	17.41	....	7.03	.01	6.66	....	1.09	1.52	....	5.87	1.61	1.20
1919-20	....	8.90	10.46	13.54	12.81	9.79	....	2.94	1.92	7.09	....	5.63	4.25	....	6.15	5.41	4.55
1920-21	....	16.80	23.16	23.28	24.85	19.24	....	3.38	1.82	3.36	....	4.84	3.10	....	2.42	2.23	3.07
Years of record	44	72	72	47	34	38	16	24	18	29	26	43	16	18	9	43	16
Mean of record	20.53	18.72	22.49	23.84	25.72	20.98	35.40	4.26	2.17	4.28	4.50	2.91	3.22	2.66	4.34	2.32	2.94
Elevation	220	71	207	36	320	490	3256	2105	784	477	584	—20	—185	263	268	255	0
Station No.	14	94	125	126	127	143	267	268	269	270	271	272	273	274	275	276	277

TABLE 31.

TABLE 31—(Continued). MISCELLANEOUS PRECIPITATION RECORDS, U. S. WEATHER BUREAU.

Precipitation records prior to 1871-1872.

Station.	Years and precipitation in inches.										
	1849-50	1850-51	1851-52	1852-53	1853-54	1854-55	1855-56	1856-57	1857-58	1858-59	1859-60
Independence											
San Bernardino											
San Diego		8.41	9.48	11.03	9.77	13.56	9.89	4.76	7.54	6.61	6.58
Walla Walla Creek						19.30		27.15			
Bowman's Dam											
Cisco											
Colfax											
Emigrant Gap											
Fort Bidwell											
Nevada City											
Sacramento	36.00	4.71	17.98	36.35	20.06	18.62	13.76	10.46	14.99	16.04	22.06
Rocklin											
Truckee											
La Grange											
Monterey	10.65		13.62								
San Francisco	33.10	7.42	18.46	35.26	23.87	23.76	21.66	19.91	21.81	22.22	22.27
San Luis Obispo											
Santa Barbara											
Shingle Springs		17.18	32.50	47.55	30.45	19.50	18.60	24.76	18.36	32.31	27.29
Stockton											

Station.	1860-61	1861-62	1862-63	1863-64	1864-65	1865-66	1866-67	1867-68	1868-69	1869-70	1870-71
Independence											4.13
San Bernardino											13.94
San Diego	7.90	15.64	3.87	5.14	8.45	12.82	13.73	11.23	11.68	5.48	5.17
Walla Walla Creek	22.27	40.86	15.57	15.85	25.82	35.50	28.88	23.61	18.16	20.00	13.56
Bowman's Dam											8.75
Cisco											34.42
Colfax											30.83
Emigrant Gap											33.13
Fort Bidwell								31.40	8.43	32.78	22.81
Nevada City					54.46	59.26	81.56	115.26	56.69	48.61	45.38
Sacramento	16.18	36.10	11.59	7.79	22.59	17.91	25.32	32.79	16.64	13.57	8.47
Rocklin											12.33
Truckee											18.44
La Grange									18.16	12.84	10.46
Monterey					13.10	15.93					
San Francisco	19.72	49.27	23.74	10.08	24.73	22.93	34.92	38.84	21.35	19.31	14.11
San Luis Obispo										11.83	12.97
Santa Barbara								25.22	15.77	10.27	8.91
Shingle Springs	27.05	79.24	21.83	24.27	34.43	36.98	50.29				
Stockton								20.71	16.45	7.64	6.73

TABLE 31—(Continued). MISCELLANEOUS PRECIPITATION RECORDS U. S. WEATHER BUREAU.

Records for season ending June 30, 1922.

No.	Station	Rainfall in inches	Index of seasonal wetness	No.	Station	Rainfall in inches	Index of seasonal wetness
247	Aguanga	24.17	175	264	Independence	4.37	101
186	Angiola	8.84	142	272	Indio	7.03	....
128	Antioch	15.13	122	57	Inskip	82.21	93
227	Arrowhead Springs	39.49	174	196	Jolon	18.10	102
90	Auburn	37.87	112	253	Julian	51.28	160
269	Bagdad	4.63	....	100	Kennedy Mine	27.63	89
188	Bakersfield	8.88	171	10	Kennett	48.31	73
242	Beaumont	32.89	178	141	Kentfield	31.86	68
241	Beaumont (near)	36.43	160	179	Kernville	10.49	105
127	Berkeley	25.46	99	194	King City	12.12	110
263	Bishop Creek	19.89	130	36	Kono Tayee (Lakeport)	21.76	92
83	Blue Canyon	71.10	110	36	Lakeport (Kono Tayee)	21.76	92
275	Blythe	6.54	....	75	Lake Spaulding	75.91	109
29	Branscomb	59.33	72	63	La Porte	53.77	69
277	Calexico	6.84	....	165	Le Grand	19.66	164
149	Campbell	15.43	96	175	Lemon Cove	16.45	117
260	Campo	33.41	164	152	Lick Observatory	28.65	95
66	Camptonville	65.35	88	120	Livermore	14.05	92
2	Cedarville	10.31	70	222	Los Angeles	19.66	129
45	Chico	22.52	95	148	Los Gatos	32.28	98
21	China Flat	37.65	81	226	Lytle Creek	53.51	149
223	Claremont	26.62	138	6	McCloud	35.29	71
32	Cloverdale	28.08	71	4	Madeline	inc.	....
87	Colfax	51.57	107	51	Marysville	21.02	107
69	Colgate	44.48	99	273	Mecca	6.58	....
49	Colusa	13.54	82	164	Merced	15.73	142
236	Corona	25.22	194	112	Merced Falls	22.11	136
23	Crescent City	78.07	106	251	Mesa Grande	45.57	150
254	Cuyamaca	59.58	154	98	Mill Creek No. 1	45.39	94
131	Davis	16.63	97	231	Mill Creek No. 2	34.01	148
72	Deer Creek	80.72	109	176	Milo	inc.	....
114	Denair	15.45	158	106	Milton	24.63	119
55	De Sabla	50.93	74	102	Mokelumne Hill	30.59	99
68	Dobbins	42.89	96	17	Montague	9.76	84
65	Downieville	71.55	105	142	Mt. Tamalpais	inc.	....
40	East Park	13.83	80	217	Mt. Wilson	60.51	190
189	Edison	10.28	109	138	Napa	19.75	84
257	El Cajon	25.86	189	270	Needles	9.62	....
101	Electra	31.18	95	249	Nellie	inc.	....
240	Elsinore	26.22	194	71	Nevada City	52.42	100
82	Emigrant Gap	44.13	81	161	Newman	7.98	78
252	Escondido	28.89	174	73	North Bloomfield	53.23	97
24	Eureka	34.76	82	166	North Fork	37.76	105
95	Folsom	23.24	95	115	Oakdale	15.10	108
76	Fordyce Dam	70.19	103	126	Oakland	23.31	98
1	Fort Bidwell	14.77	86	209	Ojai Valley	26.91	131
27	Fort Bragg	30.30	74	43	Orland	13.79	79
34	Fort Ross	29.94	56	19	Orleans	39.82	85
169	Fresno	10.83	113	53	Oroville	25.46	92
89	Georgetown	56.22	98	204	Ozena	15.09	95
181	Glennville	19.35	91	197	Parkfield	16.81	100
70	Grass Valley	56.90	108	218	Pasadena	29.61	150
73	Hanford	9.94	117	199	Paso Robles	21.81	134
67	Head Dam	inc.	....	137	Peachland	28.79	69
33	Healdsburg	29.21	71	140	Petaluma	18.94	78
35	Helen Mine	55.68	67	97	Placerville	43.56	103
159	Hollister	18.53	141	258	Point Loma	22.26	208
15	Hot Springs	25.01	107	143	Point Reyes	15.09	....
39	Hullville	41.68	80	184	Porterville	13.32	142

TABLE 31—(Concluded). MISCELLANEOUS PRECIPITATION RECORDS, U. S. WEATHER BUREAU.

Records for season ending June 30, 1922.

No.	Station	Rainfall in inches	Index of seasonal wetness	No.	Station	Rainfall in inches	Index of seasonal wetness
195	Priest Valley	25.46	125	230	Seven Oaks	52.80	191
61	Quincy	41.38	98	64	Sierraville	20.89	80
13	Red Bluff	16.70	68	7	Sisson	28.00	80
12	Redding	inc.	....	107	Sonora	33.85	104
233	Redlands	25.50	173	191	Spreckels	16.64	126
171	Reedley	16.93	147	177	Springville	33.09	97
129	Rio Vista	16.60	96	276	Sterling	4.74	....
234	Riverside	19.75	185	118	Stockton	14.66	103
93	Rocklin	23.54	105	167	Storey	14.52	154
94	Sacramento	14.16	76	80	Summit	53.92	116
135	St. Helena	24.96	67	79	Tamarack	44.23	89
158	Salinas	18.79	134	239	Tustin	17.51	135
228	San Bernardino	27.75	172	31	Ukiah	28.74	79
259	San Diego	18.65	187	26	Upper Mattole	61.45	73
125	San Francisco	19.91	90	174	Visalia	11.26	117
244	San Jacinto	25.23	188	248	Warner Springs	38.23	216
150	San Jose	14.77	98	187	Wasco	9.59	177
201	San Luis Obispo	23.36	108	154	Watsonville	23.94	113
238	Santa Ana	18.15	144	22	Weaverville	25.48	65
206	Santa Barbara	19.22	102	56	West Branch	68.52	86
151	Santa Clara	15.86	100	99	West Point	39.23	98
156	Santa Cruz	28.73	106	41	Willows	13.44	81
202	Santa Maria	16.88	119	110	Yosemite	32.65	93
211	Santa Monica	16.71	116	16	Yreka	14.61	81
136	Santa Rosa	23.99	82				

inc.: record incomplete.

NOTE.—These precipitation records were received too late to be incorporated in the calculations for 50-year means and seasonal indices of wetness.

TABLE 32. DRAINAGE AREAS IN CALIFORNIA.

The area in square miles of all water-producing drainage basins in California, is given in this table. Determinations were made from topographic maps of United States Geological Survey by planimeter and checked in their totals to computed areas between meridians and parallels of latitude. For areas not mapped by the United States Geological Survey, the maps of the United States Forest Service and various state and county maps were used.

All streams are grouped in geographic order within the six divisions of the State:

Sacramento Basin.
San Joaquin Basin.
San Francisco Bay Basin.
North Pacific Basins.
South Pacific Basins.
Great Basin.

The one hundred and forty major streams or groups of smaller streams used in developing run-off curves (Plates XVIII to LIII, inclusive), in this report, are listed to the extreme left in the table and above each name are listed, indented to the right, the tributaries and the drainage area of each. Branches of the tributaries are listed, with their drainage areas, indented still further to the right, and above the name of the tributary. All branches and tributaries are listed in order of their confluence beginning at the headwaters and the areas are measured to the points of confluence. Tables Nos. 34 to 173, inclusive, describe specifically the lower limit of the areas on the main streams which are measured to the head of the main agricultural area.

The word "Direct" is used in this table referring to the area draining directly into the streams between points of confluence of branches o tributaries or between a point of confluence and the lower limit to which the drainage area was measured.

STREAM.	DRAINAGE AREA IN SQUARE MILES.	
SACRAMENTO BASIN.		
Wagon Valley Creek	48.7	
Direct	125.5	
Soda Creek	20.8	
Direct	4.6	
Castle Creek	57.8	
Direct	110.6	
Slate Creek	26.8	
Direct	140.3	
Direct, below Baird and Ydalpom Gages	33.0	
Sacramento River (Upper) to junction with Pit River		568.1
South Fork of Pit River	632.6	
North Fork of Pit River	223.3	
Rattlesnake Creek	182.7	
Direct	1,400.5	
Ash Creek	492.7	
Direct	439.5	
Beaver Creek	144.0	
Fall River	600.5	
Pit River at junction with Fall River		4,115.8
Direct	92.5	
Hat Creek	388.0	
Direct	26.4	
Burney Creek	165.8	
Direct	99.7	
Nelson Creek	35.0	
Kosk Creek	64.6	

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

Stream.	Drainage area in square miles.			
Direct		76.7		
Hatchet Creek		52.9		
Direct		.8		
Montgomery Creek		49.0		
Direct		61.7		
Squaw Creek		117.2		
Pit River at Ydalpom			5,346.1	
Direct		465.3		
Squaw Creek		111.7		
Direct		92.2		
McCloud River at Baird			669.2	
Churn Creek		45.8		
Stillwater Creek		54.5		
Churn Creek Group			100.3	
South Fork of Cow Creek		95.3		
North Fork of Cow Creek		83.0		
Direct		9.3		
Clover Creek		48.5		
Direct		1.1		
Oak Run		40.6		
Direct		1.7		
Little Cow Creek		103.2		
Dry Creek		23.8		
Direct		37.1		
Cow Creek			443.6	
Ash Creek		14.1		
Bear Creek		123.1		
Bear Creek Group			137.2	
South Fork of Battle Creek		130.5		
Direct		236.0		
Battle Creek			366.5	
Ink's Creek			34.2	
Payne's Creek			80.4	
Backbone Creek Group			178.0	
Clear Creek			251.0	
Direct	78.0			
Beegum Creek	117.0			
Direct	66.4			
Middle Fork of Cottonwood Creek		261.4		
North Fork of Cottonwood Creek		146.3		
Dry Creek		391.4		
Direct and Hooker Creek		138.2		
Cottonwood Creek			937.3	
Direct			146.3	
Sacramento River at Red Bluff				9,258.2
Sycamore Hollow			15.8	
Sheep Hollow			1.9	
Grizzly Hollow			2.3	
Mud Creek			21.3	
Rock Creek			36.4	
Pine Creek			25.6	
Zimmershed Creek			13.0	
Camel Creek			14.2	
Rattlesnake Creek			5.2	
Singer Creek			17.0	
Brush Creek			18.2	
Rio de Los Berrendos			46.2	
Mill Creek			216.4	
Deer Creek			205.7	
Antelope Creek			233.6	
Big Chico Creek			72.3	
Little Chico Creek			25.8	
Mill Creek Group				970.9
Direct		75.2		
East and West forks		20.1		
Direct		57.5		
Butte Creek			152.8	
Clear Creek, Gold Run, Chambers Ravine, etc.			98.1	
Butte Creek Group				250.9
Last Chance Creek	100.9			
Smithneck Creek	53.7			
Hamlin Creek	111.9			
Valley area	276.4			
Sierra Valley		542.9		
Grizzly Creek		52.8		
Direct		43.0		
Willow Creek		16.7		
Direct		.6		
Mohawk Creek		32.7		

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.			
Direct		113.2		
Long Valley Creek		25.2		
Direct		23.6		
Nelson Creek		45.3		
Direct		61.0		
Bear Creek		21.0		
Direct		51.1		
Little North Fork		46.3		
Direct		.5		
South Branch		33.5		
Direct		13.6		
Fall River		34.8		
Direct		39.7		
Middle Fork of Feather River			1,197.5	
Direct		52.3		
Lost Creek		33.3		
Direct		23.9		
Sucker Run		20.2		
Direct		23.5		
South Fork of Feather River			153.2	
Direct		7.1		
Canyon Creek		17.3		
Direct		1.3		
Feather River, South Fork to North Fork			25.7	
Feather River above junction with North Fork				1,376.4
Mountain Meadows		170.5		
Warner Creek		121.3		
Rock Creek		31.9		
Big Meadows		173.4		
Direct		20.7		
Butt Valley		80.4		
Direct		27.2		
Direct	106.6			
Squaw Creek	204.5			
Red Clover Creek	122.9			
Direct	48.1			
Little Grizzly Creek	35.4			
Direct	22.6			
Lights Creek	103.6			
Direct	102.7			
Spanish Creek: Direct, 29.4; Rock Creek, 35.3; Direct, 31.2; Spring Garden Creek, 73.3; Direct, 33.8. Total	203.0			
Direct	71.9			
Indian Creek		1,021.3		
Direct		2.8		
Yellow Creek		85.4		
Direct		53.2		
Bucks Creek		45.2		
Direct		4.0		
Pine Creek		32.5		
Direct		5.5		
Grizzly Creek		31.0		
Direct		71.2		
Berry Creek		19.9		
Direct		6.4		
French Creek		40.4		
Direct	53.4			
Kimshaw Creek	26.7			
Direct	13.9			
Little West Branch	13.2			
Direct	12.5			
Concow Creek	24.2			
Direct	24.1			
West Branch Feather River		168.0		
Direct		19.0		
North Fork of Feather River			2,231.2	
Direct			19.3	
Feather River at Oroville				3,626.9
North Honcut Creek			63.6	
South Honcut Creek			87.1	
Wyman Creek			29.7	
Wyandotte Creek			27.4	
Dry Creek			105.9	
Honcut Creek Group				313.7

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

Stream.	Drainage area in square miles.			
North Fork of North Fork		51.8		
South Fork of North Fork		33.5		
Direct		52.3		
Direct	17.8			
Middle Fork of North Fork	26.6			
Direct	.9			
East Fork of North Fork	25.5			
Direct	.7			
West Fork of North Fork		71.5		
Direct		17.4		
Goodyear's Creek		12.5		
Direct		14.8		
Fiddle Creek		11.1		
Direct		13.9		
Canyon Creek		61.6		
Slate Creek		63.6		
Direct		22.8		
Woodville Creek		10.4		
Direct		14.0		
Willow Creek		19.1		
Direct		15.5		
North Fork of Yuba River			485.8	
Direct		119.3		
Kanaka Creek		20.5		
Direct		13.7		
Grizzly Creek		9.0		
Direct		6.0		
Oregon Creek		36.0		
Direct		13.4		
Middle Fork of Yuba River			217.9	
Yuba River at junction of Middle and North Forks				703.7
Direct			30.8	
Direct		60.6		
Fordyce Creek		53.0		
Direct		12.5		
Fall Creek		11.1		
Direct		9.2		
Canyon Creek		51.6		
Direct		12.6		
Poorman Creek		20.5		
Direct		58.1		
Rock Creek		13.6		
Direct		14.6		
Shady Creek		16.6		
Direct		19.8		
South Fork of Yuba River			353.8	
Direct			21.5	
Direct		55.9		
Squirrel Creek		24.8		
Direct		8.7		
Deer Creek			89.4	
Direct			1.3	
Yuba River at Smartsville gage				1,200.5
Dry Creek				79.2
Direct			29.2	
Steep Hollow			7.2	
Direct			21.1	
Greenhorn Creek			43.4	
Direct			49.0	
Direct		15.8		
Little South Fork		3.2		
Direct		57.5		
Wolf Creek			76.5	
Direct			35.5	
Bear River near Von Trent				261.9
Coon Creek			78.9	
Auburn Ravine			59.1	
Antelope Creek			71.8	
Coon Creek Group				209.8
Direct		75.8		
Granite Creek		18.0		
Direct		3.1		
Big Valley		8.6		
Direct		37.2		
North Fork of North Fork		51.7		

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.			
Direct		46.5		
Indian Creek		9.6		
Direct		2.3		
Shirttail Canyon		51.8		
Direct		41.3		
North Fork of American River			348.9	
Direct		56.7		
Duncan Creek		19.5		
Direct		31.6		
Direct	67.0			
Five Lakes Creek	29.1			
Direct	42.2			
Little South Fork of Rubicon	56.4			
Direct	26.0			
Grizzly Creek	10.5			
Direct	4.7			
Pilot Creek	31.5			
Direct	1.6			
Long Canyon	44.1			
Direct	4.7			
Rubicon River		317.8		
North Fork of Middle Fork		91.0		
Direct		33.1		
Otter Creek		17.7		
Direct		52.0		
Middle Fork of American River			619.4	
American River at junction of North and Middle Forks				968.3
Direct			42.6	
Direct		81.9		
Silver Fork		112.8		
Direct		10.8		
Alder Creek		23.6		
Direct		48.0		
South Fork	45.5			
Middle Fork	40.1			
North Fork	40.8			
Little Silver Creek	15.0			
Direct	33.7			
Silver Creek		175.1		
Direct		3.6		
Brush Creek		11.9		
Direct		6.0		
Slab Creek		21.5		
Direct		24.1		
Rock Creek		75.0		
Direct		18.8		
Irish Creek		21.8		
Direct		18.3		
Greenwood Creek		24.6		
Direct		.8		
Hastings Creek		18.7		
Direct		12.3		
Direct	37.4			
Hangtown Creek	9.5			
Direct	21.0			
Dry Creek (White Oak)	27.1			
Direct	8.2			
Webber Creek		103.2		
Direct		50.0		
South Fork of American River			862.8	
Direct to Folsom Bridge			3.6	
Direct to gage at Fairoaks			41.2	
American River at Fairoaks				1,918.5
Reeds Creek			20.8	
Red Bank Creek			87.9	
Red Bank Creek Group				108.7
Elder Creek			126.1	
Thomes Creek			242.6	
Rice Creek			45.1	
Elder Creek Group				413.8
Direct			407.8	
Grindstone Creek			167.6	
Direct			37.2	
Freshwater Creek			97.3	
Stony Creek				709.9
Hambright Creek			6.1	
Willow Creek			32.1	

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.		
Logan Creek		85.1	
Hunters Creek		11.6	
Funks Creek		46.9	
Stone Corral		32.2	
Lurline Canal		8.6	
Glenn Valley Slough		16.6	
Freshwater Creek		40.6	
Salt Creek		11.0	
Spring Creek		23.5	
Cortina Creek		34.6	
Sand Creek		24.9	
Direct		20.4	
Willow Creek Group			394.2
Cache Creek at Yolo			1,195.0
Direct		519.0	
Capell Creek		39.4	
Direct		86.5	
Direct to Winters gage		9.7	
Putah Creek near Winters			654.6
SAN JOAQUIN BASIN.			
Little Panoche Creek		143.0	
Small foothill streams		100.8	
Los Banos Creek		187.0	
San Luis Creek		101.2	
Small foothill streams		136.1	
Orestimba Creek		116.9	
Small foothill streams		241.7	
Buenos Aires Creek		82.3	
Small foothill streams		125.6	
Marsh Creek		54.3	
Small streams to Kirker Creek		50.9	
Orestimba Creek Group			1,339.8
Cantua Creek Group			208.0
Direct		189.7	
Silver Creek		5.1	
Direct		100.3	
Panoche Creek			295.1
Los Gatos Creek			119.0
Tejon Creek		114.8	
Foothills to Buena Vista Lake		400.2	
Foothills near Buena Vista Lake		152.5	
Foothills, Buena Vista Lake to Waltham Creek		560.0	
Waltham Creek		113.8	
Tejon Creek Group			1,341.3
Direct		81.1	
Indian Creek		57.1	
Direct		62.9	
Direct	91.4		
Tweeder Creek	17.9		
Direct	26.9		
Tehachapi Creek		136.2	
Direct		31.3	
Direct to mouth of Walker Basin	65.4		
Direct to Caliente Creek	37.3		
Walker Basin Creek		102.7	
Caliente Creek			471.3
Direct		40.1	
Kern-Kaweah River		25.8	
Direct		64.8	
Rock Creek		37.1	
Direct		22.6	
Big Arroyo		49.0	
Direct		39.4	
Golden Trout		59.9	
Direct		50.4	
Ninemile Creeks		49.3	
Direct		31.9	
Rattlesnake Creek		55.3	
Direct		6.6	
Little Kern River		130.8	
Direct		5.0	
Freeman Creek		20.2	
Direct		13.1	
Durwood Creek		14.3	

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.			
Direct			.2	
Peppermint Creek			16.0	
Direct			72.7	
Brush Creek			30.6	
Direct			36.6	
Salmon Creek			25.8	
Direct			49.0	
Cannell Creek			17.8	
Direct			44.4	
Cowell Creek			15.0	
Direct			45.2	
Direct		159.2		
Direct		30.3		
Lost Creek		12.2		
Direct		51.3		
Big Pine Meadow		15.7		
Direct		3.5		
Fish Creek		53.2		
Direct		.6		
Trout Creek		54.5		
Direct		47.0		
Manter Creek		25.6		
Direct		.4		
Taylor Creek		19.3		
Direct		1.4		
Long Valley		19.2		
Direct		41.6		
Chimney Creek		137.8		
Direct		57.6		
Direct	101.9			
Stalf Creek	18.4			
Direct	4.5			
Cane Canyon	10.2			
Direct	24.4			
Kelso Creek		159.4		
Direct		94.4		
South Fork of Kern River			984.2	
Kern River at junction with South Fork				2,053.1
Direct			26.9	
Erskine Creek			42.6	
Direct to Boreli gage			24.8	
Direct			121.5	
Lucas Creek			8.1	
Direct			32.5	
Cottonwood Creek			51.7	
Direct			48.7	
Kern River near Bakersfield				2,409.9
Poso Creek			289.2	
Rag Gulch			148.8	
White River			138.0	
Poso Creek Group				576.0
Direct		67.4		
Bear Creek		25.7		
Direct		5.4		
North Fork Tule River			98.5	
North Fork of Middle Fork		42.2		
South Fork of Middle Fork		43.8		
Direct		24.8		
Middle Fork of Tule River			110.8	
Direct			60.9	
South Fork of Tule River			119.4	
Tule River near Porterville				389.6
Direct			10.9	
North Fork			17.6	
Direct			81.7	
Deer Creek				110.2
Lewis Creek			22.2	
Yokohl Creek			50.4	
Horse Creek			25.3	
Yokohl Creek Group				97.9
Direct		103.4		
Marble Fork		51.6		
Direct		12.9		
Middle Fork of Kaweah River			167.9	
East Fork			96.3	
Direct			17.5	

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.		
North Fork		136.3	
Direct		5.4	
South Fork		89.6	
Direct		1.5	
Kaweah River near Three Rivers			514.5
Limekiln Creek		76.3	
Rattlesnake Creek		53.7	
Sand and Stokes Creeks		14.0	
Greasy Creek		10.1	
Wa-to-ke Creek		16.6	
Limekiln Creek Group			200.7
Direct	29.5		
Palisade Creek	26.0		
Direct	43.1		
Goddard Creek	42.2		
Direct	91.0		
Crown Creek	49.5		
Direct	37.8		
Middle Fork of Kings River		319.1	
Direct	54.5		
Woods Creek	55.0		
Direct	27.4		
Bubbs Creek	69.5		
Direct	27.0		
Roaring River	115.2		
Direct	18.6		
Lewis Creek	17.5		
Direct	12.6		
Grizzly Creek	10.4		
Direct	10.3		
Boulder Creek	46.9		
Direct	10.1		
South Fork of Kings River		475.0	
Kings River at junction of South and Middle Forks			794.1
Tennile Creek		38.9	
Direct		53.7	
Converse Creek		10.1	
Mill Flat Creek		49.4	
Direct		6.6	
Direct	99.8		
Helms Creek	44.3		
Direct	59.1		
Rancheria Creek	26.6		
Direct	24.5		
Dinkey Creek	127.3		
Direct	4.4		
North Fork of Kings River		386.0	
Kings River at junction with North Fork			1,338.8
Direct		31.1	
Direct to Soaproot	18.6		
Direct	11.9		
Rush Creek	16.7		
Direct	24.5		
Big Creek		71.7	
Direct		1.5	
Sycamore Creek		64.1	
Direct		7.7	
Lefever Creek		9.1	
Direct		21.9	
Direct to damsite	80.8		
Direct	48.8		
Mill Creek		129.6	
Direct		18.1	
Kings River near Sanger			1,693.6
Dry Creek			47.7
Direct	77.9		
Fish and Silver Creeks	89.3		
Direct	13.9		
North Fork of Middle Fork	65.3		
Direct	17.9		
Granite Creek	64.7		
Middle Fork of San Joaquin River		329.0	
Direct	65.0		
Piute	55.4		
Direct	45.4		
Direct	32.2		

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.			
Bear Creek		55.2		
Direct		23.6		
Direct	42.6			
North Fork	9.8			
Direct	48.3			
Mono Creek		100.7		
Direct		87.2		
South Fork of San Joaquin River			464.7	
San Joaquin River at junction of Middle and South Forks				793.7
Direct			56.2	
Kaiser Creek			47.0	
Direct			3.7	
Chiquito Creek			94.4	
Direct			23.8	
Rock Creek			16.6	
Direct			27.5	
Direct to Huntington Lake		79.0		
Direct		5.0		
Pitman Creek		23.5		
Direct		24.4		
Big Creek			131.9	
Direct			52.4	
Jose Creek			28.9	
Direct			19.7	
Direct to Crane Valley		52.3		
Direct		9.2		
South Fork of North Fork		38.3		
Direct		5.8		
Whiskey Creek		23.0		
Direct		2.2		
North Fork of San Joaquin River			130.8	
Direct			101.7	
Little Fine Gold Creek			90.4	
Direct			11.9	
San Joaquin River near Friant				1,630.6
Cottonwood Creek				28.5
Lewis Fork			16.7	
Nelder Fork			14.1	
Direct			30.7	
North Fork			32.5	
Direct to Crook Creek			8.9	
Direct			51.1	
Coarse Gold			64.6	
Direct			17.1	
Cottonwood Creek			21.3	
Direct			12.5	
Fresno River				269.5
Daulton Creek Group				66.4
West Fork			55.9	
Middle Fork			13.1	
Direct			1.8	
Direct		26.1		
De Long Creek		17.3		
Direct		17.8		
East Fork of Chowchilla River			61.2	
Direct			9.1	
Striped Rock Creek			23.7	
Direct			37.1	
Chapman Creek			22.9	
Direct			13.2	
Chowchilla River				238.0
Dutchman Creek Group				72.0
Mariposa Creek				102.7
Owens Creek				66.2
Bear Creek				71.3
Burns Creek Group				170.9
Direct			51.4	
McClure Fork			19.6	
Direct			3.7	
Echo Creek			20.2	
Direct			23.3	
Direct		10.9		
Clark Fork		10.5		
Direct		40.6		
Illilouette Creek			62.0	
Direct			1.5	

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.		
Tenaya Creek		46.9	
Direct		8.4	
Yosemite Creek		43.6	
Direct		13.2	
Bridal Veil Creek		24.6	
Direct		9.5	
Cascade Creek		13.3	
Direct		30.2	
Crane Creek		18.5	
Direct		9.1	
Moss Creek		10.6	
Direct		9.7	
Direct	72.3		
Chilnaulna Creek	18.0		
Direct	55.3		
Alder Creek	15.2		
Direct	36.7		
Devil Gulch	29.4		
Direct	13.2		
South Fork of Merced River		240.1	
Merced River at junction with South Fork			659.4
Direct		1.2	
Ned Gulch		12.7	
Direct		26.7	
Bear Creek		22.5	
Direct		29.5	
Direct	35.7		
Smith Creek	21.8		
Direct	6.2		
Bull Meadow	32.5		
Direct	27.1		
North Fork of Merced River		123.3	
Direct		62.2	
Maxwell Creek		40.6	
Direct		10.8	
Piney Creek		11.3	
Direct		20.2	
Cotton Creek		14.2	
Direct		19.8	
Merced River near Merced Falls			1,054.4
Lyell Fork		43.2	
Dana Fork		31.0	
Direct		27.0	
Conners Creek		22.6	
Direct		5.4	
Return Creek		58.4	
Direct		5.8	
Cathedral Creek		20.7	
Direct		103.3	
Rancheria Creek		87.2	
Direct		54.6	
Direct		30.9	
Direct	126.3		
Eleanor Creek	90.5		
Direct	16.8		
Cherry Creek		233.6	
Direct		1.2	
Jawbone Creek		22.7	
Direct		19.8	
Direct	87.4		
Middle Fork	71.6		
Direct	4.1		
South Fork of Tuolumne River		163.1	
Tuolumne River at junction with South Fork			930.5
Direct		8.4	
Clavey River		153.8	
Direct		25.3	
Big Creek		30.2	
Direct		3.0	
Direct	81.1		
Hunter Creek	15.5		
Direct	3.2		
North Fork of Tuolumne River		99.8	
Direct		1.5	
Turnback Creek		17.9	
Direct		35.7	
Moccasin Creek		36.6	
Direct		5.8	

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.		
Direct	46.9		
Sullivan Creek	37.7		
Curtis Creek	21.8		
Direct	88.4		
Woods Creek		194.8	
Tuolumne River near La Grange			1,543.3
Martells Creek Group			121.9
Wildcat Creek		16.9	
Dry Creek		41.8	
Wildcat Creek Group			58.7
Direct	48.7		
Highland Creek	62.3		
Direct	59.3		
Beaver Creek	32.7		
Direct	16.3		
McCormick Creek	50.5		
Direct	3.1		
North Fork of Stanislaus River		272.9	
Direct	116.9		
Clark Fork	64.9		
Direct	167.6		
Middle Fork of Stanislaus River		349.4	
Stanislaus River at junction of Forks			622.3
Direct		10.4	
Knight Creek		42.7	
Direct		5.7	
South Fork of Stanislaus River		108.4	
Direct		44.0	
Angels Creek		37.0	
Direct		45.9	
Green Spring Run		18.2	
Direct		.5	
Black Creek		35.4	
Direct to Goodwin Dam		4.0	
Direct to Knight's Ferry		8.5	
Stanislaus River at Knight's Ferry			983.0
Littlejohns Creek			40.5
Direct	8.6		
Cherokee Creek	18.8		
Direct	2.2		
San Domingo Creek	32.8		
Direct	6.0		
San Antonio Creek	48.8		
Direct	1.9		
Calaventas Creek	54.5		
Direct	6.6		
South Fork of Calaveras River		180.2	
Direct	12.2		
Esperanza Creek	17.0		
Direct	9.2		
Jesus Maria Creek	35.5		
Direct	23.0		
Murray Creek	28.0		
Direct	1.1		
North Fork of Calaveras		126.0	
Direct		27.4	
Bear Creek		28.5	
Direct		1.8	
Cosgrove Creek		21.2	
Direct		9.0	
Calaveras River at Jenny Lind			394.1
Direct	84.8		
Summit Creek	20.7		
Direct	50.0		
Cold Creek	18.7		
Direct	37.1		
Bear River	52.0		
Direct	9.1		
Blue Creek	29.0		
Direct	4.2		
Panther Creek	18.4		
Direct	45.9		
North Fork of Mokelumne River		369.9	
Direct	29.0		
North Fork of Middle Fork	25.4		
Direct	20.3		

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

Stream.	Drainage area in square miles.			
Middle Fork of Mokelumne River			74.7	
Direct between Middle and North Forks			2.3	
South Fork of Mokelumne River			76.1	
Direct			109.1	
Mokelumne River near Clement				632.1
Willow Creek			25.4	
Direct		84.3		
Sutter Creek		85.6		
Direct		90.0		
Dry Creek			259.9	
Sutter Creek Group				285.3
South Fork of Cosumnes River			67.8	
Direct		51.2		
North Fork of Middle Fork		21.5		
Direct		.7		
Sopiago Creek		9.3		
Direct		51.0		
Middle Fork of Cosumnes River			133.7	
Direct			1.4	
Direct		42.9		
Steeley Fork		25.1		
Direct		13.7		
Direct	39.6			
Sly Park Creek	19.0			
Direct	4.0			
Camp Creek		62.6		
Direct		.9		
Clear Creek		11.2		
Direct		19.2		
Martinez Creek		19.8		
Direct		14.1		
North Fork of Cosumnes River			209.5	
Big Indian Creek			21.9	
Direct			24.8	
Big Canyon Creek			43.6	
Direct			30.9	
Cosumnes River at Michigan Bar				533.6

SAN FRANCISCO BAY BASINS.

Stream.	Drainage area in square miles.			
Petaluma Creek Group				139.0
Sonoma Creek Tributaries				78.3
Carneros Creek			5.6	
Mill Creek			12.9	
Dry Creek			17.6	
Sulphur Creek			4.2	
Conn Creek			40.7	
Rector Creek			11.5	
Milliken Creek			13.5	
Sulphur Springs Creek			7.2	
Intervening foothill drainage			112.8	
Napa River Tributaries				226.0
Suisun Creek Group				124.6
Mount Diablo Creek above Clayton			15.7	
Walnut Creek above Walnut Creek			78.4	
Rodeo Creek			9.7	
Pinole Creek			14.0	
Franklin Creek			14.2	
Foothill areas—Kirken to Pinole Creek			67.5	
Mount Diablo Creek Group				199.5
San Pablo Creek				40.6
San Leandro Creek				43.6
Small streams—Pinole to San Pablo			8.5	
Small streams—San Pablo to San Lorenzo			43.6	
Small streams—San Leandro to Alameda			30.8	
Claremont Creek Group				82.9
San Lorenzo Creek				37.9
Direct above Sunol Valley			150.1	
San Antonio Creek			39.3	
Sinbad Canyon			6.6	
Livermore Valley foothills		356.9		
Livermore Valley		62.5		
Direct		10.9		
Arroyo de la Laguna			430.3	
Sunol Valley			12.8	

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.		
Stonybrook Canyon		11.1	
Direct		3.3	
Alameda Creek at Niles			653.5
Small streams—Alameda to Penitencia		38.5	
Small streams—Penitencia to Coyote		38.6	
Mission Creek Group			77.1
Penitencia Creek			22.4
Direct		135.1	
Las Animas Creek		61.4	
Coyote River near Madrone			196.5
Guadalupe River			52.2
Los Gatos Creek Group			121 2
San Francisquito Creek			37.6
San Mateo Creek		32.9	
Small streams—San Francisquito to San Francisco		51.6	
San Mateo Creek Group			84.5
NORTH PACIFIC BASINS.			
Middle Fork of Smith River		127.6	
North Fork in California		71.1	
Direct		30.6	
South Fork of Smith River		294.3	
Direct		103.4	
Smith River near Crescent City			627.0
Direct, Oregon-California line to Shasta River		384.4	
Direct, Shasta to Scott Rivers		370.5	
Direct to Seiad gage		49.3	
Direct		187.7	
Indian Creek		133.0	
Direct to Salmon River		517.5	
Direct to Trinity River		312.2	
Direct to Requa gage		365.9	
Klamath River near Requa, including 34.5 sq. mi. in Oregon, and excluding Shasta, Scott, Salmon and Trinity Rivers, and residual Oregon area			2,320.5
Shasta River			802.9
Scott River			812.7
Salmon River			734.1
Direct		1,114.4	
North Fork and East Fork		154.9	
Direct		441.7	
Direct	159.2		
Post Creek	48.4		
Direct	144.8		
Hay Fork Trinity River	384.5		
Direct	213.5		
South Fork of Trinity River		950.4	
Trinity at junction of South Fork			2,661.4
Direct to Hoopa gage		189.7	
Direct		114.0	
Trinity River at junction with Klamath			2,965.1
Klamath River at Requa, total California area plus 34.5 sq. mi. in Oregon			7,635.3
Direct to gage		78.5	
Direct to Orrick		192.3	
Direct to mouth		4.4	
Redwood Creek			275.2
Mad River near Arcata			457.0
Direct		141.0	
Direct to Van Arsdale Dam	351.4		
Direct	185.1		
South Eel River		536.5	
Direct		29.0	
Direct to Covelo gage	412.3		
Direct	342.9		
Middle Fork of Eel River		755.2	
Direct		168.0	
North Fork of Eel River		284.4	
Eel River at junction with North Fork			1,914.1
Direct		352.5	
Direct to Garberville gage	452.4		
Direct	209 2		
South Fork of Eel River		661.6	
Direct		186.7	

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.		
Direct to Bridgeville gage	199.7		
Direct	76.1		
Yager Creek	142.6		
Direct	13.5		
Van Duzen Fork of Eel River		431.9	
Eel River at Junction of Forks			3,546.8
Bear Creek			81.5
Mattole River near Petrolia			263.5
Coast streams, Mattole to Clear Point		67.7	
Usal, Wade, and intervening streams		130.0	
Ten Mile Creek		130.0	
Intervening streams		29.0	
Noyo River		137.0	
Intervening streams		32.0	
Big River		174.0	
Albion Creek		80.0	
Noyo River Group			779.7
Navarro River			273.0
Donahue, Elk, Alder, Brush, Garcia Creeks		270.0	
Gualala River		315.0	
Intervening streams to Russian River		38.0	
Gualala River Group			623.0
Direct		99.4	
East Fork of Russian River		100.2	
Santa Rosa Creek above Melitta		21.4	
Mantanzas Creek above Bennett Valley		11.2	
Direct		1,275.6	
Russian River at mouth			1,507.8
Direct		23.1	
Geronimo Creek		9.9	
Direct to Plain		50.9	
Lagunitas Creek			83.9
Walker Creek		74.0	
Small Coast streams to Lagunitas		156.0	
Salmon Creek Group			230.0
Olema Creek above Olema		13.1	
Small streams to Lime Point		144.9	
Bolinas Creek Group			158.0
SOUTH PACIFIC BASINS.			
San Diego River at Lakeside			206.98
Santa Ysabel Creek near Escondido			125.8
San Luis Rey River near Pala			324.8
Santa Margarita River			689.8
Direct to Hemet Weir		67.3	
Direct to mouth of South Fork		11.5	
Strawberry Creek		27.8	
Direct		7.3	
North Fork		27.0	
Bautista Creek		53.3	
Cactus Valley		33.8	
Indian, Poppet and Potrero Creeks		101.6	
San Jacinto River Tributaries			329.6
Santa Ana River at junction with Mill Creek		199.0	
Mill Creek		43.3	
Sand, City and Plunge Creeks		43.9	
Strawberry Creek		9.2	
Waterman Canyon		4.6	
Devil Canyon		5.6	
Lone Pine Canyon		60.4	
Lytle Creek		47.0	
San Antonio Canyon		26.4	
Cucamonga, Deer, Day Canyons		20.1	
Santa Ana River Tributaries			459.
Eaton Creek		6.1	
Little Santa Anita Creek		1.9	
Santa Anita Creek		10.5	
Sawpit Creek and Monrovia pipe line		5.3	
Fish Creek		6.5	
Big and Little Daulton Creeks		10.0	

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.		
San Dimas Creek		17.4	
San Gabriel Direct		222.0	
San Gabriel River Tributaries			279.7
Pacoima Canyon		27.9	
Little Tejunga Canyon		15.9	
Tejunga Canyon		107.4	
Arroyo Seco		15.6	
Los Angeles River Tributaries			166.8
Small watersheds, Venice to Malibu		77.5	
Direct	24.6		
Triunfo Canyon	70.1		
Direct	15.5		
Malibu River		110.2	
Small watersheds, Malibu to Point Mugu		191.4	
Malibu River Group			379.1
Sespe Creek		255.7	
Santa Paula Creek		35.7	
Piru Creek		421.3	
Small tributaries		198.1	
Santa Clara River Tributaries			910.8
Direct		91.4	
Ojai Valley		52.5	
Direct		2.5	
Coyote Creek		42.5	
Direct		37.4	
Ventura River			226.3
Jalama Creek Group			242.0
Direct		77.1	
Mono Creek		125.6	
Direct to Gibraltar		14.0	
Santa Ynez above Gibraltar gage			216.7
Direct to Lompoc		532.8	
Lompoc Valley foothill drainage		47.7	
Santa Ynez River			797.2
San Antonio Creek			138.3
Direct	921.4		
Alamo Creek	93.6		
Direct	120.5		
Cuyama River		1,135.5	
Sisquoc River		498.4	
Santa Maria River			1,633.9
Arroyo Grande		82.0	
Chorro. San Luis Obispo Creeks		157.9	
Old Creek		22.9	
Small streams		39.0	
Santa Rosa Creek		44.3	
San Simeon Creek		32.1	
Small streams		23.5	
Arroyo de la Cruz		42.4	
Small streams		6.2	
San Carpojo River		34.8	
Small streams		120.3	
Sur River		58.2	
Little Sur River		40.5	
Small streams		62.4	
Carmel River		252.1	
San Luis Obispo Creek Group			1,018.6
Direct		208.6	
Trout Creek		12.8	
Santa Margarita Creek		23.7	
Direct		367.2	
Cholame Creek	233.6		
San Juan River	453.7		
Direct	278.9		
Estrella River		966.2	
Direct		13.0	
Vineyard Canyon		52.2	
Direct		3.1	
Indian Valley		86.3	
Direct		6.9	
Direct	41.5		
San Miguel Creek	15.7		

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES			
Direct		21.3		
Los Burros Creek		28.8		
Direct		118.0		
Las Tablas Creek		67.5		
Direct		82.4		
Nacimiento River			375.2	
Salinas at junction with Nacimiento River				2,115.2
Direct			23.2	
Direct to Forest Creek		65.5		
Direct		275.7		
San Antonio River			341.2	
Direct			79.1	
Sargent Canyon			52.9	
Direct			297.7	
San Lorenzo Creek			265.2	
North foothills to Chalone			30.5	
South foothills to Arroyo Seco			75.9	
Chalone Creek			153.3	
North foothills to mouth			205.4	
Direct		122.7		
Paloma Creek		57.8		
Direct		61.9		
Arroyo Seco			242.4	
South foothills to mouth			159.9	
Salinas River Tributaries				4,041.9
Direct		214.6		
Willow Creek		29.2		
Direct		12.7		
Stone Canyon Creek		15.6		
Direct		17.0		
Pescadero Creek		39.7		
Direct		24.0		
Direct	116.7			
Los Muertos Creek	80.4			
Direct	15.6			
Tres Pinos Creek		212.7		
Direct		1.6		
San Benito River			567.1	
Bird Creek			15.0	
San Juan Creek			8.4	
Bodfish Creek			11.4	
Little Arthur Creek			8.8	
Uvas Creek			31.9	
Llagas Creek			22.5	
Pacheco Creek			147.8	
Arroyo Dos Picachos			15.5	
Arroyo de Las Viboras			22.3	
Santa Ana Creek			33.5	
Santa Clara Valley			99.0	
Direct to Aromas			32.7	
Corralitos Creek			54.0	
Pajaro River near Corralitos				1,069.9
Aptos Creek			23.8	
Soquel Creek			41.1	
San Lorenzo River			134.3	
Intervening small streams			42.9	
Scott Creek			30.9	
Waddell Creek			24.8	
Gazos and small streams			26.3	
Soquel Creek Group				324.1
Pescadero Creek			79.2	
Pomponio Creek			8.8	
San Gregorio Creek			52.7	
Trinitas and Purisima Creeks			27.0	
Pilarcitos Creek			26.4	
Small streams to Mursel Rock			28.3	
Pescadero Creek Group				222.4
GREAT BASIN.				
Battle Creek at Bayes			156.9	
Antelope Creek			52.7	
Willow Creek near Fairchild			63.5	
Lost River in California			628.0	
Tule Lake Group				901.1
Goose Lake Group				274.9
Cowhead Lake Basin				21.4

TABLE 32—(Continued). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.	
Upper Alkali Lake drainage	152.5	
Middle Alkali Lake drainage	125.9	
Lower Alkali Lake drainage	100.3	
Surprise Valley Group		378.7
Madeline Plains Group		548.5
Smoke Creek Group		188.3
Eagle Lake Group		498.2
Susan River to Petes Valley	356.9	
Horse Lake Basin	113.9	
Petes Valley	500.6	
Honey Lake Basin	535.9	
Honey Lake Group		1,507.3
California lake area	137.9	
California mountain area	229.5	
Nevada lake area	54.2	
Nevada mountain area	77.7	
Lake Tahoe at outlet of lake		499.3
Truckee River below Lake Tahoe, California area	408.1	
Truckee River below Lake Tahoe, Nevada area	38.5	
Truckee River at state line, exclusive of Lake Tahoe Basin		446.6
Truckee River at state line, total		945.9
West Fork Carson River at Woodfords		67.2
East Fork Carson River at state line		322.8
Direct	187.1	
East Fork	57.5	
Direct	160.3	
West Walker River at state line		404.9
Green Creek	19.2	
Virginia Creek	64.1	
Summers Creek	14.9	
Robinson Creek	40.5	
Buckeye Creek	42.8	
Swager Creek	53.3	
Aurora Canyon	28.9	
Direct	147.7	
East Walker River at state line		411.4
Rush Creek	58.9	
Parker Creek	15.0	
Walker Canyon	15.0	
Gibbs Canyon	6.0	
Leevining Creek	37.0	
Mill Creek	18.0	
Small streams	16.0	
Mono Lake Group		165.9
Adobe Meadows drainage	334.2	
Upper Owens drainage, east side	118.4	
Adobe Meadows Group		452.6
Deadman Creek	60.5	
Hot Creek	80.1	
Convict Creek	22.0	
McGee Creek	19.9	
Direct	178.9	
Hilton Creek	16.8	
Direct to Long Valley Dam	9.5	
Direct	51.3	
Rock Creek	84.7	
Owens River (Upper) near Round Valley		523.7
Direct	6.6	
Pine Creek	37.2	
Huckleberry Creek	3.9	
Horton Creek	15.7	
McGee and Birch Creeks	33.3	
Bishop Creek	101.7	
Rawson Creek	9.9	
Direct	10.2	
Freeman Creek	7.9	
Shannon Creek	8.8	
Direct	6.4	
Baker Creek	33.1	
Big Pine Creek	31.8	
Little Pine and adjacent area	9.3	
Birch Creek	9.8	
Fuller Creek	2.4	
Tinemaha Creek	6.7	

TABLE 32—(Concluded). DRAINAGE AREAS IN CALIFORNIA.

STREAM.	DRAINAGE AREA IN SQUARE MILES.	
Red Mountain Creek	7.2	
Taboose Creek	10.2	
Goodale Creek	8.8	
Direct	3.3	
Division Creek	9.9	
Sawmill Creek	7.9	
Tibaut Creek	11.2	
Oak Creek	26.4	
Little Pine or Independence Creek	8 4	
Pinyon Creek	4.2	
Symmes Creek	10.4	
Direct	2.9	
Bishop Creek Group		445.5
Shepard Creek	13.0	
Bairs Creek	7.5	
George Creek	10.5	
Hogback Creek	8.7	
Lone Pine Creek	12.3	
Direct	3.2	
Tuttle and Dietz Creeks	11.8	
Richer and Carrol Creeks	20.8	
Cottonwood Creek	42.9	
Direct	4.7	
Ash Creek	15.4	
Braley Creek	5.1	
Direct	2.1	
Walker and adjacent streams	57.6	
Owens Lake Group		215.6
Deep Creek	136.2	
West Fork of Mojave River	74.7	
Mojave River at junction of Forks		210.9
Rock Creek	26.4	
Little Rock Creek	64.4	
Amargosa Creek	28.4	
Antelope Valley Group		119.2
San Gorgonio River	208.6	
Whitewater River	60.4	
Whitewater River at Whitewater		269.0

TABLE 33. PUBLICATIONS OF THE UNITED STATES GEOLOGICAL SURVEY CONTAINING CALIFORNIA STREAM FLOW DATA.

Water Supply Papers.

Water Supply Paper No.	Date of publication.	Title of publication.	Author.	Contents.
17	1898	Irrigation near Bakersfield, California.	C. E. Grunsky.....	Nos. 17, 18 and 19 exhibit the character of the development of irrigation in the southern part of the great valley of California; No. 17 gives a description of San Joaquin Valley and irrigation districts.
18	1898	Irrigation near Fresno, California.	C. E. Grunsky....	
19	1899	Irrigation near Modesto, California.	C. E. Grunsky.....	
38	1900	Operations at River Stations, 1899, Part IV.	....	Measurements of flow of (1) Sacramento River at Jellys Ferry, (2) San Mateo Creek, (3) Stanislaus River at Oakdale, (4) Tuolumne River at La Grange, (5) San Joaquin River at Herndon.
39	1900	Operations at River Stations, 1899, Part V.	....	Stream flow measurements in the Great Basin and Pacific slope basins in California, 1899.
45	1901	Water Storage on Cache Creek, California.	A. E. Chandler....	Topography, precipitation, stream measurements, ground waters, irrigation works in Cache Creek basin, description of Clear Lake.
46	1901	Physical Characteristics of Kern River, California. Reconnaissance of Yuba River, California.	F. H. Olmsted..... Marsden Manson..	Topography, estimates of discharge, possible utilization of storage sites, and development of power.
51	1901	Operations at River Stations, 1900, Part V.	....	Stream flow measurement in the Great Basin and Pacific slope basins in California, 1900.
58	1902	Storage of Water on Kings River, California.	J. B. Lippincott...	Physical features, rainfall, stream flow, evaporation, seepage, and power development.
59	1902	Development and Application of Water near San Bernardino, Colton, and Riverside, Calif., Part I.	J. B. Lippincott...	Nos. 59 and 60 describe topography, soil, climate, crops, canals, wells and pumping plants; discuss briefly the manufacture of Portland cement in southern California.
60	1902	Development and Application of Water near San Bernardino, Colton, and Riverside, Calif., Part II.	J. B. Lippincott...	(See above.)
66	1902	Operations at River Stations, 1901, Part II.	....	Stream flow measurements in the San Francisco Bay and southern California drainage areas, 1901.
68	1902	Water Storage in Truckee Basin, California-Nevada.	L. H. Taylor......	Precipitation, drainage areas, run-off, stream flow, evaporation, reservoir sites, present uses of water and existing water rights, irrigible lands, power development, necessity of national control.
75	1903	Report of Progress on Stream Measurements, 1901.	....	Stream flow measurements in the Great Basin and Pacific slope basins in California, 1901.
80	1903	Relation of Rainfall to Run-off.	George W. Rafter..	Discusses rainfall, run-off, evaporation, ground water, relation of geologic structure to run-off, effect of forests.
81	1903	California Hydrography.......	J. B. Lippincott...	A collection of published records of stream flow and rainfall "hitherto much scattered, some of them out of print and difficult to secure."
85	1903	Report on Progress of Stream Measurements, 1902.	....	Flow measurements on streams west of the Mississippi River, 1902.
86	1903	Storage Reservoirs on Stony Creek, California.	Burt Cole........	Water supply of Glenn County as related to population and industry; irrigation districts, proposed Stony Creek forest reserve, and storage sites on Grindstone, Salt, Briscoe and Stony creeks.
89	1904	Water Resources of the Salinas Valley, California.	Homer Hamlin....	Salinas Valley: Geography, topography, general and economic geology, climate, water supply and irrigation.
100	1904	Report of Progress of Stream Measurements, 1903.	....	Flow measurements on streams west of the Mississippi River, 1903.
112	1905	Underflow Tests in the Drainage Basin of the Los Angeles River.	Homer Hamlin....	Los Angeles River Basin: Conditions of occurrence of ground water in arid regions and fluctuations in water level; machinery and methods used in sinking test wells.
116	1905	Water Problems of Santa Barbara, California.	J. B. Lippincott...	Reviews earlier work in Santa Barbara region and describes nearby and distant water supplies, including Ventura and Santa Ynez Rivers.

TABLE 33—(Continued). PUBLICATIONS OF THE UNITED STATES GEOLOGICAL SURVEY CONTAINING CALIFORNIA STREAM FLOW DATA.

Water Supply Papers.

Water Supply Paper No.	Date of publication.	Title of publication.	Author.	Contents.
134	1905	Report of Progress of Stream Measurements, 1904, Part XI.	W. B. Clapp......	Stream flow measurements in the Great Basin and Pacific slope basins, 1904.
137	1905	Development of Underground Waters in the Eastern Coastal-plain Region of Southern California.	W. C. Mendenhall.	Nos. 137, 138, 139: Topography, crops, irrigation systems, wells, and the effect of development and drought on changes in ground-water level, in the Anaheim, Santa Ana, Downey, Las Bolsas, Santa Monica, and Redondo quadrangles, in Orange and Los Angeles Counties.
138	1905	Development of Underground Waters in the Central Coastal-plain Region of Southern California.	W. C. Mendenhall.	
139	1905	Development of Underground Waters in the Western Coastal-plain Region of Southern California.	W. C. Mendenhall.	
140	1905	Field Measurements of the Rate of Movement of Underground Waters.	C. S. Slichter......	Contains chapters on measurements of underground flow of Rio Hondo and San Gabriel Rivers and at the Narrows of Mojave River.
142	1905	The Hydrology of the San Bernardino Valley, California.	W. C. Mendenhall.	Rainfall, soils, artesian areas, temperature, chemical character of the ground waters, gives tables of flow of Santa Ana River, Mill Creek and other streams, and lists of wells in Redlands and San Bernardino quadrangles.
147	1905	Destructive Floods in the United States in 1904.	E. C. Murphy and others.	Sacramento River flood, by S. G. Bennett. Describes streams of the basin, precipitation, discharge, damages, and prevention of future losses.
162	1906	Destructive Floods in the United States in 1905.	E. C. Murphy and others.	Gives estimates of flood flow and frequency for Tuolumne River at La Grange, Kern River at Rio Brovo ranch, and Kings River at Sanger.
177	1906	Report of Progress of Stream Measurements, 1905.	W. B. Clapp, J. C. Hoyt.	Stream flow measurements in the Great Basin and Pacific slope basins, 1905.
181	1906	Geology and Water Resources of Owens Valley, Calif.	Willis T. Lee......	Geography, geology, underground waters, climate.
213	1907	The Surface Water Supply of California, 1906.	W. B. Clapp......	Results of stream measurements in 1906; with section on ground water levels in Southern California by W. C. Mendenhall.
219	1908	Ground Waters and Irrigation Enterprises in the Foothill Belt, Southern California.	W. C. Mendenhall.	Geologic conditions, physical features, rainfall, storage facilities, subterranean reservoirs, conservation of waters, fluctuations in ground water levels, irrigation enterprises and statistics of wells.
222	1908	Preliminary Report on the Ground Waters of San Joaquin Valley, California.	W. C. Mendenhall.	Soils, surface waters, and the origin, circulation, quantity, accessibility and development of the ground waters; notes on water supply by counties.
225	1909	Ground Waters of the Indio Region, California.	W. C. Mendenhall.	Geologic sketch of the Colorado Desert; water resources of the Indio region; history of development; soils and crops.
237	1910	The Quality of the Surface Waters of California.	Walton Van Winkle, F. M. Eaton.	Mineral analyses of river waters, with notes on geography, climate, industrial development and drainage.
250	1910	Surface Water Supply of the United States, Part X, Great Basin, 1907 and 1908.	W. B. Clapp, W. F. Martin.	Stream flow measurements in the Great Basin, 1907 and 1908.
251	1910	Surface Water Supply of the United States, Part XI, California, 1907 and 1908.	W. B. Clapp, W. F. Martin.	Stream flow measurements in California, 1907 and 1908.
270	1911	Surface Water Supply of the United States, Part X, Great Basin, 1909.	E. C. La Rue, F. F. Henshaw.	Stream flow measurements in the Great Basin, 1909.
271	1911	Surface Water Supply of the United States, Part XI, California, 1909.	W. B. Clapp, F. F. Henshaw.	Stream flow measurements in California, 1909.
278	1911	Water Resources of Antelope Valley, California.	Harry R. Johnson.	Topography, drainage, climate, natural resources, geologic features, water resources.
290	1912	Surface Water Supply of the United States, Part X, Great Basin in Caifornia, 1910.	F. F. Henshaw, E. A. Porter.	Stream flow measurements in the Great Basin, 1910.

TABLE 33—(Continued). PUBLICATIONS OF THE UNITED STATES GEOLOGICAL SURVEY CONTAINING CALIFORNIA STREAM FLOW DATA.

Water Supply Papers.

Water Supply Paper No.	Date of publication.	Title of publication.	Author.	Contents.
291	1912	Surface Water Supply of the United States, Part XI, Pacific Coast in California, 1910.	H. D. McGlashan, F. F. Henshaw.	Stream flow measurements in the Pacific slope basins, 1910.
294	1912	Water Resources of Part of Owens Valley, California.	C. H. Lee	Physical features, precipitation, stream flow evaporation, percolation, ground water.
295	1912	Gazetteer of Surface Waters of California, Part I, Sacramento River basin.	B. D. Wood	Nos. 295, 296 and 297: Description of all streams named on the best available maps.
296	1912	Gazetteer of Surface Waters of California, Part II, San Joaquin River basin.	B. D. Wood	(See above.)
297	1912	Gazetteer of Surface Waters of California, Part III, Great Basin and Pacific coast streams.	B. D. Wood	(See above.)
298	1912	Water Resources of California, Part I, Stream Measurements in Sacramento River basin.	H. D. McGlashan, F. F. Henshaw.	Nos. 298, 299 and 300: Compilation of all data concerning stream flow in California available up to September 30, 1912, including records previously published. The reports describe the drainage basins, precipitation, temperature, and forests; and give results of work at gaging stations.
299	1912	Water resourses of California, Part II, Stream Measurements in San Joaquin River basin.	H. D. McGlashan, H. J. Dean.	
300	1913	Water Resources of California, Part III, Stream Measurements in the Great Basin and Pacific Coast River basins.	H. D. McGlashan, H. J. Dean.	(See above.)
310	1913	Surface Water Supply of the United States, Part X, Great Basin, 1911.	F. F. Henshaw, H. D. McGlashan, E. A. Porter.	Stream flow measurements, Great Basin, 1911.
311	1912	Surface Water Supply of the United States, Part XI, Pacific Coast in California, 1911.	H. D. McGlashan, R. H. Bolster.	Stream flow measurements, Pacific slope basins, 1911.
330	1914	Surface Water Supply of the United States, Part X, Great Basin, 1911-12.	F. F. Henshaw, E. A. Porter, G. C. Stevens.	Stream flow measurements in the Great Basin during the year ending September 30, 1912.
331	1914	Surface Water Supply of the United States, Part XI, Pacific Slope Basins in California, 1911-12.	H. D. McGlashan, G. C. Stevens.	Stream flow measurements in the Pacific slope basins in California during the year ending September 30, 1912.
338	1915	Springs of California	Gerald A. Waring	Describes the physical features of California, including the coast ranges, Great Central Valley, the lava-covered region, the Sierra Nevada, the southeastern desert, and faults.
340-J	1915	Stream Gaging Stations and Publications Relating to Water Resources, 1885-1913, Part X, Great Basin.	B. D. Wood	Lists stream gaging stations and publications of the U. S. Geological Survey containing results of stream flow measurements.
340-K	1915	Stream Gaging Stations and Publications Relating to Water Resources, 1885-1913, Part XI, Pacific Coast Basins in California.	B. D. Wood	(See above.)
345	1915	Contributions to the Hydrology of the United States, 1914, Part H.	W. O. Clark	Ground water resources of the Niles cone and adjacent areas, located just east of the south end of San Francisco Bay.
360	1916	Surface Water Supply of the United States, Part X, Great Basin, 1912-13.	E. A. Porter, H. D. McGlashan, F. F. Henshaw, G. C. Baldwin.	Stream flow measurements in the Great Basin during the year ending September 30, 1913.
361	1916	Surface Water Supply of the United States, Part XI, Pacific Slope Basins in California, 1912-13.	H. D. McGlashan, F. F. Henshaw.	Stream flow measurements in the Pacific slope basins in California during the year ending September 30, 1913.
375	1916	Contributions to the Hydrology of the United States, 1915, Part A.	Kirk Bryan	Ground water for irrigation in the Sacramento Valley, geography and geology of the valley, the origin and movement of ground water, problems relating to wells and to pumping, progress of irrigation with well water.

TABLE 33—(Concluded). PUBLICATIONS OF THE UNITED STATES GEOLOGICAL SURVEY CONTAINING CALIFORNIA STREAM FLOW DATA.

Water Supply Papers.

Water Supply Paper No.	Date of publication.	Title of publication.	Author.	Contents.
390	1917	Surface Water Supply of the United States, Part X, Great Basin, 1913-14.	E. A. Porter, H. D. McGlashan, F. F. Henshaw, G. C. Baldwin.	Stream flow measurements in the Great Basin during the year ending September 30, 1914.
391	1917	Surface Water Supply of the United States, Part XI, Pacific Slope Basins in California, 1913-14.	H. D. McGlashan F. F. Henshaw.	Stream flow measurements in the Pacific slope basins in California during the year ending September 30, 1914.
395	1916	Colorado River and its Utilization	E. C. La Rue.....	Physiography of the basin; history of exploration; stream flow measurements; description of present and prospective irrigation systems by basins; water power; description of developed water powers and undeveloped power sites; market for power; flood conditions; storage possibilities by basin; silt.
398	1916	Ground Water in the San Joaquin Valley, California.	W. C. Mendenhall, R. B. Dole, Herman Stabler.	Geography of the valley; geologic outline of the rocks of the border; the origin of the present surface; composition of surface and ground waters; chemical composition of surface and ground waters.
400	1917	Contributions to the Hydrology of the United States, 1916, Part E.	W. C. Clark........	Ground water for irrigation in the Morgan Hill area.
410	1918	Surface Water Supply of the United States, Part X, Great Basin, 1914-15.	E. A. Porter, H. D. McGlashan, F. F. Henshaw, G. C. Baldwin.	Stream flow measurements in the Great Basin during the year ending September 30, 1915.
411	1918	Surface Water Supply of the United States, Part XI, Pacific Slope Basins in California, 1914-15.	H. D. McGlashan, F. F. Henshaw.	Stream flow measurements in the Pacific slope basins in California during the year ending September 30, 1915.
426	1918	Southern California Floods of January, 1916.	H. D. McGlashan, F. C. Ebert.	Compares the flood of January, 1916, with previous floods, summarizes the damages, and gives flood-flow records.
429	1919	Ground Water in the San Jacinto and Temecula Basins, California.	G. A. Waring.....	General features, irrigation systems, ground water, description by areas.
440	1919	Surface Water Supply of the United States, Part X, Great Basin, 1915-16.	E. A. Porter, C. C. Jacob, H. D. McGlashan, F. F. Henshaw, Robert Follansbee.	Stream flow measurements in the Great Basin during the year ending September 30, 1916.
441	1918	Surface Water Supply of the United States, Part XI, Pacific Slope Basins in California, 1915-16.	H. D. McGlashan, F. F. Henshaw.	Stream flow measurements on the Pacific slope basins in California during the year ending September 30, 1916.
446	1919	Geology and Ground Waters of the Western Part of San Diego County, California.	Arthur J. Ellis, C. H. Lee.	Physiography, geology, precipitation, evaporation, wells, quality of water, pumping tests.
447	1921	Surface Water Supply of the Pacific Slope in Southern California to September 30, 1918.	H. D. McGlashan.	Stream flow measurements on the Pacific slope of southern California, up to September 30, 1918, including those published in Water-Supply Paper 300.
450	1921	Contributions to the Hydrology of the United States, 1919—		
		Part B.................	D. S. Thompson...	Ground water in Lanfair Valley.
		Part C.................	G. A. Waring.....	Ground water in Pahrump, Mesquite and Ivanpah valleys.
460	1921	Surface Water Supply of the United States, Part X, Great Basin, 1916-17.	C. C. Jacob, H. D. McGlashan, F. F. Henshaw, G. C. Baldwin, Robert Follansbee.	Stream flow measurements in the Great Basin during the year ending September 30, 1917.
461	1920	Surface Water Supply of the United States, Part XI, Pacific Slope Basins in California, 1916-17.	H. D. McGlashan, F. F. Henshaw.	Stream flow measurements in the Pacific slope basins in California during the year ending September 30, 1917.
468	1921	Records of Water Levels in Wells in Southern California.	F. C. Ebert........	Causes of fluctuation of water table, and general conditions in (1) San Bernardino Valley, (2) foothill belt, coastal-plain and (3) San Jacinto Valley.
480	....	Surface Water Supply of the United States, Part X, Great Basin, 1917-18.	....	Stream flow measurements in the Great Basin during the year ending September 30, 1918.
481	1921	Surface Water Supply of the United States, Part XI, Pacific Slope Basins in California, 1917-18.	H. D. McGlashan, F. F. Henshaw	Stream flow measurements in the Pacific slope basins in California during the year ending September 30, 1918.

TABLE 34. SACRAMENTO RIVER (UPPER).

SEASONAL RUN-OFF DATA. Drainage area 568 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division B.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.) *f*	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*d*
1871-1872	111	51.5	105	1,561,300	January, 17.4%
1872-1873	53	20.3	41	614,000	February, 19.3%
1873-1874	85	33.6	69	1,017,600	March, 20.3%
1874-1875	51	19.5	40	592,400	April, 11.1%
1875-1876	154	77.1	157	2,335,600	May, 8.2%
1876-1877	69	46.9	96	1,421,600	June, 4.5%
1877-1878	182	96.7	197	2,929,600	July, 2.1%
1878-1879	92	41.3	84	1,253,600	August, 1.5%
1879-1880	107	59.7	122	1,810,100	September, 1.4%
1880-1881	127	78.9	161	2,391,900	October, 2.0%
1881-1882	75	39.0	79	1,181,300	November, 4.9%
1882-1883	75	32.3	66	978,000	December, 7.3%
1883-1884	98	52.8	108	1,602,000	
1884-1885	58	31.8	65	964,800	
1885-1886	124	69.0	141	2,090,600	
1886-1887	60	33.9	69	1,028,700	
1887-1888	55	24.7	50	748,600	
1888-1889	104	51.7	105	1,566 800	
1889-1890	198	115.5	235	3,500,900	
1890-1891	66	29.2	60	886,100	
1891-1892	77	34 7	71	1,051,500	
1892-1893	117	61.4	125	1,859,600	
1893-1894	92	41.0	84	1,242,500	
1894-1895	125	63.2	129	1,911,900	
1895-1896	120	50.9	104	1,543,400	
1896-1897	97	54.1	110	1,639,300	
1897-1898	60	22.6	46	685,800	
1898-1899	68	28.6	58	863,600	
1899-1900	112	31.0	63	939,000	
1900-1901	102	37.5	76	1,138,600	
1901-1902	131	52.0	106	1,575,200	
1902-1903	108	51.0	104	1,546,300	
1903-1904	144	88 6	181	2,683,300	**Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*e***
1904-1905	121	51.8	106	1,570,800	
1905-1906	117	55.3	113	1,674,700	
1906-1907	123	72.0	147	2,183,100	
1907-1908	85	41.2	84	1,246,800	
1908-1909	147	74.2	151	2,246,600	
1909-1910	82	57.8	118	1,751,600	
1910-1911	100	42.9	87	1,301,200	*b*559,000
1911-1912	76	32.0	65	970,700	386,200
1912-1913	81	34.2	70	1,037,400	396,300
1913-1914	140	73.3	149	2,210,800	785,300
1914-1915	130	71.2	145	2,157,400	791,200
1915-1916	106	52.0	106	1,576,900	689,600
1916-1917	76	30.4	62	921,000	304,200
1917-1918	66	23.1	47	698,000	*c*111,600
1918-1919	86	40.6	83	1,230,200	*d*209,900
1919-1920	48	18.9	39	573,800	373,300
1920-1921	119	59.6	121	1,807,800	1,402,100

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	1,486,300	49.1	2,616	....
Maximum seasonal	3,500,900	115.5	6,162	1889-1890
Minimum seasonal	573,800	18.9	1,010	1919-1920
Mean during July	31,200	1.0	55	....
Maximum during July	73,500	2.4	129	1889-1890
Minimum during July	12,000	0.4	21	1919-1920
Mean during August	22,300	0.7	39	....
Maximum during August	52,500	1.7	92	1889-1890
Minimum during August	8,600	0.3	15	1919-1920

Probable run-off curve, Plate XVIII. Mass curve of run-off, Plate XCV.
Storage development curve, Plate CL. Probable frequency of flood discharge, Plate LVIII.

(*a*) Description of drainage basin: Area tributary to the Sacramento River above its junction with Pit River; also 33 square miles tributary to Pit and McCloud Rivers below their gaging points at Ydalpom and Baird, respectively.

(*b*) Partial record, October 15 to September 30.

(*c*) Partial record, February 12 to April 20.

(*d*) Partial record, May 1 to September 30.

(*e*) Point of measurement: October 15, 1910, to April 20, 1918, gage at highway bridge at Castella, one-half mile below the mouth of Castle Creek, drainage area 257 square miles; May 1, 1919, to date, at highway bridge at Antler, 200 feet above mouth of Gregory Creek, drainage area 463 square miles.

(*f*) The tributary streams of the Upper Sacramento River were adjusted for probable run-off among themselves to agree with the stream flow at Red Bluff, after deducting the run-off of the Pit and McCloud Rivers. Consideration was given to partial records where they existed.

TABLE 35. PIT RIVER.

SEASONAL RUN-OFF DATA. Drainage area 5,346 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness.*g*	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet.	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*f*
1871-1872	96	13.7	93	3,910,000	January, 11.0%
1872-1873	64	10.0	68	2,850,000	February, 12 8%
1873-1874	78	11.7	80	3,340,000	March, 14.1%
1874-1875	56	9.0	61	2,570,000	April, 12.8%
1875-1876	114	16.5	112	4,710,000	May, 9.4%
1876-1877	133	19.7	134	5,620,000	June, 7.0%
1877-1878	133	19.7	134	5,620,000	July, 6.0%
1878-1879	86	12.5	85	3,570,000	August, 5.2%
1879-1880	129	19.0	129	5,420,000	September, 4.0%
1880-1881	154	23.4	159	6,680,000	October, 4 9%
1881-1882	98	14.1	96	4,020,000	November, 5 7%
1882-1883	74	11.1	76	3,170,000	December, 7.1%
1883-1884	128	18 9	128	5,390,000	
1884-1885	89	13.0	88	3,710,000	
1885-1886	144	21.6	147	6,160,000	
1886-1887	89	13.0	88	3,710,000	
1887-1888	73	11.2	76	3,200,000	
1888-1889	110	15.8	107	4,510,000	
1889-1890	180	28.8	196	8,220,000	
1890-1891	82	12.2	83	3,480,000	
1891-1892	83	12.3	84	3,510,000	
1892-1893	122	17.7	120	5,050,000	
1893-1894	93	13.5	91	3,850,000	
1894-1895	112	16.0	109	4,570,000	
1895-1896	118	17.3	117	4,940,000	
1896-1897	105	15.1	103	4,310,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1897-1898	64	10 0	68	2,850,000	
1898-1899	69	10.5	71	3,000,000	
1899-1900	103	14.8	100	4,220,000	
1900-1901	102	14.7	100	4,200,000	
1901-1902	108	15.7	107	4,480,000	
1902-1903	92	13.2	90	3,770,000	
1903-1904	131	19.2	130	5,480,000	*c*1,212,000
1904-1905	101	14.5	99	4,140,000	303,100
1905-1906	108	15.7	106	4,480,000	754,600
1906-1907	127	18.6	126	5,300,000	*d*1,109,300
1907-1908	79	11.8	80	3,370,000	186,400
1908-1909	124	18.1	123	5,160,000	....
1909-1910	80	11.9	80	3,400,000	....
1910-1911	106	15.2	103	*f*4,397,900	*e*3,874,000
1911-1912	71	10.5	71	*f*3,003,000	2,824,200
1912-1913	80	11.2	76	*f*3,195,900	3,010,700
1913-1914	132	17.1	116	*f*4,865,500	4,674,000
1914-1915	96	14.0	95	*f*3,982,600	3,784,600
1915-1916	96	15.0	102	*f*4,265,500	4,061,700
1916-1917	82	13.0	88	*f*3,720,700	3,511,300
1917-1918	62	10.0	68	*f*2,863,800	2,647,700
1918-1919	77	11.9	80	*f*3,400,500	3,177,700
1919-1920	54	8.3	56	*f*2,355,200	2,126,300
1920-1921	113	14.9	101	*f*4,239,000	4,002,800

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	4,204,600	14.7	786	....
Maximum seasonal	8,220,000	28.8	1,538	1889-1890
Minimum seasonal	2,355,200	8.3	441	1919-1920
Mean during July	252,300	0.9	47	....
Maximum during July	493,200	1.7	92	1889-1890
Minimum during July	154,200	0.5	29	1874-1875
Mean during August	218,600	0.8	41	....
Maximum during August	427,400	1.5	80	1889-1890
Minimum during August	133,600	0 5	25	1874-1875

Probable run-off curve, Plate XVIII. Mass curve of run-off, Plate XCV.
Storage development curve, Plate CL. Probable frequency of flood discharge, Plate LVIII.

(*a*) Description of drainage basin: Tributary area above gage near Ydalpom, one-half mile below mouth of Squaw Creek. (Does not include Goose Lake Basin.) The area given is that of the drainage basin as indicated by the topography. The true drainage area is probably of greater extent, including an indeterminable area to the north, which appears to supply in part the great springs of Fall River.

(*b*) Point of measurement: January 1, 1904, to September 30, 1908, near Bieber in gorge at lower end of Big Valley, drainage area 3,086 square miles. November 16, 1910, to date, at gage near Ydalpom, drainage area 5,316 square miles.

(*c*) Partial, January 1 to September 30.

(*d*) Partial, October, and January 1 to September 30.

(*e*) Partial, November 16 to September 30.

(*f*) Measured run-off adjusted for storage and irrigation above point of measurement as follows: Irrigated acreage 1910, 92,400 acres, thereafter increasing 3,500 acres per year to 127,400 acres in 1920. Storage capacity of reservoirs: 1910-1911, 10,778 acre-feet; 1911-1912, 24,487 acre-feet; 1912-1913, 24,664 acre-feet; 1913-1914, 19-529 acre-feet; 1914-1915, 22,257 acre-feet; 1915-1916, 21,502 acre-feet; 1916-1917, 22,652 acre-feet; 1917-1918, 29,369 acre-feet; 1918-1919-1920, 30,372 acre-feet; 1920-1921, 108,853 acre-feet.

(*g*) Index of seasonal wetness obtained by weighting indices of Divisions A and B equally.

TABLE 36. McCLOUD RIVER.

SEASONAL RUN-OFF DATA. Drainage area 669 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division B.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	111	49.0	110	1,750,000	January, 11.4%
1872-1873	53	24.3	54	870,000	February, 13.3%
1873-1874	85	37.5	84	1,340,000	March, 12.4%
1874-1875	51	23.2	52	830,000	April, 12.2%
1875-1876	154	69.5	156	2,480,000	May, 10.5%
1876-1877	69	30.8	69	1,100,000	June, 6.6%
1877-1878	182	83.5	187	2,980,000	July, 5.5%
1878-1879	92	40.5	91	1,440,000	August, 5.0%
1879-1880	107	47.0	106	1,680,000	September, 4.7%
1880-1881	127	56.0	127	2,000,000	October, 5.0%
1881-1882	75	33.2	74	1,190,000	November, 6.2%
1882-1883	75	33.2	74	1,190,000	December, 7.2%
1883-1884	98	43.8	99	1,570,000	
1884-1885	58	26.0	58	930,000	
1885-1886	124	55.0	124	1,960,000	
1886-1887	60	26.5	59	950,000	
1887-1888	55	24.7	56	880,000	
1888-1889	104	46.0	103	1,640,000	
1889-1890	198	91.5	206	3,270,000	
1890-1891	66	29.2	65	1,040,000	
1891-1892	77	34.0	76	1,210,000	
1892-1893	117	51.7	116	1,850,000	
1893-1894	92	40.5	91	1,450,000	
1894-1895	125	55.3	124	1,980,000	
1895-1896	120	53.0	119	1,890,000	
1896-1897	97	43.0	96	1,540,000	
1897-1898	60	26.5	59	950,000	
1898-1899	68	30.5	68	1,090,000	
1899-1900	112	49.0	110	1,750,000	
1900-1901	102	45.0	101	1,610,000	
1901-1902	131	58.0	130	2,070,000	
1902-1903	108	48.0	108	1,710,000	
1903-1904	144	64.6	145	2,310,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.[b]
1904-1905	121	53.3	120	1,900,000	
1905-1906	117	51.7	116	1,850,000	
1906-1907	123	54.5	122	1,950,000	
1907-1908	85	37.5	84	1,340,000	
1908-1909	147	66.2	149	2,360,000	
1909-1910	82	36.3	81	1,300,000	
1910-1911	100	48.0	108	1,718,000	[c]1,428,100
1911-1912	76	35.4	80	1,256,900	1,256,900
1912-1913	81	35.6	80	1,268,100	1,268,100
1913-1914	140	57.6	129	2,055,300	2,055,300
1914-1915	130	57.6	129	2,047,000	2,047,000
1915-1916	106	54.5	123	1,935,800	1,935,800
1916-1917	76	35.1	79	1,247,300	1,247,300
1917-1918	66	28.9	65	1,032,300	1,032,300
1918-1919	86	33.4	75	1,190,600	1,190,600
1919-1920	48	22.4	50	800,500	800,500
1920-1921	119	50.5	113	1,808,900	1,808,900

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	1,591,200	44.6	2,378	....
Maximum seasonal	3,270,000	91.5	4,888	1889-1890
Minimum seasonal	800,500	22.4	1,197	1919-1920
Mean during July	87,500	2.5	131	....
Maximum during July	179,800	5.0	269	1889-1890
Minimum during July	45,700	1.3	68	1874-1875
Mean during August	79,600	2.2	119	....
Maximum during August	163,500	4.6	244	1889-1890
Minimum during August	41,500	1.2	62	1874-1875

Probable run-off curve. Plate XVIII.
Storage development curve, Plate CL.
Mass curve of run-off, Plate XCV.
Probable frequency of flood discharge, Plate LVIII.

(a) Description of drainage basin: Tributary area above gage at Baird, 2 miles above junction with Pit River
(b) Point of measurement: Gage at Baird, drainage area 669 square miles.
(c) Partial record, December 22 to September 30.

TABLE 37. CHURN CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 100 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division B.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)[b]	Distribution of seasonal run-off by months.[c]
1871-1872	111	17.6	113	94,000	January, 17.4%
1872-1873	53	1.0	6	5,300	February, 19.3%
1873-1874	85	8.8	57	47,200	March, 20.3%
1874-1875	51	0.8	5	4,200	April, 11.1%
1875-1876	154	32.4	208	173,300	May, 8.2%
1876-1877	69	7.2	46	38,700	June, 4.5%
1877-1878	182	42.7	275	228,600	July, 2.1%
1878-1879	92	11.9	77	63,700	August, 1.5%
1879-1880	107	19.8	127	106,100	September, 1.4%
1880-1881	127	27.2	175	145,600	October, 2.0%
1881-1882	75	7.7	50	41,300	November, 4.9%
1882-1883	75	6.4	41	34,200	December, 7.3%
1883-1884	98	16.3	105	87,000	
1884-1885	58	2.4	15	12,700	
1885-1886	124	25.6	165	136,900	
1886-1887	60	3.0	19	15,900	
1887-1888	55	1.5	10	7,800	
1888-1889	104	16.8	108	89,900	
1889-1890	198	55.1	355	294,800	
1890-1891	66	4.0	26	21,400	
1891-1892	77	7.4	48	39,500	
1892-1893	117	21.8	146	116,600	
1893-1894	92	11.8	76	63,100	
1894-1895	125	23.4	151	125,400	
1895-1896	120	18.0	116	96,100	
1896-1897	97	16.7	108	89,200	
1897 1898	60	2.0	13	10,600	
1898-1899	68	4.1	26	22,100	
1899-1900	112	10.7	69	57,300	
1900-1901	102	11.9	77	63,900	
1901-1902	131	20.1	129	107,700	
1902-1903	108	17.1	110	91,400	
1903-1904	144	35.9	231	192,000	
1904-1905	121	19.1	123	102,300	
1905-1906	117	19.7	127	105,400	
1906-1907	123	27.1	174	145,000	
1907-1908	85	10.8	70	57,800	
1908-1909	147	30.8	198	165,000	
1909-1910	82	14.3	92	76,300	
1910-1911	100	15.5	100	83,000	
1911-1912	76	6.6	42	35,500	
1912-1913	81	8.2	53	44,000	
1913-1914	140	29.2	188	156,100	
1914-1915	130	27.2	175	145,500	
1915-1916	106	17.1	110	91,700	
1916-1917	76	6.3	40	33,700	
1917-1918	66	3.0	19	16,100	
1918-1919	86	10.8	70	57,700	
1919-1920	48	0.6	4	3,200	
1920-1921	119	21.5	138	115,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	83,100	15.50	828	
Maximum seasonal	294,800	55.10	2,938	1889-1890
Minimum seasonal	3,200	0.60	32	1919-1920
Mean during July	1,700	0.32	17	
Maximum during July	6,200	1.15	62	1889-1890
Minimum during July	70	0.01	1	1919-1920
Mean during August	1,200	0.22	12	
Maximum during August	4,400	0.82	44	1889-1890
Minimum during August	50	0.01	Trace	1919-1920

Probable run-off curve, Plate XVIII. Mass curve of run-off, Plate XCV.
Storage development curve, Plate CL. Probable frequency of flood discharge, Plate LVIII.

(a) Description of drainage basin: Tributary area above junction with Sacramento River, 100 square miles.

(b) The tributary streams of the Upper Sacramento River were adjusted for probable run-off among themselves to agree with the stream flow at Red Bluff, deducting the run-off of the Pit and McCloud Rivers. Consideration was given to partial records where they existed.

(c) Estimated from U. S. G. S. records for other streams in vicinity.

TABLE 38. COW CREEK.

SEASONAL RUN-OFF DATA. Drainage area 444 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division B.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)[d]	Distribution of seasonal run-off by months.[e]
1871-1872	111	24.5	114	579,300	January, 17.4%
1872-1873	53	2.8	13	66,000	February, 19.3%
1873-1874	85	12.7	59	301,000	March, 20.3%
1874-1875	51	2.4	11	56,000	April, 11.1%
1875-1876	154	41.7	193	985,400	May, 8.2%
1876-1877	69	13.2	61	311,200	June, 4.5%
1877-1878	182	51.8	240	1,225,800	July, 2.1%
1878-1879	92	17.0	79	402,400	August, 1.5%
1879-1880	107	27.8	129	657,300	September, 1.4%
1880-1881	127	36.8	171	869,900	October, 2.0%
1881-1882	75	12.5	58	296,000	November, 4.9%
1882-1883	75	10.4	48	245,100	December, 7.3%
1883-1884	98	23.0	107	545,200	
1884-1885	58	6.1	28	143,200	
1885-1886	124	34.7	161	821,400	
1886-1887	60	7.0	32	166,600	
1887-1888	55	4.1	19	96,400	
1888-1889	104	23.5	109	557,100	
1889-1890	198	64.7	300	1,531,300	
1890-1891	66	7.9	37	186,700	
1891-1892	77	11.6	54	274.000	
1892-1893	117	30.0	139	711,200	
1893-1894	92	16.9	78	398,800	
1894-1895	125	31.8	147	753,200	
1895-1896	120	24.5	114	581,100	
1896-1897	97	23.5	109	555,600	
1897-1898	60	4.7	22	111,100	
1898-1899	68	7.8	36	183,700	
1899-1900	112	14.8	69	350,700	
1900-1901	102	16.9	78	399,600	
1901-1902	131	27.1	126	641,200	
1902-1903	108	23.9	111	565,500	
1903-1904	144	47.1	218	1,112,700	
1904-1905	121	26.3	122	619,300	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.[c]
1905-1906	117	27.1	126	642,600	
1906-1907	123	36.9	171	872,400	
1907-1908	85	15.6	72	368,800	
1908-1909	147	40.2	186	951,600	
1909-1910	82	21.0	97	496,100	
1910-1911	100	21.9	102	518,300	
1911-1912	76	10.5	49	248,200	[b]191,300
1912-1913	81	12.2	57	288,000	[b]258,300
1913-1914	140	38.5	178	910,100	
1914-1915	130	36.5	169	864,400	
1915-1916	106	24.1	112	569,300	
1916-1917	76	9.9	46	235,500	
1917-1918	66	6.0	28	140,700	
1918-1919	86	15.6	72	368,300	
1919-1920	48	1.6	7	38,900	
1920-1921	119	29.5	137	697,500	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	510,200	21.60	1,150	....
Maximum seasonal	1,531,300	64.70	3,452	1889-1890
Minimum seasonal	38,900	1.60	88	1919-1920
Mean during July	10,700	0.45	24	....
Maximum during July	32,200	1.36	73	1889-1890
Minimum during July	820	0.03	2	1919-1920
Mean during August	7,700	0.33	17	....
Maximum during August	23,000	0.97	52	1889-1890
Minimum during August	580	0.02	1	1919-1920

Probable run-off curve, Plate XIX. Mass curve of run-off, Plate XCVI.

Storage development curve, Plate CLI. Probable frequency of flood discharge, Plate LIX.

(a) Description of drainage basin: Tributary area above junction with the Sacramento River.

(b) Gaged discharge of Cow Creek and Little Cow Creek combined.

(c) Point of measurement: Cow Creek, at highway bridge in Millville, drainage area 185 square miles; Little Cow Creek, one-fourth mile above junction with Cow Creek, drainage area 148 square miles.

(d) The tributary streams of the Upper Sacramento River were adjusted for probable run-off among themselves to agree with the stream flow at Red Bluff, deducting the run-off of the Pit and McCloud Rivers. Consideration was given to partial records where they existed.

(e) Estimated from U. S. G. S. records for other streams in vicinity.

TABLE 39. BEAR CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 137 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division B.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)c	Distribution of seasonal run-off by months.d
1871-1872	111	16.3	115	119,400	January, 17.4%
1872-1873	53	0.5	4	3,500	February, 19.3%
1873-1874	85	8.5	60	62,400	March, 20.3%
1874-1875	51	0.3	2	2,300	April, 11.1%
1875-1876	154	27.6	195	202,500	May, 8.2%
1876-1877	69	8.6	61	63,000	June, 4.5%
1877-1878	182	34.2	242	251,100	July, 2.1%
1878-1879	92	11.4	81	83,600	August, 1.5%
1879-1880	107	18.5	131	135,700	September, 1.4%
1880-1881	127	24.5	173	179,400	October, 2.0%
1881-1882	75	8.3	59	60,800	November, 4.9%
1882-1883	75	6.9	49	50,400	December, 7.3%
1883-1884	98	15.4	109	112,800	
1884-1885	58	1.6	11	11,800	
1885-1886	124	23.2	164	170,200	
1886-1887	60	3.1	22	23,100	
1887-1888	55	0.8	6	5,500	
1888-1889	104	15.7	111	115,300	
1889-1890	198	42.7	302	312,800	
1890-1891	66	5.1	36	37,000	
1891-1892	77	7.7	54	56,400	
1892-1893	117	20.0	141	146,900	
1893-1894	92	11.3	80	82,800	
1894-1895	125	21.2	150	155,800	
1895-1896	120	16.4	116	120,200	
1896-1897	97	15.8	112	115,600	
1897-1898	60	2.1	15	15,400	
1898-1899	68	5.0	35	36,900	
1899-1900	112	9.9	70	72,300	
1900-1901	102	11.3	80	82,500	
1901-1902	131	18.1	128	132,400	
1902-1903	108	15.9	112	116,900	
1903-1904	144	31.3	221	229,400	
1904-1905	121	17.5	124	128,500	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.b
1905-1906	117	18.1	128	132,700	
1906-1907	123	25.0	177	180,400	
1907-1908	85	10.4	73	76,400	
1908-1909	147	26.7	189	195,400	
1909-1910	82	14.0	99	102,700	
1910-1911	100	14.6	103	107,300	
1911-1912	75	7.0	49	51,500	49,700
1912-1913	81	8.1	57	59,500	53,600
1913-1914	140	25.7	182	188,100	
1914-1915	130	24.4	172	178,900	
1915-1916	106	16.0	113	117,500	
1916-1917	76	6.7	47	48,800	
1917-1918	66	3.8	27	27,900	
1918-1919	86	10.4	73	76,500	
1919-1920	48	0.2	1	1,400	
1920-1921	119	19.7	139	144,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	103,700	14.2	756	....
Maximum seasonal	312,800	42.7	2,280	1889-1890
Minimum seasonal	1,400	0.2	10	1919-1920
Mean during July	2,200	0.3	16	....
Maximum during July	6,600	0.9	48	1889-1890
Minimum during July	30	Trace	Trace	1919-1920
Mean during August	1,600	0.2	12	....
Maximum during August	4,700	0.6	34	1889-1890
Minimum during August	20	Trace	Trace	1919-1920

Probable run-off curve, Plate XIX. Mass curve of run-off, Plate XCVI.
Storage development curve, Plate CLI. Probable frequency of flood discharge, Plate LIX.

(a) Description of drainage basin: Tributary area of Bear Creek (123 square miles) and Ash Creek (14 square miles), above their junctions with Sacramento River.

(b) Point of measurement: Highway bridge on Bear Creek, 5 miles above the junction with the Sacramento River, drainage area 106.5 square miles.

(c) The tributary streams of the Upper Sacramento River were adjusted for probable run-off among themselves to agree with the stream flow at Red Bluff, deducting the run-off of the Pit and McCloud Rivers. Consideration was given to partial records where they existed.

(d) Estimated from U. S. G. S. records for other streams in vicinity.

TABLE 40. BATTLE CREEK.

SEASONAL RUN-OFF DATA. Drainage area 366 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division B.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)*b*	Distribution of seasonal run-off by months.*c*
1871-1872	111	23.2	108	453,100	January, 17.4%
1872-1873	53	7.7	36	150,400	February, 19.3%
1873-1874	85	14.7	68	286,900	March, 20.3%
1874-1875	51	7.4	34	144,000	April, 11.1%
1875-1876	154	34.8	161	680,600	May, 8.2%
1876-1877	69	19.2	89	375,800	June, 4.5%
1877-1878	182	42.1	196	823,500	July, 2.1%
1878-1879	92	18.3	85	358,200	August, 1.5%
1879-1880	107	26.8	124	524,700	September, 1.4%
1880-1881	127	32.5	151	634,900	October, 2.0%
1881-1882	75	16.5	77	321,700	November, 4.9%
1882-1883	75	13.6	63	266,300	December, 7.3%
1883-1884	98	23.6	109	461,300	
1884-1885	58	12.3	57	240,800	
1885-1886	124	31.1	144	607,300	
1886-1887	60	13.2	61	258,900	
1887-1888	55	9.4	44	184,300	
1888-1889	104	23.2	108	453,000	
1889-1890	198	52.5	243	1,025,700	
1890-1891	66	12.4	58	241,600	
1891-1892	77	14.5	67	284,400	
1892-1893	117	27.6	128	539,600	
1893-1894	92	18.2	84	355,000	
1894-1895	125	28.3	131	554,300	
1895-1896	120	22.3	103	435,800	
1896-1897	97	24.2	112	473,700	
1897-1898	60	8.8	41	172,600	
1898-1899	68	11.6	54	227,400	
1899-1900	[illegible]	13.9	64	271,500	
1900-1901	102	16.8	78	328,700	
1901-1902	131	23.7	110	462,700	
1902-1903	108	23.0	107	448,700	
1903-1904	144	39.9	185	779,500	
1904-1905	121	23.7	110	463,600	
1905-1906	117	24.9	115	487,600	
1906-1907	123	33.1	153	647,300	
1907-1908	85	18.0	83	351,500	
1908-1909	147	33.9	157	662,000	
1909-1910	82	25.1	116	490,800	
1910-1911	100	22.1	102	432,400	
1911-1912	76	13.6	63	265,900	
1912-1913	81	14.8	69	289,800	
1913-1914	140	32.8	152	642,200	
1914-1915	130	32.0	148	626,500	
1915-1916	106	23.4	109	457,200	
1916-1917	76	12.9	60	252,200	
1917-1918	66	9.3	43	182,100	
1918-1919	86	17.8	83	347,600	
1919-1920	48	7.1	33	138,300	
1920-1921	119	26.8	124	524,500	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	421,800	21.60	1,151	....
Maximum seasonal	1,025,700	52.50	2,799	1889-1890
Minimum seasonal	138,300	7.10	377	1919-1920
Mean during July	8,900	0.46	24	....
Maximum during July	21,500	1.10	59	1889-1890
Minimum during July	2,900	0.15	8	1919-1920
Mean during August	6,300	0.32	17	....
Maximum during August	15,400	0.79	42	1889-1890
Minimum during August	2,100	0.11	6	1919-1920

Probable run-off curve, Plate XIX. Mass curve of run-off, Plate XCVI.
Storage development curve, Plate CLI. Probable frequency of flood discharge, Plate LIX.

(*a*) Description of drainage basin: Tributary area above junction with the Sacramento River.

(*b*) The tributary streams of the Sacramento River above Red Bluff were adjusted for probable run-off among themselves to agree with the stream flow at Red Bluff, deducting the run-off of the Pit and McCloud Rivers. Consideration was given to partial records where they existed.

(*c*) Estimated from U. S. G. S. records for other streams in vicinity.

TABLE 41. INK'S CREEK.

SEASONAL RUN-OFF DATA. Drainage area 34 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness Division 3	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)b	Distribution of seasonal run-off by months.c
1871-1872	111	17.7	114	32,200	January, 17.4%
1872-1873	53	0.4	3	700	February, 19.3%
1873-1874	85	8.6	56	15,700	March, 20.3%
1874-1875	51	0.2	1	400	April, 11.1%
1875-1876	154	32.1	207	58,500	May, 8.2%
1876-1877	69	8.1	52	14,800	June, 4.5%
1877-1878	182	41.5	268	75,600	July, 2.1%
1878-1879	92	11.7	76	21,200	August, 1.5%
1879-1880	107	20 0	129	36,400	September, 1 4%
1880-1881	127	27.2	176	49,600	October, 2.0%
1881-1882	75	8.1	52	14,800	November, 4.9%
1882-1883	75	6.7	43	12,200	December, 7.3%
1883-1884	98	16.5	107	30 200	
1884-1885	58	1.4	9	2,500	
1885-1886	124	25.9	167	47,100	
1886-1887	60	3.1	20	5,600	
1887-1888	55	0.6	4	1,100	
1888-1889	104	16.8	109	30,700	
1889-1890	198	52.8	341	96,400	
1890-1891	66	4.6	30	8,300	
1891-1892	77	7.5	48	13,700	
1892-1893	117	22.0	142	40,100	
1893-1894	92	11.6	75	21,000	
1894-1895	125	23.7	153	43,100	
1895-1896	120	18.1	117	33,100	
1896-1897	97	16.5	107	30,000	
1897-1898	60	2.1	14	3.700	
1898-1899	68	4.7	30	8,500	
1899-1900	112	10.7	69	19,400	
1900-1901	102	12.0	78	21,800	
1901-1902	131	20.2	131	36,900	
1902-1903	108	17.1	110	31,200	
1903-1904	144	36.0	233	65,600	
1904-1905	121	19.3	125	35,200	
1905-1906	117	19.9	129	36,300	
1906-1907	123	27.1	175	49,400	
1907-1908	85	10.6	68	19,300	
1908-1909	147	30.6	198	55,900	
1909-1910	82	14.0	90	25,600	
1910-1911	100	15.4	100	28,100	
1911-1912	76	6.9	45	12,500	
1912-1913	81	8.1	52	14,700	
1913-1914	140	29.2	189	53,200	
1914-1915	130	27.3	176	49,800	
1915-1916	106	17.1	110	31,200	
1916-1917	76	6.5	42	11,900	
1917-1918	66	3.4	22	6,300	
1918-1919	86	10.5	68	19,100	
1919-1920	48	0.1	1	200	
1920-1921	119	21.5	139	39,200	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	28,200	15.50	825	....
Maximum seasonal	96,400	52 80	2,821	1889-1890
Minimum seasonal	200	0.10	6	1919-1920
Mean during July	590	0.32	17	....
Maximum during July	2,020	1.11	59	1889-1890
Minimum during July	Trace	Trace	Trace	1919-1920
Mean during August	420	0.23	12	....
Maximum during August	1,450	0.80	42	1889-1890
Minimum during August	Trace	Trace	Trace	1919-1920

Probable run-off curve, Plate XX. Mass curve of run-off, Plate XCVII.
Storage development curve, Plate CLII. Probable frequency of flood discharge, Plate LX.

(a) Description of drainage basin: Tributary area above junction with the Sacramento River.

(b) The tributary streams of the Sacramento River above Red Bluff were adjusted for probable run-off among themselves to agree with the stream flow at Red Bluff, deducting the run-off of the Pit and McCloud Rivers. Consideration was given to partial records where they existed.

(c) Estimated from U. S. G. S. records for other streams in vicinity.

TABLE 42. PAYNE'S CREEK.

SEASONAL RUN-OFF DATA. Drainage area 80 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division B.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)*b*	Distribution of seasonal run-off by months.*c*
1871-1872	111	22.2	113	95,300	January, 17.4%
1872-1873	53	2.5	13	10,900	February, 19.3%
1873-1874	85	11.6	59	49,500	March, 20.3%
1874-1875	51	2.1	11	9,100	April, 11.1%
1875-1876	154	38.2	194	163,700	May, 8.2%
1876-1877	69	11.7	60	50,100	June, 4.5%
1877-1878	182	47.8	242	205,200	July, 2.1%
1878-1879	92	15.5	79	66,400	August, 1.5%
1879-1880	107	25.3	129	108,200	September, 1.4%
1880-1881	127	33.5	171	143,600	October, 2.0%
1881-1882	75	11.2	57	48,000	November, 4.9%
1882-1883	75	9.3	47	39,700	December, 7.3%
1883-1884	98	20.9	106	89,700	
1884-1885	58	5.3	27	22,900	
1885-1886	124	31.6	161	135,600	
1886-1887	60	6.2	32	26,500	
1887-1888	55	3.5	18	15,000	
1888-1889	104	21.2	108	91,700	
1889-1890	198	60.5	306	257,800	
1890-1891	66	7.0	36	29,900	
1891-1892	77	10.4	53	44,500	
1892-1893	117	27.4	140	117,100	
1893-1894	92	15.4	78	65,800	
1894-1895	125	29.1	148	124,800	
1895-1896	120	22.4	114	96,100	
1896-1897	97	21.4	109	91,900	
1897-1898	60	4.1	21	17,700	
1898-1899	68	6.9	35	29,500	
1899-1900	112	13.5	69	57,800	
1900-1901	102	15.4	78	65,800	
1901-1902	131	24.7	128	105,700	
1902-1903	108	21.7	110	93,200	
1903-1904	144	43.0	218	184,500	
1904-1905	121	23.9	122	102,300	
1905-1906	117	24.7	126	105,900	
1906-1907	123	33.7	172	144.300	
1907-1908	85	14.2	72	60,700	
1908-1909	147	36.7	187	157,200	
1909-1910	82	19.1	97	81,600	
1910-1911	100	19.8	101	84,600	
1911-1912	76	9.4	48	40,300	
1912-1913	81	11.0	56	47,000	
1913-1914	140	35.2	179	150,700	
1914-1915	130	33.4	170	142,900	
1915-1916	106	21.9	111	94,000	
1916-1917	76	8.9	45	38,300	
1917-1918	66	5.2	26	22,500	
1918-1919	86	14.1	72	60,600	
1919-1920	48	1.8	9	7,700	
1920-1921	119	26.9	137	115,500	

SUMMARY OF ESTIMATED RUNOFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	84,200	19.60	1,048	....
Maximum seasonal	257,800	60.50	3,208	1889-1890
Minimum seasonal	7,700	1.80	96	1919-1920
Mean during July	1,800	0.42	22	....
Maximum during July	5,400	1.26	67	1889-1890
Minimum during July	160	0.04	2	1919-1920
Mean during August	1,300	0.30	16	....
Maximum during August	3,900	0.91	49	1889-1890
Minimum during August	120	0.03	1	1919-1920

Probable run-off curve, Plate XX. Mass curve of run-off, Plate XCVII.
Storage development curve, Plate CLII. Probable frequency of flood discharge, Plate LX.

(*a*) Description of drainage basin: Tributary area above junction with the Sacramento River.

(*b*) The tributary streams of the Sacramento River above Red Bluff were adjusted for probable run-off among themselves to agree with the stream flow at Red Bluff, deducting the run-off of the Pit and McCloud Rivers. Consideration was given to partial records where they existed.

(*c*) Estimated from U. S. G. S. records for other streams in vicinity.

TABLE 43. BACKBONE CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 178 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division B.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)*b*	Distribution of seasonal run-off by months.*c*
1871-1872	111	24.9	114	236,100	January, 17.4%
1872-1873	53	1.9	9	18,200	February, 19.3%
1873-1874	85	12.8	59	121,300	March, 20.3%
1874-1875	51	1.1	5	10,800	April, 11.1%
1875-1876	154	43.2	198	410,100	May, 8.2%
1876-1877	69	12.7	58	121,000	June, 4.5%
1877-1878	182	54.2	248	514,800	July, 2.1%
1878-1879	92	17.2	79	163,100	August, 1.5%
1879-1880	107	28.3	130	268,300	September, 1.4%
1880-1881	127	37.7	173	357,500	October, 2.0%
1881-1882	75	12.3	56	116,300	November, 4.9%
1882-1883	75	10.1	46	96,300	December, 7.3%
1883-1884	98	22.3	102	221,600	
1884-1885	58	5.3	24	50,200	
1885-1886	124	35.5	163	336,600	
1886-1887	60	6.4	29	60,500	
1887-1888	55	3.3	15	30,900	
1888-1889	104	24.0	110	227,800	
1889-1890	198	67.7	310	642,300	
1890-1891	66	7.6	35	72,300	
1891-1892	77	11.5	53	109,000	
1892-1893	117	30.7	141	290,900	
1893-1894	92	17.0	78	161,700	
1894-1895	125	32.5	149	308,200	
1895-1896	120	25.0	114	237,800	
1896-1897	97	23.8	109	226,100	
1897-1898	60	4.2	19	40,300	
1898-1899	68	7.5	34	71,200	
1899-1900	112	15.1	69	143,600	
1900-1901	102	17.2	79	163,700	
1901-1902	131	27.7	127	263,400	
1902-1903	108	24.3	110	230,600	
1903-1904	144	48.5	222	460,400	
1904-1905	121	26.7	122	253,700	
1905-1906	117	27.7	127	262,900	
1906-1907	123	37.6	172	357,400	
1907-1908	85	15.7	72	148,600	
1908-1909	147	41.6	190	395,100	
1909-1910	82	21.0	96	199,800	
1910-1911	100	22.2	102	210,800	
1911-1912	76	10.4	48	98,300	
1912-1913	81	12.2	56	115,500	
1913-1914	140	39.6	181	375,600	
1914-1915	130	37.5	172	355,800	
1915-1916	106	24.6	113	233,100	
1916-1917	76	9.8	45	93,200	
1917-1918	66	5.7	26	54,500	
1918-1919	86	15.7	72	149,200	
1919-1920	48	0.2	1	2,000	
1920-1921	119	30.1	138	285,300	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	207,500	21.80	1,166	....
Maximum seasonal	642,300	67.70	3,609	1889-1890
Minimum seasonal	2,000	0.20	11	1919-1920
Mean during July	4,400	0.46	25	....
Maximum during July	13,500	1.42	76	1889-1890
Minimum during July	40	Trace	Trace	1919-1920
Mean during August	3,100	0.33	17	....
Maximum during August	9,600	1.01	54	1889-1890
Minimum during August	30	Trace	Trace	1919-1920

Probable run-off curve, Plate XX.
Storage development curve, Plate CLII.
Mass curve of run-off, Plate XCVII.
Probable frequency of flood discharge, Plate LX.

(*a*) Description of drainage basin: Tributary area above junction witn the Sacramento River.

(*b*) The tributary streams of the Sacramento River above Red Bluff were adjusted for probable run-off among themselves to agree with the stream flow at Red Bluff, deducting the run-off of the Pit and McCloud Rivers. Consideration was given to partial records where they existed.

(*c*) Estimated from U. S. G. S. records for other streams in vicinity.

TABLE 44. CLEAR CREEK.

SEASONAL RUN-OFF DATA. Drainage area 251 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division B.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)*c*	Distribution of seasonal run-off by months.*d*	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1871-1872	111	24.8	112	332,300	January, 17.4%	
1872-1873	53	4.1	19	54,300	February, 19.3%	
1873-1874	85	13.3	60	178,400	March, 20.3%	
1874-1875	51	3.7	17	49,500	April, 11.1%	
1875-1876	154	41.2	187	551,200	May, 8.2%	
1876-1877	69	14.5	66	194,400	June, 4.5%	
1877-1878	182	51.0	231	683,100	July, 2.1%	
1878-1879	92	17.6	80	235,600	August, 1.5%	
1879-1880	107	28.2	128	377,500	September, 1.4%	
1880-1881	127	36.7	166	491,900	October, 2.0%	
1881-1882	75	13.5	61	180,200	November, 4.9%	
1882-1883	75	11.1	50	149,200	December, 7.3%	
1883-1884	98	23.6	107	316,100		
1884-1885	58	7.5	34	100,300		
1885-1886	124	34.8	158	465,300		
1886-1887	60	8.5	39	113,400		
1887-1888	55	5.4	25	72,400		
1888-1889	104	24.0	109	321,700		
1889-1890	198	63.6	289	850,800		
1890-1891	66	8.9	40	119,000		
1891-1892	77	12.1	56	166,200		
1892-1893	117	30.3	137	405,300		
1893-1894	92	17.4	79	233,500		
1894-1895	125	31.8	144	426,100		
1895-1896	120	24.6	112	329,900		
1896-1897	97	24.2	110	323,500		
1897-1898	60	5.6	25	75,600		
1898-1899	68	8.6	39	115,300		
1899-1900	112	15.0	68	200,800		
1900-1901	102	17.3	79	231,100		
1901-1902	131	27.0	123	361,300		
1902-1903	108	24.2	110	324,200		
1903-1904	144	46.6	211	623,200		
1904-1905	121	26.3	119	351,800		
1905-1906	117	27.4	124	366,300		
1906-1907	123	36.9	168	494,300		
1907-1908	85	16.3	74	218,600		
1908-1909	147	39.7	180	531,700		
1909-1910	82	22.1	100	296,400		
1910-1911	100	22.4	102	300,000		
1911-1912	76	11.3	51	151,400		136,100
1912-1913	81	12.9	59	172,900		134,000
1913-1914	140	38.1	173	510,600		
1914-1915	130	36.5	166	488,200		
1915-1916	106	24.5	111	328,000		
1916-1917	76	10.7	49	143,600		
1917-1918	66	6.7	30	89,700		
1918-1919	86	16.3	74	218,400		
1919-1920	48	3.2	15	43,300		
1920-1921	119	29.6	134	396,100		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	294,900	22.00	1,175	....
Maximum seasonal	850,800	63.60	3,390	1889-1890
Minimum seasonal	43,300	3.20	173	1919-1920
Mean during July	6,200	0.46	25	....
Maximum during July	17,900	1.33	71	1889-1890
Minimum during July	910	0.07	4	1919-1920
Mean during August	4,400	0.33	18	....
Maximum during August	12,800	0.96	51	1889-1890
Minimum during August	650	0.05	3	1919-1920

Probable run-off curve, Plate XX. Mass curve of run-off, Plate XCVII.
Storage development curve, Plate CLII. Probable frequency of flood discharge, Plate LX.

(*a*) Description of drainage basin: Tributary area above junction with the Sacramento River.

(*b*) Point of measurement: Suspension bridge near Whiskey Town, 1000 feet above mouth of Brandy Creek; drainage area 182 square miles.

(*c*) The tributary streams of the Upper Sacramento River were adjusted for probable run-off among themselves to agree with the stream flow at Red Bluff, deducting the run-off of the Pit and McCloud Rivers. Consideration was given to partial records where they existed.

(*d*) Estimated from U. S. G. S. records for other streams in vicinity.

TABLE 45. COTTONWOOD CREEK.

SEASONAL RUN-OFF DATA. Drainage area 937 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division B.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)*d*	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	111	20.7	113	1,036,900	January, 17.4%
1872-1873	53	2.7	15	136,600	February, 19.3%
1873-1874	85	10.8	59	540,000	March, 20.3%
1874-1875	51	2.4	13	121,300	April, 11.1%
1875-1876	154	35.0	192	1,749,300	May, 8.2%
1876-1877	69	11.9	65	559,400	June, 4.5%
1877-1878	182	43.2	236	2,162,700	July, 2.1%
1878-1879	92	14.4	79	722,200	August, 1.5%
1879-1880	107	23.5	129	1,175,700	September, 1.4%
1880-1881	127	31.1	170	1,555,700	October, 2.0%
1881-1882	75	10.6	58	529,500	November, 4.9%
1882-1883	75	8.8	48	438,400	December, 7.3%
1883-1884	98	19.5	107	974,100	
1884-1885	58	5.4	30	270,600	
1885-1886	124	29.4	161	1,468,900	
1886-1887	60	6.2	34	310,700	
1887-1888	55	3.8	21	188,100	
1888-1889	104	19.9	109	995,900	
1889-1890	198	53.9	295	2,697,100	
1890-1891	66	6.8	37	337,800	
1891-1892	77	9.8	54	490,800	
1892-1893	117	25.4	139	1,272,700	
1893-1894	92	14.3	78	715,800	
1894-1895	125	26.9	147	1,347,200	
1895-1896	120	20.8	114	1,039,700	
1896-1897	97	19.9	109	995,500	
1897-1898	60	4.1	22	207,200	
1898-1899	68	6.6	36	331,900	
1899-1900	112	12.5	68	627,500	
1900-1901	102	14.3	78	714,200	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*c*
1901-1902	131	22.9	125	1,143,600	
1902-1903	108	20.2	111	1,012,000	
1903-1904	144	39.6	217	1,979,400	
1904-1905	121	22.2	122	1,107,600	
1905-1906	117	23.0	126	1,150,100	
1906-1907	123	31.2	171	1,560,500	
1907-1908	85	13.2	72	661,600	*b*72,900
1908-1909	147	33.8	185	1,688,600	177,800
1909-1910	82	17.8	97	889,100	82,500
1910-1911	100	18.5	101	926,800	97,100
1911-1912	76	8.9	49	443,600	71,300
1912-1913	81	10.3	56	516,200	47,800
1913-1914	140	32.4	177	1,619,700	
1914-1915	130	30.9	169	1,544,000	
1915-1916	106	20.4	112	1,019,300	
1916-1917	76	8.4	46	420,900	
1917-1918	66	5.1	28	254,600	
1918-1919	86	13.2	72	661,000	
1919-1920	48	2.1	11	104,400	
1920-1921	119	25.0	137	1,248,900	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	913,300	18.30	974	....
Maximum seasonal	2,697,100	53.90	2,877	1889-1890
Minimum seasonal	104,400	2.10	111	1919-1920
Mean during July	19,200	0.38	20	....
Maximum during July	56,600	1.13	60	1889-1890
Minimum during July	2,200	0.04	2	1919-1920
Mean during August	13,700	0.27	15	....
Maximum during August	40,500	0.81	43	1889-1890
Minimum during August	1,600	0.03	2	1919-1920

Probable run-off curve, Plate XXI.
Storage development curve, Plate CLIII.
Mass curve of run-off. Plate XCVIII.
Probable frequency of flood discharge, Plate LXI.

(*a*) Description of drainage basin: Tributary area above junction with the Sacramento River.

(*b*) Partial record, November 1 to September 30.

(*c*) Point of measurement: On North Fork of Cottonwood Creek, one-fourth mile southwest of Ono, 250 feet below junction with Byron Creek, drainage area 52 square miles

(*d*) The tributary streams of the Upper Sacramento River were adjusted for probable run-off among themselves to agree with the stream flow at Red Bluff, deducting the run-off of the Pit and McCloud Rivers. Consideration was given to partial records where they existed.

TABLE 46. SACRAMENTO RIVER.

SEASONAL RUN-OFF DATA. Drainage area 9,258 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness.*b*	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.) *e*	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*e*
1871-1872	103	20.7	103	10,200,000	January, 14.2%
1872-1873	58	9.7	48	4,780,000	February, 16.0%
1873-1874	81	14.8	74	7,300,000	March, 16.9%
1874-1875	54	8.9	44	4,390,000	April, 11.9%
1875-1876	134	29.3	146	14,500,000	May, 9.0%
1876-1877	101	20.0	100	9,870,000	June, 5.7%
1877-1878	157	36.1	180	17,800,000	July, 4.0%
1878-1879	89	17.0	85	8,380,000	August, 3.4%
1879-1880	118	25.0	124	12,300,000	September, 2.8%
1880-1881	141	31.2	156	15,400,000	October, 3 5%
1881-1882	87	16.2	80	8,000,000	November, 5.4%
1882-1883	75	13.5	67	6,670,000	December, 7.2%
1883-1884	113	23.0	114	11,400,000	
1884-1885	73	13.1	65	6,460,000	
1885-1886	134	29.2	145	14,400,000	
1886-1887	75	13.5	67	6,670,000	
1887-1888	64	11.0	55	5,430,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*c*
1888-1889	107	21.5	107	10,600,000	
1889-1890	189	46.0	229	22,700,000	
1890-1891	73	13.1	65	6,460,000	
1891-1892	80	14.7	73	7,250,000	
1892-1893	120	25.2	125	12,400,000	
1893-1894	92	17.5	87	8,640,000	
1894-1895	119	25.0	124	12,300,000	*d*3,347,000
1895-1896	119	23.0	114	11,343,200	11,170,400
1896-1897	101	21.0	104	10,391,400	10,216,800
1897-1898	62	10.4	52	5,135,800	4,959,300
1898-1899	69	12.1	60	5,977,400	5,799,200
1899-1900	107	17.6	88	8,712,500	8,532,500
1900-1901	102	18.3	91	9,020,900	8,835,700
1901-1902	119	23.1	115	11,380,600	11,197,100
1902-1903	100	20.1	100	9,941,800	9,756,300
1903-1904	138	32.6	162	16,095,800	15,908,900
1904-1905	111	21.9	109	10,775,200	10,586,300
1905-1906	112	22.9	114	11,294,300	11,103,400
1906-1907	125	28.1	140	13,883,700	13,691,300
1907-1908	82	16.0	80	7,921,100	7,726,800
1908-1909	136	29.6	147	14,568,700	14,372,800
1909-1910	81	18.4	91	9,106,300	8,908,100
1910-1911	103	20.4	101	10,108,300	9,908,800
1911-1912	73	13.3	66	6,577,800	6,369,200
1912-1913	81	14.3	71	7,049,100	6,831,600
1913-1914	136	27.7	138	13,737,900	13,511,100
1914-1915	113	25.5	127	12,582,900	12,347,400
1915-1916	101	21.6	107	10,719,600	10,474,800
1916-1917	79	14.5	72	7,167,100	6,913,600
1917-1918	64	10.9	54	5,388,500	5,125,500
1918-1919	82	15.7	78	7,779,700	7,507,600
1919-1920	51	8.2	41	4,068,800	3,888,100
1920-1921	116	23.1	115	11,421,700	11,131,800

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	9,929,000	20.10	1,072	....
Maximum seasonal	22,700,000	46.00	2,452	1889–1890
Minimum seasonal	4,068,800	8.20	439	1919–1920
Mean during July	397,200	0.80	43	....
Maximum during July	908,000	1.80	98	1889–1890
Minimum during July	175,600	0.40	19	1874–1875
Mean during August	337,600	0 70	36	....
Maximum during August	771,800	1.60	83	1889–1890
Minimum during August	149,300	0.30	16	1874–1875

Probable run-off curve, Plate XXI. Mass curve of run-off, Plate XCVIII.
Storage development curve, Plate CLIII. Probable frequency of flood discharge, Plate LXI

(*a*) Description of drainage basin: Tributary area above gage at Red Bluff.

(*b*) Index of seasonal wetness for Divisions A and B weighted in proportion of 1 and 3, respectively.

(*c*) Point of measurement: (1) Jellys Ferry, 12 miles above Red Bluff, May 1, 1895, to February 1, 1902, drainage area 9,093 square miles. (2) Red Bluff gage 4 miles above Red Bluff, February 1, 1902 to date, drainage area 9,258 square miles. Area of 9,258 square miles used in computations, assuming discharges at Jellys Ferry and Red Bluff to be equal. This area includes 145 square miles of agricultural land, assumed to produce no run-off in computing yield of individual streams above Red Bluff.

(*d*) Partial record, May 1 to September 30.

(*e*) Measured run-off adjusted for storage and irrigation above point of measurement as follows: Storage capacity 1895-1896, 3,040 acre-feet; 1896-1900, 8,180 acre-feet; 1901-1903, 9,920 acre-feet; 1904-1905, 12,920 acre-feet; 1906-1907, 13,170 acre-feet; 1908-1909, 15,360 acre-feet; 1910, 15,900 acre-feet; 1911, 16,520 acre-feet; 1912, 16,870 acre-feet; 1913, 32,080 acre-feet; 1914, 32,260 acre-feet; 1915, 27,120 acre-feet; 1916, 29,850 acre-feet; 1917, 29,090 acre-feet; 1918, 30,240 acre-feet; 1919, 36,960 acre-feet; 1920, 37,960 acre-feet; 1921, 121,900 acre-feet. Irrigation, 1895-1896, 96,000 acres, increasing 1,000 acres per year to 111,000 acres in 1910-1911 and thereafter increasing 5,000 acres per year to 161,000 acres in 1920-1921.

TABLE 47. MILL CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 971 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division G.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*d*
1871-1872	126	30.0	134	1,553,000	January, 19.0%
1872-1873	74	14.5	65	751,000	February, 16.5%
1873-1874	106	23.4	105	1,212,000	March, 14.9%
1874-1875	66	12.4	55	642,000	April, 11.9%
1875-1876	122	28.7	128	1,486,000	May, 9.9%
1876-1877	61	11.2	50	580,000	June, 7.0%
1877-1878	96	20.5	92	1,062,000	July, 3.5%
1878-1879	104	23.0	103	1,191,000	August, 2.1%
1879-1880	123	29.5	132	1,528,000	September, 1.9%
1880-1881	107	23.7	106	1,227,000	October, 1.9%
1881-1882	95	20.4	91	1,056,000	November, 5.1%
1882-1883	80	16.1	72	834,000	December, 6.3%
1883-1884	113	26.0	116	1,346,000	
1884-1885	77	15.2	68	787,000	
1885-1886	116	26.7	120	1,383,000	
1886-1887	63	12.0	54	621,000	
1887-1888	64	12.1	54	627,000	
1888-1889	100	21.7	97	1,124,000	
1889-1890	180	50.4	226	2,610,000	
1890-1891	77	15.2	68	787,000	
1891-1892	103	22.6	101	1,170,000	
1892-1893	125	29.8	133	1,543,000	
1893-1894	89	18.6	83	963,000	
1894-1895	125	29.8	133	1,543,000	
1895-1896	131	31.8	142	1,647,000	
1896-1897	106	23.4	105	1,212,000	
1897-1898	66	12.4	55	642,000	
1898-1899	74	14.5	65	751,000	
1899-1900	117	26.8	120	1,388,000	
1900-1901	114	26.2	117	1,357,000	
1901-1902	107	23.7	106	1,227,000	
1902-1903	95	20.4	91	1,056,000	
1903-1904	140	35.0	157	1,812,000	**Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.**
1904-1905	109	24.7	111	1,279,000	
1905-1906	130	31.6	141	1,636,000	
1906-1907	153	40.0	179	2,071,000	
1907-1908	73	14.4	65	746,000	
1908-1909	136	33.4	150	1,729,000	
1909-1910	87	17.7	79	917,000	
1910-1911	126	30.0	134	1,553,000	*b*118,910
1911-1912	59	11.0	49	570,000	*c*123,900
1912-1913	77	15.2	68	787,000	*c*156,700
1913-1914	130	31.6	141	1,636,000	*c*398,800
1914-1915	99	21.6	97	1,118,000	*c*322,100
1915-1916	99	21.6	97	1,118,000	
1916-1917	83	17.0	76	880,000	
1917-1918	58	10.9	49	564,000	
1918-1919	80	16.1	72	834,000	
1919-1920	54	9.9	44	513,000	
1920-1921	105	23.2	104	1,201,000	*c*340,600

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	1,157,400	22.40	1,192	....
Maximum seasonal	2,610,000	50.40	2,688	1889-1890
Minimum seasonal	513,000	9.90	528	1919-1920
Mean during July	40,500	0.78	42	....
Maximum during July	91,400	1.77	94	1889-1890
Minimum during July	18,000	0.35	19	1919-1920
Mean during August	24,300	0.47	25	....
Maximum during August	54,800	1.06	56	1889-1890
Minimum during August	10,800	0.21	11	1919-1920

Probable run-off curve, Plate XXI. Mass curve of run-off, Plate XCVIII.
Storage development curve, Plate CLIII. Probable frequency of flood discharge, Plate LXI.

(*a*) Description of drainage basin: Areas tributary to the following streams above designated points: MILL CREEK, ¼ mile above mouth, drainage area 217 square miles; DEER CREEK, elevation 550 feet, drainage area 206 square miles; ANTELOPE CREEK, junction with Sacramento River, drainage area 234 square miles; BIG CHICO CREEK, elevation 225 feet, drainage area 72 square miles; LITTLE CHICO CREEK, elevation 270 feet, drainage are- 26 square miles; SYCAMORE HOLLOW, elevation 290 feet, drainage area 16 square miles; SHEEP HOLLOW, elevaation 260 feet, drainage area 2 square miles; GRIZZLY HOLLOW, elevation 270 feet, drainage area 2 square miles; MUD CREEK, elevation 260 feet, drainage area 21 square miles; ROCK CREEK, elevation 290 feet, drainage area 36 square miles; PINE CREEK, elevation 290 feet, drainage area 26 square miles; ZIMMERSHED CREEK, elevation 290 feet, drainage area 13 square miles; CAMEL CREEK, elevation 270 feet, drainage area 14 square miles; RATTLESNAKE CREEK, junction with Brush Creek, drainage area 5 square miles; SINGER CREEK, junction with Brush Creek, drainage area 17 square miles; BRUSH CREEK, junction with Camel Creek, drainage area 18 square miles; RIO DE LOS BERRENDOS, junction with Sacramento River, drainage area 46 square miles.

(*b*) Mill Creek, near Los Molinos, N. E. ¼ of Sec. 1, T. 25 N., R. 2 W., at suspension foot bridge, drainage area 127 square miles. Partial record, May 1 to September 30.

(*c*) Deer Creek, near Vina, in N. W. ¼ of Sec. 23, T. 25 N., R. 1 W., drainage area 206 square miles.

(*d*) Estimated from records for other streams in vicinity.

TABLE 48. BUTTE CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 251 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division G.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*c*
1871-1872	126	36.7	137	491,000	January, 16.1%
1872-1873	74	16.8	63	225,000	February, 18.7%
1873-1874	106	28.3	106	379,000	March, 14.9%
1874-1875	66	14.0	52	187,000	April, 12.0%
1875-1876	122	34.9	130	467,000	May, 10.1%
1876-1877	61	12.6	47	169,000	June, 4.5%
1877-1878	96	24.5	91	328,000	July, 1.9%
1878-1879	104	27.7	103	371,000	August, 1.4%
1879-1880	123	35.6	133	476,000	September, 2.0%
1880-1881	107	28.5	106	381,000	October, 2.6%
1881-1882	95	24.2	90	324,000	November, 5.7%
1882-1883	80	18.8	70	252,000	December, 10.1%
1883-1884	113	31.2	116	418,000	
1884-1885	77	17.5	65	234,000	
1885-1886	116	32.3	121	432,000	
1886-1887	63	13.5	50	181,000	
1887-1888	64	13.6	51	182,000	
1888-1889	100	26.2	98	351,000	
1889-1890	180	62.7	234	839,000	
1890-1891	77	17.5	65	234,000	
1891-1892	103	27.6	103	369,000	
1892-1893	125	36.3	136	486,000	
1893-1894	89	22.1	83	296,000	
1894-1895	125	36.3	136	486,000	
1895-1896	131	38.8	145	519,000	
1896-1897	106	28.3	106	379,000	
1897-1898	66	14.0	52	187,000	
1898-1899	74	16.8	63	225,000	
1899-1900	117	32.6	122	436,000	
1900-1901	114	31.8	119	426,000	
1901-1902	107	28.5	106	381,000	Measured seasonal discharge in acre-feet.*b*
1902-1903	95	24.2	90	324,000	
1903-1904	140	43.0	161	575,000	
1904-1905	109	29.9	112	400,000	
1905-1906	130	38.5	144	515,000	
1906-1907	153	49.5	185	662,000	192,000
1907-1908	73	16.6	62	222,000	89,000
1908-1909	136	41.0	153	549,000	191,900
1909-1910	87	21.0	78	281,000	109,700
1910-1911	126	36.5	136	488,000	185,800
1911-1912	59	12.0	45	161,000	84,500
1912-1913	77	17.5	65	234,000	97,600
1913-1914	130	38.5	144	515,000	187,000
1914-1915	99	25.8	96	345,000	197,500
1915-1916	99	25.8	96	345,000	180,700
1916-1917	83	20.0	75	268,000	140,500
1917-1918	58	11.8	44	158,000	79,500
1918-1919	80	18.8	70	252,000	97,100
1919-1920	54	10.6	40	142,000	68,700
1920-1921	105	28.0	105	375,000	149,200

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	358,400	26.80	1,428	....
Maximum seasonal	839,000	62.70	3,343	1889-1890
Minimum seasonal	142,000	10.60	566	1919-1920
Mean during July	6,800	0.51	27	....
Maximum during July	15,900	1 19	63	1889-1890
Minimum during July	2,700	0.20	11	1919-1920
Mean during August	5,000	0.37	20	....
Maximum during August	11,700	0.87	47	1889-1890
Minimum during August	2,000	0.15	8	1919-1920

Probable run-off curve, Plate XXI. Mass curve of run-off, Plate XCVIII.
Storage development curve, Plate CLIII. Probable frequency of flood discharge, Plate LXI.

(*a*) Description of drainage basin: Tributary areas above points where designated contours cross streams: BUTTE CREEK, 260 feet elevation; LITTLE DRY CREEK, 180 feet elevation; CLEAR CREEK, 180 feet elevation; GOLD RUN, 190 feet elevation; CHAMBERS RAVINE, 220 feet elevation; COAL CANYON, 220 feet elevation.

(*b*) Point of measurement: Head Dam on Butte Creek, drainage area 60 square miles. Data from the Pacific Gas and Electric Company.

c) Estimated from records for streams in vicinity.

TABLE 49. FEATHER RIVER.

SEASONAL RUN-OFF DATA. Drainage area 3,627 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness, Division G.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)*c*	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*c*
1871-1872	126	37.5	137	7,254,000	January, 10.9%
1872-1873	74	17.3	63	3,347,000	February, 11.9%
1873-1874	106	28.8	105	5,571,000	March, 17.5%
1874-1875	66	14.2	52	2,747,000	April, 18.8%
1875-1876	122	35.5	130	6,867,000	May, 15.9%
1876-1877	61	12.6	46	2,437,000	June, 7.8%
1877-1878	96	25.0	91	4,836,000	July, 3.1%
1878-1879	104	28.5	104	5,513,000	August, 1.9%
1879-1880	123	36.5	134	7,061,000	September, 1.5%
1880-1881	107	29.0	106	5,610,000	October, 1.9%
1881-1882	95	24.8	91	4,797,000	November, 3.9%
1882-1883	80	19.2	70	3,714,000	December, 4.9%
1883-1884	113	32.0	117	6,190,000	
1884-1885	77	18.0	66	3,482,000	
1885-1886	116	33.0	121	6,384,000	
1886-1887	63	13.5	49	2,611,000	
1887-1888	64	13.8	50	2,669,000	
1888-1889	100	26.5	97	5,126,000	
1889-1890	180	62.5	229	12,090.000	
1890-1891	77	18.0	66	3,482,000	
1891-1892	103	28.0	102	5,416,000	
1892-1893	125	37.1	136	7,177,000	
1893-1894	89	22.8	83	4,410.000	
1894-1895	125	37.1	136	7,177,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1895-1896	131	40.0	146	7,738,000	
1896-1897	106	29.0	106	5,610,000	
1897-1898	66	14.5	53	2,805.000	
1898-1899	74	17.0	62	3,288,000	
1899-1900	117	33.6	123	6,500,000	
1900-1901	114	32.2	118	6,229,000	
1901-1902	107	23.1	84	4,468,000	*d*3,948,300
1902-1903	95	23.2	85	4,483,500	4,441,200
1903-1904	140	48.5	177	9,377,000	9,334,700
1904-1905	109	23.5	86	4,529,200	4,486,900
1905-1906	130	35.0	128	6,753,400	6,711,100
1906-1907	153	48.6	178	9,383.400	9,341,100
1907-1908	73	18.3	67	3,530,000	3,487,700
1908-1909	136	39.0	143	7,430,600	7,388,300
1909-1910	87	23.5	86	4,541,600	4,499,400
1910-1911	126	36.4	133	7,022.600	6,978,100
1911-1912	59	11.0	40	2,117,800	2,071,100
1912-1913	77	14.1	52	2,722,700	2,673,900
1913-1914	130	41.2	151	7,958,200	7,746,600
1914-1915	99	30.6	112	5,915,400	5,882,700
1915-1916	99	35.5	130	6,852,100	6,800.100
1916-1917	83	25.4	93	4,908.000	4,853,200
1917-1918	58	13.5	49	2,603,300	2,547,000
1918-1919	80	18.1	66	3,499,000	3,440,300
1919-1920	54	10.7	39	2,073,900	2,053,000
1920-1921	105	30.5	112	5,879,400	5,725,800

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	5,283,500	27.3	1,456	....
Maximum seasonal	12,090,000	62.5	3,333	1889-1890
Minimum seasonal	2,073,900	10.7	572	1919-1920
Mean during July	163,800	0.8	45	....
Maximum during July	377,400	2.0	104	1906-1907
Minimum during July	75,500	0.4	21	1876-1877
Mean during August	100,400	0.5	28	....
Maximum during August	229,700	1.2	63	1889-1890
Minimum during August	46,300	0.2	13	1876-1877

Probable run-off curve, Plate XXII.
Mass curve of run-off, Plate XCIX.
Storage development curve, Plate CLIV.
Probable frequency of flood discharge, Plate LXII.

(*a*) Description of drainage basin: Tributary area above gage at highway bridge at Oroville.

(*b*) Point of measurement at highway bridge at Oroville, 3,627 square miles.

(*c*) Records adjusted for irrigation and storage in Lake Almanor. Irrigation: 1902-1903, 23,500 acres, thereafter increasing 1220 acres per year to 36,920 acres in 1920-1921. Records of monthly inflow and outflow at Lake Almanor are published in U. S. G. S. Water Supply Papers 391, 411, 461, 481 and advance sheets.

(*d*) Partial record, January 1 to September 30.

TABLE 50. HONCUT CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 314 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division G.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	126	17.0	143	284,000	January, 21.5%
1872-1873	74	6.7	56	112,000	February, 21.6%
1873-1874	106	12.7	107	212,000	March, 14.6%
1874-1875	66	5.4	45	90,000	April, 9.5%
1875-1876	122	16.2	136	271,000	May, 5.6%
1876-1877	61	4.7	39	79,000	June, 3.9%
1877-1878	96	10.7	90	179,000	July, 0.8%
1878-1879	104	12.3	103	206,000	August, 0.1%
1879-1880	123	16.5	138	276,000	September, 0.9%
1880-1881	107	12.8	107	214,000	October, 2.7%
1881-1882	95	10.5	88	176,000	November, 6.6%
1882-1883	80	7.7	65	129,000	December, 12.2%
1883-1884	113	14.2	119	238,000	
1884-1885	77	7.2	60	120,000	
1885-1886	116	14.8	124	248,000	
1886-1887	63	5.0	42	84,000	
1887-1888	64	5.2	44	87,000	
1889-1890	100	11.4	96	191,000	
1889-1890	180	31.2	262	522,000	
1890-1891	77	7.2	60	120,000	
1891-1892	103	12.1	102	202,000	
1892-1893	125	16.8	141	281,000	
1893-1894	89	9.4	79	157,000	
1894-1895	125	16.8	141	281,000	
1895-1896	131	18.2	153	305,000	
1896-1897	106	12.7	107	212,000	
1897-1898	66	5.4	45	90,000	
1898-1899	74	6.7	56	112,000	
1899-1900	117	15.0	126	251,000	
1900-1901	114	14.5	122	243,000	
1901-1902	107	12.8	107	214,000	
1902-1903	95	10.5	88	176,000	
1903-1904	140	20.4	171	341,000	
1904-1905	109	13.4	112	224,000	
1905-1906	130	18.0	151	301,000	
1906-1907	153	23.6	198	395,000	
1907-1908	73	6.6	55	110,000	
1908-1909	136	19.4	163	325,000	
1909-1910	87	8.8	74	147,000	
1910-1911	126	17.0	143	284,000	
1911-1912	59	4.4	37	74,000	
1912-1913	77	7.2	60	120,000	
1913-1914	130	18.0	151	301,000	
1914-1915	99	11.3	95	189,000	
1915-1916	99	11.3	95	189,000	
1916-1917	83	8.3	70	139,000	
1917-1918	58	4.2	35	70,000	
1918-1919	80	7.7	65	129,000	
1919-1920	54	3.5	29	59,000	
1920-1921	105	12.5	105	209,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	199,400	11.90	636	....
Maximum seasonal	522,000	31.20	1,664	1889-1890
Minimum seasonal	59,000	3.50	188	1919-1920
Mean during July	1,600	0.10	5	....
Maximum during July	4,200	0.25	13	1889-1890
Minimum during July	470	0.03	1	1919-1920
Mean during August	200	0.01	1	....
Maximum during August	520	0.03	2	1889-1890
Minimum during August	60	Trace	Trace	1919-1920

Probable run-off curve, Plate XXII. Mass curve of run-off, Plate XCIX.
Storage development curve, Plate CLIV. Probable frequency of flood discharge, Plate LXII.

(*a*) Description of drainage basin: North Honcut Creek, one mile above junction with South Honcut Creek, 63.6 square miles; South Honcut Creek, including Prairie Creek, one mile above junction with North Honcut Creek, 87.2 square miles; Wyman Creek at junction with Wyandotte Creek, 29.7 square miles; Wyandotte Creek at junction with North Honcut Creek, 27.5 square miles; Dry Creek, 500 feet above junction with Yuba River, 105.9 miles.

(*b*) The distribution of seasonal run-off by months was estimated as follows: The means of record of rainfall by months and seasons for three nearby rainfall stations, Colgate, Dobbins and Palermo, were averaged, 50% of rainfall for each month was carried into next following month, and the resulting values were reduced to percentages of the mean seasonal rainfall, which are assumed to represent the monthly distribution of run-off

TABLE 51. YUBA RIVER.

SEASONAL RUN-OFF DATA. Drainage area 1,200 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division H.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*c*
1871-1872	141	68.0	164	4,352,000	January, 11.9%
1872-1873	74	25.6	62	1,638,400	February, 12.7%
1873-1874	118	52.2	126	3,340,800	March, 17.9%
1874-1875	72	24.4	59	1,561,600	April, 17.0%
1875-1876	124	56.0	135	3,594,000	May, 18.0%
1876-1877	63	20.2	49	1,292,800	June, 10.4%
1877-1878	98	39.5	95	2,528,000	July, 2.6%
1878-1879	105	43.7	105	2,796,800	August, 0.8%
1879-1880	125	56.9	137	3,641,600	September, 0.6%
1880-1881	112	48.5	117	3,104,000	October, 0.9%
1881-1882	88	33.6	81	2,150,400	November, 2.8%
1882-1883	79	28.2	68	1,804,800	December, 4.4%
1883-1884	112	48.5	117	3,104,000	
1884-1885	92	36.0	87	2,304,000	
1885-1886	114	49.6	120	3,174,400	
1886-1887	72	24.4	59	1,561,600	
1887-1888	54	15.6	38	998,400	
1888-1889	73	25.2	61	1,612,800	
1889-1890	182	96.5	233	6,176,000	
1890-1891	77	27.3	66	1,747,200	
1891-1892	83	30.4	73	1,945,600	
1892-1893	121	54.5	131	3,488,000	
1893-1894	95	38.0	92	2,432,000	
1894-1895	136	65.0	157	4,160,000	
1895-1896	125	56.9	137	3,641,600	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*c*
1896-1897	111	47.5	115	3,040,000	
1897-1898	60	18.5	45	1,184,000	
1898-1899	84	31.0	75	1,984,000	
1899-1900	109	46.2	111	2,956,800	
1900-1901	106	44.6	108	2,854,400	
1901-1902	95	38.0	92	2,432,000	
1902-1903	94	37.0	89	*c*2,368,000	*b*288,400
1903-1904	139	64.2	155	*c*4,101,800	4,100,700
1904-1905	103	37.5	91	*c*2,403,500	2,402,400
1905-1906	133	56.7	137	*c*3,634,500	3,633,200
1906-1907	138	69.8	168	*c*4,472,000	4,460,000
1907-1908	71	25.3	61	*c*1,620,100	1,593,500
1908-1909	130	60.8	147	*c*3,900,500	3,881,100
1909-1910	99	41.9	101	*c*2,683,900	2,668,200
1910-1911	127	55.2	133	*c*3,532,800	3,507,600
1911-1912	60	17.8	43	*c*1,139,100	1,129,000
1912-1913	72	22.2	54	*c*1,419,300	1,396,500
1913-1914	120	45.3	109	*c*2,901,400	2,865,500
1914-1915	101	41.0	99	*c*2,624,800	2,499,100
1915-1916	104	50.7	122	*c*3,242,100	3,091,000
1916-1917	87	38.5	93	*c*2,464,500	2,306,600
1917-1918	61	20.0	48	*c*1,283,900	1,141,400
1918-1919	85	29.7	72	*c*1,906,400	1,740,800
1919-1920	64	19.1	46	*c*1,220,900	1,084,100
1920-1921	112	48.4	117	*c*3,105,900	2,873,000

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	2,652,600	41.4	2,210	....
Maximum seasonal	6,176,000	96.5	5,147	1889-1890
Minimum seasonal	998,400	15.6	832	1887-1888
Mean during July	69,000	1.1	57	....
Maximum during July	194,800	3.0	162	1905-1906
Minimum during July	20,000	0.3	17	1917-1918
Mean during August	21,200	0.3	18	....
Maximum during August	49,400	0.8	41	1889-1890
Minimum during August	8,000	0.1	7	1887-1888

Probable run-off curve, Plate XXII. Mass curve of run-off, Plate XCIX.

Storage development curve, Plate CLIV. Probable frequency of flood discharge, Plate LXII.

(*a*) Description of drainage basin: Tributary area above gage near Smartsville, 1 mile below mouth of Deer Creek.

(*b*) Partial record, June 1 to September 30.

(*c*) Measured run-off adjusted for storage, diversion and irrigation above point of measurement as follows: Storage in Lake Spaulding; diversions by South Yuba and Browns Valley canal and by Drum Canal from Lake Spaulding; irrigation of lands other than those served by Browns Valley canal. No adjustments made for diversions by Colgate Flume and by mining ditches, as this water is assumed to be returned.

(*d*) Point of measurement: Gage near Smartsville, drainage area 1,200 square miles.

TABLE 52. DRY CREEK.

SEASONAL RUN-OFF DATA. Drainage area 79 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division H.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	141	20.5	174	86,600	January, 18.9%
1872-1873	74	6.5	55	27,500	February, 18.4%
1873-1874	118	15.2	129	64,200	March, 15.3%
1874-1875	72	6.2	53	26,200	April, 11.7%
1875-1876	124	16.5	140	69,700	May, 6.3%
1876-1877	63	4.8	41	20,300	June, 3.0%
1877-1878	98	10.9	93	46,100	July, 0.7%
1878-1879	105	12.3	104	52,000	August, 0.2%
1879-1880	125	16.7	142	70,600	September, 0.8%
1880-1881	112	13.8	117	58,300	October, 3.4%
1881-1882	88	9.0	76	38,000	November, 8.0%
1882-1883	79	7.4	63	31,300	December, 13.3%
1883-1884	112	13.8	117	58,300	
1884-1885	92	9.7	82	41,000	
1885-1886	114	14 2	121	60,000	
1886-1887	72	6.2	53	26,200	
1887-1888	54	3.5	30	14,800	
1888-1889	73	6.4	54	27,000	
1889-1890	182	32.5	276	137,300	
1890-1891	77	7.0	59	29,600	
1891-1892	83	8.1	69	34,200	
1892-1893	121	15.8	134	66,800	
1893-1894	95	10.3	88	43,500	
1894-1895	136	19.3	164	81,500	
1895-1896	125	16.7	142	70,600	
1896-1897	111	13.5	115	57,000	
1897-1898	60	4.3	37	18,200	
1898-1899	84	8.2	70	34,600	
1899-1900	109	13.1	111	55,300	
1900-1901	106	12.5	106	52,800	
1901-1902	95	10.3	88	43,500	
1902-1903	94	10.1	86	42,700	
1903-1904	139	20.2	172	85,300	
1904-1905	103	12.0	102	50,700	
1905-1906	133	18.7	159	79,000	
1906-1907	138	20.0	170	84,500	
1907-1908	71	6.0	51	25,400	
1908-1909	130	17.9	152	75,600	
1909-1910	99	11.1	94	46,900	
1910-1911	127	17.1	145	72,200	
1911-1912	60	4.3	37	18,200	
1912-1913	72	6.2	53	26,200	
1913-1914	120	15.6	133	65,900	
1914-1915	101	11.5	98	48,600	
1915-1916	104	12 1	103	51,100	
1916-1917	87	8.7	74	36,800	
1917-1918	61	4.5	38	19,000	
1918-1919	85	8.4	71	35,500	
1919-1920	64	4.9	42	20,700	
1920-1921	112	13.8	117	58,300	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	49,700	11.80	627	....
Maximum seasonal	137,300	32.50	1,733	1889-1890
Minimum seasonal	14,800	3.50	187	1887-1888
Mean during July	350	0.08	4	....
Maximum during July	960	0 23	12	1889-1890
Minimum during July	100	0.02	1	1887-1888
Mean during August	100	0.02	1	....
Maximum during August	270	0 06	3	1889-1890
Minimum during August	30	0.01	Trace	1887-1888

Probable run-off curve, Plate XXII. Mass curve of run-off, Plate XCIX.
Storage development curve, Plate CLIV. Probable frequency of flood discharge, Plate LXII.
(*a*) Description of drainage basin: Tributary area above a point one-third of a mile below Cabbage Patch.
(*b*) Estimated from rainfall records.

TABLE 53. BEAR RIVER.

SEASONAL RUN-OFF DATA. Drainage area 262 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division H.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*d*
1871-1872	141	51.8	176	723,800	January, 25.4%
1872-1873	74	16.0	54	223,600	February, 21.7%
1873-1874	118	37.9	128	529,600	March, 20.7%
1874-1875	72	15.1	51	211,000	April, 9.3%
1875-1876	124	41.0	139	572,900	May, 6.1%
1876-1877	63	12.0	41	167,700	June, 2.6%
1877-1878	98	27.3	92	381,500	July, 1.0%
1878-1879	105	30.8	104	430,400	August, 0.6%
1879-1880	125	41.5	141	579,900	September, 0.7%
1880-1881	112	34.5	117	482,100	October, 1.3%
1881-1882	88	22.6	77	315,800	November, 2.3%
1882-1883	79	18.0	61	251,500	December, 8.3%
1883-1884	112	34.5	117	482,100	
1884-1885	92	24.3	82	339,500	
1885-1886	114	35.5	120	496,000	
1886-1887	72	15.1	51	211,000	
1887-1888	54	8.5	29	118,800	
1888-1889	73	15.6	53	218,000	
1889-1890	182	80.0	271	1,117,900	
1890-1891	77	17.4	59	243,100	
1891-1892	83	20.0	68	279,500	
1892-1893	121	39.5	134	551,900	
1893-1894	95	25.9	88	361,900	
1894-1895	136	48.5	164	677,700	
1895-1896	125	41.6	141	581,300	
1896-1897	111	34.0	115	475,100	
1897-1898	60	10.8	37	150,900	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1898-1899	84	20.7	70	289,200	
1899-1900	109	32.5	110	454,100	
1900-1901	106	31.2	106	436,000	
1901-1902	95	25.9	88	361,900	
1902-1903	94	25.0	85	349,300	
1903-1904	139	50.0	169	698,700	
1904-1905	103	27.5	93	*d*384,000	*c*314,600
1905-1906	133	44.7	151	*d*624,900	561,400
1906-1907	138	56.5	191	*d*789,600	726,100
1907-1908	71	18.1	61	*d*253,000	188,500
1908-1909	130	41.9	142	*d*586,300	525,000
1909-1910	99	22.8	77	*d*318,800	255,700
1910-1911	127	41.1	139	*d*574,800	513,000
1911-1912	60	11.2	38	*d*157,100	87,600
1912-1913	72	13.2	45	*d*184,100	106,400
1913-1914	120	36.5	124	*d*510,400	542,900
1914-1915	101	31.1	105	*d*434,000	472,500
1915-1916	104	42.9	145	*d*600,100	655,700
1916-1917	87	26.0	88	*d*363,100	340,200
1917-1918	61	10.2	35	*d*142,600	128,000
1918-1919	85	22 9	78	*d*320,400	302,800
1919-1920	64	10.3	35	*d*143,500	97,100
1920-1921	112	33.0	115	*d*472,400	466,900

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	412,500	29.50	1,574 0	....
Maximum seasonal	1,117,900	80.00	4,267.0	1889-1890
Minimum seasonal	118,800	8 50	453.0	1887-1888
Mean during July	4,125	0.30	16.0	....
Maximum during July	11,600	0.80	44.0	1915-1916
Minimum during July	650	0.05	2 5	1917-1918
Mean during August	2,475	0 20	9 4	....
Maximum during August	8,900	0.60	34 0	1915-1916
Minimum during August	560	0.04	2.1	1920-1921

Probable run-off curve, Plate XXIII.
Storage development curve, Plate CLV.
Mass curve of run-off, Plate C.
Probable frequency of flood discharge, Plate LXIII.

(*a*) Description of drainage basin: Tributary area above gage near Van Trent, 500 feet below highway bridge at McCourtney Crossing.

(*b*) Point of measurement: Gage near Van Trent, drainage area 262 square miles.

(*c*) Partial record, October 8 to September 30.

(*d*) Measured run-off adjusted for diversions, above point of measurement, through Gold Hill, Boardman, Bear River, Drum and South Yuba Canals, and for storage in Bear Valley Reservoir. (Records by Pacific Gas and Electric Co.)

TABLE 54. COON CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 210 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division J.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	120	4.3	141	48,100	January, 20.3%
1872-1873	75	1.2	39	13,400	February, 19.9%
1873-1874	100	2.6	85	29,100	March, 16.5%
1874-1875	64	0.8	26	9,000	April, 12.2%
1875-1876	124	4.8	158	53,700	May, 6.3%
1876-1877	62	0.7	23	7,800	June, 2.9%
1877-1878	93	2.2	72	24,600	July, 0.0%
1878-1879	104	2.9	95	32,500	August, 0.0%
1879-1880	125	4.9	161	54,800	September, 0.0%
1880-1881	108	3.2	105	35,800	October, 0.1%
1881-1882	103	2.8	92	31,300	November, 7.8%
1882-1883	82	1.6	53	17,900	December, 14.0%
1883-1884	118	4.2	138	47,000	
1884-1885	73	1.2	39	13,400	
1885-1886	115	3.8	125	42,500	
1886-1887	75	1.2	39	13,400	
1887-1888	68	1.0	33	11,200	
1888-1889	76	1.3	43	14,500	
1889-1890	169	11.1	364	124,200	
1890-1891	77	1.3	43	14,500	
1891-1892	90	2.0	66	22,400	
1892-1893	123	4.7	154	52,600	
1893-1894	104	2.9	95	32,500	
1894-1895	128	5.3	174	59,300	
1895-1896	114	3.7	121	41,400	
1896-1897	110	3.4	112	38,000	
1897-1898	59	0.6	20	6,700	
1898-1899	86	1.8	59	20,100	
1899-1900	111	3.5	115	39,200	
1900-1901	112	3.6	118	40,300	
1901-1902	100	2.6	85	29,100	
1902-1903	99	2.5	82	28,000	
1903-1904	137	6.3	207	70,500	
1904-1905	100	2.6	85	29,100	
1905-1906	138	6.5	213	72,700	
1906-1907	150	8.1	266	90,600	
1907-1908	71	1.1	36	12,300	
1908-1909	124	4.8	158	53,700	
1909-1910	95	2.3	76	25,700	
1910-1911	129	5.3	174	59,300	
1911-1912	60	0.7	23	7,800	
1912-1913	67	0.9	30	10,100	
1913-1914	120	4.3	141	48,100	
1914-1915	111	3.5	115	39,200	
1915-1916	104	2.9	95	32,500	
1916-1917	89	1.9	62	21,300	
1917-1918	67	0.9	30	10,100	
1918-1919	91	2.1	69	23,500	
1919-1920	70	1.0	33	11,200	
1920-1921	110	3.4	112	38,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	34,100	3.0	162	....
Maximum seasonal	124,200	11.1	591	1889-1890
Minimum seasonal	6,700	0.6	32	1897-1898
Mean during July	0	0.0	0	....
Maximum during July	0	0.0	0	....
Minimum during July	0	0.0	0	1897-1898
Mean during August	0	0.0	0	....
Maximum during August	0	0.0	0	....
Minimum during August	0	0.0	0	1897-1898

Probable run-off curve, Plate XXIII. Mass curve of run-off, Plate C.
Storage development curve, Plate CLV. Probable frequency of flood discharge, Plate LXIII.

(*a*) Description of drainage basin: Tributary area of COON CREEK at junction with Doty Ravine; ANTELOPE CREEK at junction with Walker Ravine; AUBURN RAVINE at junction with Orchard Creek.

(*b*) Estimated from rainfall distribution.

TABLE 55. AMERICAN RIVER.

SEASONAL RUN-OFF DATA. Drainage area 1,919 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division J.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.c
1871-1872	120	41.2	132	4,215,600	January, 12.3%
1872-1873	75	18.2	59	1,862,200	February, 11.6%
1873-1874	100	30.1	97	3,079,800	March, 15.8%
1874-1875	64	13.6	44	1,391,600	April, 17.0%
1875-1876	124	43.5	140	4,450,900	May, 19.1%
1876-1877	62	12.6	41	1,289,200	June, 12.8%
1877-1878	93	26.6	85	2,721,700	July, 3.7%
1878-1879	104	32.3	104	3,304,900	August, 0.9%
1879-1880	125	44.0	141	4,502,100	September, 0.6%
1880-1881	108	34.6	111	3,540,300	October, 0.8%
1881-1882	103	31.9	102	3,264,000	November, 1.8%
1882-1883	82	21.2	68	2,169,200	December, 3.6%
1883-1884	118	40.1	129	4,103,000	
1884-1885	73	17.4	56	1,780,400	
1885-1886	115	38.3	123	3,918,900	
1886-1887	75	18.2	59	1,862,200	
1887-1888	68	15.4	50	1,575,700	
1888-1889	76	18.6	60	1,903,200	
1889-1890	169	75.5	243	7,725,200	
1890-1891	77	19.0	61	1,944,100	
1891-1892	90	25 1	81	2,568,200	
1892-1893	123	43.0	138	4,399,800	
1893-1894	104	32.3	104	3,304,900	
1894-1895	128	46.3	149	4,737,400	
1895-1896	114	37.7	121	3,857,500	
1896-1897	110	35.5	114	3,632,400	
1897-1898	59	11.6	37	1,186,900	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.d
1898-1899	86	23.1	74	2,363,600	
1899-1900	111	36.0	116	3,683,500	
1900-1901	112	36.3	117	3,714,200	
1901-1902	100	30.1	97	3,079,800	
1902-1903	99	29.7	95	3,038,900	
1903-1904	137	51.3	165	5,249,000	
1904-1905	100	20.0	64	c2,050,000	b1,955,000
1905-1906	138	47.3	152	c4,835,900	4,763,100
1906-1907	150	56.5	182	c5,782,800	5,710,100
1907-1908	71	14.9	48	c1,526,600	1,453,600
1908-1909	124	45.2	145	c4,622,500	4,549,200
1909-1910	95	35.3	113	c3,614,500	3,541,500
1910-1911	129	54.3	175	c5,555,300	5,480,500
1911-1912	60	13.1	42	c1,336,100	1,264,000
1912-1913	67	15.1	49	c1,541,800	1,433,800
1913-1914	120	39.8	128	c4,072,100	3,951,000
1914-1915	111	31.1	100	c3,179,800	3,060,900
1915-1916	104	38 7	124	c3,964,600	3,847,900
1916-1917	89	28.8	93	c2,948,300	2,831,800
1917-1918	67	15 1	49	c1,541,100	1,420,400
1918-1919	91	22 1	71	c2,265,800	2,154,900
1919-1920	70	14.7	47	c1,501,600	1,391,300
1920-1921	110	32.6	105	c3,336,800	3,223,300

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	3,181,900	31.1	1,658	....
Maximum seasonal	7,725,200	75.5	4,026	1889-1890
Minimum seasonal	1,186,900	11.6	618	1897-1898
Mean during July	117,700	1 2	61	....
Maximum during July	392,500	3.8	205	1905-1906
Minimum during July	22,800	0 2	12	1918-1919
Mean during August	28,600	0.3	15	....
Maximum during August	92,800	0 9	48	1906-1907
Minimum during August	9,500	0 1	5	1917-1918

Probable run-off curve, Plate XXIII. Mass curve of run-off, Plate C.
Storage development curve, Plate CLV. Probable frequency of flood discharge, Plate LXIII.

(*a*) Description of drainage basin: Tributary area above gage at Fair Oaks highway bridge.

(*b*) Partial record, November 4 to September 30.

(*c*) Measured run-off adjusted for diversions as follows: Towle Canal (Pacific Gas and Electric Co. records); North Fork Ditch, Nigger Hill Ditch, El Dorado Ditch, Pilot Creek Ditch, Alder Creek pumping plant (Pacific Gas and Electric Co. and Natomas Mutual Water Co. records).

(*d*) Point of measurement: Gage near Fair Oaks, drainage area 1,919 square miles.

TABLE 56. RED BANK CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 109 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division F.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*	
1871-1872	116	15.5	123	89,900	January,	18.5%
1872-1873	63	4.8	38	27,800	February,	23.6%
1873-1874	120	16.7	133	96,800	March,	27.0%
1874-1875	82	7.7	61	44,600	April,	11.9%
1875-1876	112	14.5	115	84,100	May,	5.8%
1876-1877	60	4.2	33	24,300	June,	2.4%
1877-1878	142	23.3	185	135,100	July,	0.7%
1878-1879	78	7.1	56	41,200	August,	0.5%
1879-1880	91	9.5	75	55,100	September,	0.2%
1880-1881	83	8.0	64	46,400	October,	0.7%
1881-1882	65	5.0	40	29,000	November,	3.4%
1882-1883	70	5.7	45	33,000	December,	5.3%
1883-1884	99	11.4	91	66,100		
1884-1885	54	3.5	28	20,300		
1885-1886	125	18.1	144	104,900		
1886-1887	64	4.9	39	28,400		
1887-1888	66	5.1	41	29,600		
1888-1889	91	9.5	75	55,100		
1889-1890	177	34.9	277	202,300		
1890-1891	93	10.0	79	58,000		
1891-1892	92	9.8	78	56,800		
1892-1893	138	22.1	175	128,100		
1893-1894	80	7.4	59	42,900		
1894-1895	149	25.7	204	149,000		
1895-1896	117	15.9	126	92,200		
1896-1897	110	13.9	110	80,600		
1897-1898	54	3.5	28	20,300		
1898-1899	80	7.4	59	42,900		
1899-1900	110	13.9	110	80,600		
1900-1901	108	13.5	107	78,300		
1901-1902	129	19.4	154	112,500		
1902-1903	95	10.3	82	59,700		
1903-1904	126	18.4	146	106,700		
1904-1905	141	22.9	182	132,700		
1905-1906	132	20.0	158	115,900		
1906-1907	119	16.5	131	95,700		
1907-1908	75	6.5	52	37,700		
1908-1909	126	18.4	146	106,700		
1909-1910	83	8.0	64	46,400		
1910-1911	110	13.9	110	80,600		
1911-1912	61	4.4	35	25,500		
1912-1913	79	7.2	57	41,700		
1913-1914	156	28.0	222	162,300		
1914-1915	143	23.7	188	137,400		
1915-1916	105	12.7	101	73,600		
1916-1917	81	7.5	60	43,500		
1917-1918	66	5.1	41	29,600		
1918-1919	94	10.2	81	59,100		
1919-1920	57	3.7	29	21,400		
1920-1921	133	20.5	163	118,800		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	73,000	12.60	672	....
Maximum seasonal	202,300	34.90	1,861	1889-1890
Minimum seasonal	20,300	3.50	187	1884-1885 1897-1898
Mean during July	510	0.09	5	....
Maximum during July	1,420	0.24	13	1889-1890
Minimum during July	140	0.02	1	1884-1885 1897-1898
Mean during August	370	0.06	3	....
Maximum during August	1,010	0.17	9	1889-1890
Minimum during August	100	0.02	1	1884-1885 1897-1898

Probable run-off curve, Plate XXIII. Mass curve of run-off, Plate CI.
Storage development curve, Plate CLV. Probable frequency of flood discharge, Plate LXIII.

(*a*) Description of drainage basin: Tributary area of REEDS CREEK, above base of foothills, longitude 122° 26.7′, drainage area 21 square miles; North Fork RED BANK CREEK above base of foothills, longitude 122° 27′, and South Fork RED BANK CREEK above base of foothills, longitude 122° 27.6′, drainage area 88 square miles.

(*b*) Estimated from records for Stony Creek.

TABLE 57. ELDER CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 414 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division F.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*	
1871-1872	116	11.8	122	260,000	January,	18.5%
1872-1873	63	3.5	36	77,000	February,	23.6%
1873-1874	120	12.8	133	283,000	March,	27.0%
1874-1875	82	5.8	60	128,000	April,	11.9%
1875-1876	112	10.8	112	238,000	May,	5.8%
1876-1877	60	3.2	33	71,000	June,	2.4%
1877-1878	142	18.0	186	397,000	July,	0.7%
1878-1879	78	5.4	56	119,000	August,	0.5%
1879-1880	91	7.2	75	159,000	September,	0.2%
1880-1881	83	6.0	62	132,000	October,	0.7%
1881-1882	65	3.7	38	82,000	November,	3.4%
1882-1883	70	4.3	45	95,000	December,	5.3%
1883-1884	99	8.6	89	190,000		
1884-1885	54	2.6	27	57,000		
1885-1886	125	13.9	144	307,000		
1886-1887	64	3.6	37	79,000		
1887-1888	66	3.8	39	84,000		
1888-1889	91	7.2	75	159,000		
1889-1890	177	27.7	287	611,000		
1890-1891	93	7.6	79	168,000		
1891-1892	92	7.3	76	161,000		
1892-1893	138	17.2	178	380,000		
1893-1894	80	5.6	58	124,000		
1894-1895	149	20.0	207	441,000		
1895-1896	117	12.0	124	265,000		
1896-1897	110	10.6	110	234,000		
1897-1898	54	2.6	27	57,000		
1898-1899	80	5.6	58	124,000		
1899-1900	110	10.6	110	234,000		
1900-1901	108	10.3	107	227,000		
1901-1902	129	15.0	155	331,000		
1902-1903	95	7.9	82	174,000		
1903-1904	126	14.1	146	311,000		
1904-1905	141	17.8	184	393,000		
1905-1906	132	15.5	161	342,000		
1906-1907	119	12.6	131	278,000		
1907-1908	75	4.9	51	108,000		
1908-1909	126	14.1	146	311,000		
1909-1910	83	6.0	62	132,000		
1910-1911	110	10.6	110	234,000		
1911-1912	61	3.3	34	73,000		
1912-1913	79	5.5	57	121,000		
1913-1914	156	22.0	228	486,000		
1914-1915	143	18.4	191	406,000		
1915-1916	105	9.6	99	212,000		
1916-1917	81	5.7	59	126,000		
1917-1918	66	3.8	39	84,000		
1918-1919	94	7.8	81	172,000		
1919-1920	57	2.8	29	62,000		
1920-1921	133	15.9	165	351,000		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	213,000	9.70	515	
Maximum seasonal	611,000	27.70	1,476	1889-1890
Minimum seasonal	57,000	2.60	138	1884-1885 1897-1898
Mean during July	1,490	0.07	4	
Maximum during July	4,280	0.19	10	1889-1890
Minimum during July	400	0.02	1	1884-1885 1897-1898
Mean during August	1,070	0.05	3	
Maximum during August	3,060	0.14	7	1889-1890
Minimum during August	290	0.01	1	1884-1885 1897-1898

Probable run-off curve, Plate XXIV. Mass curve of run-off, Plate CI.
Storage development curve, Plate CLVI. Probable frequency of flood discharge, Plate LXIV.

(*a*) Description of drainage basin: Areas tributary to the following streams: ELDER CREEK, above intersection of longitude 122° 24.7′ with stream, drainage area 126 square miles; THOMES CREEK, above Paskenta, drainage area 243 square miles; RICE CREEK tributaries, above intersections with longitude 122° 21′, drainage area 45 square miles.

(*b*) Estimated from records for Stony Creek.

TABLE 58. STONY CREEK.

SEASONAL RUN-OFF DATA. Drainage area 710 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division F.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*d*
1871-1872	116	18.5	127	700,400	January, 18.5%
1872-1873	63	5.0	34	189,300	February, 23.6%
1873-1874	120	20.0	137	757,200	March, 27.0%
1874-1875	82	8.7	60	329,400	April, 11.9%
1875-1876	112	17.2	118	651,200	May, 5.8%
1876-1877	60	4.5	31	170,400	June, 2.4%
1877-1878	142	27.5	188	1,041,100	July, 0.7%
1878-1879	78	8.0	55	302,900	August, 0.5%
1879-1880	91	11.0	75	416,500	September, 0.2%
1880-1881	83	9.1	62	344,500	October, 0.7%
1881-1882	65	5.3	36	200,700	November, 3.4%
1882-1883	70	6.2	42	234,700	December, 5.3%
1883-1884	99	13.5	92	511,100	
1884-1885	54	3.4	23	128,700	
1885-1886	125	21.7	148	821,600	
1886-1887	64	5.2	36	196,900	
1887-1888	66	5.5	38	208,200	
1888-1889	91	11.0	75	416,500	
1889-1890	177	39.5	270	1,495,500	
1890-1891	93	11.7	80	443,000	
1891-1892	92	11.2	77	424,000	
1892-1893	138	26.2	179	991,900	
1893-1894	89	8.4	57	318,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1894-1895	149	30.0	205	1,135,800	
1895-1896	117	19.0	130	719,300	
1896-1897	110	16.6	114	628,500	
1897-1898	54	3.4	23	128,700	
1898-1899	80	8.4	57	318,000	
1899-1900	110	16.6	114	628,500	
1900-1901	108	16.0	109	*d*605,800	*c*226,400
1901-1902	129	20.7	141	*d*783,700	653,600
1902-1903	95	17.1	117	*d*647,400	575,500
1903-1904	126	23.5	161	*d*889,700	753,000
1904-1905	141	15.6	107	*d*590,600	508,400
1905-1906	132	16.8	115	*d*635,900	535,300
1906-1907	119	23.6	161	*d*893,500	765,500
1907-1908	75	10.0	68	*d*378,600	337,900
1908-1909	126	27.7	189	*d*1,048,700	894,400
1909-1910	83	10.4	71	*d*393,700	350,600
1910-1911	110	16.6	113	*d*628,500	534,600
1911-1912	61	3.3	23	*d*124,900	127,200
1912-1913	79	8.2	56	310,500	
1913-1914	156	32.2	220	1,219,100	
1914-1915	143	28.0	191	1,060,100	
1915-1916	105	15.2	104	575,500	
1916-1917	81	8.5	58	321,800	
1917-1918	66	5.5	38	208,200	
1918-1919	94	12.0	82	454,300	
1919-1920	57	3.8	26	143,900	
1920-1921	133	24.5	167	927,600	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	555,000	14.60	782.00	....
Maximum seasonal	1,495,500	39.50	2,106.00	1889-1890
Minimum seasonal	124,900	3.30	176.00	1911-1912
Mean during July	3,890	0.10	5.40	....
Maximum during July	10,500	0.30	15.00	1889-1890
Minimum during July	900	0.02	1.30	1901-1902
Mean during August	2,780	0.07	3.90	....
Maximum during August	11,400	0.30	16.00	1910-1911
Minimum during August	640	0.02	0.90	1884-1885 1897-1898

Probable run-off curve, Plate XXIV. Mass curve of run-off, Plate CII.
Storage development curve, Plate CLVI. Probable frequency of flood discharge, Plate LXIV.

(*a*) Description of drainage basin: Tributary area, including North Fork, above junction of North Fork.

(*b*) Point of measurement: At gage near Fruto, in S. W. ¼ of N. E. ¼ of Sec. 14, T. 21 N., R. 6 W., drainage area 577 square miles.

(*c*) Partial record, February 1 to September 30.

(*d*) Measured run-off adjusted for storage and irrigation as follows: Irrigation 2,250 acres; storage, 13,400 acre-feet carried over from 1910-1911 to 1911-1912 in East Park Reservoir; and for additional area.

TABLE 59. WILLOW CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 394 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division F.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	116	5.4	123	114,000	January, 18.5%
1872-1873	63	1.7	39	36,000	February, 23.6%
1873-1874	120	5.8	132	122,000	March, 27.0%
1874-1875	82	2.7	62	57,000	April, 11.9%
1875-1876	112	5.0	114	105,000	May, 5.8%
1876-1877	60	1.5	34	32,000	June, 2.4%
1877-1878	142	8.0	182	168,000	July, 0.7%
1878-1879	78	2.4	55	50,000	August, 0.5%
1879-1880	91	3.3	75	69,000	September, 0.2%
1880-1881	83	2.8	64	59,000	October, 0.7%
1881-1882	65	1.8	41	38,000	November, 3.4%
1882-1883	70	2.0	46	42,000	December, 5.3%
1883-1884	99	3.9	89	82,000	
1884-1885	54	1.3	30	27,000	
1885-1886	125	6 2	141	130,000	
1886-1887	64	1.7	39	36,000	
1887-1888	66	1.8	41	38,000	
1888-1889	91	3.3	75	69,000	
1889-1890	177	12.6	287	265,000	
1890-1891	93	3.5	80	74,000	
1891-1892	92	3.4	78	71,000	
1892-1893	138	7.7	176	162,000	
1893-1894	80	2.6	59	55,000	
1894-1895	149	8.9	203	187,000	
1895-1896	117	5.5	125	116,000	
1896-1897	110	4.8	109	101,000	
1897-1898	54	1.3	30	27,000	
1898-1899	80	2.6	59	55,000	
1899-1900	110	4.8	109	101,000	
1900-1901	108	4.8	109	101,000	
1901-1902	129	6.7	153	141,000	
1902-1903	95	3.6	82	76,000	
1903-1904	126	6.3	144	132,000	
1904-1905	141	7.9	180	166,000	
1905-1906	132	6.9	157	145,000	
1906-1907	119	5.7	130	120,000	
1907-1908	75	2.3	52	48,000	
1908-1909	126	6.3	144	132,000	
1909-1910	83	2.8	64	59,000	
1910-1911	110	4.8	109	101,000	
1911-1912	61	1.6	37	34,000	
1912-1913	79	2.5	57	53,000	
1913-1914	156	9 8	224	206,000	
1914-1915	143	8 2	187	172,000	
1915-1916	105	4.4	100	93,000	
1916-1917	81	2 6	59	55,000	
1917-1918	66	1.8	41	38,000	
1918-1919	94	3.5	80	74,000	
1919-1920	57	1.4	32	29,000	
1920-1921	133	7.1	162	149,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	92,200	4.40	234	....
Maximum seasonal	265,000	12.60	672	1889-1890
Minimum seasonal	27,000	1 30	68	1884-1885 1897-1898
Mean during July	650	0 03	2	....
Maximum during July	1,860	0 09	5	1889-1890
Minimum during July	190	0 01	Trace	1884-1885 1897-1898
Mean during August	460	0.02	1	....
Maximum during August	1,330	0 06	3	1889-1890
Minimum during August	140	0.01	Trace	1884-1885 1897-1898

Probable run-off curve, Plate XXIV. Mass curve of run-off, Plate CII.
Storage development curve, Plate CLVI. Probable frequency of flood discharge, Plate LXIV.

(*a*) Description of drainage basin: Tributary areas above intersections with streams of longitude lines as follows: HUMBRIGHT CREEK, longitude 122° 21.8′; WILLOW CREEK, longitude 122° 22.3′; LOGAN CREEK, longitude 122° 21.5′; HUNTERS CREEK, longitude 122° 20′; FUNKS CREEK, longitude 122° 18.9′; STONE CORRAL CREEK, longitude 122° 19.4′; SAND CREEK, longitude 122° 10.2′; FRESHWATER CREEK, longitude 122° 19.2′; SALT CREEK, longitude 122° 18.4′; SPRING CREEK, longitude 122° 16.5′; CORTINA CREEK, longitude 122° 12.2′

(*b*) Estimated from record for Stony Creek.

TABLE 60. CACHE CREEK.

SEASONAL RUN-OFF DATA. Drainage area 1,195 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division F.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by records.*f*
1871-1872	116	10.8	117	688,000	January, 7.8%
1872-1873	63	3.8	41	242,000	February, 13.6%
1873-1874	120	11.6	126	739,000	March, 16.2%
1874-1875	82	5.7	62	363,000	April, 13.6%
1875-1876	112	10.0	109	637,000	May, 11.6%
1876-1877	60	3.5	38	223,000	June, 9.6%
1877-1878	142	16.3	177	1,039,000	July, 9.0%
1878-1879	78	5.3	58	338,000	August, 7.3%
1879-1880	91	6.8	74	433,000	September, 5.1%
1880-1881	83	5.9	64	376,000	October, 2.2%
1881-1882	65	4.0	43	255,000	November, 1.5%
1882-1883	70	4.5	49	287,000	December, 2.5%
1883-1884	99	8.1	88	516,000	
1884-1885	54	3.0	33	191,000	
1885-1886	125	12.6	137	803,000	
1886-1887	64	3.9	42	249,000	
1887-1888	66	4.0	44	255,000	
1888-1889	91	6.8	74	433,000	
1889-1890	177	25.7	280	1,638,000	
1890-1891	93	7.2	78	459,000	
1891-1892	92	7.1	77	453,000	
1892-1893	138	15.6	170	994,000	
1893-1894	80	5.5	60	351,000	
1894-1895	149	18.2	198	1,160,000	Measured seasonal discharge in acre-feet at gaging station.*b*
1895-1896	117	10.9	119	695,000	
1896-1897	110	9.8	107	625,000	
1897-1898	54	3.0	33	191,000	
1898-1899	80	5.5	60	351,000	
1899-1900	110	9.8	107	625,000	
1900-1901	108	9.6	104	*f*612,000	*c, e*226,600
1901-1902	129	12.0	130	*f*765,600	*c*368,000
1902-1903	95	9.8	107	*f*626,100	*c*280,400
1903-1904	126	17.6	192	*f*1,120,800	*c*569,300
1904-1905	141	11.2	122	*f*716,700	*c*339,500
1905-1906	132	12.5	136	*f*796,900	*c*380,900
1906-1907	119	16.3	177	*f*1,039,600	*c*534,400
1907-1908	75	7.9	86	*f*503,200	*c*204,900
1908-1909	126	21.1	230	*f*1,343,600	*c*726,400
1909-1910	83	7.5	81	*f*476,300	*c*183,200
1910-1911	110	9.2	100	*f*584,400	*c*246,500
1911-1912	61	4.0	44	*f*256,300	*c*49,700
1912-1913	79	5.0	54	*f*318,500	*c*83,000
1913-1914	156	17.4	189	*f*1,109,400	*c*577,600
1914-1915	143	16.4	178	*f*1,045,700	*c*539,200
1915-1916	105	8.2	89	*f*520,900	*d*212,800
1916-1917	81	6.0	65	*f*384,400	*d*125,600
1917-1918	66	5.2	57	*f*331,300	*d*102,300
1918-1919	94	6.2	67	*f*393,400	*d*129,500
1919-1920	57	2.7	29	*f*174,600	*d*4,200
1920-1921	133	9.0	98	*f*576,000	*d*227,200

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	586,000	9.2	490	....
Maximum seasonal	1,638,000	25.7	1,371	1889-1890
Minimum seasonal	174,600	2.7	146	1919-1920
Mean during July	52,740	0.8	44	....
Maximum during July	117,400	2.3	123	1889-1890
Minimum during July	17,200	0.3	14	1884-1885 1897-1898
Mean during August	42,780	0.7	36	....
Maximum during August	119,600	1.9	100	1889-1890
Minimum during August	13,900	0.2	12	1884-1885 1897-1898

Probable run-off curve, Plate XXIV. Mass curve of run-off, Plate CIII.
Storage development curve, Plate CLVI. Probable frequency of flood discharge, Plate LXIV.
(*a*) Description of drainage basin: Tributary area above point 1,000 feet upstream from railroad bridge at Yolo.
(*b*) Point of measurement, near Lower Lake, 300 feet above mouth of Seigler Creek, drainage area 487 square miles.
(*c*) By United States Geological Survey.
(*d*) By Yolo Water and Power Company.
(*e*) Partial record. January 1 to September 30.
(*f*) Measured discharge adjusted for storage in, and evaporation from, Clear Lake, and for additional area.

TABLE 61. PUTAH CREEK.

SEASONAL RUN-OFF DATA. Drainage area 655 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division F.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*e*	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*d*
1871-1872	116	16.1	133	562.000	January, 36.2%	
1872-1873	63	2.4	20	84,000	February, 26.4%	
1873-1874	120	17.3	143	604,000	March, 19.4%	
1874-1875	82	6.7	56	234,000	April, 5.4%	
1875-1876	112	15.0	124	524,000	May, 2.1%	
1876-1877	60	1.7	15	59,000	June, 0.8%	
1877-1878	142	23.7	197	827,000	July, 0.3%	
1878-1879	78	5.9	49	206,000	August, 0.2%	
1879-1880	91	9.2	76	321.000	September, 0.1%	
1880-1881	83	7,1	59	248,000	October, 0.1%	
1881-1882	65	2.7	24	94,000	November, 1.3%	
1882-1883	70	3.9	32	136,000	December, 7.7%	
1883-1884	99	11.4	95	398,000		
1884-1885	54	0.5	5	17,000		
1885-1886	125	18.8	156	656,000		
1886-1887	64	2.5	21	87,000		
1887-1888	66	3.0	25	105,000		
1888-1889	91	9.2	76	321,000		
1889-1890	177	35.5	294	1,239,000		
1890-1891	93	9.9	82	346,000		
1891-1892	92	9.5	79	332,000		
1892-1893	138	22.7	188	793,000		
1893-1894	80	6.2	51	216,000		
1894-1895	149	26.0	216	908,000		
1895-1896	117	16.5	137	576,000		
1896-1897	110	14.5	120	506,000		
1897-1898	54	0.5	5	17,000		
1898-1899	80	6.2	52	216,000		
1899-1900	110	14.5	120	506,000		
1900-1901	108	14.0	116	489,000		
1901-1902	129	20.0	166	698,000		
1902-1903	95	10.2	85	356,000		
1903-1904	126	19.0	158	663,000		
1904-1905	141	23.5	195	820,000		
1905-1906	132	16.9	141	*e*583,000		582,600
1906-1907	119	20.0	166	*e*690,700		690,300
1907-1908	75	5.7	47	*e*199,800		199,400
1908-1909	126	25.3	210	*e*882,200		881,800
1909-1910	83	6.5	54	*e*228,000		227,700
1910-1911	110	13.9	116	*e*487,000		*b*486,200
1911-1912	61	1.6	13	*e*57,300		*c*56,600
1912-1913	79	3.9	32	*e*134,400		133,500
1913-1914	156	25.7	213	*e*896,400		895,300
1914-1915	143	20.5	170	*e*710,600		709,700
1915-1916	105	20.4	169	*e*710.100		708,800
1916-1917	81	8.2	68	*e*285,900		284,400
1917-1918	66	2.6	23	*e*90,800		88,800
1918-1919	94	9.1	75	*e*317,500		315,500
1919-1920	57	1.3	11	*e*45,000		42,600
1920-1921	133	14.7	122	*e*512.900		510 200

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	421,800	12.10	644	....
Maximum seasonal	1,239,000	35.50	1,892	1889-1890
Minimum seasonal	17,000	0.50	26	1884-1885 1897-1898
Mean during July	1,270	0.04	2	....
Maximum during July	3,720	0.10	6	1889-1890
Minimum during July	50	Trace	Trace	1884-1885 1897-1898
Mean during August	840	0.02	1	....
Maximum during August	2,480	0.10	4	1889-1890
Minimum during August	30	Trace	Trace	1884-1885 1897-1898

Probable run-off curve, Plate XXV. Mass curve of run-off, Plate CIII.
Storage development curve, Plate CLVII. Probable frequency of flood discharge, Plate LXV.

(*a*) Description of drainage basin: Tributary area above railroad bridge at Winters.

(*b*) Partial record, October 1 to May 16.

(*c*) Partial record, October 1 to May 12, June 10 to August 31, and September 8 to September 30.

(*d*) Point of measurement: At railroad bridge at Winters, drainage area 655 square miles.

(*e*) Measured run-off adjusted for irrigation above point of measurement as follows: 337 acres irrigated from 1905-1906 to 1910-1911, and thereafter increasing 167 acres per year to total of 2,000 acres in 1920-1921

TABLE 62. ORESTIMBA CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 1,340 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness.b	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.c
1871-1872	122	2.3	149	164,400	January, 12.9%
1872-1873	88	0.8	52	57,200	February, 14.9%
1873-1874	87	0.8	52	57,200	March, 15.4%
1874-1875	79	0.5	32	35,700	April, 21.4%
1875-1876	125	2 5	161	178,700	May, 17.4%
1876-1877	33	0.0	0	0	June, 8.9%
1877-1878	113	1.9	123	135,800	July, 4.3%
1878-1879	64	0.1	6	7,100	August, 0.0%
1879-1880	98	1.2	77	85,800	September, 0.0%
1880-1881	97	1.2	77	85,800	October, 0.9%
1881-1882	66	0.1	6	7,100	November, 1.5%
1882-1883	91	1.0	65	71,500	December, 2 4%
1883-1884	150	4.0	258	285,900	
1884-1885	70	0.2	13	14,300	
1885-1886	129	2.7	174	193,000	
1886-1887	55	0.0	0	0	
1887-1888	64	0.1	6	7,100	
1888-1889	80	0.5	32	35,700	
1889-1890	182	6.3	407	450,200	
1890-1891	82	0.6	39	42,900	
1891-1892	93	1.0	65	71,500	
1892-1893	132	2.9	187	207,200	
1893-1894	89	0.9	58	64,300	
1894-1895	140	3.3	213	235,800	
1895-1896	102	1.4	90	100,000	
1896-1897	111	1.8	116	128,600	
1897-1898	50	0.0	0	0	
1898-1899	77	0.5	32	35,700	
1899-1900	105	1.5	97	107,200	
1900-1901	131	2.8	181	200,100	
1901-1902	87	0.8	52	57,200	
1902-1903	100	1.3	84	92,900	
1903-1904	81	0.6	39	42,900	
1904-1905	132	2.9	187	207,200	
1905-1906	138	3.3	213	235,800	
1906-1907	156	4.4	284	314,500	
1907-1908	73	0.4	26	28,600	
1908-1909	116	2.0	129	142,900	
1909-1910	97	1.2	77	85,800	
1910-1911	124	2.4	155	171,500	
1911-1912	65	0.1	6	7,100	
1912-1913	49	0.0	0	0	
1913-1914	146	3.7	239	264,400	
1914-1915	140	3.3	213	235,800	
1915-1916	132	2.9	187	207,200	
1916-1917	82	0.7	45	50,000	
1917-1918	84	0.7	45	50,000	
1918-1919	101	1.4	90	100,000	
1919-1920	78	0.5	32	35,700	
1920-1921	114	2.0	129	142.900	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	110,800	1.60	83	....
Maximum seasonal	450,200	6.30	336	1889-1890
Minimum seasonal	0	0.00	0	(See above.)
Mean during July	4,800	0.07	4	....
Maximum during July	19,400	0.27	14	1889-1890
Minimum during July	0	0.00	0	(See above.)
Mean during August	0	0.00	0	....
Maximum during August	0	0.00	0	1889-1890
Minimum during August	0	0.00	0	(See above.)

Probable run-off curve, Plate XXV. Mass curve of run-off, Plate CIV.
Storage development curve, Plate CLVII. Probable frequency of flood discharge, Plate LXV.

(a) Description of drainage basin: Tributary areas above points of intersection of streams with latitude and longitude lines as follows: LITTLE PANOCHE CREEK, longitude 120° 45.9′; LAGUNA SECA, longitude 120° 48.1′; ORTIGALITA CREEK, longitude 120° 52.1′; LOS BANOS CREEK, latitude 37° 00′; SAN LUIS CREEK, longitude 121° 3.5′; ROMERO CREEK, longitude 121° 5′; QUINTO CREEK, longitude 121° 4.1′; MUSTANG CREEK, longitude 121° 5′; GARZOS CREEK, longitude 121° 7.7′; CROW CREEK, longitude 121° 7.6′; ORESTIMBA CREEK, longitude 121° 6.2′; LITTLE SALADA CREEK, longitude 121° 9.6′; PUERTO CREEK, longitude 121° 12.5′; INGRAM CREEK, longitude 121° 15.5′; HOSPITAL CREEK, longitude 121° 20.7′; BUENOS AIRES CREEK, longitude 121° 26.5′; MOUNTAIN HOUSE CREEK, longitude 121° 32.1′; BUSHY CREEK, longitude 121° 36.5′; KELLOGG CREEK, 121° 39′; MARSH CREEK, longitude 121° 42.8′; LONE TREE CREEK, longitude 121° 21.6′; SAND CREEK, longitude 121° 44.1′; DRY CREEK, longitude 121° 43.2′; DEER CREEK, longitude 121° 43.2′; SALADA CREEK, 121° 9.3′.

(b) Index of seasonal wetness obtained by weighting indices of Divisions L and P in proportion to one and three, respectively.

(c) Estimated from records for White River

TABLE 63. PANOCHE CREEK.

SEASONAL RUN-OFF DATA. Drainage area 295 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division T.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months *b*	
1871-1872	125	2.7	157	42,500	January,	12.9%
1872-1873	59	0.0	0	0	February,	14.9%
1873-1874	95	1.3	75	20,500	March,	15.4%
1874-1875	79	0.6	35	9,400	April,	21.4%
1875-1876	147	3.7	215	58,200	May,	17.4%
1876-1877	35	0.0	0	0	June,	8.9%
1877-1878	138	3.3	192	51,900	July,	4.3%
1878-1879	51	0.0	0	0	August,	0.0%
1879-1880	106	1.7	99	26,800	September,	0.0%
1880-1881	97	1.4	81	22,000	October,	0.9%
1881-1882	87	1.0	58	15,700	November,	1.5%
1882-1883	85	0.9	52	14,200	December,	2.4%
1883-1884	178	5.7	332	89,700		
1884-1885	72	0.4	23	6,300		
1885-1886	150	4.0	232	63,000		
1886-1887	72	0.4	23	6,300		
1887-1888	88	1.0	58	15,700		
1888-1889	113	2.1	122	33 100		
1889-1890	192	6.7	390	105,500		
1890-1891	89	1.0	58	15.700		
1891-1892	72	0.4	23	6,300		
1892-1893	128	2.8	163	44,100		
1893-1894	45	0.0	0	0		
1894-1895	110	2.0	116	31,500		
1895-1896	90	1.1	64	17,300		
1896-1897	99	1.5	87	23,600		
1897-1898	34	0.0	0	0		
1898-1899	71	0.4	23	6,300		
1899-1900	73	0.4	23	6,300		
1900-1901	142	3.6	210	56,700		
1901-1902	89	1.0	58	15,700		
1902-1903	78	0.6	35	9,400		
1903-1904	73	0.4	23	6,300		
1904-1905	130	2.9	169	45 600		
1905-1906	113	2.1	122	33,000		
1906-1907	147	3.7	215	58.200		
1907-1908	93	1.3	76	20,500		
1908-1909	144	3.6	210	56,700		
1909-1910	101	1.5	87	23,600		
1910-1911	152	4.1	238	64,500		
1911-1912	77	0 6	35	9,400		
1912-1913	46	0.0	0	0		
1913-1914	140	3.4	198	53,500		
1914-1915	147	3.7	215	58,200		
1915-1916	118	2.3	134	36,200		
1916-1917	108	1.9	111	29,900		
1917-1918	84	0.8	47	12,600		
1918-1919	82	0 7	41	11,000		
1919-1920	71	0.4	23	6,300		
1920-1921	85	0.9	52	14,200		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	27,100	1.70	92	....
Maximum seasonal	105,500	6.70	358	1889-1890
Minimum seasonal	0	0.00	0	(See above.)
Mean during July	1,170	0.07	4	....
Maximum during July	4,540	0 29	15	1889-1890
Minimum during July	0	0.00	0	(See above.)
Mean during August	0	0.00	0	....
Maximum during August	0	0.00	0	....
Minimum during August	0	0.00	0	(See above.)

Probable run-off curve, Plate XXV.
Storage development curve, Plate CLVII.
Mass curve of run-off, Plate CIV.
Probable frequency of flood discharge, Plate LXV.

(*a*) Description of drainage basin: Tributary area above foothills, longitude 120° 39.7′, near Mendota.
(*b*) Estimated from record for White River.

TABLE 64. CANTUA CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 208 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division T.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	125	1.7	150	18,900	January, 12.9%
1872-1873	59	0.0	0	0	February, 14.9%
1873-1874	95	0.8	71	8,900	March, 15.4%
1874-1875	79	0.4	35	4,400	April, 21.4%
1875-1876	147	2.6	230	28,800	May, 17.4%
1876-1877	35	0.0	0	0	June, 8.9%
1877-1878	138	2.3	203	25,500	July, 4.3%
1878-1879	51	0.0	0	0	August, 0.0%
1879-1880	106	1.1	97	12,200	September, 0.0%
1880-1881	97	0.8	71	8,900	October, 0.9%
1881-1882	87	0.5	44	5,500	November, 1.5%
1882-1883	85	0.5	44	5,500	December, 2.4%
1883-1884	178	4.2	372	46,600	
1884-1885	72	0.2	18	2,200	
1885-1886	150	2.7	239	30,000	
1886-1887	72	0.2	18	2,200	
1887-1888	88	0.6	53	6,700	
1888-1889	113	1.3	115	14,400	
1889-1890	192	5.0	442	55,500	
1890-1891	89	0.6	53	6,700	
1891-1892	72	0.2	18	2,200	
1892-1893	128	1.8	159	20,000	
1893-1894	45	0.0	0	0	
1894-1895	110	1.2	106	13,300	
1895-1896	90	0.6	53	6,700	
1896-1897	99	0.9	80	10,000	
1897-1898	34	0.0	0	0	
1898-1899	71	0.2	18	2,200	
1899-1900	73	0.2	18	2,200	
1900-1901	142	2.4	212	26,600	
1901-1902	89	0.6	53	6,700	
1902-1903	78	0.3	27	3,300	
1903-1904	73	0.2	18	2,200	
1904-1905	130	2.0	177	22,200	
1905-1906	113	1.3	115	14,400	
1906-1907	147	2.6	230	28,800	
1907-1908	93	0.7	62	7,800	
1908-1909	144	2.5	222	27,700	
1909-1910	101	1.0	89	11,100	
1910-1911	152	2.8	248	31,100	
1911-1912	77	0.3	27	3,300	
1912-1913	46	0.0	0	0	
1913-1914	140	2.3	203	25,500	
1914-1915	147	2.6	230	28,800	
1915-1916	118	1.5	133	16,600	
1916-1917	108	1.2	106	13,300	
1917-1918	84	0.5	44	5,500	
1918-1919	82	0.4	35	4,400	
1919-1920	71	0.2	18	2,200	
1920-1921	85	0.5	44	5,500	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	12,500	1.10	60	....
Maximum seasonal	55,500	5.00	267	1889-1890
Minimum seasonal	0	0.00	0	(See above.)
Mean during July	540	0.05	3	....
Maximum during July	2,400	0.22	12	1889-1890
Minimum during July	0	0.00	0	(See above.)
Mean during August	0	0.00	0	....
Maximum during August	0	0.00	0	....
Minimum during August	0	0.00	0	(See above.)

Probable run-off curve, Plate XXV. Mass curve of run-off, Plate CV.
Storage development curve, Plate CLVII. Probable frequency of flood discharge, Plate LXV.

(*a*) Description of drainage basin: Tributary area above point where 500 foot contour crosses the following streams: DOMENGINE CREEK, MARTINEZ CREEK, SALT CREEK, CANTUA CREEK, ARROYO HONDO, ARROYO CIERVO.

(*b*) Estimated from records for White River

TABLE 65. LOS GATOS CREEK.

SEASONAL RUN-OFF DATA. Drainage area 119 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division T.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	125	2.4	156	15,200	January, 12.9%
1872-1873	59	0.0	0	0	February, 14.9%
1873-1874	95	1.1	72	7,090	March, 15.4%
1874-1875	79	0.6	39	3,800	April, 21.4%
1875-1876	147	3.4	221	21,600	May, 17.4%
1876-1877	35	0.0	0	0	June, 8.9%
1877-1878	138	3.0	195	19,000	July, 4.3%
1878-1879	51	0.0	0	0	August, 0.0%
1879-1880	106	1.5	98	9,509	September, 0.0%
1880-1881	97	1.2	78	7,600	October, 0.9%
1881-1882	87	0.8	52	5,100	November, 1.5%
1882-1883	85	0.7	46	4,400	December, 2.4%
1883-1884	178	5.4	351	34,300	
1884-1885	72	0.3	20	1,900	
1885-1886	150	3.5	228	22,200	
1886-1887	72	0.3	20	1,900	
1887-1888	88	0.9	59	5,700	
1888-1889	113	1.8	117	11,400	
1889-1890	192	6.5	422	41,300	
1890-1891	89	0.9	59	5,700	
1891-1892	72	0.3	20	1,900	
1892-1893	128	2.5	163	15,900	
1893-1894	45	0.0	0	0	
1894-1895	110	1.7	110	10,800	
1895-1896	90	1.0	65	6,300	
1896-1897	99	1.3	85	8,200	
1897-1898	34	0.0	0	0	
1898-1899	71	0.3	20	1,900	
1899-1900	73	0.4	26	2,500	
1900-1901	142	3.2	208	20,300	
1901-1902	89	0.9	59	5,700	
1902-1903	78	0.5	33	3,200	
1903-1904	73	0.4	26	2,500	
1904-1905	130	2.5	163	15,900	
1905-1906	113	1.8	117	11,400	
1906-1907	147	3.4	221	21,600	
1907-1908	93	1.0	65	6,400	
1908-1909	144	3.3	214	20,900	
1909-1910	101	1.4	91	8,900	
1910-1911	152	3.7	240	23,500	
1911-1912	77	0.5	33	3,200	
1912-1913	46	0.0	0	0	
1913-1914	140	3.0	195	19,000	
1914-1915	147	3.4	221	21,600	
1915-1916	118	2.0	130	12,700	
1916-1917	108	1.7	111	10,800	
1917-1918	84	0.7	46	4,400	
1918-1919	82	0.6	39	3,800	
1919-1920	71	0.3	20	1,900	
1920-1921	85	0.7	46	4,400	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	9,750	1.50	82	....
Maximum seasonal	41,300	6.50	347	1889-1890
Minimum seasonal	0	0.00	0	(See above.)
Mean during July	420	0.07	4	....
Maximum during July	1,780	0.28	15	1889-1890
Minimum during July	0	0.00	0	(See above.)
Mean during August	0	0.00	0	....
Maximum during August	0	0.00	0	....
Minimum during August	0	0.00	0	(See above.)

Probable run-off curve, Plate XXVI. Mass curve of run-off, Plate CV.
Storage development curve, Plate CLVIII. Probable frequency of flood discharge, Plate LXVI.

(*a*) Description of drainage basin: Tributary area above point at base of hills, 5½ miles northwest of Coalinga, in S. E. ¼ of Sec. 10, T. 20 S., R. 14 E.

(*b*) Estimated from record on White River

TABLE 66. TEJON CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 1,341 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division T.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.b
1871-1872	125	2.0	153	143,100	January, 12.9%
1872-1873	59	0.0	0	0	February, 14.9%
1873-1874	95	0.9	69	64,400	March, 15.4%
1874-1875	79	0.4	31	28,600	April, 21.4%
1875-1876	147	3.0	229	214,600	May, 17.4%
1876-1877	35	0.0	0	0	June, 8.9%
1877-1878	138	2.6	199	186,000	July, 4.3%
1878-1879	51	0.0	0	0	August, 0.0%
1879-1880	106	1.3	100	93,000	September, 0.0%
1880-1881	97	1.0	76	71,500	October, 0.9%
1881-1882	87	0.6	46	42,900	November, 1.5%
1882-1883	85	0.6	46	42,900	December, 2.4%
1883-1884	178	4.8	367	343,400	
1884-1885	72	0.2	15	14,300	
1885-1886	150	3.2	244	228,900	
1886-1887	72	0.2	15	14,300	
1887-1888	88	0.7	54	50,100	
1888-1889	113	1.5	115	107,300	
1889-1890	192	5.8	443	414,900	
1890-1891	89	0.7	54	50,100	
1891-1892	72	0.2	15	14,300	
1892-1893	128	2.2	168	157,400	
1893-1894	45	0.0	0	0	
1894-1895	110	1.4	107	100,100	
1895-1896	90	0.7	54	50,100	
1896-1897	99	1.0	76	71,500	
1897-1898	34	0.0	0	0	
1898-1899	71	0.2	15	14,300	
1899-1900	73	0.2	15	14,300	
1900-1901	142	2.8	214	200,300	
1901-1902	89	0.7	54	50,100	
1902-1903	78	0.4	31	28,600	
1903-1904	73	0.3	23	21,500	
1904-1905	130	2.3	176	164,500	
1905-1906	113	1.5	115	107,300	
1906-1907	147	3.0	230	214,600	
1907-1908	93	0.8	61	57,200	
1908-1909	144	2.9	222	207,400	
1909-1910	101	1.1	84	78,700	
1910-1911	152	3.3	252	236,100	
1911-1912	77	0.3	23	21,500	
1912-1913	46	0.0	0	0	
1913-1914	140	2.7	206	193,100	
1914-1915	147	3.0	229	214,600	
1915-1916	118	1.7	130	121,600	
1916-1917	108	1.4	107	100,100	
1917-1918	84	0.5	38	35,800	
1918-1919	82	0.5	38	35,800	
1919-1920	71	0.2	15	14,300	
1920-1921	85	0.6	46	42,900	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	95,600	1.30	71	....
Maximum seasonal	414,900	5.80	309	1889-1890
Minimum seasonal	0	0.00	0	(See above.)
Mean during July	4,100	0.06	3	....
Maximum during July	17,800	0.25	13	1889-1890
Minimum during July	0	0.00	0	(See above.)
Mean during August	0	0.00	0	....
Maximum during August	0	0.00	0	....
Minimum during August	0	0.00	0	(See above.)

Probable run-off curve, Plate XXVI. Mass curve of run-off, Plate CVI.
Storage development curve, Plate CLVIII. Probable frequency of flood discharge, Plate LXVI.

(a) Description of drainage basin: Tributary area, at base of foothills, above intersection of streams with the indicated longitude or latitude lines: WALTHAM CREEK, longitude 120° 22.4′; JACALITOS CREEK, longitude 120° 18.6′; ZAPATO CREEK, longitude 120° 13.9′; BITTERWATER CREEK, longitude 119° 59.4′; DEVILWATER CREEK, longitude 119° 54.9′; MEDIA AGUA, longitude 119° 53.8′; CHICO MARTINEZ, longitude 119° 47.2′; SALT CREEK, longitude 119° 45.5′; BITTER CREEK, longitude 119° 20.7′; SANTIAGO CREEK, latitude 34° 57.5′; LIVEOAK CREEK, latitude 34° 55.9′; SAN EMIGDIO CREEK, latitude 34° 59.3′; PLEITO CREEK, latitude 34° 59.6′; TECUJA CREEK, latitude 34° 56′; GRAPEVINE CREEK, latitude 34° 55.9′; PASTORIA CREEK, latitude 34° 56.2′; TUNIS CREEK, latitude 34° 58.7′; EL PASO CREEK, longitude 118° 44.4′; TEJON CREEK, longitude 118° 50.2′; SANTOS CREEK, longitude 119° 51.1′; CANOAS CREEK, latitude 35° 59.9′; GARZA CREEK, latitude 35° 59.1′; AVENAL CREEK, longitude 120° 10.3′; COTTONWOOD CANYON, longitude 120° 7.4′; FRANCISCAN CREEK, longitude 120° 6′; PACKWOOD CREEK, longitude 120° 1′; BUENA VISTA CREEK, longitude 119° 34.8′; BITTERAWTER CREEK, longitude 119° 24.9′; SALT CREEK, latitude 34° 57′.

(b) Estimated from record for White River.

TABLE 67. CALIENTE CREEK.

SEASONAL RUN-OFF DATA. Drainage area 471 square miles. *a*

Season. (Begins October 1.)	Index of seasonal wetness. Division V.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*b*
1871-1872	79	0.8	45	20,100	January, 12.9%
1872-1873	56	0.1	6	2,500	February, 14.9%
1873-1874	84	0.9	50	22,600	March, 15.4%
1874-1875	96	1.4	78	35,200	April, 21.4%
1875-1876	125	2.6	145	65,300	May, 17.4%
1876-1877	28	0.0	0	0	June, 8.9%
1877-1878	147	3.7	207	93,000	July, 4.3%
1878-1879	56	0.1	6	2,500	August, 0.0%
1879-1880	145	3.6	201	90,500	September, 0.0%
1880-1881	66	0.4	22	10,000	October, 0.9%
1881-1882	44	0.0	0	0	November, 1.5%
1882-1883	65	0.3	17	7,500	December, 2.4%
1883-1884	204	8.0	447	201,000	
1884-1885	65	0.3	17	7,500	
1885-1886	167	4.9	274	123,100	
1886-1887	120	2.3	128	57,800	
1887-1888	134	3.0	168	75,400	
1888-1889	146	3 6	201	90,500	
1889-1890	180	5.8	324	145,800	
1890-1891	94	1.3	73	32,700	
1891-1892	104	1.7	95	42,700	
1892-1893	107	1.8	101	45,200	
1893-1894	101	1.6	89	40,200	
1894-1895	126	2 6	145	65,300	
1895-1896	70	0.5	28	12,600	
1896-1897	96	1.4	78	35,200	
1897-1898	33	0.0	0	0	
1898-1899	30	0.0	0	0	
1899-1900	64	0.3	17	7,500	
1900-1901	103	1.6	89	40,200	
1901-1902	87	1.0	56	25,100	
1902-1903	84	0.9	50	22,600	
1903-1904	63	0.3	17	7,500	
1904-1905	140	3.3	184	82,900	
1905-1906	151	4.1	229	103,000	
1906-1907	140	3.3	184	82,900	
1907-1908	81	0.8	45	20,100	
1908-1909	117	2.2	123	55,300	
1909-1910	63	0.3	17	7,500	
1910-1911	119	2.3	128	57,800	
1911-1912	101	1.6	89	40,200	
1912-1913	85	1.0	56	25,100	
1913-1914	96	1.4	78	35,100	
1914-1915	128	2.7	151	67,800	
1915-1916	135	3.0	168	75,400	
1916-1917	111	2.0	112	50,300	
1917-1918	117	2.2	123	55,300	
1918-1919	75	0.6	33	15,100	
1919-1920	80	0.8	45	20,100	
1920-1921	89	1.1	61	27,600	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	45,000	1.80	96	
Maximum seasonal	201,000	8.00	427	1883-1884
Minimum seasonal	0	0.00	0	1876-1877, 1881-1882, 1897-1898, 1898-1899
Mean during July	1,900	0.08	4	
Maximum during July	8,600	0.34	18	1883-1884
Minimum during July	0	0.00	0	1876-1877, 1881-1882, 1897-1898, 1898-1899
Mean during August	0	0.00	0	
Maximum during August	0	0.00	0	
Minimum during August	0	0.00	0	1876-1877, 1881-1882, 1897-1898, 1898-1899

Probable run-off curve, Plate XXVI.
Storage development curve, Plate CLVIII.
Mass curve of run-off, Plate CVI.
Probable frequency of flood discharge, Plate LXVI.

(*a*) Description of drainage basin: Tributary area of CALIENTE CREEK above a point one-half mile south of Bena, and WALKER CREEK at Bena.

(*b*) Estimated from records for White River.

TABLE 68. KERN RIVER.

SEASONAL RUN-OFF DATA. Drainage area 2,410 square miles.*a*

eason. (Begins October 1.)	Index of seasonal wetness, Division R.	Depth of run-off in inches.	Run-off index	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*e*
1871-1872	120	7.3	123	938,000	January, 5.1%
1872-1873	75	3.3	56	424,000	February, 5.4%
1873-1874	101	5.3	90	681,000	March, 9.1%
1874-1875	64	2.7	46	347,000	April, 14.0%
1875-1876	125	7.9	134	1,015,000	May, 20.6%
1876-1877	53	2.2	37	283,000	June, 20.4%
1877-1878	140	9.8	166	1,260,000	July, 10.9%
1878-1879	*f*25	2.3	39	296,000	August, 4 5%
1879-1880	137	9.4	159	1,208,000	September, 2.3%
1880-1881	96	5.0	84	643,000	October, 2.5%
1881-1882	83	3.9	66	501,000	November, 2.4%
1882-1883	88	4.3	73	553,000	December, 2.8%
1883-1884	181	16.2	274	2,082,000	
1884-1885	71	3.1	52	398,000	
1885-1886	123	7.7	130	990,000	
1886-1887	86	4.1	69	527,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*d*
1887-1888	60	2.5	42	321,000	
1888-1889	78	3.5	59	450.000	
1889-1890	119	7.2	122	925,000	
1890-1891	87	4.2	71	540,000	
1891-1892	107	5.9	100	758,000	
1892-1893	94	4.8	81	617,000	
1893-1894	88	4.5	76	*e*574,800	568,100
1894-1895	139	8.0	135	*e*1,030,200	1,017,500
1895-1896	91	5.0	84	*e*637,900	626,200
1896-1897	125	7.0	118	*e*896,000	884,200
1897-1898	54	2.3	39	*e*299,500	287,800
1898-1899	73	2.7	46	*e*342,500	330,800
1899-1900	82	2.6	44	*e*330,900	319,200
1900-1901	119	6.9	117	*e*883,800	871,700
1901-1902	97	4.5	76	*e*580.500	568,800
1902-1903	97	4.4	74	*e*569,500	556,800
1903-1904	71	3.7	62	*e*481,000	469,300
1904-1905	118	4.3	73	*e*559,700	548,000
1905-1906	169	14.4	243	*e*1,848,800	1,837,100
1906-1907	123	8.3	140	*e*1.065,200	*b*869.100
1907-1908	90	3.7	62	*e*479,500	*c*380,200
1908-1909	165	13.8	232	*e*1,771,500	1,759,800
1909-1910	102	5.8	98	*e*751,200	739,500
1910-1911	103	7.9	134	*e*1,013,700	1,002,000
1911-1912	76	3.4	58	*e*432,600	420,900
1912-1913	67	2.9	49	*e*369,500	358,000
1913-1914	135	8.6	144	*e*1,106,000	1,094,500
1914-1915	111	5.3	90	*e*675.300	664,000
1915-1916	153	19.2	328	*e*2,474,500	2,463,200
1916-1917	98	6.9	117	*e*883,500	872,300
1917-1918	62	4.1	69	*e*526,000	514,800
1918-1919	88	4.2	71	*e*544,100	532,500
1919-1920	99	4.7	79	*e*601.000	590,100
1920-1921	92	4.1	69	*e*528,900	518,100

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	760,400	5.90	316	....
Maximum seasonal	2,474,500	19.20	1,027	1915-1916
Minimum seasonal	283,000	2.20	117	1876-1877
Mean during July	82,900	0.60	34	....
Maximum during July	402,300	3.10	167	1905-1906
Minimum during July	17,300	0.13	7	1897-1898
Mean during August	34,200	0.27	14	....
Maximum during August	143,300	1.10	59	1905-1906
Minimum during August	9,700	0.08	4	1897-1898

Probable run-off curve, Plate XXVI. Mass curve of run-off, Plate CVII.
Storage development curve, Plate CLVIII. Probable frequency of flood discharge, Plate LXVI.

(*a*) Description of drainage basin: Tributary area above gage near Bakersfield in N. E. ¼ Sec. 2, T. 29 S., R. 28 E.

(*b*) Partial record, October 1 to June 30.

(*c*) Partial record, March 1 to September 30.

(*d*) Point of measurement: Gage near Bakersfiled, drainage area 2,410 square miles

(*e*) Measured run-off adjusted for irrigation of 6,500 acres from 1893-1894 to 1910-1911, and thereafter decreasing 50 acres per year to 6,000 acres in 1920-1921.

(*f*) Index of 56 used in estimating run-off, being the lowest index of any mountain station for this year.

TABLE 69. POSO CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 576 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division R.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*d*
1871-1872	120	2.2	143	67,600	January, 12.9%
1872-1873	75	0.4	29	13,800	February, 14.9%
1873-1874	101	1.3	85	39,900	March, 15.4%
1874-1875	64	0.2	13	6,100	April, 21.4%
1875-1876	125	2.4	159	75,300	May, 17.4%
1876-1877	53	0.0	0	0	June, 8.9%
1877-1878	140	3.3	215	101,400	July, 4.3%
1878-1879	25	0.0	0	0	August, 0.0%
1879-1880	137	3.1	202	95,200	September, 0.0%
1880-1881	96	1.1	72	33,800	October, 0.9%
1881-1882	83	0.7	46	21,500	November, 1.5%
1882-1883	88	0.8	55	26,100	December, 2.4%
1883-1884	181	6.0	390	184,300	
1884-1885	71	0.4	23	10,700	
1885-1886	123	2.4	153	72,200	
1886-1887	86	0.8	49	23,000	
1887-1888	60	0.2	10	4,600	
1888-1889	78	0.6	36	16,900	
1889-1890	119	2.2	140	66,000	
1890-1891	87	0.8	52	24,600	
1891-1892	107	1.5	98	46,100	
1892-1893	94	1.0	65	30,700	
1893-1894	88	0.8	55	26,100	
1894-1895	139	3.3	212	99,800	
1895-1896	91	1.0	62	29,200	
1896-1897	125	2.5	160	75,300	
1897-1898	54	0.0	0	0	
1898-1899	73	0.4	26	12,300	
1899-1900	82	0.6	42	20,000	
1900-1901	119	2.2	140	66,000	
1901-1902	97	1.2	75	35,300	
1902-1903	97	1.2	75	35,300	
1903-1904	71	0.4	23	10,700	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1904-1905	118	2.1	137	64,500	
1905-1906	169	5.1	335	158,200	
1906-1907	123	2.4	153	72,200	
1907-1908	90	0.9	58	27,600	
1908-1909	165	4.9	316	149,000	
1909-1910	102	1.4	88	41,500	
1910-1911	103	1.4	91	43,000	*b c*2,000
1911-1912	76	0.5	32	15,400	*b*1,600
1912-1913	67	0.3	20	9,200	*b*1,100
1913-1914	135	3.0	195	92,200	
1914-1915	111	1.8	114	53,800	
1915-1916	153	4.1	267	126,000	
1916-1917	98	1.2	78	36,900	
1917-1918	62	0.2	13	6,100	
1918-1919	88	0.8	55	26,100	
1919-1920	99	1.2	78	36,900	
1920-1921	92	1.0	65	30,700	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	47,300	1.50	82	....
Maximum seasonal	184,300	6.00	320	1883-1884
Minimum seasonal	0	0.00	0	1876-1877, 1878-1879, 1897-1898
Mean during July	2,000	0.07	3	....
Maximum during July	7,900	0.26	14	1883-1884
Minimum during July	0	0.00	0	1876-1877, 1878-1879, 1897-1898
Mean during August	0	0.00	0	....
Maximum during August	0	0.00	0	....
Minimum during August	0	0.00	0	....

Probable run-off curve, Plate XXVII.
Storage development curve, Plate CLIX.

Mass curve of run-off, Plate CVII.
Probable frequency of flood discharge, Plate LXVII.

(*a*) Description of drainage basin: WHITE RIVER to a point in N. W. ¼ of Sec. 17, T. 24 S., R. 26 E., 138 square miles; POSO CREEK to a point in N. E. ¼ of Sec. 35, T. 27 S., R. 27 E., 289 square miles; RAG GULCH to a point in N. E. ¼ of Sec. 10, T. 25 S., R. 27 E., 149 square miles.

(*b*) Point of measurement: White River near Hot Springs, drainage area 33 square miles.

(*c*) Partial, January 18 to March 27 and April 14 to September 30.

(*d*) Estimated from records for other streams in vicinity.

TABLE 70. DEER CREEK.

SEASONAL RUN-OFF DATA. Drainage area 110 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division R.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	120	4.7	134	27,600	January, 10.0%
1872-1873	75	1.6	45	9,400	February, 8.0%
1873-1874	101	3.1	88	18,200	March, 14.2%
1874-1875	64	1.1	31	6,500	April, 18.1%
1875-1876	125	5.2	148	30,600	May, 19.0%
1876-1877	53	0.7	20	4,100	June, 9.8%
1877-1878	140	6.7	191	39,400	July, 4.0%
1878-1879	e25	0.8	23	4,700	August, 2.0%
1879-1880	137	6.2	176	36,400	September, 2.1%
1880-1881	96	2.8	80	16,500	October, 2.8%
1881-1882	83	2.0	57	11,700	November, 4.2%
1882-1883	88	2.3	65	13,500	December, 5.8%
1883-1884	181	11.4	324	67,000	
1884-1885	71	1.4	40	8,200	
1885-1886	123	5.1	145	30,000	
1886-1887	86	2.2	63	12,900	
1887-1888	60	0.9	25	5,300	
1888-1889	78	1.7	48	10,000	
1889-1890	119	4.6	131	27,000	
1890-1891	87	2.2	63	12,900	
1891-1892	107	3.6	102	21,200	
1892-1893	94	2.6	74	15,300	
1893-1894	88	2.3	65	13,500	
1894-1895	139	6.5	185	38,200	
1895-1896	91	2.5	71	14,700	
1896-1897	125	5.2	148	30,600	
1897-1898	54	0.7	20	4,100	
1898-1899	73	1.5	43	8,800	
1899-1900	82	1.9	54	11,200	
1900-1901	119	4.6	131	27,000	
1901-1902	97	2.8	80	16,500	
1902-1903	97	2.8	80	16,500	
1903-1904	71	1 4	40	8,200	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.d
1904-1905	118	4.6	131	27,000	
1905-1906	169	9.9	282	58,200	
1906-1907	123	5.1	145	30,000	
1907-1908	90	2.4	68	14,100	
1908-1909	165	9.4	268	55,200	
1909-1910	102	3.2	91	18,800	
1910-1911	103	3.1	88	18,200	5,500
1911-1912	76	1.5	43	8,800	4,200
1912-1913	67	1.1	31	6,500	3,400
1913-1914	135	6.0	171	35,300	8,600
1914-1915	111	4.2	119	24,700	8,900
1915-1916	153	8.1	231	47,600	b9,300
1916-1917	98	2.9	83	17,000	c7,600
1917-1918	62	1.0	28	5,900	3,500
1918-1919	88	2.2	63	12,900	5,200
1919-1920	99	3.0	85	17,600	6,400
1920-1921	92	2.9	83	17,000	7,700

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	20,650	3.50	187	....
Maximum seasonal	67,000	11.40	608	1883-1884
Minimum seasonal	4,100	0.70	37	1876-1877 1897-1898
Mean during July	830	0.14	7	....
Maximum during July	2,680	0.46	24	1883-1884
Minimum during July	160	0.03	1	1876-1877 1897-1898
Mean during August	410	0.07	4	....
Maximum during August	1,340	0.23	12	1883-1884
Minimum during August	80	0 01	1	1876-1877 1897-1898

Probable run-off curve, Plate XXVII. Mass curve of run-off, Plate CVIII.
Storage development curve, Plate CLIX. Probable frequency of flood discharge, Plate LXVII.
(a) Description of drainage basin: Tributary area above point in Sec. 25, T. 22 S., R. 28 E.
(b) Partial record, October 31 to March 31.
(c) Partial record, November 15 to March 31 and May 1 to September 30.
(d) Point of measurement: Gage near Hot Springs, drainage area 11 square miles

NOTE.—Measurements by Terra Bella Irrigation District: Made at point in Section 10, T. 23 S., R. 29 E., drainage area 84 square miles. Discharge in 1919-1920, 11,086 acre-feet; in 1920-1921, 11,440 acre-feet.

TABLE 71. TULE RIVER.

SEASONAL RUN-OFF DATA. Drainage area 390 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division R.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Measured seasonal discharge in acre-feet at U.S.G.S. gaging stations. South Fork.c	Measured seasonal discharge in acre-feet at U.S.G.S. gaging stations. Main stream.b
1871-1872	120	9.0	132	187,000		
1872-1873	75	3.2	47	66,500		
1873-1874	101	6.1	90	126,700		
1874-1875	64	2.2	32	45,700		
1875-1876	125	9.8	144	203,600		
1876-1877	53	1.3	19	27,000		
1877-1878	140	12.6	185	261,800		
1878-1879	i25	1.6	24	33,200		
1879-1880	137	12.0	176	249,200		
1880-1881	96	5.3	78	110,200		
1881-1882	83	3.9	57	81,000		
1882-1883	88	4.5	66	93,500		
1883-1884	181	21.6	317	448,800		
1884-1885	71	2.7	40	56,100		
1885-1886	123	9.5	140	197,400		
1886-1887	86	4.2	62	87,300		
1887-1888	60	1.8	26	37,400		
1888-1889	78	3.4	50	70,600		
1889-1890	119	8.8	129	182,900		
1890-1891	87	4.3	63	89,300		
1891-1892	107	6.8	100	141,300		
1892-1893	94	5.2	76	108,000		
1893-1894	88	4.5	66	93,500		
1894-1895	139	12.5	184	259,700		
1895-1896	91	4.8	72	99,700		
1896-1897	125	9.8	144	203,600		
1897-1898	54	1.5	22	31,200		
1898-1899	73	3.0	44	62,300		
1899-1900	82	3.7	54	76,900		
1900-1901	119	8.8	129	182,900	....	d45,900
1901-1902	97	6.8	100	140,600	....	112,500
1902-1903	97	6.7	98	139,700	....	111,600
1903-1904	71	4.0	59	84,000	....	70,300
1904-1905	118	5.6	82	115,500	....	72,000
1905-1906	169	20.6	303	427,700	....	335,000
1906-1907	123	9.7	142	201,900	....	154,100
1907-1908	90	5.0	73	104,700	....	81,400
1908-1909	165	18.0	264	373,000	....	285,000
1909-1910	102	7.1	104	148,400	....	117,400
1910-1911	103	7.2	106	h149,700	24,600	120,900
1911-1912	76	3.2	47	h66,700	15,200	49,800
1912-1913	67	1.9	28	h39,700	9,040	29,200
1913-1914	135	8.3	122	h172,600	38,000	125,200
1914-1915	111	6.8	100	h142,100	34,000	102,800
1915-1916	153	16.8	247	h349,300	87,000	249,400
1916-1917	98	8.0	118	166,200	e25,760	137,700
1917-1918	62	2.4	35	49,800	f9,230	39,900
1918-1919	88	3.8	56	h79,200	18,500	57,900
1919-1920	99	5.6	82	h115,400	27,300	84,500
1920-1921	92	4.5	66	h92,600	21,900	68,600

Distribution of seasonal run-off by months as shown by U.S.G.S. records.g	
January	13.0%
February	10.3%
March	17.8%
April	18.2%
May	17.8%
June	10.3%
July	3.1%
August	1.1%
September	0.8%
October	1.3%
November	1.8%
December	4.5%

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	141,500	6.81	363.0	....
Maximum seasonal	448,800	21.60	1,152.0	1883-1884
Minimum seasonal	27,000	1.30	69.0	1876-1877
Mean during July	4,390	0.21	11.3	....
Maximum during July	29,740	1.43	76.3	1905-1906
Minimum during July	840	0.04	2.2	1876-1877
Mean during August	1,560	0.08	4.0	....
Maximum during August	7,000	0.34	18.0	1905-1906
Minimum during August	300	0.01	0.8	1876-1877

Probable run-off curve, Plate XXVII. Mass curve of run-off, Plate CVIII.
Storage development curve, Plate CLIX. Probable frequency of flood discharge, Plate LXVII.

(a) Description of drainage basin: Tributary area above junction of Tule River and South Fork of Tule River.
(b) Point of measurement: At gage 6 miles east of Porterville, drainage area 264 square miles.
(c) Point of measurement: At gage 8 miles above junction with Tule River, drainage area 74 square miles.
(d) Partial, May 1 to September 30. (e) Partial, October 1 to 28, November 26 to December 23, January 2 to 27, February 22 to April 20, May 20 to September 30.
(f) Partial, October 1 to April 30, July 1 to September 30.
(g) Measured run-off adjusted for irrigation diversion, from 1901 to 1921, of 910 acre-feet per season.
(h) Measured run-off adjusted for irrigation and for run-off from additional area below gaging stations.
(i) Index of 56 used for estimating run-off.

TABLE 72. YOKOHL CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 98 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division R.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*	
1871-1872	120	4.0	141	20,900	January,	12.9%
1872-1873	75	0.7	25	3,700	February,	14.9%
1873-1874	101	2.4	85	12,500	March,	15.4%
1874-1875	64	0.4	14	2,100	April,	21.4%
1875-1876	125	4.5	159	23,500	May,	17.4%
1876-1877	53	0.0	0	0	June,	8.9%
1877-1878	140	6.1	216	31,800	July,	4.3%
1878-1879	25	0.0	0	0	August,	0.0%
1879-1880	137	5.7	202	29,800	September,	0.0%
1880-1881	96	2.0	71	10,400	October,	0.9%
1881-1882	83	1.3	46	6,800	November,	1.5%
1882-1883	88	1.5	53	7,800	December,	2.4%
1883-1884	181	11.2	396	58,500		
1884-1885	71	0.7	25	3,700		
1885-1886	123	4.3	152	22,500		
1886-1887	86	1.4	49	7,300		
1887-1888	60	0.2	7	1,000		
1888-1889	78	1.0	35	5,200		
1889-1890	119	3.9	138	20,400		
1890-1891	87	1.5	53	7,800		
1891-1892	107	2.8	99	14,600		
1892-1893	94	1.9	67	9,900		
1893-1894	88	1.5	53	7,800		
1894-1895	139	6.0	212	31,300		
1895-1896	91	1.7	60	8,900		
1896-1897	125	4.5	159	23,500		
1897-1898	54	0.0	0	0		
1898-1899	73	0.7	25	3,700		
1899-1900	82	1.2	42	6,300		
1900-1901	119	3.9	138	20,400		
1901-1902	97	2.2	80	11,500		
1902-1903	97	2.2	80	11,500		
1903-1904	71	0.7	25	3,700		
1904-1905	118	3.9	138	20,400		
1905-1906	169	9.5	336	49,600		
1906-1907	123	4.3	152	22,500		
1907-1908	90	1.6	57	8,400		
1908-1909	165	9.0	318	47,000		
1909-1910	102	2.5	88	13,100		
1910-1911	103	2.6	92	13,600		
1911-1912	76	0.9	32	4,700		
1912-1913	67	0.5	18	2,600		
1913-1914	135	5.5	195	28,700		
1914-1915	111	3.2	113	16,700		
1915-1916	153	7.6	269	39,700		
1916-1917	98	2.2	80	11,500		
1917-1918	62	0.3	11	1,600		
1918-1919	88	1.5	53	7,800		
1919-1920	99	2.3	81	12,000		
1920-1921	92	1.7	60	8,900		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	14,800	2.80	151	
Maximum seasonal	58,500	11.20	598	1883-1884
Minimum seasonal	0	0.00	0	(See above.)
Mean during July	640	0.12	7	
Maximum during July	2,520	0.48	26	1883-1884
Minimum during July	0	0.00	0	(See above.)
Mean during August	0	0.00	0	
Maximum during August	0	0.00	0	
Minimum during August	0	0.00	0	(See above.)

Probable run-off curve, Plate XXVII. Mass curve of run-off, Plate CVIII.
Storage development curve, Plate CLIX. Probable frequency of flood discharge, Plate LXVII.

(*a*) Description of drainage basin: Tributary areas above points designated: HORSE CREEK, at junction with Kaweah River; LEWIS CREEK, at intersection of longitude 119° 00′ with stream; YOKOHL CREEK, at intersection of longitude 118° 59.4′ with stream.

(*b*) Estimated from record for White River

TABLE 73. KAWEAH RIVER.

SEASONAL RUN-OFF DATA. Drainage area 514 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division R.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	120	19.0	128	520,800	January, 6.5%
1872-1873	75	8.7	58	238,500	February, 6.1%
1873-1874	101	14.1	95	386,500	March, 11.3%
1874-1875	64	6.8	46	186,400	April, 14.4%
1875-1876	125	20.3	137	556,500	May, 23.2%
1876-1877	53	5.0	34	137,100	June, 21.5%
1877-1878	140	24.6	165	674,400	July, 8.5%
1878-1879	25	1.8	12	49,300	August, 2.1%
1879-1880	137	23.8	160	653,400	September, 1.1%
1880-1881	96	13.0	88	356,400	October, 1.6%
1881-1882	83	10.3	69	282,400	November, 1.3%
1882-1883	88	11.4	77	312,500	December, 2.4%
1883-1884	181	38.5	259	1,055,400	
1884-1885	71	7.8	53	213,800	
1885-1886	123	19.8	133	542,800	
1886-1887	86	10.9	73	298,800	
1887-1888	60	6.1	41	167,200	
1888-1889	78	9.4	63	257,700	
1889-1890	119	18.7	126	512,600	
1890-1891	87	11.1	75	304,300	
1891-1892	107	15.6	105	427,600	
1892-1893	94	12.6	85	345,400	
1893-1894	88	11.4	77	312,500	
1894-1895	139	24.4	164	668,900	
1895-1896	91	11.8	79	323,500	Measured
1896-1897	125	20.3	137	556,500	seasonal
1897-1898	54	5.4	36	148,000	discharge
1898-1899	73	8.2	55	224,800	in acre-feet at
1899-1900	82	10.0	67	274,100	U.S.G.S.
1900-1901	119	18.7	126	512,600	gaging stations.*c*
1901-1902	97	13.3	89	364,600	
1902-1903	97	13.3	89	364,600	*b*261,500
1903-1904	71	13.6	91	373,000	373,000
1904-1905	118	12.3	83	337,700	337,700
1905-1906	169	39.7	267	1,088,400	1,088,400
1906-1907	123	21.7	146	593,500	593,500
1907-1908	90	9.2	62	252,600	252,600
1908-1909	165	29.2	196	799,900	799,900
1909-1910	102	12.8	86	349,700	349,700
1910-1911	103	19.9	134	546,000	546,000
1911-1912	76	7.5	50	207,400	207,400
1912-1913	67	8.1	54	220,700	220,700
1913-1914	135	17.7	119	486,000	486,000
1914-1915	111	13.5	91	369,500	369,500
1915-1916	153	27.8	187	762,200	762,200
1916-1917	98	17.2	115	471,500	471,500
1917-1918	62	8.4	56	229,700	229,700
1918-1919	88	10.2	69	285,300	285,300
1919-1920	99	15.3	103	420,400	420,400
1920-1921	92	13.4	90	371,400	371,400

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	407,900	14.90	794	....
Maximum seasonal	1,088,400	39.70	2,118	1905-1906
Minimum seasonal	49,300	1.80	96	1878-1879
Mean during July	34,700	1.30	68	....
Maximum during July	211,000	7.70	411	1905-1906
Minimum during July	4,190	0.15	8	1878-1879
Mean during August	8,570	0.31	17	....
Maximum during August	42,500	1.60	83	1905-1906
Minimum during August	1,040	0.04	2	1878-1879

Probable run-off curve, Plate XXVIII. Mass curve of run-off, Plate CIX.
Storage development curve, Plate CLX. Probable frequency of flood discharge, Plate LXVIII.

(*a*) Description of drainage basin: Tributary area above gage near Three Rivers, three-quarters mile below mouth of South Fork.

(*b*) Partial record, June 1 to September 30.

(*c*) Point of measurement: Gaging station near Three Rivers, drainage area 514 square miles.

TABLE 74. LIMEKILN CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 201 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division R.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*c*
1871-1872	120	8.0	138	85,700	January, 12.9%
1872-1873	75	2.5	43	26,800	February, 14.9%
1873-1874	101	5.3	91	56,800	March, 15.4%
1874-1875	64	1.5	26	16,100	April, 21.4%
1875-1876	125	8.7	150	93,200	May, 17.4%
1876-1877	53	0.7	12	7,500	June, 8.9%
1877-1878	140	11.0	190	117,800	July, 4.3%
1878-1879	*b*25	0.9	16	9,600	August, 0.0%
1879-1880	137	10.5	181	112,400	September, 0.0%
1880-1881	96	4.7	81	50,300	October, 0.9%
1881-1882	83	3.3	57	35,300	November, 1.5%
1882-1883	88	3.8	66	40,700	December, 2.4%
1883-1884	181	18.5	319	198,100	
1884-1885	71	2.1	36	22,500	
1885-1886	123	8.5	146	91,000	
1886-1887	86	3.5	60	37,500	
1887-1888	60	1.2	21	12,800	
1888-1889	78	2.8	48	30,000	
1889-1890	119	7.8	134	83,500	
1890-1891	87	3.6	62	38,500	
1891-1892	107	6.1	105	65,300	
1892-1893	94	4.5	78	48,200	
1893-1894	88	3.8	66	40,700	
1894-1895	139	10.9	188	116,700	
1895-1896	91	4.1	71	43,900	
1896-1897	125	8.7	150	93,200	
1897-1898	54	0.8	14	8,600	
1898-1899	73	2.3	40	24,600	
1899-1900	82	3.2	55	34,300	
1900-1901	119	7.8	134	83,500	
1901-1902	97	4.9	84	52,500	
1902-1903	97	4.9	84	52,500	
1903-1904	71	2.1	36	22,500	
1904-1905	118	7.8	134	83,500	
1905-1906	169	16.2	279	173,500	
1906-1907	123	8.5	146	91,000	
1907-1908	90	4.0	69	42,800	
1908-1909	165	15.5	267	166,000	
1909-1910	102	5.5	95	58,900	
1910-1911	103	5.7	98	61,009	
1911-1912	76	2.5	43	26,800	
1912-1913	67	1.7	29	18,200	
1913-1914	135	10.3	178	110,300	
1914-1915	111	6.7	115	71,700	
1915-1916	153	13.3	229	142,400	
1916-1917	98	5.0	86	53,500	
1917-1918	62	1.4	24	15,000	
1918-1919	88	3.8	66	40,700	
1919-1920	99	5.1	88	54,600	
1920-1921	92	4.2	72	45,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	62,200	5.80	310	
Maximum seasonal	198,100	18.50	987	1883-1884
Minimum seasonal	7,500	0.70	37	1876-1877
Mean during July	2,700	0.25	13	
Maximum during July	8,500	0.79	42	1883-1884
Minimum during July	320	0.03	2	1876-1877
Mean during August	0	0.00	0	
Maximum during August	0	0.00	0	1883-1884
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXVIII. Mass curve of run-off, Plate CIX.
Storage development curve, Plate CLX. Probable frequency of flood discharge, Plate LXVIII.

(*a*) Description of drainage basin: Tributary areas above points indicated on following streams: LIMEKILN CREEK, at junction with Kaweah River, drainage area 76 square miles; RATTLESNAKE CREEK, in N. W. ¼ of Sec. 11, T. 16 S., R. 26 E., drainage area 54 square miles; STOKES CREEK, N. E. corner of Sec. 11, T. 16 S., R. 25 E., SAND CREEK, S. E. corner of Sec. 17, T. 15 S., R. 25 E., drainage area 44 square miles; WA-TO-KE CREEK, N. E. corner of Sec. 17, T. 14 S., R. 21 E., drainage area 17 square miles; GREASY CREEK, at junction with Kaweah River, drainage area 10 square miles.

(*b*) Index 56 used.

(*c*) Estimated from record for White River

TABLE 75. KINGS RIVER.

SEASONAL RUN-OFF DATA. Drainage area 1,694 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division Q.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	119	27.5	129	2,484,000	January, 4.5%
1872-1873	74	11.4	53	1,030,000	February, 3.9%
1873-1874	100	19.8	93	1,788,000	March, 7.2%
1874-1875	64	8.7	41	786,000	April, 12.4%
1875-1876	124	29.9	140	2,701,000	May, 24.7%
1876-1877	60	7.7	36	696,000	June, 26.2%
1877-1878	109	24.4	114	2,204,000	July, 11.5%
1878-1879	41	3.7	17	334,000	August, 3.5%
1879-1880	134	34.8	163	3,143,000	September, 1.4%
1880-1881	122	28.7	135	2,592,000	October, 1.6%
1881-1882	69	10.0	47	903,000	November, 1.4%
1882-1883	85	14.7	69	1,328,000	December, 1.7%
1883-1884	178	57.8	271	5,221,000	
1884-1885	78	12.7	60	1,147,000	
1885-1886	169	52.9	248	4,778,000	
1886-1887	88	15.8	74	1 427,000	
1887-1888	67	9.5	44	858,000	
1888-1889	92	16.8	79	1,517,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.[b]
1889-1890	153	44.5	209	4,019,000	
1890-1891	79	12.8	60	1,156,000	
1891-1892	102	20.5	96	1,852,000	
1892-1893	101	20.2	95	1,825,000	
1893-1894	83	14.0	66	1,265,000	
1894-1895	119	27.5	129	2,484,000	
1895-1896	82	20.5	96	1,853,700	1,853,700
1896-1897	107	23.2	109	2,086,200	2.086.200
1897-1898	56	9.8	46	880,600	880,600
1898-1899	82	13.5	63	1,223,700	1,223,700
1899-1900	102	14.3	67	1,285,300	1,285,300
1900-1901	137	34.8	163	3,142,500	3,142,500
1901-1902	75	17.2	81	1,553,000	1,553,000
1902-1903	81	18.7	88	1,687,800	1,687,800
1903-1904	81	19.3	91	1,743,300	1.743,300
1904-1905	132	15.9	74	1,427,800	1.427,800
1905-1906	148	42.8	201	3,856,700	3,856,700
1906-1907	131	30.5	143	2,752,500	2,752,500
1907-1908	81	11.4	53	1,033,900	1,033,900
1908-1909	113	31.2	146	2,809,400	2,809,400
1909-1910	95	19.7	92	1,779,000	1,779,000
1910-1911	132	31.4	147	2,826,700	2,826,700
1911-1912	73	10.7	50	968,100	968,100
1912-1913	66	10.5	49	941,800	941,800
1913-1914	123	28.3	133	2,548,400	2,548,400
1914-1915	124	20.2	95	1,817,100	1,817,100
1915-1916	123	33.7	158	3,041,800	3,041,800
1916-1917	88	21.0	99	1,892,600	1,892,600
1917-1918	91	15.1	71	1,363,700	1,363,700
1918-1919	81	13.3	62	1,203,300	1,203,300
1919-1920	91	15.6	73	1,404,700	1,404,700
1920-1921	95	17.6	82	1,593,800	1,593,800

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	1,925,100	21.30	1,136	....
Maximum seasonal	5,221,000	57.80	3,082	1883-1884
Minimum seasonal	334,000	3.70	197	1878-1879
Mean during July	221,400	2.50	131	....
Maximum during July	1,000,000	11.10	590	1905-1906
Minimum during July	38,400	0.43	23	1878-1879
Mean during August	67,400	0.75	40	....
Maximum during August	264,000	2 90	156	1905-1906
Minimum during August	11,700	0 13	7	1878-1879

Probable run-off curve, Plate XXVIII. Mass curve of run-off, Plate CIX.
Storage development curve, Plate CLX. Probable frequency of flood discharge, Plate LXVIII.

(a) Description of drainage basin: Tributary area above gage near Sanger, in N. W. ¼ of Sec. 8, T. 13 S., R. 24 E.

(b) Point of measurement: Gage near Sanger, drainage area 1,694 square miles.

TABLE 76. DRY CREEK.

SEASONAL RUN-OFF DATA. Drainage area 48 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division Q.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	119	2.5	141	6,400	January, 7.1%
1872-1873	74	0.5	28	1,300	February, 18.4%
1873-1874	100	1.1	79	3,600	March, 24.4%
1874-1875	64	0.3	17	800	April, 17.4%
1875-1876	124	2.8	158	7,100	May, 14.2%
1876-1877	60	0.2	11	500	June, 7.9%
1877-1878	109	1.9	107	4,800	July, 2.3%
1878-1879	41	0.0	0	0	August, 0.5%
1879-1880	134	3.5	198	8,900	September, 0.3%
1880-1881	122	2.7	153	6,900	October, 1.6%
1881-1882	69	0.4	23	1,000	November, 2.1%
1882-1883	85	0.8	45	2,000	December, 3.8%
1883-1884	178	7.1	401	18,100	
1884-1885	78	0.6	34	1,500	
1885-1886	169	6.3	356	16,000	
1886-1887	88	0.9	51	2,300	
1887-1888	67	0.3	17	800	
1888-1889	92	1.1	62	2,800	
1889-1890	153	5.0	282	12,700	
1890-1891	79	0.6	34	1,500	
1891-1892	102	1.5	85	3,800	
1892-1893	101	1.5	85	3,800	
1893-1894	83	0.8	45	2,000	
1894-1895	119	2.5	141	6,400	
1895-1896	82	0.7	40	1,800	
1896-1897	107	1.8	102	4,600	
1897-1898	56	0.2	11	500	
1898-1899	82	0.7	40	1,800	
1899-1900	102	1.5	85	3,800	
1900-1901	137	3.7	209	9,400	
1901-1902	75	0.5	28	1,300	
1902-1903	81	0.7	40	1,800	
1903-1904	81	0.7	40	1,800	
1904-1905	132	3.3	186	8,400	
1905-1906	148	4.6	260	11,700	
1906-1907	131	3.3	186	8,400	
1907-1908	81	0.7	40	1,800	
1908-1909	113	2.2	124	5,600	
1909-1910	95	1.2	68	3,000	
1910-1911	132	3.3	186	8,400	
1911-1912	73	0.5	28	1,300	
1912-1913	66	0.3	17	800	
1913-1914	123	2.8	158	7,100	
1914-1915	124	2.8	158	7,100	
1915-1916	123	2.8	158	7,100	
1916-1917	88	0.9	51	2,300	
1917-1918	91	1.1	62	2,800	
1918-1919	81	0.7	40	1,800	
1919-1920	91	1.1	62	2,800	
1920-1921	95	1.2	68	3,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	4,500	1.80	94	....
Maximum seasonal	18,100	7.10	379	1883-1884
Minimum seasonal	0	0.00	0	1878-1879
Mean during July	100	0.04	2	....
Maximum during July	420	0.17	9	1883-1884
Minimum during July	0	0.00	0	1878-1879
Mean during August	20	0.01	Trace	....
Maximum during August	90	0.04	2	1883-1884
Minimum during August	0	0.00	0	1878-1879

Probable run-off curve, Plate XXVIII. Mass curve of run-off, Plate CIX.
Storage development curve, Plate CLX. Probable frequency of flood discharge, Plate LXVIII.

(*a*) Description of drainage basin: Tributary area above center of Sec. 11, T. 12 S., R. 22 E., 18 miles northeast of Fresno.

(*b*) Estimated from records for Fresno River.

TABLE 77. SAN JOAQUIN RIVER.

SEASONAL RUN-OFF DATA. Drainage area 1,631 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Group Q.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)f	Distribution of seasonal run-off by months as shown by U.S.G.S. records.f
1871-1872	119	30.2	128	2,627,000	January, 5.5%
1872-1873	74	12.9	55	1,122,000	February, 5.0%
1873-1874	100	21.4	91	1,862,000	March, 9.0%
1874-1875	64	10.2	43	887,000	April, 13.3%
1875-1876	124	32.9	139	2,862,000	May, 23.4%
1876-1877	60	9.3	39	809,000	June, 24.2%
1877-1878	109	25.5	108	2,218,000	July, 10.0%
1878-1879	41	5.4	23	470,000	August, 3.2%
1879-1880	134	38.5	163	3,349,000	September, 1.5%
1880-1881	122	31.5	133	2,740,000	October, 1.3%
1881-1882	69	11.5	49	1,000,000	November, 1.5%
1882-1883	85	16.0	68	1,392,000	December, 2.1%
1883-1884	178	65.9	279	5,732,000	
1884-1885	78	14.0	59	1,218,000	
1885-1886	169	59.9	253	5,211,000	
1886-1887	88	17.0	72	1,479,000	
1887-1888	67	11.0	47	957,000	Measured
1888-1889	92	18.1	77	1,574,000	seasonal
1889-1890	153	50.0	211	4,349,000	discharge
1890-1891	79	14.1	60	1,227,000	in acre-feet at
1891-1892	102	22.2	94	1,931,000	U.S.G.S.
1892-1893	101	22.0	93	1,914,000	gaging station.b
1893-1894	83	15.3	65	1,331,000	
1894-1895	119	32.0	135	2,786,700	c2,643,600
1895-1896	82	22.8	96	1,985,700	1,979,100
1896-1897	107	25.5	108	2,219,700	2,213,100
1897-1898	56	10.6	45	922,300	915,700
1898-1899	82	14.6	62	1,269,500	1,262,900
1899-1900	102	15.4	65	1,343,600	1,337,000
1900-1901	137	34.5	146	3,004,500	2,997,900
1901-1902	75	13.0	55	1,131,000	d125,500
1902-1903	81	14.7	62	1,279,000	
1903-1904	81	14.7	62	1,279,000	
1904-1905	132	37.0	156	3,219,000	
1905-1906	148	47.0	199	4,088,000	
1906-1907	131	36.9	156	3,210,000	
1907-1908	81	13.2	56	1,145,000	e1,141,400
1908-1909	113	33.4	141	2,904,300	2,900,700
1909-1910	95	23.4	99	2,038,700	2,035,100
1910-1911	132	41.0	173	3,567,100	3,563,500
1911-1912	73	12.1	51	1,052,900	1,049,300
1912-1913	66	10.0	42	872,000	868,400
1913-1914	123	33.0	140	2,868,500	2,868,700
1914-1915	124	22.6	96	1,965,700	1,967,000
1915-1916	123	31.8	134	2,769,100	2,766,900
1916-1917	88	22.3	94	1,943,300	1,941,300
1917-1918	91	17.0	72	1,476,500	1,465,700
1918-1919	81	15.0	63	1,307,600	1,318,000
1919-1920	91	15.3	65	1,329,700	1,308,500
1920-1921	95	18.4	78	1,604,100	1,592,800

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile	Season.
Mean seasonal	2,056,900	23.60	1,261	
Maximum seasonal	5,732,000	65.90	3,514	1883-1884
Minimum seasonal	470,000	5.40	288	1878-1879
Mean during July	205,690	2.40	126	
Maximum during July	587,900	6.80	360	1910-1911
Minimum during July	47,000	0.54	29	1878-1879
Mean during August	65,800	0.76	40	
Maximum during August	183,400	2.10	112	1883-1884
Minimum during August	15,000	0.17	9	1878-1879

Probable run-off curve, Plate XXIX. Mass curve of run-off, Plate CX.
Storage development curve, Plate CLXI. Probable frequency of flood discharge, Plate LXIX.

(a) Description of drainage basin: Tributary area above gage at Friant in S. E. ¼ of Sec. 34, T. 10 S., R. 21 E.

(b) Point of measurement: From January 1, 1895, to December 31, 1901, at railroad bridge near Herndon, 20 miles below Friant. From October 18, 1907, to date, at gage 4 miles above Friant in S. E. ¼ of Sec. 31. Discharge at Herndon assumed to be the same as at Friant; drainage area 1,631 square miles.

(c) Partial record, January 1 to September 30.

(d) Partial record, October 1 to December 31.

(e) Partial record, October 18 to September 30.

(f) Measured run-off adjusted for irrigation, diversion and storage above point of measurement as follows: Irrigation, 1895 to 1901, 2000 acres; diversion of 10 second-feet by Fresno flume for 6 months of each year from 1907 to date; storage capacity of 38,100 acre-feet from 1910 to 1913, and 126,900 acre-feet from 1913 to date.

TABLE 78. COTTONWOOD CREEK.

SEASONAL RUN-OFF DATA. Drainage area 28.5 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division Q.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.[b]
1871-1872	119	2.2	144	3,300	January, 7.1%
1872-1873	74	0.3	20	500	February, 18.4%
1873-1874	100	1.2	79	1,800	March, 24.4%
1874-1875	64	0.2	13	300	April, 17.4%
1875-1876	124	2.4	157	3,600	May, 14.2%
1876-1877	60	0.1	7	100	June, 7.9%
1877-1878	109	1.6	105	2,400	July, 2.3%
1878-1879	41	0.0	0	0	August, 0.5%
1879-1880	134	3.1	203	4,700	September, 0.3%
1880-1881	122	2.3	151	3,500	October, 1.6%
1881-1882	69	0.2	13	300	November, 2.1%
1882-1883	85	0.7	46	1,100	December, 3.8%
1883-1884	178	6.9	453	10,500	
1884-1885	78	0.4	26	600	
1885-1886	169	6.0	394	9,100	
1886-1887	88	0.7	46	1,100	
1887-1888	67	0.2	13	300	
1888-1889	92	0.9	59	1,400	
1889-1890	153	4.6	302	7,000	
1890-1891	79	0.5	33	800	
1891-1892	102	1.3	85	2,000	
1892-1893	101	1.2	79	1,800	
1893-1894	83	0.6	39	900	
1894-1895	119	2.2	144	3,300	
1895-1896	82	0.5	33	800	
1896-1897	107	1.5	98	2,300	
1897-1898	56	0.1	7	200	
1898-1899	82	0.5	33	800	
1899-1900	102	1.3	85	2,000	
1900-1901	137	3.3	217	5,000	
1901-1902	75	0.3	20	500	
1902-1903	81	0.5	33	800	
1903-1904	81	0.5	33	800	
1904-1905	132	3.0	197	4,600	
1905-1906	148	4.2	276	6,400	
1906-1907	131	2.9	190	4,400	
1907-1908	81	0.5	33	800	
1908-1909	113	1.8	118	2,700	
1909-1910	95	1.0	66	1,500	
1910-1911	132	3.0	197	4,600	
1911-1912	73	0.3	20	500	
1912-1913	66	0.2	13	300	
1913-1914	123	2.4	157	3,700	
1914-1915	124	2.4	157	3,700	
1915-1916	123	2.4	157	3,700	
1916-1917	88	0.7	46	1,100	
1917-1918	91	0.8	52	1,200	
1918-1919	81	0.5	33	800	
1919-1920	91	0.8	52	1,200	
1920-1921	95	1.0	66	1,500	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	2,300	1.52	81	....
Maximum seasonal	10,500	6.90	368	1883-1884
Minimum seasonal	0	0.00	0	1878-1879
Mean during July	50	0.03	2	....
Maximum during July	240	0.16	8	1883-1884
Minimum during July	0	0.00	0	1878-1879
Mean during August	10	0.01	Trace	....
Maximum during August	50	0.03	2	1883-1884
Minimum during August	0	0.00	0	1878-1879

Probable run-off curve, Plate XXIX. Mass curve of run-off, Plate CX.
Storage development curve, Plate CLXI. Probable frequency of flood discharge, Plate LXIX.
(a) Description of drainage basin: Tributary area above a point in the center of Sec. 34, T. 10 S., R. 19 E.
(b) Estimated from record for Fresno River at Knowles

TABLE 79. FRESNO RIVER.

SEASONAL RUN-OFF DATA. Drainage area 270 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division Q.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Measured seasonal discharge in acre-feet at gaging stations.*f* Diversion Dam.*b*	U.S.G.S. gaging station near Knowles.*c*
1871-1872	119	6.6	140	95,400		
1872-1873	74	1.8	37	25,400		
1873-1874	100	4.2	88	60,400		
1874-1875	64	1.2	26	17,500		
1875-1876	124	7.3	153	104,900		
1876-1877	60	0.9	19	12,700		
1877-1878	109	5.3	112	76,300		
1878-1879	41	0.3	7	4,800		
1879-1880	134	8.7	184	125,600		
1880-1881	122	7.0	146	100,100		
1881-1882	69	1.4	30	20,700		
1882-1883	85	2.7	56	38,100		
1883-1884	178	16.3	342	233,600		
1884-1885	78	2.1	44	30,200		
1885-1886	169	14.5	305	208,200		
1886-1887	88	3.0	63	42,900		
1887-1888	67	1.3	28	19,100		
1888-1889	92	3.3	70	47,700		
1889-1890	153	11.7	246	168,500		
1890-1891	79	2.2	47	31,800		
1891-1892	102	4.4	93	63,600		
1892-1893	101	4.3	91	62,000		
1893-1894	83	2.5	53	36,600		
1894-1895	119	6.6	140	95,400		
1895-1896	82	2.4	51	35,000		
1896-1897	107	5.0	105	71,500		
1897-1898	56	0.8	16	11,100		
1898-1899	82	2.4	51	35,000		
1899-1900	102	4.4	93	63,600		
1900-1901	137	9.2	193	131,900		
1901-1902	75	1.9	40	27,000		
1902-1903	81	2.3	49	33,400		
1903-1904	81	2.3	49	33,400		
1904-1905	132	8.4	177	120,800	79,700	....
1905-1906	148	10.8	228	155,800	....	....
1906-1907	131	8.2	172	117,600	....	....
1907-1908	81	2.3	49	33,400	....	....
1908-1909	113	5.9	123	84,200	....	....
1909-1910	95	3.6	77	52,400	....	....
1910-1911	132	8.4	177	120,800	....	....
1911-1912	73	1.9	40	*g*26,700	26,700	*d*36,400
1912-1913	66	0.6	14	*g*9,000	12,600	18,200
1913-1914	123	4.6	98	66,600	70,400	....
1914-1915	124	5.5	116	79,700	89,400	....
1915-1916	123	8.6	181	*g*124,100	109,700	*e*132,000
1916-1917	88	5.6	116	*g*80,000	81,600	86,700
1917-1918	91	3.6	74	*g*51,200	55,000	50,800
1918-1919	81	2.6	56	*g*37,600	39,700	42,900
1919-1920	91	2.4	51	*g*35,200	30,900	44,900
1920-1921	95	4.0	84	*g*57,000	60,000	58,600

Distribution of seasonal run-off by months as shown by U.S.G.S. records.	
January	7.1%
February	18.4%
March	24.4%
April	17.4%
May	14.2%
June	7.9%
July	2.3%
August	0.5%
September	0.3%
October	1.6%
November	2.1%
December	3.8%

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	68,300	4.75	253	....
Maximum seasonal	233,600	16.22	867	1883-1884
Minimum seasonal	4,800	0.33	18	1878-1879
Mean during July	1,570	0.11	6	....
Maximum during July	5,370	0.37	20	1883-1884
Minimum during July	110	Trace	Trace	1878-1879
Mean during August	310	0.02	1	....
Maximum during August	1,170	0.08	4	1883-1884
Minimum during August	14	Trace	Trace	1918-1919

Probable run-off curve, Plate XXIX. Mass curve of run-off, Plate CX.

Storage development curve, Plate CLXI. Probable frequency of flood discharge, Plate LXIX.

(*a*) Description of drainage basin: Tributary area above diversion dam of Madera Irrigation District in the southwest quarter of Sec. 9, T. 10 S., R. 19 E.

(*b*) Measured at diversion dam at head of Madera Canal and Irrigation Company's main canal. Observers: 1904-1905, Teilman; 1911-1912, Kingdon; 1912-1913, Smith; 1913-1914 to 1916-1917, Barnes; 1917-1918 to 1919-1920, Ingham; 1920-1921 and 1921-1922, the State Water Commission. Drainage area 298 square miles.

(*c*) U. S. G. S. gaging station near Knowles, at highway bridge in N. ½ of Sec. 15, T. 8 S., R. 20 E., drainage area 134.4 square miles.

(*d*) Partial record, October 1 to August 14. (*e*) Partial record, November 13 to September 30.

(*f*) Measured seasonal run-off includes a mean annual flow of 9,700 acre-feet diverted into the Fresno River watershed, by lumber flumes. This amount has been deducted from the measured discharge to obtain the estimated run-off from the Fresno River drainage basin.

(*g*) Monthly measurements at diversion dam and near Knowles are inconsistent and seem to indicate heavy stream bed losses. As all water passing Knowles is, or can be made, available for use, the monthly discharge at the diversion dam, whenever smaller than that at Knowles, has been increased by the difference, to obtain probable total run-off. From the seasonal discharge thus obtained, 9,700 acre-feet have been deducted to obtain estimated seasonal run-off.

NOTE.—Discharge for season 1921-1922 at diversion dam as measured by the State Water Commission and Madera Irrigation District, was 104,070 acre-feet. Discharge near Knowles, measured by U. S. G. S., was 93,000 acre-feet. Index of seasonal wetness, 125; estimated run-off, 104,150 acre-feet; run-off index, 153.

TABLE 80. DAULTON CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 66 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division Q.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.[b]
1871-1872	119	2.1	142	7,400	January, 7.1%
1872-1873	74	0.3	20	1,100	February, 18.4%
1873-1874	100	1.2	81	4,200	March, 24.4%
1874-1875	64	0.2	14	700	April, 17.4%
1875-1876	124	2.4	162	8,500	May, 14.2%
1876-1877	60	0.1	7	400	June, 7.9%
1877-1878	109	1.5	102	5,300	July, 2.3%
1878-1879	41	0	0	0	August, 0.5%
1879-1880	134	3.0	203	10,600	September, 0.3%
1880-1881	122	2.3	156	8,100	October, 1.6%
1881-1882	69	0.2	14	700	November, 2.1%
1882-1883	85	0.6	41	2,100	December, 3.8%
1883-1884	178	6.8	460	24,100	
1884-1885	78	0.4	27	1,400	
1885-1886	169	6.0	406	21,300	
1886-1887	88	0.7	47	2,500	
1887-1888	67	0.2	14	700	
1888-1889	92	0.8	54	2,800	
1889-1890	153	4.5	304	15,900	
1890-1891	79	0.4	27	1,400	
1891-1892	102	1.2	81	4,200	
1892-1893	101	1.2	81	4,200	
1893-1894	83	0.5	34	1,800	
1894-1895	119	2.1	142	7,400	
1895-1896	82	0.5	34	1,800	
1896-1897	107	1.4	95	5,100	
1897-1898	56	0.1	7	400	
1898-1899	82	0.5	34	1,800	
1899-1900	102	1.2	81	4,200	
1900-1901	137	3.3	223	11,700	
1901-1902	75	0.3	20	1,100	
1902-1903	81	0.4	27	1,400	
1903-1904	81	0.4	27	1,400	
1904-1905	132	2.9	196	10,300	
1905-1906	148	4.2	284	14,900	
1906-1907	131	2.9	196	10,300	
1907-1908	81	0.4	27	1,400	
1908-1909	113	1.8	122	6,400	
1909-1910	95	0.9	61	3,200	
1910-1911	132	2.9	196	10,300	
1911-1912	73	0.3	20	1,100	
1912-1913	66	0.2	14	700	
1913-1914	123	2.3	156	8,100	
1914-1915	124	2.4	162	8,500	
1915-1916	123	2.3	156	8,100	
1916-1917	88	0.7	47	2,500	
1917-1918	91	0.8	54	2,800	
1918-1919	81	0.4	27	1,400	
1919-1920	91	0.8	54	2,800	
1920-1921	95	0.9	61	3,200	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	5,200	1.50	78	....
Maximum seasonal	24,100	6.80	363	1883-1884
Minimum seasonal	0	0.00	0	1878-1879
Mean during July	120	0.03	2	....
Maximum during July	550	0.16	8	1883-1884
Minimum during July	0	0.00	0	1878-1879
Mean during August	30	0.01	Trace	....
Maximum during August	120	0.03	2	1883-1884
Minimum during August	0	0.00	0	1878-1879

Probable run-off curve, Plate XXIX. Mass curve of run-off, Plate CXI.
Storage development curve, Plate CLXI. Probable frequency of flood discharge, Plate LXIX.

(a) Description of drainage basin: Tributary area above points indicated: DAULTON CREEK, in S.E.¼ of Sec. 13, T. 10 S., R. 17 E.; DRY CREEK at ¼ corner between Secs. 10 and 15, T. 10 S., R. 17 E.

(b) Estimated from record for the Fresno River.

TABLE 81. CHOWCHILLA RIVER.

SEASONAL RUN-OFF DATA. Drainage area 238 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	122	7.4	140	94,400	January, 7.1%
1872-1873	86	3.5	66	44,700	February, 18.4%
1873-1874	87	3.6	68	46,000	March, 24.4%
1874-1875	61	1 6	29	19,900	April, 17.4%
1875-1876	154	12 0	226	152,800	May, 14.2%
1876-1877	34	0.1	2	1,200	June, 7.9%
1877-1878	112	6.3	118	79,500	July, 2.3%
1878-1879	78	2.8	53	36,000	August, 0.5%
1879-1880	105	5.5	103	69,600	September, 0.3%
1880-1881	87	3.6	68	46,000	October, 1.6%
1881-1882	85	3.4	64	43,500	November, 2.1%
1882-1883	88	3.7	70	47,200	December, 3.8%
1883-1884	135	9.2	173	116,800	
1884-1885	67	2.0	37	24,900	
1885-1886	129	8.3	156	105,600	
1886-1887	68	2 1	39	26,100	
1887-1888	64	1.8	33	22,400	
1888-1889	74	2 5	46	31,100	
1889-1890	174	15.4	288	195,100	
1890-1891	86	3.5	66	44,700	
1891-1892	90	3.9	73	49,700	
1892-1893	132	8.8	165	111,800	
1893-1894	122	7.4	140	94,400	
1894-1895	148	11.3	211	142,900	
1895-1896	104	5.4	101	68,300	
1896-1897	124	7.8	147	99,400	
1897-1898	62	1.6	29	19,900	
1898-1899	89	3.8	72	48,500	
1899-1900	103	5.3	99	67,100	
1900-1901	129	8.4	158	106,900	
1901-1902	97	4.6	86	58,400	
1902-1903	108	5.9	110	74,600	
1903-1904	108	5.9	110	74,600	
1904-1905	108	5.9	110	74,600	
1905-1906	139	9.8	184	124,300	
1906-1907	148	11 3	211	142,900	
1907-1908	64	1.8	33	22,400	
1908-1909	119	7.1	134	90,700	
1909-1910	98	4.7	88	59,600	
1910-1911	133	9.0	169	114,300	
1911-1912	62	1.6	29	19,900	
1912-1913	58	1.3	24	16,200	
1913-1914	117	6.9	129	87,000	
1914-1915	114	6.5	121	82,000	
1915-1916	94	4.2	79	53,400	
1916-1917	82	3.1	59	39,800	
1917-1918	77	2.6	50	33,600	
1918-1919	89	3.8	72	48,500	
1919-1920	76	2.5	48	32,300	
1920-1921	110	6.1	114	77,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	67,700	5.30	284	
Maximum seasonal	195,100	15.40	820	1889-1890
Minimum seasonal	1,200	0.10	5	1876-1877
Mean during July	1,560	0.10	7	
Maximum during July	4,490	0 40	19	1889-1890
Minimum during July	28	Trace	Trace	1876-1877
Mean during August	340	0 03	1	
Maximum during August	976	0 08	4	1889-1890
Minimum during August	6	Trace	Trace	1876-1877

Probable run-off curve, Plate XXX. Mass curve of run-off, Plate CXI.
Storage development curve, Plate CLXII. Probable frequency of flood discharge, Plate LXX.
(*a*) Description of drainage basin: Tributary area above the S. E. corner of Sec. 22, T. 8 S., R. 18 E.
(*b*) Estimated from records for Fresno River at Knowles.
NOTE.—Discharge for 1921-1922, measured by the Madera Irrigation District, at Buchanan damsite, drainage area 238 square miles, was 107,500 acre-feet. Depth of run-off, 8.5 inches; index of seasonal wetness, 109; run-off index, 157.

TABLE 82. DUTCHMAN CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 72 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	122	3.2	148	12,300	January, 7.1%
1872-1873	86	1.1	51	4,200	February, 18.4%
1873-1874	87	1.2	55	4,600	March, 24.4%
1874-1875	61	0.2	10	800	April, 17.4%
1875-1876	154	6.1	282	23,400	May, 14.2%
1876-1877	34	0.0	0	0	June, 7.9%
1877-1878	112	2.6	120	10,000	July, 2.3%
1878-1879	78	0.7	33	2,700	August, 0.5%
1879-1880	105	2.1	97	8,100	September, 0.3%
1880-1881	87	1.2	56	4,600	October, 1.6%
1881-1882	85	1.0	46	3,800	November, 2.1%
1882-1883	88	1.2	56	4,600	December, 3.8%
1883-1884	135	4.4	204	16,900	
1884-1885	67	0.3	14	1,200	
1885-1886	129	3.8	176	14,600	
1886-1887	68	0.3	14	1,200	
1887-1888	64	0.3	14	1,200	
1888-1889	74	0.6	28	2,300	
1889-1890	174	8.2	380	31,500	
1890-1891	86	1.1	51	4,200	
1891-1892	90	1.3	60	5,000	
1892-1893	132	4.1	189	15,700	
1893-1894	122	3.2	148	12,300	
1894-1895	148	5.6	259	21,500	
1895-1896	104	2.0	93	7,700	
1896-1897	124	3.5	162	13,400	
1897-1898	62	0.2	10	800	
1898-1899	89	1.2	56	4,600	
1899-1900	103	2.0	93	7,700	
1900-1901	129	3.8	176	14,600	
1901-1902	97	1.7	78	6,500	
1902-1903	108	2.3	106	8,800	
1903-1904	108	2.3	106	8,800	
1904-1905	108	2.3	106	8,800	
1905-1906	139	4.7	217	18,000	
1906-1907	148	5.6	259	21,500	
1907-1908	64	0.3	14	1,200	
1908-1909	119	3.0	139	11,500	
1909-1910	98	1.8	83	6,900	
1910-1911	133	4.2	194	16,100	
1911-1912	62	0.2	10	800	
1912-1913	58	0.2	9	800	
1913-1914	117	2.9	134	11,100	
1914-1915	114	2.7	125	10,400	
1915-1916	94	1.5	69	5,800	
1916-1917	82	0.8	37	3,100	
1917-1918	77	0.7	33	2,700	
1918-1919	89	1.2	56	4,600	
1919-1920	76	0.7	33	2,700	
1920-1921	110	2.4	111	9,200	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	8,300	2.20	115	....
Maximum seasonal	31,500	8.20	438	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	190	0.05	3	....
Maximum during July	720	0.19	10	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	40	0.01	1	....
Maximum during August	160	0.04	2	1889-1890
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXX. Mass curve of run-off, Plate CXII.
Storage development curve, Plate CLXII. Probable frequency of flood discharge, Plate LXX.

(*a*) Description of drainage area: Areas tributary to DUTCHMAN CREEK and DEADMAN CREEK above th Santa Fe railroad grade.

(*b*) Estimated from record for the Fresno River.

TABLE 83. MARIPOSA CREEK.

SEASONAL RUN-OFF DATA. Drainage area 103 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*b*
1871-1872	122	3.4	146	18,600	January, 7.1%
1872-1873	86	1.3	56	7,100	February, 18.4%
1873-1874	87	1.3	56	7.100	March, 24.4%
1874-1875	61	0.3	13	1,600	April, 17.4%
1875-1876	154	6.4	274	35,100	May, 14.2%
1876-1877	34	0.0	0	0	June, 7.9%
1877-1878	112	2.7	116	14,800	July, 2.3%
1878-1879	78	0.9	38	4,900	August, 0.5%
1879-1880	105	2.3	99	12,600	September, 0.3%
1880-1881	87	1.3	56	7,100	October, 1.6%
1881-1882	85	1.2	52	6,600	November, 2.1%
1882-1883	88	1.3	56	7,100	December, 3.8%
1883-1884	135	4.5	193	24,600	
1884-1885	67	0.5	21	2.700	
1885-1886	129	4.0	171	21,900	
1886-1887	68	0.6	26	3,300	
1887-1888	64	0.4	17	2,200	
1888-1889	74	0.8	34	4,400	
1889-1890	174	8.8	377	48,200	
1890-1891	86	1.3	56	7,100	
1891-1892	90	1.4	60	7,700	
1892-1893	132	4.2	180	23,000	
1893-1894	122	3.4	146	18,600	
1894-1895	148	5.8	249	31,800	
1895-1896	104	2.2	94	12,100	
1896-1897	124	3.6	154	19,700	
1897-1898	62	0.4	17	2,200	
1898-1899	89	1.4	60	7,700	
1899-1900	103	2.2	94	12,100	
1900-1901	129	4.0	171	21,900	
1901-1902	97	1.8	77	9 900	
1902-1903	108	2.5	107	13,700	
1903-1904	108	2.5	107	13,700	
1904-1905	108	2.5	107	13,700	
1905-1906	139	4.9	210	26,800	
1906-1907	148	5.8	249	31,800	
1907-1908	64	0.4	17	2,200	
1908-1909	119	3.3	141	18,100	
1909-1910	98	1.8	77	9,900	
1910-1911	133	4.3	184	23,600	
1911-1912	62	0.4	17	2,200	
1912-1913	58	0.3	13	1,600	
1913-1914	117	3.1	133	17,000	
1914-1915	114	2.8	120	15,300	
1915-1916	94	1.7	73	9.300	
1916-1917	82	1.1	47	6,000	
1917-1918	77	0.8	34	4,400	
1918-1919	89	1.4	60	7,700	
1919-1920	76	0.8	34	4,400	
1920-1921	110	2.6	111	14.200	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	12,800	2.30	125	....
Maximum seasonal	48,200	8.80	469	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	290	0.05	3	....
Maximum during July	1,110	0.20	11	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	60	0.01	1	....
Maximum during August	240	0.04	2	1889-1890
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXX.
Mass curve of run-off. Plate CXII.
Storage development curve, Plate CLXII.
Probable frequency of flood discharge, Plate LXX.
(*a*) Description of drainage basin: Tributary area above point in N. W. ¼ of Sec. 31, T. 7 S., R. 17 E.
(*b*) Estimated from record for Fresno River.

TABLE 84. OWENS CREEK.

SEASONAL RUN-OFF DATA. Drainage area 66 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*b*
1871-1872	122	2.7	147	9,500	January, 7.1%
1872-1873	86	0.8	44	2,800	February, 18.4%
1873-1874	87	0.9	49	3,200	March, 24.4%
1874-1875	61	0.2	11	700	April, 17.4%
1875-1876	154	5.6	305	19,800	May, 14.2%
1876-1877	34	0.0	0	0	June, 7.9%
1877-1878	112	2.2	120	7,800	July, 2.3%
1878-1879	78	0.6	33	2,100	August, 0.5%
1879-1880	105	1.7	93	6,000	September, 0.3%
1880-1881	87	0.9	49	3,200	October, 1.6%
1881-1882	85	0.8	44	2,800	November, 2.1%
1882-1883	88	0.9	49	3,200	December, 3.8%
1883-1884	135	3.8	207	13,400	
1884-1885	67	0.3	16	1,100	
1885-1886	129	3.3	180	11,700	
1886-1887	68	0.3	16	1,100	
1887-1888	64	0.3	16	1,100	
1888-1889	74	0.4	22	1,400	
1889-1890	174	7.9	430	27,900	
1890-1891	86	0.8	44	2,800	
1891-1892	90	1.0	55	3,500	
1892-1893	132	3.5	191	12,400	
1893-1894	122	2.7	147	9,500	
1894-1895	148	5.0	272	17,700	
1895-1896	104	1.7	93	6,000	
1896-1897	124	2.9	158	10,200	
1897-1898	62	0.2	11	700	
1898-1899	89	1.0	54	3.500	
1899-1900	103	1.6	87	5,600	
1900-1901	129	3.3	180	11,700	
1901-1902	97	1.3	71	4,600	
1902-1903	108	1.8	98	6,400	
1903-1904	108	1.8	98	6,400	
1904-1905	108	1.8	98	6,400	
1905-1906	139	4.1	223	14,500	
1906-1907	148	5.0	272	17,700	
1907-1908	64	0.3	16	1,100	
1908-1909	119	2.5	136	8.800	
1909-1910	98	1.3	71	4,600	
1910-1911	133	3.7	202	13,100	
1911-1912	62	0.2	11	700	
1912-1913	58	0.1	5	400	
1913-1914	117	2.4	131	8,500	
1914-1915	114	2.3	125	8,100	
1915-1916	94	1.2	65	4,200	
1916-1917	82	0.7	38	2,500	
1917-1918	77	0.5	27	1,800	
1918-1919	89	1.0	54	3,500	
1919-1920	76	0.5	27	1,800	
1920-1921	110	2.0	109	7,100	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per quare mile.	Season.
Mean seasonal	6,500	1.80	98	....
Maximum seasonal	27,900	7.90	421	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	150	0.04	2	....
Maximum during July	640	0.18	10	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	30	0.01	Trace	....
Maximum during August	140	0.04	2	1889-1890
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXX. Mass curve of run-off, Plate CXIII.
Storage development curve, Plate CLXII. Probable frequency of flood discharge, Plate LXX.

(*a*) Description of drainage basin: Tributary area above points indicated: MILES CREEK in N. W. ¼ of N. E. ¼ of Sec. 25, T. 7 S., R. 15 E.; OWENS CREEK in N. W. ¼ of Sec. 36, T. 7 S., R. 15 E.

(*b*) Estimated from record for Fresno River.

TABLE 85. BEAR CREEK.

SEASONAL RUN-OFF DATA. Drainage area 71 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*b*
1871-1872	122	2.9	148	11,000	January, 7.1%
1872-1873	86	0.9	46	3,400	February, 18.4%
1873-1874	87	1.0	51	3,800	March, 24.4%
1874-1875	61	0.3	15	1,100	April, 17.4%
1875-1876	154	5.7	291	21,700	May, 14.2%
1876-1877	34	0.0	0	0	June, 7.9%
1877-1878	112	2.3	117	8,800	July, 2.3%
1878-1879	78	0.7	36	2,700	August, 0.5%
1879-1880	105	1.8	92	6,900	September, 0.3%
1880-1881	87	1.0	51	3,800	October, 1.6%
1881-1882	85	0.8	41	3,000	November, 2.1%
1882-1883	88	1.0	51	3,800	December, 3.8%
1883-1884	135	3.9	199	14,900	
1884-1885	67	0.3	15	1,100	
1885-1886	129	3.5	178	13,300	
1886-1887	68	0.3	15	1,100	
1887-1888	64	0.3	15	1,100	
1888-1889	74	0.5	25	1,900	
1889-1890	174	7.8	398	29,700	
1890-1891	86	0.9	46	3,400	
1891-1892	90	1.2	61	4,600	
1892-1893	132	3.7	189	14,100	
1893-1894	122	2.9	148	11,000	
1894-1895	148	5.2	265	19,800	
1895-1896	104	1.8	92	6,900	
1896-1897	124	3.1	158	11,800	
1897-1898	62	0.3	15	1,100	
1898-1899	89	1.1	56	4,200	
1899-1900	103	1.7	87	6,500	
1900-1901	129	3.5	178	13,300	
1901-1902	97	1.4	71	5,300	
1902-1903	108	2.1	107	8,000	
1903-1904	108	2.1	107	8,000	
1904-1905	108	2.1	107	8,000	
1905-1906	139	4.3	219	16,400	
1906-1907	148	5.2	265	19,800	
1907-1908	64	0.3	15	1,100	
1908-1909	119	2.8	143	10,700	
1909-1910	98	1.5	76	5,700	
1910-1911	133	3.8	194	14,500	
1911-1912	62	0.3	15	1,100	
1912-1913	58	0.2	10	800	
1913-1914	117	2.6	133	9,900	
1914-1915	114	2.4	122	9,100	
1915-1916	94	1.3	66	5,000	
1916-1917	82	0.8	41	3,000	
1917-1918	77	0.6	31	2,300	
1918-1919	89	1.1	56	4,200	
1919-1920	76	0.6	31	2,300	
1920-1921	110	2.2	112	8,400	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	7,500	2.00	105	....
Maximum seasonal	29,700	7.80	416	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	170	0.01	2	....
Maximum during July	680	0.18	10	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	40	0.01	1	....
Maximum during August	150	0.04	2	1889-1890
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXXI. Mass curve of run-off, Plate CXIII.
Storage development curve, Plate CLXIII. Probable frequency of flood discharge, Plate LXXI.
(*a*) Description of drainage basin: Tributary area above point in N. W. ¼ of Sec. 11, T. 7 S., R. 15 E.
(*b*) Estimated from record for Fresno River.

TABLE 86. BURNS CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 171 square miles.(a)

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.(b)
1871-1872	122	4.0	150	36,500	January, 34.2%
1872-1873	86	1.5	56	13,700	February, 25.2%
1873-1874	87	1.6	60	14,600	March, 23.7%
1874-1875	61	0.3	11	2,700	April, 5.5%
1875-1876	154	6.8	255	62,000	May, 2.6%
1876-1877	34	0.0	0	0	June, 1.0%
1877-1878	112	3.3	124	30,100	July, 0.3%
1878-1879	78	1.1	41	10,000	August, 0.0%
1879-1880	105	2.8	105	25,500	September, 0.1%
1880-1881	87	1.6	60	14,600	October, 0.6%
1881-1882	85	1.4	52	12,800	November, 1.6%
1882-1883	88	1.6	60	14,600	December, 5.2%
1883-1884	135	5.2	195	47,400	
1884-1885	67	0.5	19	4,600	
1885-1886	129	4.6	172	41,900	
1886-1887	68	0.5	19	4,600	
1887-1888	64	0.4	15	3,600	
1888-1889	74	0.8	30	7,300	
1889-1890	174	8.8	329	80,200	
1890-1891	86	1.5	56	13,700	
1891-1892	90	1.8	67	16,400	
1892-1893	132	4.8	180	43,800	
1893-1894	122	4.0	150	36,500	
1894-1895	148	6.3	236	57,400	
1895-1896	104	2.7	101	24,600	
1896-1897	124	4.2	157	38,300	
1897-1898	62	0.3	11	2,700	
1898-1899	89	1.7	64	15,500	
1899-1900	103	2.6	97	23,700	
1900-1901	129	4.6	172	41,900	
1901-1902	97	2.2	82	20,100	
1902-1903	108	3.0	112	27,300	
1903-1904	108	3.0	112	27,300	
1904-1905	108	3.0	112	27,300	
1905-1906	139	5.5	206	50,100	
1906-1907	148	6.3	236	57,400	
1907-1908	64	0.4	15	3,600	
1908-1909	119	3.8	142	34,600	
1909-1910	98	2.3	86	21,000	
1910-1911	133	5.0	187	45,600	
1911-1912	62	0.3	11	2,700	
1912-1913	58	0.3	11	2,700	
1913-1914	117	3.7	139	33,700	
1914-1915	114	3.4	127	31,000	
1915-1916	94	2.0	75	18,200	
1916-1917	82	1.3	49	11,900	
1917-1918	77	1.0	37	9,100	
1918-1919	89	1.7	64	15,500	
1919-1920	76	1.0	37	9,100	
1920-1921	110	3.1	116	28,300	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	24,400	2.70	143	....
Maximum seasonal	80,200	8 80	469	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	70	0.01	Trace	....
Maximum during July	240	0.03	1	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	0	0.00	0	....
Maximum during August	....	....	....	1889-1890
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXXI. Mass curve of run-off, Plate CXIV.
Storage development curve, Plate CLXIII. Probable frequency of flood discharge, Plate LXXI.

(a) Description of drainage basin: Tributary areas to points indicated: BURNS CREEK, in N. E. ¼ of Sec. 24, T. 7 S., R. 14 E.; BLACK RASCAL CREEK in N. W. ¼ of Sec. 15, T. 7 S., R. 14 E.; FAHRENS CREEK in S. W. ¼ of Sec. 31, T. 6 S., R. 14 E.

(b) Estimated from record for Calaveras River.

TABLE 87. MERCED RIVER.

SEASONAL RUN-OFF DATA. Drainage area 1,054 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	122	26.9	133	1,511,000	January, 6.5%
1872-1873	86	13.7	68	769,000	February, 6.4%
1873-1874	87	14.1	70	791,000	March, 12.9%
1874-1875	61	7.8	39	439,000	April, 14.6%
1875-1876	154	42.4	210	2,384,000	May, 23.8%
1876-1877	34	3.9	19	220,000	June, 20.6%
1877-1878	112	22.7	113	1,274,000	July, 7.5%
1878-1879	78	11.7	58	659,000	August, 1.8%
1879-1880	105	20.1	100	1,132,000	September, 0.9%
1880-1881	87	14.1	70	791,000	October, 1.5%
1881-1882	85	13.6	67	764,000	November, 1.3%
1882-1883	88	14.5	72	813,000	December, 2.2%
1883-1884	135	32.8	162	1,840,000	
1884-1885	67	9.0	45	505,000	
1885-1886	129	30.1	149	1,692,000	
1886-1887	68	9.6	48	538,000	
1887-1888	64	8.5	42	478,000	
1888-1889	74	10.7	53	599,000	
1889-1890	174	52.6	261	2,955,000	
1890-1891	86	13.7	68	769,000	
1891-1892	90	15.1	75	846,000	
1892-1893	132	31.3	155	1,758,000	
1893-1894	122	26.9	133	1,511,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1894-1895	148	39.8	197	2,236,000	
1895-1896	104	19.8	98	1,110,000	
1896-1897	124	27.9	138	1,566,000	
1897-1898	62	8.0	40	450,000	
1898-1899	89	14.7	73	824,000	
1899-1900	103	19.6	97	1,099,000	
1900-1901	129	30.1	149	1,692,000	*c*970,200
1901-1902	97	14.8	73	828,600	828,600
1902-1903	108	17.5	87	982,900	982,900
1903-1904	108	19.5	97	1,096,600	1,096,600
1904-1905	108	16.0	80	900,900	900,900
1905-1906	139	36.3	180	2,040,900	2,040,900
1906-1907	148	37.9	188	2,132,400	2,132,400
1907-1908	64	9.2	46	518,400	518,400
1908-1909	119	26.3	130	1,479,400	1,479,400
1909-1910	98	19.0	94	1,068,300	1,068,300
1910-1911	133	37.7	187	2,119,900	2,119,900
1911-1912	62	9.2	46	515,000	515,000
1912-1913	58	7.8	39	440,900	440,900
1913-1914	117	24.5	122	1,379,000	*d*9,170
1914-1915	114	23.5	116	1,318,000	....
1915-1916	94	26.5	131	*f*1,491,900	*e*1,446,700
1916-1917	82	20.0	99	*f*1,127,500	1,125,100
1917-1918	77	14.8	73	*f*832,200	830,400
1918-1919	89	12.1	60	*f*684,100	681,100
1919-1920	76	12.2	61	*f*687,600	685,800
1920-1921	110	18.0	89	*f*1,016,900	1,011,300

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	1,133,500	20.20	1,075	....
Maximum seasonal	2,955,000	52.60	2,803	1889-1890
Minimum seasonal	220,000	3.90	209	1876-1877
Mean during July	99,800	1.77	95	....
Maximum during July	385,000	6.85	365	1905-1906
Minimum during July	13,000	0.23	12	1918-1919
Mean during August	23,900	0.43	23	....
Maximum during August	58,300	1.04	55	1905-1906
Minimum during August	3,800	0.07	4	1918-1919

Probable run-off curve, Plate XXXI.
Storage development curve, Plate CLXIII.
Mass curve of run-off, Plate CXIV.
Probable frequency of flood discharge, Plate LXXI.

(*a*) Description of drainage basin: Tributary area above former gaging point, 2 miles above dam at Merced Falls.

(*b*) Point of measurement: April 1, 1902, to November 30, 1914, at gage 2 miles above dam at Merced Falls, drainage area 1,054 square miles. December 1, 1915 to date, at Exchequer, just above mouth of Cotton Creek, drainage area 1,020 square miles.

(*c*) Partial record, April 1 to September 30.

(*d*) Partial record, October 1 to November 30.

(*e*) Partial record, December 1 to September 30.

(*f*) Records at Exchequer increased by run-off for 34 square miles determined from run-off curve for Burns Creek.

TABLE 88. TUOLUMNE RIVER.

SEASONAL RUN-OFF DATA. Drainage area 1,543 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*b*
1871-1872	122	31.8	128	2,624,000	January, 6.2%
1872-1873	86	18.7	75	1,543,000	February, 6.8%
1873-1874	87	19.1	77	1,576,000	March, 11.2%
1874-1875	61	11.9	48	982,000	April, 15.0%
1875-1876	154	49.2	197	4,059,000	May, 23.0%
1876-1877	34	6.8	27	561,000	June, 21.9%
1877-1878	112	27.7	111	2,286,000	July, 8.1%
1878-1879	78	16.4	66	1,353,000	August, 1.6%
1879-1880	105	25.1	101	2,071,000	September, 0.6%
1880-1881	87	19.1	77	1,576,000	October, 1.2%
1881-1882	85	18.5	74	1,526,000	November, 1.9%
1882-1883	88	19.5	78	1,609,000	December, 2.5%
1883-1884	135	38.2	153	3,152,000	
1884-1885	67	13.3	53	1,097,000	
1885-1886	129	35.5	142	2,929,000	
1886-1887	68	13.8	55	1,139,000	
1887-1888	64	12.7	51	1,048,000	
1888-1889	74	15.3	61	1,262,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*c*
1889-1890	174	62.0	248	5,099,000	
1890-1891	86	18.7	75	1,543,000	
1891-1892	90	20.0	80	1,650,000	
1892-1893	132	36.8	148	3,036,000	
1893-1894	122	31.8	128	2,624,000	
1894-1895	148	46.0	184	3,795,000	
1895-1896	104	19.3	77	1,588,100	1,588,100
1896-1897	124	29.6	119	2,437,100	2,437,100
1897-1898	62	11.6	47	960,500	960,500
1898-1899	89	16.2	65	1,334,700	1,334,700
1899-1900	103	19.8	79	1,628,100	1,628,100
1900-1901	129	33.0	132	2,717,800	2,717,800
1901-1902	97	19.5	78	1,606,000	1,606,000
1902-1903	108	23.9	96	1,973,100	1,973,100
1903-1904	108	32.2	129	2,661,200	2,661,200
1904-1905	108	20.8	83	1,720,000	1,720,000
1905-1906	139	42.8	172	3,525,400	3,525,400
1906-1907	148	45.5	183	3,755,700	3,755,700
1907-1908	64	13.0	52	1,073,600	1,073,600
1908-1909	119	32.2	129	2,646,900	2,646,900
1909-1910	98	25.2	101	2,078,100	2,078,100
1910-1911	133	41.4	166	3,413,400	3,413,400
1911-1912	62	12.7	51	1,051,000	1,051,000
1912-1913	58	13.1	53	1,075,600	1,075,600
1913-1914	117	31.8	128	2,623,700	2,623,700
1914-1915	114	24.9	100	2,044,900	2,044,900
1915-1916	94	28.6	115	2,345,500	2,345,500
1916-1917	82	27.0	108	2,223,000	2,223,000
1917-1918	77	17.7	71	1,456,700	1,456,700
1918-1919	89	16.4	66	*b*1,351,500	1,337,800
1919-1920	76	16.3	65	*b*1,336,200	1,336,200
1920-1921	110	24.5	98	*b*2,022,200	2,022,200

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	2,055,800	24.90	1,332.0	....
Maximum seasonal	5,099,000	62.00	3,296.0	1889-1890
Minimum seasonal	561,000	6.80	363.0	1876-1877
Mean during July	166 520	2.02	108.0	....
Maximum during July	712,900	8.66	461.0	1905-1906
Minimum during July	16,900	0.20	11.0	1897-1898
Mean during August	32,890	0.40	21.3	....
Maximum during August	135,900	1.65	88.0	1905-1906
Minimum during August	2,500	0.03	1.6	1899-1900

Probable run-off curve, Plate XXXI. Mass curve of run-off, Plate CXI.
Storage development curve, Plate CLXIII. Probable frequency of flood discharge, Plate LXXI.

(*a*) Description of drainage basin: Tributary area above La Grange Dam.

(*b*) Measured run-off adjusted for storage of 28,382 acre-feet capacity.

(*c*) Point of measurement: October 1, 1895, to September 30, 1916, at La Grange Dam; October 1, 1916, to date, 3½ miles above La Grange Dam, but run-off assumed to be the same as at La Grange Dam.

TABLE 89. WILDCAT CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 59 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*	
1871-1872	122	4.2	149	13,100	January,	34.2%
1872-1873	86	1.5	53	4,700	February,	25.2%
1873-1874	87	1.5	53	4,700	March,	23.7%
1874-1875	61	0.3	11	900	April,	5.5%
1875-1876	154	7.9	280	24,700	May,	2.6%
1876-1877	34	0.0	0	0	June,	1.0%
1877-1878	112	3.4	120	10,600	July,	0.3%
1878-1879	78	1.1	39	3,400	August,	0.0%
1879-1880	105	2.7	96	8,500	September,	0.1%
1880-1881	87	1.5	53	4,700	October,	0.6%
1881-1882	85	1.4	50	4,400	November,	1.6%
1882-1883	88	1.6	57	5,000	December,	5.2%
1883-1884	135	5.6	198	17,500		
1884-1885	67	0.5	18	1,600		
1885-1886	129	5.0	177	15,700		
1886-1887	68	0.6	21	1,900		
1887-1888	64	0.4	14	1,300		
1888-1889	74	0.8	28	2,500		
1889-1890	174	10.5	372	32,900		
1890-1891	86	1.5	53	4,700		
1891-1892	90	1.7	60	5,300		
1892-1893	132	5.2	184	16,300		
1893-1894	122	4.2	149	13,100		
1894-1895	148	7.1	251	22,200		
1895-1896	104	2.7	96	8,500		
1896-1897	124	4.5	159	14,100		
1897-1898	62	0.3	11	900		
1898-1899	89	1.7	60	5,300		
1899-1900	103	2.6	92	8,100		
1900-1901	129	5.0	177	15,700		
1901-1902	97	2.2	78	6,900		
1902-1903	108	3.0	106	9,400		
1903-1904	108	3.0	106	9,400		
1904-1905	108	3.0	106	9,400		
1905-1906	139	6.1	216	19,100		
1906-1907	148	7.1	251	22,200		
1907-1908	64	0.4	14	1,300		
1908-1909	119	4.0	141	12,500		
1909-1910	98	2.3	81	7,200		
1910-1911	133	5.4	191	16,900		
1911-1912	62	0.3	11	900		
1912-1913	58	0.2	7	600		
1913-1914	117	3.7	131	11,600		
1914-1915	114	3.5	124	11,000		
1915-1916	94	2.0	71	6,300		
1916-1917	82	1.2	42	3,800		
1917-1918	77	1.0	35	3,100		
1918-1919	89	1.7	60	5,300		
1919-1920	76	1.0	35	3,100		
1920-1921	110	3.2	113	10,000		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	8,850	2.82	151	....
Maximum seasonal	32,900	10.50	560	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	30	0.01	1	....
Maximum during July	100	0.03	2	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	0	0.00	0	....
Maximum during August	0	0.00	0	....
Minimum during August	0	0.00	0	1876-1877

Proable run-off curve, Plate XXXII. Mass curve of run-off, Plate CXV.
Storage development curve, Plate CLXIV. Probable frequency of flood discharge, Plate LXXII.

(*a*) Description of drainage basin: Tributary area on WILDCAT CREEK above a point in the S. E. ¼ of Sec. 33, T. 1 S., R. 12 E., and on DRY CREEK above a point in the N. W. ¼ of Sec. 16, T. 2 S., R. 13 E.

(*b*) Estimated from record for Calaveras River.

TABLE 90. STANISLAUS RIVER.

SEASONAL RUN-OFF DATA. Drainage area 983 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)*b*	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*b*
1871-1872	122	35.4	135	1,860,000	January, 7.1%
1872-1873	86	18.3	70	959,000	February, 7.9%
1873-1874	87	18.5	70	970,000	March, 16.6%
1874-1875	61	9.2	35	482,000	April, 17.4%
1875-1876	154	55.8	213	2,930,000	May, 22.7%
1876-1877	*e*34	7.8	30	408,900	June, 17.7%
1877-1878	112	30.0	114	1,570,000	July, 5.6%
1878-1879	78	15.7	60	823,000	August, 1.2%
1879-1880	105	26.5	101	1,390,000	September, 0.5%
1880-1881	87	18.5	70	970,000	October, 0.6%
1881-1882	85	18.0	69	944,000	November, 0.9%
1882-1883	88	19.5	74	1,020,000	December, 1.8%
1883-1884	135	43.0	164	2,250,000	
1884-1885	67	11.1	42	582,000	
1885-1886	129	39.5	150	2,070,000	
1886-1887	68	11.8	45	619,000	
1887-1888	64	10.3	39	540,000	
1888-1889	74	13.7	52	718,000	
1889-1890	174	68.2	260	3,580,000	
1890-1891	86	18.3	70	959,000	
1891-1892	90	20.0	76	1,050,000	
1892-1893	132	41.0	156	2,150,000	
1893-1894	122	35.5	135	1,860,000	
1894-1895	148	51.5	196	2,700,000	
1895-1896	104	26.4	101	1,380,000	Measured
1896-1897	124	36.7	140	1,920,000	seasonal
1897-1898	62	9.5	36	498,000	discharge
1898-1899	89	19.6	75	1,030,000	in acre-feet at
1899-1900	103	25.8	98	1,350,000	U.S.G.S.
1900-1901	129	39.5	150	2,070,000	gaging station.*c*
1901-1902	97	23.0	88	1,210,000	
1902-1903	108	23.9	91	1,254,800	*d*479,200
1903-1904	108	38.5	147	2,019,900	2,014,800
1904-1905	108	16.3	62	848,400	844,000
1905-1906	139	45.4	173	2,383,200	2,378,800
1906-1907	148	53.3	203	2,803,500	2,799,100
1907-1908	64	11.4	43	597,800	593,500
1908-1909	119	36.1	138	1,897,100	1,892,700
1909-1910	98	26.0	99	1,364,800	1,360,400
1910-1911	133	44.2	168	2,322,900	2 318,900
1911-1912	62	11.3	43	590,700	587,000
1912-1913	58	9.6	37	506,700	494,000
1913-1914	117	30.4	116	1,601,900	1,584,400
1914-1915	114	24.3	93	1,277,500	1,274,900
1915-1916	94	30.6	117	1,611,500	1,609,200
1916-1917	82	26.2	100	1,362,800	1,360,900
1917-1918	77	15.5	59	805,700	804,100
1918-1919	89	14.4	55	749,800	748,600
1919-1920	76	13.8	53	718,000	712,700
1920-1921	110	23.4	89	1,219,500	1,218,600

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	1,376,000	26.24	1,400.0	....
Maximum seasonal	3,580,000	68.20	3,642.0	1889-1890
Minimum seasonal	62,900	1.20	64.0	1876-1877
Mean during July	76,700	1.46	78.0	....
Maximum during July	318,200	6.10	321 0	1905-1906
Minimum during July	3,520	0.07	3.6	1876-1877
Mean during August	16,400	0.30	17.0	....
Maximum during August	64,000	1.20	65.0	1906-1907
Minimum during August	0	0.00	0	1913-1914

Probable run-off curve, Plate XXXII.
Storage development curve, Plate CLXIV.
Mass curve of run-off, Plate CXIV.
Probable frequency of flood discharge, Plate LXXII.

(*a*) Description of drainage basin: Tributary area above gage at Knights Ferry, in N. E. ¼ of Sec. 29, T. 1 S., R. 12 E.

(*b*) Measured run-off adjusted for irrigation and storage above point of measurement as follows: Area irrigated, 2,910 acres from 1904 to 1910, then decreasing 230 acres per year to 600 acres in 1920-1921. Storage capacity, 1904-1909, 17,600 acre-feet; 1909-1910, 20,000 acre-feet; 1910-1916, 35,400 acre-feet; 1916-1921, 48,700 acre-feet.

(*c*) Point of measurement: May, 1903, to April, 1916, at Knights Ferry, drainage area 983 square miles; April, 1916, to date, near Knights Ferry, in S. W. ¼ of Sec. 1, T. 1. S., R. 12 E., 2 miles above Goodwin Dam, drainage area 973 square miles. No adjustment made for difference in drainage area, the discharge being assumed the same at the two points.

(*d*) Partial record, May to September, inclusive.

(*e*) Index of 56 used.

TABLE 91. LITTLEJOHNS CREEK.

SEASONAL RUN-OFF DATA. Drainage area 40.5 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*	
1871-1872	122	5.3	141	11,400	January,	34.2%
1872-1873	86	2.2	58	4,800	February,	25.2%
1873-1874	87	2.2	58	4,800	March,	23.7%
1874-1875	61	0.9	24	1,900	April,	5.5%
1875-1876	154	9.7	257	20,900	May,	2.6%
1876-1877	34	0.2	5	400	June,	1.0%
1877-1878	112	4.4	117	9,500	July,	0.3%
1878-1879	78	1.7	45	3,700	August,	0.0%
1879-1880	105	3.7	98	8,000	September,	0.1%
1880-1881	87	2.2	58	4,800	October,	0.6%
1881-1882	85	2.1	56	4,500	November,	1.6%
1882-1883	88	2.3	61	5,000	December,	5.2%
1883-1884	135	6.9	183	14,900		
1884-1885	67	1.2	32	2,600		
1885-1886	129	6.1	162	13,200		
1886-1887	68	1.2	32	2,600		
1887-1888	64	1.0	27	2,200		
1888-1889	74	1.5	40	3,200		
1889-1890	174	13.3	353	28,700		
1890-1891	86	2.2	58	4,800		
1891-1892	90	2.5	64	5,400		
1892-1893	132	6.5	172	14,000		
1893-1894	122	5.3	141	11,400		
1894-1895	148	8.8	233	19,000		
1895-1896	104	3.6	95	7,800		
1896-1897	124	5.6	148	12,100		
1897-1898	62	1.0	27	2,200		
1898-1899	89	2.4	64	5,200		
1899-1900	103	3.5	93	7,600		
1900-1901	129	6.1	162	13,200		
1901-1902	97	3.0	80	6,500		
1902-1903	108	4.0	106	8,600		
1903-1904	108	4.0	106	8,600		
1904-1905	108	4.0	106	8,600		
1905-1906	139	7.5	199	16,200		
1906-1907	148	8 8	233	19,000		
1907-1908	64	1.0	27	2,200		
1908-1909	119	5.1	135	11,000		
1909-1910	98	3.1	82	6,700		
1910-1911	133	6.7	178	14,500		
1911-1912	62	1.0	27	2,200		
1912-1913	58	0.8	21	1,700		
1913-1914	117	4.8	127	10,400		
1914-1915	114	4.6	122	9,900		
1915-1916	94	2.7	72	5,800		
1916-1917	82	2.0	53	4,300		
1917-1918	77	1.7	45	3,700		
1918-1919	89	2.4	64	5,200		
1919-1920	76	1.6	42	3,500		
1920-1921	110	4.2	111	9,100		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	8,150	3.80	201	....
Maximum seasonal	28,700	13.30	709	1889-1890
Minimum seasonal	400	0.20	10	1876-1877
Mean during July	20	0.01	1	....
Maximum during July	90	0 04	2	1889-1890
Minimum during July	Trace	Trace	Trace	1876-1877
Mean during August	0	0.00	0	....
Maximum during August	....	....	....	....
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXXII.
Storage development curve, Plate CLXIV.
Mass curve of run-off, Plate CXVI.
Probable frequency of flood discharge, Plate LXXII.

(*a*) Description of drainage basin: Tributary area above point where longitude 120° 42.3′ intersects stream, near Knights Ferry.

(*b*) Estimated from records for Calaveras River.

TABLE 92. MARTELLS CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 122 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.b
1871-1872	122	3.3	150	21,500	January, 34.2%
1872-1873	86	1.3	59	8,500	February, 25.2%
1873-1874	87	1.3	59	8,500	March, 23.7%
1874-1875	61	0.3	14	2,000	April, 5.5%
1875-1876	154	5.4	246	35,100	May, 2.6%
1876-1877	34	0.0	0	0	June, 1.0%
1877-1878	112	2.7	123	17,600	July, 0.3%
1878-1879	78	1.0	46	6,500	August, 0.0%
1879-1880	105	2.3	105	15,000	September, 0.1%
1880-1881	87	1.3	59	8,500	October, 0.6%
1881-1882	85	1.2	55	7,800	November, 1.6%
1882-1883	88	1.4	64	9,100	December, 5.2%
1883-1884	135	4.1	187	26,700	
1884-1885	67	0.5	23	3,300	
1885-1886	129	3.7	169	24,100	
1886-1887	68	0.6	27	3,900	
1887-1888	64	0.4	18	2,600	
1888-1889	74	0.8	36	5,200	
1889-1890	174	6.9	314	44,900	
1890-1891	86	1.3	59	8,500	
1891-1892	90	1.5	68	9,800	
1892-1893	132	3.9	178	25,400	
1893-1894	122	3.3	150	21,500	
1894-1895	148	5.0	228	32,500	
1895-1896	104	2.2	100	14,300	
1896-1897	124	3.4	155	22,100	
1897-1898	62	0.4	18	2,600	
1898-1899	89	1.5	68	9,800	
1899-1900	103	2.2	100	14,300	
1900-1901	129	3.7	169	24,100	
1901-1902	97	1.8	82	11,700	
1902-1903	108	2.4	109	15,600	
1903-1904	108	2.4	109	15,600	
1904-1905	108	2.4	109	15,600	
1905-1906	139	4.4	200	28,600	
1906-1907	148	5.0	228	32,500	
1907-1908	64	0.4	18	2,600	
1908-1909	119	3.1	141	20,200	
1909-1910	98	1.9	87	12,400	
1910-1911	133	4.0	182	26,000	
1911-1912	62	0.4	18	2,600	
1912-1913	58	0.3	14	2,000	
1913-1914	117	3.0	137	19,500	
1914-1915	114	2.8	128	18,200	
1915-1916	94	1.7	78	11,100	
1916-1917	82	1.1	50	7,200	
1917-1918	77	0.9	41	5,900	
1918-1919	89	1.5	68	9,800	
1919-1920	76	0.8	36	5,200	
1920-1921	110	2.6	118	16,900	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	14,300	2.20	117	....
Maximum seasonal	44,900	6.90	368	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	40	0.01	Trace	....
Maximum during July	130	0.02	1	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	0	0.00	0	....
Maximum during August	0	0.00	0	....
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXXII. Mass curve of run-off, Plate CXV.
Storage development curve, Plate CLXIV. Probable frequency of flood discharge, Plate LXXII.

(a) Description of drainage basin: Tributary areas, above 300-foot contour, of following streams: MARTELLS CREEK, BEAR CREEK, ROCK CREEK, BIG SPRING CREEK, PEACHYS CREEK.

(b) Estimated from record for Calaveras River.

TABLE 93. CALAVERAS RIVER.

SEASONAL RUN-OFF DATA. Drainage area 394 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	122	23.0	153	483,300	January, 34.2%
1872-1873	86	8.6	57	180,700	February, 25.2%
1873-1874	87	9.0	60	189,100	March, 23.7%
1874-1875	61	2.2	15	46,200	April, 5.5%
1875-1876	154	38.0	252	798,500	May, 2.6%
1876-1877	34	1.4	9	29,400	June, 1.0%
1877-1878	112	18.5	123	388,700	July, 0.3%
1878-1879	78	6.5	43	136,500	August, 0.0%
1879-1880	105	15.6	103	327,800	September, 0.1%
1880-1881	87	9.0	60	189,100	October, 0.6%
1881-1882	85	8.3	55	174,400	November, 1.6%
1882-1883	88	9.5	63	199,600	December, 5 2%
1883-1884	135	29.0	192	609,300	
1884-1885	67	3.7	24	77,700	
1885-1886	129	26.4	175	554,700	
1886-1887	68	4.0	26	84,000	
1887-1888	64	2.9	19	60,900	
1888-1889	74	5.2	35	109,200	
1889-1890	174	47.7	317	1,003,000	
1890-1891	86	8.6	57	180,700	
1891-1892	90	10.0	66	210,100	
1892-1893	132	27.5	182	577,800	
1893-1894	122	23.0	153	483,300	
1894-1895	148	35.4	235	743,800	
1895-1896	104	15.0	100	315,100	
1896-1897	124	24.0	159	504,300	
1897-1898	62	2.4	16	50,400	
1898-1899	89	9.7	64	203,800	
1899-1900	103	14.9	99	313,000	Measured seasonal discharge in acre-feet at U.S.G.S gaging station.*d*
1900-1901	129	26.2	174	550,500	
1901-1902	97	12.5	83	262,600	
1902-1903	108	17.0	113	357,200	
1903-1904	108	17 0	113	357,200	
1904-1905	108	17.0	113	357,200	
1905-1906	139	31.0	206	651,400	
1906-1907	148	31.0	206	651,000	*b*592,900
1907-1908	64	3.3	22	68,500	*c*67,200
1908-1909	119	22.4	149	471,600	471,600
1909-1910	98	9.3	62	194,800	194,800
1910-1911	133	32.2	214	674,700	674,700
1911-1912	62	3.0	20	63,000	63,000
1912-1913	58	1.5	10	31,400	31,400
1913-1914	117	13.0	86	272,700	272,700
1914-1915	114	12.7	84	266,400	266,400
1915-1916	94	16.4	109	344,200	344,200
1916-1917	82	16 6	110	348,400	348,400
1917-1918	77	10.1	67	212,200	212,200
1918-1919	89	4.6	31	97,300	97,300
1919-1920	76	4 0	26	83,200	83,200
1920-1921	110	13 5	90	284,100	284,100

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	316,500	15.10	803.0	....
Maximum seasonal	1,003,000	47.70	2,546.0	1889-1890
Minimum seasonal	29,400	1.40	75.0	1876-1877
Mean during July	950	0 05	2.4	....
Maximum during July	3,000	0.14	7 6	1889-1890
Minimum during July	0	0.00	0	(See above.)
Mean during August	120	0 01	0 3	....
Maximum during August	740	0.04	1 9	1910-1911
Minimum during August	0	0.00	0	(See above.)

Probable run-off curve, Plate XXXIII. Mass curve of run-off, Plate CXVI.

Storage development curve, Plate CLXV. Probable frequency of flood discharge, Plate LXXIII.

(*a*) Description of drainage basin: Tributary area above gage at highway bridge ¼ mile southeast of Jenny Lind.

(*b*) Partial record, January 1 to June 30.

(*c*) Partial record, December 1 to September 30.

(*d*) Point of measurement: Gage near Jenny Lind, drainage area 394 square miles.

TABLE 94. MOKELUMNE RIVER.

SEASONAL RUN-OFF DATA. Drainage area 632 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)*d*	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*d*
1871-1872	122	35.0	131	1,180,000	January, 7.1%
1872-1873	86	20.0	75	674,000	February, 7.5%
1873-1874	87	20.4	76	688,000	March, 13.6%
1874-1875	61	12.3	46	415,000	April, 17.4%
1875-1876	154	52.6	197	1,773,000	May, 23.6%
1876-1877	34	5.3	20	179,000	June, 19.8%
1877-1878	112	30.5	114	1,028,000	July, 5.8%
1878-1879	78	17.5	67	590,000	August, 0.9%
1879-1880	105	27.5	103	927,000	September, 0.3%
1880-1881	87	20.4	76	688,000	October, 0.5%
1881-1882	85	19.7	74	664,000	November, 1.3%
1882-1883	88	20.9	78	704,000	December, 2.2%
1883-1884	135	41.7	156	1,406,000	
1884-1885	67	14.0	53	472,000	
1885-1886	129	38.5	144	1,298,000	
1886-1887	68	14.3	54	482,000	
1887-1888	64	13.1	49	442,000	
1888-1889	74	16.1	61	539,000	
1889-1890	174	64.7	242	2,181,000	
1890-1891	86	20.1	75	678,000	
1891-1892	90	21.5	82	725,000	
1892-1893	132	40.0	151	1,348,000	
1893-1894	122	35.0	131	1,180,000	
1894-1895	148	50.0	188	1,685,000	
1895-1896	104	27.0	102	910,000	
1896-1897	124	36.0	135	1,213,000	
1897-1898	62	12.5	47	421,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1898-1899	89	21.1	79	711,000	
1899-1900	103	26.7	101	900,000	
1900-1901	129	38.5	144	1,298,000	
1901-1902	97	24.2	92	816,000	
1902-1903	108	28.8	108	971,000	
1903-1904	108	28.8	108	971,000	
1904-1905	108	17.9	67	602,300	*c*560,400
1905-1906	139	40.2	151	1,359,900	1,352,700
1906-1907	148	50.0	188	1,679,200	1,672,000
1907-1908	64	14.4	54	487,600	480,400
1908-1909	119	34.2	128	1,154,600	1,147,400
1909-1910	98	27.0	102	913,500	906,300
1910-1911	133	45.4	171	1,532,600	1,525,400
1911-1912	62	11.8	44	399,900	392,700
1912-1913	58	12.8	48	430,500	423,300
1913-1914	117	32.0	120	1,083,900	1,076,700
1914-1915	114	24.5	92	830,000	822,800
1915-1916	94	30.8	116	1,039,700	1,032,500
1916-1917	82	25.9	98	875,200	868,000
1917-1918	77	15 6	59	527,800	520,600
1918-1919	89	17.7	66	597,100	589,900
1919-1920	76	13.9	53	472,300	465,100
1920-1921	110	22 5	84	761,100	754,000

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	898,100	26.70	1,421.0	....
Maximum seasonal	2,181,000	64.70	3,451.0	1889-1890
Minimum seasonal	179,000	5.30	283.0	1876-1877
Mean during July	52,100	1.50	82.0	....
Maximum during July	214,900	6.40	340.0	1905-1906
Minimum during July	2,420	0.07	3.8	1918-1919
Mean during August	8,080	0 24	13.0	....
Maximum during August	40,100	1.20	63.0	1906-1907
Minimum during August	820	0.02	1.3	1909-1910

Probable run-off curve, Plate XXXIII. Mass curve of run-off, Plate CXVII.
Storage development curve, Plate CLXV. Probable frequency of flood discharge, Plate LXXIII.

(*a*) Description of drainage basin: Tributary area above gage near Clements at bridge on Lockeford to Ione highway.

(*b*) Point of measurement at gage near Clements, drainage area 632 square miles.

(*c*) Partial record, January 1 to September 30.

(*d*) Mean run-off adjusted for diversion and storage above point of measurement as follows: Storage capacity, 1905 to 1921, 24,929 acre-feet. Diversion for domestic use, 1905 to 1921, 10 second-feet.

TABLE 95. SUTTER CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 285 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	122	9.0	147	137,000	January, 34.2%
1872-1873	86	3.8	62	57,800	February, 25.2%
1873-1874	87	3.9	64	59,400	March, 23.7%
1874-1875	61	1.2	20	18,300	April, 5.5%
1875-1876	154	14.4	235	219,200	May, 2.6%
1876-1877	34	0.0	0	0	June, 1.0%
1877-1878	112	7.4	121	112,600	July, 0.3%
1878-1879	78	2.9	47	44,100	August, 0.0%
1879-1880	105	6.4	104	97,400	September, 0.1%
1880-1881	87	3.9	64	59,400	October, 0.6%
1881-1882	85	3.7	60	56,300	November, 1.6%
1882-1883	88	4.1	67	62,400	December, 5.2%
1883-1884	135	11.1	181	169,000	
1884-1885	67	1.7	28	25,900	
1885-1886	129	10.2	167	155,300	
1886-1887	68	1.9	31	28,900	
1887-1888	64	1.5	25	22,800	
1888-1889	74	2.5	41	38,100	
1889-1890	174	18.2	297	277,000	
1890-1891	86	3.8	62	57,800	
1891-1892	90	4.3	70	65,500	
1892-1893	132	10.6	173	161,300	
1893-1894	122	9.0	147	137,000	
1894-1895	148	13.4	219	204,000	
1895-1896	104	6.2	101	94,400	
1896-1897	124	9.3	152	141,600	
1897-1898	62	1.3	21	19,800	
1898-1899	89	4.2	69	63,900	
1899-1900	103	6.1	100	92,800	
1900-1901	129	10.2	167	155,300	
1901-1902	97	5.2	85	79,100	
1902-1903	108	6.8	111	103,500	
1903-1904	108	6.8	111	103,500	
1904-1905	108	6.8	111	103,500	
1905-1906	139	11.7	188	175,300	
1906-1907	148	13.4	219	204,000	
1907-1908	64	1.5	25	22,800	
1908-1909	119	8.5	139	129,400	
1909-1910	98	5.4	88	82,200	
1910-1911	133	10.8	176	164,400	
1911-1912	62	1.3	21	19,800	
1912-1913	58	0.9	15	13,700	
1913-1914	117	8.2	134	124,800	
1914-1915	114	7.7	126	117,200	
1915-1916	94	4.9	80	74,600	
1916-1917	82	3.3	54	50,200	
1917-1918	77	2.8	46	42,600	
1918-1919	89	4.2	69	63,900	
1919-1920	76	2.7	44	41,100	
1920-1921	110	7.1	116	108,100	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	93,200	6.10	327	....
Maximum seasonal	277,000	18.20	971	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	280	0.02	1	....
Maximum during July	830	0.05	3	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	0	0.00	0	....
Maximum during August	....	....	....	....
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXXIII.
Storage development curve, Plate CLXV.
Mass curve of run-off, Plate CXVII.
Probable frequency of flood discharge, Plate LXXIII.

(*a*) Description of drainage basin: Tributary area of DRY CREEK and WILLOW CREEK above intersection of longitude 121° 00′ with streams. SUTTER CREEK is a tributary of Dry Creek.

(*b*) Estimated from record for Calaveras River.

TABLE 96. COSUMNES RIVER.

SEASONAL RUN-OFF DATA. Drainage area 534 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.[d]
1871-1872	122	24.6	145	700,000	January, 21.8%	
1872-1873	86	10.2	60	290,000	February, 18.9%	
1873-1874	87	10.5	62	299,000	March, 21.1%	
1874-1875	61	3.8	22	108,000	April, 16.3%	
1875-1876	154	40.1	237	1,141,000	May, 11.2%	
1876-1877	[c]34	3.8	22	108,000	June, 4.3%	
1877-1878	112	20.0	118	569,000	July, 0.7%	
1878-1879	78	8.0	47	228,000	August, 0.1%	
1879-1880	105	17.4	103	495,000	September, 0.2%	
1880-1881	87	10.5	62	299,000	October, 0.4%	
1881-1882	85	10.0	59	284,000	November, 1.1%	
1882-1883	88	11.0	65	313,000	December, 3.9%	
1883-1884	135	31.0	183	882,000		
1884-1885	67	5.0	29	142,000		
1885-1886	129	28.0	166	797,000		
1886-1887	68	5.2	31	148,000		
1887-1888	64	4.6	27	131,000		
1888-1889	74	6.8	40	194,000		
1889-1890	174	49.6	292	1,412,000		
1890-1891	86	10 2	60	290,000		
1891-1892	90	11.8	70	336,000		
1892-1893	132	29.4	174	838,000		
1893-1894	122	24.6	145	700,000		
1894-1895	148	37.2	220	1,059,000		
1895-1896	104	17.0	100	484,000		
1896-1897	124	25.7	152	731,000		
1897-1898	62	4.0	24	114,000		
1898-1899	89	11.2	66	319,000		
1899-1900	103	16.8	99	478,000		
1900-1901	129	28.0	166	797,000		
1901-1902	97	14.1	83	401,000		
1902-1903	108	19.0	112	511,000		
1903-1904	108	19.0	112	541,000		
1904-1905	108	19.0	112	541,000		
1905-1906	139	32.9	195	936,000		
1906-1907	148	37.2	220	1,059,000		
1907-1908	64	5.2	31	149,100		[b]148,300
1908-1909	119	22.5	133	639,100		639,100
1909-1910	98	16.3	96	462,900		462,900
1910-1911	133	30.8	182	876,400		876,400
1911-1912	62	4.9	29	138,600		138,600
1912-1913	58	4.5	26	127,300		127,300
1913-1914	117	19.2	114	547,600		547,600
1914-1915	114	14.3	85	407,700		407,700
1915-1916	94	20.1	119	571,800		571.800
1916-1917	82	14.6	86	416,100		416,100
1917-1918	77	7.9	46	224,000		224,000
1918-1919	89	9.1	54	259,200		259.200
1919-1920	76	6.0	35	170,500		170.500
1920-1921	110	14.3	84	406,600		406.600

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	482,000	16.90	903.0	....
Maximum seasonal	1,412,000	49.60	2,644.0	1889-1890
Minimum seasonal	108,000	3.80	202.0	1876-1877
Mean during July	3,370	0.12	6.3	....
Maximum during July	10,900	0.38	20.0	1910-1911
Minimum during July	500	0.02	0.9	1917-1918
Mean during August	480	0.02	0.9	....
Maximum during August	2,180	0.08	4.1	1910-1911
Minimum during August	0	0.00	0	1907-1908

Probable run-off curve, Plate XXXIII. Mass curve of run-off, Plate CXVII.
Storage development curve, Plate CLXV. Probable frequency of flood discharge, Plate LXXIII.

(a) Description of drainage basin: Tributary area above gage at highway bridge at Michigan Bar in N. W. ¼ of S. E. ¼, Sec. 36, T. 8 N., R. 8 E.

(b) Partial record. October 20 to September 30.

(c) Index of 60 used.

(d) Point of measurement: At Michigan Bar, 534 square miles.

TABLE 97. PETALUMA CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 139 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division M.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S records.*b*
1871-1872	124	15.0	148	111,200	January, 36.2%
1872-1873	79	5.4	53	40,000	February, 26.4%
1873-1874	101	9.7	96	71,900	March, 19.4%
1874-1875	72	4.1	40	30,400	April, 5.4%
1875-1876	112	12.2	120	90,500	May, 2.1%
1876-1877	52	1.2	12	8,900	June, 0.8%
1877-1878	143	20.0	197	148,300	July, 0.3%
1878-1879	100	9.6	95	71,200	August, 0.2%
1879-1880	109	11.6	114	86,000	September, 0.1%
1880-1881	111	12.0	118	89,000	October, 0.1%
1881-1882	70	3.8	37	28,200	November, 1.3%
1882-1883	83	6.3	62	46,700	December, 7.7%
1883-1884	107	11.1	109	82,300	
1884-1885	62	2.5	25	18,500	
1885-1886	128	16.2	160	120,100	
1886-1887	71	4.0	39	29,700	
1887-1888	73	4.4	43	32,600	
1888-1889	96	8.7	86	64,500	
1889-1890	195	35.5	350	263,300	
1890-1891	85	6.5	64	48,200	
1891-1892	90	7.5	74	55,600	
1892-1893	117	13.4	132	99,400	
1893-1894	96	8.7	86	64,500	
1894-1895	138	18.6	183	137,900	
1895-1896	115	13.0	128	96,400	
1896-1897	110	11.8	116	87,500	
1897-1898	62	2.5	25	18,500	
1898-1899	82	5.9	58	43,800	
1899-1900	94	8.4	83	62,300	
1900-1901	105	10.7	105	79,400	
1901-1902	113	12.5	123	92,700	
1902-1903	95	8.6	85	63,800	
1903-1904	128	16.2	160	120,100	
1904-1905	122	14.6	144	108,300	
1905-1906	122	14.6	144	108,300	
1906-1907	131	16.7	165	123,800	
1907-1908	73	4.3	42	31,900	
1908-1909	135	17.8	175	132,000	
1909-1910	85	6.5	64	48,200	
1910-1911	110	11.8	116	87,500	
1911-1912	59	2.1	21	15,600	
1912-1913	68	3.6	35	26,700	
1913-1914	152	22.2	219	164,600	
1914-1915	128	16.2	160	120,100	
1915-1916	109	11.6	114	86,000	
1916-1917	75	4.7	46	34,900	
1917-1918	54	1.4	14	10,400	
1918-1919	99	9.4	93	69,700	
1919-1920	53	1.3	13	9,600	
1920-1921	107	11.1	109	82,300	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	75,300	10.20	542	
Maximum seasonal	263,300	35.50	1,894	1889-1890
Minimum seasonal	8,900	1.20	64	1876-1877
Mean during July	230	0.03	2	
Maximum during July	790	0.11	6	1889-1890
Minimum during July	30	Trace	Trace	1876-1877
Mean during August	150	0.02	1	
Maximum during August	530	0.07	4	1889-1890
Minimum during August	20	Trace	Trace	1876-1877

Probable run-off curve, Plate XXXIV. Mass curve of run-off, Plate CXVIII.
Storage development curve, Plate CLXVI. Probable frequency of flood discharge, Plate LXXIV.

(*a*) Description of drainage basin: Area tributary to the following streams above the intersections with designated latitude and longitude lines: NOVATO CREEK, longitude 122° 37.4′; GALLINAS CREEK, longitude 122° 35.3′; SAN ANTONIO CREEK, longitude 122° 36.8′; TOLAY CREEK, longitude 122° 27.6′; PETALUMA CREEK TRIBUTARIES: ADOBE CREEK, latitude 38° 15.8′; LYNCH CREEK, latitude 38° 17.2′; HAGGIN CREEK latitude 38° 18.4′.

(*b*) Estimated from record for Putah Creek.

TABLE 98. SONOMA CREEK TRIBUTARIES.

SEASONAL RUN-OFF DATA. Drainage area 78 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division M.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.b
1871-1872	124	12.3	144	51,400	January, 36.2%
1872-1873	79	4.9	58	20,500	February, 26.4%
1873-1874	101	8.0	94	33,400	March, 19.4%
1874-1875	72	3.9	46	16,300	April, 5.4%
1875-1876	112	10.0	117	41,700	May, 2.1%
1876-1877	52	1.9	22	7,900	June, 0.8%
1877-1878	143	16.3	191	68,100	July, 0.3%
1878-1879	100	7.9	93	33,000	August, 0.2%
1879-1880	109	9.4	110	39,200	September, 0.1%
1880-1881	111	9.8	115	40,900	October, 0.1%
1881-1882	70	3.7	43	15,400	November, 1.3%
1882-1883	83	5.4	63	22,500	December, 7.7%
1883-1884	107	9.0	106	37,600	
1884-1885	62	2.7	32	11,300	
1885-1886	128	13.2	155	55,100	
1886-1887	71	3.8	45	15,900	
1887-1888	73	4.1	48	17,100	
1888-1889	96	7.2	85	30,100	
1889-1890	195	29.8	350	124,400	
1890-1891	85	5.6	66	23,400	
1891-1892	90	6.3	74	26,300	
1892-1893	117	10.8	127	45,100	
1893-1894	96	7.2	85	30,100	
1894-1895	138	15.3	180	63,900	
1895-1896	115	10.5	123	43,800	
1896-1897	110	9.6	113	40,100	
1897-1898	62	2.7	32	11,300	
1898-1899	82	5.2	61	21,700	
1899-1900	94	6.9	81	28,800	
1900-1901	105	8.7	102	36,300	
1901-1902	113	10.3	121	43,000	
1902-1903	95	7.1	83	29,600	
1903-1904	128	13.2	155	55,100	
1904-1905	122	11.8	139	49,300	
1905-1906	122	11.8	139	49,300	
1906-1907	131	13.7	161	57,200	
1907-1908	73	4.1	48	17,100	
1908-1909	135	14.5	170	60,500	
1909-1910	85	5.6	66	23,400	
1910-1911	110	9.6	113	40,100	
1911-1912	59	2.5	29	10,400	
1912-1913	68	3.5	41	14,600	
1913-1914	152	18.3	215	76,400	
1914-1915	128	13.2	155	55,100	
1915-1916	109	9.4	110	39,200	
1916-1917	75	4.3	50	18,000	
1917-1918	54	2.1	25	8,800	
1918-1919	99	7.7	90	32,100	
1919-1920	53	2.0	23	8,300	
1920-1921	107	9.0	106	37,600	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	35,600	8.50	455	....
Maximum seasonal	124,400	29.80	1,589	1889-1890
Minimum seasonal	7,900	1.90	101	1876-1877
Mean during July	110	0.03	1	....
Maximum during July	370	0.09	5	1889-1890
Minimum during July	20	Trace	Trace	1876-1877
Mean during August	70	0.02	1	....
Maximum during August	250	0.06	3	1889-1890
Minimum during August	20	Trace	Trace	1876-1877

Probable run-off curve, Plate XXXIV. Mass curve of run-off, Plate CXVIII.
Storage development curve, Plate CLXVI. Probable frequency of flood discharge, Plate LXXIV.

(a) Description of drainage basin: Tributary area above crossing of each stream by indicated contour: LOVEALL VALLEY, 200 feet elevation; AGUA CALIENTE, 200 feet elevation; HOOKER CREEK, 300 feet elevation; STEWART CREEK, 350 feet elevation; NUN'S CANYON CREEK, 400 feet elevation; SONOMA CANYON, 500 feet elevation; SONOMA CREEK, above Glen Ellen.

(b) Estimated from records for streams in vicinity.

TABLE 99. NAPA RIVER TRIBUTARIES.

SEASONAL RUN-OFF DATA. Drainage area 226 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division M.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area)	Distribution of seasonal run-off by months.*b*	
1871-1872	124	14.3	150	172,300	January,	36.2%
1872-1873	79	5.0	52	60,300	February,	26.4%
1873-1874	101	9.1	95	109,700	March,	19.4%
1874-1875	72	3.7	39	44,600	April,	5.4%
1875-1876	112	11.5	120	138,600	May,	2.1%
1876-1877	52	0.8	8	9,600	June,	0.8%
1877-1878	143	19.2	201	231,400	July,	0.3%
1878-1879	100	9.0	94	108,500	August,	0.2%
1879-1880	109	10.9	114	131,400	September,	0.1%
1880-1881	111	11.2	117	135,000	October,	0.1%
1881-1882	70	3.5	37	42,200	November,	1.3%
1882-1883	83	5.7	60	68,700	December,	7.7%
1883-1884	107	10.4	109	125,300		
1884-1885	62	2.2	23	26,500		
1885-1886	128	15.4	161	185,600		
1886-1887	71	3.6	38	43,400		
1887-1888	73	4.0	42	48,200		
1888-1889	96	8.1	85	97,600		
1889-1890	195	34.8	364	419,400		
1890-1891	85	6.0	63	72,300		
1891-1892	90	7.0	73	84,400		
1892-1893	117	12.6	132	151,800		
1893-1894	96	8.1	85	97,600		
1894-1895	138	17.8	186	214,500		
1895-1896	115	12.2	128	147,000		
1896-1897	110	11.1	116	133,800		
1897-1898	62	2.2	23	26,500		
1898-1899	82	5.4	56	65,100		
1899-1900	94	7.8	81	94,000		
1900-1901	105	10 0	105	120,500		
1901-1902	113	11.9	124	143,400		
1902-1903	95	8.0	84	96,400		
1903-1904	128	15.4	161	185,600		
1904-1905	122	13.8	144	166,300		
1905-1906	122	13.8	144	166,300		
1906-1907	131	16.0	167	192,800		
1907-1908	73	4.0	42	48,200		
1908-1909	135	17.0	178	204,900		
1909-1910	85	6.0	63	72,300		
1910-1911	110	11.1	116	133,800		
1911-1912	59	1.8	19	21,700		
1912-1913	68	3.2	33	38,600		
1913-1914	152	21.5	225	259,100		
1914-1915	128	15.4	161	185,600		
1915-1916	109	10.9	114	131,400		
1916-1917	75	4.3	45	51,800		
1917-1918	54	1.1	12	13,300		
1918-1919	99	8.8	92	106,000		
1919-1920	53	1.0	10	12,100		
1920-1921	107	10.4	109	125,300		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	115,200	9.60	510	....
Maximum seasonal	419,400	34.80	1,856	1889-1890
Minimum seasonal	9,600	0.80	42	1876-1877
Mean during July	350	0 03	2	....
Maximum during July	1,260	0.10	6	1889-1890
Minimum during July	30	Trace	Trace	1876-1877
Mean during August	230	0.02	1	....
Maximum during August	940	0.08	4	1889-1890
Minimum during August	20	Trace	Trace	1876-1877

Probable run-off curve, Plate XXXIV. Mass curve of run-off, Plate CXVIII.
Storage development curve, Plate CLXVI. Probable frequency of flood discharge, Plate LXXIV.

(*a*) Description of drainage basin: Tributary areas above intersection of streams with designated contour: CONN CREEK, 180 feet elevation; RECTOR CANYON, 200 feet elevation; SODA CREEK, 100 feet elevation; MILLIKEN CREEK, 100 feet elevation; SARCO CREEK, 100 feet elevation; TULUCAY CREEK, 300 feet elevation; SUSCOL CREEK, 200 feet elevation; LAKE CHABOT SYSTEM, 100 feet elevation; NORTH BRANCH NAPA CREEK, 180 feet elevation; SOUTH BRANCH NAPA CREEK, 180 feet elevation; SULPHUR SPRINGS, 300 feet elevation; DRY CREEK, 180 feet elevation.

(*b*) Estimated from record for Putah Creek.

TABLE 100. SUISUN CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 125 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division M.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	124	11.5	146	76,400	January, 36.2%
1872-1873	79	4.3	54	28,600	February, 26.4%
1873-1874	101	7.3	92	48,500	March, 19.4%
1874-1875	72	3.4	43	22,600	April, 5.4%
1875-1876	112	9.2	117	61,100	May, 2.1%
1876-1877	52	1.6	20	10,600	June, 0.8%
1877-1878	143	15.5	196	103,000	July, 0.3%
1878-1879	100	7.2	91	47,800	August, 0.2%
1879-1880	109	8.8	111	58,500	September, 0.1%
1880-1881	111	9.1	115	60,500	October, 0.1%
1881-1882	70	3.3	42	21,900	November, 1.3%
1882-1883	83	4 8	61	31,900	December, 7.7%
1883-1884	107	8.3	105	55,200	
1884-1885	62	2.4	30	15,900	
1885-1886	128	12.4	157	82,400	
1886-1887	71	3.3	42	21,900	
1887-1888	73	3.6	46	23,900	
1888-1889	96	6.6	84	43,900	
1889-1890	195	28.7	364	190,700	
1890-1891	85	5.0	63	33,200	
1891-1892	90	5.7	72	37,900	
1892-1893	117	10.2	129	67,800	
1893-1894	96	6.6	84	43,900	
1894-1895	138	14.5	184	96,400	
1895-1896	115	9.9	125	65,800	
1896-1897	110	9.0	114	59,800	
1897-1898	62	2.4	30	15,900	
1898-1899	82	4.7	60	31,200	
1899-1900	94	6.2	79	41,200	
1900-1901	105	8.1	103	53,800	
1901-1902	113	9.5	120	63,100	
1902-1903	95	6.4	81	42,500	
1903-1904	128	12.4	157	82,400	
1904-1905	122	11.1	141	73,800	
1905-1906	122	11.1	141	73,800	
1906-1907	131	12.9	163	85,700	
1907-1908	73	3.6	46	23,900	
1908-1909	135	13.8	175	91,700	
1909-1910	85	5 0	63	33,200	
1910-1911	110	9.0	114	59,800	
1911-1912	59	2.2	28	14,600	
1912-1913	68	3.1	39	20,600	
1913-1914	152	17.3	219	115,000	
1914-1915	128	12.4	157	82,400	
1915-1916	109	8.8	111	58,500	
1916-1917	75	3.8	48	25,300	
1917-1918	54	1.7	22	11,300	
1918-1919	99	7 0	89	46,500	
1919-1920	53	1.7	22	11,300	
1920-1921	107	8 3	105	55,200	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	52,500	7.90	421	....
Maximum seasonal	190,700	28 70	1,530	1889-1890
Minimum seasonal	10,600	1.60	85	1876-1877
Mean during July	160	0.02	1	....
Maximum during July	570	0.09	5	1889-1890
Minimum during July	30	Trace	Trace	1876-1877
Mean during August	110	0.02	1	....
Maximum during August	380	0.06	3	1889-1890
Minimum during August	20	Trace	Trace	1876-1877

Probable run-off curve, Plate XXXIV. Mass curve of run-off, Plate CXVIII.
Storage development curve, Plate CLXVI. Probable frequency of flood discharge, Plate LXXIV.

(*a*) Description of drainage basin: Tributary area above intersection with stream of latitude or longitude lines indicated: SUISUN CREEK, latitude 38° 18.2′; ULATIS CREEK, longitude 122° 1.5′; LEDGEWOOD CREEK, latitude 38° 18.3′; GREEN VALLEY CREEK, latitude 38° 15.3′; SULPHUR SPRINGS CREEK, latitude 38° 5.3′

(*b*) Estimated from records for other streams in vicinity.

TABLE 101. MT. DIABLO CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 200 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division L.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.b	
1871-1872	130	11.1	169	118,100	January,	28.9%
1872-1873	79	3.0	46	31,900	February,	17.7%
1873-1874	86	4.0	61	42,600	March,	35.9%
1874-1875	69	2.0	30	21,300	April,	8.5%
1875-1876	131	11.4	174	121,300	May,	2.2%
1876-1877	43*	0.1	2	1,100	June,	1.0%
1877-1878	129	11.0	168	117,100	July,	0.5%
1878-1879	79	3.0	46	31,900	August,	0.3%
1879-1880	99	5.8	88	61,700	September,	0.3%
1880-1881	107	7.0	107	74,500	October,	0.2%
1881-1882	69	2.0	30	21,300	November,	0.3%
1882-1883	87	4.1	63	43,600	December,	4.2%
1883-1884	125	10.2	156	108,600		
1884-1885	66	1.8	27	19,200		
1885-1886	115	8.5	130	90,500		
1886-1887	70	2.1	32	22,300		
1887-1888	78	3.0	46	31,900		
1888-1889	98	5.6	85	59,600		
1889-1890	192	24.7	377	262,900		
1890-1891	86	4.0	61	42,600		
1891-1892	91	4.6	70	49,000		
1892-1893	139	12.9	197	137,300		
1893-1894	111	7.7	117	81,900		
1894-1895	147	14.5	221	154,300		
1895-1896	106	6.9	105	73,400		
1896-1897	112	7.9	120	84,100		
1897-1898	57	1.1	17	11,700		
1898-1899	91	4.6	70	49,000		
1899-1900	104	6.5	99	69,200		
1900-1901	121	9.5	145	101,100		
1901-1902	91	4.6	70	49,000		
1902-1903	99	5.8	88	61,700		
1903-1904	105	6.6	101	70,200		
1904-1905	124	10.0	152	106,400		
1905-1906	120	9.2	140	97,900		
1906-1907	144	13.9	212	147,900		
1907-1908	72	2.3	35	24,500		
1908-1909	124	10.0	152	106,400		
1909-1910	93	4.9	75	52,100		
1910-1911	121	9.5	145	101,100		
1911-1912	64	1.5	23	16,000		
1912-1913	52	0.7	11	7,400		
1913-1914	128	10.8	165	114,900		
1914-1915	126	10.5	160	111,700		
1915-1916	120	9.2	140	97,900		
1916-1917	78	3.0	46	31,900		
1917-1918	53	0.8	12	8,500		
1918-1919	105	6.7	102	71,300		
1919-1920	66	1.8	27	19,200		
1920-1921	98	5.6	85	59,600		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	69,800	6.60	350	
Maximum seasonal	262,900	24.70	1,317	1889-1890
Minimum seasonal	1,100	0.10	6	1876-1877
Mean during July	350	0.03	2	
Maximum during July	1,310	0.12	7	1889-1890
Minimum during July	10	Trace	Trace	1876-1877
Mean during August	210	0.02	1	
Maximum during August	790	0.07	4	1889-1890
Minimum during August	Trace	Trace	Trace	1876-1877

Probable run-off curve, Plate XXXV. Mass curve of run-off, Plate CXIX.
Storage development curve, Plate CLXVII. Probable frequency of flood discharge, Plate LXXV.

(a) Description of drainage basin: Areas tributary above designated points: KIRKER CREEK, at Southern Pacific Railroad grade; MT. DIABLO CREEK, at mouth; WALNUT CREEK, at mouth; RODEO CREEK, at a point one mile above mouth; PINOLE CREEK, at intersecting of latitude 37° 59.7′ with stream.

(b) Estimated from record for Coyote River.

TABLE 102. SAN PABLO CREEK.

SEASONAL RUN-OFF DATA. Drainage area 41 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division L.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*b*
1871-1872	130	13.1	165	28,400	January, 28.9%
1872-1873	79	4.0	50	8,700	February, 17.7%
1873-1874	86	5.0	63	10,800	March, 35.9%
1874-1875	69	2.5	32	5,400	April, 8.5%
1875-1876	131	13.4	169	29,000	May, 2.2%
1876-1877	43	0.0	0	0	June, 1.0%
1877-1878	129	13.0	164	28,100	July, 0.5%
1878-1879	79	4.0	50	8,700	August, 0.3%
1879-1880	99	7.4	93	16,000	September, 0.3%
1880-1881	107	8 7	110	18,800	October, 0.2%
1881-1882	69	2.5	32	5,400	November, 0.3%
1882-1883	87	5.3	67	11,500	December, 4.2%
1883-1884	125	12.1	153	26,200	
1884-1885	66	2.1	26	4,500	
1885-1886	115	10 3	130	22,300	
1886-1887	70	2.6	33	5,600	
1887-1888	78	3.9	49	8,400	
1888-1889	98	7.3	92	15,800	
1889-1890	192	27.5	346	59,500	
1890-1891	86	5.1	64	11,000	
1891-1892	91	6.0	76	13,000	
1892-1893	139	15.1	190	32,700	
1893-1894	111	9.5	120	20,600	
1894-1895	147	16.6	209	35,900	
1895-1896	106	8.5	107	18,400	
1896-1897	112	9.7	122	21,000	
1897-1898	57	1.1	14	2,400	
1898-1899	91	6.0	76	13,000	
1899-1900	104	8.3	105	18,000	
1900-1901	121	11.4	144	24,700	
1901-1902	91	6.0	76	13,000	
1902-1903	99	7.4	93	16,000	
1903-1904	105	8.4	106	18,200	
1904-1905	124	12.0	151	26,000	
1905-1906	120	11.2	141	24,300	
1906-1907	144	16.1	203	34,900	
1907-1908	72	2.8	35	6,100	
1908-1909	124	12.0	151	26,000	
1909-1910	93	6.3	79	13,600	
1910-1911	121	11.4	144	24,700	
1911-1912	64	1.9	24	4,100	
1912-1913	52	0.6	8	1,300	
1913-1914	128	12.7	160	27,500	
1914-1915	126	12.4	156	26,800	
1915-1916	120	11.2	141	24,300	
1916-1917	78	3.9	49	8,400	
1917-1918	53	0.7	9	1,500	
1918-1919	105	8.4	106	18,200	
1919-1920	66	2.1	26	4,500	
1920-1921	98	7.2	91	15,600	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	17,200	7.93	424	....
Maximum seasonal	59,500	27.48	1,466	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	90	0.04	2	....
Maximum during July	300	0.14	7	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	50	0.02	1	....
Maximum during August	180	0.08	4	1889-1890
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXXV.
Storage development curve, Plate CLXVII.
Mass curve of run-off, Plate CXX.
Probable frequency of flood discharge, Plate LXXV.

(*a*) Description of drainage basin: Tributary area above point of intersection of longitude 122° 20.1′ with stream near San Pablo.

(*b*) From record on the Coyote River.

TABLE 103. SAN LEANDRO CREEK.

SEASONAL RUN-OFF DATA: Drainage area 44 square miles.*d*

Season. (Begins October 1.)	Index of seasonal wetness. Division L.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet (Above main agricultural area.)	Distribution of seasonal run-off by months.*c*
1871-1872	130	13.8	170	32,100	January, 28.9%
1872-1873	79	3.4	42	7,900	February, 17.7%
1873-1874	86	4.4	54	10,200	March, 35.9%
1874-1875	69	2.0	25	4,600	April, 8.5%
1875-1876	131	14.0	172	32,500	May, 2.2%
1876-1877	43	0.0	0	0	June, 1.0%
1877-1878	129	13.5	166	31,400	July, 0.5%
1878-1879	79	3.4	42	7,900	August, 0.3%
1879-1880	99	6.9	85	16,000	September, 0.3%
1880-1881	107	8.4	103	19,500	October, 0.2%
1881-1882	69	2.0	25	4,600	November, 0.3%
1882-1883	87	4.5	55	10,500	December, 4.2%
1883-1884	125	12.5	154	29,100	
1884-1885	66	1.5	18	3,500	
1885-1886	115	10.2	126	23,700	
1886-1887	70	2.0	25	4,600	
1887-1888	78	3.2	39	7,400	
1888-1889	98	6.8	84	15,800	
1889-1890	192	30.5	376	70,900	
1890-1891	86	4.4	54	10,200	
1891-1892	91	5.3	65	12,300	
1892-1893	139	16.1	198	37,400	
1893-1894	111	9.3	115	21,600	
1894-1895	147	18.0	222	41,800	
1895-1896	106	8.2	101	19,100	Measured seasonal discharge in acre-feet.*b*
1896-1897	112	9.5	117	22,100	
1897-1898	57	0.7	9	1,600	
1898-1899	91	5.3	65	12,300	
1899-1900	104	7.9	97	18,400	
1900-1901	121	6.7	83	15,600	15,000
1901-1902	91	6.9	85	16,000	15,500
1902-1903	99	9.8	121	22,800	22,000
1903-1904	105	15.1	186	35,100	33,900
1904-1905	124	4.9	60	11,400	11,000
1905-1906	120	12.0	148	27,900	26,900
1906-1907	144	16.4	202	38,100	36,800
1907-1908	72	4.4	54	10,200	9,900
1908-1909	124	15.8	195	36,700	35,400
1909-1910	93	5.1	63	11,900	11,400
1910-1911	121	16.4	202	38,100	36,800
1911-1912	64	0.9	11	2,100	2,000
1912-1913	52	1.1	14	2,600	2,500
1913-1914	128	12.7	156	29,500	28,500
1914-1915	126	15.1	186	35,100	33,900
1915-1916	120	13.6	168	31,600	30,500
1916-1917	78	5.7	70	13,200	12,700
1917-1918	53	0.9	11	2,100	2,000
1918-1919	105	8.6	106	20,000	19,300
1919-1920	66	0.6	7	1,400	1,200
1920-1921	98	5.5	68	12,800	12,300

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	18,900	8.13	433	
Maximum seasonal	70,900	30.49	1,626	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	90	0.04	2	
Maximum during July	350	0.15	8	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	60	0.03	1	
Maximum during August	210	0.09	5	1889-1890
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXXV.
Storage development curve, Plate CLXVII.
Mass curve of run-off, Plate CXX.
Probable frequency of flood discharge, Plate LXXV.

(*a*) Description of drainage basin: Tributary area above point one mile below dam at Lake Chabot.
(*b*) At Lake Chabot Dam, drainage area 42 square miles. From records of East Bay Water Co.
(*c*) Estimated from records for streams in vicinity.

TABLE 104. CLAREMONT CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 83 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division L.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*	
1871-1872	130	10.5	189	46,400	January,	28.9%
1872-1873	79	1.9	34	8,400	February,	17.7%
1873-1874	86	2.6	47	11,500	March,	35.9%
1874-1875	69	1.0	18	4,400	April,	8.5%
1875-1876	131	10.6	191	46,900	May,	2.2%
1876-1877	43	0.0	0	0	June,	1.0%
1877-1878	129	10.4	187	46,000	July,	0.5%
1878-1879	79	1.9	34	8,400	August,	0.3%
1879-1880	99	4.3	77	19,000	September,	0.3%
1880-1881	107	5.5	99	24,300	October,	0.2%
1881-1882	69	1.0	18	4,400	November,	0.3%
1882-1883	87	2.7	49	11,900	December,	4.2%
1883-1884	125	9.3	168	41,100		
1884-1885	66	0.9	16	4,000		
1885-1886	115	7.1	128	31,400		
1886-1887	70	1.1	20	4,900		
1887-1888	78	1.8	32	8,000		
1888-1889	98	4.1	74	18,100		
1889-1890	192	26.2	472	115,800		
1890-1891	86	2.6	47	11,500		
1891-1892	91	3.2	58	14,100		
1892-1893	139	12.5	225	55,300		
1893-1894	111	6.3	113	27,900		
1894-1895	147	14.5	261	64,100		
1895-1896	106	5.4	97	23,900		
1896-1897	112	6.5	117	28,700		
1897-1898	57	0.4	7	1,800		
1898-1899	91	3.1	56	13,700		
1899-1900	104	5.0	90	22,100		
1900-1901	121	8.5	153	37,600		
1901-1902	91	3.1	56	13,700		
1902-1903	99	4.3	77	19,000		
1903-1904	105	5.2	94	23,000		
1904-1905	124	9.0	162	39,800		
1905-1906	120	8.2	148	36,300		
1906-1907	144	13.8	249	61,000		
1907-1908	72	1.2	22	5,300		
1908-1909	124	9.0	162	39,800		
1909-1910	93	3.5	63	15,500		
1910-1911	121	8.5	153	37,600		
1911-1912	64	0.8	14	3,500		
1912-1913	52	0.2	4	900		
1913-1914	128	10.0	180	44,200		
1914-1915	126	9.5	171	42,000		
1915-1916	120	8.2	148	36,300		
1916-1917	78	1.8	32	8,000		
1917-1918	53	0.2	4	900		
1918-1919	105	5.2	94	23,000		
1919-1920	66	0.9	16	4,000		
1920-1921	98	4.1	74	18,100		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	24,600	5.55	297	....
Maximum seasonal	115,800	26.16	1,397	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	120	0.03	1	....
Maximum during July	580	0.13	7	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	70	0.02	1	....
Maximum during August	350	0.08	4	1889-1890
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXXV. Mass curve of run-off, Plate CXIX.
Storage development curve, Plate CLXVII. Probable frequency of flood discharge, Plate LXXV.

(*a*) Description of drainage basin: Tributary area above intersection of streams by indicated longitude lines: WILDCAT CREEK, longitude 122° 19.7′; CERRITO CREEK, longitude 122° 17.8′; STRAWBERRY CREEK, longitude 122° 15.0′; CLAREMONT CREEK, longitude 122° 15.0′; TEMESCAL CREEK, longitude 122° 15.0′; HAYES CREEK, longitude 122° 15.0′; INDIAN CREEK, longitude 122° 15.0′; DIAMOND CREEK, longitude 122° 13.5′; EAST CREEK, 1.5 miles from mouth; ARROYO VIEJO, longitude 122° 10.0′.

(*b*) Estimated from records for streams in the vicinity.

TABLE 105. SAN LORENZO CREEK.

SEASONAL RUN-OFF DATA. Drainage area 38 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division L.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*	
1871-1872	130	14.3	173	28,900	January,	28.9%
1872-1873	79	3.7	45	7,500	February,	17.7%
1873-1874	86	4.7	57	9,500	March,	35.9%
1874-1875	69	2.4	29	4,900	April,	8.5%
1875-1876	131	14.5	175	29,300	May,	2.2%
1876-1877	43	0.1	1	200	June.	1.0%
1877-1878	129	14.0	169	28,300	July,	0.5%
1878-1879	79	3.7	45	7,500	August,	0.3%
1879-1880	99	7.3	88	14,800	September,	0.3%
1880-1881	107	9.0	109	18,200	October,	0.2%
1881-1882	69	2.4	29	4,900	November,	0.3%
1882-1883	87	4.9	59	9,900	December,	4.2%
1883-1884	125	13.1	158	26,500		
1884-1885	66	2.0	24	4,000		
1885-1886	115	10.7	129	21,600		
1886-1887	70	2.5	30	5,000		
1887-1888	78	3.5	42	7,100		
1888-1889	98	7.0	85	14,100		
1889-1890	192	31.5	381	63,700		
1890-1891	86	4.7	57	9,500		
1891-1892	91	5.5	66	11,100		
1892-1893	139	16.5	199	33,400		
1893-1894	111	9.8	118	19,800		
1894-1895	147	18.5	223	37,400		
1895-1896	106	8.6	104	17,400		
1896-1897	112	10.0	121	20,200		
1897-1898	57	1.2	15	2,400		
1898-1899	91	5.5	66	11,100		
1899-1900	104	8.4	102	17,000		
1900-1901	121	12.0	145	24,300		
1901-1902	91	5.5	66	11,100		
1902-1903	99	7.3	88	14,800		
1903-1904	105	8.5	103	17,200		
1904-1905	124	13.0	157	26,300		
1905-1906	120	12.0	145	24,300		
1906-1907	144	18.0	217	36,400		
1907-1908	72	2.7	33	5,500		
1908-1909	124	13.0	157	26,300		
1909-1910	93	6.0	73	12,100		
1910-1911	121	12.1	146	24,500		
1911-1912	64	1.9	23	3,800		
1912-1913	52	0.8	10	1,600		
1913-1914	128	14.0	169	28,300		
1914-1915	126	13.2	159	26,700		
1915-1916	120	12.0	145	24,300		
1916-1917	78	3.5	42	7,100		
1917-1918	53	0.9	11	1,800		
1918-1919	105	8.5	103	17,200		
1919-1920	66	2.0	24	4,000		
1920-1921	98	7.0	85	14,100		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	16,700	8.26	441	
Maximum seasonal	63,700	31.51	1,681	1889-1890
Minimum seasonal	200	0.10	5	1876-1877
Mean during July	80	0.04	2	
Maximum during July	320	0.16	8	1889-1890
Minimum during July	Trace	Trace	Trace	1876-1877
Mean during August	50	0.02	1	
Maximum during August	190	0.09	5	1889-1890
Minimum during August	Trace	Trace	Trace	1876-1877

Probable run-off curve, Plate XXXVI. Mass curve of run-off, Plate CXXI.
Storage development curve, Plate CLXVIII. Probable frequency of flood discharge, Plate LXXVI.
(*a*) Description of drainage basin: Tributary area above highway bridge, 1 mile northwest of Haywards.
(*b*) Estimated from record for the Coyote River.

TABLE 106. ALAMEDA CREEK.

SEASONAL RUN-OFF DATA. Drainage area 654 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division L.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by records.
1871-1872	130	7.2	178	250,900	January, 25.6%
1872-1873	79	1.8	45	62,700	February, 24.5%
1873-1874	86	2.3	57	80,200	March, 24.0%
1874-1875	69	1.2	30	41,800	April, 6.7%
1875-1876	131	7.3	180	254,400	May, 3.3%
1876-1877	43	0.0	0	0	June, 1.6%
1877-1878	129	7.1	176	247,500	July, 1.3%
1878-1879	79	1.8	44	62,700	August, 1.1%
1879-1880	99	3.5	87	122,000	September, 1.0%
1880-1881	107	4.2	104	146,400	October, 1.1%
1881-1882	69	1.2	30	41,800	November, 2.6%
1882-1883	87	2.4	59	83,600	December, 7.2%
1883-1884	125	6.5	161	226,500	
1884-1885	66	1.0	25	34,900	Measured seasonal discharge in acre-feet.
1885-1886	115	5.2	129	181,200	
1886-1887	70	1.2	30	41,800	
1887-1888	78	1.8	45	62,700	
1888-1889	98	3.4	84	118,500	
1889-1890	192	15.7	388	547,200	b,d516,200
1890-1891	86	3.4	84	118,500	b115,700
1891-1892	91	1.9	47	66,200	b64,100
1892-1893	139	10.6	262	369,400	b362,700
1893-1894	111	5.3	131	184,700	b179,700
1894-1895	147	7.8	193	271,900	b265,900
1895-1896	106	3.6	89	125,500	b122,900
1896-1897	112	6.1	151	212,600	b207,800
1897-1898	57	0.4	10	13,900	b12,700
1898-1899	91	2.1	52	73,200	b71,600
1899-1900	104	1.7	42	59,300	b58,600
1900-1901	121	3.7	91	129,000	b124,600
1901-1902	91	2.8	69	97,600	b94,100
1902-1903	99	3.6	89	125,500	c124,400
1903-1904	105	3.4	84	118,500	c115,200
1904-1905	124	1.8	44	62,700	c61,800
1905-1906	120	6.4	158	223,100	c216,900
1906-1907	144	10.0	247	348,500	c341,700
1907-1908	72	1.9	47	66,200	c64,100
1908-1909	124	7.4	183	257,900	c253,600
1909-1910	93	3.0	74	104,600	c102,500
1910-1911	121	8.4	208	292,800	c287,900
1911-1912	64	1.0	25	34,900	c34,000
1912-1913	52	0.6	15	20,900	c21,600
1913-1914	128	5.9	146	205,600	c199,700
1914-1915	126	6.0	148	209,100	c205,300
1915-1916	120	7.5	185	261,400	c255,500
1916-1917	78	3.1	77	108,000	c106,300
1917-1918	53	1.1	27	38,300	c36,300
1918-1919	105	3.6	89	125,500	c121,600
1919-1920	66	0.9	22	31,400	c30,100
1920-1921	98	2.4	59	83,600	c80,700

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	140,900	4.04	215	
Maximum seasonal	547,200	15.70	837	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	1,800	0.05	3	
Maximum during July	3,740	0.11	6	1918-1919
Minimum during July	0	0.00	0	1876-1877
Mean during August	1,500	0.04	2	1876-1877
Maximum during August	4,060	0.12	6	1916-1917
Minimum during August	0	0.00	0	

Probable run-off curve, Plate XXXVI.
Mass curve of run-off, Plate CXXI.
Storage development curve, Plate CLXVIII.
Probable frequency of flood discharge, Plate LXXVI.

(a) Description of drainage basin: Tributary area above Niles.

(b) From records of Spring Valley Water Company, near Sunolglen at Sunol Dam, 1 mile below junction of Arroyo de la Laguna, drainage area 639 square miles.

(c) From records of United States Geological Survey at Sunol Dam, including flow in aqueduct.

(d) Partial record, December 1 to September 30.

TABLE 107. MISSION CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 77 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division L.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.[b]
1871-1872	130	11.3	186	46,500	January, 28.9%
1872-1873	79	2.1	35	8,600	February, 17.7%
1873-1874	86	3.0	49	12,300	March, 35.9%
1874-1875	69	1.2	20	4,900	April, 8.5%
1875-1876	131	11.5	189	47,300	May, 2.2%
1876-1877	43	0.0	0	0	June, 1.0%
1877-1878	129	11.0	181	45,200	July, 0.5%
1878-1879	79	2.1	35	8.600	August, 0.3%
1879-1880	99	4.8	79	19,700	September, 0.3%
1880-1881	107	6.1	100	25,100	October, 0.2%
1881-1882	69	1.2	20	4,900	November, 0.3%
1882-1883	87	3.0	49	12,300	December, 4.2%
1883-1884	125	10.0	165	41,100	
1884-1885	66	1.0	17	4,100	
1885-1886	115	7.9	30	32,500	
1886-1887	70	1.3	21	5,300	
1887-1888	78	2.0	33	8,200	
1888-1889	98	4.7	77	19,300	
1889-1890	192	28.0	461	115,100	
1890-1891	86	3.0	49	12,300	
1891-1892	91	3.5	58	14,400	
1892-1893	139	13.5	222	55,500	
1893-1894	111	7.0	115	28.800	
1894-1895	147	15.4	253	63,300	
1895-1896	106	6.0	99	24,700	
1896-1897	112	7.2	119	29,600	
1897-1898	57	0.5	8	2,100	
1898-1899	91	3.5	58	14,400	
1899-1900	104	5.5	91	22,600	
1900-1901	121	9.2	151	37,800	
1901-1902	91	3.5	58	14,400	
1902-1903	99	4.8	79	19,700	
1903-1901	105	5.8	96	23,800	
1904-1905	124	9.9	163	40,700	
1905-1906	120	9.0	148	37,000	
1906-1907	144	14.6	240	60,000	
1907-1908	72	1.5	25	6 200	
1908-1909	124	9.9	163	40,700	
1909-1910	93	3.8	63	15,600	
1910-1911	121	9.2	151	37,800	
1911-1912	64	0.9	15	3,700	
1912-1913	52	0.2	3	800	
1913-1914	128	10.9	179	44,800	
1914-1915	126	10.4	171	42,800	
1915-1916	120	9.0	148	37,000	
1916-1917	78	2.0	33	8,200	
1917-1918	53	0.3	5	1,200	
1918-1919	105	5.8	96	23,800	
1919-1920	66	1.0	17	4,100	
1920-1921	98	4.7	77	19.300	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	25,000	6.08	324	....
Maximum seasonal	115,100	27.99	1,493	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	130	0.03	2	....
Maximum during July	580	0.14	8	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	80	0.02	1	....
Maximum during August	350	0.09	5	1889-1890
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXXVI. Mass curve of run-off, Plate CXXII.
Storage development curve, Plate CLXVIII. Probable frequency of flood discharge, Plate LXXVI.

(a) Description of drainage basin: Area tributary to the following streams above points indicated: MISSION CREEK, at Mission San Jose; AGUA CALIENTE CREEK, at Irvington—Milpitas Highway; AGUA FRIA CREEK. at Irvington—Milpitas Highway; TOROGES CREEK, at Irvington—Milpitas Highway; SCOTT CREEK, ¼ mile above Irvington—Milpitas Highway; CALERA CREEK, at intersection of longitude 121° 53.8′ with stream; ARROYO DE LOS COCHES, at intersection of longitude 121° 52.6′ with stream; BERRYESSA CREEK, at intersection of longitude 121° 1.5′ with stream; DRY CREEK, at intersection of longitude 121° 47.9′ with stream; SILVER CREEK, at intersection of longitude 121° 48.4′ with stream.

(b) Estimated from record for Coyote River.

TABLE 108. PENITENCIA CREEK.

SEASONAL RUN-OFF DATA. Drainage area 22.4 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division L.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	130	7.3	167	8,700	January, 28.9%
1872-1873	79	2.1	48	2,500	February, 17.7%
1873-1874	86	2 6	60	3,100	March, 35.9%
1874-1875	69	1.4	32	1,700	April, 8.5%
1875-1876	131	7.5	172	9,000	May, 2.2%
1876-1877	43	0.2	5	200	June, 1.0%
1877-1878	129	7.2	165	8,600	July, 0.5%
1878-1879	79	2.1	48	2,500	August, 0.3%
1879-1880	99	3.7	85	4,400	September, 0.3%
1880-1881	107	4.5	103	5,400	October, 0.2%
1881-1882	69	1.4	32	1,700	November, 0.3%
1882-1883	87	2.7	62	3,200	December, 4.2%
1883-1884	125	6.6	151	7,900	
1884-1885	66	1.3	30	1,600	
1885-1886	115	5.4	124	6,500	
1886-1887	70	1 5	34	1,800	
1887-1888	78	2.0	46	2,400	
1888-1889	98	3.6	82	4,300	
1889-1890	192	19.0	435	22,700	
1890-1891	86	2.6	60	3,100	
1891-1892	91	3 0	69	3,600	
1892-1893	139	8.6	197	10,300	
1893-1894	111	4 9	112	5,900	
1894-1895	147	10.0	229	11,900	
1895-1896	106	4.4	101	5,300	
1896-1897	112	5.0	115	6,000	
1897-1898	57	0.8	18	1,000	
1898-1899	91	3.0	69	3,600	
1899-1900	104	4.2	96	5,000	
1900-1901	121	6.1	140	7,300	
1901-1902	91	3.0	69	3,600	
1902-1903	99	3.7	85	4,400	
1903-1904	105	4.3	98	5,100	
1904-1905	124	6.5	149	7,800	
1905-1906	120	6.0	137	7,200	
1906-1907	144	9 5	217	11,300	
1907-1908	72	1.6	37	1,900	
1908-1909	124	6.5	149	7,800	
1909-1910	93	3.2	73	3,800	
1910-1911	121	6.1	140	7,300	
1911-1912	64	1.1	25	1,300	
1912-1913	52	0.5	11	600	
1913-1914	128	7.0	160	8,400	
1914-1915	126	6 8	156	8,100	
1915-1916	120	6.0	137	7,200	
1916-1917	78	2.0	46	2,400	
1917-1918	53	0.6	14	700	
1918-1919	105	4.3	98	5,100	
1919-1920	66	1.3	30	1,600	
1920-1921	98	3.6	82	4,300	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	5,200	4.37	232	....
Maximum seasonal	22,700	19.00	1,013	1889-1890
Minimum seasonal	200	0.17	9	1876-1877
Mean during July	30	0.03	1	....
Maximum during July	110	0.09	5	1889-1890
Minimum during July	Trace	Trace	Trace	1876-1877
Mean during August	20	0.02	1	....
Maximum during August	70	0.06	3	1889-1890
Minimum during August	Trace	Trace	Trace	1876-1877

Probable run-off curve, Plate XXXVI. Mass curve of run-off, Plate CXXII.
Storage development curve, Plate CLXVIII. Probable frequency of flood discharge, Plate LXXVI.
(*a*) Description of drainage basin: Tributary area above intersection of longitude 121° 15.4′ with stream.
(*b*) Estimated from record for Coyote River.

TABLE 109. COYOTE RIVER.

SEASONAL RUN-OFF DATA. Drainage area 197 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division N.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	129	13.5	177	142,000	January, 28.9%
1872-1873	76	2.5	33	26,000	February, 17.7%
1873-1874	89	4.6	60	48,000	March, 35.9%
1874-1875	52	0.2	3	2,000	April, 8.5%
1875-1876	129	13.5	177	142,000	May, 2.2%
1876-1877	32	0.0	0	0	June, 1.0%
1877-1878	128	13.4	175	140,000	July, 0.5%
1878-1879	109	8.5	111	89,000	August, 0.3%
1879-1880	91	5.0	65	52,000	September, 0.3%
1880-1881	82	3.3	43	34,000	October, 0.2%
1881-1882	86	4.0	52	42,000	November, 0.3%
1882-1883	94	5.5	72	58,000	December, 4.2%
1883-1884	159	21.5	282	225,000	
1884-1885	105	7.8	102	82,000	
1885-1886	124	12.3	161	129,000	
1886-1887	77	2.7	35	28,000	
1887-1888	85	3.9	51	41,000	
1888-1889	92	5.0	65	52,000	
1889-1890	204	33.5	439	351,000	
1890-1891	95	5.6	73	59,000	
1891-1892	88	4.6	60	48,000	
1892-1893	146	18.0	236	189,000	
1893-1894	84	3.6	47	38,000	
1894-1895	136	15.2	199	159,000	
1895-1896	97	5.8	76	61,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*e*
1896-1897	105	7.6	100	80,000	
1897-1898	50	0.1	1	1,000	
1898-1899	89	4.5	59	47,000	
1899-1900	86	4.0	52	42,000	
1900-1901	117	10.5	138	110,000	
1901-1902	96	5.7	75	60,000	
1902-1903	94	7.9	103	83,200	83,200
1903-1904	98	3.4	45	35,800	35,800
1904-1905	115	3.0	39	31,800	31,800
1905-1906	121	11.2	147	117,000	117,000
1906-1907	137	19.5	255	203,800	203,800
1907-1908	73	4.5	59	47,200	47,200
1908-1909	133	16.8	220	176,600	176,600
1909-1910	84	4.3	56	45,300	45,300
1910-1911	133	12.0	157	126,000	126,000
1911-1912	64	0.6	8	6,400	6,400
1912-1913	45	0.0	0	0	
1913-1914	125	12.5	164	131,000	
1914-1915	128	13.5	177	142,000	
1915-1916	105	7.6	100	80,000	
1916-1917	82	6.7	88	70,600	*b*67,900
1917-1918	51	1.2	16	12,500	*c*12,200
1918-1919	111	4.5	59	47,500	*d*45,200
1919-1920	65	1.3	17	14,000	14,000
1920-1921	104	5.4	71	56,800	56,800

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	80,100	7.64	407	
Maximum seasonal	351,000	33.49	1,782	1889-1890
Minimum seasonal	0	0.00	0	1876-1877 1912-1913
Mean during July	400	0.04	2	
Maximum during July	1,800	0.17	9	1889-1890
Minimum during July	0	0.00	0	1876-1877 1912-1913
Mean during August	240	0.02	1	
Maximum during August	1,100	0.10	6	1889-1890
Minimum during August	0	0.00	0	1876-1877 1912-1913

Probable run-off curve, Plate XXXVII.
Mass curve of run-off, Plate CXXIII.
Storage development curve, Plate CLXIX.
Probable frequency of flood discharge, Plate LXXVII.

(*a*) Description of drainage basin: Tributary area above a point ¼ mile below junction with Las Animas Creek.
(*b*) Partial record, December 8 to September 30.
(*c*) Partial record, October 1 to August 31.
(*d*) Partial record, January 1 to September 30.
(*e*) Point of measurement: Gage near Madrone, ¼ mile below mouth of Las Animas Creek, drainage area 197 square miles.

TABLE 110. GUADALUPE RIVER.

SEASONAL RUN-OFF DATA. Drainage area 52 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division N.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	129	13.8	175	38,400	January, 28.9%
1872-1873	76	2.7	34	7,500	February, 17.7%
1873-1874	89	4.7	60	13,100	March, 35.9%
1874-1875	52	0.5	6	1,400	April, 8.5%
1875-1876	129	13.8	175	38,400	May, 2.2%
1876-1877	32	0.0	0	0	June, 1.0%
1877-1878	128	13.6	172	37,900	July, 0.5%
1878-1879	109	8.8	112	24,500	August, 0.3%
1879-1880	91	5.0	63	13,900	September, 0.3%
1880-1881	82	3.5	44	9,700	October, 0.2%
1881-1882	86	4.1	52	11,400	November, 0.3%
1882-1883	94	5.5	70	15,300	December, 4.2%
1883-1884	159	21.6	274	60,100	
1884-1885	105	7.9	100	22,000	
1885-1886	124	12.5	159	34,800	
1886-1887	77	2.8	36	7,800	
1887-1888	85	4.0	51	11,100	
1888-1889	92	5.2	66	14,500	
1889-1890	204	34.0	431	94,700	
1890-1891	95	5.7	72	15,900	
1891-1892	88	4.6	58	12,800	
1892-1893	146	18.0	228	50,100	
1893-1894	84	3.9	50	10,900	
1894-1895	136	15.5	197	43,200	
1895-1896	97	6.1	77	17,000	
1896-1897	105	7.9	100	22,000	
1897-1898	50	0.3	4	800	
1898-1899	89	4.7	60	13,100	
1899-1900	86	4.1	52	11,400	
1900-1901	117	10.8	137	30,100	
1901-1902	96	5.9	75	16,400	
1902-1903	94	5.5	70	15,300	
1903-1904	98	6.4	81	17,800	
1904-1905	115	10.3	131	28,700	
1905-1906	121	11.6	147	32,300	
1906-1907	137	15.6	198	43,400	
1907-1908	73	2.4	30	6,700	
1908-1909	133	14.7	186	40,900	
1909-1910	84	3.9	49	10,900	
1910-1911	133	14.7	186	40,900	
1911-1912	64	1.4	18	3,900	
1912-1913	45	0.0	0	0	
1913-1914	125	12.7	161	35,400	
1914-1915	128	13.6	172	37,900	
1915-1916	105	7.9	100	22,000	
1916-1917	82	3.5	44	9,700	
1917-1918	51	0.4	5	1,400	
1918-1919	111	9.2	117	25,600	
1919-1920	65	1.5	19	4,200	
1920-1921	104	7.6	96	21,200	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	22,000	7.89	421	
Maximum seasonal	94,700	34.02	1,814	1889-1890
Minimum seasonal	0	0.00	0	1876-1877 1912-1913
Mean during July	110	0.04	2	
Maximum during July	470	0.17	9	1889-1890
Minimum during July	0	0.00	0	1876-1877 1912-1913
Mean during August	70	0.03	1	
Maximum during August	280	0.10	5	1889-1890
Minimum during August	0	0.00	0	1876-1877 1912-1913

Probable run-off curve, Plate XXXVII. Mass curve of run-off, Plate CXXIII.
Storage development curve, Plate CLXIX. Probable frequency of flood discharge, Plate LXXVII.
(*a*) Description of drainage basin: Tributary area above intersection of latitude 37° 14.6′ with stream.
(*b*) Estimated from record for Coyote River.

TABLE 111. LOS GATOS CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 121 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division N.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*	
1871-1872	129	16.3	153	105,200	January,	28.9%
1872-1873	76	5.6	53	36,100	February,	17.7%
1873-1874	89	8.1	76	52,300	March,	35.9%
1874-1875	52	1.7	16	11,000	April,	8.5%
1875-1876	129	16.3	153	105,200	May,	2.2%
1876-1877	32	0.0	0	0	June,	1.0%
1877-1878	128	16.2	153	104,500	July,	0.5%
1878-1879	109	12.0	113	77,400	August,	0.3%
1879-1889	91	8.5	80	54,900	September,	0.3%
1880-1881	82	6.8	64	43,900	October,	0.2%
1881-1882	86	7.5	71	48,400	November,	0.3%
1882-1883	94	9.1	86	58,700	December,	4.2%
1883-1884	159	23.0	217	148,400		
1884-1885	105	11.2	105	72,300		
1885-1886	124	15.2	143	98,100		
1886-1887	77	5.8	55	37,400		
1887-1888	85	7.4	70	47,800		
1888-1889	92	8.6	81	55,500		
1889-1890	204	34.0	320	219,400		
1890-1891	95	9.3	88	60,000		
1891-1892	88	7.9	74	51,000		
1892-1893	146	20.1	189	129,700		
1893-1894	84	7.1	67	45,800		
1894-1895	136	17.8	168	114,900		
1895-1896	97	9.6	90	62,000		
1896-1897	105	11.2	105	72,300		
1897-1898	50	1.4	13	9,000		
1898-1899	89	8.1	76	52,300		
1899-1900	86	7.5	71	48,400		
1900-1901	117	13.6	128	87,800		
1901-1902	96	9.5	89	61,300		
1902-1903	94	9.1	86	58,700		
1903-1904	98	9.8	92	63,200		
1904-1905	115	13.2	124	85,200		
1905-1906	121	14.6	138	94,200		
1906-1907	137	18.0	170	116,200		
1907-1908	73	5.3	50	34,200		
1908-1909	133	17.3	163	111,600		
1909-1910	84	7.1	67	45,800		
1910-1911	133	17.3	163	111,600		
1911-1912	64	3.7	35	23,900		
1912-1913	45	0.6	6	3,900		
1913-1914	125	15.4	145	99,400		
1914-1915	128	16.2	153	104,500		
1915-1916	105	11.2	105	72,300		
1916-1917	82	6.8	64	43,900		
1917-1918	51	1.5	14	9,700		
1918-1919	111	12.4	117	80,000		
1919-1920	65	3.9	37	25,200		
1920-1921	104	11.0	104	71,000		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	68,500	10.61	566	....
Maximum seasonal	219,400	34.00	1,813	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	340	0.05	3	....
Maximum during July	1,100	0.17	9	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	210	0.03	2	....
Maximum during August	660	0.10	5	1889-1890
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XXXVII. Mass curve of run-off, Plate CXXIV.
Storage development curve, Plate CLXIX. Probable frequency of flood discharge, Plate LXXVII.

(*a*) Description of drainage basin: Tributary areas above indicated points: LOS GATOS CREEK, ½ mile south of Los Gatos; SAN TOMAS CREEK, intersection of latitude 37° 16.2′ with stream; CAMPBELL CREEK, ½ mile northeast of Saratoga; CALABAZOS CREEK, intersection of latitude 37° 17′ with stream; STEVENS CREEK, intersection of latitude 37° 20′ with stream; PERMANENTE CREEK, intersection of latitude 37° 21′ with stream.

(*b*) Estimated from record for Coyote River.

TABLE 112. SAN FRANCISQUITO CREEK.

SEASONAL RUN-OFF DATA. Drainage area 38 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division L.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.c	Measured seasonal discharge in acre-feet.b
1871-1872	130	16.0	155	32,100	January, 28.9%	
1872-1873	79	5.5	53	11,000	February, 17.7%	
1873-1874	86	6.7	65	13,400	March, 35.9%	
1874-1875	69	3.8	37	7,600	April, 8.5%	
1875-1876	131	16.2	157	32,500	May, 2.2%	
1876-1877	43	0.4	4	800	June, 1.0%	
1877-1878	129	15.8	153	31,700	July, 0.5%	
1878-1879	79	5.5	53	11,000	August, 0.3%	
1879-1880	99	9.4	91	18,800	September, 0.3%	
1880-1881	107	11.0	107	22,100	October, 0.2%	
1881-1882	69	3.8	37	7,600	November, 0.3%	
1882-1883	87	7.0	68	14,000	December, 4.2%	
1883-1884	125	15.0	146	30,100		
1884-1885	66	3.1	30	6,200		
1885-1886	115	12.5	121	25,100		
1886-1887	70	4.0	39	8,000		
1887-1888	78	5.4	52	10,800		
1888-1889	98	9.2	89	18,400		
1889-1890	192	32.0	311	64,200		
1890-1891	86	6.6	64	13,200		
1891-1892	91	7.6	74	15,200		
1892-1893	139	18.2	177	36,500		
1893-1894	111	11.7	114	23,500		
1894-1895	147	20.0	194	40,100		
1895-1896	106	10.7	104	21,500		
1896-1897	112	12.0	116	24,100		
1897-1898	57	1.9	18	3,800		
1898-1899	91	7.6	74	15,200		
1899-1900	104	10.4	101	20,900		
1900-1901	121	14.0	136	28,100		
1901-1902	91	7.6	74	15,200		
1902-1903	99	7.8	76	15,600		12,300
1903-1904	105	9.6	93	19,300		15,100
1904-1905	124	6.5	63	13,000		10,200
1905-1906	120	15.6	151	31,300		24,600
1906-1907	144	20.8	202	41,700		32,700
1907-1908	72	6.3	61	12,800		9,900
1908-1909	124	20.0	194	40,100		31,500
1909-1910	93	6.7	65	13,400		10,500
1910-1911	121	20.0	194	40,100		31,400
1911-1912	64	5.2	50	10,400		8,200
1912-1913	52	6.4	62	12,800		1,000
1913-1914	128	17.0	165	34,100		26,700
1914-1915	126	13.1	127	26,300		20,600
1915-1916	120	18.9	183	37,900		29,800
1916-1917	78	6.9	67	13,800		10,900
1917-1918	53	1.6	16	3,200		2,500
1918-1919	105	10.9	106	21,900		17,200
1919-1920	66	2.3	22	4,600		3,700
1920-1921	98	9.2	89	18,400		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	20,700	10.32	550	....
Maximum seasonal	64,200	32.01	1,707	1889-1890
Minimum seasonal	800	0.40	21	1876-1877
Mean during July	100	0.05	3	....
Maximum during July	300	0.15	8	1889-1890
Minimum during July	Trace	Trace	Trace	1876-1877
Mean during August	60	0.03	2	....
Maximum during August	200	0.10	5	1889-1890
Minimum during August	Trace	Trace	Trace	1876-1877

Probable run-off curve, Plate XXXVII. Mass curve of run-off, Plate CXXIV.
Storage development curve, Plate CLXIX. Probable frequency of flood discharge, Plate LXXVII.

(a) Description of drainage basin: Tributary area above a point 1 mile below forks near Palo Alto.

(b) From F. C. Hermann's rating for Searsville Lake, covering the drainage basin above junction with Los Trancos Creek, area 25.5 square miles, as reported by F. H. Tibbetts to Santa Clara Valley Water Conservation Committee.

(c) Estimated from record for Coyote River.

TABLE 113. SAN MATEO CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 84 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division L.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	130	13.3	161	59,900	January, 28.9%
1872-1873	79	4.5	55	20,300	February, 17 7%
1873-1874	86	5.4	66	24,300	March, 35.9%
1874-1875	69	3.3	40	14,900	April, 8.5%
1875-1876	131	13.5	164	60,800	May, 2 2%
1876-1877	43	0.8	10	3,600	June, 1.0%
1877-1878	129	13.1	159	59,000	July, 0.5%
1878-1879	79	4.5	55	20,300	August, 0.3%
1879-1880	99	7.4	90	33,300	September, 0.3%
1880-1881	107	8.7	106	39,200	October, 0.2%
1881-1882	69	3.3	40	14,900	November, 0.3%
1882-1883	87	5.5	67	24,800	December, 4.2%
1883-1884	125	12.2	148	55,000	
1884-1885	66	2.9	35	13,100	
1885-1886	115	10.2	124	46,000	Measured seasonal discharge in acre-feet.*c*
1886-1887	70	3.4	41	15,300	
1887-1888	78	4.4	53	19,800	
1888-1889	98	7.3	89	32,900	
1889-1890	192	28.7	348	129,300	*d*48,500
1890-1891	86	5.4	66	24,300	*d*9,800
1891-1892	91	6.1	74	27,500	*d*2,400
1892-1893	139	15.4	187	69,400	*d*20,300
1893-1894	111	9.4	114	42,300	*d*12,400
1894-1895	147	17.0	206	76,600	*d*23,700
1895-1896	106	8.6	104	38,700	*d*6,600
1896-1897	112	9.6	116	43,200	*d*8,600
1897-1898	57	2.0	24	9,000	*d, f*4,600
1898-1899	91	6.1	74	27,500	*d*4,400
1899-1900	104	8.2	99	36,900	*e*5,600
1900-1901	121	11.4	138	51,400	*e*3,000
1901-1902	91	6.1	74	27,500	*e*2,500
1902-1903	99	7.4	90	33,300	*e*7,600
1903-1904	105	8.4	102	37,800	*e*15,700
1904-1905	124	12.1	147	54,500	*e*6,900
1905-1906	120	11.2	136	50,500	*e*10,300
1906-1907	144	16.4	199	73,900	*e*19,100
1907-1908	72	3.6	44	16,200	*e*5,800
1908-1909	124	12.1	147	54,500	*e*22,100
1909-1910	93	6.4	78	28,800	*e*4,100
1910-1911	121	11.4	138	51,400	
1911-1912	64	2.7	33	12,200	
1912-1913	52	1.6	19	7,200	
1913-1914	128	12.9	156	58,100	
1914-1915	126	12.4	150	55,900	
1915-1916	120	11.2	136	50,500	
1916-1917	78	4.4	53	19,800	
1917-1918	53	1.6	19	7,200	
1918-1919	105	8 4	102	37,800	
1919-1920	66	2.9	35	13,100	
1920-1921	98	7.3	89	32,900	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	37,100	8.23	439	....
Maximum seasonal	129,300	28.70	1,531	1889-1890
Minimum seasonal	3,600	0.80	43	1876-1877
Mean during July	190	0.04	2	....
Maximum during July	650	0.14	8	1889-1890
Minimum during July	20	Trace	Trace	1876-1877
Mean during August	110	0.02	1	....
Maximum during August	390	0.09	5	1889-1890
Minimum during August	10	Trace	Trace	1876-1877

Probable run-off curve, Plate XXXVIII. Mass curve of run-off, Plate CXXV.
Storage development curve, Plate CLXX. Probable frequency of flood discharge, Plate LXXVIII.

(*a*) Description of drainage basin: Tributary area above designated points: ISLAIS CREEK, at intersection of longitude 122° 25.1′ with stream; SAN BRUNO CREEK, at highway bridge, ¼ mile west of San Bruno; SAN MATEO CREEK, at highway bridge at San Mateo; LAUREL CREEK, at highway bridge near Cottrell; BELMONT CREEK, at highway bridge near Belmont; PULGAS CREEK, at railroad bridge; CORDILLERAS CREEK, at intersection of longitude 122° 15′ with stream.

(*b*) Estimated from records for Coyote River.

(*c*) Records from the report of the Spring Valley Water Company, entitled "The Future Water Supply of San Francisco," page 98. Season is from June 1 to May 31. Records are from area tributary to Crystal Springs Reservoir. Evaporation from reservoir has been deducted from gross yield.

(*d*) Drainage area, 1889-1890 to 1898-1899, 23.5 square miles.

(*e*) Drainage area, 1899-1900 to 1909-1910, 22.5 square miles.

(*f*) Evaporation greater than run-off.

TABLE 114. SMITH RIVER.

SEASONAL RUN-OFF DATA. Drainage area 627 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division D.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	104	105.8	104	3,538,000	January, 27.0%
1872-1873	62	63.0	62	2,106,700	February, 16.2%
1873-1874	100	101.5	100	3,394,200	March, 9.1%
1874-1875	69	70.0	69	2,340,800	April, 9.4%
1875-1876	166	170.8	168	5,711,600	May, 9.4%
1876-1877	92	92.8	91	3,103,200	June, 3.5%
1877-1878	132	135.0	133	4,514,400	July, 1.9%
1878-1879	105	106.8	105	3,571,400	August, 1.0%
1879-1880	131	134.5	132	4,497,700	September, 1.4%
1880-1881	113	115.8	114	3,872,400	October, 1.6%
1881-1882	101	102.2	100	3,417,600	November, 10.9%
1882-1883	90	91.0	89	3,013,000	December, 8.6%
1883-1884	92	92.8	91	3,103,200	
1884-1885	69	70.0	69	2,340,800	
1885-1886	142	146.0	143	4,882,200	
1886-1887	99	100.5	98	3,360,700	
1887-1888	85	86.0	84	2,875,800	
1888-1889	74	75.2	74	2,514,700	
1889-1890	157	162.0	159	5,417,300	
1890-1891	82	82.8	81	2,768,800	
1891-1892	81	81.8	80	2,735,400	
1892-1893	104	105.8	104	3,538,000	
1893-1894	110	112.0	110	3,745,300	
1894-1895	100	101.5	100	3,394,200	
1895-1896	99	100.5	99	3,360,700	
1896-1897	101	102.2	100	3,417,600	
1897-1898	72	73.0	72	2,441,100	
1898-1899	75	76.0	75	2,541,400	
1899-1900	118	121.0	119	4,046,200	
1900-1901	97	98.0	96	3,277,100	
1901-1902	120	122.8	121	4,106,400	
1902-1903	114	116.5	114	3,895,800	
1903-1904	147	151.0	148	5,049,400	
1904-1905	92	92.8	91	3,103,200	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1905-1906	91	92.0	90	3,076,500	
1906-1907	110	112.0	110	3,745,300	
1907-1908	79	80.0	79	2,675,200	
1908-1909	117	119.0	117	3,979,400	
1909-1910	94	95.3	94	3,186,800	
1910-1911	79	80.0	78	2,675,200	
1911-1912	89	93.0	91	3,110,700	*c*2,771,000
1912-1913	84	83.4	82	2,790,100	*d*1,810,900
1913-1914	109	111.5	109	3,728,600	
1914-1915	122	125.0	123	4,180,000	
1915-1916	103	105.0	103	3,511,200	
1916-1917	75	76.0	75	2,541,400	
1917-1918	68	69.2	68	2 314,000	
1918-1919	101	102.2	100	3,417,600	
1919-1920	55	57.5	56	1,922,800	
1920-1921	129	132.5	130	4,430,800	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	3,406,200	101.9	5,433	....
Maximum seasonal	5,711,600	170.8	9,109	1875-1876
Minimum seasonal	1,922,800	57.5	3,067	1919-1920
Mean during July	64,700	1.9	103	....
Maximum during July	108,500	3.2	173	1875-1876
Minimum during July	36,500	1.1	58	1919-1920
Mean during August	34,100	1.0	54	....
Maximum during August	57,100	1.7	91	1875-1876
Minimum during August	19,200	0.6	31	1919-1920

Probable run-off curve, Plate XXXVIII. Mass curve of run-off, Plate CXXV.
Storage development curve, Plate CLXX. Probable frequency of flood discharge, Plate LXXVIII.

(*a*) Description of drainage basin: Tributary area above a point in N. W. ¼ of Sec. 34, T. 18 N., R. 1 W., near mouth, excepting area of 77 square miles in Oregon. Total drainage area is 704 square miles.

(*b*) Points of measurement: South Fork, ⅛ mile above junction with Smith River, 294 square miles; North Fork, ½ mile above junction of North and Middle Forks, 148 square miles; Middle Fork, at highway bridge 800 feet above junction of North and Middle Forks, 128 square miles.

(*c*) Complete record on South Fork; partial record on Middle Fork, October 1 to 31 and January 1 to September 30.

(*d*) Complete record on South Fork; partial record on Middle Fork, October 1 to 31 and March 1 to September 30.

TABLE 115. KLAMATH RIVER.*

SEASONAL RUN-OFF DATA. Drainage area 2,320 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division C.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Measured seasonal discharge in acre-feet at U.S.G.S. gaging stations. Requa.*b*	Seiad Valley.*c*	Keno.*d*
1871-1872	110	31.0	112	3,836,700			
1872-1873	54	11.2	40	1,376,700			
1873-1874	83	21.3	77	2,630,900			
1874-1875	51	9.9	36	1,218,000			
1875-1876	118	34.0	121	4,214,300			
1876-1877	73	17.6	64	2,180,200			
1877-1878	115	33.0	120	4,080,300			
1878-1879	87	22.5	81	2,777,000			
1879-1880	100	27.4	99	3,386,000			
1880-1881	115	33.0	120	4,080,300			
1881-1882	80	20.0	73	2,472,500			
1882-1883	76	18.1	66	2,241,100			
1883-1884	92	24.3	88	3,008,500			
1884-1885	83	20.9	76	2,594,300			
1885-1886	107	29.7	108	3,678,400			
1886-1887	90	23.7	86	2,935,400			
1887-1888	88	22.9	83	2,825,800			
1888-1889	69	16.2	59	1,997,500			
1889-1890	178	57.4	208	7,100,900			
1890-1891	81	20.4	74	2,521,300			
1891-1892	88	22.9	83	2,825,800			
1892-1893	101	27.6	100	3,410,400			
1893-1894	158	49.8	181	6,163,100			
1894-1895	83	20.9	76	2,594,300			
1895-1896	120	34.7	126	4,299,500			
1896-1897	112	33.8	122	4,177,700			
1897-1898	60	13.0	47	1,607,800			
1898-1899	68	15.4	56	1,912,300			
1899-1900	99	26.9	97	3,325,100			
1900-1901	121	35.3	128	4,372,600			
1901-1902	95	25.6	93	3,166,800			
1902-1903	105	29.2	106	3,617,500			
1903-1904	173	56.1	204	6,942,600	....	....	*g*938,200
1904-1905	115	33.0	120	4,080,300	....	....	1,586,600
1905-1906	118	34.0	123	4,214,300	....	....	1,660,400
1906-1907	135	40.7	148	5,042,500	....	....	1,951,400
1907-1908	82	20.7	75	2,557,800	....	....	1,350,500
1908-1909	123	36.3	132	4,494,400	....	....	1,445,500
1909-1910	93	24.6	89	3,045,000	....	....	1,612,600
1910-1911	97	26.2	95	3,239,900	*e*9,353,000	....	1,515,500
1911-1912	118	34.0	123	4,214,300	11,501,000	....	1,351,500
1912-1913	90	23.8	86	2,935,400	12,678,000	*f*2,850,000	1,513,300
1913-1914	135	40.7	148	5,042,500	16,352,000	3,966,400	1,946,700
1914-1915	115	33.0	120	4,080,309	13,934,000	2,815,600	1,357,200
1915-1916	102	27.9	101	3,446,900	14,523,000	3,149,900	1,468,000
1916-1917	80	20.0	73	2,472,900	10,065,000	2,699,800	1,468,900
1917-1918	65	14.8	54	1,827,000	7,066,000	1,990,400	1,144,500
1918-1919	110	31.0	112	3,836,700	11,681,400	2,439,200	....
1919-1920	56	11.6	42	1,437,200	5,309,400	1,415,300	....
1920-1921	133	40.3	146	4,993,800	16,753,800	3,532,200	....

Distribution of seasonal run-off by months as shown by U.S.G.S. records.*h*	
January	11.1%
February	18.1%
March	21.2%
April	19.5%
May	8.3%
June	5.2%
July	3.6%
August	1.3%
September	1.8%
October	2.2%
November	1.9%
December	5.8%

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	3,410,700	27.56	1,470	....
Maximum seasonal	7,100,900	57.38	3,061	1889-1890
Minimum seasonal	1,218,000	9.84	525	1874-1875
Mean during July	122,800	1.00	53	....
Maximum during July	255,600	2.10	110	1889-1890
Minimum during July	43,800	0.35	19	1874-1875
Mean during August	44,300	0.36	19	....
Maximum during August	92,300	0.75	40	1889-1890
Minimum during August	15,800	0.13	7	1874-1875

Probable run-off curve, Plate XXXVIII. Mass curve of run-off, Plate CXXV.
Storage development curve, Plate CLXX. Probable frequency of flood discharge, Plate LXXVIII.

(*a*) Description of drainage basin: Tributary area between the mouth of river and the California-Oregon state line; also 35 square miles in Oregon, except the area tributary to the Shasta, Scott, Salmon and Trinity Rivers.

(*b*) At Scofield, in Sec. 29, T. 13 N., R. 2 E., 9 miles above Requa.

(*c*) Near Seiad Valley, 300 feet above mouth of Walker Creek.

(*d*) From June 1, 1904, to September 30, 1913, at county highway bridge at Keno. From October 1, 1913, to September 30, 1918, at highway bridge, 1 mile below Spence Creek.

(*e*) Partial record, December 25 to September 30. (*f*) Partial record, November 23 to September 30.

(*g*) Partial record, June 1 to September 30. (*h*) Estimated from records modified for adjusted areas.

*NOTE—This table covers residual drainage area only. Shasta, Scott, Salmon and Trinity Rivers are each considered separately in this report. The total area tributary to the Klamath River in California is 7,600 square miles.

TABLE 116. SHASTA RIVER.

SEASONAL RUN-OFF DATA. Drainage area 803 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division C.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records *d*
1871-1872	110	6.3	111	269,800	January, 9.8%
1872-1873	54	2.5	44	107,100	February, 10.5%
1873-1874	83	4.2	75	179,900	March, 12.0%
1874-1875	51	2.4	43	102,800	April, 10.0%
1875-1876	118	7.0	124	299,800	May, 11.4%
1876-1877	73	3.7	66	158,400	June, 9.6%
1877-1878	115	6.7	118	286,900	July, 7.0%
1878-1879	87	4.5	79	192,700	August, 6.9%
1879-1880	100	5.5	97	235,500	September, 1.5%
1880-1881	115	6.7	118	286,900	October, 5.1%
1881-1882	80	4.0	71	171,300	November, 8.2%
1882-1883	76	3.7	66	158,400	December, 8.0%
1883-1884	92	4.8	85	205,500	
1884-1885	83	4.2	74	179,900	
1885-1886	107	6.0	106	256,900	
1886-1887	90	4.7	83	201,300	
1887-1888	88	4.5	80	192,700	
1888-1889	69	3.2	57	137,000	
1889-1890	178	13.8	244	590,900	
1890-1891	81	4.0	71	171,300	
1891-1892	88	4.0	81	197,000	
1892-1893	101	5.6	99	239,800	
1893-1894	158	11.0	194	471,000	
1894-1895	83	4.2	74	179,900	
1895-1896	120	7.2	127	308,300	
1896-1897	112	6.4	113	274,100	
1897-1898	60	2.8	50	119,900	
1898-1899	68	3.2	57	137,000	
1899-1900	99	5.4	95	231,200	
1900-1901	121	7.3	129	312,600	
1901-1902	95	5.1	90	218,400	
1902-1903	105	5.8	102	248,400	
1903-1904	173	12.7	224	543,800	
1904-1905	115	6.7	118	286,900	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1905-1906	118	7.0	123	299,800	
1906-1907	135	8.6	152	368,300	
1907-1908	82	4.1	72	175,600	
1908-1909	123	7.4	131	316,900	
1909-1910	93	5.0	88	214,100	
1910-1911	97	5.2	92	222,700	
1911-1912	118	4.4	78	*d*190,100	125,700
1912-1913	90	5.7	100	*d*242,600	163,100
1913-1914	135	8.7	153	372,600	....
1914-1915	115	6.7	118	286,900	....
1915-1916	102	5.7	100	244,100	....
1916-1917	80	3.7	65	*d*156,800	*c*82,200
1917-1918	65	3.9	69	*d*166,500	86,100
1918-1919	110	5.1	89	*d*218,700	127,100
1919-1920	56	3.9	69	*d*166,800	81,900
1920-1921	133	7.8	136	*d*332,300	216,100

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	242,600	5.65	302	....
Maximum seasonal	590,900	13.80	736	1889-1890
Minimum seasonal	102,800	2.40	128	1874-1875
Mean during July	17 000	0.40	21	....
Maximum during July	41,400	1.00	52	1889-1890
Minimum during July	4,300	0.10	5	1916-1917
Mean during August	16,700	0.39	21	....
Maximum during August	40,800	0.95	51	1889-1890
Minimum during August	4,350	0.10	5	1916-1917

Probable run-off curve, Plate XXXVIII. Mass curve of run-off, Plate CXXVI.
Storage development curve, Plate CLXX. Probable frequency of flood discharge, Plate LXXVIII.

(*a*) Description of drainage basin: Tributary area above junction with Klamath River.

(*b*) Point of measurement: 1 mile below junction with Little Shasta River, 1¼ miles S. W. of Montague, drainage area 673 square miles.

(*c*) Partial record, October 1 to January 20 and April 1 to September 30.

(*d*) Measured discharge adjusted for increased area, also for storage and irrigation above point of measurement as follows: Storage 1920-1921, 1,000 acre-feet; irrigation, 20,640 acres in 1911-1912, and increasing 1,470 acres per year to 32,400 acres in 1919-1920 and 1920-1921.

TABLE 117. SCOTT RIVER.

SEASONAL RUN-OFF DATA. Drainage area 813 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division C.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.c	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.b
1871-1872	110	13 6	113	589,300	January, 7.0%	
1872-1873	54	4.5	37	194,900	February, 9.2%	
1873-1874	83	8.6	71	371,700	March, 8.2%	
1874-1875	51	4.0	33	172,200	April, 10.4%	
1875-1876	118	15.3	127	661,800	May, 21.9%	
1876-1877	73	7.1	59	308,200	June, 18.6%	
1877-1878	115	14.6	122	634,600	July, 7.3%	
1878-1879	87	9.4	78	407,900	August, 4.2%	
1879-1880	100	11.6	97	503,100	September, 2.6%	
1880-1881	115	14.6	122	634,600	October, 2.8%	
1881-1882	80	8.0	67	349,100	November, 4.2%	
1882-1883	76	7.5	63	326,300	December, 3.6%	
1883-1884	92	10.0	83	435,100		
1884-1885	83	8.6	71	371,700		
1885-1886	107	13.1	109	566,600		
1886-1887	90	9.8	82	426,100		
1887-1888	88	9.6	80	417,000		
1888-1889	69	6.4	53	276,500		
1889-1890	178	28.4	236	1,233,100		
1890-1891	81	8.3	69	358,100		
1891-1892	88	9.6	80	417,000		
1892-1893	101	11 6	96	503,100		
1893-1894	158	23.8	198	1,033,500		
1894-1895	83	8.6	71	371,700		
1895-1896	120	15.4	128	666,300		
1896-1897	112	13.9	116	602,900		
1897-1898	60	5.1	43	222,100		
1898-1899	68	6.3	52	271,900		
1899-1900	99	11.5	96	498,600		
1900-1901	121	15.7	130	679,900		
1901-1902	95	10.7	89	462,300		
1902-1903	105	12.5	104	543,900		
1903-1904	173	27.5	230	1,192,200		
1904-1905	115	14.6	122	634,600		
1905-1906	118	15.2	126	657,300		
1906-1907	135	18.6	155	806,900		
1907-1908	82	8.4	70	362,600		
1908-1909	123	16.0	133	693,500		
1909-1910	93	10 2	85	444,300		
1910-1911	97	11 0	91	476,000		
1911-1912	118	12.5	104	c540,300		513,800
1912-1913	90	13.7	114	c593,300		567,500
1913-1914	135	18 6	155	806,900		
1914-1915	115	14.6	122	634,600		
1915-1916	102	11.9	99	516,700		
1916-1917	80	8 0	67	349,100		
1917-1918	65	5.8	49	253,800		
1918-1919	110	13.5	112	584,700		
1919-1920	56	4 6	38	199,400		
1920-1921	133	18.4	153	797,800		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	521,100	12 01	641	
Maximum seasonal	1,233,100	28.45	1,517	1889-1890
Minimum seasonal	172,200	3 97	212	1874-1875
Mean during July	38,000	0 88	47	
Maximum during July	90,000	2.10	111	1889-1890
Minimum during July	12,600	0 29	15	1874-1875
Mean during August	21,900	0 51	27	
Maximum during August	51,800	1 20	64	1889-1890
Minimum during August	7,200	0 17	9	1874-1875

Probable run-off curve, Plate XXXIX.
Storage development curve, Plate CLXXI.
Mass curve of run-off, Plate CXXVI.
Probable frequency of flood discharge, Plate LXXIX.

(a) Description of drainage basin: Tributary area above junction with Klamath River.

(b) Point of measurement: Near Scott's Bar, ½ mile above junction with Klamath River, drainage area 812 square miles.

(c) Measured discharge adjusted for irrigation above point of measurement as follows: 1911-1912, 15,100 acres; 1912-1913, 14,800 acres.

TABLE 118. SALMON RIVER.

SEASONAL RUN-OFF DATA. Drainage area 734 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division C.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	110	35.8	111	1,401,400	January, 14.0%
1872-1873	54	14.4	45	563,700	February, 14.1%
1873-1874	83	25.7	80	1,006,100	March, 7.8%
1874-1875	51	13 0	41	508,900	April, 11.0%
1875-1876	118	39.3	122	1,538,500	May, 22.0%
1876-1877	73	21.5	67	841,600	June, 12.8%
1877-1878	115	38.0	118	1,487,600	July, 3.8%
1878-1879	87	27.0	84	1,057,000	August, 1.6%
1879-1880	100	32.0	99	1,252,700	September, 1.6%
1880-1881	115	38.0	118	1,487,600	October, 1.2%
1881-1882	80	24.0	75	939,500	November, 5.7%
1882-1883	76	22.3	70	873,000	December, 4.4%
1883-1884	92	28.7	90	1,123,500	
1884-1885	83	25.4	79	994,300	
1885-1886	107	34.6	108	1,354,500	
1886-1887	90	28.1	87	1,100,000	
1887-1888	88	27.3	85	1,068,700	
1888-1889	69	20.0	62	782,900	
1889-1890	178	63.0	196	2,466,200	
1890-1891	81	24.3	76	951,300	
1891-1892	88	27.1	85	1,060,900	
1892-1893	101	32.3	101	1,264 400	
1893-1894	158	55.2	172	2,160,900	
1894-1895	83	25.6	80	1,002,100	
1895-1896	120	40.0	125	1,565,900	
1896-1897	112	36.8	115	1,440,600	
1897-1898	60	16.5	53	645,900	
1898-1899	68	19.5	61	763,400	
1899-1900	99	31.7	98	1,240,900	
1900-1901	121	40.4	126	1,581,500	
1901-1902	95	30.1	94	1,178,300	
1902-1903	105	34.0	106	1,331,000	
1903-1904	173	61.4	191	2,403,600	
1904-1905	115	38.0	118	1,487,600	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1905-1906	118	39.0	121	1,526,700	
1906-1907	135	46.0	143	1,800,700	
1907-1908	82	25.0	78	978,700	
1908-1909	123	41.3	129	1,616,700	
1909-1910	93	29.5	92	1,154,800	
1910-1911	97	30.6	95	1.197,900	
1911-1912	118	34.4	107	1,343,500	1 330,400
1912-1913	90	33.0	103	1,290,700	1,277,400
1913-1914	135	45.7	142	1,789,000	
1914-1915	115	38.0	118	1,487,600	
1915-1916	102	32.7	102	1,280,100	
1916-1917	80	24.1	75	943,400	
1917-1918	65	18.3	57	716,400	
1918-1919	110	36.0	112	1,409,300	
1919-1920	56	15 0	47	587,200	
1920-1921	133	45.3	141	1,773,300	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	1,256,400	32.09	1,712	
Maximum seasonal	2,466,200	63 00	3,360	1889-1890
Minimum seasonal	508,900	13 00	693	1874-1875
Mean during July	47,700	1.20	65	
Maximum during July	93,700	2.40	128	1889-1890
Minimum during July	19,300	0.49	26	1874-1875
Mean during August	20,100	0.51	27	
Maximum during August	39,500	1.00	54	1889-1890
Minimum during August	8 100	0 21	11	1874-1875

Probable run-off curve, Plate XXXIX. Mass curve of run-off, Plate CXXVI.
Storage development curve, Plate CLXXI. Probable frequency of flood discharge, Plate LXXIX.

(*a*) Description of drainage basin: Tributary area above junction with Klamath River.

(*b*) Point of measurement: At Somesbar, $1\frac{3}{4}$ miles above junction with Klamath River, drainage area 727 square miles.

TABLE 119. TRINITY RIVER.

SEASONAL RUN-OFF DATA. Drainage area 2,965 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division C.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station. Hoopa.*e*	Lewiston.*f*
1871-1872	110	32.2	115	5,091,900		
1872-1873	54	10.0	36	1,581,300		
1873-1874	83	21.4	76	3,384,000		
1874-1875	51	9.0	32	1,423,200		
1875-1876	118	35.8	127	5,661,200		
1876-1877	73	17.6	63	2,783,100		
1877-1878	115	34.2	122	5,408,100		
1878-1879	87	22.8	81	3,605,400		
1879-1880	100	28.2	100	4,459,300		
1880-1881	115	34.2	122	5,408,100		
1881-1882	80	20.0	71	3,162,700		
1882-1883	76	18.8	67	2,973,000		
1883-1884	92	25.0	89	3,953,300		
1884-1885	83	21.4	76	3,384,000		
1885-1886	107	31.1	110	4,917,900		
1886-1887	90	24.0	85	3,795,200		
1887-1888	88	23.4	83	3,700,300		
1888-1889	69	15.8	56	2,498,500		
1889-1890	178	61.0	217	9,646,100		
1890-1891	81	20.5	73	3,241,700		
1891-1892	88	23.4	83	3,700,300		
1892-1893	101	28.8	102	4,554,200		
1893-1894	158	52.5	187	8,302,000		
1894-1895	83	21.4	76	3,384,000		
1895-1896	120	36.7	130	5,803,500		
1896-1897	112	33.1	118	5,234,200		
1897-1898	60	12.5	44	1,976,600		
1898-1899	68	15.7	56	2,482,700		
1899-1900	99	27.8	99	4,396,100		
1900-1901	121	37.0	131	5,850,900		
1901-1902	95	26.2	93	4,143,100		
1902-1903	105	30.2	107	4,775,600		
1903-1904	173	58.8	209	9,298,200		
1904-1905	115	34.2	122	5,408,100		
1905-1906	118	35.8	127	5,661,200		
1906-1907	135	42.8	152	6,768,100		
1907-1908	82	21.0	75	3,320,800		
1908-1909	123	38.0	135	6,009,000		
1909-1910	93	25.2	90	3,984,900		
1910-1911	97	27.2	97	4,301,200		
1911-1912	118	22.1	79	3,493,900	3,335,700	1,030,600
1912-1913	90	24.6	88	3,897,500	3,751,100	1,071,200
1913-1914	135	42.8	152	6,768,100	*b*2,478,100	2,026,600
1914-1915	115	34.2	122	5,408,100	....	2,156,900
1915-1916	102	29.1	103	4,601,700	....	1,502,400
1916-1917	80	20.0	71	3,162,600	*c*1,455,000	652,100
1917-1918	65	13.6	48	2,149,100	*d*2,059,300	602,200
1918-1919	110	32.2	115	5,091,900	....	1,150,800
1919-1920	56	11.0	39	1,739,500	....	407,900
1920-1921	133	42.0	149	6,641,600	....	1,795,000

Distribution of seasonal run-off by months as shown by U.S.G.S. records.

Month	Per cent
January,	11.8%
rary,	15.8%
March,	13.9%
April,	15.1%
May,	17.2%
June,	8.2%
July,	2.8%
August,	1.5%
September,	1.4%
October,	1.3%
November,	4.9%
December,	6.1%

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	4,447,700	28.14	1,500	....
Maximum seasonal	9,646,100	61.00	3,253	1889-1890
Minimum seasonal	1,423,200	9.00	480	1874-1875
Mean during July	124,600	0.80	42	....
Maximum during July	270,100	1.70	91	1889-1890
Minimum during July	29,800	0.20	10	1917-1918
Mean during August	66,800	0.40	23	....
Maximum during August	144,700	0.90	49	1889-1890
Minimum during August	21,300	0.10	7	1874-1875

Probable run-off curve, Plate XXXIX.
Mass curve of run-off, Plate CXXVI.
Storage development curve, Plate CLXXI.
Probable frequency of flood discharge, Plate LXXIX.

(*a*) Description of drainage basin: Tributary area above junction with Klamath River.
(*b*) Partial record, October 1 to January 31.
(*c*) Partial record, October 7 to March 31 and July 2 to September 30.
(*d*) Partial record, October 1 to September 7.
(*e*) At Hoopa, 11 miles above junction with Klamath River, drainage area 2,851 square miles.
(*f*) At highway bridge at Lewiston.

TABLE 120. REDWOOD CREEK.

SEASONAL RUN-OFF DATA. Drainage area 275 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division D.	Depth of run-off in inches.	Run-off index	Estimated seasonal run-off in acre-feet. (Above main agricultura' area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	104	59.0	103	866,100	January, 25.6%
1872-1873	62	35.6	62	522,600	February, 15.2%
1873-1874	100	56.8	100	833,800	March, 8.1%
1874-1875	69	40.0	70	587,200	April, 9.5%
1875-1876	166	93.4	164	1 371,100	May, 8.7%
1876-1877	92	52.3	92	767,700	June, 1.8%
1877-1878	132	74.5	130	1,093,600	July, 0.9%
1878-1879	105	59.5	104	873,400	August, 0.9%
1879-1880	131	74.0	130	1,036,300	September, 0.8%
1880-1881	113	64.4	113	945,400	October, 0.8%
1881-1882	101	57.4	100	842,600	November, 13.1%
1882-1883	90	51.3	90	753,100	December, 14.6%
1883-1884	92	52.3	92	767,700	
1884-1885	69	40.0	70	587,200	
1885-1886	142	80.2	140	1,177,300	
1886-1887	99	56.3	99	826,500	
1887-1888	85	48.6	85	713,400	
1888-1889	74	42.6	75	625 300	
1889-1890	157	88.5	155	1,299,100	
1890-1891	82	46.5	81	682,600	
1891-1892	81	46.2	81	678,200	
1892-1893	104	59.0	103	866,100	
1893-1894	110	62.3	109	914,500	
1894-1895	100	56.8	100	833,800	
1895-1896	99	56.3	99	826,500	
1896-1897	101	57.4	100	842,600	
1897-1898	72	41.0	72	601,900	
1898-1899	75	42.9	75	629,700	
1899-1900	118	67.0	117	983,500	
1900-1901	97	55.2	97	810,300	
1901-1902	120	68.1	119	999,700	
1902-1903	114	64.5	113	946,800	
1903-1904	147	83 0	145	1,218,400	
1904-1905	92	52.3	92	767,700	Measured
1905-1906	91	51.9	91	761,900	seasonal
1906-1907	110	62.3	109	914,500	discharge
1907-1908	79	45.4	80	666,400	in acre-feet at
1908-1909	117	66.2	116	971,800	U.S.G.S.
1909-1910	94	53.7	94	788,300	gaging station.c
1910-1911	79	45.2	79	663 500	
1911-1912	89	47.5	83	697,200	697,200
1912-1913	84	62 6	110	919,400	b908,500
1913-1914	109	62.0	109	910,100	
1914-1915	122	69.0	121	1,012,900	
1915-1916	103	58.5	102	858,700	
1916-1917	75	42.9	75	629,800	
1917-1918	68	39.4	69	578,400	
1918-1919	101	57.4	100	842,600	
1919-1920	55	32.4	57	475,600	
1920-1921	129	73.0	128	1,071,600	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	837,400	57 1	3,042	....
Maximum seasonal	1,371,100	93 4	4,981	1875-1876
Minimum seasonal	475,600	32.4	1,728	1919-1920
Mean during July	7,500	0 5	27	....
Maximum during July	12,300	0.8	45	1875-1876
Minimum during July	4,300	0.3	16	1919-1920
Mean during August	7,500	0.5	27	....
Maximum during August	12,300	0.8	45	1875-1876
Minimum during August	4,300	0.3	16	1919-1920

Probable run-off curve, Plate XXXIX.
Mass curve of run-off, Plate CXXVII.
Storage development curve, Plate CLXXI.
Probable frequency of flood discharge, Plate LXXIX.

(a) Description of drainage area: Tributary area above highway bridge at Oriels.
(b) Partial record. October 1 to August 9.
(c) Point of measurement: Gage at highway bridge at Oriels ,drainage area 275 square miles.

TABLE 121. MAD RIVER.

SEASONAL RUN-OFF DATA. Drainage area 457 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness.[d]	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet.	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	123	60.5	125	1,474,600	January, 26.0%
1872-1873	77	35.7	74	870,100	February, 15.1%
1873-1874	103	50.0	103	1,218,600	March, 12.2%
1874-1875	73	33.6	69	818,900	April, 12.3%
1875-1876	105	51.0	105	1,243,000	May, 10.2%
1876-1877	63	28.6	59	697,100	June, 2.1%
1877-1878	160	82.0	169	1,998,600	July, 0.8%
1878-1879	115	56.8	117	1,384,400	August, 0.4%
1879-1880	120	59.5	123	1,450,200	September, 0.5%
1880-1881	105	51.0	105	1,243,000	October, 0.3%
1881-1882	81	38.0	78	926,200	November, 8.7%
1882-1883	80	37.4	77	911,500	December, 11.4%
1883-1884	77	36.0	74	877,400	
1884-1885	57	25.5	53	621,500	
1885-1886	122	60.5	125	1,474,600	
1886-1887	68	31.0	64	755,600	
1887-1888	71	32.6	67	794,500	
1888-1889	75	35.0	72	853,000	
1889-1890	151	77.0	159	1,876,700	
1890-1891	68	31.0	64	755,600	
1891-1892	94	45.0	93	1,096,800	
1892-1893	118	58.2	120	1,418,500	
1893-1894	115	56.5	117	1,377,100	
1894-1895	140	70.5	145	1,718,300	
1895-1896	112	55.0	113	1,340,500	
1896-1897	105	51.0	105	1,243,000	
1897-1898	68	31.0	64	755,600	
1898-1899	86	40.8	84	994,400	
1899-1900	103	50.0	103	1,218,600	
1900-1901	100	48.2	99	1,174,800	
1901-1902	122	60.5	125	1,474,600	
1902-1903	103	50.0	103	1,218,600	
1903-1904	151	76.8	158	1,871,800	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.[c]
1904-1905	113	55.5	115	1,352,700	
1905-1906	116	57.2	118	1,394,100	
1906-1907	124	61.6	127	1,501,400	
1907-1908	78	36.5	75	889,600	
1908-1909	142	71.8	148	1,750,000	
1909-1910	89	42.3	87	1,031,000	
1910-1911	87	38.8	80	946,700	[b]746,300
1911-1912	74	34.9	72	850,200	850,200
1912-1913	87	43.2	89	1,055,000	1,055,000
1913-1914	137	69.0	142	1,681,700	
1914-1915	131	65.6	135	1,598,900	
1915-1916	102	49.5	102	1,206,500	
1916-1917	78	36.5	75	889,600	
1917-1918	60	27.0	56	658,100	
1918-1919	91	43.6	90	1,062,700	
1919-1920	52	22.5	46	548,400	
1920-1921	128	64.0	132	1,559,900	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	1,182,500	48.51	2,588	....
Maximum seasonal	1,998,600	82.00	4,373	1877-1878
Minimum seasonal	548,400	22.50	1,200	1919-1920
Mean during July	9,500	0.39	21	....
Maximum during July	16,000	0.66	35	1877-1878
Minimum during July	4,400	0.18	10	1919-1920
Mean during August	4,700	0.19	10	....
Maximum during August	8,000	0.33	18	1877-1878
Minimum during August	2,200	0.09	5	1919-1920

Probable run-off curve, Plate XL. Mass curve of run-off, Plate CXXVII.
Storage development curve, Plate CLXXII. Probable frequency of flood discharge, Plate LXXX.

(a) Description of drainage area: Tributary area above gage at Oregon and Eureka Railroad bridge at Essex, 5 miles northeast of Arcata.

(b) Partial record, January 1 to September 30.

(c) Point of measurement at railroad bridge at Essex, drainage area 457 square miles.

(d) Index of seasonal wetness obtained by weighting indices for Precipitation Divisions D and E in proportions of one and seven ,respectively.

TABLE 122. EEL RIVER.

SEASONAL RUN-OFF DATA. Drainage area 3,547 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division E.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*g*
1871-1872	125	41.2	129	7,793,000	January, 29.2%
1872-1873	79	23.4	74	4,426,000	February, 19.8%
1873-1874	103	32.1	101	6,071,000	March, 14.8%
1874-1875	73	21.1	66	3,991,000	April, 12.0%
1875-1876	110	35.1	110	6,639,000	May, 6.0%
1876-1877	59	16.4	52	3,102,000	June, 1.3%
1877-1878	164	58.4	184	11,046,000	July, 0.4%
1878-1879	116	37.5	118	7,093,000	August, 0.2%
1879-1880	118	38.2	120	7,225,000	September, 0.3%
1880-1881	104	32.6	102	6,166,000	October, 0.3%
1881-1882	78	23.1	73	4,369,000	November, 7.3%
1882-1883	78	23.1	73	4,369,000	December, 8 4%
1883-1884	75	21.9	69	4,142,000	
1884-1885	55	15.3	48	2,894,000	
1885-1886	119	38.7	122	7,376,000	
1886-1887	63	18.0	57	3,404,000	
1887-1888	69	19.9	62	3,764,000	
1888-1889	75	21.9	69	4,142,000	
1889-1890	150	52.1	164	9,854,000	
1890-1891	66	19.1	60	3,613,000	
1891-1892	95	29 1	91	5.504,000	
1892-1893	120	39.2	123	7,414,000	
1893-1894	115	37.1	116	7,017,000	
1894-1895	145	50.1	157	9,476,000	
1895-1896	114	36.5	115	6,904,000	
1896-1897	105	33.0	104	6,242,000	
1897-1898	67	19.1	60	3.613,000	
1898-1899	87	26.4	83	4,993,000	
1899-1900	100	31.1	98	5,882,000	
1900-1901	100	31.1	98	5,882,000	
1901-1902	122	40.0	126	7,566,000	
1902-1903	101	31.6	99	5,977,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.
1903-1904	151	52.8	166	9,987,000	
1904-1905	116	37.5	118	7,112,000	
1905-1906	119	38.7	122	7,320,000	
1906-1907	126	41.6	131	7,868,000	
1907-1908	78	23.1	73	4,388,000	
1908-1909	145	50.1	159	9,495,000	
1909-1910	88	26.8	84	5.069,000	
1910-1911	88	26.8	93	*g*5,611,000	*b*, *c*3,964,500
1911-1912	72	24.2	76	*g*4,572,000	*d*1,223,500
1912-1913	87	33.0	104	*g*6,245,000	*e*5,995,600
1913-1914	141	53.3	167	*g*10,080,000	*b*8,589,500
1914-1915	132	35.9	113	*g*6,797,000	*b*, *f*4,142,300
1915-1916	102	31.6	99	5,977,000	
1916-1917	78	26.8	84	*g*5,053,000	*b*4,204,800
1917-1918	59	15.1	47	*g*2,861,000	*b*2,197,100
1918-1919	89	32.4	102	*g*6,125,000	*b*5,200,100
1919-1920	51	12.5	39	*g*2,379,000	*b*1,357,700
1920-1921	128	31.9	100	*g*7.169.000	*b*5,864,400

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	6.040,000	31.93	1,703	....
Maximum seasonal	11,016,000	58.39	3,115	1877-1878
Minimum seasonal	2,379,000	12.58	671	1919-1920
Mean during July	24,160	0.13	7	....
Maximum during July	44,180	0.23	12	1877-1878
Minimum during July	9,520	0.05	3	1919-1920
Mean during August	12,080	0.06	3	....
Maximum during August	22,090	0.12	6	1877-1878
Minimum during August	4.760	0.03	1	1919-1920

Probable run-off curve, Plate XL. Mass curve of run-off, Plate CXXVII.
Storage development curve, Plate CLXXII. Probable frequency of flood discharge, Plate LXXX.

(*a*) Description of drainage basin: Tributary area above point just below mouth of Van Duzen Fork.
(*b*) Eel River at Scotia, drainage area 3,071 square miles.
(*c*) Partial record, December 18 to September 30.
(*d*) Eel River at Scotia, plus Van Duzen Fork at Bridgeville, plus Yager Creek at Carlotta, drainage area 3,414 square miles.
(*e*) Same as note (*d*), except partial record for Van Duzen Fork at Bridgeville, October 1 to July 31, drainage area 3,414 square miles.
(*f*) Partial record, October 1 to February 6.
(*g*) Measured discharge adjusted for diversion from Eel River into Russian River, and for increased drainage area.

TABLE 123. BEAR CREEK.

SEASONAL RUN-OFF DATA. Drainage area 82 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division D.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet.	Distribution of seasonal run-off by months.b
1871-1872	104	54.4	104	236,500	January, 35.8%
1872-1873	62	31.0	59	134,700	February, 10.9%
1873-1874	100	52.0	100	226,000	March, 9.1%
1874-1875	69	34.8	67	151,300	April, 7.5%
1875-1876	166	90.3	173	392,500	May, 6.8%
1876-1877	92	47.5	91	206,500	June, 2.1%
1877-1878	132	70.3	135	305,600	July, 0.9%
1878-1879	105	54.9	105	238,600	August, 0.4%
1879-1880	131	69.9	134	303,800	September, 0.6%
1880-1881	113	59.6	114	259,100	October, 0.8%
1881-1882	101	52.5	100	228,200	November, 14.1%
1882-1883	90	46.5	89	202,100	December, 11.0%
1883-1884	92	47.4	91	206,000	
1884-1885	69	35.0	67	152,100	
1885-1886	142	76.0	146	330,300	
1886-1887	99	51.5	99	223,900	
1887-1888	85	43.9	84	190,800	
1888-1889	74	37.8	72	164,300	
1889-1890	157	85.0	163	369,500	
1890-1891	82	42.0	80	182,600	
1891-1892	81	41.6	80	180,800	
1892-1893	104	54 1	104	235,200	
1893-1894	110	57.7	110	250,800	
1894-1895	100	52.0	100	226,000	
1895-1896	99	51.5	99	223,900	
1896-1897	101	52.5	100	228,200	
1897-1898	72	36.5	70	158,700	
1898-1899	75	38.1	73	165,600	
1899-1900	118	62.5	120	271,700	
1900-1901	97	50.2	96	218,200	
1901-1902	120	63.4	121	275,600	
1902-1903	114	60.0	115	260,800	
1903-1904	147	79 0	151	343,400	
1904-1905	92	47.4	91	206,000	
1905-1906	91	47.0	90	204,300	
1906-1907	110	57.7	110	250,800	
1907-1908	79	40.5	78	176,000	
1908-1909	117	61.7	118	268,200	
1909-1910	94	48.8	93	212,100	
1910-1911	79	40.5	78	176,000	
1911-1912	89	46.0	88	199,900	
1912-1913	84	43.0	82	186,900	
1913-1914	109	57.0	109	247,800	
1914-1915	122	64 8	124	281,700	
1915-1916	103	54 0	103	234,700	
1916-1917	75	38.1	73	165,600	
1917-1918	68	34.6	66	150,400	
1918-1919	101	52.5	100	228,200	
1919-1920	55	27.5	53	119,500	
1920-1921	129	68.8	132	299,100	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	227,000	52.22	2,785	
Maximum seasonal	392,500	90 30	4,816	1875-1876
Minimum seasonal	119,500	27.49	1,466	1919-1920
Mean during July	2,040	0 50	25	
Maximum during July	3,530	0.80	43	1875-1876
Minimum during July	1,080	0 20	13	1919-1920
Mean during August	910	0 20	11	
Maximum during August	1,570	0 40	19	1875-1876
Minimum during August	480	0 10	6	1919-1920

Probable run-off curve, Plate XL.
Storage development curve, Plate CLXXII.
Mass curve of run-off, Plate CXXVII.
Probable frequency of flood discharge, Plate LXXX.
(a) Description of drainage basin: Tributary area above mouth.
(b) Estimated from record for Mattole River.

TABLE 124. MATTOLE RIVER.

SEASONAL RUN-OFF DATA. Drainage area 264 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division D.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet.	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	104	77.7	103	1,093,400	January, 35.8%
1872-1873	62	46.1	61	649,400	February, 10.9%
1873-1874	100	74.8	99	1,053,600	March, 9 1%
1874-1875	69	50.8	67	715,700	April, 7.5%
1875-1876	166	129.9	171	1,828,900	May, 6.8%
1876-1877	92	68 2	91	960,800	June, 2.1%
1877-1878	132	100.7	134	1,418,100	July, 0.9%
1878-1879	105	78.9	105	1,110,600	August, 0.4%
1879-1880	131	100.3	133	1,412,800	September, 0.6%
1880-1881	113	85.8	114	1,208,700	October, 0.8%
1881-1882	101	75.9	101	1,068,800	November, 14 1%
1882-1883	90	66.8	89	941,000	December, 11.0%
1883-1884	92	68.2	91	960,800	
1884-1885	69	50.8	67	715,700	
1885-1886	142	109.2	145	1,537,300	
1886-1887	99	73.6	98	1,036,400	
1887-1888	85	63.1	84	887,900	
1888-1889	74	54.6	72	768,700	
1889-1890	157	122.4	162	1,722,900	
1890-1891	82	60.8	81	856,100	
1891-1892	81	60.2	80	848,200	
1892-1893	104	77.7	103	1,093,400	
1893-1894	110	82.8	110	1,166,300	
1894-1895	100	74.8	99	1,053,600	
1895-1896	99	73.6	98	1,036,400	
1896-1897	101	75.8	100	1,066,900	
1897-1898	72	53.2	71	748,900	
1898-1899	75	55.5	74	781,800	
1899-1900	118	89.4	119	1,259,000	
1900-1901	97	72.5	96	1,020,500	
1901-1902	120	90.9	121	1,280,100	
1902-1903	114	85.8	114	1,208,700	
1903-1904	147	113.9	151	1,603,600	
1904-1905	92	68 2	91	960,800	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.[c]
1905-1906	91	67.8	90	954,200	
1906-1907	110	82.8	110	1,166,300	
1907-1908	79	58.4	77	821,700	
1908-1909	117	88.5	117	1,245,800	
1909-1910	94	69.7	93	980,700	
1910-1911	79	59.3	79	835,000	
1911-1912	89	61.7	82	868,800	[b]852,600
1912-1913	84	72.6	96	1,021,700	1,021,700
1913-1914	109	81.6	108	1,149,000	
1914-1915	122	92.5	123	1,302,800	
1915-1916	103	77.2	103	1,086,700	
1916-1917	75	55.5	74	781,900	
1917-1918	68	50.8	67	715,700	
1918-1919	101	75.9	101	1,068,200	
1919-1920	55	40.9	55	576,400	
1920-1921	129	98 1	130	1,381,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	1,060,600	75.33	4,017	....
Maximum seasonal	1,828,900	129.90	6,928	1875-1876
Minimum seasonal	576,400	40.94	2,183	1919-1920
Mean during July	9,500	0.70	36	....
Maximum during July	16,500	1.20	63	1875-1876
Minimum during July	5,200	0.40	20	1919-1920
Mean during August	4,200	0.30	16	....
Maximum during August	7,300	0.50	28	1875-1876
Minimum during August	2,300	0.20	9	1919-1920

Probable run-off curve, Plate XL. Mass curve of run-off, Plate CXXVIII.
Storage development curve, Plate CLXXII. Probable frequency of flood discharge, Plate LXXX.

(a) Description of drainage basin: Tributary area above gage near Petrolia, in S. W. ¼ of Sec. 11, T. 2 S., R. 2 W., 2 miles southeast of Petrolia.

(b) Partial record, November 21 to September 30.

(c) Point of measurement: Gage near Petrolia, 264 square miles.

TABLE 125. NOYO RIVER GROUP.

SEASONAL RUN-OFF DATA. Drainage area 780 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division D.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet.	Distribution of seasonal run-off by months.*b*
1871-1872	104	32.8	105	1,364,000	January, 29.2%
1872-1873	62	13.0	41	540,600	February, 19.8%
1873-1874	100	30.7	98	1,276,700	March, 14.8%
1874-1875	69	16.4	52	682,000	April, 12.0%
1875-1876	166	68.8	219	2,861,100	May, 6.0%
1876-1877	92	26.7	85	1,110,300	June, 1.3%
1877-1878	132	48.0	153	1,996,100	July, 0.4%
1878-1879	105	33.2	106	1,380,600	August, 0.2%
1879-1880	131	47.5	151	1,975,300	September, 0.3%
1880-1881	113	37.6	120	1,563,600	October, 0.3%
1881-1882	101	31.2	99	1,297,500	November, 7.3%
1882-1883	90	25.8	82	1,072,900	December, 8.4%
1883-1884	92	26.7	85	1,110,300	
1884-1885	69	16.4	52	682,000	
1885-1886	142	54.0	172	2,245,600	
1886-1887	99	30.3	97	1,260,000	
1887-1888	85	23.5	75	977,300	
1888-1889	74	18.4	59	765,200	
1889-1890	157	63.0	201	2,619,900	
1890-1891	82	22.0	70	914,900	
1891-1892	81	21.6	69	898,200	
1892-1893	104	32.8	105	1,364,000	
1893-1894	110	35.8	114	1,488,800	
1894-1895	100	30.7	98	1,276,700	
1895-1896	99	30.3	97	1,260,000	
1896-1897	101	31.2	99	1,297,500	
1897-1898	72	17.5	56	727,700	
1898-1899	75	18.8	60	781,800	
1899-1900	118	40.2	128	1,671,700	
1900-1901	97	29.3	93	1,218,500	
1901-1902	120	41.3	132	1,717,500	
1902-1903	114	38.1	121	1,584,400	
1903-1904	147	57.0	182	2,370,400	
1904-1905	92	26.7	85	1,110,300	
1905-1906	91	26.2	84	1,089,500	
1906-1907	110	35.8	114	1,488,800	
1907-1908	79	20.8	66	865,000	
1908-1909	117	39.6	126	1,646,800	
1909-1910	94	27.7	88	1,151,900	
1910-1911	79	20.8	66	865,000	
1911-1912	89	25.4	81	1,056,300	
1912-1913	84	23.0	73	956,500	
1913-1914	109	35.3	112	1,468,000	
1914-1915	122	42.4	135	1,763,200	
1915-1916	103	32.3	103	1,343,200	
1916-1917	75	18.8	60	781,800	
1917-1918	68	16.0	51	665,400	
1918-1919	101	31.2	99	1,297,500	
1919-1920	55	10.3	33	428,300	
1920-1921	129	46.5	148	1,933,700	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	1,305,300	31.39	1,674	
Maximum seasonal	2,861,100	68.80	3,669	1875-1876
Minimum seasonal	428,300	10.30	549	1919-1920
Mean during July	5,220	0.13	7	
Maximum during July	11,440	0.28	15	1875-1876
Minimum during July	1,730	0.01	2	1919-1920
Mean during August	2,610	0.06	3	
Maximum during August	5,720	0.14	7	1875-1876
Minimum during August	860	0.02	1	1919-1920

Probable run-off curve, Plate XLI. Mass curve of run-off, Plate CXXVIII.
Storage development curve, Plate CLXXIII. Probable frequency of flood discharge, Plate LXXXI.

(*a*) Description of drainage basin: Areas tributary to following streams above tidewater: USAL CREEK, WADE CREEK, TEN MILE CREEK, NOYO RIVER, BIG RIVER, ALBION CREEK.

(*b*) Estimated from record for Eel River.

TABLE 126. NAVARRO RIVER.

SEASONAL RUN-OFF DATA. Drainage area 273 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division D.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet.	Distribution o seasonal run -off by months.*b*
1871-1872	104	28.2	105	410,600	January, 29.2%
1872-1873	62	10.8	40	157,200	February, 19.8%
1873-1874	100	26 2	97	381,500	March, 14.8%
1874-1875	69	13.5	50	196,600	April, 12.0%
1875-1876	166	59.5	221	866,300	May, 6.0%
1876-1877	92	22.8	85	332,000	June, 1.3%
1877-1878	132	41.8	155	608,600	July, 0.4%
1878-1879	105	28.6	106	416,400	August, 0.2%
1879-1880	131	41.3	154	601,300	September, 0.3%
1880-1881	113	32.4	121	471,700	October, 0.3%
1881-1882	101	26.7	99	388,800	November, 7.3%
1882-1883	90	22.0	82	320,300	December, 8.4%
1883-1884	92	22.8	85	332,000	
1884-1885	69	13.5	50	196,600	
1885-1886	142	46.8	174	681,400	
1886-1887	99	25.9	96	377,100	
1887-1888	85	19.9	74	289,700	
1888-1889	74	15.4	57	224,200	
1889-1890	157	54.7	203	796,400	
1890-1891	82	18.5	69	269,400	
1891-1892	81	18.1	67	263,500	
1892-1893	104	28.2	105	410,600	
1893-1894	110	30.9	115	449,900	
1894-1895	100	26.2	97	381,500	
1895-1896	99	25.9	96	377,100	
1896-1897	101	26.7	99	388,800	
1897-1898	72	14.5	54	211,100	
1898-1899	75	15.8	59	230,000	
1899-1900	118	34.8	129	506,700	
1900-1901	97	25.0	93	364,000	
1901-1902	120	35.8	133	521,200	
1902-1903	114	32.8	122	477,600	
1903-1904	147	49.4	184	719,300	
1904-1905	92	22.8	85	332,000	
1905-1906	91	22.4	83	326,100	
1906-1907	110	30.9	115	449,900	
1907-1908	79	17.5	65	254,800	
1908-1909	117	34.3	128	499,400	
1909-1910	94	23.9	89	348,000	
1910-1911	79	17.5	65	254,800	
1911-1912	89	21.6	80	314,500	
1912-1913	84	19.5	73	283,900	
1913-1914	109	30.5	113	444,100	
1914-1915	122	36.8	137	535,800	
1915-1916	103	27.7	103	403,300	
1916-1917	75	15.8	59	230,000	
1917-1918	68	13 1	49	190,700	
1918-1919	101	26.7	99	388,800	
1919-1920	55	8.2	31	119,400	
1920-1921	129	40.3	150	586,800	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	391,600	26.90	1,435	....
Maximum seasonal	866,300	59.50	3,173	1875-1876
Minimum seasonal	119,400	8.20	437	1919-1920
Mean during July	1,570	0.11	6	....
Maximum during July	3,470	0.24	13	1875-1876
Minimum during July	480	0.03	2	1919-1920
Mean during August	780	0.05	3	....
Maximum during August	1,730	0.12	6	1875-1876
Minimum during August	240	0.02	1	1919-1920

Probable run-off curve, Plate XLI. Mass curve of run-off, Plate CXXVIII.
Storage development curve, Plate CLXXIII. Probable frequency of flood discharge, Plate LXXXI.
(*a*) Description of drainage basin: Tributary area above mouth.
(*b*) Estimated from record for Eel River.

TABLE 127. GUALALA RIVER GROUP.

SEASONAL RUN-OFF DATA. Drainage area 623 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division D.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.b	
1871-1872	104	26.7	104	887,200	January,	27.5%
1872-1873	62	10 6	42	352,200	February,	22.0%
1873-1874	100	25.1	98	834,000	March,	18 5%
1874-1875	69	13.1	51	435,300	April,	10.1%
1875-1876	166	55.4	217	1,840,800	May,	9.8%
1876-1877	92	21.9	86	727,700	June,	3.0%
1877-1878	132	39.2	153	1,302,500	July,	0.4%
1878-1879	105	27.2	106	903,800	August,	0.1%
1879-1880	131	38.7	151	1,285,900	September,	0.6%
1880-1881	113	30.7	120	1,020,100	October,	0.1%
1881-1882	101	25.5	100	847,300	November,	4.0%
1882-1883	90	21.1	83	701,100	December,	3.9%
1883-1884	92	21.9	86	727,700		
1884-1885	69	13.1	51	435,300		
1885-1886	142	43.8	171	1,455,300		
1886-1887	99	24.8	97	824,000		
1887-1888	85	19.1	75	634,600		
1888-1889	74	14.9	58	495,100		
1889-1890	157	50.9	199	1,691,200		
1890-1891	82	18.0	70	598,100		
1891-1892	81	17.7	69	588,100		
1892-1893	104	26.7	104	887,200		
1893-1894	110	29.4	115	976,900		
1894-1895	100	25.1	98	834,000		
1895-1896	99	24.8	97	824,000		
1896-1897	101	25.5	100	847,300		
1897-1898	72	14.2	56	471,800		
1898-1899	75	15.3	60	508,400		
1899-1900	118	32.8	128	1,089,800		
1900-1901	97	23.9	94	794,100		
1901-1902	120	33.6	131	1,116,400		
1902-1903	114	31.1	122	1,033,300		
1903-1904	147	46.1	180	1,531,700		
1904-1905	92	21.9	86	727,700		
1905-1906	91	21.5	84	714,400		
1906-1907	110	29.4	115	976,900		
1907-1908	79	16.9	66	561,500		
1908-1909	117	32.3	126	1,073,200		
1909-1910	94	22.8	89	757,600		
1910-1911	79	16.9	66	561,500		
1911-1912	89	20.8	81	691,100		
1912-1913	84	18.8	74	624,700		
1913-1914	109	29.0	113	963,600		
1914-1915	122	34.6	135	1,149,600		
1915-1916	103	26.3	103	873,900		
1916-1917	75	15.3	60	508,400		
1917-1918	68	12.8	50	425,300		
1918-1919	101	25.5	100	847,300		
1919-1920	55	8.2	32	272,500		
1920-1921	129	37.8	148	1,256,000		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	849,700	25.57	1,364	....
Maximum seasonal	1,840,800	55.40	2,955	1875-1876
Minimum seasonal	272,500	8 20	437	1919-1920
Mean during July	3,400	0.10	5	....
Maximum during July	7,360	0.22	12	1875-1876
Minimum during July	1,090	0 03	2	1919-1920
Mean during August	850	0.03	1	....
Maximum during August	1,840	0.06	3	1875-1876
Minimum during August	270	0 01	Trace	1919-1920

Probable run-off curve, Plate XLI. Mass curve of run-off, Plate CXXVIII.
Storage development curve, Plate CLXXIII. Probable frequency of flood discharge, Plate LXXXI.

(a) Description of drainage basin: Area tributary to following streams above tidewater: DONAHOE CREEK, ELK CREEK, ALDER CREEK, BRUSH CREEK, GARCIA RIVER, GUALALA RIVER.

(b) Estimated from record for Russian River.

TABLE 128. RUSSIAN RIVER.

SEASONAL RUN-OFF DATA. Drainage area 1,508 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division E.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet.	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*d*
1871-1872	125	26.6	151	2,137,900	January, 27.5%
1872-1873	79	9.8	56	787,600	February, 22.0%
1873-1874	103	18.3	104	1,470,800	March, 18.5%
1874-1875	73	7.8	44	626,900	April, 10.1%
1875-1876	110	21.0	119	1,687,800	May, 9.8%
1876-1877	59	3.0	17	241,100	June, 3.0%
1877-1878	164	41.9	238	3,367,600	July, 0.4%
1878-1879	116	23.3	132	1,872,700	August, 0.1%
1879-1880	118	24.1	137	1,937,000	September, 0.6%
1880-1881	104	18.8	107	1,511,000	October, 0.1%
1881-1882	78	9 6	54	771,600	November, 4 0%
1882-1883	78	9.6	54	771,600	December, 3.9%
1883-1884	75	8.3	47	667,100	
1884-1885	55	2.0	11	160,700	
1885-1886	119	24.4	138	1,961,100	
1886-1887	63	4.6	26	369,700	
1887-1888	69	6.2	35	498,300	
1888-1889	75	8.3	47	667,100	
1889-1890	150	36.4	207	2,925,600	
1890-1891	66	5.4	31	434,000	
1891-1892	95	15.5	88	1,245,800	
1892-1893	120	24.9	141	2,001,300	
1893-1894	115	23.0	131	1,848,600	
1894-1895	145	34.5	196	2,772,900	
1895-1896	114	22.5	128	1,808,400	
1896-1897	105	19.1	108	1,535,100	
1897-1898	67	5.5	31	442,000	
1898-1899	87	12.8	73	1,028,800	
1899-1900	100	17.1	97	1,374,400	
1900-1901	100	17.1	97	1,374,400	
1901-1902	122	25.5	145	2,049,500	
1902-1903	101	17.8	101	1 430,600	
1903-1904	151	37.0	210	2,973,800	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*c*
1904-1905	116	23.3	132	1.872,700	
1905-1906	119	24.4	138	1.961,100	
1906-1907	126	27.1	154	2,178,100	
1907-1908	78	9.6	54	771,600	
1908-1909	145	34.5	196	2,772,900	
1909-1910	88	13.0	74	1,044,800	
1910-1911	88	13.0	74	*d*1,044,800	*b*501,200
1911-1912	72	8 5	48	*d*686,300	365,900
1912-1913	87	11.2	64	*d*903,800	533,300
1913-1914	141	33.0	187	2,652,300	
1914-1915	132	29 4	167	2,363,000	
1915-1916	102	18 0	102	1,446,700	
1916-1917	78	9 6	54	771,600	
1917-1918	59	3 0	17	241,100	
1918-1919	89	13 1	74	1,052,900	
1919-1920	51	0.8	5	64,300	
1920-1921	128	28 0	159	2,250,400	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	1,416,600	17.60	940	....
Maximum seasonal	3,367,600	41.90	2,235	1877-1878
Minimum seasonal	64,300	0.80	43	1919-1920
Mean during July	5,670	0.07	4	....
Maximum during July	13,500	0.17	9	1877-1878
Minimum during July	260	Trace	Trace	1919-1920
Mean during August	1,420	0.02	1	....
Maximum during August	3.400	0.04	2	1877-1878
Minimum during August	60	Trace	Trace	1919-1920

Probable run-off curve, Plate XLI. Mass curve of run-off, Plate CXXIX.
Storage development curve, Plate CLXXIII. Probable frequency of flood discharge, Plate LXXXI.

(*a*) Description of drainage basin: Area tributary to stream above the mouth.
(*b*) Partial record, February 1 to September 30.
(*c*) Point of measurement: Gage at highway bridge, ½ mile northeast of Geyserville, drainage area 662 square miles
(*d*) Measured run-off adjusted for diversions from South Fork of the Eel River.

TABLE 129. LAGUNITAS CREEK.

SEASONAL RUN-OFF DATA. Drainage area 84 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division D.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	104	20.9	105	93,600	January, 27.5%
1872-1873	62	7.4	37	33,200	February, 22.0%
1873-1874	100	19.5	98	87,400	March, 18.5%
1874-1875	69	9.3	47	41,700	April, 10.1%
1875-1876	166	45.7	230	204,700	May, 9.8%
1876-1877	92	16.4	82	73,500	June, 3.0%
1877-1878	132	31.7	159	142,000	July, 0.4%
1878-1879	105	21 2	107	95,000	August, 0.1%
1879-1880	131	31.4	158	140,700	September, 0.6%
1880-1881	113	24.5	123	109,800	October, 0.1%
1881-1882	101	19.9	100	89,200	November, 4.0%
1882-1883	90	15.9	80	71,200	December, 3.9%
1883-1884	92	16.4	82	73,500	
1884-1885	69	9.3	47	41,700	
1885-1886	142	35.9	180	160,800	
1886-1887	99	19.1	96	85,600	
1887-1888	85	14 1	71	63,200	
1888-1889	74	10.8	54	48,400	
1889-1890	157	42 0	211	188,200	
1890-1891	82	13.0	65	58,200	
1891-1892	81	12.8	64	57,300	
1892-1893	104	20.9	105	93,600	
1893-1894	110	23.2	116	103,900	
1894-1895	100	19.5	98	87,400	
1895-1896	99	19.1	96	85,600	
1896-1897	101	19.9	100	89,200	
1897-1898	72	10.1	51	45,200	
1898-1899	75	11.0	55	49,300	
1899-1900	118	26.4	133	118,300	
1900-1901	97	18.3	92	82,000	
1901-1902	120	27.0	136	121,000	
1902-1903	114	24 7	124	110,700	
1903-1904	147	37.9	190	169,800	
1904-1905	92	16.4	82	73,500	
1905-1906	91	16.2	81	72,600	
1906-1907	110	23.2	116	103,900	
1907-1908	79	12.4	62	55,600	
1908-1909	117	25.8	130	115,600	
1909-1910	94	17.2	86	77,100	
1910-1911	79	12.4	62	55,600	
1911-1912	89	15.6	78	69,900	
1912-1913	84	13.9	70	62,300	
1913-1914	109	22.9	115	102,600	
1914-1915	122	27.8	140	124,500	
1915-1916	103	20.6	103	92,300	
1916-1917	75	11.0	55	49,300	
1917-1918	68	9.1	46	40,800	
1918-1919	101	19.9	100	89,200	
1919-1920	55	5.6	28	25,100	
1920-1921	129	30 7	154	137,500	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	89,200	19.92	1,062	
Maximum seasonal	204,700	45.69	2,437	1875-1876
Minimum seasonal	25,100	5.60	299	1919-1920
Mean during July	360	0.08	4	
Maximum during July	820	0.18	10	1875-1876
Minimum during July	100	0.02	1	1919-1920
Mean during August	90	0.02	1	
Maximum during August	200	0.04	2	1875-1876
Minimum during August	30	0.01	Trace	1919-1920

Probable run-off curve, Plate XLII.
Storage development curve, Plate CLXXIV.
Mass curve of run-off, Plate CXXIX.
Probable frequency of flood discharge, Plate LXXXII.

(*a*) Description of drainage basin: Tributary area above a point $\frac{1}{4}$ mile east of Point Reyes.

(*b*) Estimated from records of streams in the vicinity.

TABLE 130. SALMON CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 230 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division D.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet.	Distribution of seasonal run-off by months.*b*	
1871-1872	104	9.8	106	120,200	January,	27.5%
1872-1873	62	2.9	31	35,600	February,	22.0%
1873-1874	100	9.0	97	110,400	March,	18.5%
1874-1875	69	3.8	41	46,600	April,	10.1%
1875-1876	166	23.2	250	284,600	May,	9.8%
1876-1877	92	7.5	81	92,000	June,	3.0%
1877-1878	132	15.3	165	187,700	July,	0.4%
1878-1879	105	10.0	108	122,700	August,	0.1%
1879-1880	131	15.2	164	186,400	September,	0.6%
1880-1881	113	11.5	124	141,100	October,	0.1%
1881-1882	101	9.2	99	112,900	November,	4.0%
1882-1883	90	7.2	78	88,300	December,	3.9%
1883-1884	92	7.5	81	92,000		
1884-1885	69	3.8	41	46,600		
1885-1886	142	17.5	189	214,700		
1886-1887	99	8.8	95	107,900		
1887-1888	85	6.4	69	78,500		
1888-1889	74	4.5	48	55,200		
1889-1890	157	21.0	226	257,600		
1890-1891	82	5.8	62	71,100		
1891-1892	81	5.6	60	68,700		
1892-1893	104	9.7	105	119,000		
1893-1894	110	10.9	117	133,700		
1894-1895	100	9.0	97	110,400		
1895-1896	99	8.8	95	107,900		
1896-1897	101	9.2	99	112,900		
1897-1898	72	4.2	45	51,500		
1898-1899	75	4.7	51	57,600		
1899-1900	118	12.5	135	153,300		
1900-1901	97	8.5	92	104,300		
1901-1902	120	12.9	139	158,200		
1902-1903	114	11.6	125	142,300		
1903-1904	147	18.7	201	229,400		
1904-1905	92	7.5	81	92,000		
1905-1906	91	7.4	80	90,800		
1906-1907	110	10.9	117	133,700		
1907-1908	79	5.5	59	67,500		
1908-1909	117	12.2	131	149,600		
1909-1910	94	7.9	85	96,900		
1910-1911	79	5.4	58	66,200		
1911-1912	89	7.0	75	85,900		
1912-1913	84	6.1	66	74,800		
1913-1914	109	10.6	114	130,000		
1914-1915	122	13.3	143	163,100		
1915-1916	103	9.6	103	117,700		
1916-1917	75	4.7	51	57,600		
1917-1918	68	3.8	41	46,600		
1918-1919	101	9.2	99	112,800		
1919-1920	55	2.0	22	24,500		
1920-1921	129	14.8	159	181,500		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	113,900	9.28	495	....
Maximum seasonal	284,600	23.20	1,237	1875-1876
Minimum seasonal	24,500	2.00	107	1919-1920
Mean during July	460	0.04	2	....
Maximum during July	1,140	0.09	5	1875-1876
Minimum during July	100	0.01	Trace	1919-1920
Mean during August	110	Trace	Trace	....
Maximum during August	280	0.01	1	1875-1876
Minimum during August	20	0.02	Trace	1919-1920

Probable run-off curve, Plate XLII. Mass curve of run-off, Plate CXXIX.
Storage development curve, Plate CLXXIV. Probable frequency of flood discharge, Plate LXXXII.

(*a*) Description of drainage basin: Tributary area above points indicated: SALMON CREEK and SAN ANTONIO CREEK, at tidewater, 156 square miles; WALKER CREEK, one mile above mouth, 74 square miles.

(*b*) Estimated from records of streams in vicinity

TABLE 131. BOLINAS CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 158 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division D.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*	
1871-1872	104	4.5	103	37,900	January,	27.5%
1872-1873	62	1.2	28	10,100	February,	22.0%
1873-1874	100	4.0	92	33,700	March,	18.5%
1874-1875	69	1.6	37	13,500	April,	10.1%
1875-1876	166	12.7	292	107,000	May,	9.8%
1876-1877	92	3.3	76	27,800	June,	3.0%
1877-1878	132	7.7	177	64,900	July,	0.4%
1878-1879	105	4.6	106	38,800	August,	0.1%
1879-1880	131	7.6	175	64,000	September,	0.6%
1880-1881	113	5.4	124	45,500	October,	0.1%
1881-1882	101	4.1	94	34,500	November,	4.0%
1882-1883	90	3.1	71	26,100	December,	3.9%
1883-1884	92	3.3	76	27,800		
1884-1885	69	1.6	37	13,500		
1885-1886	142	9.1	209	76,700		
1886-1887	99	3.9	90	32,900		
1887-1888	85	2.7	62	22,800		
1888-1889	74	1.9	44	16,000		
1889-1890	157	11.4	262	96,100		
1890-1891	82	2.5	57	21,100		
1891-1892	81	2.4	55	20,200		
1892-1893	104	4.5	103	37,900		
1893-1894	110	5.0	115	42,100		
1894-1895	100	4.0	92	33,700		
1895-1896	99	3.9	90	32,900		
1896-1897	101	4.1	94	34,500		
1897-1898	72	1.7	39	14,300		
1898-1899	75	2.0	46	16,800		
1899-1900	118	6.0	138	50,600		
1900-1901	97	3.7	85	31,200		
1901-1902	120	6.2	143	52,200		
1902-1903	114	5.5	127	46,300		
1903-1904	147	9.9	228	83,400		
1904-1905	92	3.3	76	27,800		
1905-1906	91	3.2	74	27,000		
1906-1907	110	5.0	115	42,100		
1907-1908	79	2.2	51	18,500		
1908-1909	117	5.8	133	48,900		
1909-1910	94	3.5	80	29,500		
1910-1911	79	2.2	51	18,500		
1911-1912	89	3.0	69	25,300		
1912-1913	84	2.6	60	21,900		
1913-1914	109	4.9	113	41,300		
1914-1915	122	6.4	147	53,900		
1915-1916	103	4.4	101	37,100		
1916-1917	75	2.0	46	16,800		
1917-1918	68	1.5	34	12,600		
1918-1919	101	4.1	94	34,500		
1919-1920	55	0.9	21	7,600		
1920-1921	129	7.3	168	61,500		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	36,600	4.35	232	....
Maximum seasonal	107,000	12.70	677	1875-1876
Minimum seasonal	7,600	0.90	48	1919-1920
Mean during July	150	0.02	1	....
Maximum during July	430	0.05	3	1875-1876
Minimum during July	30	Trace	Trace	1919-1920
Mean during August	40	Trace	Trace	....
Maximum during August	110	0.01	1	1875-1876
Minimum during August	10	Trace	Trace	1919-1920

Probable run-off curve, Plate XLII. Mass curve of run-off, Plate CXXIX.
Storage development curve, Plate CLXXIV. Probable frequency of flood discharge, Plate LXXXII.

(*a*) Description of drainage basin: Tributary areas above tidewater of BOLINAS CREEK, INVERNESS CREEK and OLEMA CREEK.

(*b*) Estimated from record for other streams in vicinity.

TABLE 132. SAN DIEGO RIVER.

SEASONAL RUN-OFF DATA. Drainage area 207 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division Y.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*c*	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*d*
1871-1872	72	0.7	22	7,700	January, 38.6%	
1872-1873	65	0.5	16	5,500	February, 18.1%	
1873-1874	170	11.1	346	123,000	March, 16.7%	
1874-1875	58	0.3	9	3,300	April, 10.2%	
1875-1876	102	2.2	69	24,300	May, 7.5%	
1876-1877	46	0.1	3	1,100	June, 2.4%	
1877-1878	129	4.9	153	54,200	July, 0.9%	
1878-1879	56	0.3	9	3,300	August, 0.5%	
1879-1880	112	3.0	94	33,200	September, 0.4%	
1880-1881	81	1.0	31	11,000	October, 0.7%	
1881-1882	82	1.1	34	12,200	November, 1.1%	
1882-1883	83	1.2	37	13,300	December, 2.9%	
1883-1884	225	21.0	655	232,000		
1884-1885	78	0.9	28	9,900		
1885-1886	150	7.8	243	86,200		
1886-1887	70	0.7	22	7,700		
1887-1888	110	2.8	87	30,900		
1888-1889	129	4.9	153	54,200		
1889-1890	153	8.3	258	91,700		
1890-1891	130	5.0	156	55,200		
1891-1892	111	2.9	90	32,000		
1892-1893	98	2.0	62	22,100		
1893-1894	67	0.6	19	6,600		
1894-1895	130	5.0	156	55,200		
1895-1896	60	0.4	12	4,400		
1896-1897	117	3.5	109	38,700		
1897-1898	64	0.5	16	5,500		
1898-1899	54	0.2	6	2,200		
1899-1900	72	0.7	22	7,700		
1900-1901	96	1.9	59	21,000		
1901-1902	79	1.0	31	11,000		
1902-1903	110	2.8	87	30,900		
1903-1904	51	0.2	6	2,200		
1904-1905	143	6.8	211	75,100		
1905-1906	147	7.3	228	80,600		
1906-1907	115	4.5	140	49,200		*b*48,200
1907-1908	84	1.3	41	13,800		13,800
1908-1909	111	4.0	125	44,100		44,100
1909-1910	98	2.1	66	23,000		23,000
1910-1911	98	1.4	44	15,500		15,500
1911-1912	92	1.4	44	15,800		15 800
1912-1913	66	0.5	16	5,000		5,000
1913-1914	103	1.3	41	14,600		14,600
1914-1915	148	5.0	156	55,400		55,400
1915-1916	151	18.1	563	200,600		200,600
1916-1917	97	1.9	59	21,000		
1917-1918	86	1.3	41	14,400		
1918-1919	77	0.9	28	9,900		
1919-1920	105	2.5	78	27,600		
1920-1921	69	0.6	19	6,600		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	35,400	3.21	171	....
Maximum seasonal	232,000	21.02	1,121	1883-1884
Minimum seasonal	1,100	0.10	5	1876-1877
Mean during July	320	0.03	2	....
Maximum during July	2,100	0.20	10	1883-1884
Minimum during July	10	Trace	Trace	1876-1877
Mean during August	180	0.02	1	....
Maximum during August	14.50	0.13	7	1908-1909
Minimum during August	6	Trace	Trace	1876-1877

Probable run-off curve, Plate XLII. Mass curve of run-off, Plate CXXX.
Storage development curve, Plate CLXXIV. Probable frequency of flood discharge, Plate LXXXII.

(*a*) Description of drainage basin: Tributary area above gage at Lakeside, one mile above mouth of San Vicente Creek.

(*b*) Partial record, January 1 to September 30.

(*c*) Monthly percentage of mean seasonal discharge is taken from records for Santa Ysabel Creek, as it is not practicable to correct for storage in Cuyamaca reservoir because of stream bed losses between reservoir and diverting dam.

(*d*) Point of measurement: Gage at Lakeside, one mile above mouth of San Vicente Creek, plus the Cuyamaca flume at Los Coches measuring flume, drainage area 207 square miles.

No adjustment has been made for storage for reason stated above, nor for irrigation from wells above Lakeside.

TABLE 133. SANTA YSABEL CREEK.

SEASONAL RUN-OFF DATA. Drainage area 126 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division Y.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	72	1.2	24	7,900	January, 38.6%
1872-1873	65	0.8	16	5,300	February, 18.1%
1873-1874	170	16.0	325	107,200	March, 16.7%
1874-1875	58	0.6	12	4,000	April, 10.2%
1875-1876	102	3.5	71	23,400	May, 7.5%
1876-1877	46	0.2	4	1,300	June, 2.4%
1877-1878	129	7.6	154	50,800	July, 0.9%
1878-1879	56	0.5	10	3,300	August, 0.5%
1879-1880	112	5.0	102	33,600	September, 0.4%
1880-1881	81	1.6	33	10,900	October, 0.7%
1881-1882	82	1.7	35	11,600	November, 1.1%
1882-1883	83	1.8	37	12,200	December, 2.9%
1883-1884	225	29.9	607	200,300	
1884-1885	78	1.5	31	10,200	
1885-1886	150	11.5	234	77,200	
1886-1887	70	1.0	20	6,600	
1887-1888	110	4.7	95	31,300	
1888-1889	129	7.6	154	50,800	
1889-1890	153	12.3	250	82,500	
1890-1891	130	7.8	159	52,500	
1891-1892	111	4.8	98	32,300	
1892-1893	98	3.2	65	21,400	
1893-1894	67	0.9	18	5,900	
1894-1895	130	7.8	159	52,500	
1895-1896	60	0.6	12	4,000	
1896-1897	117	5.7	116	38,300	
1897-1898	64	0.7	14	4,600	
1898-1899	54	0.4	8	2,600	Measured
1899-1900	72	1.2	24	7,900	seasonal
1900-1901	96	3.0	61	20,100	discharge
1901-1902	79	1.5	31	10,200	in acre-feet at
1902-1903	110	4.7	95	31,300	U.S.G.S.
1903-1904	51	0.3	6	2,000	gaging station.
1904-1905	143	10.2	207	68,300	
1905-1906	147	9.4	191	63,300	*b*, *d*61,700
1906-1907	115	5.3	108	35,700	*d*35,700
1907-1908	84	1.7	35	11,200	*d*11,200
1908-1909	111	7.0	142	47,100	*d*47,100
1909-1910	98	5.1	104	33,900	*d*33,900
1910-1911	98	3.2	65	21,400	*c*, *d*2,900
1911-1912	92	2.4	49	16,300	*d*16,300
1912-1913	66	1.0	20	6,600	*e*5,800
1913-1914	103	3.4	69	22,800	*e*19,800
1914-1915	148	8.9	181	59,500	*e*49,800
1915-1916	151	25.6	520	172,000	*e*149,400
1916-1917	97	4.2	85	28,000	*e*24,300
1917-1918	86	2.1	43	14,300	*e*12,400
1918-1919	77	1.0	20	6,800	*e*5,900
1919-1920	105	3.3	67	22,300	*e*19,300
1920-1921	69	0.7	14	4,600	*e*4,000

SUMMARY OF ESTIMATED RUN-OFF.

	Acre feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	33,000	4.92	262	....
Maximum seasonal	200,300	29.86	1,590	1883-1884
Minimum seasonal	1,300	0.19	10	1876-1877
Mean during July	300	0.04	2	....
Maximum during July	1,800	0.30	14	1883-1884
Minimum during July	10	Trace	Trace	1918-1919
Mean during August	170	0.03	1	....
Maximum during August	1,000	0.15	8	1883-1884
Minimum during August	0	0.00	0	1920-1921

Probable run-off curve, Plate XLIII. Mass curve of run-off, Plate CXXX.
Storage development curve, Plate CLXXV. Probable frequency of flood discharge, Plate LXXXIII.
(*a*) Description of drainage basin: Tributary area above gage at Escondido in S. W. ¼, Sec. 31, T. 12 S., R. 1. E.
(*b*) Partial record, January 1 to September 30.
(*c*) Partial record, October 1 to December 31 and April 11 to September 30.
(*d*) Point of measurement: At Escondido, drainage area 126 square miles.
(*e*) Point of measurement: At Ramona, drainage area 109 square miles.

TABLE 134. SAN LUIS REY RIVER.

SEASONAL RUN-OFF DATA. Drainage area 325 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division Y.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*g*
1871-1872	72	1.0	29	17,300	January, 33.9%
1872-1873	65	0.8	23	13,900	February, 16.6%
1873-1874	170	11.2	327	194,100	March, 24.3%
1874-1875	58	0.6	18	10,400	April, 9.7%
1875-1876	102	2.5	73	43,300	May, 6.9%
1876-1877	46	0.2	6	3,500	June, 2.4%
1877-1878	129	5.3	155	91,900	July, 1.0%
1878-1879	56	0.5	15	8,700	August, 0.8%
1879-1880	112	3.4	99	58,900	September, 0.2%
1880-1881	81	1.4	41	24,300	October, 0.7%
1881-1882	82	1.4	41	24,300	November, 0.9%
1882-1883	83	1.5	44	26,000	December, 2.6%
1883-1884	225	22.0	642	381,300	
1884-1885	78	1.3	38	22,500	
1885-1886	150	8.2	239	142,100	
1886-1887	70	1.0	29	15,600	
1887-1888	110	3.2	93	55,500	
1888-1889	129	5.3	155	91,900	
1889-1890	153	8.5	248	147,300	
1890-1891	130	5.4	158	93,600	
1891-1892	111	3.2	93	55,500	
1892-1893	98	2.3	67	39,900	
1893-1894	67	0.8	23	13,900	
1894-1895	130	5.4	158	93,600	
1895-1896	60	0.6	18	10,400	
1896-1897	117	4.0	117	69,300	Measured
1897-1898	64	0.7	20	12,000	seasonal
1898-1899	54	0.5	15	9,000	discharge
1899-1900	72	1.0	29	17,300	in acre-feet at
1900-1901	96	2.1	61	36,400	U.S.G.S.
1901-1902	79	1.3	38	22,500	gaging station.
1902-1903	110	3.2	93	55,500	
1903-1904	51	0.4	12	*g*8,600	*b*, *d*1,700
1904-1905	143	2.7	79	*g*46,400	*b*42,000
1905-1906	147	6.4	187	*g*110,600	*b*107,700
1906-1907	115	5.0	146	*g*86,200	*b*83,000
1907-1908	84	1.7	50	*g*29,300	*b*24,900
1908-1909	111	3.1	91	*g*53,700	*b*48,600
1909-1910	98	2.9	85	*g*50,200	*b*, *e*46,100
1910-1911	98	2.3	67	*g*39,900	*b*, *f*31,000
1911-1912	92	1.2	35	*g*20,700	*c*12,000
1912-1913	66	0.6	18	*g*10,800	*b*5,900
1913-1914	103	2.2	64	*g*38,000	*b*29,900
1914-1915	148	6.0	175	*g*104,200	*b*94,400
1915-1916	151	17.8	520	*g*308,800	*c*182,100
1916-1917	97	2.9	85	*g*51,000	*c*29,500
1917-1918	86	2.4	70	*g*42,800	*c*24,400
1918-1919	77	0.8	23	*g*14,000	*c*7,300
1919-1920	105	2.4	70	*g*41,300	*c*23,400
1920-1921	69	0.6	18	*g*10,600	*c*5,100

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	59,400	3.42	183	....
Maximum seasonal	381,300	22.00	1,173	1883-1884
Minimum seasonal	3,500	0.20	11	1876-1877
Mean during July	600	0.03	2	....
Maximum during July	3,800	0.22	12	1883-1884
Minimum during July	35	Trace	Trace	1876-1877
Mean during August	500	0.03	2	....
Maximum during August	3,100	0.18	10	1883-1884
Minimum during August	32	Trace	Trace	1876-1877

Probable run-off curve, Plate XLIII. Mass curve of run-off, Plate CXXXI.
Storage development curve, Plate CLXXV. Probable frequency of flood discharge, Plate LXXXIII.

(*a*) Description of drainage basin: Tributary area above gage, in N. W. ¼ of Sec. 31, T. 9 S., R. 1 W., 4 miles southeast of Pala.

(*b*) Point of measurement: Gage near Pala, drainage area 325 square miles.

(*c*) Point of measurement: Gage near Mesa Grande, one mile below mouth of Carrizo Creek, drainage area 211 square miles.

(*d*) Partial record, October 8 to September 30.

(*e*) Partial record, October 1 to June 30.

(*f*) Partial record, January 1 to June 30.

(*g*) Measured run-off adjusted for diversions above point of measurement by Escondido Mutual Water Co. as follows: 1903-1904, 3,435 acre feet; 1905-1906, 1,922 acre-feet; 1906-1907, 2,247 acre-feet; 1907-1908, 3,408 acre-feet; 1908-1909, 4,173 acre-feet; 1909-1910, 2,999 acre-feet; 1910-1911, 3,968 acre-feet; 1912-1913, 2,960 acre-feet; 1913-1914, 5,932 acre-feet; 1914-1915, 7 277 acre-feet; also for irrigation on the following areas: 1903-1904 through 1909-1910, 1,100 acres; 1910-1911, 1,390 acres; 1912-1913, 1,917 acres; 1913-1914, 2,260 acres; 1914-1915, 2,550 acres.

TABLE 135. SANTA MARGARITA RIVER.

SEASONAL RUN-OFF DATA. Drainage area 690 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division Y.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	72	0.2	23	7,400	January, 33.9%
1872-1873	65	0.2	23	7,400	February, 16.6%
1873-1874	170	2.9	334	106,700	March, 24.3%
1874-1875	58	0.1	12	3,700	April, 9.7%
1875-1876	102	0.7	81	25,700	May, 6.9%
1876-1877	46	T	2	700	June, 2.4%
1877-1878	129	1.4	161	51,500	July, 1.0%
1878-1879	56	T	2	700	August, 0.8%
1879-1880	112	1.0	115	36,800	September, 0.2%
1880-1881	81	0.4	46	14,700	October, 0.7%
1881-1882	82	0.4	46	14,700	November, 0.9%
1882-1883	83	0.4	46	14,700	December, 2.6%
1883-1884	225	4.6	531	169,200	
1884-1885	78	0.3	34	11,000	
1885-1886	150	2.1	242	77,200	
1886-1887	70	0.2	23	7,400	
1887-1888	110	0.9	104	33,100	
1888-1889	129	1.4	161	51,500	
1889-1890	153	2.2	254	80,900	
1890-1891	130	1.4	162	51,500	
1891-1892	111	1.0	115	36,800	
1892-1893	98	0.7	81	25,700	
1893-1894	67	0.2	23	7,400	
1894-1895	130	1.4	162	51,500	
1895-1896	60	0.1	12	3,700	
1896-1897	117	1.1	127	40,500	
1897-1898	64	0.2	23	7,400	
1898-1899	54	T	2	700	
1899-1900	72	0.2	23	7,400	
1900-1901	96	0.7	80	25,700	
1901-1902	79	0.3	34	11,000	
1902-1903	110	0.9	104	33,100	
1903-1904	51	T	2	700	
1904-1905	143	1.8	208	66,200	
1905-1906	147	1.9	219	69,900	
1906-1907	115	1.0	115	36,800	
1907-1908	84	0.4	46	14,700	
1908-1909	111	1.0	115	36,800	
1909-1910	98	0.7	81	25,700	
1910-1911	98	0.7	81	25,700	
1911-1912	92	0.6	69	22,100	
1912-1913	66	0.2	23	7,400	
1913-1914	103	0.8	92	29,400	
1914-1915	148	2.0	231	73,600	
1915-1916	151	2.1	242	77,200	
1916-1917	97	0.7	81	25,700	
1917-1918	86	0.5	58	18,400	
1918-1919	77	0.3	34	11,000	
1919-1920	105	0.8	92	29,400	
1920-1921	69	0.2	23	7,400	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	31,900	0.87	46	....
Maximum seasonal	169,200	4.60	245	1883-1884
Minimum seasonal	700	0.02	1	1876-1877
Mean during July	320	0.01	Trace	....
Maximum during July	1,690	0.05	2	1883-1884
Minimum during July	10	0.00	0	1876-1877
Mean during August	260	0.01	Trace	....
Maximum during August	1,350	0.04	2	1883-1884
Minimum during August	10	0.00	0	1876-1877

Probable run-off curve, Plate XLIII. Mass curve of run-off, Plate CXXXII.
Storage development curve, Plate CLXXV. Probable frequency of flood discharge, Plate LXXXIII.
(*a*) Description of drainage basin: Tributary area above a point one mile below mouth of Deluz Creek.
(*b*) From record for San Luis Rey River.

TABLE 136. SAN JACINTO RIVER TRIBUTARIES.

SEASONAL RUN-OFF DATA. Drainage area 330 square miles.

Season. (Begins October 1.)	Index of seasonal wetness. Division X.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by Lake Hemet Water Company record.*d*
1871-1872	56	0.8	29	14,100	January, 9.6%
1872-1873	94	2.2	80	38,700	February, 17.5%
1873-1874	148	4.9	178	86,200	March, 22.0%
1874-1875	84	1.8	65	31,700	April, 16.2%
1875-1876	123	3.6	130	63,400	May, 14.5%
1876-1877	59	1.0	36	17,600	June, 6.0%
1877-1878	137	4.2	152	73,900	July, 2.5%
1878-1879	52	0.7	25	12,300	August, 2.1%
1879-1880	117	3.2	116	56,300	September, 1.6%
1880-1881	73	1.3	47	22,900	October, 1.9%
1881-1882	63	1.1	40	19,400	November, 2.2%
1882-1883	54	0.8	29	14,100	December, 3.9%
1883-1884	*e*229	8.2	297	144,300	
1884-1885	68	1.2	43	21,100	
1885-1886	120	3.4	123	59,800	
1886-1887	74	1.4	51	24,600	
1887-1888	127	3.7	134	65,100	Measured seasonal discharge in acre-feet at Lake Hemet Water Company gaging stations.
1888-1889	128	3.8	138	66,900	
1889-1890	164	5.8	210	102,100	
1890-1891	117	3.2	116	56,300	
1891-1892	78	1.6	58	28,200	
1892-1893	117	3.2	116	56,300	
1893-1894	58	0.9	33	15,800	
1894-1895	138	4.3	156	75,700	
1895-1896	58	0.9	33	15,800	*a*2,400
1896-1897	116	3.2	116	56,300	*a*6,100
1897-1898	56	0.8	29	14,100	*a*2,400
1898-1899	47	0.6	22	10,600	*a*1,800
1899-1900	58	0.9	33	15,800	*a*2,100
1900-1901	102	2.5	90	44,000	*a*4,700
1901-1902	69	1.2	43	21,100	*a*2,900
1902-1903	116	3.2	116	56,300	*a*5,000
1903-1904	61	1.0	36	17,600	*a*2,200
1904-1905	140	4.5	163	79,200	*a*6,400
1905-1906	135	4.2	152	73,900	*a*18,000
1906-1907	138	4.3	156	75,700	*a*10,900
1907-1908	88	1.9	69	33,400	*a*4,100
1908-1909	117	2.9	105	51,000	*b*25,300
1909-1910	97	2.1	76	37,000	*b*20,300
1910-1911	105	2.5	90	44,000	*b*23,100
1911-1912	81	1.9	69	33,400	*b*20,900
1912-1913	61	1.3	47	22,900	*b*14,800
1913-1914	141	4.1	149	72,200	*b*36,600
1914-1915	136	5.2	188	91,500	*b*54,600
1915-1916	146	12.4	449	218,200	*b*161,600
1916-1917	91	2.2	80	38,700	*c*13,000
1917-1918	86	1.3	47	22,900	*c*6,200
1918-1919	73	1.4	51	24,600	*c*7,700
1919-1920	111	3.0	109	52,800	*c*15,700
1920-1921	93	2.2	80	38,700	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet	Depth in inches	Acre-feet per square mile.	Season.
Mean seasonal	48,600	2.76	147.0	....
Maximum seasonal	218,200	12.41	661.0	1915-1916
Minimum seasonal	10,600	0.60	32.0	1898-1899
Mean during July	1,200	.07	4.0	....
Maximum during July	5,500	.31	17.0	1915-1916
Minimum during July	300	.02	0.9	1898-1899
Mean during August	1,000	.06	3.0	....
Maximum during August	4,600	.26	14.0	1915-1916
Minimum during August	200	.01	0.6	1898-1899

Probable run-off curve, Plate XLIII. Mass curve of run-off, Plate CXXXI.
Storage development curve, Plate CLXXV. Probable frequency of flood discharge, Plate LXXXIII.
Partial run-off curves, Plate XLIII-A.

Description of drainage basin: Tributary areas above designated points and points of intersection of streams with latitude lines as follows: SAN JACINTO RIVER, 141 square miles, ¾ mile below mouth of North Fork. INDIAN CREEK, 23.6 square miles, latitude 33° 45.4′. POPPET CREEK, 15.6 square miles, latitude 33° 46.9′. POTRERO CREEK, 30.9 square miles, latitude 33° 50.8′. BAUTISTE CREEK, 58.1 square miles, latitude 33° 42.2′. CACTUS VALLEY CREEK, 29.7 square miles, latitude 33° 40.2′. UNNAMED area south and west of Beaumont, 31.1 square miles.

(*a*) Record for inflow into Lake Hemet, 67.3 square miles.
(*b*) Record for Lake Hemet, Strawberry Creek, North Fork, 122.1 square miles.
(*c*) Record for Lake Hemet and Strawberry Creek, 95.1 square miles.
(*d*) Year 1915-1916 not used in computing mean monthly percentage of seasonal run-off.
(*e*) An index of 200 was used to compute run-off.

Gages of Lake Hemet Water Company: Lake Hemet weir near Lake Hemet Dam; Strawberry Creek, near mouth; North Fork, S. W. ¼ Sec. 17, T. 5 S., R. 2 E., S. B. M.

TABLE 137. SANTA ANA RIVER TRIBUTARIES.

SEASONAL RUN-OFF DATA. Drainage area 460 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division X.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)s	Distribution of seasonal run-off by months as shown by U.S.G.S. records.c
1871-1872	56	3.8	37	93,100	January, 17.2%
1872-1873	94	8.9	86	218,100	February, 18.5%
1873-1874	148	18.4	178	450,900	March, 29.8%
1874-1875	84	7.5	72	183,800	April, 13.4%
1875-1876	123	13.8	133	338,200	May, 7.3%
1876-1877	59	4.2	41	102,900	June, 3.4%
1877-1878	137	16.2	157	397,000	July, 1.7%
1878-1879	52	3.3	32	80,900	August, 1.1%
1879-1880	117	12.6	122	308,800	September, 0.8%
1880-1881	73	5.8	56	142,100	October, 1.1%
1881-1882	63	4.6	44	112,700	November, 1.3%
1882-1883	54	3.6	35	88,200	December, 4.4%
1883-1884	229	29.4	284	720,500	
1884-1885	68	5.3	51	129,900	
1885-1886	120	13.1	127	321,000	
1886-1887	74	6.0	58	147,000	
1887-1888	127	14.5	140	355,300	
1888-1889	128	14.6	141	357,800	Measured seasonal discharge in acre-feet at U.S.G.S. gaging stations.s,b
1889-1890	164	21.6	209	529,300	
1890-1891	117	12.6	122	308,800	
1891-1892	78	6.6	64	161,700	
1892-1893	117	12.6	122	308,800	
1893-1894	58	4.0	39	98,000	
1894-1895	138	16.6	161	406,800	
1895-1896	58	4.0	39	98,000	e13,200
1896-1897	116	10.8	104	264,700	d63,000
1897-1898	56	4.3	42	105,400	d32,600
1898-1899	47	2.7	26	66,200	e4,200
1899-1900	58	3.6	35	88,200	f16,500
1900-1901	102	9.1	88	223,000	f, i48,900
1901-1902	69	4.1	43	107,800	h25,300
1902-1903	116	11.5	111	281,800	d, i66,500
1903-1904	61	4.5	44	110,300	g, k45,700
1904-1905	140	8.1	78	198,500	d, i, j104,500
1905-1906	135	14.7	142	360,200	g, j188,000
1906-1907	138	20.0	193	490,100	g, j233,700
1907-1908	88	9.8	95	240,200	g, j117,700
1908-1909	117	11.2	108	274,500	g, i147,700
1909-1910	97	10.1	98	247,500	d, i, j127,200
1910-1911	105	13.6	132	333,300	g, j158,600
1911-1912	81	7.8	75	191,200	g, l, n.99,900
1912-1913	61	4.9	47	120,100	g, j, n70,500
1913-1914	141	15.6	151	382,300	g, i, p166,000
1914-1915	136	15.5	150	379,900	g, o191,100
1915-1916	146	23.9	231	585,700	r297,700
1916-1917	91	9.7	94	237,700	d, i, o117,200
1917-1918	86	11.2	108	274,500	g, o148,700
1918-1919	73	5.8	56	142,100	g57,100
1919-1920	111	11.7	113	286,700	g, m93,500
1920-1921	93	8.9	86	218,100	g, q70,900

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.*
Mean seasonal	253,400	10.34	551	
Maximum seasonal	720,500	29.40	1,568	1883-1884
Minimum seasonal	66,200	2.70	144	1898-1899
Mean during July	4,300	0.18	9	
Maximum during July	12,200	0.50	27	1883-1884
Minimum during July	1,100	0.01	2	1898-1899
Mean during August	2,800	0.11	6	
Maximum during August	7,900	0.32	17	1883-1884
Minimum during August	700	0.03	2	1898-1899

Probable run-off curve, Plate XLIV.
Storage development curve, Plate CLXXVI.
Partial run-off curves, Plate XLIV-A.
Mass curve of run-off, Plate CXXXII.
Probable frequency of flood discharge, Plate LXXXIV.

(a) Description of drainage basin: Area tributary to SANTA ANA RIVER at point 3½ miles above Mentone, 199 square miles, and area tributary to following streams, at base of foothills, above elevation 2,000 feet: MILL CREEK, 43 square miles; SAND, CITY and PLUNGE CREEKS, 44 square miles; WATERMAN CANYON, 5 square miles; DEVIL CANYON CREEK, 6 square miles; CAJON CANYON, including LONE PINE CANYON, 60 square miles; LYTLE CREEK, 47 square miles; SAN ANTONIO CREEK, 27 square miles; CUCAMONGA CANYON, 20 square miles; STRAWBERRY CREEK, 9 square miles.

(b) Points of measurement: Santa Ana River and canals near Mentone, prior to October 1, 1914, 189 square miles; since October 1, 1914, 199 square miles; Mill Creek at Forest Home, 14 miles east of Redlands, 20.7 square miles; Waterman Canyon near San Bernardino, 5.6 square miles; Devil Creek near San Bernardino, 16.8 square miles; Lytle Creek near San Bernardino, 16.8 square miles; San Antonio Creek near Upland, 26.5 square miles, and near Claremont, 1918 to 1921, 25.5 square miles.

(c) Estimated from records for San Gabriel and Mojave Rivers. (d) Santa Ana Rivers and canals. (e) Partial record on Santa Ana River and canals. (f) Santa Ana River. (g) Santa Ana River and canals and San Antonio Creek. (h) San Antonio Creek and partial record on Santa Ana River and canals. (i) Partial record on San Antonio Creek. (j) Partial record on Mill and Lytle Creeks. (k) Partial record on Mill Creek. (l) Mill Creek and partial record on Lytle Creek. (m) Partial record on Waterman and Devil Canyons. (n) Waterman Canyon. (o) Mill and Lytle Creeks. (p) Lytle Creek and Waterman Canyon. (q) Waterman and Devil Canyons. (r) Lytle Creek and partial record on Santa Ana River and canals, San Antonio Creek and Mill Creek. (s) Measured run-off for Santa Ana River adjusted for storage regulation in Bear Valley reservoir, 40,000 acre-feet capacity.

TABLE 138. SAN GABRIEL RIVER TRIBUTARIES.

SEASONAL RUN-OFF DATA. Drainage area 280 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division W.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	69	3.5	35	52,400	January, 15.6%
1872-1873	72	3.7	37	55,400	February, 17.1%
1873-1874	134	16.3	162	242,900	March, 27.6%
1874-1875	79	4.7	47	70,500	April. 13.6%
1875-1876	117	12.0	119	179,600	May, 8.4%
1876-1877	44	1.1	11	16,000	June, 4.7%
1877-1878	140	18.0	178	267,900	July, 2.8%
1878-1879	75	4.2	42	62,500	August, 1.8%
1879-1880	134	16.3	162	242,900	September, 1.4%
1880-1881	86	5.8	58	87,200	October, 1.8%
1881-1882	68	3.4	34	50,900	November, 2.0%
1882-1883	80	4.8	48	72,000	December, 3.2%
1883-1884	*f*251	37.1	368	553,400	
1884-1885	61	2.5	25	36,600	
1885-1886	147	19.8	197	295,500	
1886-1887	92	6.8	68	102,100	Measured seasonal discharge in acre-feet at U.S.G.S. gaging stations.
1887-1888	91	6.7	67	99,400	
1888-1889	127	14.4	143	214,100	
1889-1890	*f*229	37.1	368	553,400	
1890-1891	88	6.3	63	93,700	
1891-1892	77	4.4	44	66,400	
1892-1893	154	21.9	217	327,300	
1893-1894	52	1.7	17	25,000	*b*, *g*5,800
1894-1895	116	11.9	118	177,000	*b*, *h*5,200
1895-1896	53	2.0	20	30,000	*b*27,100
1896-1897	102	7.0	70	105,100	*b*90,900
1897-1898	49	1.7	17	24,900	*b*23,000
1898-1899	40	0.6	6	9,700	*b*9,600
1899-1900	58	0.9	9	13,700	*b*12,100
1900-1901	111	7.4	74	110,700	*b*96,200
1901-1902	63	1.8	18	27,500	*b*23,800
1902-1903	110	8.2	82	122,100	*b*106,100
1903-1904	56	2.2	22	32,100	*b*28,700
1904-1905	123	12.3	122	183,400	*b*160,400
1905-1906	125	17.8	177	265,100	*b*231,900
1906-1907	139	26.7	264	398,800	*b*350,200
1907-1908	78	6.1	61	90,800	*b*77,500
1908-1909	128	13.8	137	206,100	*b*180,400
1909-1910	87	10.9	108	161,800	*b*139,100
1910-1911	113	21.0	207	313,800	*b*272,900
1911-1912	75	6.1	61	90,300	*b*77,100
1912-1913	74	3.9	39	58,600	*b*50,300
1913-1914	156	22.4	221	334,600	*b*295,600
1914-1915	110	10.2	101	151,900	*b*131,900
1915-1916	129	21.3	211	318,800	*b*278,800
1916-1917	94	7.6	76	113,200	*c*96,800
1917-1918	83	10.0	100	149,300	*d*144,100
1918-1919	61	2.9	29	43,600	*e*42,800
1919-1920	99	8.5	85	126,200	*e*124,300
1920-1921	101	5.5	55	82,600	*e*80,500

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	150,200	10.07	536	....
Maximum seasonal	553,400	37.11	1,976	1883-1884
Minimum seasonal	9,700	0.65	35	1898-1899
Mean during July	4,200	0.28	15	....
Maximum during July	15,500	1.00	55	1883-1884
Minimum during July	230	0.02	1	1898-1899
Mean during August	2,700	0.18	10	....
Maximum during August	10,000	0.67	36	1883-1884
Minimum during August	250	0.01	1	1899-1900

Probable run-off curve, Plate XLIV. Mass curve of run-off, Plate CXXXIII.
Storage development curve, Plate CLXXVI. Probable frequency of flood discharge, Plate LXXXIV.

(*a*) Description of drainage basin: Tributary area above base of foothills on the following streams: SAN GABRIEL RIVER, 222 square miles; EATON CREEK, 6.1 square miles; LITTLE SANTA ANITA CREEK, 2 square miles; SANTA ANITA CREEK, 10.4 square miles; SAWPIT CREEK, 5.3 square miles; FISH CREEK, 6.4 square miles; SAN DIMAS CREEK, 17.4 square miles; BIG DALTON and LITTLE DALTON CREEKS, 10 square miles.

(*b*) Record for San Gabriel River and canals near Azusa, 222 square miles.

(*c*) Record for San Gabriel River and canals near Azusa, Santa Anita Creek and Little Santa Anita Creek near Sierra Madre, 234 square miles.

(*d*) Record for San Gabriel River and canals near Azusa, Santa Anita Creek and Little Santa Anita Creek near Sierra Madre, Sawpit Creek and Monrovia pipe line near Monrovia, Fish Creek near Duarte, San Dimas Creek near San Dimas, 264 square miles.

(*e*) Same as (*c*), plus record for Eaton Creek near Pasadena, 270 square miles.

(*f*) Index of 200 used in computing run-off. (*g*) Partial record, May 1 to September 30.

(*h*) Partial record, October 1 to November 15 and August 8 to September 30.

TABLE 139. LOS ANGELES RIVER TRIBUTARIES.

SEASONAL RUN-OFF DATA. Drainage area 167 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division W.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*c*
1871-1872	69	2.3	29	20,490	January, 12.3%
1872-1873	72	2.5	31	22,200	February, 27.4%
1873-1874	134	14.8	185	131,000	March, 31.3%
1874-1875	79	3.5	44	31,100	April, 8.9%
1875-1876	117	10.4	130	92,500	May, 7.4%
1876-1877	44	0.3	4	2,700	June, 2.9%
1877-1878	140	16.4	205	145,000	July, 0.8%
1878-1879	75	3.0	38	26,600	August, 0.4%
1879-1880	134	14.8	185	131,000	September, 0.5%
1880-1881	86	4.5	56	39,900	October, 1.2%
1881-1882	68	2.2	28	19,500	November, 1.7%
1882-1883	80	3.6	45	32,000	December, 5.2%
1883-1884	*b*251	34.5	432	307,000	
1884-1885	61	1.4	18	12,400	
1885-1886	147	18.3	229	162,000	
1886-1887	92	5.5	69	48,900	
1887-1888	91	5.3	66	47,100	
1888-1889	127	12.8	160	114,000	
1889-1890	*b*229	34.5	432	307,000	
1890-1891	88	5.0	63	44,500	
1891-1892	77	3.2	40	28,500	
1892-1893	154	20.5	256	182,000	
1893-1894	52	0.7	9	6,200	
1894-1895	116	10.2	128	90,800	
1895-1896	53	0.8	10	7,100	
1896-1897	102	7.3	91	64,900	
1897-1898	49	0.5	6	4,400	
1898-1899	40	0.0	0	0	
1899-1900	58	1.2	15	10,700	
1900-1901	111	9.0	113	80,100	
1901-1902	63	1.5	19	13,300	
1902-1903	110	9.0	113	80,100	
1903-1904	56	1.0	13	8,900	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.
1904-1905	123	12.0	150	107,000	
1905-1906	125	12.4	155	110,000	
1906-1907	139	16.2	202	144,000	
1907-1908	78	3.4	43	30,300	
1908-1909	128	13.3	166	118,000	
1909-1910	87	4 7	59	41,800	
1910-1911	113	9.6	120	85,400	*d*2,900
1911-1912	75	3.0	38	26,700	*e*1,400
1912-1913	74	2.8	35	24,900	*f*1.000
1913-1914	156	22.8	285	202,000	*g*33 000
1914-1915	110	9.1	114	80,900	*g*8,600
1915-1916	129	13.5	169	120,000	*h*1,500
1916-1917	94	3.9	49	34,700	*i*28,600
1917-1918	83	4.1	51	36,300	*j*32,600
1918-1919	61	1.1	14	9,600	*j*8,400
1919-1920	99	4.0	50	35,800	*j*30,100
1920-1921	101	3.0	38	26,900	*i*20,900

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	71,000	7.87	426	....
Maximum seasonal	307,000	34.50	1,841	1883-1884,1889-1890
Minimum seasonal	0	0.00	0	1898-1899
Mean during July	600	0.07	4	....
Maximum during July	2,500	0.28	15	1883-1884,1889-1890
Minimum during July	0	0.00	0	1898-1899
Mean during August	300	0.03	2	....
Maximum during August	1,200	0.13	7	1883-1884,1889-1890
Minimum during August	0	0.00	0	1898-1899

Probable run-off curve, Plate XLIV. Mass curve of run-off, Plate CXXXIII.

Storage development curve, Plate CLXXVI. Probable frequency of flood discharge, Plate LXXXIV.

(*a*) Description of drainage basin: Tributary area above designated points on the following streams: PACOIMA CREEK, 600 feet above mouth of canyon (near San Fernando), drainage area 28 square miles; TUJUNGA CREEK, 2 miles above mouth of canyon (near Sunland), drainago area 107 square miles; ARROYO SECO, 1.5 miles above mouth of Millard Canyon (near Pasadena), drainage area 16 square miles; LITTLE TUJUNGA CANYON, at base of foothills, drainage area 16 square miles.

(*b*) Index of 200 used to estimate run-off.

(*c*) Estimated from seven years' record on Arroyo Seco and five years' record on Tujunga Creek.

(*d*) Partial record on Arroyo Seco, December 1 to 13 and April 1 to September 30.

(*e*) Partial record on Arroyo Seco, October 1 to December 31, and May 25 to September 24.

(*f*) Partial record on Arroyo Seco, October 1 to January 18 and April 1 to September 30.

(*g*) Complete record on Arroyo Seco.

(*h*) Partial record on Arroyo Seco, October 1 to November 30, and April 1 to September 30.

(i) Complete record on Arroyo Seco; partial record on Pacoima Creek, December 2 to July 31; and partial record on Tujunga Creek, October 28 to September 30.

(*j*) Complete record on Arroyo Seco, Pacoima and Tujunga Creeks.

TABLE 140. MALIBU RIVER GROUP.

SEASONAL RUN-OFF DATA. Drainage area 379 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division U.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*g*
1871-1872	79	1.0	37	20,200	January, 15.6%
1872-1873	56	0.2	7	4,000	February, 17.1%
1873-1874	84	1.3	48	26,300	March, 27.6%
1874-1875	96	2.0	74	40,400	April, 13.6%
1875-1876	125	4.0	148	80,900	May, 8.4%
1876-1877	27	0.0	0	0	June, 4.7%
1877-1878	116	3.3	122	66,700	July, 2.8%
1878-1879	63	0.4	15	8,100	August, 1.8%
1879-1880	128	4.3	159	86,900	September, 1.4%
1880-1881	73	0.8	30	16,200	October, 1.8%
1881-1882	76	0.9	33	18,200	November, 2.0%
1882-1883	69	0.6	22	12,100	December, 3.2%
1883-1884	*h*214	11.4	422	230,500	
1884-1885	58	0.2	7	4,000	
1885-1886	141	5.4	200	109,200	
1886-1887	83	1.2	44	24,300	
1887-1888	118	3.5	130	70,800	
1888-1889	118	3.5	130	70,800	
1889-1890	166	7.8	289	157,700	
1890-1891	99	2.2	81	44,500	
1891-1892	70	0.6	22	12,100	
1892-1893	139	5.3	196	107,200	
1893-1894	41	0.0	0	0	
1894-1895	99	2.2	81	44,500	
1895-1896	65	0.4	15	8,100	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*f*
1896-1897	107	2.6	96	52,600	
1897-1898	38	0.0	0	0	
1898-1899	51	0.1	4	2,000	
1899-1900	58	0.2	7	4,000	
1900-1901	86	1.4	52	28,300	
1901-1902	83	1.2	44	24,300	
1902-1903	114	2.5	96	53,000	*b*12,500
1903-1904	61	0.4	15	8,800	*c*1,800
1904-1905	148	6.9	256	138,600	*d*34,600
1905-1906	124	3.5	129	70,500	17,500
1906-1907	160	7.2	266	145,600	*e*1,800
1907-1908	97	2.0	74	40,400	
1908-1909	158	7.1	263	143,600	
1909-1910	102	2.3	85	46,500	
1910-1911	154	6.6	244	133,500	
1911-1912	79	1.0	37	20,200	
1912-1913	78	1.0	37	20,200	
1913-1914	163	7.6	280	153,700	
1914-1915	128	4.3	159	86,900	
1915-1916	136	5.0	185	101,100	
1916-1917	111	2.9	107	58,600	
1917-1918	117	3.3	122	66,700	
1918-1919	75	0.8	30	16,200	
1919-1920	80	1.1	41	22,200	
1920-1921	89	1.6	59	32,400	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	54,700	2.79	144	
Maximum seasonal	230,500	11.40	608	1883-1884
Minimum seasonal	0	0.00	0	1876-1877, 1893-1894, 1897-1898
Mean during July	1,500	0.07	4	
Maximum during July	6,500	0.30	17	1883-1884
Minimum during July	0	0.00	0	1876-1877, 1893-1894, 1897-1898
Mean during August	1,000	0.05	3	
Maximum during August	4,100	0.20	11	1883-1884
Minimum during August	0	0.00	0	1876-1877, 1893-1894, 1897-1898

Probable run-off curve, Plate XLIV. Mass curve of run-off, Plate CXXXIV.
Storage development curve, Plate CLXXVI. Probable frequency of flood discharge, Plate LXXXIV.

(*a*) Description of drainage basin: Tributary area of following streams, above points indicated: DUME CREEK, 2 miles from mouth; RAMERA CREEK, 1½ miles from mouth; SOLSTICE CREEK, 1 mile from mouth; CALLEGUAS CREEK, above 1,000 foot contour; SYCAMORE CREEK, 1 mile from mouth; ARROYO SEQUIT, 1 mile from mouth; TRANCOS CANYON, 1 mile from mouth; MALIBU RIVER, at tidewater; TOPANGA CREEK, at tidewater; RUSTIC CREEK, at tidewater.

(*b*) Partial record, January 1 to July 31. (*c*) Partial record, November 1 to June 30.
(*d*) Partial record, October 15 to September 30. (*e*) Partial record, October 1 to December 1.
(*f*) Point of measurement: Malibu Creek near Calabasas, drainage area 94 square miles.
(*g*) Estimated from record for San Gabriel River and canals near Azusa.
(*h*) Index of 200 was used in computing run-off.

TABLE 141. SANTA CLARA RIVER TRIBUTARIES.

SEASONAL RUN-OFF DATA. Drainage area 911 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division U.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*d*
1871-1872	79	2.4	52	116,600	January, 15.6%
1872-1873	56	0.7	15	34,000	February, 17.1%
1873-1874	84	2.8	61	136,000	March, 27.6%
1874-1875	96	3.8	83	184,600	April, 13.6%
1875-1876	125	6.7	146	325,500	May, 8.4%
1876-1877	27	0.0	0	0	June, 4.7%
1877-1878	116	5.7	125	276,900	July, 2.8%
1878-1879	63	1.2	26	58,300	August, 1.8%
1879-1880	128	7.0	153	340,000	September, 1.4%
1880-1881	73	1.9	42	92,300	October, 1.8%
1881-1882	76	2.1	46	102,000	November, 2.0%
1882-1883	69	1.5	33	72,900	December, 3.2%
1883-1884	*c*214	15.5	339	752,900	
1884-1885	58	0.8	17	38,900	
1885-1886	141	8.4	184	408,000	
1886-1887	83	2.7	59	131,200	
1887-1888	118	6.0	131	291,500	
1888-1889	118	6.0	131	291,500	
1889-1890	166	11.2	245	544,100	
1890-1891	99	4.0	88	194,300	
1891-1892	70	1.7	37	82,600	
1892-1893	139	8.2	179	398,300	
1893-1894	41	0.0	0	0	
1894-1895	99	4.0	88	194,300	
1895-1896	65	1.3	28	63,100	
1896-1897	107	4.8	105	233,200	
1897-1898	38	0.0	0	0	
1898-1899	51	0.3	7	14,600	
1899-1900	58	0.8	17	38,900	
1900-1901	86	3.0	66	145,700	
1901-1902	83	2.7	59	131,200	
1902-1903	114	5.5	120	267,200	
1903-1904	61	1.0	22	48,600	
1904-1905	148	9.3	203	451,800	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1905-1906	124	6.5	142	315,700	
1906-1907	160	10.5	230	510,000	
1907-1908	97	3.8	83	184,600	
1908-1909	158	10.3	225	500,300	
1909-1910	102	4.3	94	208,900	
1910-1911	154	9.8	214	476,000	
1911-1912	79	2.4	52	116,600	*e*79,400
1912-1913	78	3.7	81	177,400	*f*144,800
1913-1914	163	10.9	238	529,500	....
1914-1915	128	7.0	153	340,000	....
1915-1916	136	7.8	171	378,900	*g*125,700
1916-1917	111	5.3	116	257,500	*g*51,000
1917-1918	117	5.8	127	281,700	*h*128,400
1918-1919	75	2.0	44	97,200	....
1919-1920	80	2.4	53	116,600	*i*30,200
1920-1921	89	3.2	70	155,400	*g*24,200

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	222,100	4.57	244	....
Maximum seasonal	752,900	15.50	826	1883-1884
Minimum seasonal	0	0.00	0	1897-1898
Mean during July	6,200	0.13	7	....
Maximum during July	21,100	0.43	23	1883-1884
Minimum during July	0	0.00	0	1897-1898
Mean during August	4,000	0.08	4	....
Maximum during August	13,600	0.28	15	1883-1884
Minimum during August	0	0.00	0	1897-1898

Probable run-off curve, Plate XLV. Mass curve of run-off, Plate CXXXIV.
Storage development curve, Plate CLXXVII. Probable frequency of flood discharge, Plate LXXXV.

(*a*) Description of drainage area: Tributary area above designated points: SANTA PAULA CREEK, 1.5 miles above junction with Santa Clara River, drainage area 36 square miles; SESPE CREEK at Sespe, drainage area 256 square miles; PIRU CREEK, 2 miles above junction with Santa Clara River, drainage area 421 square miles; CASTAIC CREEK, at elevation 1,600 feet; SAN FRANCISQUITO CREEK, at elevation 1,500 feet; BOUQUET CREEK, at elevation 1,750 feet, total drainage area 198 square miles.

(*b*) Points of measurement: Piru Creek near Pine, drainage area 421 square miles; Sespe Creek near Sespe, drainage area 205 square miles; Sespe Creek at Sespe, drainage area 256 square miles; Santa Paula Creek near Santa Paula, drainage area 36 square miles.

(*c*) Index of 200 used for estimating run-off.

(*d*) Estimated from record for San Gabriel River.

(*e*) Complete record on Sespe Creek at Sespe; partial record on Piru Creek, January 1 to September 30; partial record on Santa Paula Creek, March 24 to September 30.

(*f*) Complete record on Sespe Creek at Sespe, Pine Creek and Santa Paula Creek.

(*g*) Complete record on Sespe Creek near Sespe.

(*h*) Partial record on Sespe Creek near Sespe, October 1 to 14, January 25 to August 3, and September 1 to 30.

(*i*) Partial record on Sespe Creek near Sespe, November 1 to September 30.

TABLE 142. VENTURA RIVER.

SEASONAL RUN-OFF DATA. Drainage area 226 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division U.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*e*
1871-1872	79	2.5	46	30,200	January, 15.6%
1872-1873	56	1.1	20	13,300	February, 17.1%
1873-1874	84	2.9	53	35,000	March, 27.6%
1874-1875	96	4.1	75	49,500	April, 13.6%
1875-1876	125	7.7	140	92,900	May, 8.4%
1876-1877	27	0.0	0	0	June, 4.7%
1877-1878	116	6.4	117	77,200	July, 2.8%
1878-1879	63	1.4	26	16,900	August, 1.8%
1879-1880	128	8.2	149	98,900	September, 1.4%
1880-1881	73	2.1	38	25,300	October, 1.8%
1881-1882	76	2.3	42	27,700	November, 2.0%
1882-1883	69	1.8	33	21,700	December, 3.2%
1883-1884	*c*214	22.3	406	269,000	
1884-1885	58	1.2	22	14,500	
1885-1886	141	10.2	186	123,100	
1886-1887	83	2.8	51	33,800	
1887-1888	118	6.7	122	80,800	
1888-1889	118	6.7	122	80,800	
1889-1890	166	14.8	270	178,500	
1890-1891	99	4.4	80	53,100	
1891-1892	70	1.8	33	21,700	
1892-1893	139	9.9	180	119,400	
1893-1894	41	0.6	11	7,200	
1894-1895	99	4.4	80	53,100	
1895-1896	65	1.6	29	19,300	
1896-1897	107	5.2	95	62,700	
1897-1898	38	0.5	9	6,000	
1898-1899	51	0.8	15	9,700	
1899-1900	58	1.2	22	14,500	
1900-1901	86	3.1	57	37,400	
1901-1902	83	2.8	51	33,800	
1902-1903	114	6.2	113	74,800	
1903-1904	61	1.3	24	15,700	
1904-1905	148	11.4	208	137,500	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*d*
1905-1906	124	7.5	137	90,500	
1906-1907	160	13.7	250	165,300	
1907-1908	97	4.2	77	50,700	
1908-1909	158	13.3	242	160,500	
1909-1910	102	4.7	86	56,700	
1910-1911	154	12.4	226	149,600	
1911-1912	79	2.4	44	29,000	20,600
1912-1913	78	3.2	58	38,600	28,000
1913-1914	163	14.3	261	172,500	*b*2,700
1914-1915	128	8.2	149	98,900	
1915-1916	136	9.3	170	112,200	
1916-1917	111	5.8	106	70,000	
1917-1918	117	6.6	120	79,600	
1918-1919	75	2.2	40	26,500	
1919-1920	80	2.6	47	31,400	
1920-1921	89	3.4	62	41,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	66,200	5.48	293	
Maximum seasonal	269,000	22.30	1,189	1883-1884
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	1,900	0.16	8	
Maximum during July	7,500	0.62	33	1883-1884
Minimum during July	0	0.00	0	1876-1877
Mean during August	1,200	0.10	5	
Maximum during August	4,800	0.40	21	1883-1884
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XLV. Mass curve of run-off, Plate CXXXV.
Storage development curve, Plate CLXXVII. Probable frequency of flood discharge, Plate LXXXV.

(*a*) Description of drainage basin: Tributary area above mouth, at Ventura.
(*b*) Partial record, October 1 to January 17.
(*c*) Index of 200 used in computing run-off.
(*d*) Point of measurement: Gage at highway bridge ¼ mile below mouth of Coyote Creek, drainage area 189 square miles.
(*e*) Estimated from record for San Gabriel River.

TABLE 143. JALAMA CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 242 square miles.*a*

Season (Begins October 1.)	Index of seasonal wetness. Division U.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*c*
1871-1872	79	1.4	38	18,100	January, 15.0%
1872-1873	56	0.0	0	0	February, 32.4%
1873-1874	84	1.7	46	21,900	March, 36.4%
1874-1875	96	2.7	73	34,800	April, 7.7%
1875-1876	125	5.6	150	72,300	May, 3.4%
1876-1877	27	0.0	0	0	June, 1.3%
1877-1878	116	4.6	124	59,400	July, 0.3%
1878-1879	63	0.5	13	6,500	August, 0.2%
1879-1880	128	6.0	161	77,400	September, 0.1%
1880-1881	73	1.1	30	14,200	October, 0.3%
1881-1882	76	1.2	32	15,500	November, 0.6%
1882-1883	69	0.8	22	10,300	December, 2.3%
1883-1884	*b*214	15.7	422	202,600	
1884-1885	58	0.3	8	3,900	
1885-1886	141	7.5	202	96,800	
1886-1887	83	1.7	46	21,900	
1887-1888	118	4.8	129	61,900	
1888-1889	118	4.8	129	61,900	
1889-1890	166	10.7	288	138,100	
1890-1891	99	2.9	78	37,400	
1891-1892	70	0.9	24	11,600	
1892-1893	139	7.3	196	94,200	
1893-1894	41	0.0	0	0	
1894-1895	99	2.9	78	37,400	
1895-1896	65	0.6	16	7,700	
1896-1897	107	3.7	99	47,700	
1897-1898	38	0.0	0	0	
1898-1899	51	0.0	0	0	
1899-1900	58	0.3	8	3,900	
1900-1901	86	1.8	48	23,200	
1901-1902	83	1.7	46	21,900	
1902-1903	114	4.4	118	56,800	
1903-1904	61	0.4	11	5,200	
1904-1905	148	8.4	226	108,400	
1905-1906	124	5.5	148	71,000	
1906-1907	160	9.9	266	127,800	
1907-1908	97	2.7	73	34,800	
1908-1909	158	9.8	263	126,500	
1909-1910	102	3.2	86	41,300	
1910-1911	154	9.1	245	117,400	
1911-1912	79	1.4	38	18,100	
1912-1913	78	1.3	35	16,800	
1913-1914	163	10.3	277	133,000	
1914-1915	128	6.0	161	77,400	
1915-1916	136	6.9	185	89,000	
1916-1917	111	4.1	110	52,900	
1917-1918	117	4.7	126	60,700	
1918-1919	75	1.2	32	15,500	
1919-1920	80	1.4	38	18,100	
1920-1921	89	2.1	56	27,100	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	48,000	3.72	198	
Maximum seasonal	202,600	15.70	837	1883-1884
Minimum seasonal	0	0.00	0	1872-1873, 1876-1877, 1893-1894, 1897-1898, 1898-1899
Mean during July	140	0.01	1	
Maximum during July	610	0.05	3	1883-1884
Minimum during July	0	0.00	0	1872-1873, 1876-1877, 1893-1894, 1897-1898, 1898-1899
Mean during August	100	0.01	T	
Maximum during August	410	0.03	2	1883-1884
Minimum during August	0	0.00	0	1872-1873, 1876-1877, 1893-1894, 1897-1898, 1898-1899

Probable run-off curve, Plate XLV. Mass curve of run-off, Plate CXXXV.
Storage development curve, Plate CLXXVII. Probable frequency of flood discharge, Plate LXXXV.

(*a*) Description of drainage basin: Areas tributary to following streams above base of foothills: RINCON CREEK, JALAMA CREEK, HONDA CREEK and SAN ANTONIO CREEK

(*b*) Index of 200 used.

(*c*) Estimated from records for Santa Ynez River.

TABLE 144. SANTA YNEZ RIVER.

SEASONAL RUN-OFF DATA. Drainage area 797 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division U.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet.*f*	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	79	1.3	27	55,300	January, 20.7%
1872-1873	56	0.4	8	17,000	February, 34.0%
1873-1874	84	1.9	39	80,800	March, 27.1%
1874-1875	96	3.1	64	131,800	April, 6.6%
1875-1876	125	7.2	149	306,100	May, 4.0%
1876-1877	27	Trace	0	Trace	June, 1.8%
1877-1878	116	5.7	118	242,300	July, 1.1%
1878-1879	63	0.6	12	25,500	August, 0.7%
1879-1880	128	7.7	159	327,400	September, 0.6%
1880-1881	73	1.1	23	46,800	October, 0.8%
1881-1882	76	1.3	27	55,300	November, 0.9%
1882-1883	69	0.9	19	38,300	December, 1.7%
1883-1884	214	23.7	491	1,007,700	
1884-1885	58	0.4	8	17,000	
1885-1886	141	9.8	203	416,700	
1886-1887	83	1.8	37	76,500	
1887-1888	118	6.1	126	259,400	
1888-1889	118	6.1	126	259,400	
1889-1890	166	14.3	296	608,000	
1890-1891	99	3.5	72	148,800	
1891-1892	70	1.0	21	42,500	
1892-1893	139	9.5	197	403,900	
1893-1894	41	0.1	2	4,300	
1894-1895	99	3.5	72	148,800	
1895-1896	65	0.7	14	29,800	
1896-1897	107	4.6	95	195,600	
1897-1898	38	Trace	0	Trace	
1898-1899	51	0.2	4	8,500	
1899-1900	58	0.4	8	17,000	Measured
1900-1901	86	2.1	43	89,300	seasonal
1901-1902	83	1.8	37	76,500	discharge
1902-1903	114	5.4	112	229,600	in acre-feet at
1903-1904	61	0.5	10	21,300	U.S.G.S.
1904-1905	148	11.0	228	467,700	gaging station.*e*
1905-1906	124	7.0	145	297,600	
1906-1907	160	13.2	273	561 200	*b*17,400
1907-1908	97	6.0	124	255,100	239,100
1908-1909	158	12.9	267	548,500	*c*4,600
1909-1910	102	2 6	54	110,500	*d*101,600
1910-1911	154	13.4	277	569,700	533,500
1911-1912	79	1.3	27	55,300	50,400
1912-1913	78	1.2	25	51,000	47,400
1913-1914	163	13.6	281	578,200	545,800
1914-1915	128	9.9	205	420,900	395,300
1915-1916	136	6.4	133	272,100	257,700
1916-1917	111	3.4	70	144,600	137,300
1917-1918	117	8.0	166	340,100	320,400
1918-1919	75	1.2	25	51,000	
1919-1920	80	1.5	31	63,800	
1920-1921	89	2.4	50	102,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	205,500	4.83	258	
Maximum seasonal	1,007,700	23.70	1,264	1883 1884
Minimum seasonal	0	0.00	0	1876-1877,1897-1898
Mean during July	2,300	0.05	3	
Maximum during July	11,100	0.26	14	1883-1884
Minimum during July	0	0.00	0	1876-1877,1897-1898
Mean during August	1,400	0.03	2	
Maximum during August	7,100	0.17	9	1883-1884
Minimum during August	0	0.00	0	1876-1877,1897-1898

Probable run-off curve, Plate XLV. Mass curve of run-off, Plate CXXXVI.
Storage development curve, Plate CLXXVII. Probable frequency of flood discharge, Plate LXXXV.

(*a*) Description of drainage basin: Tributary area above tidewater, excluding 114 square miles of agricultural land; total area, 911 square miles; net area, 797 square miles.

(*b*) Partial record, November 10 to January 7.

(*c*) Partial record, October 1 to December 31.

(*d*) Partial record, January 1 to September 30.

(*e*) Point of measurement at highway bridge, 1.5 miles east of Lompoc, drainage area 750 square miles.

(*f*) Measured run-off adjusted for additional area.

TABLE 145. SAN ANTONIO CREEK.

SEASONAL RUN-OFF DATA. Drainage area 138 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division U.	Depth of run-off in inches	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	79	0.7	23	5,200	January, 24.6%
1872-1873	56	0.1	3	700	February, 35.4%
1873-1874	84	1.0	33	7,400	March, 21.7%
1874-1875	96	1.7	56	12,500	April, 6.2%
1875-1876	125	4.5	147	33,200	May, 3.3%
1876-1877	27	Trace	0	Trace	June, 1.8%
1877-1878	116	3.5	114	25,800	July, 1.2%
1878-1879	63	0.2	7	1,500	August, 0.9%
1879-1880	128	4.8	156	35,400	September, 0.8%
1880-1881	73	0.4	13	2,900	October, 1.0%
1881-1882	76	0.5	16	3,700	November, 1.0%
1882-1883	69	0.3	10	2,200	December, 2.1%
1883-1884	214	18.5	602	136,400	
1884-1885	58	0.1	3	700	
1885-1886	141	6.5	212	47,900	
1886-1887	83	0.8	26	5,900	
1887-1888	118	3.8	124	28,000	
1888-1889	118	3.8	124	28,000	
1889-1890	166	10.2	332	75,200	
1890-1891	99	2.0	65	14,700	
1891-1892	70	0.3	10	2,200	
1892-1893	139	6.3	205	46,500	
1893-1894	41	Trace	0	Trace	
1894-1895	99	1.9	62	14,000	
1895-1896	65	0.2	7	1,500	
1896-1897	107	2.7	88	19,900	
1897-1898	38	Trace	0	Trace	
1898-1899	51	0.0	0	0	
1899-1900	58	0.1	3	700	
1900-1901	86	1.1	36	8,100	
1901-1902	83	0.8	26	5,900	
1902-1903	114	3.3	107	24,300	
1903-1904	61	0.1	3	700	
1904-1905	148	7.5	244	55,300	
1905-1906	124	4.4	143	32,400	
1906-1907	160	9.3	303	68,600	
1907-1908	97	1.7	55	12,500	
1908-1909	158	9.0	293	66,400	
1909-1910	102	2.2	72	16,200	
1910-1911	154	8.3	270	61,200	
1911-1912	79	0.7	23	5,200	
1912-1913	78	0.6	19	4,400	
1913-1914	163	9.7	316	71,500	
1914-1915	128	4.8	156	35,400	
1915-1916	136	5.8	189	42,800	
1916-1917	111	3.1	101	22,900	
1917-1918	117	3.7	121	27,300	
1918-1919	75	0.5	16	3,700	
1919-1920	80	0.7	23	5,200	
1920-1921	89	1.3	43	9,600	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	22,600	3.06	163	
Maximum seasonal	136,400	18.50	987	1883-1884
Minimum seasonal	0	0.00	0	1876-1877, 1893-1894, 1897-1898, 1898-1899
Mean during July	270	0.04	2	
Maximum during July	1,600	0.22	12	1883-1884
Minimum during July	0	0.00	0	1876-1877, 1893-1894, 1897-1898, 1898-1899
Mean during August	200	0.03	1	
Maximum during August	1,200	0.17	9	1883-1884
Minimum during August	0	0.00	0	1876-1877, 1893-1894, 1897-1898, 1898-1899

Probable run-off curve, Plate XLVI.
Mass curve of run-off, Plate CXXXVII.
Storage development curve, Plate CLXXVIII.
Probable frequency of flood discharge, Plate LXXXVI.

(*a*) Description of drainage basin: Tributary area above mouth.
(*b*) Estimated from record for Santa Ynez River near Lompoc.

TABLE 146. SANTA MARIA RIVER.

SEASONAL RUN-OFF DATA. Drainage area 1,634 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division T.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.[d]
1871-1872	125	3.6	151	313,700	January, 21.4%
1872-1873	59	0.2	8	17,400	February, 30.3%
1873-1874	95	1.3	55	113,300	March, 28.3%
1874-1875	79	0.5	21	43,600	April, 7.9%
1875-1876	147	5.9	248	514,100	May, 3.8%
1876-1877	35	Trace	0	Trace	June, 1.7%
1877-1878	138	4.9	206	427,000	July, 0.8%
1878-1879	51	0.1	4	8,700	August, 0.5%
1879-1880	106	2.1	88	183,000	September, 0.4%
1880-1881	97	1.4	59	122,000	October, 0.6%
1881-1882	87	1.0	42	87,100	November, 0.9%
1882-1883	85	0.8	34	69,700	December, 3.4%
1883-1884	178	9.5	400	827,900	
1884-1885	72	0.4	17	34,900	
1885-1886	150	6.2	261	540,300	
1886-1887	72	0.4	17	34,900	
1887-1888	88	1.0	42	87,100	
1888-1889	113	2.6	109	226,600	
1889-1890	192	11.4	479	993,400	
1890-1891	89	1.0	42	87,100	
1891-1892	72	0.4	17	34,900	
1892-1893	128	4.0	168	348,600	
1893-1894	45	0.1	4	8,700	
1894-1895	110	2.4	101	209,100	
1895-1896	90	1.0	42	87,100	
1896-1897	99	1.6	67	139,400	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.[e]
1897-1898	34	Trace	0	Trace	
1898-1899	71	0.4	17	34,900	
1899-1900	73	0.4	17	34,900	
1900-1901	142	5.3	223	461,900	
1901-1902	89	1.0	42	87,100	
1902-1903	78	0.5	21	43,600	
1903-1904	73	0.4	17	34,900	[b]3,400
1904-1905	130	4.7	172	357,000	67,900
1905-1906	113	2.6	109	226,600	[c]1,600
1906-1907	147	5.9	248	514,100	
1907-1908	93	1.3	55	113,300	
1908-1909	144	5.6	236	488,000	
1909-1910	101	1.7	71	148,100	
1910-1911	152	6.4	269	557,700	
1911-1912	77	0.5	21	43,600	
1912-1913	46	0.1	4	8,700	
1913-1914	140	5.1	215	444,400	
1914-1915	147	5.9	248	514,100	
1915-1916	118	3.0	126	261,400	
1916-1917	108	2.2	93	191,700	
1917-1918	84	0.8	34	69,700	
1918-1919	82	0.7	29	61,000	
1919-1920	71	0.4	17	34,900	
1921-1921	85	0.8	34	69,700	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	207,200	2.38	127	....
Maximum seasonal	993,400	11.40	608	1889-1890
Minimum seasonal	0	0.00	0	1876-1877, 1897-1898
Mean during July	1,700	0.02	1	....
Maximum during July	7,900	0.09	5	1889-1890
Minimum during July	0	0.00	0	1897-1898
Mean during August	1,000	0.01	1	....
Maximum during August	5,000	0.06	3	1889-1890
Minimum during August	0	0.00	0	1897-1898

Probable run-off curve, Plate XLVI. Mass curve of run-off, Plate CXXXVI.
Storage development curve, Plate CLXXVIII. Probable frequency of flood discharge, Plate LXXXVI.

(a) Description of drainage basin: Tributary area above junction of Cuyama and Sisquoc Rivers.
(b) Partial record, October 22 to June 30.
(c) Partial record, October 1 to December 31.
(d) Estimated from records for Santa Ynez River and Arroyo Seco.
(e) Point of measurement: At Dutard's Ranch, 21 miles northeast of Santa Maria, in S. W. ¼ of S. E. ¼ of Sec. 13, T. 11 N., R. 32 W., drainage area 890 square miles.

TABLE 147. SAN LUIS OBISPO CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 1,019 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division T.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*	
1871-1872	125	6.0	146	326,000	January,	24.5%
1872-1873	59	0.6	15	32,600	February,	23.1%
1873-1874	95	3.0	73	163,000	March,	26.8%
1874-1875	79	1.8	44	97,800	April,	9.9%
1875-1876	147	8.7	212	472,600	May,	4.7%
1876-1877	35	Trace	0	Trace	June,	2.1%
1877-1878	138	7.7	188	418,300	July,	0.8%
1878-1879	51	0.3	7	16,300	August,	0.3%
1879-1880	106	4.0	98	217,300	September,	0.3%
1880-1881	97	3.2	78	173,800	October,	0.6%
1881-1882	87	2.3	56	125,000	November,	1.2%
1882-1883	85	2.2	54	119.500	December,	5.7%
1883-1884	178	13.7	334	744,300		
1884-1885	72	1.3	32	70,600		
1885-1886	150	9.3	227	505,200		
1886-1887	72	1.3	32	70,600		
1887-1888	88	2.4	59	130,400		
1888-1889	113	4.8	117	260 800		
1889-1890	192	15.7	383	852,900		
1890-1891	89	2.5	61	135,800		
1891-1892	72	1.3	32	70,600		
1892-1893	128	6.3	154	342,300		
1893-1894	45	Trace	0	Trace		
1894-1895	110	4.4	107	239,000		
1895-1896	90	2.6	63	141,200		
1896-1897	99	3.3	80	179,300		
1897-1898	34	Trace	0	Trace		
1898-1899	71	1.3	32	70,600		
1899-1900	73	1.4	34	76,100		
1900-1901	142	8.1	198	440,000		
1901-1902	89	2.5	61	135,800		
1902-1903	78	1.8	44	97,800		
1903-1904	73	1.4	34	76,000		
1904-1905	130	6.6	161	358,600		
1905-1906	113	4.8	117	260,800		
1906-1907	147	8.7	212	472,600		
1907-1908	93	2.8	68	152,100		
1908-1909	144	8.4	205	456,300		
1909-1910	101	3.5	85	190,100		
1910-1911	152	9.5	232	516,100		
1911-1912	77	1.7	41	92,400		
1912-1913	46	0.1	2	5,400		
1913-1914	140	7.9	193	429,200		
1914-1915	147	8.7	212	472,600		
1915-1916	118	5.3	129	288,000		
1916-1917	108	4.2	102	228,200		
1917-1918	84	2.1	51	114,100		
1918-1919	82	2.0	49	108,700		
1919-1920	71	1.3	32	70,600		
1920-1921	85	2.2	54	119.500		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	222,700	4 10	219	
Maximum seasonal	852,900	15 70	837	1889-1890
Minimum seasonal	0	0.00	0	1876-1877 1893-1894 1897-1898
Mean during July	1,800	0 03	2	
Maximum during July	6,800	0.13	7	1889-1890
Minimum during July	0	0.00	0	1876-1877 1893-1894 1897-1898
Mean during August	700	0 01	1	
Maximum during August	2,600	0 05	3	1889-1890
Minimum during August	0	0.00	0	1876-1877 1893-1894 1897-1898

Probable run-off curve, Plate XLVI. Mass curve of run-off, Plate CXXXVII.
Storage development curve, Plate CLXXVIII. Probable frequency of flood discharge, Plate LXXXVI.

(*a*) Description of drainage basin: Tributary area, above agricultural area where such exists, otherwise above tidewater, of the following streams and intervening watersheds: GRANDE CREEK, SAN LUIS OBISPO CREEK, DIABLO CREEK, COON CREEK, ISLAY CREEK, SAN BERNARDO CREEK, MORRO CREEK, TORO CREEK, VILLA CREEK, SANTA ROSA CREEK, SAN SIMEON CREEK, ARROYO DE LA CRUZ, SAN CARPAJO RIVER, BIG SUR CREEK, LITTLE SUR CREEK, CARMEL RIVER, CORRAL DE PIEDRA CREEK, BRIZZIOLARI CREEK, STEINER CREEK, PENNINGTON CREEK, SAN LUISITO CREEK, DAVIS CANYON, WILD CHERRY CANYON, DIABLO CANYON, HARFORD CANYON, CROWBAR CANYON, PECHO CREEK, WILLOW CREEK, OLD CREEK, CUYACOS CREEK, PICO CREEK, LITTLE PICO CREEK, SIERRA CREEK, ARROYO HONDO, ARROYO DE LOS CHINOS, JOSHUA CREEK, SALMON CREEK, VILLA CREEK, ALDER CREEK, WILLOW CREEK, PREWILLITT CREEK, WILD CATTLE CREEK, MILL CREEK, PALO COLORADO CANYON, DOUD CREEK, WILDCAT CREEK, GRANITE CANYON, MAL PASO CREEK, SOBERANES CREEK.

(*b*) Estimated from record for Arroyo Seco at Soledad.

TABLE 148. SALINAS RIVER TRIBUTARIES.

SEASONAL RUN-OFF DATA. Drainage area 4,042 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division T.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*d*
1871-1872	125	6.7	149	1,440,000	January, 24.5%
1872-1873	59	0.6	13	129,000	February, 23.1%
1873-1874	95	3.0	67	646,000	March, 26.8%
1874-1875	79	1.7	37	366,000	April, 9.9%
1875-1876	147	10.0	222	2,150,000	May, 4.7%
1876-1877	35	0.1	2	21,500	June, 2.1%
1877-1878	138	8.7	193	1,870,000	July, 0.8%
1878-1879	51	0.3	6	64,600	August, 0.3%
1879-1880	106	4.3	96	926,000	September 0.3%
1880-1881	97	3.3	74	711,000	October, 0.6%
1881-1882	87	2.4	52	517,000	November, 1.2%
1882-1883	85	2.2	47	474,000	December, 5.7%
1883-1884	178	15.2	338	3,275,000	
1884-1885	72	1.2	26	259,000	
1885-1886	150	10.5	233	2,260,000	
1886-1887	72	1.2	26	259,000	
1887-1888	88	2.4	54	517,000	
1888-1889	113	5.3	117	1,140,000	
1889-1890	192	17.5	389	3,770,000	
1890-1891	89	2.5	56	538,000	
1891-1892	72	1.2	26	259,000	
1892-1893	128	7.2	161	1,550,000	
1893-1894	45	0.2	4	43,100	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*c*
1894-1895	110	4.8	108	1,030,000	
1895-1896	90	2.6	58	560,000	
1896-1897	99	3.5	78	754,000	
1897-1898	34	0.1	2	21,500	
1898-1899	71	1.2	26	259,000	
1899-1900	73	1.3	28	280,000	
1900-1901	142	9.2	205	1,980,000	*b*145,100
1901-1902	89	2.5	56	539,000	100,500
1902-1903	78	1.8	41	388,000	104,900
1903-1904	73	1.3	28	280,000	59,000
1904-1905	130	7.0	157	1,508,000	117,400
1905-1906	113	5.3	120	1,140,000	205,200
1906-1907	147	10.2	226	2,198,000	306,100
1907-1908	93	2.7	60	581,700	68,600
1908-1909	144	9.4	208	2,025,000	237,700
1909-1910	101	3.5	80	754,000	84,500
1910-1911	152	10.8	239	2,327,000	291,400
1911-1912	77	1.4	33	301,600	36,900
1912-1913	46	0.2	4	43,100	14,400
1913-1914	140	9.0	200	1,939,000	261,200
1914-1915	147	9.7	250	2,089,000	209,000
1915-1916	118	6.2	139	1,336,000	257,200
1916-1917	108	4.7	107	1,010,000	181,500
1917-1918	84	2.1	46	452,000	75,800
1918-1919	82	1.9	41	409,000	68,500
1919-1920	71	1.2	26	259,000	53,000
1920-1921	85	2.1	46	452,000	83,900

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	961,900	4.46	238.0	....
Maximum seasonal	3,770,000	17.49	933.0	1889-1890
Minimum seasonal	21,500	0.10	5.3	1876-1877
Mean during July	7,700	0.04	1.9	....
Maximum during July	30,200	0.14	7.5	1889-1890
Minimum during July	200	Trace	Trace	1876-1877
Mean during August	2,900	0.01	0.7	....
Maximum during August	11,300	0.05	2.8	1889-1890
Minimum during August	100	Trace	Trace	1876-1877

Probable run-off curve, Plate XLVI. Mass curve of run-off, Plate CXXXVIII.
Storage development curve, Plate CLXXVIII. Probable frequency of flood discharge, Plate LXXXVI.

(*a*) Description of drainage basin: Tributary area of Salinas Valley streams, above agricultural area, as follows: Arroyo Seco, 242 square miles; San Antonio Creek, 341 square miles; Nacimiento River 375 square miles; San Lorenzo Creek, 265 square miles; Estrella Creek, 966 square miles; Salinas River, above mouth of Estrella Creek, 612 square miles; small streams from East side of valley, 821 square miles; small streams from West side of valley, 420 square miles. Streams included in the basin, above the agricultural area, are as follows: AGUA GRANDE CANYON, MONROE CANYON, THOMPSON CANYON, BRANSTETTER CANYON, PINE CANYON, CHERRY CANYON, KENT CANYON, SEVEN WELL CANYON, FELIZ CANYON, ESPINOSA CANYON, BROADHURST CANYON, BARRELL CANYON, SAN LORENZO CREEK, SWEETWATER CANYON, WILD HORSE CANYON, HAMILTON CANYON, LONG VALLEY CREEK, PINE VALLEY CREEK, REDWOOD CANYON, LYNCH CANYON, SARGENT CANYON, SALINAS RIVER (UPPER)*, TORO CREEK, PINE CANYON, LIMEKILN CREEK, ALISAL CREEK, QUAIL CREEK, PARSONS CREEK, JOHNSON CANYON, ARROYO SECO, RELIZ CREEK, SHIRTTAIL CREEK, CHALONE CREEK, SAN CARLOS CANYON.

*NOTE—Includes all tributary area above point in N. W. ¼ of Sec. 14, T. 23 S., R. 10 E. Among streams included are: San Antonio Creek, Nacimiento River, San Marcos Creek, Huerhuero Creek, Estrella Creek, Vineyard Canyon, and Stone Canyon. (*b*) Partial record, January 1 to September 30.

(*c*) Point of measurement: Arroyo Seco near Soledad, 1,000 feet below Vaquero Creek, drainage area 238 square miles

d) Estimated from record for Arroyo Seco near Soledad.

TABLE 149. PAJARO RIVER TRIBUTARIES.

SEASONAL RUN-OFF DATA. Drainage area 1,070 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness.*d*	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*c*
1871-1872	126	7.7	157	439,000	January, 26.7%
1872-1873	64	0.9	18	51,300	February, 20.4%
1873-1874	91	3.2	65	182,400	March, 31.3%
1874-1875	76	1.7	35	96,900	April, 9.2%
1875-1876	147	11.0	225	627,100	May, 3.4%
1876-1877	34	Trace	0	Trace	June, 1.6%
1877-1878	144	10.5	215	598,600	July, 0.6%
1878-1879	64	0.9	18	51,300	August, 0.3%
1879-1880	100	4.1	84	233,800	September, 0.3%
1880-1881	100	4.1	84	233,800	October, 0.4%
1881-1882	84	2.5	51	142,500	November, 0.8%
1882-1883	81	2.2	45	125,400	December, 5.0%
1883-1884	151	11.7	239	667,100	
1884-1885	68	1.2	25	68,400	
1885-1886	136	9.2	188	524,500	
1886-1887	66	1.1	22	62,700	
1887-1888	86	2.7	55	153,900	
1888-1889	97	3.7	76	210,900	
1889-1890	192	19.5	399	1,111,800	
1890-1891	86	2.7	55	153,900	
1891-1892	80	2.1	43	119,700	
1892-1893	128	8.1	166	461,800	
1893-1894	66	1.1	22	62,700	
1894-1895	124	2.5	153	427,600	
1895-1896	92	3.2	65	182,400	
1896-1897	100	4.1	84	233,800	
1897-1898	42	0.2	4	11,400	
1898-1899	78	1.9	39	108,300	
1899-1900	80	2.1	43	119,700	
1900-1901	126	7.7	157	439,000	
1901-1902	91	3.2	65	182,400	
1902-1903	84	2.5	51	142,500	
1903-1904	81	2.2	45	125,400	
1904-1905	128	8.1	166	461,800	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1905-1906	119	6.7	137	382,000	
1906-1907	155	12.5	256	712,700	
1907-1908	88	2.8	57	159,600	
1908-1909	144	10.5	215	598,600	
1909-1910	102	4.4	90	250,900	
1910-1911	137	9.3	190	530,200	
1911-1912	76	1.7	35	96,900	22,400
1912-1913	48	0.3	6	17,100	9,800
1913-1914	141	10.0	205	570,100	
1914-1915	144	10.5	215	598,600	
1915-1916	120	6.9	141	393,400	
1916-1917	98	4.0	82	228,100	
1917-1918	69	1.2	25	68,400	
1918-1919	98	4.0	82	228,100	
1919-1920	74	1.6	33	91,200	
1920-1921	94	3.5	72	199,500	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	278,800	4.89	261	
Maximum seasonal	1,111,800	19.48	1,040	1889-1890
Minimum seasonal	0	0.00	0	1876-1877
Mean during July	1,700	0.03	2	
Maximum during July	6,700	0.12	6	1889-1890
Minimum during July	0	0.00	0	1876-1877
Mean during August	800	0.01	1	
Maximum during August	3,300	0.06	3	1889-1890
Minimum during August	0	0.00	0	1876-1877

Probable run-off curve, Plate XLVII. Mass curve of run-off, Plate CXXXVIII.
Storage development curve, Plate CLXXIX. Probable frequency of flood discharge, Plate LXXXVII.

(*a*) Description of drainage basin: Areas tributary to the following streams above base of foothills: PESCADERO CREEK, LA BREA CREEK, BODFISH CREEK, LITTLE ARTHUR CREEK, UVAS CREEK, LLAGAS CREEK, PACHECO CREEK, ARROYO DE LOS VIBORAS, ARROYO DOS PICHACOS, SANTA ANA CREEK, TRES PINOS CREEK, SAN BENITO CREEK*, BIRD CREEK, SAN JUAN CREEK.

*At point 5 miles north of Hollister.

(*b*) Point of measurement: Gage at Watsonville, drainage area 1,274 square miles. Records not used owing to diversions for irrigation and stream bed losses.

(*c*) Estimated from records for Salinas and Coyote Rivers

(*d*) Mean of indices for Divisions O and T.

TABLE 150. SOQUEL CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 324 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness.*c*	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet.	Distribution of seasonal run-off by months as shown.*b*	
1871-1872	128	25.0	154	432,100	January,	38.1%
1872-1873	73	7.6	47	131,300	February,	30.5%
1873-1874	88	11.5	71	198,800	March,	13.2%
1874-1875	63	5.4	33	93,300	April,	4.4%
1875-1876	138	29.0	179	501,200	May,	2.3%
1876-1877	32	0.6	4	10,400	June,	1.5%
1877-1878	138	29.0	179	501,200	July,	0.9%
1878-1879	93	13.0	80	224,700	August,	0.7%
1879-1880	93	13.0	80	224,700	September,	0.6%
1880-1881	93	13.0	80	224,700	October,	1.2%
1881-1882	84	10.4	64	179,700	November,	1.3%
1882-1883	86	10.8	67	186,700	December	5.3%
1883-1884	141	30.0	185	518,500		
1884-1885	85	10.6	66	183,200		
1885-1886	123	23.0	142	397,500		
1886-1887	69	6.6	41	114,100		
1887-1888	85	10.6	66	183,200		
1888-1889	87	11.0	68	190,100		
1889-1890	197	53.0	327	916,000		
1890-1891	90	12.0	74	207,400		
1891-1892	88	11.5	71	198,800		
1892-1893	137	28.4	175	490,800		
1893-1894	86	10.8	67	186,700		
1894-1895	137	28.4	175	490,800		
1895-1896	95	13.5	83	233,300		
1896-1897	103	16.0	99	276,500		
1897-1898	50	3.0	19	51,800		
1898-1899	87	11.0	68	190,100		
1899-1900	86	10.8	67	186,700		
1900-1901	113	19.3	119	333,600		
1901-1902	94	13.3	82	229,900		
1902-1903	93	13.0	80	224,700		
1903-1904	93	13.0	80	224,700		
1904-1905	120	21.6	133	373,300		
1905-1906	123	23.0	142	397,500		
1906-1907	150	33.8	209	584,200		
1907-1908	78	8.9	55	153,800		
1908-1909	139	29.4	182	508,100		
1909-1910	93	13.0	80	224,700		
1910-1911	127	24.2	149	418,200		
1911-1912	70	6.8	42	117,500		
1912-1913	47	2.5	15	43,200		
1913-1914	133	26.9	166	464,900		
1914-1915	134	27.2	168	470,000		
1915-1916	113	19.3	119	333,600		
1916-1917	85	10.6	66	183,200		
1917-1918	53	3.5	22	60,500		
1918-1919	112	18.8	116	324,900		
1919-1920	71	7.0	43	121,000		
1920-1921	104	16.3	101	281,700		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	279,900	16.20	864	....
Maximum seasonal	916,000	53.00	2,827	1889-1890
Minimum seasonal	10,400	0.60	32	1876-1877
Mean during July	2,500	0.14	8	....
Maximum during July	8,200	0.47	25	1889-1890
Minimum during July	90	Trace	Trace	1876-1877
Mean during August	2,000	0.12	6	....
Maximum during August	6,400	0.37	20	1889-1890
Minimum during August	70	Trace	Trace	1876-1877

Probable run-off curve, Plate XLVII. Mass curve of run-off, Plate CXXXIX.
Storage development curve, Plate CLXXIX. Probable frequency of flood discharge, Plate LXXXVII.

(*a*) Description of drainage basin: Area tributary to following streams, above tidewater: SAN VICENTE CREEK, LIDDELL CREEK, RESPINI CREEK, LAGUNA CREEK, COJA CREEK, BALDWIN CREEK, MEDER CREEK, ARROYO DE LOS FRIJOLES, WHITE HOUSE CREEK, CASCADE CREEK, GREEN OAKS CREEK, ANO NUEVO CREEK, FINNY CREEK, GAZOS GREEK, WADDELL CREEK, SCOTT CREEK SAN LORENZO CREEK, SOQUEL CREEK, APTOS CREEK.

(*b*) Estimated from record for other streams in vicinity.

(*c*) Mean of indices of Divisions N and O.

TABLE 151. PESCADERO CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 222 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Divison L.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by records.*b*
1871-1872	130	25.5	160	302,500	January, 38.1%
1872-1873	79	8.9	56	105,600	February, 30.5%
1873-1874	86	10.6	66	125,700	March, 13.2%
1874-1875	69	6.6	41	78,300	April, 4.4%
1875-1876	131	25.7	161	304,800	May, 2.3%
1876-1877	43	1.9	12	22,500	June, 1.5%
1877-1878	129	25.1	157	297,700	July, 0.9%
1878-1879	79	9.0	56	106,700	August, 0.7%
1879-1880	99	14.6	91	173,200	September, 0.6%
1880-1881	107	17.1	107	202,800	October, 1.2%
1881-1882	69	6.6	41	78,300	November, 1.3%
1882-1883	87	11.0	69	130,500	December, 5.3%
1883-1884	125	23.5	147	278,700	
1884-1885	66	6.0	38	71,200	
1885-1886	115	19.9	125	236,000	
1886-1887	70	6.8	43	80,700	
1887-1888	78	8.8	55	104,400	
1888-1889	98	14.5	91	172,000	
1889-1890	192	50.5	316	599,000	
1890-1891	86	10.6	66	125,700	
1891-1892	91	12.1	76	143,500	
1892-1893	139	29.0	182	344,000	
1893-1894	111	18.5	116	219,400	
1894-1895	147	32.3	202	383,100	
1895-1896	106	16.7	105	198,100	
1896-1897	112	18.7	117	221,800	
1897-1898	57	4.0	25	47,400	
1898-1899	91	12.1	76	143,500	
1899-1900	104	16.4	103	194,500	
1900-1901	121	22.0	138	260,900	
1901-1902	91	12.1	76	143,500	
1902-1903	99	14.6	91	173,200	
1903-1904	105	16.5	103	195,700	
1904-1905	124	23.3	146	276,400	
1905-1906	120	21.7	136	257,400	
1906-1907	144	31.0	194	367,700	
1907-1908	72	7.2	45	85,400	
1908-1909	124	23.3	146	276,400	
1909-1910	93	13.0	82	154,200	
1910-1911	121	22.0	138	260,900	Measured seasonal discharge in acre-feet.*b*
1911-1912	64	5.5	35	65,200	
1912-1913	52	3.2	20	38,000	
1913-1914	128	24.9	156	295,300	
1914-1915	126	23.9	150	283,500	
1915-1916	120	21.7	136	257,400	*c*79,300
1916-1917	78	8.7	55	103,200	39,700
1917-1918	53	3.5	22	41,500	
1918-1919	105	16.5	103	195,700	
1919-1920	66	6.0	38	71,200	
1920-1921	98	14.4	90	170,800	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	189,300	15.96	853	....
Maximum seasonal	599,000	50.50	2,698	1889-1890
Minimum seasonal	22,500	1.90	101	1876-1877
Mean during July	1,700	0.14	8	....
Maximum during July	5,400	0.46	24	1889-1890
Minimum during July	200	0.02	1	1876-1877
Mean during August	1,300	0.11	6	....
Maximum during August	4,200	0.35	19	1889-1890
Minimum during August	200	0.02	1	1876-1877

Probable run-off curve, Plate XLVII.
Storage development, curve, Plate CLXXIX.
Mass curve of run-off, Plate CXXXIX.
Probable frequency of flood discharge, Plate LXXXVII.

(*a*) Description of drainage basin: Tributary area, above tidewater, of the following streams: PILARCITOS CREEK, PURISSIMA CREEK, TRINITAS CREEK, SAN GREGORIO CREEK, POMPONIO CREEK, PESCADERO CREEK, LOBITOS CREEK, FRENCHMANS CREEK, DENNISTON CREEK, SAN VICENTE CREEK, SAN PEDRO CREEK.

(*b*) Record of the Spring Valley Water Co. for San Gregorio Creek at La Honda and Pescadero Creek at Harrison; combined drainage area 65 square miles.

(*c*) Partial record, October 1 to 31, December 1 to 31, January 3 to April 25, May 1 to September 30.

TABLE 152. TULE LAKE GROUP.

SEASONAL RUN-OFF DATA. Drainage area 901 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division A.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.[e]
1871-1872	81	2.8	49	134,500	January, 7.8%
1872-1873	75	2.2	38	105,700	February, 17.4%
1873-1874	71	1.9	33	91,300	March, 32.3%
1874-1875	62	1.2	21	57,700	April, 29.2%
1875-1876	73	2.1	37	100,900	May, 5.2%
1876-1877	197	23.7	414	1,138,900	June, 2.3%
1877-1878	84	3.1	54	149,000	July, 0.4%
1878-1879	81	2.8	49	134,500	August, 0.4%
1879-1880	150	13.3	232	639,100	September, 0.4%
1880-1881	181	19.9	347	956,300	October, 0.7%
1881-1882	121	8.0	140	384,400	November, 0.8%
1882-1883	74	2.1	37	100,900	December, 3.1%
1883-1884	158	15.0	262	720,800	
1884-1885	119	7.6	133	365,200	
1885-1886	165	16.4	286	788,100	
1886-1887	118	7.5	131	360,400	
1887-1888	91	3.9	68	187,400	
1888-1889	116	7.1	124	341,200	
1889-1890	162	15.6	272	749,600	
1890-1891	95	4.4	77	211,400	
1891-1892	89	3.7	65	177,800	
1892-1893	128	9.1	159	437,300	
1893-1894	93	4.2	73	201,800	
1894-1895	100	5.0	87	240,300	
1895-1896	116	7.1	124	341,200	
1896-1897	113	6.8	119	326,800	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.[d]
1897-1898	67	1.6	28	76,900	
1898-1899	71	1.9	33	91,300	
1899-1900	93	4.2	73	201,800	
1900-1901	102	5.2	91	249,900	
1901-1902	85	3.2	56	153,800	
1902-1903	77	2.4	42	115,300	
1903-1904	118	7.5	131	360,400	[b]700
1904-1905	80	2.7	47	129,700	47,300
1905-1906	99	4.9	85	235,500	145,600
1906-1907	131	9.6	168	461,300	253,600
1907-1908	73	2.1	37	100,900	40,400
1908-1909	102	5.2	91	249,900	[c]98,300
1909-1910	77	2.4	42	115,300	
1910-1911	113	6.8	119	326,800	
1911-1912	65	1.4	24	67,300	
1912-1913	80	2.7	47	129,700	
1913-1914	123	8.3	145	398,800	
1914-1915	62	1.2	21	57,700	
1915-1916	86	3.3	58	158,600	
1916-1917	88	3.6	63	173,000	
1917-1918	58	0.9	16	43,200	
1918-1919	69	1.7	30	81,700	
1919-1920	60	1.0	17	48,000	
1920-1921	108	6.0	105	288,300	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	275,200	5.73	305	....
Maximum seasonal	1,138,900	23.70	1,264	1876-1877
Minimum seasonal	43,200	0.90	48	1917-1918
Mean during July	1,100	0.02	1	....
Maximum during July	4,600	0.10	5	1876-1877
Minimum during July	200	Trace	Trace	1917-1918
Mean during August	1,100	0.02	1	....
Maximum during August	4,600	0.10	5	1876-1877
Minimum during August	200	Trace	Trace	1917-1918

Probable run-off curve, Plate XLVIII.
Storage development curve, Plate CLXXX.
Mass curve of run-off, Plate CXL.
Probable frequency of flood discharge, Plate LXXXVIII

(a) Description of drainage basin: Tributary area above points indicated: BUTTE CREEK at Bayes, 157 square miles; WILLOW (or COTTONWOOD) CREEK near Fairchild, 64 square miles; ANTELOPE CREEK at base of hills, 53 square miles; LOST RIVER in California, 628 square miles.
(b) September only.
(c) Period of record, October 1 to June 12.
(d) Point of measurement: Lost River near Clear Lake, drainage area 571 square miles.
(e) Estimated from record for Lost River.

TABLE 153. GOOSE LAKE GROUP.

SEASONAL RUN-OFF DATA. Drainage area 275 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division A.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	81	1.0	46	14,700	January, 7.8%
1872-1873	75	0.8	36	11,700	February, 17.4%
1873-1874	71	0.6	27	8,800	March, 32.3%
1874-1875	62	0.4	18	5,900	April, 29.2%
1875-1876	73	0.7	32	10,300	May, 5.2%
1876-1877	197	10.0	456	146,700	June, 2.3%
1877-1878	84	1.1	50	16,100	July, 0.4%
1878-1879	81	1.0	46	14,700	August, 0.4%
1879-1880	150	5.2	237	76,300	September, 0.4%
1880-1881	181	8.2	374	120,300	October, 0.7%
1881-1882	121	3.0	137	44,000	November, 0.8%
1882-1883	74	0.8	36	11,700	December, 3.1%
1883-1884	158	6.0	273	88,000	
1884-1885	119	2.9	132	42,500	
1885-1886	165	6.6	301	96,800	
1886-1887	118	2.9	132	42,500	
1887-1888	91	1.4	64	20,500	
1888-1889	116	2.7	123	39,600	
1889-1890	162	6.3	287	92,400	
1890-1891	95	1.6	73	23,500	
1891-1892	89	1.3	59	19,100	
1892-1893	128	3.5	160	51,300	
1893-1894	93	1.5	68	22,000	
1894-1895	100	1.8	82	26,400	
1895-1896	116	2.7	123	39,600	
1896-1897	113	2.6	118	38,100	
1897-1898	67	0.5	23	7,300	
1898-1899	71	0.6	27	8,800	
1899-1900	93	1.5	68	22,000	
1900-1901	102	1.9	87	27,900	
1901-1902	85	1.2	55	17,600	
1902-1903	77	0.9	41	13,200	
1903-1904	118	2.9	132	42,500	
1904-1905	80	1.0	46	14,700	
1905-1906	99	1.8	82	26,400	
1906-1907	131	3.7	169	54,300	
1907-1908	73	0.7	32	10,300	
1908-1909	102	1.9	87	27,900	
1909-1910	77	0.9	41	13,200	
1910-1911	113	2.6	118	38,100	
1911-1912	65	0.5	23	7,300	
1912-1913	80	1.0	46	14,700	
1913-1914	123	3.2	146	46,900	
1914-1915	62	0.4	18	5,900	
1915-1916	86	1.2	55	17,600	
1916-1917	88	1.3	59	19,100	
1917-1918	58	0.3	14	4,400	
1918-1919	69	0.6	27	8,800	
1919-1920	60	0.3	14	4,400	
1920-1921	108	2.2	100	32,300	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	32,200	2.18	117.0	
Maximum seasonal	146,700	10.00	533.0	1876-1877
Minimum seasonal	4,400	0.30	16.0	1917-1918
Mean during July	100	0.01	0.4	
Maximum during July	600	0.04	2.2	1876-1877
Minimum during July	20	Trace	Trace	1917-1918
Mean during August	100	0.01	0.4	
Maximum during August	600	0.04	2.2	1876-1877
Minimum during August	20	Trace	Trace	1917-1918

Probable run-off curve, Plate XLVIII. Mass curve of run-off, Plate CXLI.
Storage development curve, Plate CLXXX. Probable frequency of flood discharge, Plate LXXXVIII.

(*a*) Description of drainage basin: Area tributary to Goose Lake in California, excluding lake surface. Principal streams are: COTTONWOOD CREEK, MYRTLE CREEK, FANDANGO CREEK, LASSEN CREEK, and DAVIS CREEK.

(*b*) Estimated from records for Lost River near Clear Lake.

TABLE 154. COWHEAD LAKE BASIN.

SEASONAL RUN-OFF DATA. Drainage area 24 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division A.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet.	Distribution of seasonal run-off by months.b
1871-1872	81	2.6	62	3,400	January, 2.5%
1872-1873	75	2.3	55	3,000	February, 10.9%
1873-1874	71	2.0	48	2,600	March, 20.5%
1874-1875	62	1.6	38	2,100	April, 25.8%
1875-1876	73	2.1	50	2,700	May, 20.8%
1876-1877	197	13.5	323	17,500	June, 7.1%
1877-1878	84	2.8	67	3,600	July, 2.9%
1878-1879	81	2.6	62	3,400	August, 1.4%
1879-1880	150	8.2	196	10,600	September, 1.1%
1880-1881	181	11.6	278	15,100	October, 1.2%
1881-1882	121	5.5	132	7,100	November, 3.3%
1882-1883	74	2.2	53	2,900	December, 2.5%
1883-1884	158	9.1	218	11,800	
1884-1885	119	5.3	127	6,900	
1885-1886	165	9.8	235	12,700	
1886-1887	118	5.3	127	6,900	
1887-1888	91	3.2	77	4,200	
1888-1889	116	5.1	122	6,600	
1889-1890	162	9.5	228	12,300	
1890-1891	95	3.5	84	4,500	
1891-1892	89	3.1	74	4,000	
1892-1893	128	6.2	149	8,100	
1893-1894	93	3.3	79	4,300	
1894-1895	100	3.8	91	4,900	
1895-1896	116	5.1	122	6,600	
1896-1897	113	4.8	115	6,200	
1897-1898	67	1.9	46	2,500	
1898-1899	71	2.0	48	2,600	
1899-1900	93	3.3	79	4,300	
1900-1901	102	3.9	93	5,100	
1901-1902	85	2.8	67	3,600	
1902-1903	77	2.4	58	3,100	
1903-1904	118	5.3	127	6,900	
1904-1905	80	2.5	60	3,300	
1905-1906	99	3.8	91	4,900	
1906-1907	131	6.4	153	8,300	
1907-1908	73	2.2	53	2,900	
1908-1909	102	3.9	93	5,100	
1909-1910	77	2.4	58	3,100	
1910-1911	113	4.8	115	6,200	
1911-1912	65	1.8	43	2,300	
1912-1913	80	2.5	60	3,300	
1913-1914	123	5.7	137	7,400	
1914-1915	62	1.6	38	2,100	
1915-1916	86	2.9	70	3,800	
1916-1917	88	3.0	72	3,900	
1917-1918	58	1.5	36	1,900	
1918-1919	69	2.0	48	2,600	
1919-1920	60	1.6	38	2,100	
1920-1921	108	4.4	105	5,700	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	5,400	4.17	222	
Maximum seasonal	17,500	13.47	718	1876-1877
Minimum seasonal	1,900	1.46	78	1917-1918
Mean during July	160	0.12	7	
Maximum during July	510	0.39	21	1876-1877
Minimum during July	60	0.05	2	1917-1918
Mean during August	80	0.06	3	
Maximum during August	250	0.19	10	1876-1877
Minimum during August	30	0.02	1	1917-1918

Probable run-off curve, Plate XLVIII. Mass curve of run-off, Plate CXL.
Storage development curve, Plate CLXXX. Probable frequency of flood discharge, Plate LXXXVIII.

(a) Description of drainage basin: Area in California, excluding lake surface, tributary to Cowhead Lake, including EIGHT MILE CREEK.

(b) Estimated from record for Susan River.

TABLE 155. SURPRISE VALLEY GROUP.

SEASONAL RUN-OFF DATA. Drainage area 379 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division A.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.[b]
1871-1872	81	2.6	63	53,500	January, 2.5%
1872-1873	75	2.3	55	46 500	February, 10 9%
1873-1874	71	2.1	50	42,400	March, 20.5%
1874-1875	62	1.7	40	34,300	April, 25.8%
1875-1876	73	2.2	52	44,400	May, 20.8%
1876-1877	197	13.3	317	268,600	June, 7.1%
1877-1878	84	2.8	67	56,600	July, 2.9%
1878-1879	81	2.6	63	53,500	August, 1.4%
1879-1880	150	8.2	195	165,600	September, 1.1%
1880-1881	181	11.5	273	232,300	October, 1.2%
1881-1882	121	5.5	132	112,100	November, 3.3%
1882-1883	74	2.2	54	45,400	December, 2.5%
1883-1884	158	9.0	214	181,800	
1884-1885	119	5.3	127	108,100	
1885-1886	165	9.7	231	195,900	
1886-1887	118	5.3	126	107,000	
1887-1888	91	3.2	77	65,600	
1888-1889	116	5.1	121	103 000	
1889-1890	162	9.4	224	189,900	
1890-1891	95	3.5	83	70,700	
1891-1892	89	3.1	74	62,600	
1892-1893	128	6.2	147	125,200	
1893-1894	93	3.4	81	68,700	
1894-1895	100	3.8	92	77,800	
1895-1896	116	5.1	121	103,000	
1896-1897	113	4.9	117	99,000	
1897-1898	67	1 9	45	38,400	
1898-1899	71	2.1	50	42,400	
1899-1900	93	3.4	81	68,700	
1900-1901	102	4.0	95	80,800	
1901-1902	85	2.9	69	58,600	
1902-1903	77	2.4	58	49,500	
1903-1904	118	5.3	129	107,000	
1904-1905	80	2.6	62	52,500	
1905-1906	99	3.8	90	76,700	
1906-1907	131	6.4	152	129,300	
1907-1908	73	2.2	52	44,400	
1908-1909	102	4.0	95	80,800	
1909-1910	77	2.4	58	49,500	
1910-1911	113	4.8	115	98,000	
1911-1912	65	1.9	45	38,400	
1912-1913	80	2.6	62	52,500	
1913-1914	123	5.7	136	115,100	
1914-1915	62	1.7	40	34,300	
1915-1916	86	2.9	69	58,600	
1916-1917	88	3.0	72	61,600	
1917-1918	58	1.5	36	30,300	
1918-1919	69	2 0	49	41,400	
1919-1920	60	1 6	38	32,300	
1920-1921	108	4 4	106	89,900	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	84,900	4 20	224	....
Maximum seasonal	268,600	13 30	709	1876-1877
Minimum seasonal	30,300	1 50	80	1917-1918
Mean during July	2,500	0 12	7	....
Maximum during July	7,800	0 39	21	1876-1877
Minimum during July	900	0 04	2	1917-1918
Mean during August	1,200	0 06	3	....
Maximum during August	3,800	0 19	10	1876-1877
Minimum during August	400	0 02	1	1917-1918

Probable run-off curve, Plate XLVIII. Mass curve of run-off, Plate CXLI.
Storage development curve, Plate CLXXX. Probable frequency of flood discharge, Plate LXXXVIII.

(a) Description of drainage basin: Area in California tributary to the following streams above the 4,800 foot contour: DRY CREEK, COTTONWOOD CREEK, OWL CREEK, RAIDER CREEK, EAGLE CREEK, BARES CREEK.

(b) Estimated from records for Susan River.

TABLE 156. MADELINE PLAINS GROUP.

SEASONAL RUN-OFF DATA. Drainage area 548 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division A.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	81	2.3	61	67,300	January, 2.5%
1872-1873	75	1.9	50	55,600	February, 10.9%
1873-1874	71	1.7	45	49,700	March, 20.5%
1874-1875	62	1.2	32	35,100	April, 25.8%
1875-1876	73	1.8	48	52,700	May, 20 8%
1876-1877	197	12.4	328	362,700	June, 7.1%
1877-1878	84	2.4	64	70,200	July, 2.9%
1878-1879	81	2.3	61	67,300	August, 1.4%
1879-1880	150	7.7	204	225,300	September, 1.1%
1880-1881	181	10.8	286	315,900	October, 1.2%
1881-1882	121	5.2	138	152,100	November, 3.3%
1882-1883	74	1.9	50	55,600	December, 2.5%
1883-1884	158	8.5	225	248,700	
1884-1885	119	5.0	132	146,300	
1885-1886	165	9.2	243	269,100	
1886-1887	118	4.9	130	143,300	
1887-1888	91	2.9	77	84,800	
1888-1889	116	4.7	124	137,500	
1889-1890	162	8.8	233	257,400	
1890-1891	95	3.1	82	90,700	
1891-1892	89	2.8	74	81,900	
1892-1893	128	5.8	153	169,700	
1893-1894	93	3.0	79	87,800	
1894-1895	100	3.5	93	102,400	
1895-1896	116	4.7	124	137,500	
1896-1897	113	4.5	119	131,600	
1897-1898	67	1.5	40	43,900	
1898-1899	71	1.7	45	49,700	
1899-1900	93	3.0	79	87,800	
1900-1901	102	3.6	95	105,300	
1901-1902	85	2.5	66	73,100	
1902-1903	77	2.0	53	58,500	
1903-1904	118	4.9	130	143,300	
1904-1905	80	2.2	58	64,400	
1905-1906	99	3.4	90	99,500	
1906-1907	131	6.0	159	175,500	
1907-1908	73	1.8	48	52,700	
1908-1909	102	3.6	95	105,300	
1909-1910	77	2.0	53	58,500	
1910-1911	113	4.5	119	131,600	
1911-1912	65	1.4	37	41,000	
1912-1913	80	2.2	58	64,400	
1913-1914	123	5.3	140	155,000	
1914-1915	62	1.2	32	35,100	
1915-1916	86	2.6	69	76,100	
1916-1917	88	2.7	71	79,000	
1917-1918	58	1.1	29	32,200	
1918-1919	69	1.6	42	46,800	
1919-1920	60	1 1	29	32,200	
1920-1921	108	4.1	108	119,900	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	110,600	3.78	202	....
Maximum seasonal	362,700	12.40	661	1876-1877
Minimum seasonal	32,200	1.10	59	1917-1918
Mean during July	3,210	0 11	6	....
Maximum during July	10,500	0.36	19	1876-1877
Minimum during July	930	0.03	2	1917-1918
Mean during August	1,550	0.05	3	....
Maximum during August	5,100	0.17	9	1876-1877
Minimum during August	450	0.02	1	1917-1918

Probable run-off curve, Plate XLIX. Mass curve of run-off, Plate CXLII.
Storage development curve, Plate CLXXXI. Probable frequency of flood discharge, Plate LXXXIX.

(*a*) Description of drainage basin: Total area of Madeline Plains drainage basin, excluding non-water-producing plains area. The principal streams are: RED ROCK CREEK, COLD SPRINGS CREEK and VAN LONE CREEK.

(*b*) Estimated from record for Susan River.

TABLE 157. SMOKE CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 188 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division A.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	81	2.2	59	22,100	January, 2.5%
1872-1873	75	1.9	51	19,100	February, 10.9%
1873-1874	71	1.6	43	16,000	March, 20.5%
1874-1875	62	1.2	32	12,000	April, 25.8%
1875-1876	73	1.7	45	17,000	May, 20.8%
1876-1877	197	12.4	330	124,300	June, 7.1%
1877-1878	84	2.4	64	24,100	July, 2.9%
1878-1879	81	2.2	59	22,100	August, 1.4%
1879-1880	150	7.7	205	77,200	September, 1.1%
1880-1881	181	10.8	288	108,300	October, 1.2%
1881-1882	121	5.2	139	52,100	November, 3.3%
1882-1883	74	1.8	48	18,000	December, 2.5%
1883-1884	158	8.5	226	85,200	
1884-1885	119	5.0	133	50,100	
1885-1886	165	9.2	245	92,200	
1886-1887	118	4.9	130	49,100	
1887-1888	91	2.8	75	28,100	
1888-1889	116	4.7	125	47,100	
1889-1890	162	8.9	237	89,200	
1890-1891	95	3.1	83	31,100	
1891-1892	89	2.7	72	27,100	
1892-1893	128	5.8	155	58,200	
1893-1894	93	3.0	80	30,100	
1894-1895	100	3.5	93	35,100	
1895-1896	116	4.7	125	47,100	
1896-1897	113	4.5	120	45,100	
1897-1898	67	1.4	37	14,000	
1898-1899	71	1.6	43	16,000	
1899-1900	93	3.0	80	30,100	
1900-1901	102	3.7	99	37,100	
1901-1902	85	2.5	67	25,100	
1902-1903	77	2.0	53	20,100	
1903-1904	118	4.9	130	49,100	
1904-1905	80	2.1	56	21,100	
1905-1906	99	3.4	91	34,100	
1906-1907	131	6.0	160	60,200	
1907-1908	73	1.7	45	17,000	
1908-1909	102	3.7	99	37,100	
1909-1910	77	2.0	53	20,100	
1910-1911	113	4.5	120	45,100	
1911-1912	65	1.3	35	13,000	
1912-1913	80	2.1	56	21,100	
1913-1914	123	5.3	141	53,100	
1914-1915	62	1.2	32	12,000	
1915-1916	86	2.5	67	25,100	
1916-1917	88	2.6	69	26,100	
1917-1918	58	1.0	27	10,000	
1918-1919	69	1.5	40	15,000	
1919-1920	60	1.1	29	11,000	
1920-1921	108	4.1	109	41,100	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	37,600	3.75	200	.....
Maximum seasonal	124,300	12.40	661	1876-1877
Minimum seasonal	10,000	1.00	53	1917-1918
Mean during July	1,090	0.11	6	.....
Maximum during July	3,600	0.36	19	1876-1877
Minimum during July	290	0.03	2	1917-1918
Mean during August	530	0.05	3	.....
Maximum during August	1,740	0.17	9	1876-1877
Minimum during August	140	0.01	1	1917-1918

Probable run-off curve, Plate XLIX. Mass curve of run-off, Plate CXLII.
Storage development curve, Plate CLXXXI. Probable frequency of flood discharge, Plate LXXXIX.

(*a*) Description of drainage basin: Area tributary to SMOKE CREEK and RUSH CREEK, above California-Nevada state line.

(*b*) Estimated from record for Susan River.

TABLE 158. EAGLE LAKE GROUP.

SEASONAL RUN-OFF DATA. Drainage area 498 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division A.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	81	1.8	53	47,800	January, 2.5%
1872-1873	75	1.4	41	37,200	February, 10.9%
1873-1874	71	1.2	35	31,900	March, 20.5%
1874-1875	62	0.7	20	18,600	April, 25.8%
1875-1876	73	1.3	38	34,500	May, 20.8%
1876-1877	197	12.7	371	337,300	June, 7.1%
1877-1878	84	2.0	58	53,100	July, 2.9%
1878-1879	81	1.8	53	47,800	August, 1.4%
1879-1880	150	7.6	222	201,900	September, 1.1%
1880-1881	181	10.9	318	289,500	October, 1.2%
1881-1882	121	4.9	143	130,100	November, 3.3%
1882-1883	74	1.3	38	34,500	December, 2.5%
1883-1884	158	8.4	245	223,100	
1884-1885	119	4.7	137	124,800	
1885-1886	165	9.1	266	241,700	
1886-1887	118	4.7	137	124,800	
1887-1888	91	2.5	73	66,400	
1888-1889	116	4.4	128	116,900	
1889-1890	162	8.8	257	233.700	
1890-1891	95	2.8	82	74,400	
1891-1892	89	2.3	67	61,100	
1892-1893	128	5.5	161	146,100	
1893-1894	93	2.6	76	69,100	
1894-1895	100	3.1	90	82,300	
1895-1896	116	4.4	128	116,900	
1896-1897	113	4.2	123	111,600	
1897-1898	67	1.0	29	26,400	
1898-1899	71	1.2	35	31,900	
1899-1900	93	2.6	76	69.100	
1900-1901	102	3.3	96	87,600	
1901-1902	85	2.1	61	55,800	
1902-1903	77	1.5	44	39,800	
1903-1904	118	4.7	137	124,800	
1904-1905	80	1.7	50	45,200	
1905-1906	99	3.1	90	82,300	
1906-1907	131	5.8	169	154,000	
1907-1908	73	1.3	38	34,500	
1908-1909	102	3.3	96	87,600	
1909-1910	77	1.5	44	39,800	
1910-1911	113	4.2	123	111,600	
1911-1912	65	0.9	26	23,900	
1912-1913	80	1.7	50	45,200	
1913-1914	123	5.1	149	135,500	
1914-1915	62	0.7	20	18,600	
1915-1916	86	2.1	61	55,800	
1916-1917	88	2.3	67	61,100	
1917-1918	58	0.6	18	15,900	
1918-1919	69	1.1	32	29,200	
1919-1920	60	0.6	18	15,900	
1920-1921	108	3.8	111	100,900	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	91,000	3.43	183	....
Maximum seasonal	337,300	12.70	677	1876-1877
Minimum seasonal	15,900	0.60	32	1917-1918
Mean during July	2,600	0.10	5	....
Maximum during July	9,800	0.37	20	1876-1877
Minimum during July	460	0.02	1	1917-1918
Mean during August	1,300	0.05	3	....
Maximum during August	4,700	0.18	9	1876-1877
Minimum during August	220	0.01	Trace	1917-1918

Probable run-off curve, Plate XLIX. Mass curve of run-off, Plate CXLIII.
Storage development curve, Plate CLXXXI. Probable frequency of flood discharge, Plate LXXXIX.

(*a*) Description of drainage basin: Area tributary to Eagle Lake, excluding lake surface, but including PINE CREEK.

(*b*) Estimated from record for Susan River.

TABLE 159. HONEY LAKE GROUP.

SEASONAL RUN-OFF DATA. Drainage area 1,507 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division A.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*h*
1871-1872	81	2.4	58	193,000	January, 2.5%
1872-1873	75	2.0	49	161,000	February, 10.9%
1873-1874	71	1.7	41	137,000	March, 20.5%
1874-1875	62	1.2	29	96,000	April, 25.8%
1875-1876	73	1.9	46	153,000	May, 20.8%
1876-1877	197	13.9	338	1,117,000	June, 7.1%
1877-1878	84	2.6	63	209,000	July, 2.9%
1878-1879	81	2.4	58	193,000	August, 1.4%
1879-1880	150	8.5	207	683,000	September, 1.1%
1880-1881	181	12.0	292	964,000	October, 1.2%
1881-1882	121	5.7	139	458,000	November, 3.3%
1882-1883	74	1.9	46	153,000	December, 2.5%
1883-1884	158	9.3	226	747,000	
1884-1885	119	5.5	134	442,000	
1885-1886	165	10.1	245	812,000	
1886-1887	118	5.4	131	434,000	
1887-1888	91	3.1	75	249,000	
1888-1889	116	5.2	126	413,000	
1889-1890	162	9.7	236	780,000	
1890-1891	95	3.5	85	281,000	
1891-1892	89	3.0	73	241,000	
1892-1893	128	6.3	153	506,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*g*
1893-1894	93	3.3	80	265,000	
1894-1895	100	3.8	92	305,000	
1895-1896	116	5.2	126	418,000	
1896-1897	113	5.0	122	402,000	
1897-1898	67	1.5	37	121,000	
1898-1899	71	1.7	41	137,000	
1899-1900	93	3.3	80	265,000	*b*3,800
1900-1901	102	4.0	97	321,000	102,900
1901-1902	85	2.7	66	217,000	*c*3,500
1902-1903	77	2.1	51	169,000	*d*62,100
1903-1904	118	5.4	131	434,000	166,000
1904-1905	80	2.3	56	185,000	62,100
1905-1906	99	3.8	92	305,000	*c*3,200
1906-1907	131	6.6	160	530,000	
1907-1908	73	1.9	46	153,000	
1908-1909	102	4.0	97	321,000	
1909-1910	77	2.1	51	169,000	
1910-1911	113	5.0	122	402,000	
1911-1912	65	1.4	34	113,000	
1912-1913	80	2.3	56	185,000	
1913-1914	123	5.9	143	474,000	
1914-1915	62	1.2	29	96,000	
1915-1916	86	2.8	68	225,000	
1916-1917	88	2.9	71	233,000	*e*58,700
1917-1918	58	1.0	24	80,000	25,800
1918-1919	69	1.6	39	129,000	44,100
1919-1920	60	1.1	27	88,000	19,400
1920-1921	108	4.6	112	370,000	*f*63,400

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	330,800	4.12	220	....
Maximum seasonal	1,117,000	13.90	741	1876-1877
Minimum seasonal	80,000	1.00	53	1917-1918
Mean during July	9,600	0.12	6	....
Maximum during July	32,400	0.40	21	1876-1877
Minimum during July	2,300	0.03	2	1917-1918
Mean during August	4,600	0.06	3	....
Maximum during August	15,600	0.19	10	1876-1877
Minimum during August	1,100	0.01	1	1917-1918

Probable run-off curve, Plate XLIX. Mass curve of run-off, Plate CXLIII.
Storage development curve, Plate CLXXXI. Probable frequency of flood discharge, Plate LXXXIX.

(*a*) Description of drainage basin: Total area tributary to Honey Lake including SUSAN RIVER, BAXTER CREEK and LONG VALLEY CREEK, less 175 square miles consisting of lake surface and non-contributing adjacent area.

(*c*) Partial record, October 1 to December 31. (*b*) Partial record, June 1 to September 30.

(*e*) Partial record, February 8 to September 30. (*d*) Partial record, January 1 to 31 and March 1 to September 30.

(*f*) Partial record, October 1 to June 30.

(*g*) Point of measurement: Susan River near Susanville, drainage area 212.5 square miles.

(*h*) Estimated from record for Susan River, corrected for diversion of 100 acre-feet per month from May to August, inclusive, and 300 acre-feet in September.

TABLE 160. LAKE TAHOE BASIN.
SEASONAL RUN-OFF DATA. Drainage area 499 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division I.	Depth of run-off in inches.	Run-off index.	Estimated net seasonal run-off in acre-feet. (Above main agricultural area.)*f*	Distribution of seasonal run-off by months.*h*
1871-1872	123	15.1	154	402,100	January, 3.9%
1872-1873	65	1.4	14	37,300	February, 4.5%
1873-1874	118	13.8	141	367,500	March, 9.8%
1874-1875	74	3.2	33	85,200	April, 22.0%
1875-1876	124	15.3	156	407,400	May, 26.2%
1876-1877	53	0.0	0	0	June, 18.1%
1877-1878	81	4.7	48	125,200	July, 6.2%
1878-1879	85	5.6	57	149,100	August, 1.7%
1879-1880	125	15.6	159	415,400	September, 1.3%
1880-1881	80	4.5	46	119,800	October, 1.7%
1881-1882	120	14.2	145	378,100	November, 2.3%
1882-1883	48	0.0	0	0	December, 2.3%
1883-1884	123	15.1	154	402,100	
1884-1885	68	2.1	21	55,900	
1885-1886	93	7.5	76	199,700	
1886-1887	96	8.0	81	213,000	
1887-1888	43	0.0	0	0	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*g*
1888-1889	46	0.0	0	0	
1889-1890	227	45.0	458	1,198,300	
1890-1891	101	9.4	96	223,700	
1891-1892	97	8.3	85	221,000	
1892-1893	162	25.8	263	687,000	
1893-1894	115	12.9	131	343,500	
1894-1895	123	15.1	154	*e*402,100	*b*104,600
1895-1896	120	14.2	145	*e*378,100	*c*99,700
1896-1897	109	11.5	117	306,200	
1897-1898	69	2.2	22	58,600	
1898-1899	108	11.3	115	300,900	
1899-1900	106	10.5	107	*e*279,600	*d*42,200
1900-1901	111	10.9	111	*e*289,600	96,700
1901-1902	83	6.1	62	*e*163,400	126,600
1902-1903	86	5.6	57	*e*148,200	155,600
1903-1904	106	19.3	197	*e*514,300	390,200
1904-1905	79	3.8	39	*e*102,300	280,500
1905-1906	121	20.0	204	*e*532,500	360,500
1906-1907	171	27.9	284	*e*742,900	656,900
1907-1908	66	2.8	28	*e*75,400	383,800
1908-1909	113	15.1	154	*e*402,600	327,600
1909-1910	106	10.5	107	*e*280,100	347,500
1910-1911	150	17.4	177	*e*462,600	312,700
1911-1912	57	2.0	20	*e*53,000	186,900
1912-1913	71	2.1	21	*e*56,200	169,000
1913-1914	135	17.6	179	*e*468,600	147,900
1914-1915	104	4.8	49	*e*127,300	191,200
1915-1916	121	12.0	122	*e*320,300	195,000
1916-1917	84	8.6	88	*e*229,200	279,500
1917-1918	67	3.3	34	*e*88,800	227,600
1918-1919	92	1.7	17	*e*45,400	191,700
1919-1920	64	0.3	3	*e*7,300	178,100
1920-1921	111	6.8	69	*e*182,000	104,600

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	261,000	9.8	523	
Maximum seasonal	1,198,300	45.0	2,400	1889-1890
Minimum seasonal	0	0.0	0	1876-1877, 1882-1883, 1887-1888, 1888-1889
Mean during July	16,200	0.6	32	
Maximum during July	74,300	2.8	149	1889-1890
Minimum during July	0	0.0	0	1876-1877, 1882-1883, 1887-1888, 1888-1889
Mean during August	4,400	0.2	9	
Maximum during August	20,400	0.8	41	1889-1890
Minimum during August	0	0.0	0	1876-1877, 1882-1883, 1887-1888, 1888-1889

Probable run-off curve, Plate L. Mass curve of run-off, Plate CXLIV.
Storage development curve, Plate CLXXXII. Probable frequency of flood discharge, Plate XC.

(*a*) Description of drainage basin: Tributary area above gaging station at outlet of Lake Tahoe, including lake surface and tributary area in Nevada. Tributary streams: WARD CREEK, BLACKWOOD CREEK, MADDEN CREEK, McKINNEY CREEK, GENERAL CREEK, MEIGS CREEK, LONELY GULCH, UPPER TRUCKEE RIVER, FALLEN LEAF LAKE BASIN and others. See table 61 for data on Truckee River below Lake Tahoe.

(*b*) Partial record, July 1 to September 30.

(*c*) Partial record, October 1 to February 29. (*d*) Partial record, March 1 to September 30.

(*e*) Measured discharge corrected for storage in lake.

(*f*) Estimated seasonal run-off is *net* yield of watershed deduced directly from measured outflow which automatically deducts all evaporation losses from gross yield of watershed.

(*g*) Point of measurement: Gage 200 feet below outlet of lake, drainage area 499 square miles.

(*h*) Estimated from records of Truckee River near state line, after deducting therefrom the recorded discharge at Lake Tahoe.

TABLE 161. TRUCKEE RIVER.

SEASONAL RUN-OFF DATA. Drainage area 447 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division I.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)f	Distribution of seasonal run-off by months as shown by U.S.G.S. records.d
1871-1872	123	27.8	131	662,000	January, 3.9%
1872-1873	65	11.2	53	266,700	February, 4.5%
1873-1874	118	26.4	124	628,700	March, 9.8%
1874-1875	74	13.5	63	321,500	April, 22.0%
1875-1876	124	28.0	132	666,800	May, 26.2%
1876-1877	53	8.5	40	202,400	June, 18.1%
1877-1878	81	15.2	71	362,000	July, 6.2%
1878-1879	85	16.4	77	390,500	August, 1.7%
1879-1880	125	28.4	134	676,300	September, 1.3%
1880-1881	80	15.0	71	357,200	October, 1.7%
1881-1882	120	26.9	127	640,600	November, 2.3%
1882-1883	48	7.5	35	178,600	December, 2.3%
1883-1884	123	27.8	131	662,000	
1884-1885	68	12.0	56	285,800	
1885-1886	93	18.5	87	440,500	
1886-1887	96	19.5	92	464,400	
1887-1888	43	6.6	31	157,200	
1888-1889	46	7.0	33	166,700	
1889-1890	227	60.6	285	1,443,100	
1890-1891	101	20.9	98	497,700	
1891-1892	97	19.6	92	466,700	
1892-1893	162	40.0	188	952,500	Measured
1893-1894	115	25.4	120	604,900	seasonal
1894-1895	123	27.8	131	662,000	discharge
1895-1896	120	26.9	127	640,600	in acre-feet at
1896-1897	109	23.4	110	557,200	U.S.G.S.
1897-1898	69	12.3	58	292,900	gaging station.c
1898-1899	108	23.3	110	554,900	
1899-1900	106	14.8	70	e352,400	b285,400
1900-1901	111	25.7	121	e612,000	579,800
1901-1902	83	18.6	88	e442,900	418,600
1902-1903	86	16.2	76	e385,800	364,900
1903-1904	106	33.0	155	e785,800	744,200
1904-1905	79	15.9	75	e378,600	357,900
1905-1906	121	27.9	131	e664,400	628,500
1906-1907	171	34.7	163	e826,300	782,900
1907-1908	66	13.2	62	e314,300	297,000
1908-1909	113	30.4	143	e723,900	686,100
1909-1910	106	18.9	89	e450,100	442,800
1910-1911	150	34.2	161	e814,400	798,800
1911-1912	57	10.7	50	e254,800	251,000
1912-1913	71	12.1	57	e288,100	260,400
1913-1914	135	32.5	153	e773,900	698,400
1914-1915	104	18.7	88	e445,300	402,000
1915-1916	121	28.5	134	e678,600	611,900
1916-1917	84	20.0	94	e476,200	428,400
1917-1918	67	12.3	58	e292,900	263,700
1918-1919	92	18.3	86	e435,800	391,700
1919-1920	64	10.8	51	e257,200	232,100
1920-1921	111	18.6	88	e442,900	398,300

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	506,000	21.25	1,133	
Maximum seasonal	1,443,100	60.60	3,232	1889-1890
Minimum seasonal	157,200	6.60	352	1887-1888
Mean during July	31,400	1.30	70	
Maximum during July	92,000	3.90	206	1906-1907
Minimum during July	2,600	0.11	6	1917-1918
Mean during August	8,600	0.36	19	
Maximum during August	27,600	1.20	62	1906-1907
Minimum during August	600	0.03	1	1905-1906

Probable run-off curve, Plate L. Mass curve of run-off, Plate CXLIV.
Storage development curve, Plate CLXXXII. Probable frequency of flood discharge, Plate XC.

(a) Description of drainage basin: Tributary area above intersection of California-Nevada State Line with the Truckee River, including 37 square miles of area in Nevada, but excluding all area above outlet of Lake Tahoe, which is considered separately as Lake Tahoe Basin. See Table 160.

(b) Partial record, March 1 to September 30.

(c) Points of measurement: September 7, 1889 to June 14, 1909, at Farad, drainage area 422.7 square miles; June 14, 1909, to August, 1912, at Calvada, drainage area 438.1 square miles; August 1, 1912, to September 30, 1921, at Iceland, drainage area 402.4 square miles. The areas given above do not include the area of Lake Tahoe Basin, 499 square miles; that is, the total areas at the above points of measurement are obtained by adding 499 square miles to the areas given. The measured discharge of the Truckee River at Lake Tahoe was deducted from measured discharge at above stations to obtain the measured discharge used in this table.

(d) Percentages estimated from measured discharge of Truckee River near state line, after deducting therefrom the measured discharge of the Truckee River at Lake Tahoe.

(e) Measured seasonal run-off adjusted for run-off from additional area.

TABLE 162. WEST FORK CARSON RIVER.

SEASONAL RUN-OFF DATA. Drainage area 67 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division I.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*j*
1871-1872	123	39.0	121	140,000	January, 3.4%
1872-1873	65	21.7	68	78,000	February, 3.9%
1873-1874	118	37.5	117	134,000	March, 5.6%
1874-1875	74	24.0	75	86,000	April, 13.4%
1875-1876	124	39.4	123	141,000	May, 26.9%
1876-1877	53	18.5	58	66,000	June, 21.9%
1877-1878	81	25.9	81	93,000	July, 9.9%
1878-1879	85	27.0	84	97,000	August, 4.9%
1879-1880	125	39.7	124	142,000	September, 2.1%
1880-1881	80	25.6	80	92,000	October, 2.3%
1881-1882	120	37.9	118	136,000	November, 2.8%
1882-1883	48	17.6	55	63,000	December, 2.9%
1883-1884	123	39.0	121	140,000	
1884-1885	68	22.5	70	81,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*b*
1885-1886	93	29.4	91	105,000	
1886-1887	96	30.1	94	108,000	
1887-1888	43	16.7	52	60,000	
1888-1889	46	17.1	53	61,000	
1889-1890	227	77.0	240	*j*276,000	*c*130,000
1890-1891	101	33.1	103	*j*118,800	*d*81,100
1891-1892	97	24.8	77	*j*88,900	*e*17,800
1892-1893	162	53.5	167	192,000	
1893-1894	115	36.3	113	130,000	
1894-1895	123	39.0	121	140,000	
1895-1896	120	37.9	118	136,000	
1896-1897	109	34.4	107	123,000	
1897-1898	69	22.8	71	82,000	
1898-1899	108	34.1	106	122,000	
1899-1900	106	33.4	104	120,000	
1900-1901	111	30.9	96	*j*110,700	*f*103,100
1901-1902	83	29.6	92	*j*106,100	98,500
1902-1903	86	25.8	80	*j*92,600	85,000
1903-1904	106	38.0	118	*j*136,300	*g*127,800
1904-1905	79	24.1	75	*j*86,600	*h*78,000
1905-1906	121	48.0	150	*j*171,600	164,000
1906-1907	171	60.9	190	*j*218,100	210,500
1907-1908	66	22.3	69	*j*80,000	72,400
1908-1909	113	41.6	129	*j*149,100	141,500
1909-1910	106	30.8	96	*j*110,400	102,800
1910-1911	150	44.0	137	*j*157,500	149,600
1911-1912	57	22.6	70	*j* 81,100	73,000
1912-1913	71	23.1	72	*j* 82,800	74,400
1913-1914	135	32.4	101	*j*116,300	107,600
1914-1915	104	26.8	83	*j*96,200	87,200
1915-1916	121	33.5	104	*j*119,900	*i*86,500
1916-1917	84	29.2	91	*j*104,500	95,000
1917-1918	67	22.2	69	80,000	
1918-1919	92	29.0	90	104,000	
1919-1920	64	21.5	67	77,000	
1920-1921	·111	35.0	109	125,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	115,200	32.1	1,714	....
Maximum seasonal	276,000	77.0	4,107	1889-1890
Minimum seasonal	60,000	16.7	893	1887-1888
Mean during July	11,400	3.2	170	....
Maximum during July	33,800	9.4	503	1906-1907
Minimum during July	5,100	1.4	76	1907-1908
Mean during August	5,640	1.6	84	....
Maximum during August	15,200	4.2	226	1906-1907
Minimum during August	2,660	0.7	40	1914-1915

Probable run-off curve, Plate L. Mass curve of run-off, Plate CXLV.
Storage development curve, Plate CLXXXII. Probable frequency of flood discharge, Plate XC.

(*a*) Description of drainage basin: Tributary area above gage near Woodfords, at highway bridge on Woodfords-Markleeville road.
(*b*) Point of measurement: Near Woodfords, California, drainage area 67 square miles.
(*c*) Partial record, April 1 to September 30.
(*d*) Partial record, October 1 to December 31, and May 1 to September 30.
(*e*) Partial record, October 1 to March 31.
(*f*) Partial record, October 18 to September 30.
(*g*) Partial record, October 1 to January 31 and February 8 to September 30.
(*h*) Partial record, October 1 to December 31 and January 9 to September 30.
(*i*) Partial record, April 12 to September 30.
(*j*) Measured run-off adjusted for irrigation as follows: 280 acres for the years 1889-1890 to 1891-1892, also 1900-1901 through 1910-1911, and thereafter increasing 100 acres per year to a total of 3,800 acres in 1920-1921.

TABLE 163. EAST FORK CARSON RIVER.

SEASONAL RUN-OFF DATA. Drainage area 323 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division 1.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	123	23.3	130	401,000	January, 3.5%
1872-1873	65	9.7	54	167,000	February, 3.5%
1873-1874	118	22.4	125	385,500	March, 5.6%
1874-1875	74	11.7	65	201,400	April, 12.9%
1875-1876	124	22.4	125	385 500	May, 26.5%
1876-1877	53	7.3	41	125,600	June, 26.1%
1877-1878	81	13.2	74	227,300	July, 10.1%
1878-1879	85	14.2	79	244,300	August, 3.5%
1879-1880	125	23.7	132	408,000	September, 1.9%
1880-1881	80	13.0	72	223,800	October, 1.8%
1881-1882	120	22.5	125	387,400	November, 2.2%
1882-1883	48	6.3	35	108,500	December, 2.4%
1883-1884	123	23.4	130	402,900	
1884-1885	68	10.6	59	182,500	Measured seasonal
1885-1886	93	16.4	91	282,300	discharge in acre-
1886-1887	96	16.7	93	287,500	feet at U.S.G.S.
1887-1888	43	5.3	30	91,300	gaging station.*i*
1888-1889	46	5.5	31	94,700	
1889-1890	227	50.4	281	868,500	*b*, *c*540,700
1890-1891	101	17.8	99	306,400	*b*445,200
1891-1892	97	17.0	95	292,700	*b*399,800
1892-1893	162	33.0	184	568,100	*b*, *d*117,800
1893-1894	115	21.2	118	365,000	
1894-1895	123	23.3	130	401,100	
1895-1896	120	22.5	125	387,400	
1896-1897	109	20.0	111	344,300	
1897-1898	69	10.7	60	184,200	
1898-1899	108	19.8	110	340,900	
1899-1900	106	19.0	106	327,100	
1900-1901	111	19.7	110	*j*340,200	*e*378,500
1901-1902	83	12.6	70	*j*217,600	211,700
1902-1903	86	16.9	94	*j*291,200	323,800
1903-1904	106	20.5	114	*j*352,100	*f*368,900
1904-1905	79	12.1	67	*j*209,000	*g*199,000
1905-1906	121	22.6	126	389,100	
1906-1907	171	35.5	198	611,200	
1907-1908	66	10.0	56	*j*172,700	*h*166,200
1908-1909	113	21.4	119	*j*367,800	386,200
1909-1910	106	17.2	96	*j*296,500	311,200
1910-1911	150	28.9	161	*j*498,100	461,200
1911-1912	57	10.1	56	*j*173,300	158,900
1912-1913	71	9.4	52	*j*161,900	148,300
1913-1914	135	27.2	152	*j*468,400	431,200
1914-1915	104	18.8	105	323,700	
1915-1916	121	22.6	126	389,100	
1916-1917	84	14.0	78	241,000	
1917-1918	67	10.0	56	172,200	
1918-1919	92	15.6	87	268,600	
1919-1920	64	9.6	54	165,300	
1920-1921	111	20.2	113	347,800	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile	Season.
Mean seasonal	309,000	17.9	957	....
Maximum seasonal	868,500	50.4	2,689	1889-1890
Minimum seasonal	91,300	5.3	283	1887-1888
Mean during July	31,200	1.8	97	....
Maximum during July	87,700	5.1	272	1889-1890
Minimum during July	9,220	0.5	29	1887-1888
Mean during August	10,800	0.6	33	....
Maximum during August	30,400	1.8	94	1889-1890
Minimum during August	3,200	0.2	10	1887-1888

Probable run-off curve, Plate L. Mass curve of run-off, Plate CXLV.
Storage development curve, Plate CLXXXII. Probable frequency of flood discharge, Plate XC.

(*a*) Description of drainage basin: Area tributary to East Fork Carson River and its branches in California.

(*b*) Record disregarded in constructing curve of probable run-off and in estimating discharge, as authority and point of measurement are uncertain. See page 184, W. S. paper No. 300.

(*c*) Partial record, October 1 to September 30. (*d*) Partial record, October 1 to December 31.

(*e*) Partial record, October 1 to September 30. (*f*) Partial record, October 1 to July 31.

(*g*) Partial record, January 1 to July 15. (*h*) Partial record, January 1 to September 30.

(*i*) Points of measurement: October 17, 1900, to July 15, 1905, at Rodenbah's Ranch, near highway bridge, at upper end of Carson Valley, drainage area 360 square miles; January 1, 1908, to December 31, 1910, at Horseshoe Bend, three miles above first station, drainage area 340 square miles; January 1, 1911, to September 30, 1914, 1/4 mile above California-Nevada State line, drainage area 298 square miles.

(*j*) Measured discharge adjusted for irrigation of 550 acres from 1900 to 1910, and increasing thereafter by 45 acres per year to a total of 730 acres in 1913-1914; also adjusted for difference in area.

TABLE 164. WEST WALKER RIVER.

SEASONAL RUN-OFF DATA. Drainage area 405 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division I.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	123	18.8	130	406,000	January, 1.5%
1872-1873	65	7.4	51	160,000	February, 1.7%
1873-1874	118	17.6	121	380,000	March, 3.7%
1874-1875	74	8.7	60	188,000	April, 8.4%
1875-1876	124	19.1	131	412,000	May, 19.3%
1876-1877	53	6.0	41	130,000	June, 29.3%
1877-1878	81	9.7	67	209,000	July, 21.9%
1878-1879	85	10.4	71	225,000	August, 6.4%
1879-1880	125	19.3	133	417,000	September, 2.7%
1880-1881	80	9.6	66	207,000	October, 2.0%
1881-1882	120	18.0	124	389,000	November, 1.6%
1882-1883	48	5.5	38	119,000	December. 1.5%
1883-1884	123	18.9	130	408,000	
1884-1885	68	8.0	55	173,000	
1885-1886	93	12.0	82	259,000	
1886-1887	96	12.5	86	270,000	
1887-1888	43	5.1	35	110,000	
1888-1889	46	5.4	37	116,000	
1889-1890	227	50.0	344	1,079,000	
1890-1891	101	13.5	93	291,000	
1891-1892	97	12.7	87	274,000	
1892-1893	162	30.6	210	660,000	
1893-1894	115	16.8	115	363,000	
1894-1895	123	18.9	130	408,000	
1895-1896	120	18.0	124	389,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*g*
1896-1897	109	15.4	106	332,000	
1897-1898	69	8.0	55	173,000	
1898-1899	108	15.2	104	328,000	
1899-1900	106	14.5	100	313,000	
1900-1901	111	15.7	108	339,000	
1901-1902	83	10.1	69	218,000	
1902-1903	86	12.8	88	*h*275,300	*b*225,400
1903-1904	106	15.0	103	*h*322,500	264,700
1904-1905	79	9.9	68	*h*215,400	176,800
1905-1906	121	23.5	162	*h*507,600	416,700
1906-1907	171	27.3	188	*h*588,500	483,100
1907-1908	66	10.7	74	*h*230,600	*c*172,100
1908-1909	113	15.1	104	*h*325,600	*d*245,100
1909-1910	106	13.5	93	*h*290,800	*e*234,500
1910-1911	150	26.9	185	581,000	
1911-1912	57	6.5	45	140,000	
1912-1913	71	8.3	57	177,000	
1913-1914	135	22.1	152	477,000	
1914-1915	104	14.4	99	*h*308,000	*f*87,500
1915-1916	121	14.1	97	*h*304,300	249,800
1916-1917	84	12.8	88	*h*275,300	226,000
1917-1918	67	7.8	53	168,000	
1918-1919	92	11.9	82	257,000	
1919-1920	64	7.4	51	160,000	
1920-1921	111	15.7	108	339,000	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	313,800	14.5	775	....
Maximum seasonal	1,079,000	50.0	2,664	1889-1890
Minimum seasonal	110,000	5.1	272	1887-1888
Mean during July	68,700	3.2	170	....
Maximum during July	236,300	10.9	583	1889-1890
Minimum during July	24,100	1.1	60	1887-1888
Mean during August	20,100	0.9	50	....
Maximum during August	69,100	3.2	171	1889-1890
Minimum during August	7,000	0.3	17	1887-1888

Probable run-off curve, Plate LI. Mass curve of run-off, Plate CXLV.
Storage development curve, Plate CLXXXIII. Probable frequency of flood discharge, Plate XCI.
(*a*) Description of drainage basin: Area tributary to West Walker River in California.
(*b*) Partial record, October 5 to September 30. (*c*) Partial record, October 1 to July 31.
(*d*) Partial record, March 1 to September 30. (*e*) Partial record, October 1 to August 31.
(*f*) Partial record, June 18 to September 30.
(*g*) Point of measurement: At gage near Coleville, 400 feet east of the high way at mouth of Ross Canyon, drainage area 245 square miles.
(*h*) Measured run-off adjusted for additional area.

TABLE 165. EAST WALKER RIVER.

SEASONAL RUN-OFF DATA. Drainage area 411 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division I.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*h*
1871-1872	123	17.1	120	375,200	January, 1.5%
1872-1873	65	8.9	63	195,300	February, 1.7%
1873-1874	118	16.2	114	355,400	March, 3.7%
1874-1875	74	9.2	65	201,900	April, 8.4%
1875-1876	124	17.4	122	381,800	May, 19.3%
1876-1877	53	7.9	55	173,300	June, 29.3%
1877-1878	81	10 5	74	230,400	July, 21.9%
1878-1879	85	11.0	77	241,400	August, 6.4%
1879-1880	125	17.5	123	384,000	September, 2.7%
1880-1881	80	10.4	73	228,200	October, 2.0%
1881-1882	120	16.5	116	362,000	November, 1.6%
1882-1883	48	7.5	53	164,600	December, 1.5%
1883-1884	123	17.1	120	375,200	
1884-1885	68	9.2	65	201,900	
1885-1886	93	12.0	84	263,300	
1886-1887	96	12.5	88	274,300	
1887-1888	43	7.0	49	153,600	
1888-1889	46	7.3	51	160,200	
1889-1890	227	47.0	330	1,031,300	
1890-1891	101	13.2	93	289,600	
1891-1892	97	12.6	88	276,500	
1892-1893	162	26.7	188	585,800	
1893-1894	115	15.5	109	340,100	
1894-1895	123	17.1	120	375,200	
1895-1896	120	16.5	116	362,000	
1896-1897	109	14.5	102	318,100	
1897-1898	69	9.3	65	204,000	
1898-1899	108	14.4	101	316,000	
1899-1900	106	14.0	98	307,200	
1900-1901	111	14.9	105	326,900	
1901-1902	83	10.7	75	234,800	
1902-1903	86	12.4	87	271,000	
1903-1904	106	14.5	102	317,600	
1904-1905	79	9.7	68	212,200	Mesaured seasonal discharge in acre-feet at U.S.G.S. gaging station.
1905-1906	121	22.8	160	500,000	
1906-1907	171	26.4	186	579,700	
1907-1908	66	10.5	74	230,500	
1908-1909	113	15.3	107	335,700	
1909-1910	106	13.1	92	286,400	
1910-1911	150	23.5	165	515,600	
1911-1912	57	8.2	58	*g*179,900	*e*, *b*47,200
1912-1913	71	9.5	67	*g*208,400	*e*, *c*9,200
1913-1914	135	19.7	138	*g*432,200	*e*242,300
1914-1915	104	13.7	96	*g*300,600	*e*76,600
1915-1916	121	13.7	96	*g*299,700	*c*117,700
1916-1917	84	12.4	87	*g*271,100	*f*, *d*161,900
1917-1918	67	9.1	64	199,700	
1918-1919	92	11.9	84	261,100	
1919-1920	64	8.9	62	195,300	
1920-1921	111	14.9	105	326,900	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	312,300	14.24	759	
Maximum seasonal	1,031,300	47.00	2,507	1889-1890
Minimum seasonal	153,600	7 00	373	1887-1888
Mean during July	68,400	3.10	166	
Maximum during July	225,900	10.30	549	1889-1890
Minimum during July	33,600	1 50	82	1887-1888
Mean during August	20,000	0.91	49	
Maximum during August	66,000	3.00	160	1889-1890
Minimum during August	9,800	0.45	24	1887-1888

Probable run-off curve, Plate LI. Mass curve of run-off, Plate CXLV.
Storage development curve, Plate CLXXXIII. Probable frequency of flood discharge, Plate XCI.

(*a*) Description of drainage basin: Area tributary to East Walker River in California, less agricultural area in Bridgeport Valley, 102 square miles.
(*b*) Partial record, October 1 to September 15.
(*c*) Partial record, July 5 to September 30.
(*d*) Partial record, October 1 to July 1 and September 16 to 30.
(*e*) Near Mason, Nevada, 2.5 miles above junction with West Walker River, drainage area 1,252 square miles.
(*f*) Above Mason Valley, ½ mile above the highway bridge 14 miles southeast of Mason, 1,152 square miles.
(*g*) Record not used in estimating run-off.
(*h*) Estimated from record for West Walker River at Ross Canyon.

TABLE 166. MONO LAKE GROUP.

SEASONAL RUN-OFF DATA. Drainage area 166 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division K.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.[g]
1871-1872	122	30.5	125	269,500	January, 2.2%
1872-1873	86	20.4	84	180,300	February, 2.2%
1873-1874	87	20.7	85	182,900	March, 2.4%
1874-1875	61	13.4	55	118,400	April, 3.4%
1875-1876	154	39.6	162	350,000	May, 12.0%
1876-1877	34	5.8	24	51,300	June, 28.1%
1877-1878	112	27.7	114	244,800	July, 26.5%
1878-1879	78	18.2	75	160,800	August, 11.2%
1879-1880	105	25.7	105	227,100	September, 4.8%
1880-1881	87	20.7	85	182,900	October, 2.4%
1881-1882	85	20.2	83	178,500	November, 2.5%
1882-1883	88	21.0	86	185,600	December, 2.3%
1883-1884	135	34.2	140	302,200	
1884-1885	67	15.1	62	133,400	
1885-1886	129	32.6	134	288,100	
1886-1887	68	15.5	64	137,000	
1887-1888	64	14.3	59	126,400	
1888-1889	74	17.1	70	151,100	
1889-1890	174	45.5	186	402,100	
1890-1891	86	20.4	84	180,300	
1891-1892	90	21.5	88	190,000	
1892-1893	132	33.3	136	294,300	
1893-1894	122	30.5	125	269,500	
1894-1895	148	38.1	156	336,700	
1895-1896	104	25.5	105	225,400	
1896-1897	124	31.1	127	274,800	
1897-1898	62	13.7	56	121,100	
1898-1899	89	21.3	87	188,200	
1899-1900	103	25.3	104	223,600	
1900-1901	129	32.6	134	288,100	
1901-1902	97	23.5	96	207,700	
1902-1903	108	26.7	109	236,000	
1903-1904	108	26.7	109	236,000	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.[b]
1904-1905	108	26.7	109	236,000	
1905-1906	139	35.4	145	312,800	
1906-1907	148	38.1	156	336,700	
1907-1908	64	14.3	59	126,400	
1908-1909	119	29.8	122	263,400	
1909-1910	98	23.9	98	211,200	
1910-1911	133	33.7	138	297,800	c75,883
1911-1912	62	13.7	56	121,100	d17,465
1912-1913	58	12.7	52	112,200	e34,592
1913-1914	117	29.2	120	258,100	f59,830
1914-1915	114	28.3	116	250,100	
1915-1916	94	22.7	93	200,600	
1916-1917	82	19.2	79	169,700	
1917-1918	77	17.9	73	158,200	
1918-1919	89	21.3	87	188,200	
1919-1920	76	17.6	72	155,500	
1920-1921	110	27.2	111	240,400	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	215,650	24.4	1,301	....
Maximum seasonal	402,100	45.5	2,427	1889-1890
Minimum seasonal	51,300	5.8	310	1876-1877
Mean during July	57,150	6.5	345	....
Maximum during July	106,560	12.1	643	1889-1890
Minimum during July	13,590	1.5	82	1876-1877
Mean during August	24,150	2.7	146	....
Maximum during August	45,040	5.1	272	1889-1890
Minimum during August	5,750	0.7	35	1876-1877

Probable run-off curve, Plate LI. Mass curve of run-off, Plate CXLVI.
Storage development curve, Plate CLXXXIII. Probable frequency of flood discharge, Plate XCI.

(*a*) Description of drainage basin: Tributary area above points indicated: RUSH CREEK, in N. E. ¼ of Sec. 9, T. 1 S., R. 26 E., 59 square miles; PARKER CREEK, in S. E. ¼ of Sec. 4, T. 1 S., R. 26 E., 15 square miles; WALKER CANYON, in N. W. ¼ of Sec. 4, T. 1 S., R. 26 E., 15 square miles; GIBBS CANYON, in N. E. ¼ of Sec. 21, T. 1, N. R. 26 E., 6 square miles; LEEVINING CREEK, in S. W. ½ of Sec. 18, T. 1 N., R. 26 E., 37 square miles; MILL CREEK, near middle of Sec. 15, T. 2 N., R. 25 E., 18 square miles; unnamed small streams between Mill and Leevining Creeks, above points 1 mile from Mono Lake, 16 square miles. (*b*) Point of measurement: On Leevining Creek in S. E. ¼ of Sec. 17, T. 1 N., R. 26 E., drainage area 37 square miles. (*c*) Partial record, November 17 to September 30.

(*d*) Partial record, October 1 to March 12 and June 3 to 30.

(*e*) Partial record, October 1 to December 31 and April 16 to September 30.

(*f*) Partial record, October 1 to December 31 and May 8 to September 30.

(*g*) From U. S. G. S. records, supplemented by interpolated values from records of Southern Sierras Power Company.

TABLE 167. ADOBE MEADOWS GROUP.

SEASONAL RUN-OFF DATA. Drainage area 453 square miles.*a*

Season. (Begins October 1)	Index of seasonal wetness. Division Z.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*
1871-1872	155	4.7	216	114,700	January, 5.2%
1872-1873	46	0.1	5	2,400	February, 4.9%
1873-1874	162	5.2	236	125,500	March, 7.3%
1874-1875	90	1.5	66	35,000	April, 8.9%
1875-1876	124	3.0	136	72,400	May, 11.2%
1876-1877	43	0.1	5	2,400	June, 16.6%
1877-1878	126	3.1	141	74,800	July, 14.8%
1878-1879	58	0.4	18	9,700	August, 10.9%
1879-1880	123	3.0	136	72,400	September, 4.5%
1880-1881	73	0.8	39	20,500	October, 5.8%
1881-1882	69	0.7	32	16,900	November, 5.3%
1882-1883	62	0.5	23	12,100	December, 4.6%
1883-1884	51	0.2	9	4,800	
1884-1885	33	0.0	0	0	
1885-1886	64	0.6	25	13,300	
1886-1887	72	0.8	36	19,300	
1887-1888	114	2.5	114	60,400	
1888-1889	99	1.8	82	43,500	
1889-1890	97	1.7	77	41,000	
1890-1891	150	4.4	202	107,400	
1891-1892	89	1.4	64	33,800	
1892-1893	137	3.7	168	89,300	
1893-1894	57	0.4	18	9,700	
1894-1895	92	1.5	68	36,200	
1895-1896	53	0.3	14	7,200	
1896-1897	92	1.5	68	36,200	
1897-1898	36	0.0	0	0	
1898-1899	52	0.3	14	7,200	
1899-1900	77	1.0	43	22,900	
1900-1901	135	3.6	164	86,900	
1901-1902	87	1.3	59	31,400	
1902-1903	46	0.1	5	2,400	
1903-1904	65	0.6	27	14,500	
1904-1905	148	4.3	198	105,000	
1905-1906	122	2.9	132	70,000	
1906-1907	122	2.9	132	70,000	
1907-1908	131	3.4	154	82,100	
1908-1909	145	4.2	191	101,400	
1909-1910	123	3.0	136	72,400	
1910-1911	144	4.1	186	99,000	
1911-1912	87	1.3	59	31,400	
1912-1913	103	2.0	91	48,300	
1913-1914	257	11.8	536	284,900	
1914-1915	117	2.7	123	65,200	
1915-1916	209	8.3	377	200.400	
1916-1917	131	3.4	155	82,100	
1917-1918	92	1.5	68	36,200	
1918-1919	91	1.5	68	36,200	
1919-1920	89	1.4	64	33,800	
1920-1921	60	0.5	20	10,900	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	53,100	2.20	117	....
Maximum seasonal	284,900	11.80	629	1913-1914
Minimum seasonal	0	0.00	0	1884-1885 1897-1898
Mean during July	7,900	0.33	17	....
Maximum during July	42,200	1.70	93	1913-1914
Minimum during July	0	0.00	0	1884-1885 1897-1898
Mean during August	5,800	0.24	13	....
Maximum during August	31,100	1.30	69	1913-1914
Minimum during August	0	0.00	0	1884-1885 1897-1898

Probable run-off curve, Plate LI. Mass curve of run-off, Plate CXLVI.
Storage development curve, Plate CLXXXIII. Probable frequency of flood discharge, Plate XCI.

(*a*) Description of drainage basin: Tributary area above designated elevations on the following streams: ADOBE CREEK, 6,700 feet; CHIDAGO CANYON, 6,300 feet; MONTGOMERY CREEK, 6,400 feet; MARBLE CREEK, 6,400 feet; COLDWATER CANYON, 6,000 feet; LONE TREE CREEK, 6,200 feet; MILNER CREEK, 6,200 feet; PIUTE CREEK, 7,000 feet; BIRCH CREEK, 6,300 feet; WILLOW CREEK, 6,000 feet; SACRAMENTO CANYON, 6,500 feet; McGEE CANYON, 7,000 feet; BLACK CANYON, 6,700 feet. Total area 765 square miles; non-water-producing area 312 square miles.

(*b*) Estimated from records for Owens River and Rock Creek

TABLE 168. OWENS RIVER (UPPER).

SEASONAL RUN-OFF DATA. Drainage area 524 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division Q.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.*d*
1871-1872	119	11.5	116	321,100	January, 5.1%
1872-1873	74	8.0	80	223,400	February, 4.9%
1873-1874	100	9.8	99	273,700	March, 7.3%
1874-1875	64	7.5	75	209,400	April, 8.9%
1875-1876	124	12.0	121	335,100	May, 11.2%
1876-1877	60	7.3	73	203,900	June, 16.6%
1877-1878	109	10.6	106	296,000	July, 14.8%
1878-1879	41	6.5	65	181,500	August, 10.9%
1879-1880	134	13.1	132	365,800	September, 4.5%
1880-1881	122	11.7	118	326,700	October, 5.8%
1881-1882	69	7.7	77	215,000	November, 5.3%
1882-1883	85	8.7	87	243.000	December, 4.7%
1883-1884	178	18.5	186	516,600	
1884-1885	78	8.2	82	229,000	
1885-1886	169	17.4	175	485,900	
1886-1887	88	9.0	90	251,300	
1887-1888	67	7.6	76	212,200	
1888-1889	92	9.1	91	254,100	
1889-1890	153	15.3	154	427,300	
1890-1891	79	8.4	84	234,600	
1891-1892	102	10.0	101	279,300	
1892-1893	101	10.0	101	279,300	
1893-1894	83	8.5	85	237,400	
1894-1895	119	11.5	116	321,100	
1895-1896	82	8.5	85	237,400	Measured seasonal discharge in acre-feet at U.S.G.S. gaging station.*c*
1896-1897	107	10.4	104	290,400	
1897-1898	56	7.1	71	198.300	
1898-1899	82	8.5	85	237,400	
1899-1900	102	10.0	101	279,300	
1900-1901	137	13.5	136	377,000	
1901-1902	75	8.0	80	223,400	
1902-1903	81	8.5	85	237,400	*b*21,500
1903-1904	81	9.7	97	*d*270,500	220,000
1904-1905	132	8.6	86	*d*239,400	188,800
1905-1906	148	12.2	122	*d*340,600	289,700
1906-1907	131	13.2	133	*d*369,800	319,300
1907-1908	81	9.5	95	*d*264,800	214,300
1908-1909	113	10.5	106	*d*294,600	244,100
1909-1910	95	9.7	97	*d*269,600	219,100
1910-1911	132	12.5	125	*d*347.800	297,200
1911-1912	73	8.3	83	*d*230,800	180,300
1912-1913	66	7.7	78	*d*216,300	165,800
1913-1914	123	12.0	121	*d*336,100	285,600
1914-1915	124	9.2	93	*d*257,600	207,800
1915-1916	123	9.8	99	*d*274,500	203,200
1916-1917	88	10.6	107	*d*297,100	247,400
1917-1918	91	8.3	84	*d*232,800	183,100
1918-1919	81	8.7	88	*d*243,600	188,800
1919-1920	91	7.3	73	*d*203,700	154,700
1920-1921	95	7.5	76	*d*210,700	161.800

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	278,100	10.0	531	....
Maximum seasonal	516,600	18.5	987	1883-1884
Minimum seasonal	181,500	6.5	347	1878-1879
Mean during July	41,200	1.5	79	....
Maximum during July	76,500	2.7	146	1883-1884
Minimum during July	23,200	0.8	44	1919-1920
Mean during August	30,300	1.1	58	....
Maximum during August	56,300	2.0	108	1883-1884
Minimum during August	19,800	0.7	38	1878-1879

Probable run-off curve, Plate LII. Mass curve of run-off, Plate CXLVII.
Storage development curve, Plate CLXXXIV. Probable frequency of flood discharge, Plate XCII.

(*a*) Description of drainage basin: Area tributary to Owens River and Rock Creek, excluding Horton Creek and Pine Creek, above mouth of Rock Creek.

(*b*) Partial record, August 4 to September 30.

(*c*) Points of measurement: Owens River, near Round Valley, 700 feet above mouth of Rock Creek, drainage area 439 square miles; Rock Creek, near Round Valley, below highway bridge a short distance above mouth of Pine Creek, drainage area 85 square miles.

(*d*) Measured discharge adjusted for irrigation as follows: Owens River, 18,100 acres, 1902-1903 to 1914-1915; 17,800 acres, 1914-1915 to 1918-1919; 17,500 acres, 1918-1919 to 1920-1921; Rock Creek, 600 acres for entire period.

TABLE 169. BISHOP CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 446 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness, Division Q.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*c*		Measured seasonal discharge in acre-feet.*b*
1871-1872	119	17.5	122	415,800	January,	3.7%	
1872-1873	74	10.1	70	240,000	February,	3.6%	
1873-1874	100	14.0	97	332,700	March,	3.8%	
1874-1875	64	9.0	63	213,900	April,	5.2%	
1875-1876	124	18.3	127	434,900	May,	11.0%	
1876-1877	60	8.4	58	199,600	June,	20.9%	
1877-1878	109	15.5	108	368,300	July,	21.0%	
1878-1879	41	6.5	45	154,500	August,	12.3%	
1879-1880	134	20.1	140	477,600	September,	6.1%	
1880-1881	122	17.7	123	420,600	October,	4.7%	
1881-1882	69	9.5	66	225,700	November,	3.8%	
1882-1883	85	11.6	81	275,600	December,	3.9%	
1883-1884	178	30.0	209	712,900			
1884-1885	78	10.6	74	251,900			
1885-1886	169	27.6	192	655,800			
1886-1887	88	12.2	85	289,900			
1887-1888	67	9.2	64	218,600			
1888-1889	92	12.5	88	299,400			
1889-1890	153	24.0	167	570,300			
1890-1891	79	10.8	75	256,600			
1891-1892	102	14.2	99	337,400			
1892-1893	101	14.1	98	335,000			
1893-1894	83	11.4	79	270,900			
1894-1895	119	17.4	121	413,500			
1895-1896	82	11.2	78	266,100			
1896-1897	107	15.1	105	358,800			
1897-1898	56	8.0	56	190,100			
1898-1899	82	11.2	78	266,100			
1899-1900	102	14.2	99	337,400			
1900-1901	137	20.7	144	491,900			
1901-1902	75	10.2	71	242,400			
1902-1903	81	11.0	77	261,400			
1903-1904	81	14.6	102	347,600			118,300
1904-1905	132	11.8	82	281,600			154,500
1905-1906	148	21.3	148	505,600			208,600
1906-1907	131	17.9	125	425,700			228,900
1907-1908	81	11.7	81	279,200			163,300
1908-1909	113	20.0	139	475,100			258,000
1909-1910	95	14.7	102	348,900			198,500
1910-1911	132	21.8	152	519,200			124,600
1911-1912	73	13.6	95	323,000			76,400
1912-1913	66	9.3	65	222,000			76,300
1913-1914	123	15.7	109	373,700			123,900
1914-1915	124	15.7	109	372,200			103,900
1915-1916	123	18.0	125	428,300			122,500
1916-1917	88	15.1	105	358,600			101,000
1917-1918	91	12.2	85	291,000			82,900
1918-1919	81	12.9	90	307,100			86,100
1919-1920	91	10.0	70	237,000			30,200
1920-1921	95	8.1	57	193,100			53,700

(*a*) See next page.
(*b*) See next page.
(*c*) Estimated from above records and interpolated values.

TABLE 169—(Concluded). BISHOP CREEK GROUP.

SEASONAL RUN-OFF DATA. Drainage area 446 square miles.*a*

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	341,500	14.4	766	....
Maximum seasonal	712,900	30.0	1,600	1883-1884
Minimum seasonal	154,500	6.5	347	1878-1879
Mean during July	71,700	3.0	161	....
Maximum during July	161,800	6.8	363	1905-1906
Minimum during July	32,400	1.4	73	1878-1879
Mean during August	42,000	1.8	94	....
Maximum during August	89,600	3.8	201	1905-1906
Minimum during August	19,000	0.8	43	1878-1879

Probable run-off curve, Plate LII. Mass curve of run-off, Plate CXLVII.
Storage development curve, Plate CLXXXIV. Probable frequency of flood discharge, Plate XCII.
(*a*) Description of drainage basin: Tributary area on following streams above designated elevations:

Streams in group.	Drainage area, square miles.	(*b*) Period of measurement and authority	Elevation, feet.
Pine	37.2	Record not used	6,000
Huckleberry	3.9	....	6,000
Horton	15.6	....	6,000
McGee and Birch	33.3	....	6,000
Bishop	101.7	U. S. G. S. 1903-1911; S. S. P. C.* 1911-1919	4,500
Rawson	9.9	....	5,000
Freeman	7.9	....	5,200
Shannon	8.9	....	5,100
Baker	33.1	U. S. G. S. 1907-1908; L. A.† 1908-1910	5,000
Big Pine	31.8	U. S. G. S. 1903-1910; L. A.† 1919-1921	4,500
Little Pine	9.4	....	4,500
Birch	9.8	U. S. G. S. 1906-1909; L. A.† 1909-1910	6,000
Fuller	2.4	....	6,400
Tinemaha	6.7	U. S. G. S. 1906-1910	6,500
Red Mountain	7.2	....	6,500
Taboose	10.2	U. S. G. S. 1904-1910; L. A.† 1920-1921	6,300
Goodale	8.8	U. S. G. S. 1904-1910; L. A.† 1920-1921	4,200
Division	9.9	U. S. G. S. 1904-1910	4,600
Sawmill	7.8	U. S. G. S. 1907-1908; L. A.† 1912-1914; 1920-21	4,700
Thibaut	11.2	....	4,900
Oak	26.4	U. S. G. S. 1904-1910; L. A.† 1920-1921	4,200
Independence	8.4	U. S. G. S. 1904-1910; L. A.† 1912-1921	5,300
Pinyon	4.2	U. S. G. S. 1908-1910; L. A.† 1920-1921	5,300
Symmes	10.4	U. S. G. S. 1906-1910; L. A. †1920-1921	5,500
Unnamed area	29.4	....	Above top of Talus slope

*Southern Sierras Power Company.
†City of Los Angeles.

TABLE 170. OWENS LAKE GROUP.

SEASONAL RUN-OFF DATA. Drainage area 216 square miles.[a]

Season. (Begins October 1.)	Index of seasonal wetness. Division R.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.[b]
1871-1872	120	8.8	121	101,200	January, 2.6%
1872-1873	75	4.0	55	46,000	February, 2.6%
1873-1874	101	6.5	89	73,800	March, 4.0%
1874-1875	64	3.2	44	36,800	April, 8.4%
1875-1876	125	9.6	132	110,400	May, 19.6%
1876-1877	53	2.5	34	28,800	June, 23.9%
1877-1878	140	12.0	165	138,000	July, 16.4%
1878-1879	25	2.6	36	29,900	August, 9.3%
1879-1880	137	11.5	158	132,300	September, 4.3%
1880-1881	96	6.0	83	69,000	October, 3.6%
1881-1882	83	4.7	65	51,000	November, 2.7%
1882-1883	88	5.2	72	59,800	December, 2.6%
1883-1884	181	19.5	268	224,300	
1884-1885	71	3.6	50	41,400	
1885-1886	123	9.4	129	108,100	
1886-1887	86	4.9	67	56,400	
1887-1888	60	2.9	40	33,400	
1888-1889	78	4.2	58	48,300	
1889-1890	119	8.8	121	101,200	
1890-1891	87	5.1	70	58,700	
1891-1892	107	7.2	99	82,800	
1892-1893	94	5.8	80	66,700	
1893-1894	88	5.2	72	59,800	
1894-1895	139	12.0	165	138,000	
1895-1896	91	6.0	83	68,000	
1896-1897	125	9.6	132	110,400	
1897-1898	54	2.5	34	28,800	Measured
1898-1899	73	3.8	52	43,700	seasonal
1899-1900	82	4.6	63	52,900	discharge
1900-1901	119	8.8	121	101,200	in acre-feet at
1901-1902	97	6.1	84	70,200	U.S.G.S.
1902-1903	97	6.1	84	70,200	gaging station.[i]
1903-1904	71	3.6	50	41,400	
1904-1905	118	5.1	70	59,000	[c]6,800
1905-1906	169	17.1	235	196,500	[d]114,200
1906-1907	123	11.8	162	135,500	[d]76,000
1907-1908	90	8.3	114	95,100	[d]53,300
1908-1909	165	15.2	209	174,500	[d]95,200
1909-1910	102	7.2	99	82,800	[e]45,100
1910-1911	103	9.0	124	103,100	[f]4,600
1911-1912	76	4.1	56	47,100	
1912-1913	67	6.6	91	76,500	[c]8,300
1913-1914	135	12.8	176	148,200	[g]51,900
1914-1915	111	7.0	96	81,000	[h]34,200
1915-1916	153	13.8	190	158,900	[h]61,400
1916-1917	98	8.4	116	97,100	[h]38,600
1917-1918	62	6.9	95	79,100	[h]35,900
1918-1919	88	5.3	73	60,900	[h]27,400
1919-1920	99	5.1	70	59,100	[h]25,500
1920-1921	92	3.5	48	40,800	[h]10,800

(*a*) See next page.
(*b*) Estimated from records and interpolated values.
(*c*) Lone Pine Creek.
(*d*) Ash, Shepard, George, Cottonwood and Lone Pine Creeks.
(*e*) Shepard, George, Cottonwood and Lone Pine Creeks.
(*f*) Cottonwood Creek.
(*g*) Cottonwood and Lone Pine Creeks.
(*h*) Ash, Cottonwood and Lone Pine Creeks.
(*i*) Records incomplete.

TABLE 170—(Concluded). OWENS LAKE GROUP.

SEASONAL RUN-OFF DATA. Drainage area 216 square miles.*a*

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	83,600	7.3	388	....
Maximum seasonal	224,300	19.5	1,040	1883-1884
Minimum seasonal	28,800	2.5	134	1876-1877
Mean during July	13,700	1.2	64	....
Maximum during July	53,900	4.7	250	1905-1906
Minimum during July	4,700	0.4	22	1876-1877
Mean during August	7,800	0.7	36	....
Maximum during August	24,950	2.2	116	1905-1906
Minimum during August	2,700	0.2	13	1876-1877

Probable run-off curve, Plate LII.
Mass curve of run-off, Plate CXLVII.
Storage development curve, Plate CLXXXIV.
Probable frequency of flood discharge, Plate XCII.
(*a*) Description of drainage basin: Tributary area on following streams above designated elevations:

Streams in group.	Drainage area, sq. miles	Period of measurement and authority.	Elevation, feet.
Ash	15.4	U. S. G. S. 1905-1906 to 1908-1909; L. A.* 1914-1915 to 1920-1921	4,000
Shepard	13.0	U. S. G. S. 1905-1906 to 1909-1910	5.900
Bairs	7.5	Record not used	6.100
George	10.6	U. S. G. S. 1905-1906 to 1909-1910	6,500
Hogback	8.7	No record	6.400
Cottonwood	42.9	U. S. G. S. 1905-1906 to 1910-1911; L. A. 1913-1914 to 1920-1921	5,200
Lone Pine	12.3	U. S. G. S. 1904-1905 to 1909-1910; L. A.* 1912-1913 to 1920-1921	6,300
Tuttle and Dietz	11.8	No record	6200-6500
Richer and Carrol	20.8	No record	5900-6400
Braley	1.5	Record not used	4,300
Olancha	....	....	4,500
Walker	....	....	4,900
Summit	57.6	....	4,500
Hogback	....	....	5,200
Carthage	....	....	4,000
Haiwee	....	....	4,900
Unnamed area	10.0	....	....

*City of Los Angeles.

TABLE 171. MOJAVE RIVER.

SEASONAL RUN-OFF DATA. Drainage area 211 square miles.a

Season. (Begins October 1.)	Index of seasonal wetness. Division X.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.c	Measured seasonal discharge in acre-feet.b, c
1871-1872	56	1.8	21	20,200	January, 18.8%	
1872-1873	94	6.7	77	75,300	February, 19.8%	
1873-1874	148	18.1	207	203,500	March, 32 1%	
1874-1875	84	5.0	57	56,200	April, 13.2%	
1875-1876	123	12.5	143	140,400	May, 6.3%	
1876-1877	59	2.1	24	23,600	June, 2.1%	
1877-1878	137	15.5	178	174,100	July, 0.6%	
1878-1879	52	1.5	17	16,800	August, 0.3%	
1879-1880	117	11.0	126	123,600	September, 0.2%	
1880-1881	73	3.6	41	40,400	October, 0.3%	
1881-1882	63	2.5	29	28,100	November, 0.6%	
1882-1883	54	1.7	19	19,100	December, 5 7%	
1883-1884	229	36.3	416	407,700		
1884-1885	68	3.2	37	35,900		
1885-1886	120	11.6	133	130,300		
1886-1887	74	3.8	44	42,700		
1887-1888	127	13.4	154	150,500		
1888-1889	128	13.5	155	151,600		
1889-1890	164	21.5	246	241,500		
1890-1891	117	11.0	126	123,600		
1891-1892	78	4.3	49	48,300		
1892-1893	117	11.0	126	123,600		
1893-1894	58	2.1	24	23,600		
1894-1895	138	15.8	181	177,500		
1895-1896	58	2.1	24	23,600		
1896-1897	116	10.8	124	121,300		
1897-1898	56	1.8	21	20,200		
1898-1899	47	1.3	15	14,600		
1899-1900	58	2.1	24	23,600		
1900-1901	102	8.0	92	89,900		
1901-1902	69	3.2	37	35,900		
1902-1903	116	10.8	124	121,300		
1903-1904	61	2.4	27	27,000		
1904-1905	140	9.3	107	104,900		d103,900
1905-1906	135	12.2	140	136,700		136,700
1906-1907	138	22.7	260	255,100		255,100
1907-1908	88	5.2	60	58,900		58,900
1908-1909	117	8.0	92	89,600		f89,600
1909-1910	97	12.1	139	136,300		f136,300
1910-1911	105	13.2	151	148,400		148,400
1911-1912	81	4.2	48	47,600		f47,600
1912-1913	61	2.3	26	26,000		26,000
1913-1914	141	15.1	173	170,400		170,400
1914-1915	136	10.9	125	122,400		e121,200
1915-1916	146	17.5	200	196,600		
1916-1917	91	6.1	70	68,500		
1917-1918	86	5.4	62	60,700		
1918-1919	73	3.8	43	42,700		
1919-1920	111	9.8	112	110,100		
1920-1921	93	6.5	74	73,000		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	98,200	8.74	466	
Maximum seasonal	407,700	36.30	1,936	1883-1884
Minimum seasonal	14,600	1.30	69	1898-1899
Mean during July	590	0.50	3	
Maximum during July	2,450	.22	12	1883-1884
Minimum during July	90	.01	Trace	1898-1899
Mean during August	290	.03	1	
Maximum during August	1,220	11	6	1883-1884
Minimum during August	40	Trace	Trace	1898-1899

Probable run-off curve, Plate LII.
Storage development curve, Plate CLXXXIV.
Mass curve of run-off, Plate CXLVII.
Probable frequency of flood discharge, Plate XCII.

(a) Description of drainage basin: Tributary area above junction of East and West Forks.
(b) Point of measurement: On East and West Forks, near junction, drainage area 211 square miles.
(c) Discharge measurements from records of Arrowhead Reservoir and Power Company, except as noted.
(d) Partial record, December 1 to September 30.
(e) Partial record, October 1 to June 30.
(f) From records of Arrowhead Reservoir and Power Company and Mojave Water and Power Company as published in the Sixth Biennial Report, State Department of Engineering, pages 68 to 72.

TABLE 172. ANTELOPE VALLEY GROUP.

SEASONAL RUN-OFF DATA. Drainage area 119 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division V.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months as shown by U.S.G.S. records.
1871-1872	79	2.4	52	15,300	January, 9.7%
1872-1873	56	1.1	24	7,000	February, 16.4%
1873-1874	84	2.7	58	17,200	March, 29.8%
1874-1875	96	3.6	77	22,900	April, 25.2%
1875-1876	125	6.5	139	41,400	May, 9.7%
1876-1877	28	0.2	4	1,300	June, 2.1%
1877-1878	147	9.1	195	57,900	July, 0.2%
1878-1879	56	1.1	24	7,000	August, 0.1%
1879-1880	145	8.8	189	56,000	September, 0.2%
1880-1881	66	1.6	34	10,200	October, 1.9%
1881-1882	44	0.6	13	3,800	November, 2.2%
1882-1883	65	1.5	32	9,500	December, 2.5%
1883-1884	204	17.0	365	108,200	
1884-1885	65	1.5	32	9,500	
1885-1886	167	11.7	251	74,400	
1886-1887	120	6.0	129	38,200	
1887-1888	134	7.4	159	47,100	
1888-1889	146	9.0	193	57,300	Measured
1889-1890	180	13.5	290	85,900	seasonal
1890-1891	94	3.5	75	22,300	discharge
1891-1892	104	4.3	92	27,400	in acre-feet at
1892-1893	107	4.6	99	29,300	U.S.G.S.
1893-1894	101	4.0	86	25,400	gaging station.*c*
1894-1895	126	6.6	142	42,000	
1895-1896	70	1.6	34	10,200	*b*66,200
1896-1897	96	4.1	88	26,100	17,300
1897-1898	33	0.7	15	4,500	2,900
1898-1899	30	0.4	9	2,500	1,600
1899-1900	64	1.5	32	9,500	
1900-1901	103	4.2	90	26,700	
1901-1902	87	3.0	64	19,100	
1902-1903	84	2.7	58	17,200	
1903-1904	63	1.5	32	9,500	
1904-1905	140	8.2	176	52,200	
1905-1906	154	10.0	215	63,600	
1906-1907	140	8.2	176	52,200	
1907-1908	81	2.5	54	15,900	
1908-1909	117	5.6	120	35,600	
1909-1910	63	1.5	32	9,500	
1910-1911	119	5.8	124	36,900	
1911-1912	101	4.0	86	25,400	
1912-1913	85	2.8	60	17,800	
1913-1914	96	3.6	77	22,900	
1914-1915	128	6.8	146	43,300	
1915-1916	135	7.6	163	48,400	
1916-1917	111	5.0	107	31,800	
1917-1918	117	5.6	120	35,600	
1918-1919	75	2.2	47	14,000	
1919-1920	80	2.5	54	15,900	
1920-1921	89	3.1	67	19,700	

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	29,700	4.66	249	
Maximum seasonal	108,200	17.01	907	1883-1884
Minimum seasonal	1,300	0.20	11	1876-1877
Mean during July	60	0.01	1	
Maximum during July	220	0.03	2	1883-1884
Minimum during July	0	0.00	0	1897-1898
Mean during August	30	Trace	Trace	
Maximum during August	110	0.02	1	1883-1884
Minimum during August	0	0.00	0	1897-1898

Probable run-off curve, Plate LIII. Mass curve of run-off, Plate CXLVIII.
Storage development curve, Plate CLXXXV. Probable frequency of flood discharge, Plate XCIII.

(*a*) Description of drainage basin: Areas tributary to following streams above designated points: AMARGOSA CREEK, above N. W. cor. of Sec. 29, T. 6 N., R. 12 W., drainage area 28.4 square miles; LITTLE ROCK CREEK, at intersection with Lat. 34° 29.4′, drainage area 64.4 square miles; BIG ROCK CREEK, at intersection with Lat 34° 26.1′, drainage area 36.5 square miles.

(*b*) Partial record, January 1 to September 30.

(*c*) Point of measurement: Little Rock Creek near Palmdale, drainage area 64 square miles.

TABLE 173. WHITEWATER RIVER.

SEASONAL RUN-OFF DATA. Drainage area 269 square miles.*a*

Season. (Begins October 1.)	Index of seasonal wetness. Division X.	Depth of run-off in inches.	Run-off index.	Estimated seasonal run-off in acre-feet. (Above main agricultural area.)	Distribution of seasonal run-off by months.*b*	
1871-1872	56	0.1	11	1,400	January,	18.8%
1872-1873	94	0.5	53	7,200	February,	19.8%
1873-1874	148	2.2	233	31,600	March,	32.1%
1874-1875	84	0.4	42	5,700	April,	13.2%
1875-1876	123	1.3	138	18,600	May,	6.3%
1876-1877	59	0.1	11	1,400	June,	2.1%
1877-1878	137	1.8	191	25,800	July,	0.6%
1878-1879	52	0.1	11	1,400	August,	0.3%
1879-1880	117	1.1	116	15,800	September,	0.2%
1880-1881	73	0.3	32	4,300	October,	0.3%
1881-1882	63	0.2	21	2,900	November,	0.6%
1882-1883	54	0.1	11	1,400	December,	5.7%
1883-1884	229	5.6	593	80,300		
1884-1885	68	0.2	21	2,900		
1885-1886	120	1.2	127	17,200		
1886-1887	74	0.3	32	4,300		
1887-1888	127	1.5	159	21,500		
1888-1889	128	1.5	159	21,500		
1889-1890	164	2.8	297	40,200		
1890-1891	117	1.1	116	15,800		
1891-1892	78	0.3	32	4,300		
1892-1893	117	1.1	116	15,800		
1893-1894	58	0.1	11	1,400		
1894-1895	138	1.8	191	25,800		
1895-1896	58	0.1	11	1,400		
1896-1897	116	1.1	116	15,800		
1897-1898	56	0.1	11	1,400		
1898-1899	47	0.1	11	1,400		
1899-1900	58	0.1	11	1,400		
1900-1901	102	0.8	85	11,500		
1901-1902	69	0.2	21	2,900		
1902-1903	116	1.1	116	15,800		
1903-1904	61	0.2	21	2,900		
1904-1905	140	1.9	201	27,200		
1905-1906	135	1.7	180	24,400		
1906-1907	138	1.8	191	25,800		
1907-1908	88	0.5	53	7,200		
1908-1909	117	1.1	116	15,800		
1909-1910	97	0.7	74	10,000		
1910-1911	105	0.8	85	11,500		
1911-1912	81	0.4	42	5,700		
1912-1913	61	0.2	21	2,900		
1913-1914	141	1.9	201	27,200		
1914-1915	136	1.7	180	24,400		
1915-1916	146	2.1	222	30,100		
1916-1917	91	0.5	53	7,200		
1917-1918	86	0.5	53	7,200		
1918-1919	73	0.3	32	4,300		
1919-1920	111	1.0	106	14,300		
1920-1921	93	0.6	63	8,600		

SUMMARY OF ESTIMATED RUN-OFF.

	Acre-feet.	Depth in inches.	Acre-feet per square mile.	Season.
Mean seasonal	13,500	0.94	50	....
Maximum seasonal	80,300	5.60	299	1883-1884
Minimum seasonal	1,400	0.10	5	1898-1899
Mean during July	80	0.01	Trace	....
Maximum during July	480	0.03	2	1883-1884
Minimum during July	10	Trace	Trace	1898-1899
Mean during August	40	Trace	Trace	....
Maximum during August	240	0.02	1	1883-1884
Minimum during August	Trace	Trace	Trace	1898-1899

Probable run-off curve, Plate LIII.
Storage development curve, Plate CLXXXV.
Mass curve of run-off, Plate CXLVIII.
Probable frequency of flood discharge, Plate XCIII.

(*a*) Description of drainage basin: Tributary area above forks near Whitewater.
(*b*) Estimated from records for the Mojave River.

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TABLE 174. SUMMARY OF RUN-OFF DATA AND INDEX TO PLATES AND TABLES.

COLUMN 2. This number shows the location of the basin on map, Plate XV, and is also the number of the table which contains its run-off data.

COLUMN 3. This is the letter naming the irrigation draft line, among the types on Plate CXLIX, which was used in studies of storage requirements in the basin for equalizing periodic run-off for irrigation use.

COLUMN 4. This letter designates the precipitation division in which the basin lies, and its location is shown on map, Plate XII.

COLUMN 5. This table presents records of precipitation and computed indices of seasonal wetness for this precipitation division.

COLUMN 6. This plate presents mass diagrams of indices of wetness showing comparison of sequence of station precipitation to mean sequence of division.

COLUMN 7. This shows, diagrammatically, the relation between the run-off from the drainage basin and the index of seasonal wetness for the precipitation division in which the basin lies.

COLUMN 8. This shows, diagrammatically, the number of times in one hundred years that floods may be expected to occur in the basin which equal or exceed each rate of run-off.

COLUMN 9. This is a graph of the successive sums of monthly run-off from the basin, each sum beginning with October, 1871, and continuing up to each succeeding month of the fifty-year period. The monthly run-off, before being included in the sum, was expressed in per cent of the mean seasonal run-off, and from each successive sum is deducted a percentage proportional to 100 per cent per season from beginning of period.

COLUMN 10. This shows, diagrammatically, the amount of storage capacity required in the basin to equalize the periodic flow of the stream, in order to yield for irrigation diversion any volume of water which is possible to develop, with the use represented by the draft line designated in Column 3.

COLUMN 11. The point above which this area is measured is given in the table of Seasonal Run-off Data, numbered in Column 2.

COLUMN 12. The point above which run-off is computed is given in the table of Seasonal Run-off Data, numbered in Column 2.

Name of drainage basin.	Map reference number and run-off table number.	Irrigation draft line.	Precipitation.			Plate numbers.				Drainage area in square miles.	Mean seasonal run-off, upstream from main body of agricultural lands.		
			Division.	Table number.	Plate number.	Curve of probable run-off.	Flood frequency curve.	Mass diagram of run-off.	Storage development curve.		Acre-feet.	Acre-feet per square mile of drainage area.	Average depth in inches over drainage area.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Sacramento River (Upper)	34	A	B	6	II	XVIII	LVIII	XCV	CL	568	1,486,390	2,616	49.1
Pit River	35	A	A-B	5-6	II	XVIII	LVIII	XCV	CL	5,346	4,204,600	786	14.7
McCloud	36	A	B	6	II	XVIII	LVIII	XCV	CL	669	1,591,200	2,378	44.6
Churn Creek Group	37	A	B	6	II	XVIII	LVIII	XCV	CL	100	83,100	828	15.5
Cow Creek	38	A	B	6	II	XIX	LIX	XCVI	CLI	444	510,200	1,150	21.6
Bear Creek	39	A	B	6	II	XIX	LIX	XCVI	CLI	137	103,700	756	14.2
Battle Creek	40	A	B	6	II	XIX	LIX	XCVI	CLI	366	421,800	1,151	21.6
Ink's Creek	41	A	B	6	II	XX	LX	XCVII	CLII	34	28,200	825	15.5
Payne's Creek	42	A	B	6	II	XX	LX	XCVII	CLII	80	84,200	1,048	19.6
Backbone Creek Group	43	A	B	6	II	XX	LX	XCVII	CLII	178	207,500	1,166	21.8
Clear Creek	44	A	B	6	II	XX	LX	XCVII	CLII	251	294,900	1,175	22.0
Cottonwood Creek	45	A	B	6	II	XXI	LXI	XCVIII	CLIII	937	913,300	974	18.3
Sacramento River*	46	A	A-B	5-6	II	XXI	LXI	XCVIII	CLIII	9,258	9,929,000	1,072	20.1
Mill Creek Group	47	A	G	11	IV	XXI	LXI	XCVIII	CLIII	971	1,157,400	1,192	22.4
Butte Creek Group	48	A	G	11	IV	XXI	LXI	XCVIII	CLIII	251	358,400	1,427	26.8

*At Red Bluff, includes all streams listed above, and 147 square miles of agricultural area. See Table 2.

Feather River	49	A	G	11	IV	XXII	LXII	XCIX	CLIV	3,627	5,283,500	1,456	27.3
Honcut Creek Group	50	A	G	11	IV	XXII	LXII	XCIX	CLIV	314	199,400	636	11.9
Yuba River	51	A	H	12	IV	XXII	LXII	XCIX	CLIV	1,200	2,652,600	2,210	41.4
Dry Creek	52	A	H	12	IV	XXII	LXII	XCIX	CLIV	79	49,700	627	11.8
Bear River	53	A	H	12	IV	XXIII	LXIII	C	CLV	262	412,500	1,574	29.5
Coon Creek Group	54	A	J	14	V	XXIII	LXIII	C	CLV	210	34,100	162	3.0
American River	55	A	J	14	V	XXIII	LXIII	C	CLV	1,919	3,181,900	1,658	31.1
Red Bank Creek Group	56	A	F	10	III	XXIII	LXIII	CI	CLV	109	73,000	672	12.6
Elder Creek Group	57	A	F	10	III	XXIV	LXIV	CI	CLVI	414	213,000	515	9.7
Stony Creek	58	A	F	10	III	XXIV	LXIV	CII	CLVI	710	555,000	782	14.6
Willow Creek Group	59	A	F	10	III	XXIV	LXIV	CII	CLVI	394	92,200	234	4.4
Cache Creek	60	A	F	10	III	XXIV	LXIV	CIII	CLVI	1,195	586,000	490	9.2
Putah Creek	61	A	F	10	III	XXV	LXV	CIII	CLVII	655	421,800	644	12.1
Orestimba Creek Group	62	B	P-L	20-16	VI-V	XXV	LXV	CIV	CLVII	1,340	110,800	83	1.6
Panoche Creek	63	B	T	24	VIII	XXV	LXV	CIV	CLVII	295	27,100	92	1.7
Cantua Creek Group	64	B	T	24	VIII	XXV	LXV	CV	CLVII	208	12,500	60	1.1
Los Gatos Creek	65	B	T	24	VIII	XXVI	LXVI	CV	CLVIII	119	9,750	82	1.5
Tejon Creek Group	66	B	T	24	VIII	XXVI	LXVI	CVI	CLVIII	1,341	95,600	71	1.3
Caliente Creek	67	B	V	26	VIII	XXVI	LXVI	CVI	CLVIII	471	45,000	96	1.8
Kern River	68	B	R	22	VII	XXVI	LXVI	CVII	CLVIII	2,410	760,400	316	5.9
Poso Creek Group	69	B	R	22	VII	XXVII	LXVII	CVII	CLIX	576	47,200	82	1.5
Deer Creek	70	B	R	22	VII	XXVII	LXVII	CVIII	CLIX	110	20,650	187	3.5
Tule River	71	B	R	22	VII	XXVII	LXVII	CVIII	CLIX	390	141,500	363	6.8
Yokohl Creek Group	72	B	R	22	VII	XXVII	LXVII	CVIII	CLIX	98	14,800	151	2.8
Kaweah River	73	B	R	22	VII	XXVIII	LXVIII	CIX	CLX	514	407,900	791	14.9
Limekiln Creek Group	74	B	R	22	VII	XXVIII	LXVIII	CIX	CLX	201	62,200	310	5.8
Kings River	75	B	Q	21	VII	XXVIII	LXVIII	CIX	CLX	1,694	1,925,100	1,136	21.3
Dry Creek	76	B	Q	21	VII	XXVIII	LXVIII	CIX	CLX	48	4,500	94	1.8
San Joaquin River (Upper)	77	B	Q	21	VII	XXIX	LXIX	CX	CLXI	1,631	2,056,900	1,261	23.6
Cottonwood Creek	78	B	Q	21	VII	XXIX	LXIX	CX	CLXI	28	2,300	81	1.5
Fresno River	79	B	Q	21	VII	XXIX	LXIX	CX	CLXI	270	68,300	253	4.7
Daulton Creek Group	80	B	Q	21	VII	XXIX	LXIX	CXI	CLXI	66	5,200	78	1.5
Chowchilla River	81	B	K	15	V	XXX	LXX	CXI	CLXII	238	67,700	281	5.3
Dutchman Creek Group	82	B	K	15	V	XXX	LXX	CXII	CLXII	72	8,300	115	2.2
Mariposa Creek	83	B	K	15	V	XXX	LXX	CXII	CLXII	103	12,800	125	2.3
Owens Creek	84	B	K	15	V	XXX	LXX	CXIII	CLXII	66	6,500	98	1.8
Bear Creek	85	B	K	15	V	XXXI	LXXI	CXIII	CLXIII	71	7,500	105	2.0
Burns Creek Group	86	B	K	15	V	XXXI	LXXI	CXIV	CLXIII	171	24,400	143	2.7
Merced River	87	B	K	15	V	XXXI	LXXI	CXIV	CLXIII	1,054	1,133,500	1,075	20.2
Tuolumne River	88	B	K	15	V	XXXI	LXXI	CXI	CLXIII	1,543	2,055,800	1,332	24.9
Wildcat Creek Group	89	B	K	15	V	XXXII	LXXII	CXV	CLXIV	59	8,850	151	2.8
Stanislaus River	90	B	K	15	V	XXXII	LXXII	CXIV	CLXIV	983	1,376,000	1,400	26.2
Littlejohns Creek	91	B	K	15	V	XXXII	LXXII	CXVI	CLXIV	41	8,150	201	3.8
Martells Creek Group	92	B	K	15	V	XXXII	LXXII	CXV	CLXIV	122	14,300	117	2.2
Calaveras River	93	B	K	15	V	XXXIII	LXXIII	CXVI	CLXV	394	316,500	803	15.1

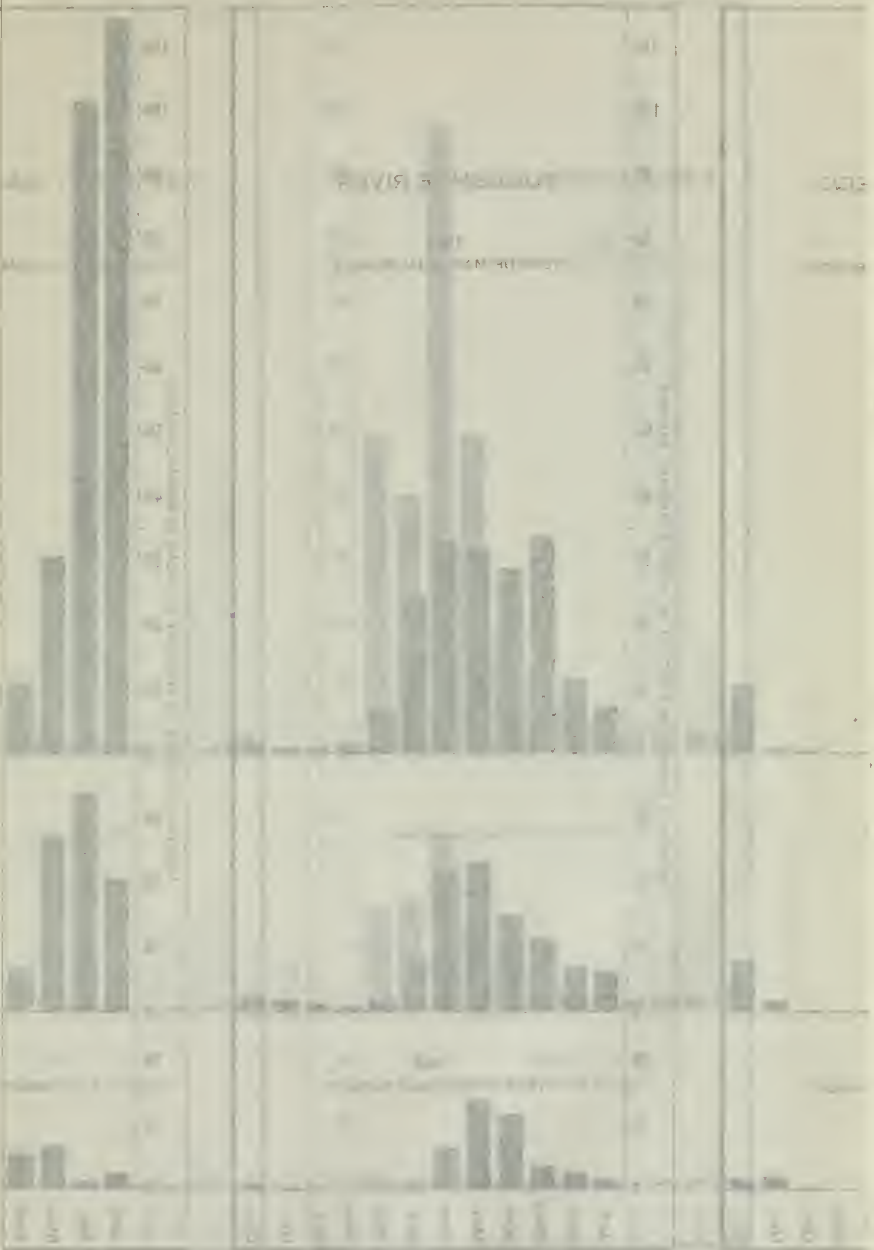
TABLE 174—(Concluded). SUMMARY OF RUN-OFF DATA AND INDEX TO PLATES AND TABLES.

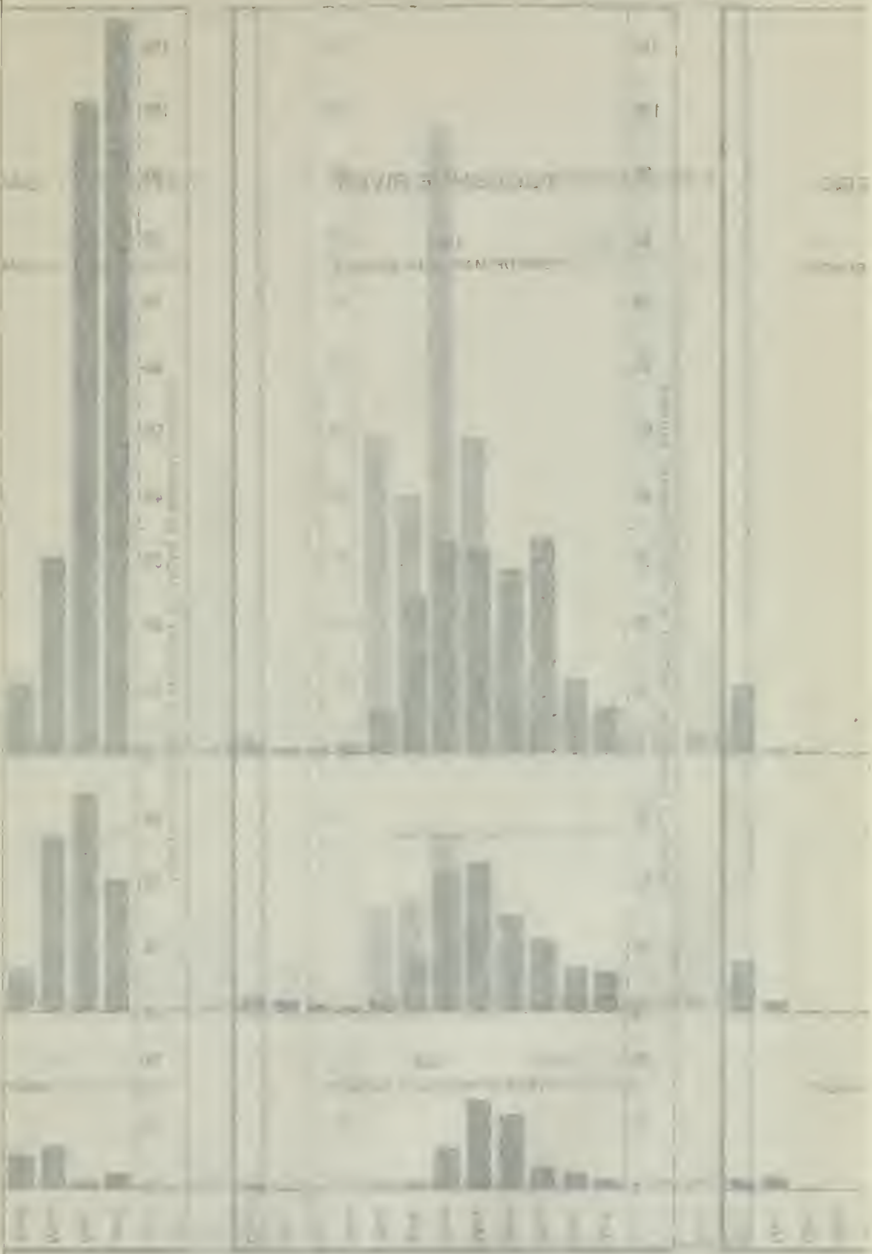
Name of drainage basin.	Map reference number and run-off table number.	Irrigation draft line.	Precipitation.			Plate numbers.				Drainage area in square miles.	Mean seasonal run-off, upstream from main body of agricultural lands.		
			Division.	Table number.	Plate number.	Curve of probable run-off.	Flood frequency curve.	Mass diagram of run-off.	Storage development curve.		Acre-feet.	Acre-feet per square mile of drainage area.	Average depth in inches over drainage area.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Mokelumne River	94	B	K	15	V	XXXIII	LXXIII	CXVII	CLXV	632	898,100	1,421	26.7
Sutter Creek Group	95	B	K	15	V	XXXIII	LXXIII	CXVII	CLXV	285	93,200	327	6.1
Cosumnes River	96	B	K	15	V	XXXIII	LXXIII	CXVII	CLXV	534	482,000	903	16.9
Petaluma Creek Group	97	C	M	17	VI	XXXIV	LXXIV	CXVIII	CLXVI	139	75,300	542	10.2
Sonoma Creek Tributaries	98	C	M	17	VI	XXXIV	LXXIV	CXVIII	CLXVI	78	35,600	455	8.5
Napa River Tributaries	99	C	M	17	VI	XXXIV	LXXIV	CXVIII	CLXVI	226	115,200	510	9.6
Suisun Creek Group	100	C	M	17	VI	XXXIV	LXXIV	CXVIII	CLXVI	125	52,500	421	7.9
Mt. Diablo Creek Group	101	C	L	16	V	XXXV	LXXV	CXIX	CLXVII	200	69,800	350	6.6
San Pablo Creek	102	C	L	16	V	XXXV	LXXV	CXX	CLXVII	41	17,200	424	7.9
San Leandro Creek	103	C	L	16	V	XXXV	LXXV	CXX	CLXVII	44	18,900	433	8.1
Claremont Creek Group	104	C	L	16	V	XXXV	LXXV	CXIX	CLXVII	83	24,600	297	5.6
San Lorenzo Creek	105	C	L	16	V	XXXVI	LXXVI	CXXI	CLXVIII	38	16,700	441	8.3
Alameda Creek	106	C	L	16	V	XXXVI	LXXVI	CXXI	CLXVIII	654	140,900	215	4.0
Mission Creek Group	107	C	L	16	V	XXXVI	LXXVI	CXXII	CLXVIII	77	25,000	324	6.1
Penitencia Creek	108	C	L	16	V	XXXVI	LXXVI	CXXII	CLXVIII	22	5,200	232	4.4
Coyote River	109	C	N	18	VI	XXXVII	LXXVII	CXXIII	CLXIX	197	80,100	407	7.6
Guadalupe River	110	C	N	18	VI	XXXVII	LXXVII	CXXIII	CLXIX	52	22,000	421	7.9
Los Gatos Creek Group	111	C	N	18	VI	XXXVII	LXXVII	CXXIV	CLXIX	121	68,500	566	10.6
San Francisquito Creek	112	C	L	16	V	XXXVII	LXXVII	CXXIV	CLXIX	38	20,700	550	10.3
San Mateo Creek Group	113	C	L	16	V	XXXVIII	LXXVIII	CXXV	CLXX	84	37,100	439	8.2
Smith River	114	C	D	8	III	XXXVIII	LXXVIII	CXXV	CLXX	627	3,406,200	5,433	101.9
Klamath River	115	C	C	7	II	XXXVIII	LXXVIII	CXXV	CLXX	2,320	3,410,700	1,470	27.6
Shasta River	116	C	C	7	II	XXXVIII	LXXVIII	CXXVI	CLXX	803	242,600	302	5.7
Scott River	117	C	C	7	II	XXXIX	LXXIX	CXXVI	CLXXI	813	521,100	641	12.0
Salmon River	118	C	C	7	II	XXXIX	LXXIX	CXXVI	CLXXI	734	1,256,400	1,712	32.1
Trinity River	119	C	C	7	II	XXXIX	LXXIX	CXXVI	CLXXI	2,965	4,447,700	1,500	28.1
Redwood Creek	120	C	D	8	III	XXXIX	LXXIX	CXXVII	CLXXI	275	837,400	3,012	57.1
Mad River	121	C	D-E	8-9	III	XL	LXXX	CXXVII	CLXXII	457	1,182,500	2,588	48.5
Eel River	122	C	E	9	III	XL	LXXX	CXXVII	CLXXII	3,517	6,010,000	1,708	31.8
Bear Creek	123	C	D	8	III	XL	LXXX	CXXVII	CLXXII	82	227,000	2,785	52.2
Mattole River	124	C	D	8	III	XL	LXXX	CXXVIII	CLXXII	264	1,060,600	4,017	75.3
Noyo River Group	125	C	D	8	III	XLI	LXXXI	CXXVIII	CLXXIII	780	1,305,300	1,674	31.4
Navarro River	126	C	D	8	III	XLI	LXXXI	CXXVIII	CLXXIII	273	391,600	1,435	26.9
Gualala River Group	127	C	D	8	III	XLI	LXXXI	CXXVIII	CLXXIII	623	849,700	1,364	25.6
Russian River	128	C	E	9	III	XLI	LXXXI	CXXIX	CLXXIII	1,508	1,416,600	940	17.6

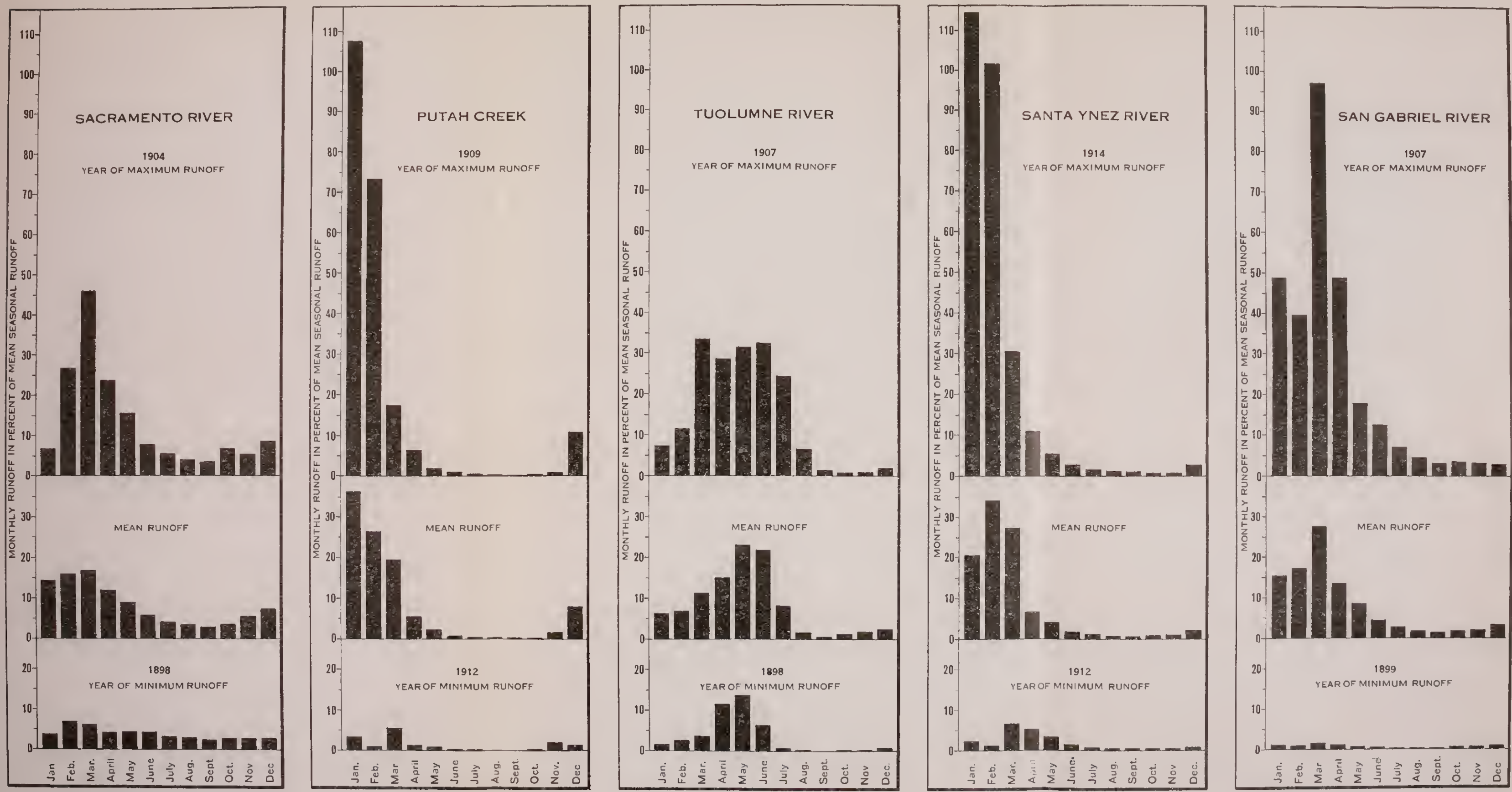
Lagunitas Creek	129	C	D	8.	III	XLII	LXXXII	CXXIX	CLXXIV	81	89,200	1,062	19.9
Salmon Creek Group	130	C	D	8	III	XLII	LXXXII	CXXIX	CLXXIV	230	113,900	495	9.3
Bolinas Creek Group	131	C	D	8	III	XLII	LXXXII	CXXIX	CLXXIV	158	36,600	232	4.3
San Diego River	132	E	Y	29	IX	XLII	LXXXII	CXXX	CLXXIV	207	35,400	171	3.2
Santa Ysabel Creek	133	E	Y	29	IX	XLIII	LXXXIII	CXXX	CLXXV	126	33,000	262	4.9
San Luis Rey River	134	E	Y	29	IX	XLIII	LXXXIII	CXXXI	CLXXV	325	59,400	183	3.1
Santa Margarita River	135	E	Y	29	IX	XLIII	LXXXIII	CXXXII	CLXXV	690	31,900	16	0.9
San Jacinto River Tributaries	136	E	X	28	IX	XLIII	LXXXIII	CXXXI	CLXXV	330	48,600	118	2.8
Santa Aua River Tributaries	137	E	X	28	IX	XLIV	LXXXIV	CXXXII	CLXXVI	460	253,400	551	10.3
San Gabriel River Tributaries	138	E	W	27	IX	XLIV	LXXXIV	CXXXIII	CLXXVI	280	150,200	536	10.1
Los Angeles River Tributaries	139	E	W	27	IX	XLIV	LXXXIV	CXXXIII	CLXXVI	167	71,000	426	8.0
Malibu River Group	140	E	U	25	VIII	XLIV	LXXXIV	CXXXIV	CLXXVI	379	54,700	144	2.7
Santa Clara River Tributaries	141	E	U	25	VIII	XLV	LXXXV	CXXXIV	CLXXVII	911	222,100	244	4.6
Ventura River	142	E	U	25	VIII	XLV	LXXXV	CXXXV	CLXXVII	226	66,200	293	5.5
Jalama Creek Group	143	D	U	25	VIII	XLV	LXXXV	CXXXV	CLXXVII	242	48,000	198	3.7
Santa Ynez River	144	D	U	25	VIII	XLV	LXXXV	CXXXVI	CLXXVII	797	205,500	258	4.8
San Antonio Creek	145	D	U	25	VIII	XLVI	LXXXVI	CXXXVII	CLXXVIII	138	22,600	163	3.1
Santa Maria River	146	D	T	24	VIII	XLVI	LXXXVI	CXXXVI	CLXXVIII	1,634	207,200	127	2.4
San Luis Obispo Creek Group	147	D	T	24	VIII	XLVI	LXXXVI	CXXXVII	CLXXVIII	1,019	222,700	219	4.1
Salinas River Tributaries	148	C	T	24	VIII	XLVI	LXXXVI	CXXXVIII	CLXXVIII	4,042	961,900	238	4.5
Pajaro River Tributaries	149	C	O-T	19-24	VI-VIII	XLVII	LXXXVII	CXXXVIII	CLXXIX	1,070	278,800	261	4.9
Soquel Creek Group	150	C	O-N	19-18	VI	XLVII	LXXXVII	CXXXIX	CLXXIX	324	279,900	861	16.2
Pescadero Creek Group	151	C	L	16	V	XLVII	LXXXVII	CXXXIX	CLXXIX	222	189,300	853	16.0
Tule Lake Group	152	C	A	5	II	XLVIII	LXXXVIII	CXL	CLXXX	901	275,200	305	5.7
Goose Lake Group	153	C	A	5	II	XLVIII	LXXXVIII	CXLI	CLXXX	275	32,200	117	2.2
Cowhead Lake Basin	154	C	A	5	II	XLVIII	LXXXVIII	CXL	CLXXX	24	5,400	222	4.2
Surprise Valley Group	155	C	A	5	II	XLVIII	LXXXVIII	CXLI	CLXXX	379	84,900	224	4.2
Madeline Plains Group	156	C	A	5	II	XLIX	LXXXIX	CXLII	CLXXXI	548	110,600	202	3.8
Smoke Creek Group	157	C	A	5	II	XLIX	LXXXIX	CXLII	CLXXXI	188	37,600	200	3.8
Eagle Lake Group	158	C	A	5	II	XLIX	LXXXIX	CXLIII	CLXXXI	498	91,000	183	3.4
Honey Lake Group	159	C	A	5	II	XLIX	LXXXIX	CXLIII	CLXXXI	1,507	330,800	220	4.1
Lake Tahoe Basin	160	A	I	13	IV	L	XC	CXLIV	CLXXXII	499	261,000	523	9.8
Truckee River	161	A	I	13	IV	L	XC	CXLIV	CLXXXII	447	506,000	1,133	21.3
West Fork Carson River	162	D	I	13	IV	L	XC	CXLV	CLXXXII	67	115,200	1,714	32.1
East Fork Carson River	163	D	I	13	IV	L	XC	CXLV	CLXXXII	323	309,000	957	17.9
West Walker River	164	D	I	13	IV	LI	XCI	CXLV	CLXXXIII	405	313,800	775	14.5
East Walker River	165	D	I	13	IV	LI	XCI	CXLV	CLXXXIII	411	312,300	759	14.2
Mono Lake Group	166	D	K	15	V	LI	XCI	CXLVI	CLXXXIII	166	215,650	1,301	24.4
Adobe Meadows Group	167	C	Z	30	X	LI	XCI	CXLVI	CLXXXIII	453	53,100	117	2.2
Owens River (Upper)	168	D	Q	21	VII	LII	XCII	CXLVII	CLXXXIV	521	278,100	531	10.0
Bishop Creek Group	169	D	Q	21	VII	LII	XCII	CXLVII	CLXXXIV	446	311,500	766	14.4
Owens Lake Group	170	D	R	22	VII	LII	XCII	CXLVII	CLXXXIV	216	83,600	388	7.3
Mojave River	171	D	X	28	IX	LII	XCII	CXLVII	CLXXXIV	211	98,200	466	8.7
Antelope Valley Group	172	D	V	26	VIII	LIII	XCIII	CXLVIII	CLXXXV	119	29,700	249	4.7
Whitewater River	173	E	X	28	IX	LIII	XCIII	CXLVIII	CLXXXV	269	13,500	50	0.9

TABLE 175. FLOOD FLOW IN CALIFORNIA STREAMS.

Run-off table number.	Stream.	Place of measurement.	Tributary drainage area in square miles.	Date of flood	Measured and estimated flood flows. Maximum rate of flow in second-feet.	Mean rate of flow from entire drainage area for 24 hours in second-feet.	Mean rate of flow from one square mile of drainage area in 24 hours. Second-feet.	Equivalent depth in inches.	Total run-off for month in which flood occurred. Acre-feet.	Acre-feet per square mile	Depth in inches.	Mean flow of 50 years for this month in inches	Curve of probable frequency of flood discharge, Plate number.	Authority (NOTE—W. S. refers to the series of water supply papers published by the United States Geological Survey)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
35	Pit River	Ydalpom	5,346	Feb. 25, 1917 Feb. 10, 1916 Dec. 31, 1913	10,700 40,300 17,000	35,600 31,300 33,900	6.7 6.4 6.1	0.25 0.24 0.24	408,000 840,000 283,000	76.30 157.00 52.90	1.43 2.94 0.99	1.88 1.88 1.04	LVIII	W. S. 461, p. 202, W. S. 461, p. 203. W. S. 441, p. 205. W. S. 391, p. 213, W. S. 161, p. 202
36	McCloud River	Baird	660	Mar. 8, 1904 Feb. 16, 1904 Mar. 19, 1907	No record 55,000 No record	41,500 10,000 30,000	67.9 65.3 49.2	2.53 2.43 1.83	577,000 345,000 369,000	862.50 515.00 551.00	16.18 9.65 10.32	5.52 5.92 5.52	LVIII	W. S. 298, p. 131. W. S. 298, ps. 127 and 131. W. S. 298, p. 133.
46	Sacramento River	Red Bluff	9,258	Feb. 3, 1909 Feb. 2, 1915 Mar. 20, 1907	278,000 262,000 No record	254,000 249,000 196,000	27.4 26.9 21.2	1.02 1.00 0.79	3,556,000 3,140,000 3,420,000	383.50 339.60 369.50	7.18 6.37 6.73	3.21 3.21 3.10	LVIII	W. S. 298, p. 671; W. S. 441, p. 201. W. S. 411, ps. 222, 223. W. S. 298, p. 66.
49	Feather River	Oroville	3,627	Mar. 19, 1907 Jan. 16, 1909 Dec. 31, 1913	No record No record 167,000	187,000 137,000 121,000	51.6 37.6 33.4	1.92 1.40 1.24	2,270,000 2,450,000 423,000	626.00 675.00 116.50	11.73 12.65 2.18	4.77 2.97 1.34	LXII	W. S. 298, p. 213 W. S. 298, p. 214 W. S. 391, ps. 231, 232
51	Yuba River	Smartsville	1,200	Jan. 15, 1909 Mar. 19, 1907 Feb. 2, 1907	No record No record No record	111,000 100,000 78,000	92.5 83.5 65.0	3.41 3.10 2.42	1,410,000 1,060,000 783,000	1,171.00 883.00 652.00	22.00 16.55 12.22	4.92 7.41 5.26	LXII	W. S. 298, p. 254. W. S. 298, p. 262 W. S. 298, p. 262
53	Bear River	Van Trent	262	Mar. 10, 1907 Feb. 2, 1907 Jan. 14, 1909	28,000 88,000 20,600	25,800 25,700 25,300	99.5 96.8 96.8	3.7 3.6 3.6	274,000 156,000 296,000	1,045.00 595.00 1,130.00	19.60 11.15 21.20	6.10 6.40 7.10	LXIII	W. S. 298, p. 296. W. S. 298, p. 295 W. S. 298, p. 296; W. S. 461, p. 235.
55	American River	Fairoaks Folsom	1,910 1,900	Mar. 19, 1907 Jan. 14, 1909 Feb. 2, 1907 Jan. 10, 1862	119,000 No record No record 188,880	105,000 98,000 80,800 ..	54.6 50.8 42.0 ..	2.03 1.89 1.56 ..	1,520,000 1,190,000 822,000 ...	792.00 777.00 428.00	14.85 14.55 8.03 .	4.92 3.83 3.81 3.83	LXIII	W. S. 298, ps. 303, 309. W. S. 298, p. 310. W. S. 298, p. 309 "Flood Discharge of American River," by C. E. Grunsky and A. Givan
58	Stony Creek	Fruto . . .	577	Feb. 2, 1909 Mar. 18, 1907 Feb. 24, 1904	No record No record No record	29,300 26,500 22,200	50.8 46.0 38.5	1.89 1.71 1.43	304,000 272,000 230,000	526.00 471.00 398.50	9.86 8.83 7.46	3.44 3.94 3.44	LXIV	W. S. 298, p. 171. W. S. 298, p. 170. W. S. 298, p. 169
60	Cache Creek	Yolo	1,105	Feb. 3, 1909 Feb. 2, 1915 Mar. 19, 1907	20,800 21,100 No record	20,100 19,300 19,200	16.7 16.1 16.1	0.62 0.60 0.60	469,000 400,000 331,000	392.00 342.00 277.00	7.35 6.42 5.20	1.25 1.25 1.49	LXIV	W. S. 298, ps. 356, 365 W. S. 411, p. 279. W. S. 298, p. 364.
61	Putah Creek	Winters	655	Jan. 23, 1916 Dec. 31, 1913 Jan. 3, 1916	No record 60,000 53,300	42,400 40,000 39,800	64.5 61.9 59.1	2.40 2.30 2.20	416,000 160,000 416,000	635.00 244.00 635.00	11.90 4.57 11.90	4.38 0.93 4.38	LXV	W. S. 441, p. 254 W. S. 391, p. 276. W. S. 441, ps. 253, 254
68	Kern River	Bakersfield	2,410	Jan. 18, 1916 Jan. 26, 1914 Mar. 21, 1916	17,062 18,287 11,830	16,125 15,480 10,480	6.7 6.4 4.3	0.25 0.24 0.16	172,000 117,000 378,000	71.40 48.50 157.00	1.34 0.91 2.94	0.30 0.30 0.54	LXVI	W. S. 441, ps. 103, 104 W. S. 391, p. 120; W. S. 481, p. 106. W. S. 441, ps. 103, 104
71	Tule River	Near Porterville	264	Dec. 8, 1909 Jan. 21, 1909 Jan. 25, 1914	No record No record 6,000	5,430 5,070 4,710	21.2 20.4 17.7	0.79 0.76 0.66	36,600 55,000 44,400	138.70 208.30 168.20	2.61 3.90 3.15	0.31 0.89 0.89	LXVII	W. S. 299, ps. 129, 135. W. S. 299, p. 135. W. S. 391, ps. 128, 129.
73	Kaweah River	Three Rivers	514	Jan. 17, 1916 Jan. 25, 1914 Jan. 21, 1909	14,700 13,300 No record	10,100 9,880 9,210	19.7 19.1 18.0	0.73 0.71 0.67	94,100 71,900 92,200	183.00 139.60 179.10	3.43 2.62 3.36	0.97 0.97 0.97	LXVIII	W. S. 441, p. 114. W. S. 481, p. 114. W. S. 391, ps. 132, 133. W. S. 299, p. 140.
75	Kings River	Sanger	1,694	Jan. 7, 1901 Jan. 26, 1914 June 20, 1906	No record 59,700 No record	43,930 30,400 26,600	25.0 17.7 15.6	0.93 0.66 0.58	266,670 260,000 1,030,000	157.20 153.30 602.00	2.95 2.87 11.28	0.06 0.06 5.59	LXVIII	W. S. 299, p. 173 W. S. 391, ps. 137, 138. W. S. 299, p. 174
77	San Joaquin River	Friant	1,631	Jan. 1880 Jan. 31, 1911 Dec. 31, 1909	No record No record No record	59,800 38,800 27,900	23.7 17.2 16.7	0.88 0.04 0.62	237,000 230,000 220,000	145.20 146.50 134.90	2.73 2.75 2.53	1.30 1.30 0.50	LXIX	Ham Hall, "Physical Data and Statistics of California," p. 450. W. S. 299, p. 50 W. S. 299, p. 48
79	Fresno River	Near Knowles	134	Mar. 5, 1916 Feb. 21, 1917 Jan. 25, 1916	No record 4,500 No record	3,770 3,770 2,710	23.1 23.1 16.7	0.86 0.86 0.62	37,700 29,200 32,300	281.30 217.00 241.00	4.33 3.36 3.71	1.05 0.79 0.31	LXIX	W. S. 441, p. 127. W. S. 461, ps. 127, 128. W. S. 441, p. 127.
87	Merced River	Merced Falls, 1901-13 Exchequer, 1915	1,054	Jan. 30, 1911 Mar. 19, 1907 Mar. 15, 1906	No record No record No record	37,200 27,500 20,950	36.0 26.1 21.5	1.34 0.97 0.80	271,000 459,000 287,000	257.10 435.50 272.30	4.92 8.34 5.21	1.34 2.66 2.66	LXXI	W. S. 299, p. 234. W. S. 299, p. 234. W. S. 299, p. 233.
88	Tuolumne River	La Grange	1,543	Jan. 30, 1911 Mar. 19, 1907 Jan. 25, 1914	60,300 No record No record	52,500 52,200 31,200	33.9 33.9 20.4	1.26 1.26 0.76	373,000 689,000 405,000	242.00 44.60 262.50	4.54 8.37 4.92	1.54 2.79 1.54	LXXI	W. S. 299, ps. 266; 270, W. S. 391, p. 164. W. S. 299, p. 269. W. S. 391, p. 165.
90	Stanislaus River	Knight's Ferry	983	Mar. 19, 1907 Jan. 31, 1911 Jan. 21, 1909	No record 60,000 No record	57,200 36,900 36,600	58.0 37.6 36.8	2.16 1.40 1.37	640,000 255,000 357,000	651.00 259.20 363.00	12.20 4.86 6.80	4.36 1.86 1.86	LXXII	W. S. 299, p. 340. W. S. 299, p. 541, W. S. 391, p. 181. W. S. 299, p. 340.
93	Calaveras River	Jenny Lind	394	Jan. 31, 1911 Jan. 18, 1921 Mar. 19, 1907	69,600 No record No record	69,600 54,500 40,200	176.0 138.0 102.0	6.55 5.13 3.79	323,000 178,000 322,000	819.00 451.00 816.00	15.34 8.45 15.30	5.16 5.00 3.58	LXXIII	W. S. 299, p. 367; W. S. 461, p. 178. Advance Sheet. W. S. 299, p. 363.
94	Mokelumne River	Near Clements	632	Jan. 31, 1911 Mar. 19, 1907 Jan. 26, 1914	20,600 17,000 13,300	16,700 15,300 11,100	26.4 24.2 17.5	0.98 0.90 0.65	148,000 300,000 169,000	234.20 475.00 267.20	4.30 8.91 5.00	1.89 3.63 1.80	LXXIII	W. S. 299, p. 382. W. S. 299, ps. 380-383. W. S. 391, p. 191.
96	Cosumnes River	Michigan Bar	534	Jan. 31, 1911 Jan. 14, 1909 Jan. 21, 1909 Mar. 19, 1907	No record No record No record No record	22,400 20,800 15,400 32,600	42.0 39.0 28.8 61.0	1.56 1.45 1.07 2.27	257,000 264,000 264,000 . . .	481.00 494.00 494.00 .	9.03 9.25 9.25	3.68 3.68 3.68 3.56	LXXIII	W. S. 299, p. 401. W. S. 299, p. 402. W. S. 299, p. 400. Clapp, Murphy and Martin, "Transactions American Society Civil Engineers," Vol. 61, p. 317.
106	Alameda Creek	Sunol Glen	639	Mar. 7, 1911 Mar. 10, 1907 Mar. 23, 1907	No record No record No record	14,700 10,900 10,700	23.1 17.0 16.7	0.86 0.63 0.62	126,000 171,000 171,000	196.50 268.00 268.00	3.68 5.03 5.03	0.96 0.96 0.96	LXXVI	W. S. 391, p. 108. W. S. 391, p. 102. W. S. 391, p. 102.
109	Coyote River	Near Madrone	197	Mar. 7, 1911 Mar. 31, 1903 Jan. 27, 1903	25,000 No record No record	10,100 9,700 8,000	51.6 49.5 40.8	1.92 1.84 1.52	73,200 30,100 17,800	371.70 152.80 90.30	6.96 2.87 1.69	2.73 2.73 2.19	LXXVII	W. S. 331, ps. 108, 109. W. S. 331, p. 102. W. S. 331, p. 102.
114	Smith River (No. and Mid. Forks)	Near Crescent City	227	Nov. 25, 1915 Nov. 30, 1917 Feb. 17, 1912	42,500 No record No record	40,800 32,700 32,700	170.2 144.0 144.0	6.67 5.35 5.35	No record No record 317,000	 1,396.00	. . . . . 26.20	11.10 11.10 16.50	LXXVIII	W. S. 441, ps. 207, 208. W. S. 481, p. 301. W. S. 361, p. 495.
116	Shasta River	Near Montague	673	Jan. 19, 1913 Feb. 18, 1912 May 1, 1912	No record No record No record	712 570 570	1.1 0.9 0.9	0.03 0.02 0.02	18,100 11,700 17,000	26.90 17.40 25.30	0.50 0.33 0.47	0.56 0.60 0.65	LXXVIII	W. S. 361, p. 454. W. S. 361, p. 454. W. S. 361, p. 454.
117	Scott River	Scott Bar	813	Feb. 18, 1912 Jan. 26, 1912 June 5, 1912	No record No record No record	4,180 2,800 2,800	5.1 3.5 3.5	0.19 0.13 0.13	65,000 39,900 107,000	80.00 49.10 131.80	1.50 0.92 2.47	1.10 0.84 2.23	LXXIX	W. S. 300, p. 890. W. S. 300, p. 890. W. S. 300, p. 890.
118	Salmon River	Somes Bar	734	Dec. 31, 1914 Feb. 17, 1912 Jan. 2, 1914	32,600 33,000 No record	32,600 30,000 24,400	44.4 40.9 33.1	1.65 1.52 1.23	103,000 257,000 No record	140.30 350.00	2.63 6.56	1.41 4.53 4.50	LXXIX	W. S. 391, p. 316. W. S. 361, p. 467, W. S. 391, p. 316. W. S. 391, p. 316.
119	Trinity River	Lewiston	718	Jan. 2, 1914 Mar. 20, 1916 Mar. 28, 1915	26,900 23,500 No record	24,600 22,200 18,500	34.2 30.9 25.8	1.27 1.15 0.96	309,000 331,000 346,000	430.00 461.00 481.80	8.06 8.65 9.04	3.32 3.91 3.91	LXXIX	W. S. 391, p. 317. W. S. 441, p. 296. W. S. 411, p. 324
120	Redwood Creek	Orick	275	Feb. 17, 1912 Nov. 6, 1912 Jan. 18, 1913	No record No record No record	15,700 11,100 10,400	57.0 40.3 37.9	2.12 1.50 1.41	203,000 204,000 227,000	737.50 741.00 825.00	13.83 13.90 15.48	8.67 7.48 14.60	LXXIX	W. S. 361, p. 418. W. S. 361, p. 419. W. S. 361, p. 419.
121	Mad River	Arcata	457	Jan. 25, 1912 Feb. 17, 1912 Dec. 16, 1912	No record No record No record	19,000 18,000 17,800	41.6 39.5 39.0	1.55 1.47 1.45	231,000 188,000 202,000	505.00 411.00 441.50	9.46 7.71 8.27	12.60 7.32 5.53	LXXX	W. S. 361, p. 413. W. S. 361, p. 413. W. S. 361, p. 414
122	Eel River	Scotia	3,071	Feb. 2, 1915 Jan. 22, 1914 Feb. 25, 1917	290,000 260,000 240,000	271,000 231,000 218,000	88.0 75.0 70.7	3.27 2.79 2.63	1,690,000 4,150,000 1,360,000	550.20 1,350.50 442.50	10.32 25.33 8.29	6.30 9.30 6.30	LXXX	W. S. 411, ps. 281, 282. W. S. 391, ps. 279, 280. W. S. 461, ps. 251, 252.
124	Mattole River	Near Petrolia	240	Jan. 25, 1912 Mar. 6, 1912 Jan. 18, 1913	No record No record No record	55,600 28,900 28,500	223.2 116.5 114.5	8.31 4.33 4.26	311,000 252,000 366,000	1,250.00 1,012.00 1,470.00	23.43 18.04 27.56	27.00 10.62 27.00	LXXX	W. S. 361, ps. 389, 390. W. S. 361, ps. 389-390. W. S. 361, ps. 389, 390.
128	Russian River	Near Geyserville	662	Mar. 6, 1911 Jan. 18, 1913 Jan. 14, 1913	No record No record No record	16,500 15,900 14,600	24.7 23.9 22.0	0.92 0.89 0.82	203,000 247,000 247,000	306.50 373.00 373.00	5.74 7.00 7.00	3.25 4.84 4.84	LXXXI	W. S. 361, p. 384. W. S. 361, p. 385. W. S. 361, p. 385.
132	San Diego River	Lakeside	207	Jan. 28, 1916 Jan. 17, 1916 Jan. 22, 1909	15,800 4,710 3,700	10,900 4,410 2,550	52.6 21.2 12.4	1.96 0.79 0.46	92,800 92,800 9,100	448.00 448.00 43.90	8.40 8.40 0.82	1.23 1.23 1.23	LXXXII	W. S. 441, p. 26. W. S. 441, p. 26. W. S. 447, p. 68
133	Santa Ysabel Creek	Near Ramona Near Ramona Escondido	109 109 128	Jan. 27, 1916 Jan. 18, 1916 Jan. 22, 1909	28,400 14,300 No record	14,100 7,420 6,500	129.0 68.0 53.2	4.80 2.53 1.98	104,000 104,000 18,000	953.00 953.00 140.50	17.86 17.86 2.63	1.89 1.89 1.89	LXXXIII	W. S. 441, ps. 40, 41. W. S. 426, p. 58. W. S. 441, p. 41. W. S. 300, p. 529.
134	San Luis Rey River	Near Pala	325	Mar. 24, 1906 Mar. 17, 1905 Mar. 26, 1906 Jan. 27, 1916	22,000 No record No record 75,000	13,000 5,180 1,800 No record	40.1 15.9 14.8 231.0	1.49 0.59 0.55 8.56	68,900 20,660 68,900 201,000	212.00 63.50 212.00 619.00	3.98 1.19 3.98 11.60	0.83 0.83 0.83 1.15	LXXXIII	W. S. 300, p. 544. W. S. 426, p. 63 W. S. 300, p. 544 W. S. 447, p. 185. W. S. 441, p. 53
136	San Jacinto River Tributaries	Near Elsinore	717	Jan. 28, 1916 Jan. 20, 1916	No record No record	14,000 6,800	19.4 9.4	0.72 0.35	79,900 79,900	111.40 111.40	2.09 2.09	0.27 0.27	LXXXIII	W. S. 441, p. 72. W. S. 441, p. 72.
	San Jacinto River, South Fork	Hemet Reservoir	65.8	Jan. 27, 1916 Jan. 17, 1916	9,550 3,200	5,070 1,450	76.9 22.0	2.86 0.82	No record No record		 .	0.27 0.27		W. S. 426, p. 72. W. S. 426, p. 72.
137	Santa Ana River Tributaries	Near Mentone	109	Jan. 27, 1916 Jan. 1, 1910 April 1, 1903	29,100 No record No record	No record 8,825 5,100	146.0 44.4 25.5	5.43 1.65 0.95	No record No record 22,050	 110.80	. 2.08	1.77 1.77 1.38	LXXXIV	W. S. 441, p. 61 W. S. 300, p. 566. W. S. 447, p. 242
138	San Gabriel River Tributaries	Near Azusa	222	Jan. 18, 1916 Jan. 1, 1910 Feb. 20, 1914 Feb. 17, 1884	40,000 No record 18,100 17,000	22,300 12,400 11,800 No record	90.0 56.2 53.3 ..	3.68 2.09 1.98	143,000 65,200 119,000 No record	641.00 294.00 536.00	12.06 5.50 10.04	1.58 1.58 1.73 1.73	LXXXIV	W. S. 411, p. 79, W. S. 481, p. 51. W. S. 447, p. 390. W. S. 391, ps. 84, 85 Report by Board of Engineers to Board of Supervisors of Los Angeles.
139	Los Angeles River Tributaries	Los Angeles	531 534 534	Jan.-Feb., 1914 Jan. 18, 1916 January, 1916 Dec. 25, 1889	31,140 31,113 7,268 38,000	No record No record No record No record	58.4 58.1 13.5 71.0	2.17 2.16 0.50 2.64	No record No record No record No record			0.98 0.08 0.98 0.42	LXXXIV	W. S. 391, p. 90. W. S. 426, p. 23. W. S. 426, p. 23. Report of H. Hawgood to Los Angeles Board of Supervisors.
144	Santa Ynez River	Near Lompoc	750	Feb. 9, 1915 Jan. 18, 1914 Feb. 21, 1914	41,500 No record No record	32,500 30,800 25,500	43.3 41.1 33.9	1.61 1.53 1.26	263,000 222,000 217,000	350.30 296.00 289.20	6.57 5.55 5.42	1.63 0.09 1.63	LXXXV	W. S. 411, ps. 110-111. W. S. 391, p. 96 W. S. 391, p. 96
146	Santa Maria River	Santa Maria	1,634	Mar. 13, 1905 Feb. 3, 1905 Feb. 18, 1905	No record No record No record	10,000 1,915 1,875	6.2 1.1 1.1	0.23 0.04 0.04	35,290 20,050 20,050	21.60 12.30 12.30	0.41 0.23 0.23	0.68 0.73 0.73	LXXXVI	W. S. 300, p. 750. W. S. 300, p. 750. W. S. 300, p. 750.
148	Salinas River Tributaries (Arroyo Seco)	Near Soledad	238	Jan. 17, 1916 Jan. 25, 1911 Mar. 7, 1911	19,100 17,500 No record	18,800 13,300 13,300	78.8 55.7 55.7	2.93 2.07 2.07	128,000 149,000 143,000	537.60 626.00 601.00	10.08 11.72 11.26	1.10 1.10 1.20	LXXXVI	W. S. 441, ps. 97, 98. W. S. 391, ps. 97, 98. W. S. 300, p. 771.
161	Truckee River (Exclusive of Lake Tahoe)	State Line	447	Mar. 18, 1907 Feb. 24, 1904 Jan. 16, 1909	No record No record No record	14,564 8,287 8,100	32.8 18.5 18.0	1.22 0.69 0.67	112,000 71,325 105,500	250.70 159.60 236.00	4.70 2.99 4.42	2.09 0.96 0.83	XC	W. S. 300, p. 99. W. S. 300, p. 98. W. S. 300, p. 100.
162	West Fork Carson River	Woodfords	67	May 10, 1906 May 17, 1907 May 23, 1911	No record No record No record	1,570 1,450 1,300	23.4 21.5 19.4	0.87 0.80 0.72	56,900 51,700 36,300	819.00 772.00 541.50	15.90 11.48 10.16	8.64 8.64 8.64	XC	W. S. 300, p. 160 W. S. 300, p. 165. W. S. 300, p. 167.
163	East Fork Carson River	State Line	298	June 16, 1911 June 1, 1914 June 4, 1910	No record No record No record	3,460 3,040 2,840	11.6 10.2 9.1	0.43 0.38 0.34	146,000 107,000 41,800	490.00 359.30 140.30	9.19 6.73 2.63	4.67 4.67 4.67	XC	W. S. 360, p. 184. W. S. 300, p. 216. W. S. 300, p. 183
164	West Walker River	Coleville	245	July 3, 1907 June 29, 1907 June 1, 1907	No record No record No record	4,170 3,720 3,495	17.0 15.1 14.2	0.63 0.56 0.53	152,000 117,000 117,000	621.00 477.50 477.50	11.65 8.96 8.96	3.18 4.25 4.25	XCI	W. S. 300, p. 202. W. S. 300, p. 202. W. S. 300, p. 202.
168	Owens River	Round Valley	439	June 30, 1907 June 22, 1911 July 15, 1911	No record No record No record	1,192 1,080 1,050	2.7 2.4 2.4	0.10 0.09 0.09	40,100 40,100 54,200	91.30 91.30 123.40	1.71 1.71 2.31	1.66 1.66 1.48	XCII	W. S. 300, p. 230 W. S. 300, p. 230. W. S. 300, p. 234.
171	Mojave River	Victorville	211	Mar. 31, 1903 Mar. 13, 1905 Feb. 6, 1901	No record No record No record	13,413 5,410 4,820	0.5 0.3 0.3	0.02 0.01 0.01	30,928 42,731 51,372	146.70 202.50 243.50	2.74 3.79 4.56	2.79 2.79 1.72	XCII	W. S. 300, p. 397. W. S. 300, p. 400 W. S. 300, p. 399.







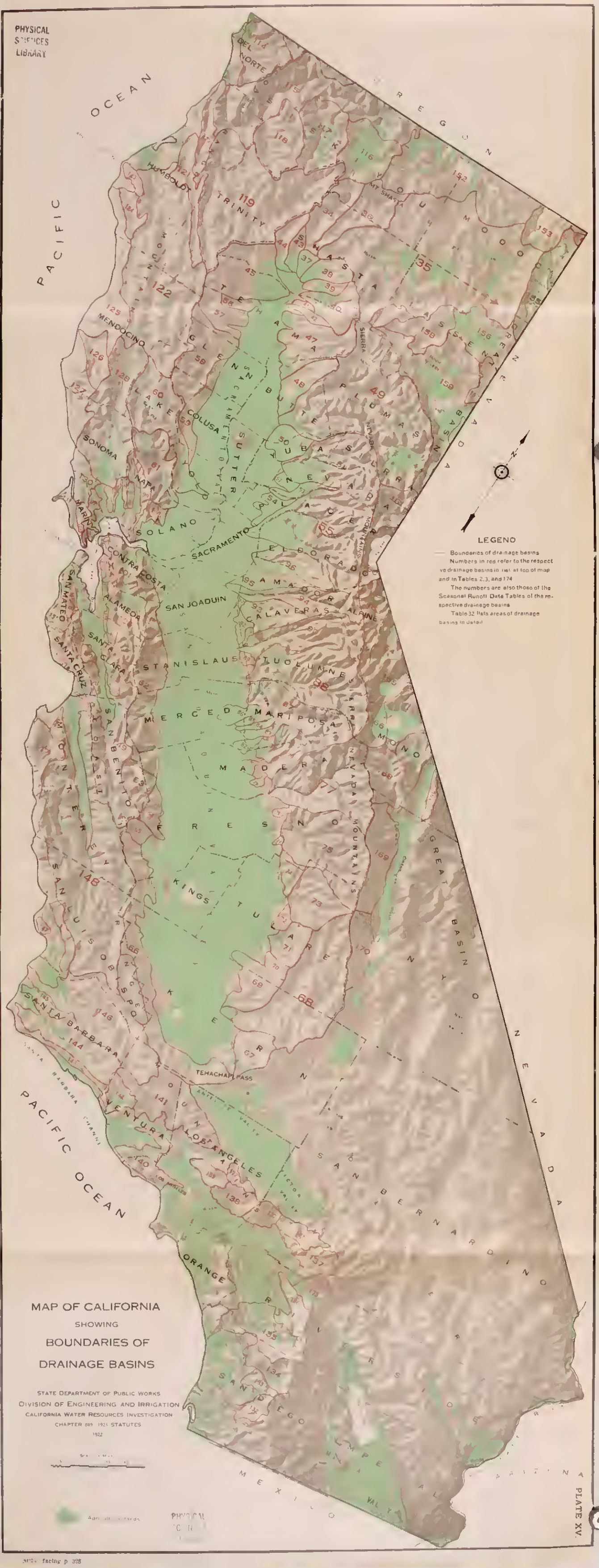
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

20273 facing p. 328.

CHARACTERISTICS OF RUNOFF
FROM
CALIFORNIA MOUNTAINS

DRAINAGE BASINS Listed in numerical order

34	Sacramento River (Upper)	62	Ulatis Creek Group	90	Stanislaus River	[illegible]	[illegible]	146	Santa Maria River
35	Pit River.	63	Panoche Creek.	91	Littlejohns Creek.	[illegible]	[illegible]	147	San Luis Obispo Creek Group.
36	McCloud.	64	Cantua Creek Group	92	[illegible]	[illegible]	Redwood Creek	148	Salinas River Tributaries.
37	Churn Creek Group	65	Los Gatos Creek.	93	Calaveras River	[illegible]	Mad River.	149	Pajaro River Tributaries.
38	Cow Creek.	66	Tejon Creek Group	94	Mokelumne River	[illegible]	Eel River	150	Soquel Creek Group
39	Bear Creek	67	Caliente Creek.	95	Sutter Creek Group	[illegible]	Bear Creek	151	Pescadero Creek Group
40	Battle Creek	68	Kern River	96	Cosumnes River	124	Mattole River	152	Tule Lake Group
41	Ink's Creek.	69	Poso Creek Group.	97	Petaluma Creek Group	125	Noyo River Group	153	Goose Lake Group
42	Payne's Creek.	70	Deer Creek.	98	Sonoma Creek Tributaries	126	Navarro River	154	Cowhead Lake Basin
43	Backbone Creek Group	71	Tule River	99	Napa River Tributaries.	127	Gualala River Group	155	Surprise Valley Group
44	Clear Creek.	72	Yokohl Creek Group	100	Suisun Creek Group	128	Russian River	156	Madeline Plains Group.
45	Cottonwood Creek.	73	Kaweah River	101	Mt. Diablo Creek Group	129	Lagunitas Creek	157	Smoke Creek Group
46	Sacramento River	74	Limekiln Creek Group	102	San Pablo Creek	130	Salmon Creek Group	158	Eagle Lake Group
47	Mill Creek Group	75	Kings River	103	San Leandro Creek	[illegible]	Bolinas Creek Group.	159	Honey Lake Group
48	Butte Creek Group.	76	Dry Creek	104	Claremont Creek Group	[illegible]	San Diego River.	160	Lake Tahoe Basin
49	Feather River	77	San Joaquin River (Upper)	105	San Lorenzo Creek.	[illegible]	Santa Ysabel Creek.	161	Truckee River.
50	Honcut Creek Group.	78	Cottonwood Creek.	106	Alameda Creek.	134	San Luis Rey River	162	West Fork Carson River
51	Yuba River	79	Fresno River	107	Mission Creek Group	135	Santa Margarita River	163	East Fork Carson River
52	Dry Creek.	80	Daulton Creek Group	108	Permanente Creek	136	San Jacinto River Tributaries	164	West Walker River
53	Bear River	81	Chowchilla River	109	Coyote River	137	Santa Ana River Tributaries.	165	East Walker River.
54	Coon Creek Group.	82	Dutchman Creek Group	110	Guadalupe River	138	San Gabriel River Tributaries.	166	Mono Lake Group.
55	American River	83	Mariposa Creek.	111	Los Gatos Creek Group	139	Los Angeles River Tributaries	167	Adobe Meadows Group.
56	Red Bank Creek Group.	84	Owens Creek	112	San Francisquito Creek.	140	Malibu River Group.	168	Owens River (Upper)
57	Elder Creek Group.	85	Bear Creek	113	San Mateo Creek Group.	141	Santa Clara River Tributaries	169	Bishop Creek Group
58	Stony Creek.	86	Burns Creek Group.	114	Smith River	142	Ventura River	170	Owens Lake Group.
59	Willow Creek Group	87	Merced River	115	Klamath River.	143	Jalama Creek Group.	171	Mojave River
60	Cache Creek	88	Tuolumne River	116	Shasta River	144	Santa Ynez River.	172	Antelope Valley Group.
61	Putah Creek.	89	[illegible] Creek Group	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



MAP OF CALIFORNIA

SHOWING

BOUNDARIES OF

DRAINAGE BASINS

STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889, 1921 STATUTES
1922

Bull. 4, facing p. 328

STREAM MEASUREMENTS IN CALIFORNIA BY UNITED STATES GEOLOGICAL SURVEY

STREAM	RECORDING STATION	YEARS
SACRAMENTO BASIN		
SACRAMENTO RIVER	Castella	1910-
SACRAMENTO RIVER	Antler	1910-
SACRAMENTO RIVER	Red Bluff	1895-
SACRAMENTO RIVER	Collinsville*	1878-1885
PIT RIVER	Canby	1904-1905
PIT RIVER	Bieber	1904-
PIT RIVER	Fall R. Mills	1921-
PIT RIVER	Henderson	1910-
PIT RIVER	Ydalpom	1910-
South Fork Pit River	Ivy	1904-1905
West Valley Creek	Likely	1904-1905
Pine Creek	Altures	1918-
Ash Creek	Adin	1904-1905
Fall River	Fall R. Mills	1912-
Bear Creek	Dana	1921-
Hat Creek	Hawkins Ranch	1911-
Hat Creek	Hat Creek	1910-1914
Hat Creek	Carbon	1921-
Rising River	Cassel	1911-
Burney Creek	Burney (above	1921-
Burney Creek	Burney	1911-
Burney Creek	Burney ... Falls	1921-
Kosk Creek	Henderson	1910-1916
Montgomery Creek	Montgomery Cr.	1911-1913
Squaw Creek	Ydalpom	1911-1913
McCLOUD RIVER	Gregory	1902-1908
McCLOUD RIVER	Baird	1910-
CLEAR CREEK	Shasta	1911-1913
COW CREEK	Millville	1911-1914
Clover Creek	Millville	1911-1914
Little Cow Creek	Palo Cedro	1911-1913
BEAR CREEK	Millville	1911-1913
N. FORK COTTONWOOD CREEK	Forester dam site	1920-
N. FORK COTTONWOOD CREEK	Ono	1907-1913
MILL CREEK	Los Molinos	1911-1912
Thomas Creek	Paskenta	1920-
DEER CREEK	Vina	1911-
STONY CREEK	Stonyford (near)	1913-1921
STONY CREEK	Elk Creek	1919-
STONY CREEK	Fruto	1901-1912
STONY CREEK	Orland	1920-
Little Stony Creek	Lodoga	1908-
FEATHER RIVER (North Fork)	Prattville (above	1905-1907
FEATHER RIVER (North Fork)	Prattville (below)	1905-
FEATHER RIVER (North Fork)	Big Bar	1911-
FEATHER RIVER (North Fork)	Big Bend	1905-1910
FEATHER RIVER	Oroville	1902-
Hamilton Branch	Prattville	1905-1907
Butt Creek	Butte Valley	1905-1921
Indian Creek	Crescent Mill	1906-1918
Spanish Creek	Keddie	1911-
Middle Fork Feather River	Sloat	1910-
Middle Fork Feather River	Oroville	1911-
Grizzly Creek	Bockwith	1906
South Fork Feather River	Enterprise	1911-
Palermo L. & W. Co. Canal	Enterprise	1911-
YUBA RIVER	Smartsville	1900-
Yuba River (Middle Fork)	North S. Juan	1900-
Oregon Creek	North S. Juan	1910-
North Fork Yuba River	Goodyear Bar	1910-
North Fork Yuba River	North S. Juan	1900
N. Fork of N. Fork Yuba R.	Downieville	1910-
Rock Creek	Goodyear Bar	1910-
Goodyear Creek	Goodyear Bar	1910-
BEAR RIVER	Colfax	1911-1917
BEAR RIVER	Van Trent	1904-
Bear River Canal	Colfax	1912-
AMERICAN RIVER (North Fork)	Colfax	1911-
AMERICAN RIVER	Fairoaks	1904-
AMERICAN RIVER	Sacramento	1921
Middle Fork American River	East Auburn	1911-
Rubicon River	Rubicon Spr.	1910-1914
Rubicon River	Quintette	1909-1914
Little Rubicon River	Rubicon Spr.	1910-1911
Little So. Fork Rubicon R.	Quintette	1910-1914
Little So. Fork Rubicon R.	Below Cerle Cr.	1910-1914
Little So. Fork Rubicon R.	Atmouth	1909-1911
Gerle Creek	Rubicon Spr.	1910-1914
Little So. Fork Ditch	Quintette	1910-1913
Pilot Creek	Quintette	1910-1914
Pilot Creek Ditch	Quintette	1910-1914
South Fork American River	Kyburz	1906-1907
South Fork American River	Placerville	1911-1920
Silver Creek	Placerville	1921
CLEAR LAKE	Lakeport	1874-
CACHE CREEK	Lower Lake	1901-1915
CACHE CREEK	Yolo	1903-
PUTAH CREEK	Guenoc	1904-1906
PUTAH CREEK	Winters	1905-
SAN JOAQUIN BASIN		
KERN RIVER	Kernville (above)	1912-
KERN RIVER	Kernville	1905-1912
KERN RIVER	Isabella	1910-1911
KERN RIVER	Rio Bravo Ranch*	1878-1884
KERN RIVER	Bakersfield	1893-
Kern River Power Co. Canal	Kernville	1910-1914
South Fork of Kern River	Onyx	1911-
Erskine Creek	Isabella	1911-1912
Tejon House Creek	Tejon Ranch	1895-1896
San Emigdio Creek	S. E. Ranch	1894-1895
CALIENTE CREEK (base foothills)	Kern County*	1878-1884
Basin Creek	Havilah	1911-1912
TULARE LAKE	Kings County	1906-
POSO CREEK (base foothills)	Kern County*	1878-1884
WHITE RIVER (base foothills)	Tulare County*	1878-1884
WHITE RIVER	Hot Springs	1911-1913
DEER CREEK (base foothills)	Tulare County*	1878-1884
DEER CREEK	Hot Springs	1910-
Tyler Creek	Hot Springs	1911-1913
TULE RIVER	Porterville*	1878-1884
TULE RIVER	Porterville	1901-
TULE RIVER, North Fork of Middle Fork	Springville	1909-1912
South Fork of Middle Fork, Tule River	Springville	1909-1912
Bear Creek	Springville	1911-1916
South Fork, Tule River	Porterville	1910-
KAWEAH RIVER, Middle Fork	Hammond	1913
KAWEAH RIVER	Wachumna Hill	1878-1884
KAWEAH RIVER	Three Rivers	1903-
Marble Fork of Kaweah River	Ranger	1913
East Fork of Kaweah River	Hammond	1913
North Fork of Kaweah River	Kaweah	1910-
South Fork of Kaweah River	Three Rivers	1911-
KINGS RIVER	Hume	1921-
KINGS RIVER	Sanger	1895-
KINGS RIVER	Slate Point	1878-1884
KINGS RIVER	Kingsburg	1896-1897
North Fork of Kings River (below)	Meadow Brook	1921-
North Fork of Kings River	Cliff Camp	1921-
North Fork of Kings River (above)	Dinkey Creek	1919-
Dinkey Creek	Ockenden	1911-1913
Dinkey Creek	Mouth	1920-
Big Creek	Tollhouse	1911-19[illegible]
Rush Creek	Ockenden	1910-1[illegible]
SAN JOAQUIN RIVER	Friant	1907-
SAN JOAQUIN RIVER	Hamptonville	1878-1884
SAN JOAQUIN RIVER	Herndon	1895-1901
SAN JOAQUIN RIVER	[illegible]	1912
South Fork of San Joaquin River near	Lake Florence	1921
South Fork of San Joaquin River near	Hoffman Mead	1921-
Bear Creek	Vermilion Valley	1921-
Mono Creek	Vermilion Valley	1921-
Middle Fork of San Joaquin River	Miller Bridge	1921
Jackass Creek	Jackass Meadow	1921
Granite Creek	Cattle Mountain	1921
North Fork of San Joaquin River	Iron Creek below	1921-
Chiquito Creek	Arnold Meadow	1921-
Pitman Creek	Big Creek	1910-
Stevenson Creek	Shaver	1916-1922
Fresno Flume and Lumber Co. (Upper)	Shaver	1915-1917
Fresno Flume and Lumber Co. (Lower)	Shaver	1916-1917
North Fork Creek	North Fork	1910-1911
Crane Valley Reservoir	North Fork	1910-1915
Evaporation Crane Valley Res.	North Fork	1910-1915
South Fork Creek	North Fork	1910-1915
South Fork Ditch	North Fork	1910-1913
Whiskey Creek	North Fork	1910-1915
Cascadel Creek	North Fork	1910-1912
FRESNO RIVER	Knowles	1911-
FRESNO RIVER (base foothills)	Madera County*	1878-1884
CHOWCHILLA RIVER (base foothills)	Buchanan	1878-1884
MARIPOSA CREEK (base foothills)	Mariposa County*	1878-1884
BEAR CREEK (base foothills)	Merced County*	1878-1884
MERCED RIVER	Illilouette Creek	1915
MERCED RIVER (Happy Isles Bridge)	Yosemite	1915-
MERCED RIVER	Yosemite	1904-1916
MERCED RIVER (Pohono Bridge)	Yosemite	1916-
MERCED RIVER	Exchequer	1915-
MERCED RIVER	Merced Falls	1878-1884
	Merced Falls	1901-1913
MERCED RIVER	Newman	1912-
Illilouette Creek	Yosemite	1915-1916
Tenaya Creek	Yosemite	1904-
Yosemite Creek	Yosemite	1904-
South Fork Merced River	Wawona	191[illegible]-
STREAM	RECORDING STATION	YEARS

Results of measurements are published in Water Supply Papers of the United States Geological Survey

Results of measurements are published in Water Supply Papers of the United States Geological Survey

STREAM MEASUREMENTS IN CALIFORNIA BY UNITED STATES GEOLOGICAL SURVEY

STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889, [illegible] STATUTES

Measurements by State Engineer

PLATE XVI - PART A

PLATE XVI-B.

STREAM MEASUREMENTS IN CALIFORNIA BY UNITED STATES GEOLOGICAL SURVEY

STREAM	RECORDING STATION	YEARS
SAN JOAQUIN BASIN (Cont.)		
TUOLUMNE RIVER (Hetch Hetchy Cabin)	Sequoia	1910-1916
TUOLUMNE RIVER (Hetch Hetchy dam site)	Sequoia	1901-1915
TUOLUMNE RIVER (below H. H. dam site)	Sequoia	1914-
TUOLUMNE RIVER	Buck Meadows	1907-
TUOLUMNE RIVER (above La Grange dam)	La Grange	1915-
TUOLUMNE RIVER	La Grange	1895-1917
TUOLUMNE RIVER	Modesto	1878-1884
	Modesto	1895-1896
Falls Creek	Sequoia	1915-
Cherry Creek	Sequoia	1901-
Eleanor Creek	Sequoia	1901-
Evaporation Lake Eleanor	Sequoia	1915-1918
Jawbone Creek	Tuolumne	1910-1914
Corral Creek	Groveland	1910-1913
South Fork, Tuolumne River	Sequoia	1914-1918
South Fork, Tuolumne River	Buck Meadows	1910-
Middle Fork, Tuolumne River	Buck Meadows	1918-
Golden Rock Ditch	Sequoia	1914-1915
Clavey Creek	Tuolumne	1910-1913
Sierra and S. F. Power Co. Canal	La Grange	1908-
Modesto Canal	La Grange	1903-
Turlock Canal	La Grange	1899-
STANISLAUS RIVER (Middle Fork)	Sand Bar Flat	1905-
STANISLAUS RIVER (near)	Knights Ferry	1915-
	Knights Ferry	1903-1916
STANISLAUS RIVER	Oakdale ^	1878-1884
	Oakdale	1895-1900
Relief Reservoir	Baker Station	1910-1918
Relief Creek	Baker Station	1910-1918
North Fork, Stanislaus River	Avery	1914-
Utica Gold Mining Co. Canal	Avery	1915-
South Fork, Stanislaus River	Strawberry	1913-1917
South Fork, Stanislaus River	Confidence	1911-1913
South San Joaquin Canal	Knights Ferry	1914-
Oakdale Canal	Knights Ferry	1914-
Stanislaus and S. J. Water Co. Canal	Knights Ferry	1899-1912
CALAVERAS RIVER	Jenny Lind	1907-
CALAVERAS RIVER	Bellota ^	1878-1884
MOKELUMNE RIVER, North Fork	West Point	1917-1918
MOKELUMNE RIVER	Electra	1901-1904
MOKELUMNE RIVER	Lone Star Mill ^	1878-1884
MOKELUMNE RIVER	Clements	1905-
Middle Fork of Mokelumne River	West Point	1911-
South Fork of Mokelumne River	Railroad Flat	1911-
Licking Fork of Mokelumne River	Railroad Flat	1911-1917
Dry Creek	Ione	1911-1912
Dry Creek (base foothills)	San Joaquin Co. ^	1878-1884
Cosumnes River, North Fork	Pleasant Valley	1906-1907
Cosumnes River, North Fork	El Dorado	1911-
COSUMNES RIVER	Michigan Bar	1907-
COSUMNES RIVER (below)	Michigan Bar	1878-1884
Middle Fork Cosumnes River	Fair Play	1913
Sly Park Creek	Park	1906
SAN FRANCISCO BAY BASINS		
COYOTE RIVER	Madrone	1903-
COYOTE RIVER	Coyote	1916-
COYOTE RIVER	Edenvale	1916-
COYOTE RIVER	San Jose	1916-1917
ALAMEDA CREEK	Sunol Glen	1900-
ALAMEDA CREEK	Niles	1916-
ALAMEDA CREEK	Decoto	1916-1919
Spring Valley Water Co. Acqueduct	Sunol Glen	1903-
Crandall Slough	Centerville	1916-1919
Laguna Creek	Irvington	1916-1919
Dry Creek	Decoto	1916-1919
SAN PABLO CREEK	San Pablo	1917-
SOUTH PACIFIC BASINS		
TIA JUANA RIVER	Nestor	1915
Cottonwood Creek	Dulzura	1906-1915
Dulzura Conduit	Dulzura	1909-1915
Pine Valley Creek	Jamul	1906-1907
SWEETWATER RIVER	Descanso	1905-
SWEETWATER RIVER	Dehesa	1913-1916
SAN DIEGO RIVER (diverting dam)	Lakeside	1912-1916
SAN DIEGO RIVER	Lakeside	1905-1916
SAN DIEGO RIVER	Santee	1912-
SAN DIEGO RIVER	San Diego	1912-1916
Boulder Creek (Cuyamaca Reservoir)	Julian	1912-
Boulder Creek (at mouth)	Lakeside	1912-1916
Cuyamaca Water Co. Flume (at dam)	Lakeside	1912-
Cuyamaca Water Co. Flume	Lakeside	1907-
South Fork of San Diego River	Alpine	1913-1915
South Fork Flume	Alpine	1913-1915
San Vicente Creek	Foster	1915.
SANTA YSABEL CREEK	Santa Ysabel	1913-1915
SANTA YSABEL CREEK	Mesa Grande	1912-
SANTA YSABEL CREEK	Ramona	1912-
SANTA YSABEL CREEK	Escondido	1906-1912
SAN DIEGUITO RIVER	Bernardo	1912-
Black Canyon Creek	Mesa Grande	1913-
Temescal Creek	Almond	1913-1915
Guejito Creek	Escondido	1915-1917
East San Pasqual Ditch	Escondido	1912-1914
West San Pasqual Ditch	Escondido	1912-1915
Santa Maria Creek	Ramona	1912-1920
SAN LUIS REY RIVER	Warner Spring	1913-1916
SAN LUIS REY RIVER	Mesa Grande	1911-
SAN LUIS REY RIVER	Nellie	1915-1916
SAN LUIS REY RIVER	Diversion Flume	1896-1899
SAN LUIS REY RIVER	Pala	1903-1916
SAN LUIS REY RIVER	Bonsall	1912-1916
SAN LUIS REY RIVER	Oceanside	1912-1916
Agua Caliente Creek	Warner Spring	1913-1915
Canada Verde Creek	Warner Spring	1913-1915
West Fork San Luis Rey River	Warner Spring	1913-1915
Carrizo Creek	Warner Spring	1913-1915
Susanna Creek	Warner Spring	1913-1915
Matagual Creek	Warner Spring	1913-1915
Escondido Mutual Water Co. canal	Nellie	1896-
Rincon Indian Reservation ditch	Valley Center	1912
Pauma Creek	Nellie	1920-
Pauma Creek	Pauma Indian Res	1920-
Pala Indian Reservation canal	Pala	1912-1913
San Luis Rey Ditch	San Luis Rey	1913
SANTA ANA RIVER	Mentone	1896-
SANTA ANA RIVER	Prado	1919-
Southern California Edison Co. canal	Mentone	1896-
Greenspot Pipe Line	Mentone	1901-1918
Highlands or North Fork Canal	San Bernardino Co.	1901-1904
Redlands or South Fork Canal	San Bernardino Co.	1901-1904
Mill Creek near head works of	Crafton Canal	1897-1902
Mill Creek	Forest Home	1903-1918
Mill Creek	Craftonville	1919-
City Creek	Highlands	1919-
Plunge Creek	East Highlands	
Strawberry Creek	Arrowhead Springs	1919-
Waterman Canyon Creek	San Bernardino	1911-
Devil Canyon Creek	San Bernardino	1911-
Cajon Creek	Keenbrook	1919-
Lone Pine Creek	Keenbrook	1919-
Lytle Creek (mouth of canyon)	San Bernardino	1894-1918
Elsinore Lake	Elsinore	1915-
Temescal Creek	Elsinore	1916-
Coldwater Creek above dam	Riverside County	1899
Warm Creek	Colton	1920
Meeks & Daley canal	Colton	1920-
Santiago Creek	Villa Park	1920-
Serrano & Carpenter canal	Villa Park	1920
San Antonio Creek	Claremont	1917-
San Antonio Creek	Upland	1901-1917
Southern California Edison Co. Canal	Claremont	1917-
San Jacinto River	San Jacinto	1920.
San Jacinto River	Elsinore	1916-
South Fork San Jacinto River	San Jacinto	1916.
SAN GABRIEL RIVER	Above Fish Fork	1900-1912
SAN GABRIEL RIVER	Head works	1912-1914
SAN GABRIEL RIVER	Azusa	1894-
Southern California Edison Co. canal	Azusa	1896-
W. Branch of N. Fork San Gabriel R.	At weir	1900.
N. Branch N. Fork San Gabriel River	At weir	1900
W. Fork San Gabriel R. above N. Fork	North Fork	1900
Coldwater Creek above mouth	At weir	1900
Fish Fork of S. Gabriel R. (low water)	Azusa	1900-1912
Iron Fork of S. Gabriel R. (low water)	Azusa	1900-1912
Tunnel Diversion	Azusa	1917-
Rogers Creek	Azusa	1917-
Fish Creek	Duarte	1916-
Sawpit Creek	Monrovia	1916-
Monrovia Pipe Line	Monrovia	1916-
Dalton Creek	Glendora	1919-
LOS ANGELES RIVER	Los Angeles	1896-1916
Pacoima Creek	San Fernando	1916-
Tujunga Creek	Sunland	1916-
Haines Creek	Tujunga	1917-
Arroyo Seco	Pasadena	1910-
Santa Anita Creek	Sierra Madre	1916-
Little Santa Anita Creek	Sierra Madre	1916-
San Dimas Creek	San Dimas	1916-
Eaton Creek	Pasadena	1918-

Results of measurements are published in Water Supply Papers of the United States Geological Survey

STREAM MEASUREMENTS IN CALIFORNIA BY UNITED STATES GEOLOGICAL SURVEY

State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 ... Statutes

^ Measurements by State Engineer

PLATE XVI-PART B

20273 facing p. 228.

STREAM MEASUREMENTS IN CALIFORNIA BY UNITED STATES GEOLOGICAL SURVEY

STREAM	RECORDING STATION	YEARS
SOUTH PACIFIC BASINS (Cont'd)		
MALIBU CREEK	Calabasas	1903-1906
Triunfo Creek	Calabasas	1903-1906
SANTA CLARA RIVER	Fillmore	1911-1912
Piru Creek	Piru	1911-1913
Sespe Creek	Bradfields Camp	1915-1918
Sespe Creek	Sespe	1911-1913
Santa Paula Creek	Santa Paula	1912-1913
VENTURA RIVER	Nordhoff	1911-1922
VENTURA RIVER	Ventura	1911-1914
CARPINTERIA CREEK:		
Gobernador Creek	Carpinteria	1916-
SANTA YNEZ RIVER	Santa Barbara	1903-1922
SANTA YNEZ RIVER	Lompoc	1906-1918
Mono Creek	Mono Damsite	1903-1904
Mission Tunnel	Santa Barbara	1912-1917
SANTA MARIA RIVER	Santa Maria	1903-1905
SALINAS RIVER	Salinas	1900-1901
Nacimiento Creek	Bryson	1901
San Antonio River	Jolon	1901
Arroyo Seco	Soledad	1901-
SAN LORENZO CREEK	King City	1900-1903
PAJARO RIVER	Watsonville	1911-1913
GREAT BASIN		
SALTON SEA	Salton	1904-
Alamo River	Brawley	1909-1912
New River	Brawley	1909-1911
OWENS RIVER	Round Valley	1903-
OWENS RIVER	Big Pine	1906-
OWENS RIVER	Lone Pine	1909-1918
OWENS RIVER	Citrus	1903-1905
OWENS LAKE	Lone Pine	1908-
Rock Creek	Round Valley	1903-
Pine Creek	Round Valley	1903-
Owens River canal	Bishop	1904-1905
McNally canal	Bishop	1904.
Farmers canal	Bishop	1904
Bishop Creek	Bishop	1903-1911
Hillside (north) canal	Bishop	1904
Hillside (south) canal	Bishop	1904
Powers canal	Bishop	1904
Bishop Creek canal	Bishop	1904
Collins (George) canal	Bishop	1904
Collins (A. O.) canal	Bishop	1904
Dell canal	Bishop	1904
Big Pine and Owens River canal	Bishop	1904
Rawson canal	Bishop	1904.
Sanger canal	Alvord	1903-1905
Baker Creek	Big Pine	1909
Big Pine Creek	Big Pine	1904-1911
Tinemaha Creek	Big Pine	1906-1911
Birch Creek	Big Pine	1907-1911
Taboose Creek	Aberdeen	1906-1911
Goodale Creek	Aberdeen	1906-1911
Division Creek	Independence	1906-1909
Sawmill Creek	Independence	1906-1909
Thibaut Creek	Independence	1908-1911
East Side canal	Citrus	1904.
Stevens Canal	Citrus	1904
Oak Creek	Independence	1905-1911
Little Pine (Independence) Creek	Independence	1905-1911
Shepard Creek	Thebe	1906-1909
Bairs Creek	Thebe	1906-1909
George Creek	Thebe	1906-1909
Lone Pine Creek	Lone Pine	1906-1911
Tuttle Creek	Lone Pine	1906-1911
Cottonwood Creek	Olancha	1906-1911
Ash Creek	Olancha	1906-1909
LITTLEROCK CREEK	Palmdale	1896-1899
MOJAVE RIVER	Victorville	1899-1905
MONO LAKE	Mono Lake	1912-
Rush Creek	Mono Lake	1910-1914
Leevining Creek	Mono Lake	1910-1916
EAST WALKER RIVER	Bridgeport	1911-1914
WALKER RIVER:		
Robinson Creek	Bridgeport	1910-1914
Buckeye Creek	Bridgeport	1910-1914
Swager Creek	Bridgeport	1911-1915
WEST WALKER RIVER	Coleville	1902-
East Fork West Walker River	Bridgeport	1910
CARSON RIVER:		
Carson River, East Fork	Markleeville	1910-
Carson River, E. Fork, Calif. Nevada	State Line	1900-1914
Silver Creek	Markleeville	1910-1913
Markleeville Creek	Markleeville	1911-
Markleeville Creek	Markleeville	1910-
Pleasant Valley Creek	Markleeville	1910-1911
West Fork of Carson River	Woodfords	1900-
LAKE TAHOE	Tahoe	1895-
TRUCKEE RIVER	Tahoe	1900-
TRUCKEE RIVER	Iceland	1912-
TRUCKEE RIVER Calif.-Nevada	State Line	1899-1912
PYRAMID AND WINNEMUCCA LAKES:		
Donner Creek	Truckee	1902-1915
Prosser Creek	Hobart Mills	1903-1911
Prosser Creek	Boca	1889-1890
South Fork of Prosser Creek	Truckee	1909-1910
Little Truckee River	Near Truckee	1909-1910
Little Truckee River at Pine Station	Starr	1903-1910
Little Truckee River	Boca	1911-1914
Webber Creek	Truckee	1909-1910
Independence Creek	Independence Lake	1902-1910
LONG VALLEY CREEK	Scotts	1917-
SUSAN RIVER	Susanville	1900-1921
Gold Run Creek	Susanville	1913-1916
Lassen Creek	Susanville	1913-1916
Willow Creek	Merrillville	1904-1905
Willow Creek	Standish	1900-1905
BAXTER CREEK	Janesville	1913-1916
Schloss Creek	Janesville	1915-1919
Janesville Creek	Janesville	1913-1919
RED ROCK CREEK	Red Rock	1917-
BIDWELL CREEK	Fort Bidwell	1912-1919
COWHEAD LAKE	Fort Bidwell	1911-1919
Keeno Creek	Fort Bidwell	1918-1919
TWENTYMILE CREEK:		
Fifteenmile Creek	Near Fort Bidwell	1913
Twelvemile Creek	Near Fort Bidwell	1912-1919
Rock Creek	Near Fort Bidwell	1913-1919
DEEP CREEK	Near Fort Bidwell	1913
Dismal Creek	Near Fort Bidwell	1913
NORTH PACIFIC BASINS		
RUSSIAN RIVER	Ukiah	1911-1913
RUSSIAN RIVER	Geyserville	1910-1913
East Fork Russian River	Ukiah	1911-1913
MATTOLE RIVER	Petrolia	1911-1913
EEL RIVER	Two Rivers	1911-1914
EEL RIVER	Scotia	1910-
Middle Eel River	Covelo	1911-
South Eel River	Hearst	1910-1913
South Fork Eel River	Garberville	1911-1913
Van Duzen River	Bridgeville	1911-1913
Yager Creek	Carlotta	1911-1913
MAD RIVER	Arcata	1910-1913
REDWOOD CREEK	Korbel	1911-1913
REDWOOD CREEK	Orick	1911-1913
KLAMATH RIVER	Seiad Valley	1912-
KLAMATH RIVER	Requa	1910-
Lost River	Clear Lake	1904-1909
Lower Klamath Lake	Mount Dome	1907-1918
Butte Creek	McDoel	1921-
Antelope Creek	McDoel	1921-
Bear Creek	McDoel	1921-
Indian Creek	Happy Camp	1911-1921
SHASTA RIVER	Montague	1911-
SCOTT RIVER	Callahan	1911-
SCOTT RIVER	Scott Bar	1911-1913
Scott River, East Fork	Callahan	1910-1914
Scott River, East Fork	Callahan	1913-1921
SALMON RIVER	Somesbar	1911-1915
TRINITY RIVER	Trinity Center	1910-1913
TRINITY RIVER	Lewiston	1911-
TRINITY RIVER	China Flat	1911-1913
TRINITY RIVER	Hoopa	1911-1918
Coffee Creek	Coffee	1910-1914
East Fork, Trinity River	Trinity Center	1910-1914
Swift Creek	Trinity Center	1910-1914
North Fork of Trinity River	Helena	1911-1914
South Fork of Trinity River	China Flat	1911-1913
SMITH RIVER (Middle Fork)	Crescent City	1911-1920
North Fork of Smith River	Crescent City	1911-1920
South Fork of Smith River	Crescent City	1911-1913

Results of measurements are published in Water Supply Papers of the United States Geological Survey

STREAM MEASUREMENTS IN CALIFORNIA BY UNITED STATES GEOLOGICAL SURVEY

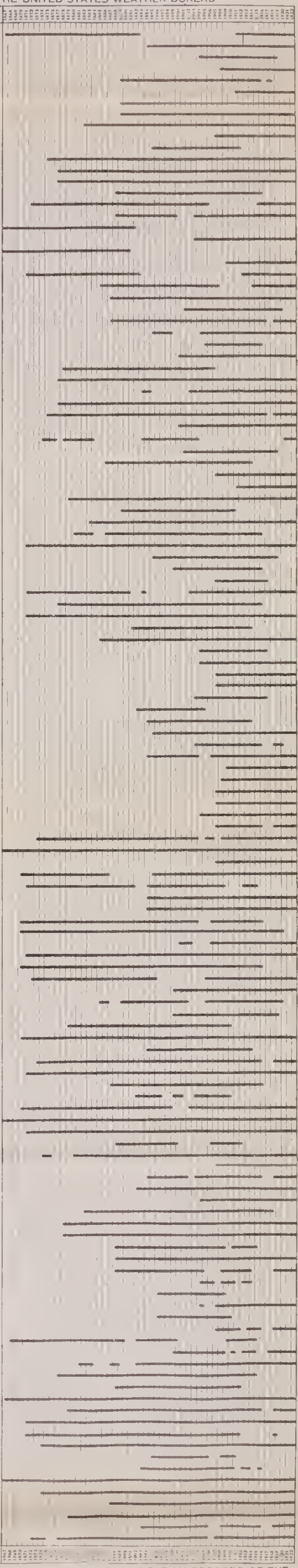
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889, 1921 STATUTES

PLATE XVI-PART C

facing p. 35

PRECIPITATION RECORDS OF THE UNITED STATES WEATHER BUREAU

NO	STATION	COUNTY	YEARS	PERIOD OF RECORD
1	Fort Bidwell	Modoc	36	1867 - *
2	Cedarville	Modoc	27	1894 -
3	Alturas	Modoc	15	1904 - 1919
4	Madeline	Lassen	13	1908 -
5	Susanville	Lassen	28	1889 - 1918a
6	McCloud	Siskiyou	10	1911 -
7	Sisson	Siskiyou	32	1889 -
8	Dunsmuir	Siskiyou	32	1889 -
9	Delta	Shasta	39	1882 -
10	Kennett	Shasta	14	1907 -
11	Shasta	Shasta	17	1895 - 1912
12	Redding	Shasta	46	1875 -
13	Red Bluff	Tehama	44	1877 -
14	Tehama	Tehama	44	1877 -
15	Hornbrook	Siskiyou	28	1886 - 1916
16	Yreka	Siskiyou	40	1872 - *
17	Montague	Siskiyou	30	1888 - *
18	*Walla Walla Creek	Siskiyou	34	1854 - 1892c
19	Orleans	Humboldt	18	1903 -
20	Fort Gaston	Humboldt	25	1866 - 1891
21	China Flat	Humboldt	12	1909 -
22	Weaverville	Trinity	31	1871 - *
23	Crescent City	Del Norte	30	1885 - *
24	Eureka	Humboldt	34	1887 -
25	Rhonerville	Humboldt	19	1901 - 1920
26	Upper Mattole	Humboldt	33	1887 - *
27	Fort Bragg	Mendocino	21	1895 - *
28	Blocksburg	Humboldt	11	1905 - 1916
29	Branscomb	Mendocino	21	1900 -
30	Willits	Mendocino	29	1878 - 1907
31	Ukiah	Mendocino	44	1877 -
32	Cloverdale	Sonoma	21	1893 - *
33	Healdsburg	Sonoma	44	1877 -
34	Fort Ross	Sonoma	45	1875 - *
35	Helen Mine	Lake	21	1900 -
36	Lakeport (Kono Tayee)	Lake	21	1874 - *
37	North Lakeport	Lake	18	1901 - 1919
38	Upper Lake	Lake	28	1886 - 1914
39	Hullville	Lake	14	1907 -
40	East Park	Colusa	10	1911 -
41	Willows	Glenn	42	1879 -
42	Fruto	Glenn	22	1889 - 1911
43	Orland	Glenn	38	1883 -
44	Corning	Tehama	34	1880 - 1916*
45	Chico	Butte	50	1871 -
46	Durham	Butte	24	1895 - 1919
47	Biggs	Butte	17	1899 - 1916
48	Gridley	Butte	10	1907 - 1917
49	Colusa	Colusa	40	1871 - *
50	Dunnigan	Yolo	39	1877 - 1916
51	Marysville	Yuba	50	1871 -
52	Palermo	Butte	23	1891 - 1914
53	Oroville	Butte	36	1885 -
54	Magalia	Butte	13	1904 - 1917
55	De Sabla	Butte	17	1904 -
56	West Branch	Butte	14	1907 -
57	Inskip	Butte	14	1907 -
58	Sterling City	Butte	14	1903 - 1917
59	Edmanton	Plumas	13	1892 - 1905
60	Greenville	Plumas	20	1894 - 1914
61	Quincy	Plumas	26	1895 -
62	Stanwood	Butte	15	1903 - 1920a
63	La Porte	Plumas	25	1894 - *
64	Sierraville	Sierra	12	1909 -
65	Downieville	Sierra	13	1908 -
66	Camptonville	Yuba	14	1907 -
67	Head Dam	Yuba	14	1907
68	Dobbins	Yuba	17	1904 -
69	Colgate	Yuba	12	1907 - *
70	Grass Valley	Nevada	46	1873 -
71	Nevada City	Nevada	57	1864 -
72	Deer Creek	Nevada	14	1907 -
73	North Bloomfield	Nevada	43	1870 - *
74	Bowman Dam	Nevada	39	1871 - 1915a
75	Lake Spaulding	Nevada	27	1894 -
76	Fordyce Dam	Nevada	27	1894 -
77	Boca	Nevada	44	1870 - 1916a
78	Truckee	Nevada	50	1870 - 1920
79	Tamarack	Alpine	18	1900 -
80	Summit	Placer	50	1871 -
81	Cisco	Placer	46	1870 - 1916
82	Emigrant Gap	Placer	40	1872 - *
83	Blue Canyon	Placer	22	1899 -
84	Towle	Placer	30	1885 - 1920a
85	Gold Run	Placer	20	1899 - 1919
86	Iowa Hill	Placer	31	1879 - 1910
87	Colfax	Placer	51	1870 -
88	Pilot Creek	El Dorado	20	1894 - 1914
89	Georgetown	El Dorado	46	1873 - *
90	Auburn	Placer	50	1871 -
91	Wheatland	Yuba	29	1887 - 1916
92	Newcastle	Placer	14	1892 - 1910a
93	Rocklin	Placer	48	1870 - *
94	Sacramento	Sacramento	72	1849 -
95	Folsom	Sacramento	50	1871 -
96	Shingle Springs	El Dorado	36	1850 - 1912a
97	Placerville	El Dorado	43	1874 - *
98	Mill Creek No 1	Amador	14	1907
99	West Point	Calaveras	24	1894 -
100	Kennedy Mine	Amador	29	1892
101	Electra	Amador	17	1904 -
102	Mokelumne Hill	Calaveras	36	1882 - 1918
103	Ione	Amador	43	1878 - *
104	Galt	Sacramento	42	1878 - *
105	Valley Springs	Calaveras	26	1888 - 1915a
106	Milton	Calaveras	33	1888 -
107	Sonora	Tuolumne	26	1888 -
108	Groveland	Tuolumne	8	1904 - 1913a
109	Crockers	Tuolumne	13	1896 - 1909
110	Yosemite	Mariposa	15	1904 - *
111	Summerdale	Mariposa	14	1896 - 1910
112	Merced Falls	Merced	11	1907 -
113	La Grange	Stanislaus	36	1868 - 1915
114	Denair	Stanislaus	18	1899 - *
115	Oakdale	Stanislaus	34	1881 - *
116	Farmington	San Joaquin	38	1877 - 1915
117	Lodi	San Joaquin	24	1888 - 1912
118	Stockton	San Joaquin	54	1867 -
119	Tracy	San Joaquin	40	1879 - *a
120	Livermore	Alameda	50	1871 -
121	Niles	Alameda	42	1871 - 1918*
122	San Mateo	San Mateo	47	1874 - "
123	San Leandro	Alameda	14	1895 1911
124	Mills College	Alameda	[illegible]	1893 - 1916a
125	San Francisco	San Francisco	72	1849 -
126	Oakland	Alameda	47	1874 -
127	Berkeley	Alameda	34	1887 -
128	Antioch	Contra Costa	42	1879 -
129	Rio Vista	Solano	24	1893 - *
130	Suisun	Solano	46	1872 - *a
NO	STATION	COUNTY	YEARS	YEARS OF RECORD



* Record not continuous
a From records of S P R R Co 1916-1921
c From Water Supply Paper No 81

PRECIPITATION RECORDS OF THE UNITED STATES WEATHER BUREAU
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION

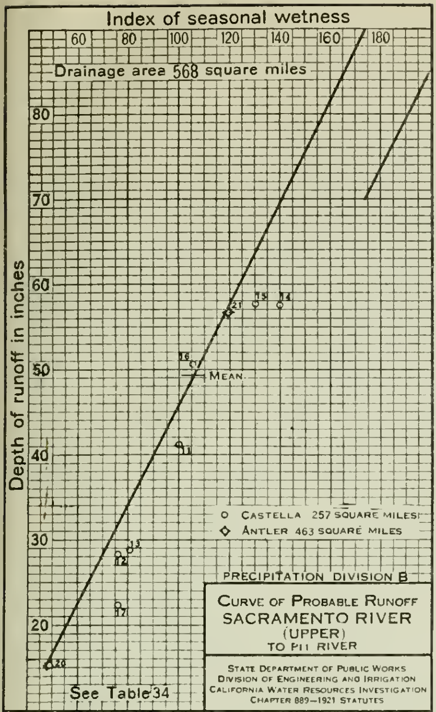
PRECIPITATION RECORDS OF THE UNITED STATES WEATHER BUREAU

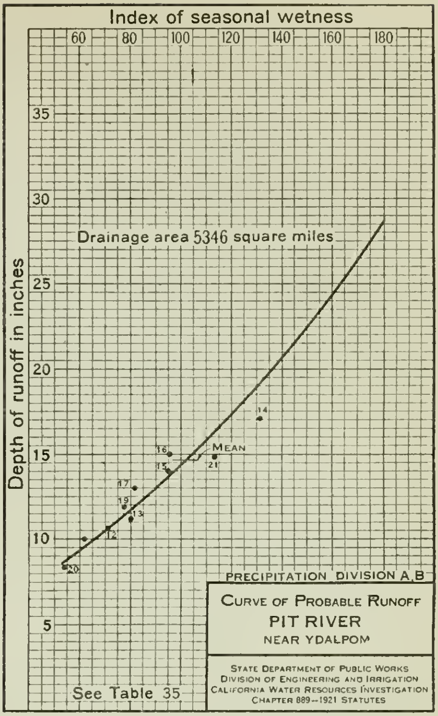
NO	STATION	COUNTY	YEARS	PERIOD OF RECORD
131	Davis	Yolo	49	1872 -
132	Woodland	Yolo	48	1873 -
133	Guinda	Yolo	20	1896 - 1916
134	Calistoga	Napa	48	1873 -
135	St. Helena	Napa	13	1908 -
136	Santa Rosa	Sonoma	33	1888 -
137	Peachland	Sonoma	25	1896
138	Napa	Napa	41	1877
139	Sonoma	Sonoma	17	1886 - 1907'
140	Petaluma	Sonoma	29	1874 -
141	Kentfield	Marin	33	1888 -
142	Mt. Tamalpais	Marin	22	1898 - 1920
143	Point Reyes	Marin	38	1880 -
144	Boulder Creek	Santa Cruz	28	1888 - 1916
145	Ben Lomond	Santa Cruz	16	1899 - 1916
146	Felton	Santa Cruz	26	1889
147	Laurel	Santa Cruz	25	1891 - 1916
148	Los Gatos	Santa Clara	36	1885 -
149	Campbell	Santa Clara	24	1897 -
150	San Jose	Santa Clara	47	1874 -
151	Santa Clara	Santa Clara	38	1881 -
152	Lick Observatory	Santa Clara	40	1881 -
153	Gilroy	Santa Clara	47	1874 - •
154	Watsonville	Santa Cruz	31	1881
155	Aptos	Santa Cruz	30	1885 - 1915
156	Santa Cruz	Santa Cruz	43	1878 -
157	Monterey	Monterey	41	1849 - 1915•
158	Salinas	Monterey	47	1873 - •
159	Hollister	San Benito	47	1874 -
160	Los Banos	Merced	39	1873 - 1913•
161	Newman	Stanislaus	32	1889 -
162	Westley	Stanislaus	26	1888 - 1915•
163	Modesto	Stanislaus	44	1871 - 1915
164	Merced	Merced	49	1872 -
165	La Grand	Merced	21	1899 - •
166	North Fork	Madera	12	1907 - •
167	Storey	Madera	21	1899 - •
168	Mendota	Fresno	13	1894 - 1908 •
169	Fresno	Fresno	40	1881 -
170	Sanger	Fresno	25	1889 - 1915 •
171	Reedley	Fresno	20	1901 -
172	Selma	Fresno	29	1886 - 1915
173	Hanford	Kern	19	1899 - •
174	Visalia	Tulare	41	1877 - •
175	Lemon Cove	Tulare	21	1899 - •
176	Milo	Tulare	20	1898 - •
177	Springville	Tulare	14	1907 -
178	Hot Springs	Tulare	10	1907 - 1917
179	Kernville	Kern	27	1894 -
180	Isabella	Kern	13	1897 - 1910
181	Glennville	Kern	12	1909 -
182	Caliente	Kern	39	1876 - 1915
183	Delano	Kern	32	1876 - 1908
184	Porterville	Tulare	32	1889 -
185	Tulare	Tulare	44	1876 - • *
186	Angiola	Tulare	15	1899 - •
187	Wasco	Kern	18	1899 - •
188	Bakersfield	Kern	31	1889 - •
189	Edison	Kern	16	1904 - •
190	Bear Valley	Kern	13	1900 - 1915•
191	Spreckels	Monterey	16	1905 -
192	Gonzales	Monterey	16	1899 - 1915
193	Soledad	Monterey	45	1874 - • *
194	King City	Monterey	32	1887 -
195	Priest Valley	Monterey	19	1899 - •
196	Jolon	Monterey	37	1882 -
197	Parkfield	Monterey	11	1908 - •
198	San Miguel	San Luis Obispo	28	1887 - 1915
199	Paso Robles	San Luis Obispo	34	1887 -
200	Santa Margarita	San Luis Obispo	27	1889 - 1916
201	San Luis Obispo	San Luis Obispo	52	1869 -
202	Santa Maria	Santa Barbara	30	1885 -
203	Sisquoc Ranch	Santa Barbara	10	1904 - 1914
204	Ozena	Ventura	15	1904 -
205	Pine Crest	Santa Barbara	17	1898 - 1916
206	Santa Barbara	Santa Barbara	54	1867 -
207	San Miguel Island	Santa Barbara	23	1894 -
208	Ventura	Ventura	35	1873 - 1909•
209	Ojai Valley	Ventura	16	1905 -
210	West Saticoy	Ventura	19	1893 - 1916•
211	Santa Monica	Los Angeles	36	1885 -
212	Newhall	Los Angeles	38	1877 - 1915
213	Tehachapi	Kern	37	1877 - 1914
214	Mojave	Kern	37	1877 - 1914
215	Monterio	Kern	13	1899 - 1912
216	Lowe Observatory	Los Angeles	21	1896 - 1919•
217	Mt. Wilson	Los Angeles	17	1904 -
218	Pasadena	Los Angeles	22	1892 - •
219	Sierra Madre	Los Angeles	24	1897 -
220	Azusa	Los Angeles	22	1898 - 1920
221	Lordsburg	Los Angeles	14	1904 - 1918
222	Los Angeles	Los Angeles	44	1877 -
223	Claremont	Los Angeles	30	1891 -
224	Glendora	Los Angeles	11	1892 - 1911•
225	Upland	San Bernardino	20	1891 - 1911
226	Lytle Creek	San Bernardino	16	1905 -
227	Arrowhead Springs	San Bernardino	7	1909 - 1919•
228	San Bernardino	San Bernardino	51	1870 -
229	Bear Valley Dam	San Bernardino	22	1892 - 1918•
230	Seven Oaks	San Bernardino	10	1911 -
231	Mill Creek No 2	San Bernardino	18	1903 -
232	Craftonville	San Bernardino	17	1892 - 1909
233	Redlands	San Bernardino	32	1889 -
234	Riverside	Riverside	40	1881 -
235	Chino	San Bernardino	22	1893 - 1915
236	Corona	Riverside	12	1908 - •
237	Anaheim	Orange	29	1878 - 1909•
238	Santa Ana	Orange	11	1889 - •
239	Tustin	Orange	44	1877 -
240	Elsinore	Riverside	22	1887 - •
241	Beaumont (near)	Riverside	10	1911 -
242	Beaumont	Riverside	16	1888 - •
243	Cabazon	Riverside	11	1898 - 1909
244	San Jacinto	Riverside	28	1893 -
245	Idyllwyld	Riverside	10	1901 - 1911
246	Fallbrook	San Diego	27	1876 - 1903
247	Aguanga	Riverside	13	1908 -
248	Warner Springs	San Diego	15	1906 -
249	Nellie	San Diego	13	1901 - 1920•
250	Oceanside	San Diego	10	1909 - 1919
251	Mesa Grande	San Diego	13	1908 -
252	Escondido	San Diego	24	1897 -
253	Julian	San Diego	22	1880 -
254	Cuyamaca	San Diego	33	1888 -
255	Descanso	San Diego	12	1896 - 1915•
256	Poway	San Diego	24	1879 - 1909•
257	El Cajon	San Diego	22	1899 -
258	Point Loma	San Diego	17	1904 -
259	San Diego	San Diego	71	1850 -
260	Campo	San Diego	31	1877 - •
261	Bodie	Mono	11	1895 - 1906
262	Bishop	Inyo	31	1883 - 1918•
263	Bishop Creek	Inyo	7	1911 -
264	Independence	Inyo	30	1870 - •
265	Lone Pine	Inyo	16	1904 - 1920
266	Keeler	Inyo	24	1885 - 1909
267	Glenn Ranch	San Bernardino	16	1900 - 1916
268	Barstow	San Bernardino	24	1889 -
269	Bagdad	San Bernardino	18	1903 -
270	Needles	San Bernardino	29	1892 -
271	Palm Springs	Riverside	26	1889 - 1915
272	Indio	Riverside	43	1878
273	Mecca	Riverside	16	1905 -
274	Salton	Riverside	18	1889 - 1907
275	Blythe	Riverside	9	1909 - •
276	Sterling	Imperial	43	1878 -
277	Calexico	Imperial	16	1905 -
NO	STATION	COUNTY	YEARS	YEARS OF RECORD

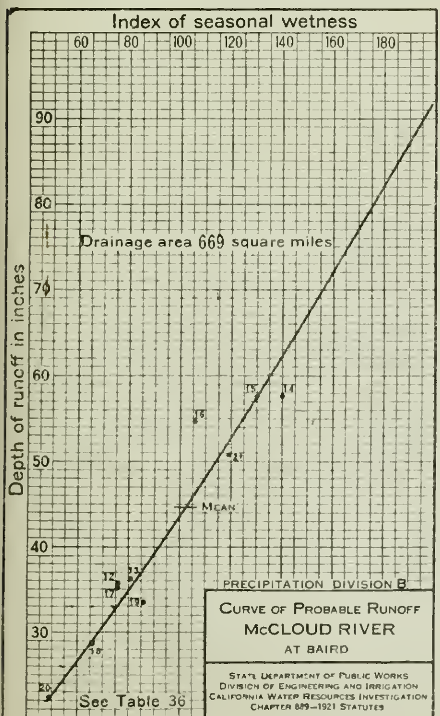
• Record not continuous
* From records of S P R R Co 1916-1921
' From Water Supply Paper No 81

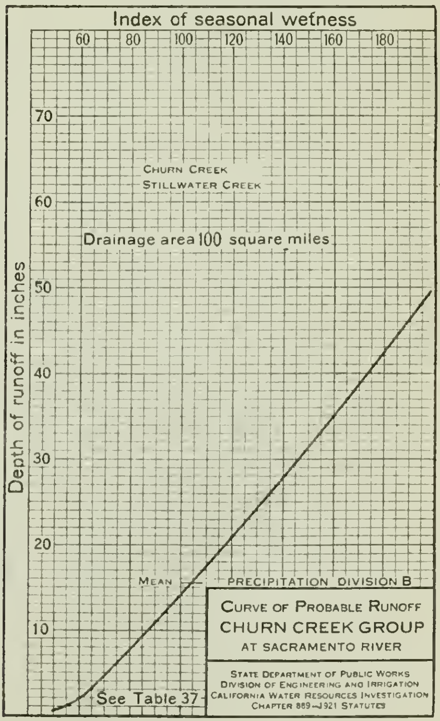
PRECIPITATION RECORDS OF THE UNITED STATES WEATHER BUREAU

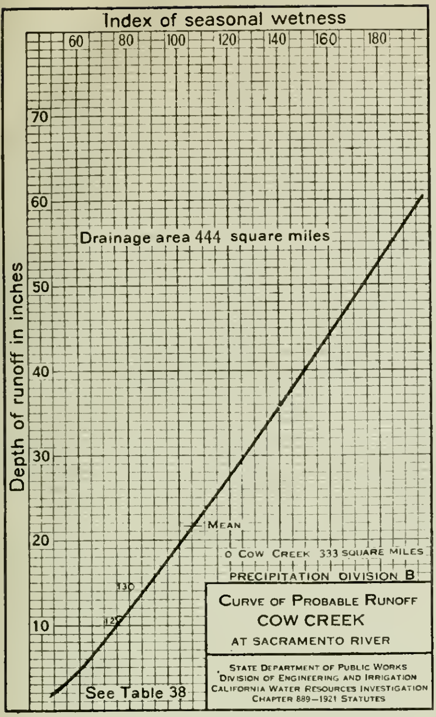
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCE INVESTIGATION
CHAPTER 889 1921 STATUTES

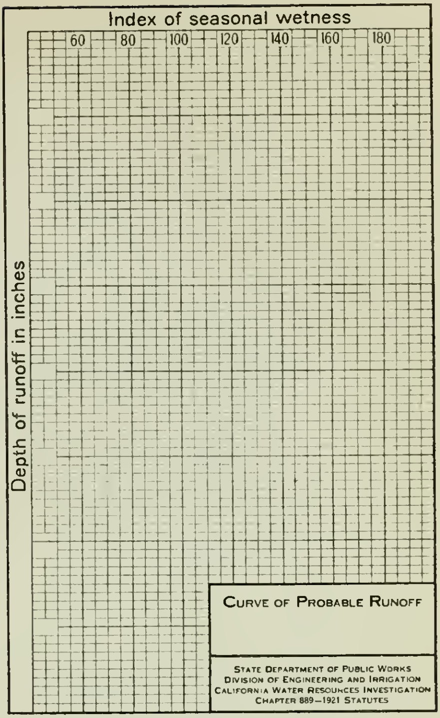

Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 568 square miles
Depth of runoff in inches
80
70
60
50
40
30
20
MEAN
O CASTELLA 257 SQUARE MILES
◇ ANTLER 463 SQUARE MILES
PRECIPITATION DIVISION B
CURVE OF PROBABLE RUNOFF
SACRAMENTO RIVER
(UPPER)
TO PIT RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 34

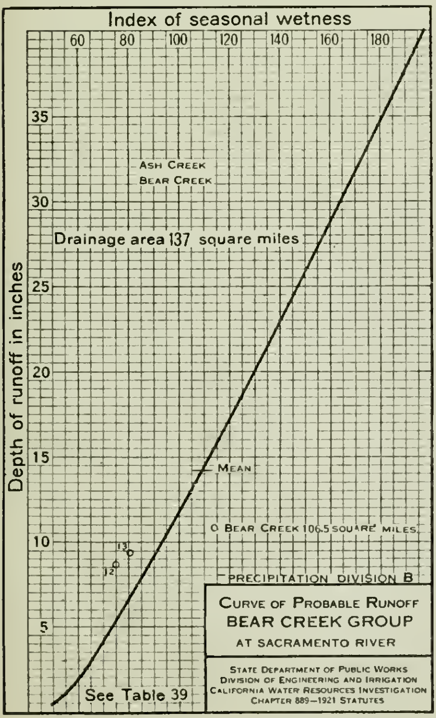

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
35
30
25
20
15
10
5
Drainage area 5346 square miles
MEAN
PRECIPITATION DIVISION A,B
CURVE OF PROBABLE RUNOFF
PIT RIVER
NEAR YDALPOM
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 35


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
90
80
70
60
50
40
30
Drainage area 669 square miles
MEAN
PRECIPITATION DIVISION B
CURVE OF PROBABLE RUNOFF
McCLOUD RIVER
AT BAIRD
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 36


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
70
60
50
40
30
20
10
CHURN CREEK
STILLWATER CREEK
Drainage area 100 square miles
MEAN
PRECIPITATION DIVISION B
CURVE OF PROBABLE RUNOFF
CHURN CREEK GROUP
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 37


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
70
60
50
40
30
20
10
Drainage area 444 square miles
MEAN
O COW CREEK 333 SQUARE MILES
PRECIPITATION DIVISION B
CURVE OF PROBABLE RUNOFF
COW CREEK
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 38


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
CURVE OF PROBABLE RUNOFF
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
35
30
25
20
15
10
5
ASH CREEK
BEAR CREEK
Drainage area 137 square miles
MEAN
O BEAR CREEK 106.5 SQUARE MILES
PRECIPITATION DIVISION B
CURVE OF PROBABLE RUNOFF
BEAR CREEK GROUP
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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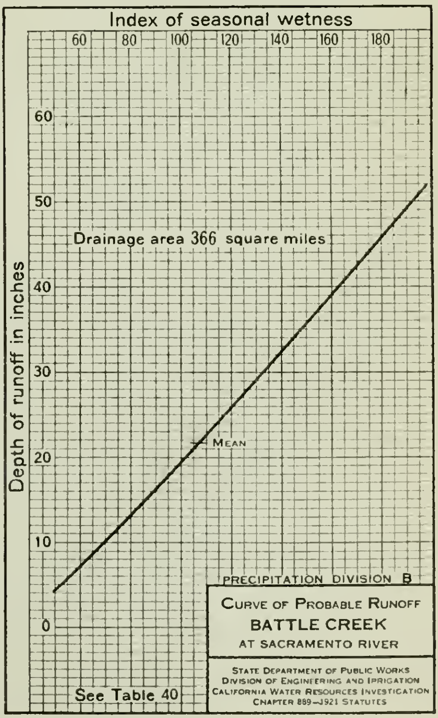
See Table 39


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
60
50
40
30
20
10
0
Drainage area 366 square miles
MEAN
PRECIPITATION DIVISION B
CURVE OF PROBABLE RUNOFF
BATTLE CREEK
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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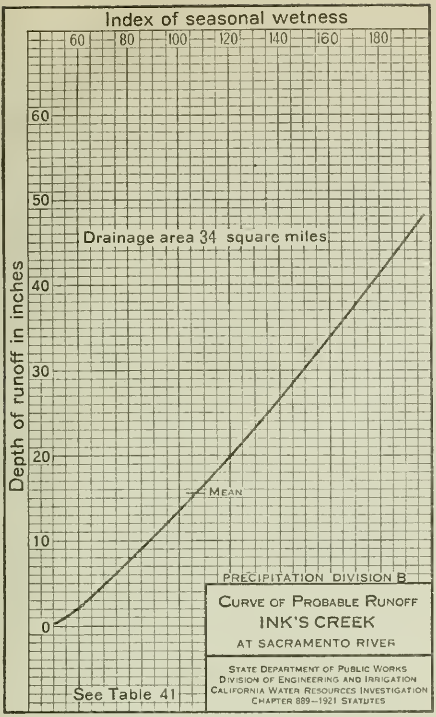
See Table 40


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
0 10 20 30 40 50 60
Drainage area 34 square miles
MEAN
PRECIPITATION DIVISION B
CURVE OF PROBABLE RUNOFF
INK'S CREEK
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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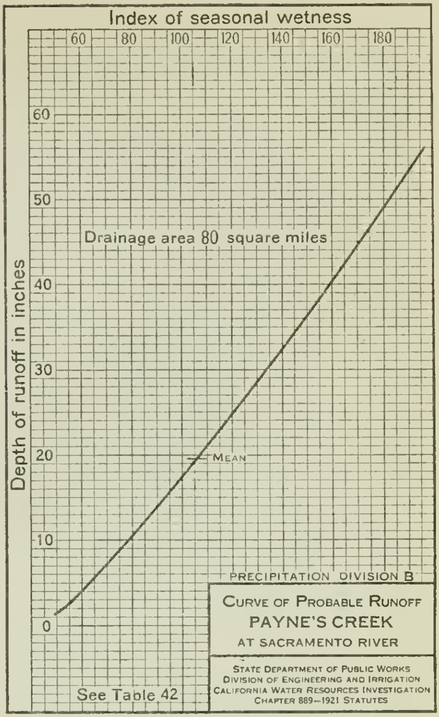
See Table 41


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
0 10 20 30 40 50 60
Drainage area 80 square miles
MEAN
PRECIPITATION DIVISION B
CURVE OF PROBABLE RUNOFF
PAYNE'S CREEK
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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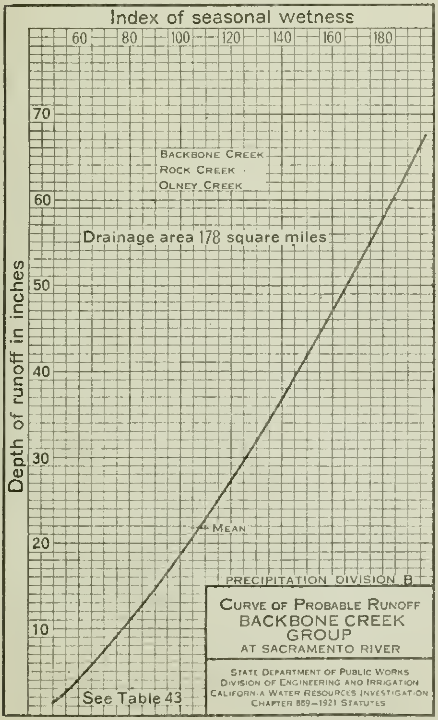
See Table 42


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
10 20 30 40 50 60 70
BACKBONE CREEK
ROCK CREEK
OLNEY CREEK
Drainage area 178 square miles
MEAN
PRECIPITATION DIVISION B
CURVE OF PROBABLE RUNOFF
BACKBONE CREEK GROUP
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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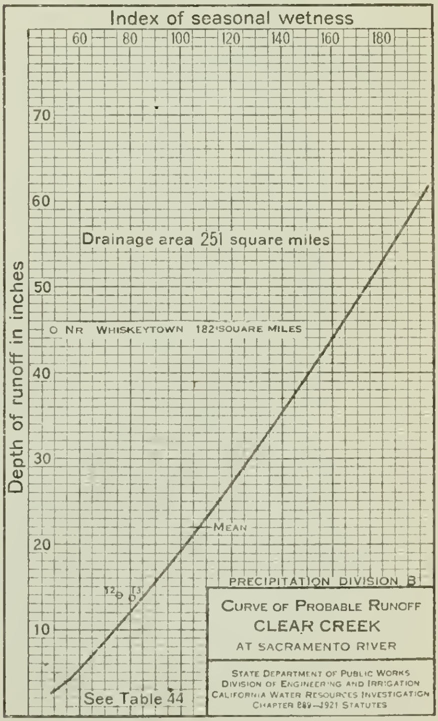
See Table 43


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
10 20 30 40 50 60 70
Drainage area 251 square miles
O NR WHISKEYTOWN 182 SQUARE MILES
MEAN
PRECIPITATION DIVISION B
CURVE OF PROBABLE RUNOFF
CLEAR CREEK
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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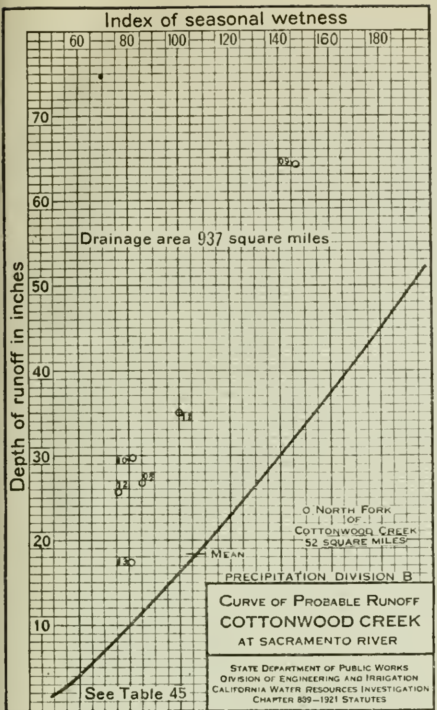
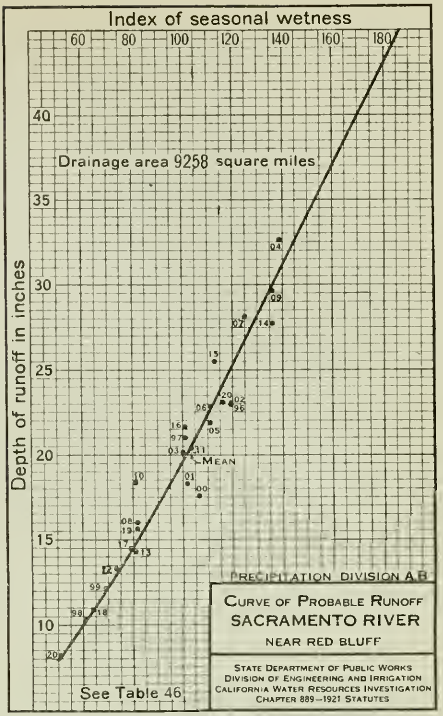
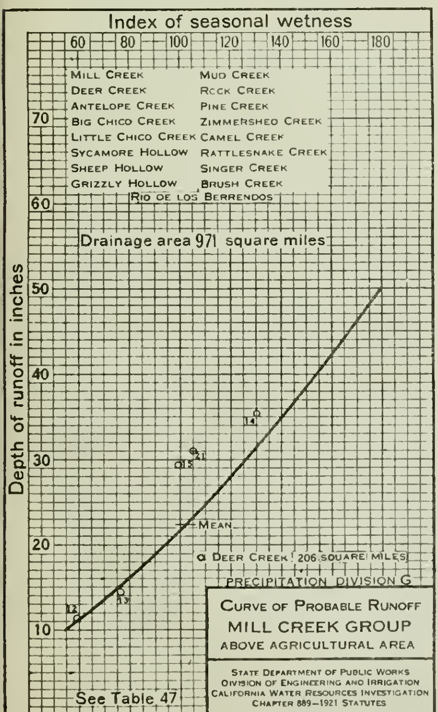
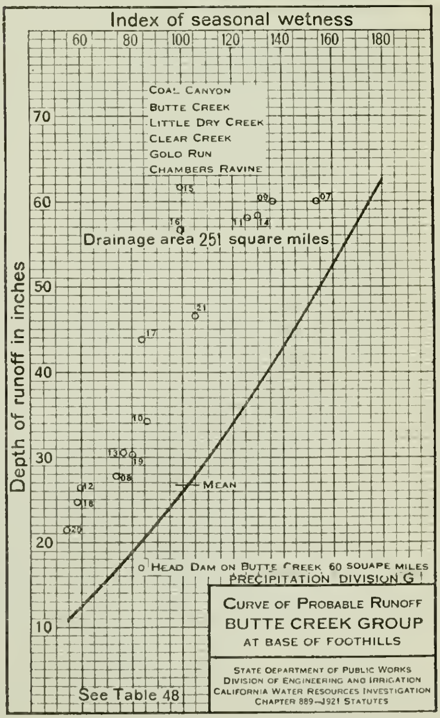
See Table 44


Index of seasonal wetness
Depth of runoff in inches
Drainage area 937 square miles
O North Fork of Cottonwood Creek 52 square miles
Mean
Precipitation Division B
Curve of Probable Runoff
COTTONWOOD CREEK
AT SACRAMENTO RIVER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 45


Index of seasonal wetness
Depth of runoff in inches
Drainage area 9258 square miles
Mean
Precipitation Division A B
Curve of Probable Runoff
SACRAMENTO RIVER
NEAR RED BLUFF
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 46


Index of seasonal wetness
Depth of runoff in inches
Mill Creek
Deer Creek
Antelope Creek
Big Chico Creek
Little Chico Creek
Sycamore Hollow
Sheep Hollow
Grizzly Hollow
Mud Creek
Rock Creek
Pine Creek
Zimmershed Creek
Camel Creek
Rattlesnake Creek
Singer Creek
Brush Creek
Rio de los Berrendos
Drainage area 971 square miles
Mean
O Deer Creek 206 square miles
Precipitation Division G
Curve of Probable Runoff
MILL CREEK GROUP
ABOVE AGRICULTURAL AREA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 47


Index of seasonal wetness
Depth of runoff in inches
Coal Canyon
Butte Creek
Little Dry Creek
Clear Creek
Gold Run
Chambers Ravine
Drainage area 251 square miles
Mean
O Head Dam on Butte Creek 60 square miles
Precipitation Division G
Curve of Probable Runoff
BUTTE CREEK GROUP
AT BASE OF FOOTHILLS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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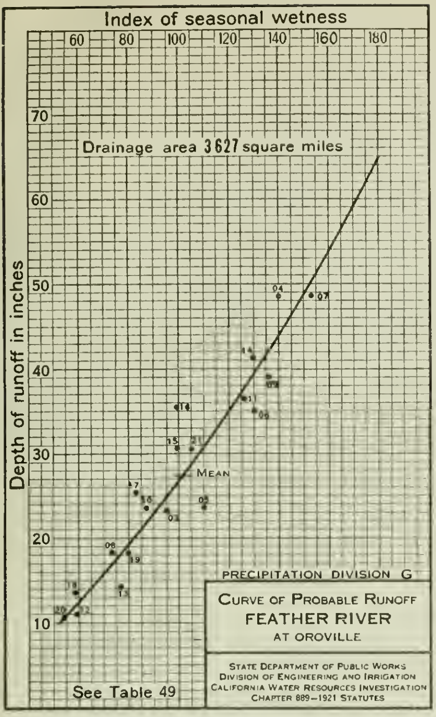
See Table 48


Index of seasonal wetness
Depth of runoff in inches
Drainage area 3627 square miles
MEAN
PRECIPITATION DIVISION G
CURVE OF PROBABLE RUNOFF
FEATHER RIVER
AT OROVILLE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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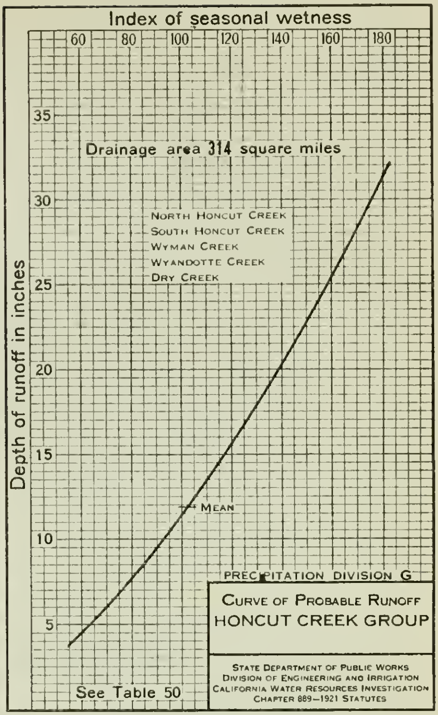
See Table 49


Index of seasonal wetness
Depth of runoff in inches
Drainage area 314 square miles
NORTH HONCUT CREEK
SOUTH HONCUT CREEK
WYMAN CREEK
WYANDOTTE CREEK
DRY CREEK
MEAN
PRECIPITATION DIVISION G
CURVE OF PROBABLE RUNOFF
HONCUT CREEK GROUP
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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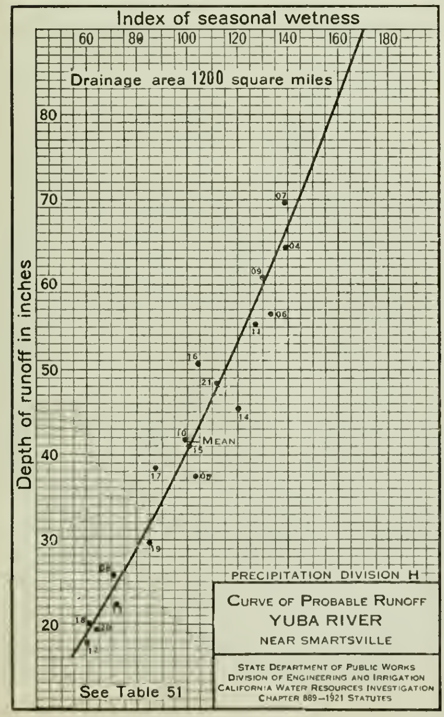
See Table 50


Index of seasonal wetness
Depth of runoff in inches
Drainage area 1200 square miles
MEAN
PRECIPITATION DIVISION H
CURVE OF PROBABLE RUNOFF
YUBA RIVER
NEAR SMARTSVILLE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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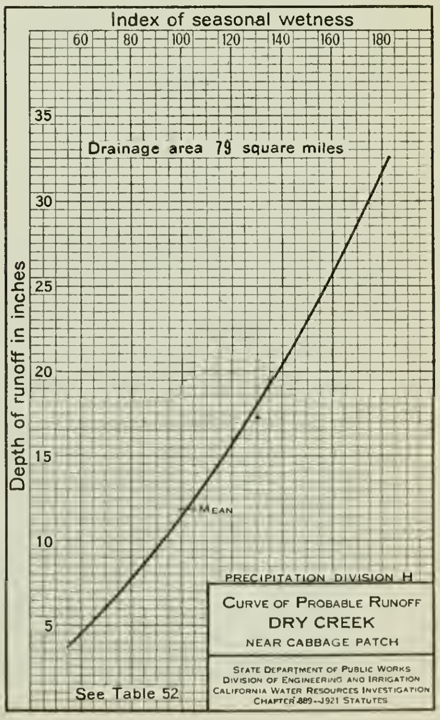
See Table 51


Index of seasonal wetness
Depth of runoff in inches
Drainage area 79 square miles
MEAN
PRECIPITATION DIVISION H
CURVE OF PROBABLE RUNOFF
DRY CREEK
NEAR CABBAGE PATCH
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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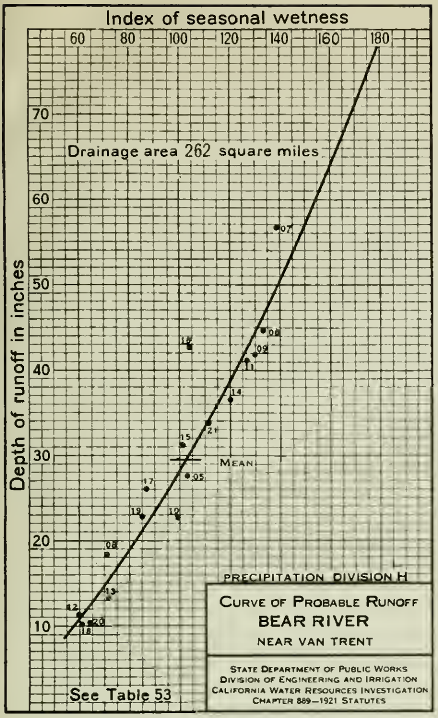
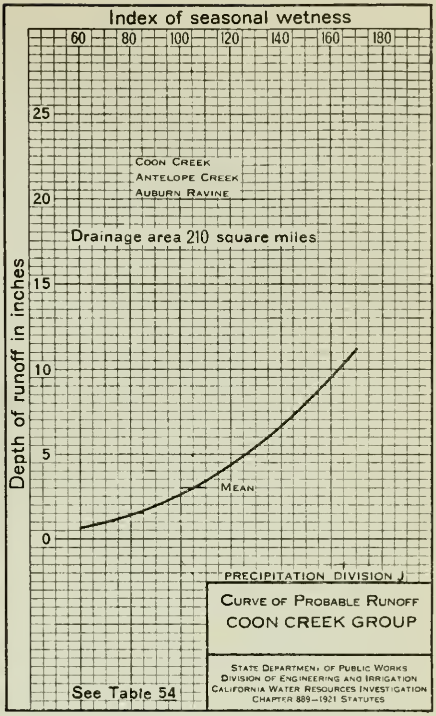
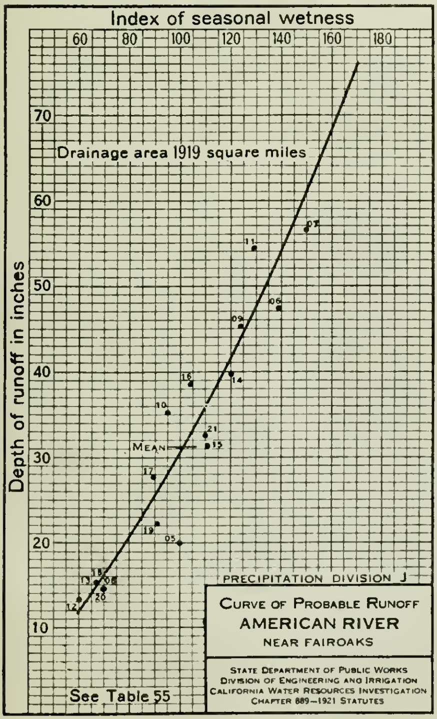
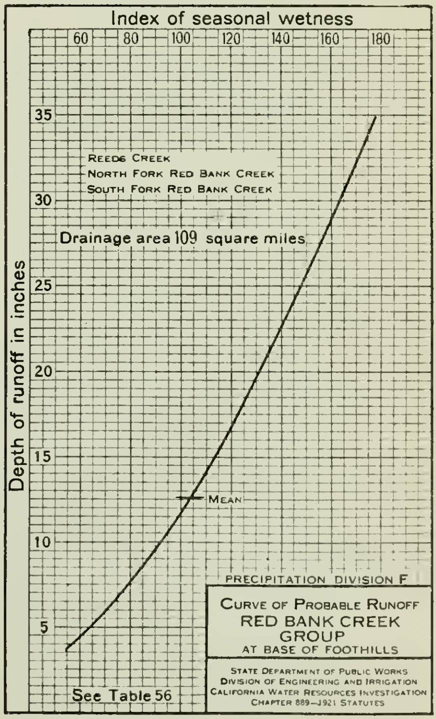
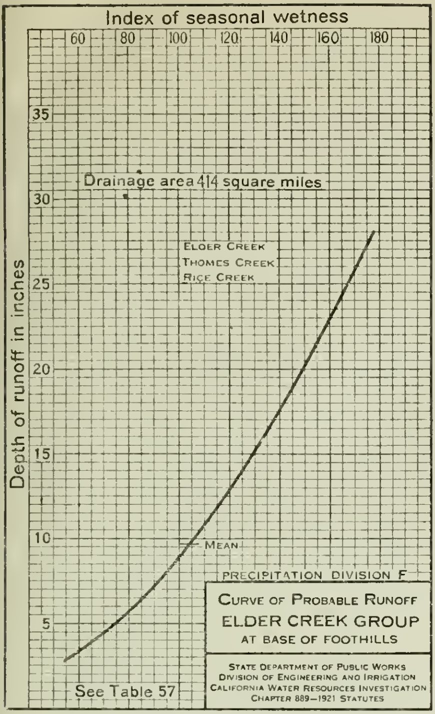
See Table 52

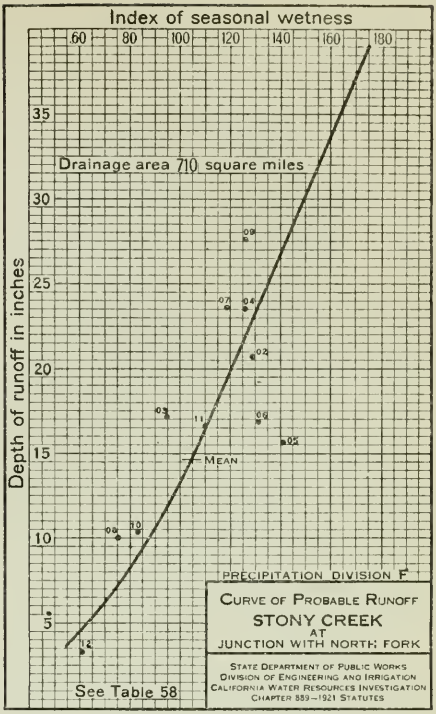

Index of seasonal wetness
Depth of runoff in inches
Drainage area 262 square miles
Mean
Precipitation Division H
Curve of Probable Runoff
BEAR RIVER
NEAR VAN TRENT
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 53

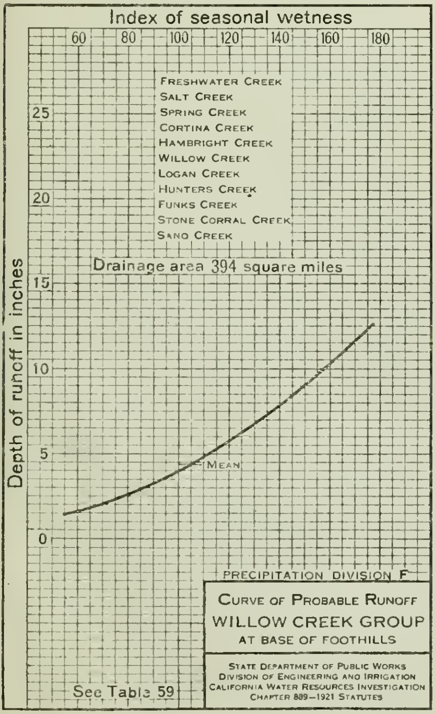

Index of seasonal wetness
Depth of runoff in inches
Coon Creek
Antelope Creek
Auburn Ravine
Drainage area 210 square miles
Mean
Precipitation Division J
Curve of Probable Runoff
COON CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 54

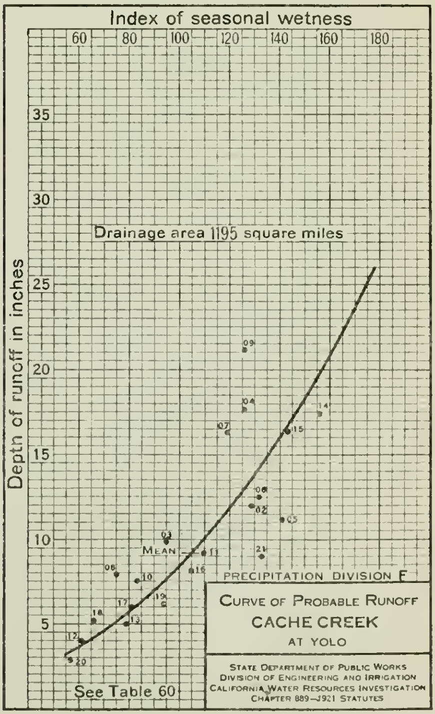

Index of seasonal wetness
Depth of runoff in inches
Drainage area 1919 square miles
Mean
Precipitation Division J
Curve of Probable Runoff
AMERICAN RIVER
NEAR FAIROAKS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 55

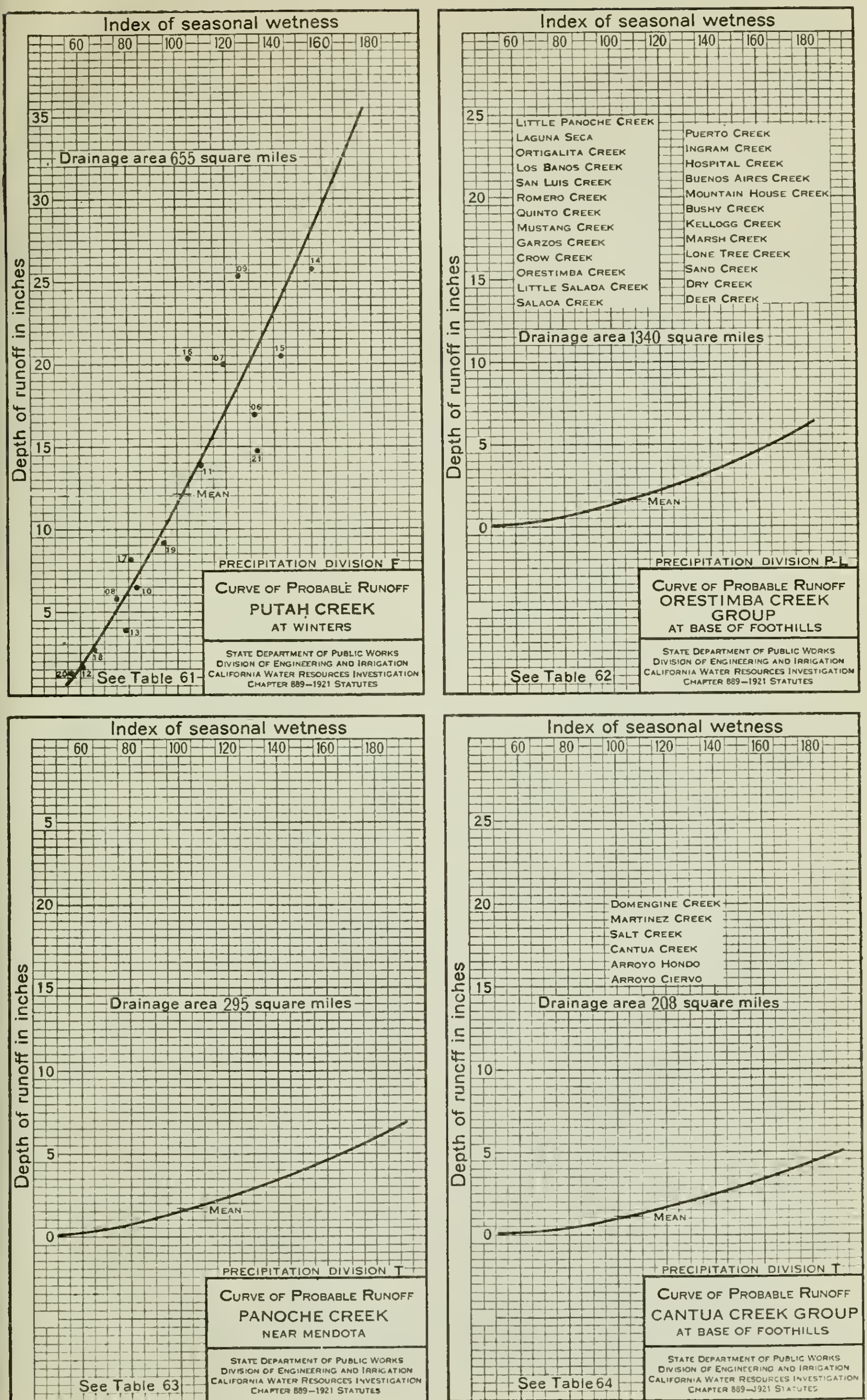

Index of seasonal wetness
Depth of runoff in inches
Reeds Creek
North Fork Red Bank Creek
South Fork Red Bank Creek
Drainage area 109 square miles
Mean
Precipitation Division F
Curve of Probable Runoff
RED BANK CREEK
GROUP
AT BASE OF FOOTHILLS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 56


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
35
30
25
20
15
10
5
Drainage area 414 square miles
Elder Creek
Thomes Creek
Rice Creek
Mean
Precipitation Division F
Curve of Probable Runoff
ELDER CREEK GROUP
at base of foothills
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 57


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
35
30
25
20
15
10
5
Drainage area 710 square miles
09
07
04
02
03
11
06
05
Mean
08
10
12
Precipitation Division F
Curve of Probable Runoff
STONY CREEK
at
junction with North Fork
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 58


Index of seasonal wetness
60
80
100
120
140
160
180
Freshwater Creek
Salt Creek
Spring Creek
Cortina Creek
Hambright Creek
Willow Creek
Logan Creek
Hunters Creek
Funks Creek
Stone Corral Creek
Sand Creek
Drainage area 394 square miles
Depth of runoff in inches
25
20
15
10
5
0
Mean
Precipitation Division F
Curve of Probable Runoff
WILLOW CREEK GROUP
at base of foothills
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 59


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
35
30
25
20
15
10
5
Drainage area 1195 square miles
09
04
14
07
15
06
02
05
03
Mean
11
21
08
16
10
17
19
18
13
12
20
Precipitation Division F
Curve of Probable Runoff
CACHE CREEK
at Yolo
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 60


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
Drainage area 655 square miles
MEAN
PRECIPITATION DIVISION F
CURVE OF PROBABLE RUNOFF
PUTAH CREEK
AT WINTERS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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See Table 61
Index of seasonal wetness
Depth of runoff in inches
LITTLE PANOCHE CREEK
LAGUNA SECA
ORTIGALITA CREEK
LOS BANOS CREEK
SAN LUIS CREEK
ROMERO CREEK
QUINTO CREEK
MUSTANG CREEK
GARZOS CREEK
CROW CREEK
ORESTIMBA CREEK
LITTLE SALADA CREEK
SALADA CREEK
PUERTO CREEK
INGRAM CREEK
HOSPITAL CREEK
BUENOS AIRES CREEK
MOUNTAIN HOUSE CREEK
BUSHY CREEK
KELLOGG CREEK
MARSH CREEK
LONE TREE CREEK
SAND CREEK
DRY CREEK
DEER CREEK
Drainage area 1340 square miles
MEAN
PRECIPITATION DIVISION P-L
CURVE OF PROBABLE RUNOFF
ORESTIMBA CREEK GROUP
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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See Table 62
Index of seasonal wetness
Depth of runoff in inches
Drainage area 295 square miles
MEAN
PRECIPITATION DIVISION T
CURVE OF PROBABLE RUNOFF
PANOCHE CREEK
NEAR MENDOTA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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See Table 63
Index of seasonal wetness
Depth of runoff in inches
DOMENGINE CREEK
MARTINEZ CREEK
SALT CREEK
CANTUA CREEK
ARROYO HONDO
ARROYO CIERVO
Drainage area 208 square miles
MEAN
PRECIPITATION DIVISION T
CURVE OF PROBABLE RUNOFF
CANTUA CREEK GROUP
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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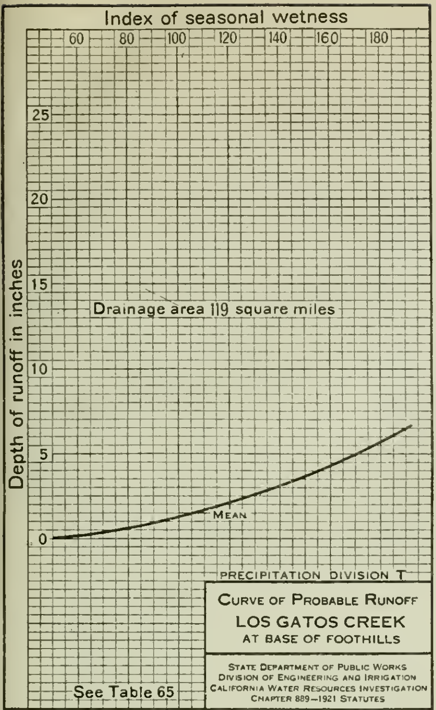
See Table 64


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
Drainage area 119 square miles
MEAN
PRECIPITATION DIVISION T
CURVE OF PROBABLE RUNOFF
LOS GATOS CREEK
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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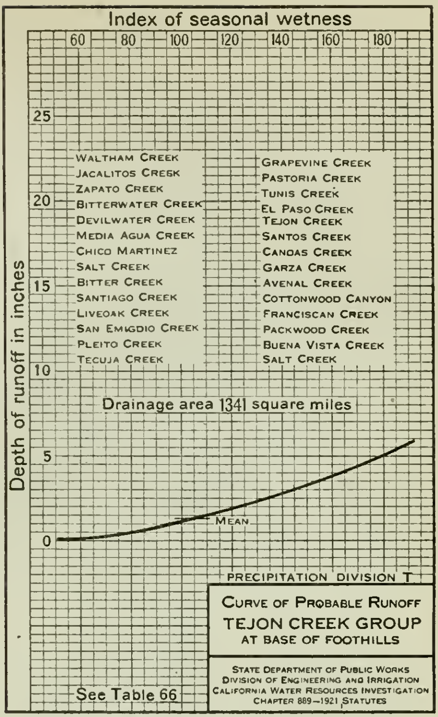
See Table 65


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
WALTHAM CREEK
JACALITOS CREEK
ZAPATO CREEK
BITTERWATER CREEK
DEVILWATER CREEK
MEDIA AGUA CREEK
CHICO MARTINEZ
SALT CREEK
BITTER CREEK
SANTIAGO CREEK
LIVEOAK CREEK
SAN EMIGDIO CREEK
PLEITO CREEK
TECUJA CREEK
GRAPEVINE CREEK
PASTORIA CREEK
TUNIS CREEK
EL PASO CREEK
TEJON CREEK
SANTOS CREEK
CANOAS CREEK
GARZA CREEK
AVENAL CREEK
COTTONWOOD CANYON
FRANCISCAN CREEK
PACKWOOD CREEK
BUENA VISTA CREEK
SALT CREEK
Drainage area 1341 square miles
MEAN
PRECIPITATION DIVISION T
CURVE OF PROBABLE RUNOFF
TEJON CREEK GROUP
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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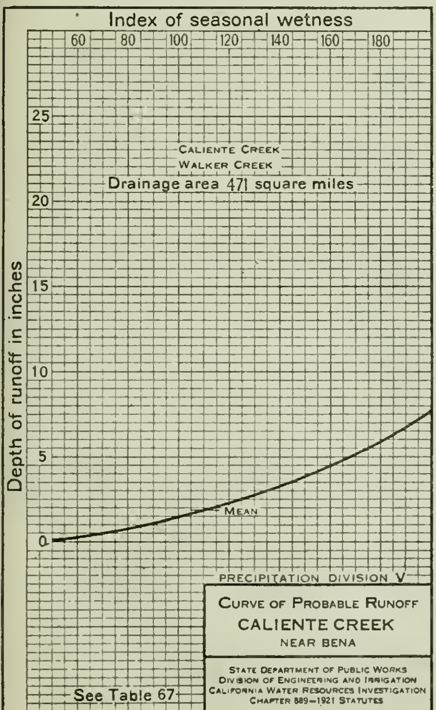
See Table 66


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
CALIENTE CREEK
WALKER CREEK
Drainage area 471 square miles
MEAN
PRECIPITATION DIVISION V
CURVE OF PROBABLE RUNOFF
CALIENTE CREEK
NEAR BENA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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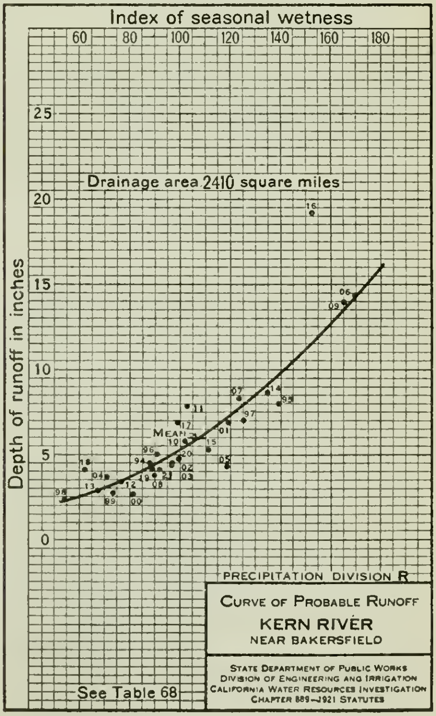
See Table 67


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
Drainage area 2410 square miles
MEAN
PRECIPITATION DIVISION R
CURVE OF PROBABLE RUNOFF
KERN RIVER
NEAR BAKERSFIELD
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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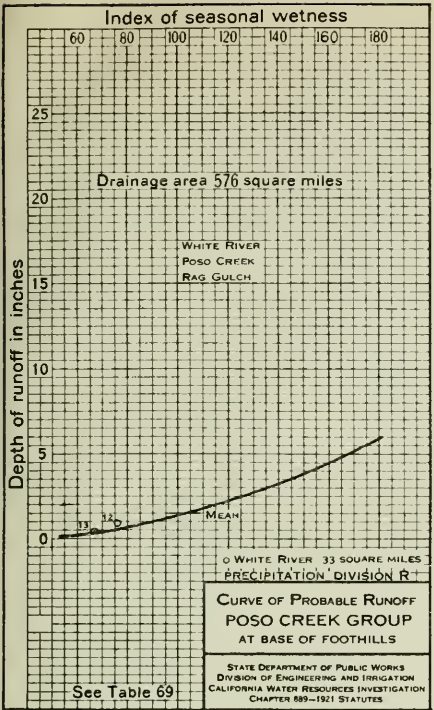
See Table 68


Index of seasonal wetness
Depth of runoff in inches
Drainage area 576 square miles
White River
Poso Creek
Rag Gulch
Mean
o White River 33 square miles
Precipitation division R
Curve of Probable Runoff
POSO CREEK GROUP
AT BASE OF FOOTHILLS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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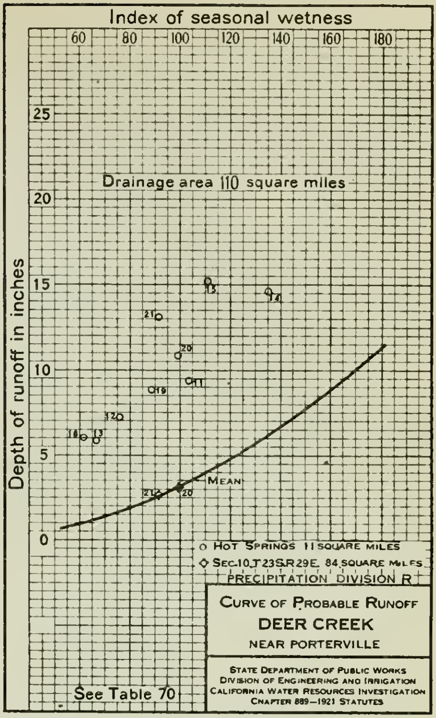
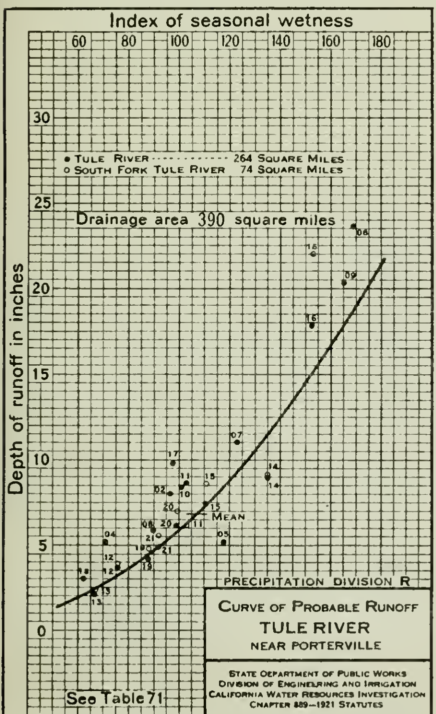
See Table 69


Index of seasonal wetness
Depth of runoff in inches
Drainage area 110 square miles
Mean
o Hot Springs 11 square miles
◇ Sec.10 T23S R29E. 84 square miles
Precipitation division R
Curve of Probable Runoff
DEER CREEK
NEAR PORTERVILLE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 70


Index of seasonal wetness
Depth of runoff in inches
• Tule River ------------ 264 Square Miles
o South Fork Tule River 74 Square Miles
Drainage area 390 square miles
Mean
Precipitation division R
Curve of Probable Runoff
TULE RIVER
NEAR PORTERVILLE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 71

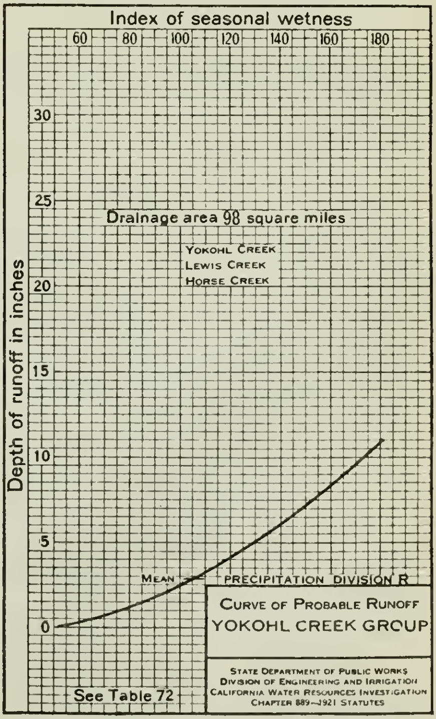
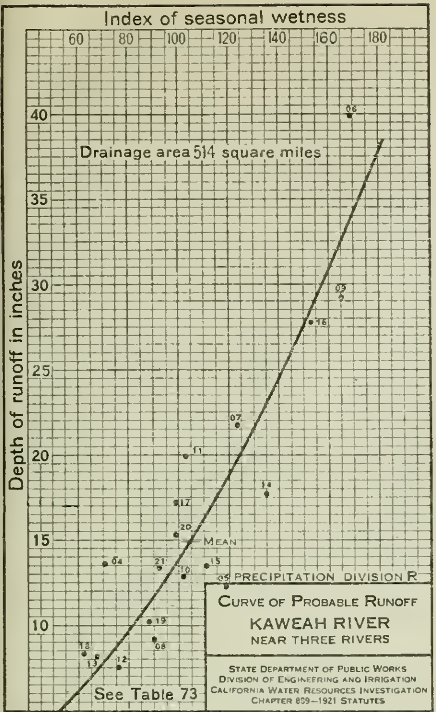
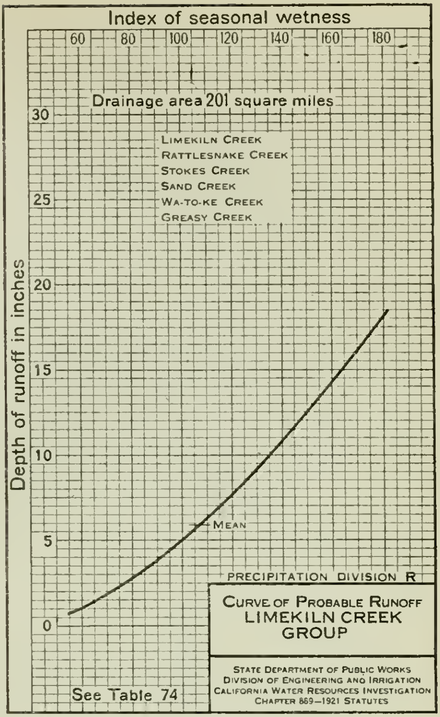
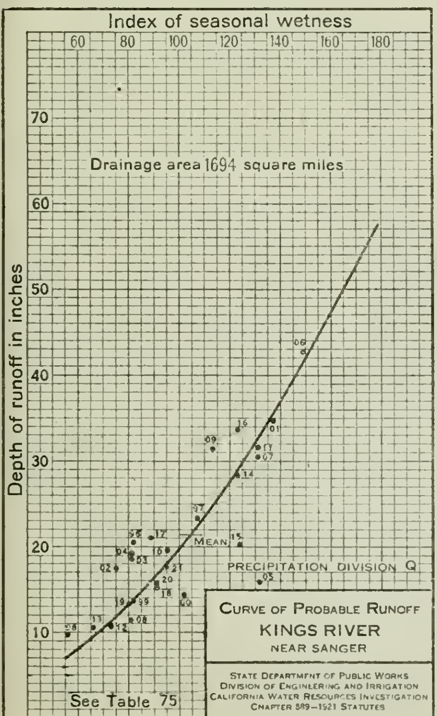
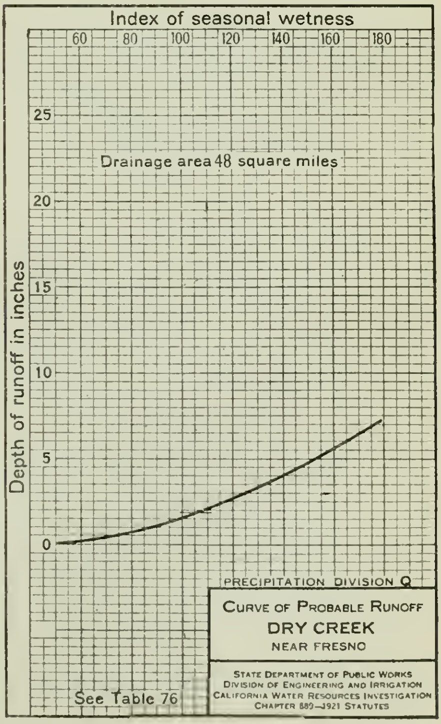

Index of seasonal wetness
Depth of runoff in inches
Drainage area 98 square miles
Yokohl Creek
Lewis Creek
Horse Creek
Mean
Precipitation division R
Curve of Probable Runoff
YOKOHL CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 72

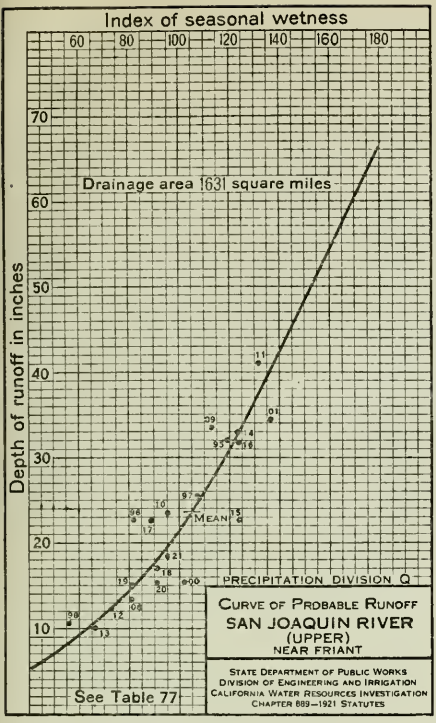
PLATE XXVIII.

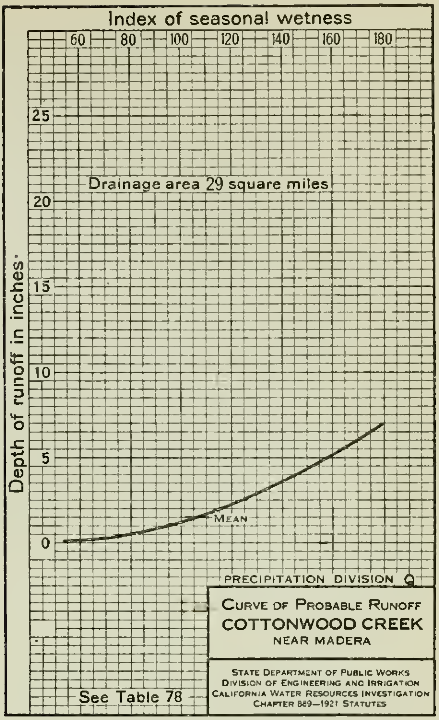


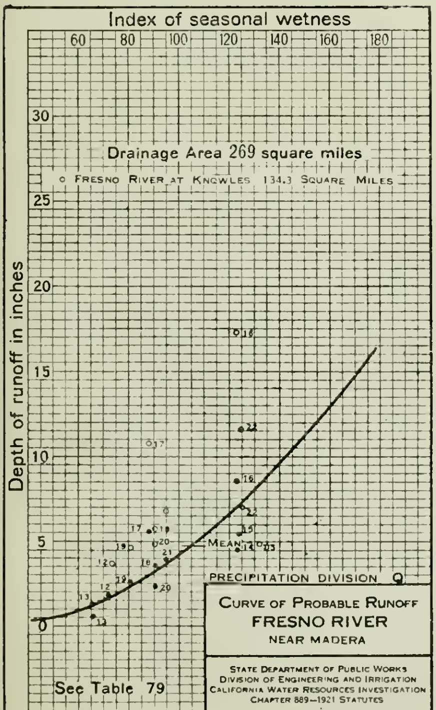


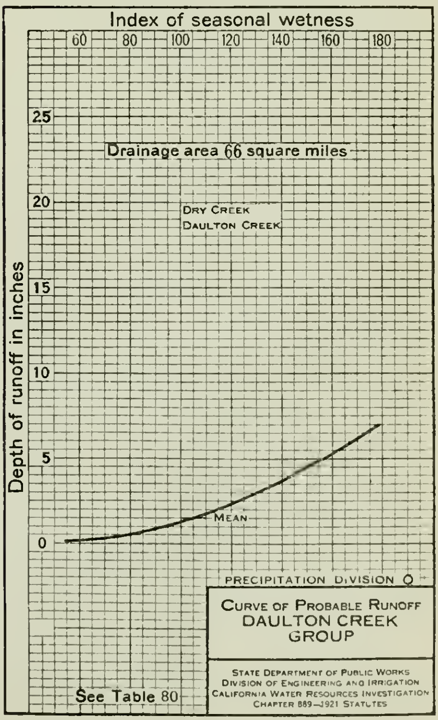


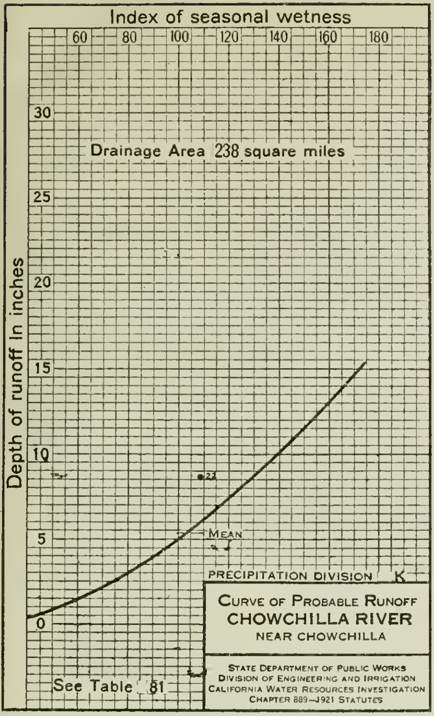


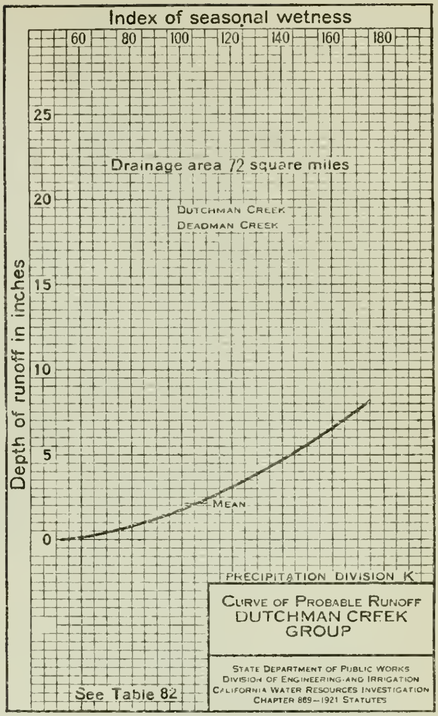

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
70
60
50
40
30
20
10
Drainage area 1631 square miles
MEAN
PRECIPITATION DIVISION Q
CURVE OF PROBABLE RUNOFF
SAN JOAQUIN RIVER
(UPPER)
NEAR FRIANT
See Table 77
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES

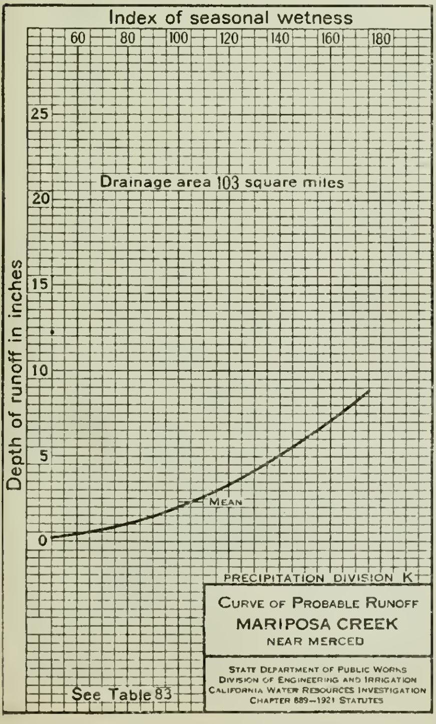

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
Drainage area 29 square miles
MEAN
PRECIPITATION DIVISION Q
CURVE OF PROBABLE RUNOFF
COTTONWOOD CREEK
NEAR MADERA
See Table 78
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES

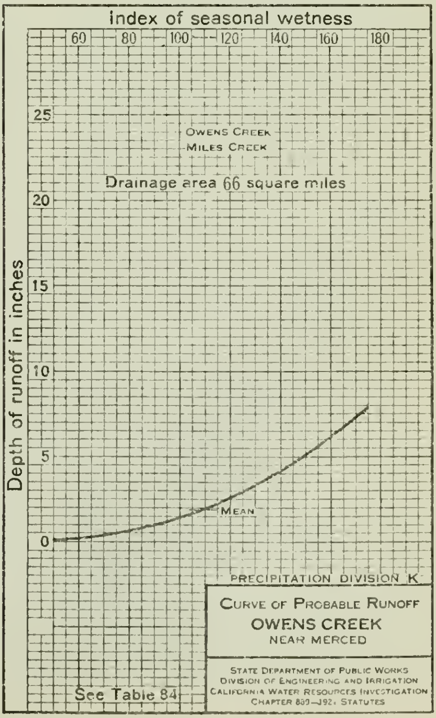

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
30
25
20
15
10
5
0
Drainage Area 269 square miles
o FRESNO RIVER AT KNOWLES 134.3 SQUARE MILES
MEAN
PRECIPITATION DIVISION Q
CURVE OF PROBABLE RUNOFF
FRESNO RIVER
NEAR MADERA
See Table 79
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES

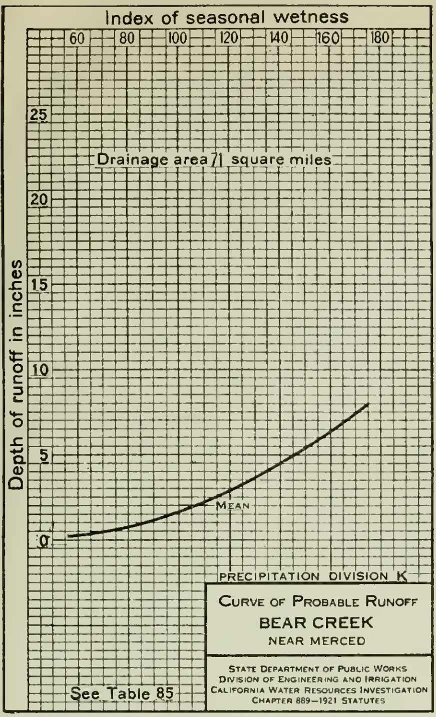

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
Drainage area 66 square miles
DRY CREEK
DAULTON CREEK
MEAN
PRECIPITATION DIVISION Q
CURVE OF PROBABLE RUNOFF
DAULTON CREEK
GROUP
See Table 80
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES

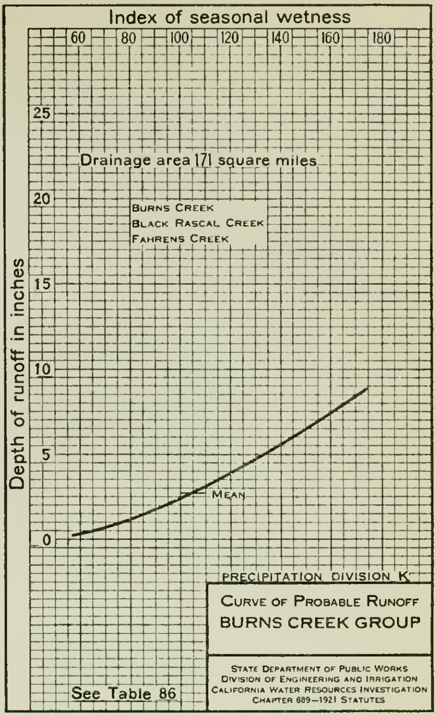

Index of seasonal wetness
60
80
100
120
140
160
180
30
25
20
15
10
5
0
Depth of runoff in inches
Drainage Area 238 square miles
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
CHOWCHILLA RIVER
NEAR CHOWCHILLA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 81


Index of seasonal wetness
60
80
100
120
140
160
180
25
20
15
10
5
0
Depth of runoff in inches
Drainage area 72 square miles
DUTCHMAN CREEK
DEADMAN CREEK
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
DUTCHMAN CREEK
GROUP
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 82


Index of seasonal wetness
60
80
100
120
140
160
180
25
20
15
10
5
0
Depth of runoff in inches
Drainage area 103 square miles
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
MARIPOSA CREEK
NEAR MERCED
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 83


Index of seasonal wetness
60
80
100
120
140
160
180
25
20
15
10
5
0
Depth of runoff in inches
OWENS CREEK
MILES CREEK
Drainage area 66 square miles
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
OWENS CREEK
NEAR MERCED
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 84


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
Drainage area 71 square miles
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
BEAR CREEK
NEAR MERCED
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 85


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
Drainage area 171 square miles
BURNS CREEK
BLACK RASCAL CREEK
FAHRENS CREEK
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
BURNS CREEK GROUP
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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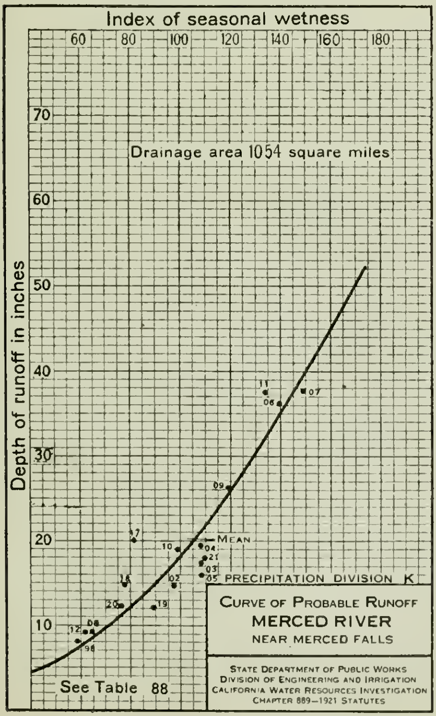
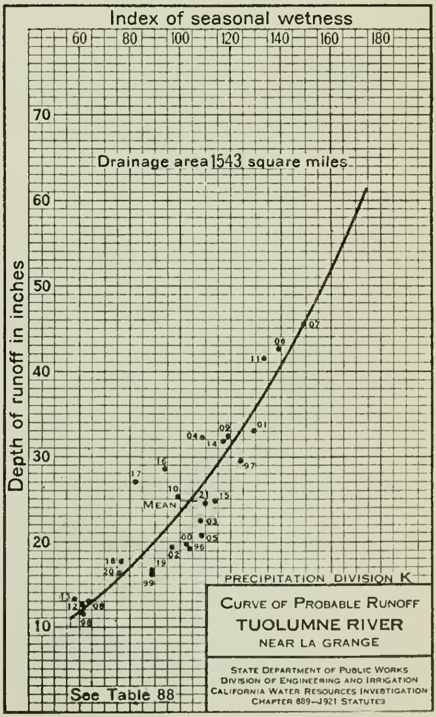
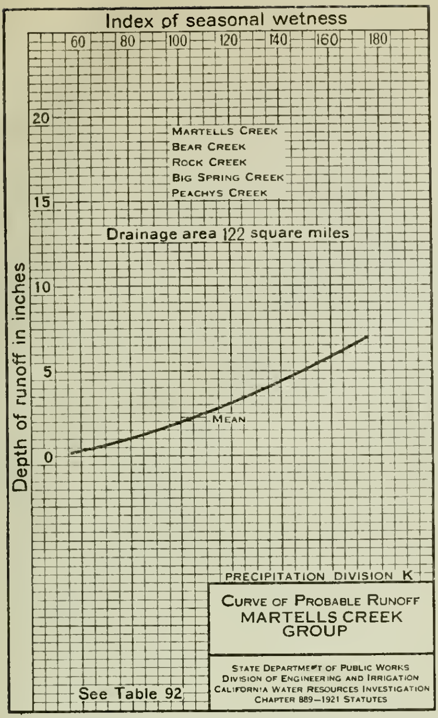
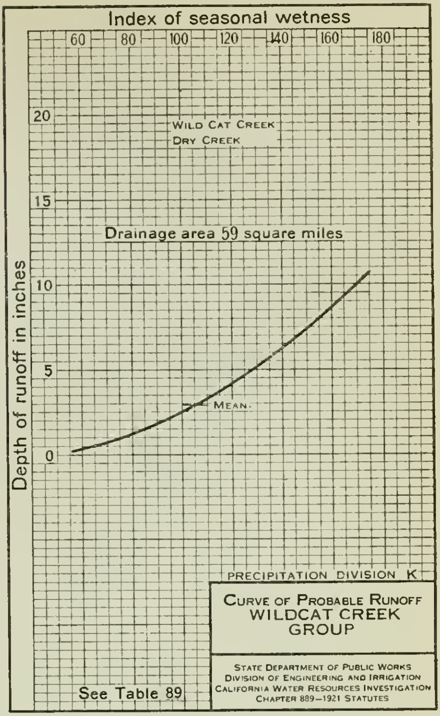
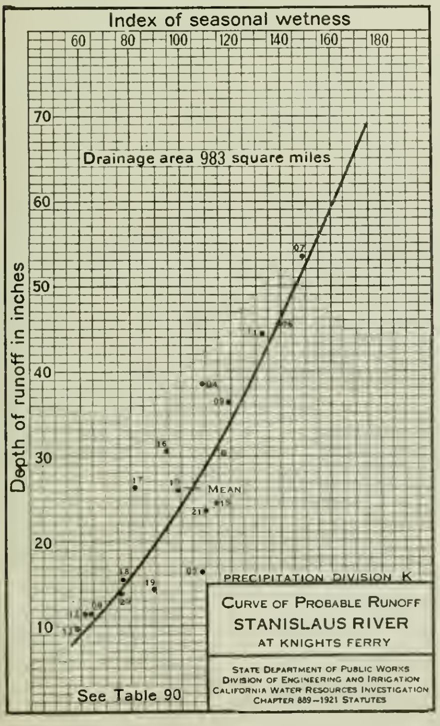
See Table 86

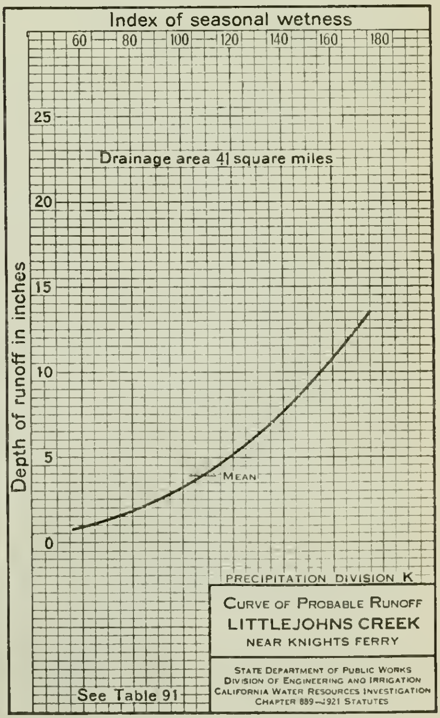

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
70
60
50
40
30
20
10
Drainage area 1054 square miles
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
MERCED RIVER
NEAR MERCED FALLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 88

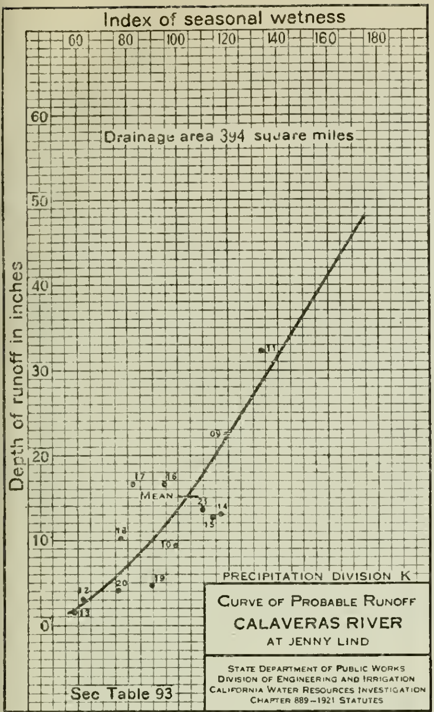

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
70
60
50
40
30
20
10
Drainage area 1543 square miles
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
TUOLUMNE RIVER
NEAR LA GRANGE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 88

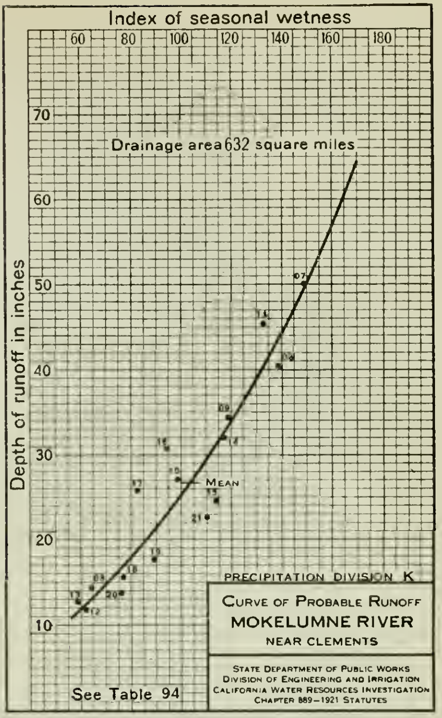

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
20
15
10
5
0
Martells Creek
Bear Creek
Rock Creek
Big Spring Creek
Peachys Creek
Drainage area 122 square miles
Mean
Precipitation division K
Curve of Probable Runoff
MARTELLS CREEK
GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 92

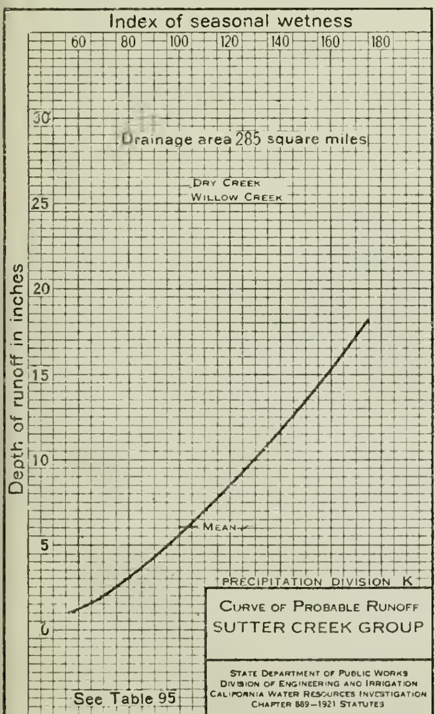

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
20
15
10
5
0
Wild Cat Creek
Dry Creek
Drainage area 59 square miles
Mean
Precipitation division K
Curve of Probable Runoff
WILDCAT CREEK
GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 89

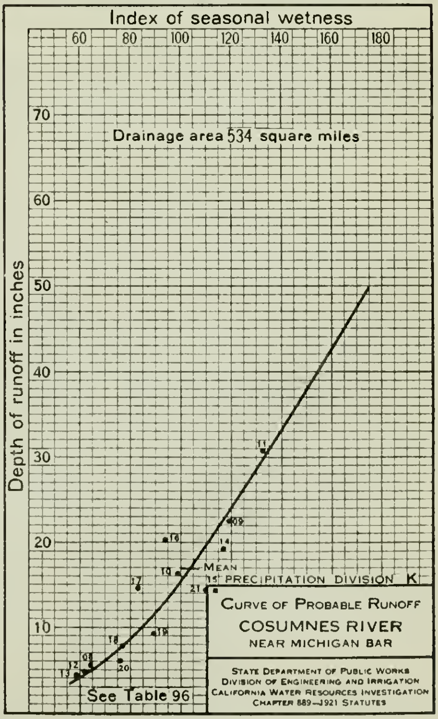

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
70
60
50
40
30
20
10
Drainage area 983 square miles
Mean
Precipitation division K
Curve of Probable Runoff
STANISLAUS RIVER
AT KNIGHTS FERRY
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 90

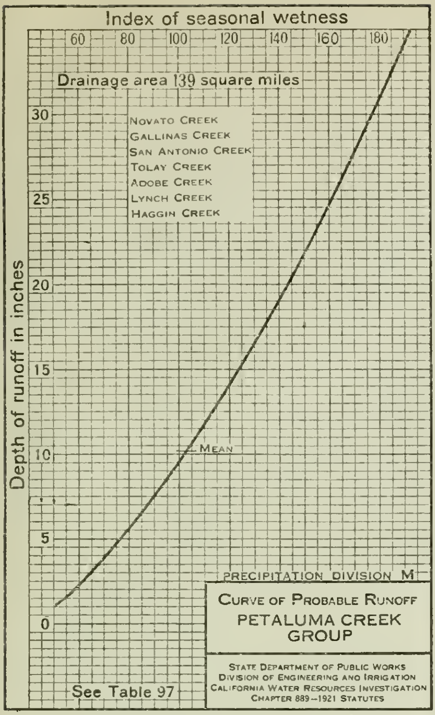

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
Drainage area 41 square miles
Mean
Precipitation division K
Curve of Probable Runoff
LITTLEJOHNS CREEK
NEAR KNIGHTS FERRY
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 91

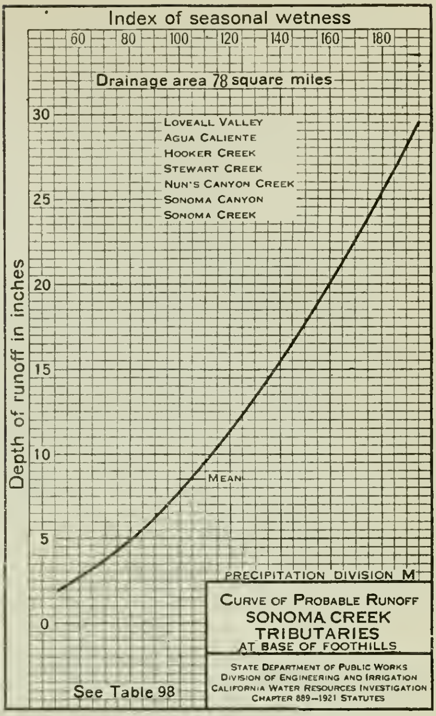

Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
0 10 20 30 40 50 60
Drainage area 394 square miles
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
CALAVERAS RIVER
AT JENNY LIND
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 93

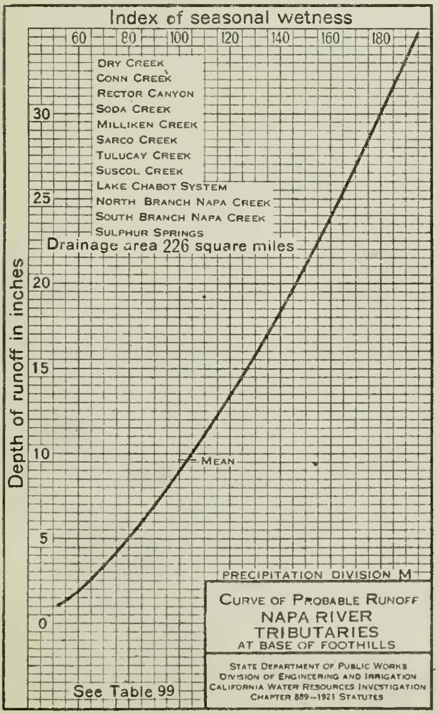

Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
10 20 30 40 50 60 70
Drainage area 632 square miles
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
MOKELUMNE RIVER
NEAR CLEMENTS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 94

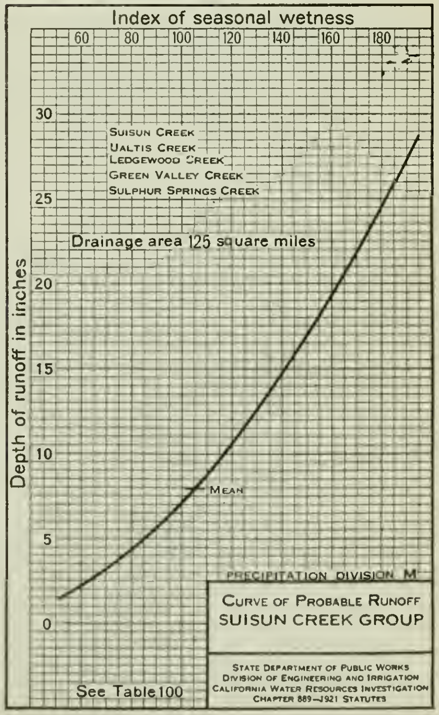

Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
0 5 10 15 20 25 30
Drainage area 285 square miles
DRY CREEK
WILLOW CREEK
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
SUTTER CREEK GROUP
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 95

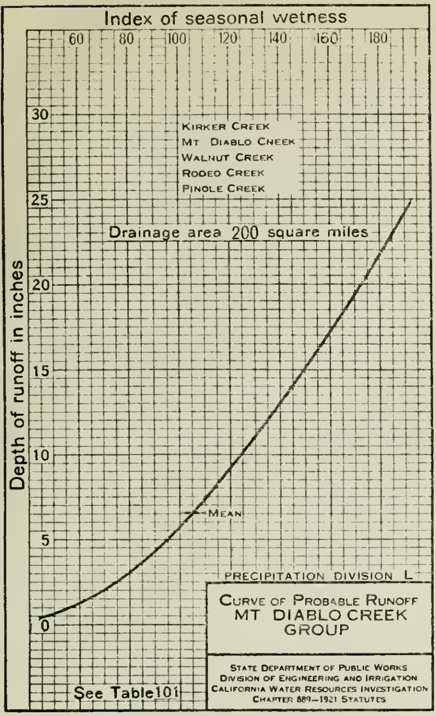

Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
10 20 30 40 50 60 70
Drainage area 534 square miles
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
COSUMNES RIVER
NEAR MICHIGAN BAR
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 96

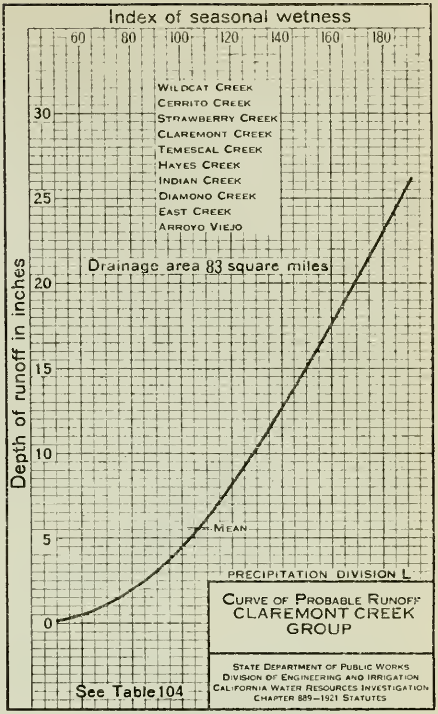

Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 139 square miles
Depth of runoff in inches
30
25
20
15
10
5
0
NOVATO CREEK
GALLINAS CREEK
SAN ANTONIO CREEK
TOLAY CREEK
ADOBE CREEK
LYNCH CREEK
HAGGIN CREEK
MEAN
PRECIPITATION DIVISION M
CURVE OF PROBABLE RUNOFF
PETALUMA CREEK GROUP
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 97

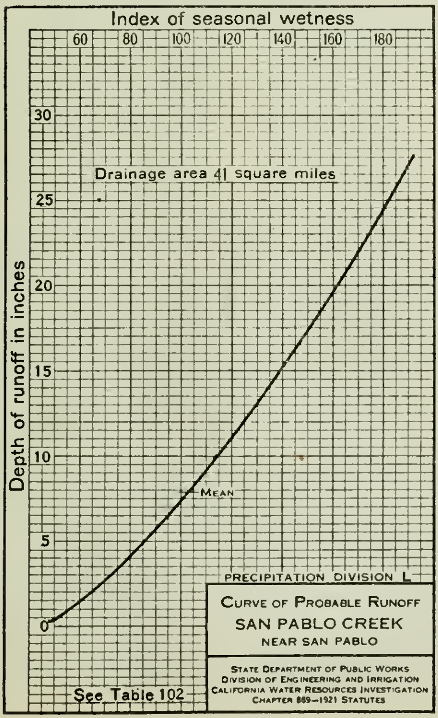

Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 78 square miles
Depth of runoff in inches
30
25
20
15
10
5
0
LOVEALL VALLEY
AGUA CALIENTE
HOOKER CREEK
STEWART CREEK
NUN'S CANYON CREEK
SONOMA CANYON
SONOMA CREEK
MEAN
PRECIPITATION DIVISION M
CURVE OF PROBABLE RUNOFF
SONOMA CREEK TRIBUTARIES
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 98

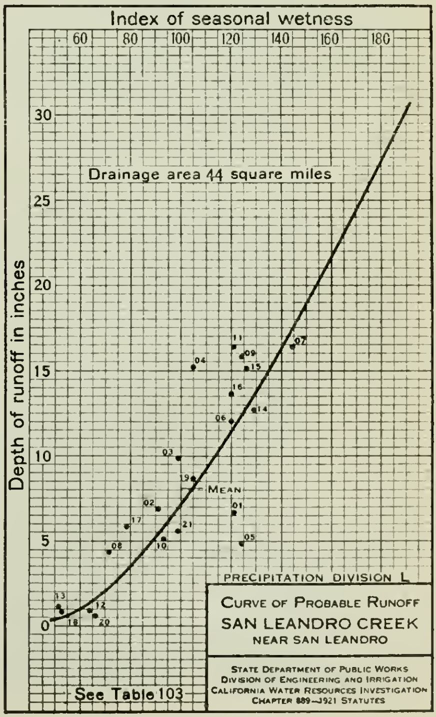

Index of seasonal wetness
60
80
100
120
140
160
180
DRY CREEK
CONN CREEK
RECTOR CANYON
SODA CREEK
MILLIKEN CREEK
SARCO CREEK
TULUCAY CREEK
SUSCOL CREEK
LAKE CHABOT SYSTEM
NORTH BRANCH NAPA CREEK
SOUTH BRANCH NAPA CREEK
SULPHUR SPRINGS
Drainage area 226 square miles
Depth of runoff in inches
30
25
20
15
10
5
0
MEAN
PRECIPITATION DIVISION M
CURVE OF PROBABLE RUNOFF
NAPA RIVER TRIBUTARIES
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 99


Index of seasonal wetness
60
80
100
120
140
160
180
SUISUN CREEK
UALTIS CREEK
LEDGEWOOD CREEK
GREEN VALLEY CREEK
SULPHUR SPRINGS CREEK
Drainage area 125 square miles
Depth of runoff in inches
30
25
20
15
10
5
0
MEAN
PRECIPITATION DIVISION M
CURVE OF PROBABLE RUNOFF
SUISUN CREEK GROUP
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 100


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
0 5 10 15 20 25 30
KIRKER CREEK
MT DIABLO CREEK
WALNUT CREEK
RODEO CREEK
PINOLE CREEK
Drainage area 200 square miles
MEAN
PRECIPITATION DIVISION L
CURVE OF PROBABLE RUNOFF
MT DIABLO CREEK
GROUP
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 101


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
0 5 10 15 20 25 30
WILDCAT CREEK
CERRITO CREEK
STRAWBERRY CREEK
CLAREMONT CREEK
TEMESCAL CREEK
HAYES CREEK
INDIAN CREEK
DIAMOND CREEK
EAST CREEK
ARROYO VIEJO
Drainage area 83 square miles
MEAN
PRECIPITATION DIVISION L
CURVE OF PROBABLE RUNOFF
CLAREMONT CREEK
GROUP
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 104


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
0 5 10 15 20 25 30
Drainage area 41 square miles
MEAN
PRECIPITATION DIVISION L
CURVE OF PROBABLE RUNOFF
SAN PABLO CREEK
NEAR SAN PABLO
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 102


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
0 5 10 15 20 25 30
Drainage area 44 square miles
MEAN
PRECIPITATION DIVISION L
CURVE OF PROBABLE RUNOFF
SAN LEANDRO CREEK
NEAR SAN LEANDRO
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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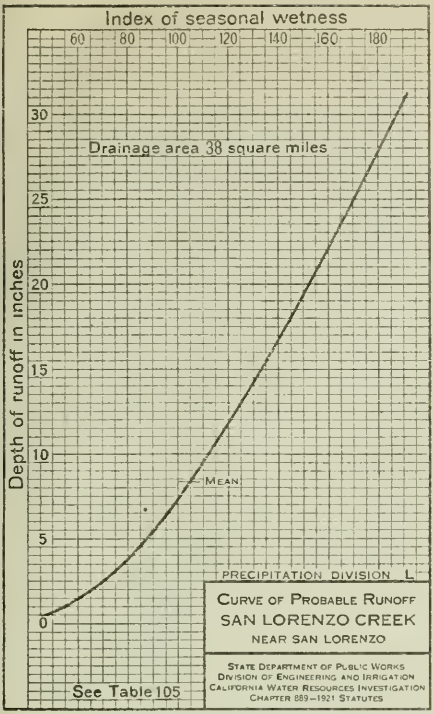
See Table 103


Index of seasonal wetness
60
80
100
120
140
160
180
30
25
20
15
10
5
0
Depth of runoff in inches
Drainage area 38 square miles
MEAN
PRECIPITATION DIVISION L
CURVE OF PROBABLE RUNOFF
SAN LORENZO CREEK
NEAR SAN LORENZO
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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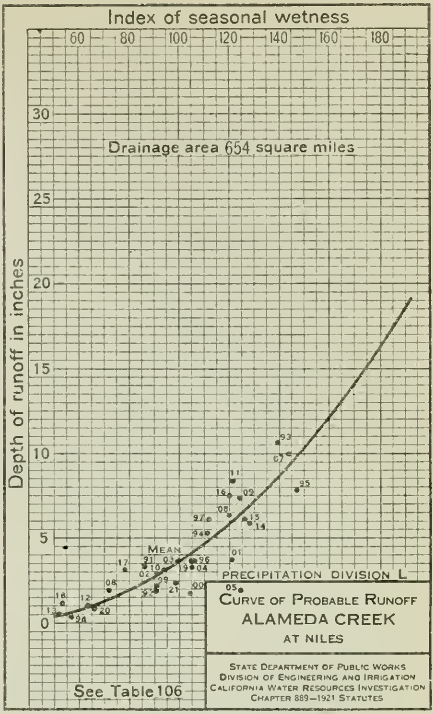
See Table 105


Index of seasonal wetness
60
80
100
120
140
160
180
30
25
20
15
10
5
0
Depth of runoff in inches
Drainage area 654 square miles
MEAN
PRECIPITATION DIVISION L
CURVE OF PROBABLE RUNOFF
ALAMEDA CREEK
AT NILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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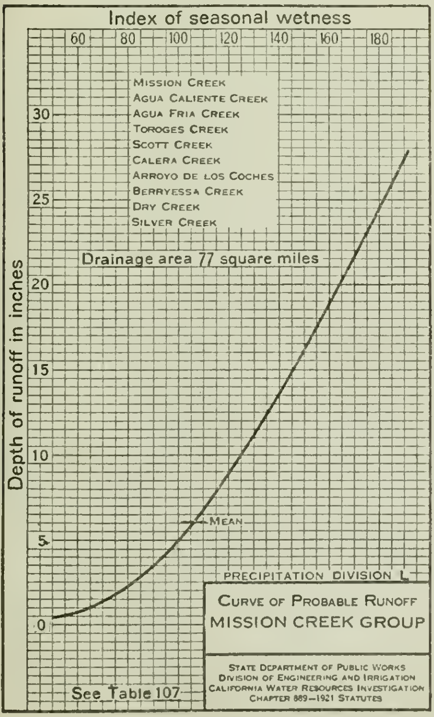
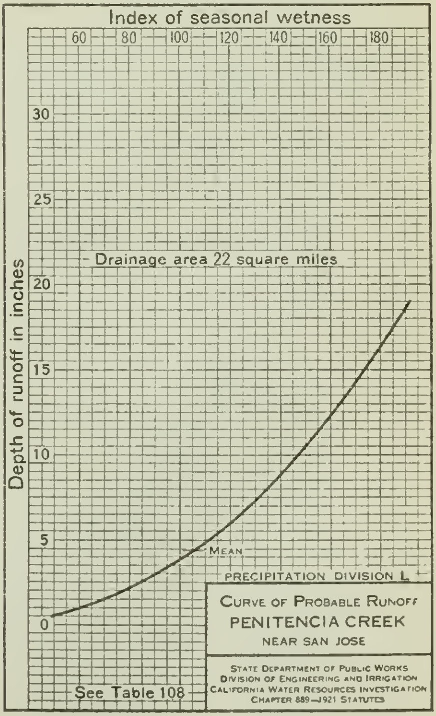
See Table 106


Index of seasonal wetness
60
80
100
120
140
160
180
MISSION CREEK
AGUA CALIENTE CREEK
AGUA FRIA CREEK
TOROGES CREEK
SCOTT CREEK
CALERA CREEK
ARROYO DE LOS COCHES
BERRYESSA CREEK
DRY CREEK
SILVER CREEK
30
25
20
15
10
5
0
Depth of runoff in inches
Drainage area 77 square miles
MEAN
PRECIPITATION DIVISION L
CURVE OF PROBABLE RUNOFF
MISSION CREEK GROUP
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 107


Index of seasonal wetness
60
80
100
120
140
160
180
30
25
20
15
10
5
0
Depth of runoff in inches
Drainage area 22 square miles
MEAN
PRECIPITATION DIVISION L
CURVE OF PROBABLE RUNOFF
PENITENCIA CREEK
NEAR SAN JOSE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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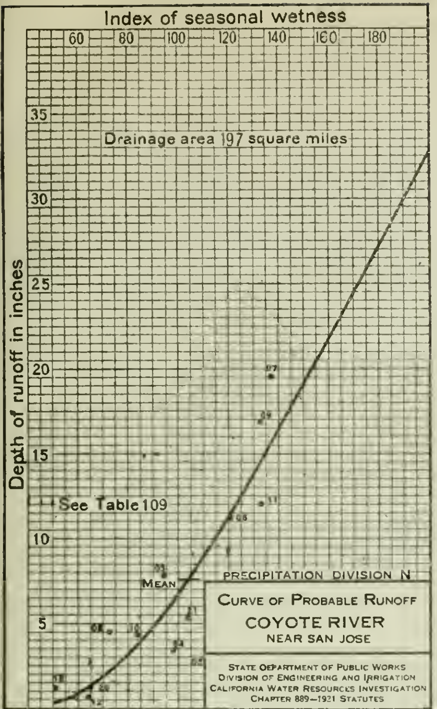
See Table 108


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
35
30
25
20
15
10
5
Drainage area 197 square miles
See Table 109
MEAN
PRECIPITATION DIVISION N
CURVE OF PROBABLE RUNOFF
COYOTE RIVER
NEAR SAN JOSE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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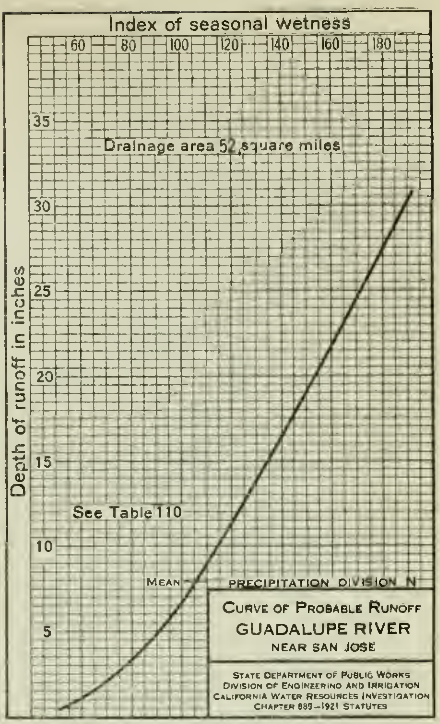
Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
35
30
25
20
15
10
5
Drainage area 52 square miles
See Table 110
MEAN
PRECIPITATION DIVISION N
CURVE OF PROBABLE RUNOFF
GUADALUPE RIVER
NEAR SAN JOSE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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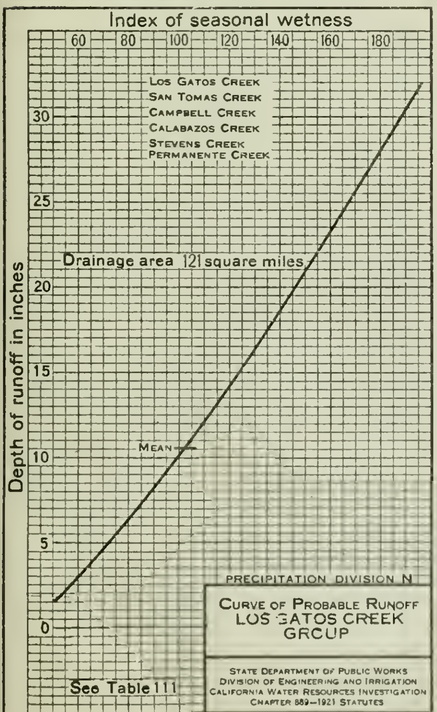
Index of seasonal wetness
60
80
100
120
140
160
180
LOS GATOS CREEK
SAN TOMAS CREEK
CAMPBELL CREEK
CALABAZOS CREEK
STEVENS CREEK
PERMANENTE CREEK
Depth of runoff in inches
30
25
20
15
10
5
0
Drainage area 121 square miles
MEAN
PRECIPITATION DIVISION N
CURVE OF PROBABLE RUNOFF
LOS GATOS CREEK
GROUP
See Table 111
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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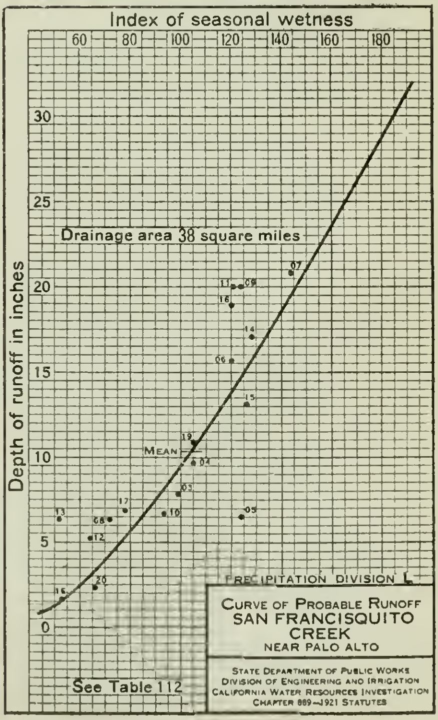
Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
30
25
20
15
10
5
0
Drainage area 38 square miles
MEAN
PRECIPITATION DIVISION L
CURVE OF PROBABLE RUNOFF
SAN FRANCISQUITO
CREEK
NEAR PALO ALTO
See Table 112
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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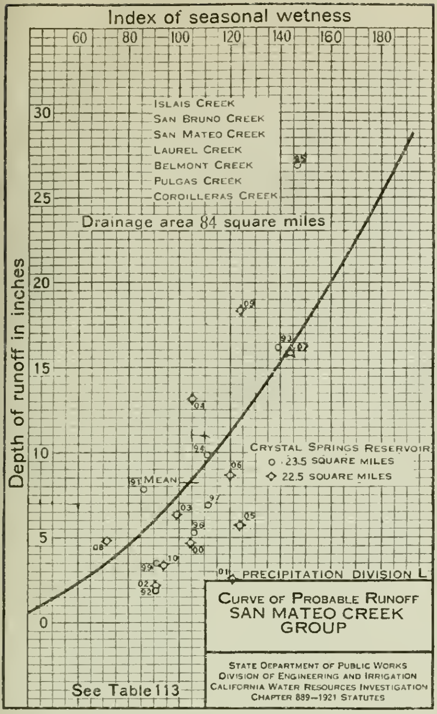
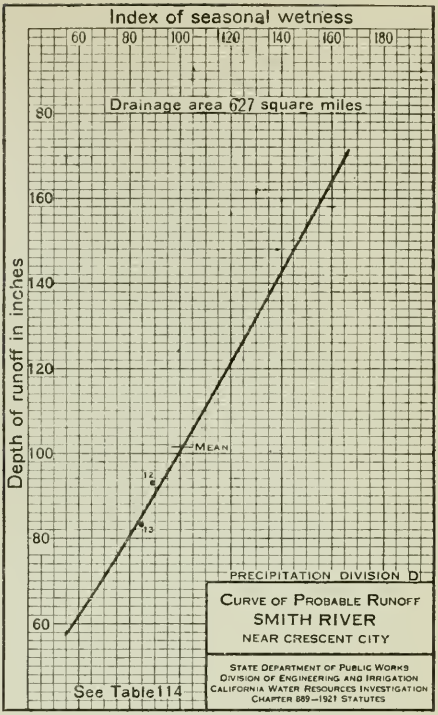
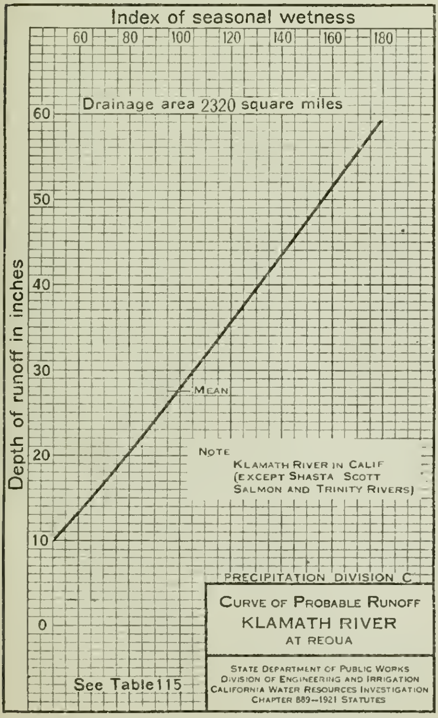


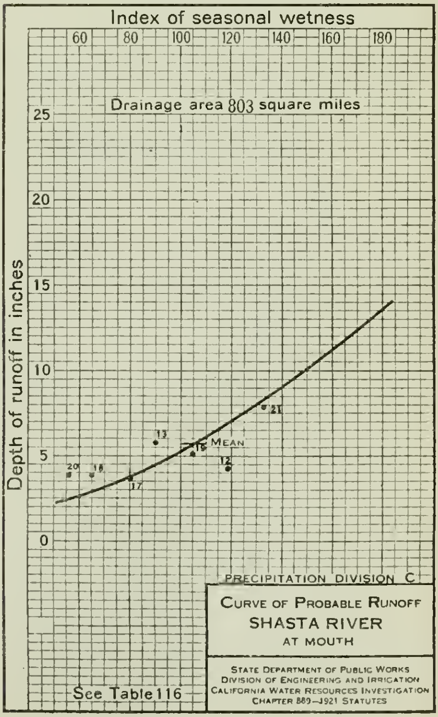
Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
0 5 10 15 20 25 30
Islais Creek
San Bruno Creek
San Mateo Creek
Laurel Creek
Belmont Creek
Pulgas Creek
Coroillerás Creek
Drainage area 84 square miles
Crystal Springs Reservoir
o 23.5 square miles
◇ 22.5 square miles
Mean
Precipitation division L
Curve of Probable Runoff
SAN MATEO CREEK
GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 113



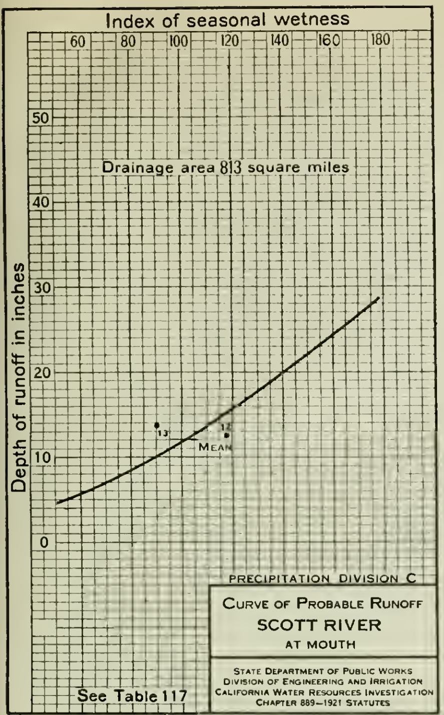
Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
60 80 100 120 140 160 180
Drainage area 627 square miles
Mean
Precipitation division D
Curve of Probable Runoff
SMITH RIVER
near Crescent City
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 114



Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
0 10 20 30 40 50 60
Drainage area 2320 square miles
Mean
Note
Klamath River in Calif
(except Shasta Scott
Salmon and Trinity Rivers)
Precipitation division C
Curve of Probable Runoff
KLAMATH RIVER
at ReqUA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 115



Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
0 5 10 15 20 25
Drainage area 803 square miles
Mean
Precipitation division C
Curve of Probable Runoff
SHASTA RIVER
at mouth
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 116


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
50
40
30
20
10
0
Drainage area 813 square miles
13
12
MEAN
PRECIPITATION DIVISION C
CURVE OF PROBABLE RUNOFF
SCOTT RIVER
AT MOUTH
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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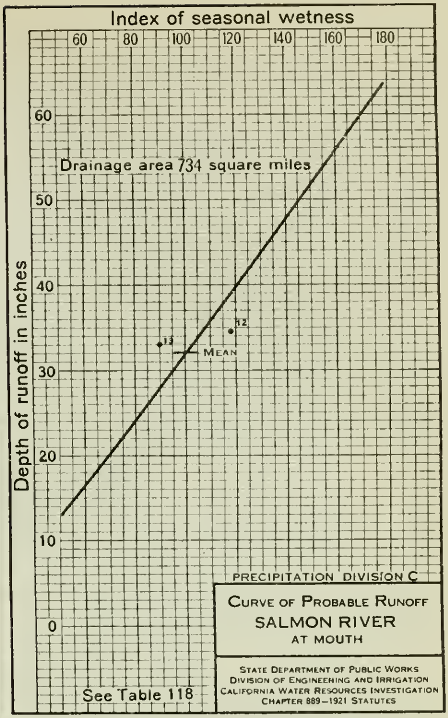
See Table 117


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
60
50
40
30
20
10
0
Drainage area 734 square miles
13
12
MEAN
PRECIPITATION DIVISION C
CURVE OF PROBABLE RUNOFF
SALMON RIVER
AT MOUTH
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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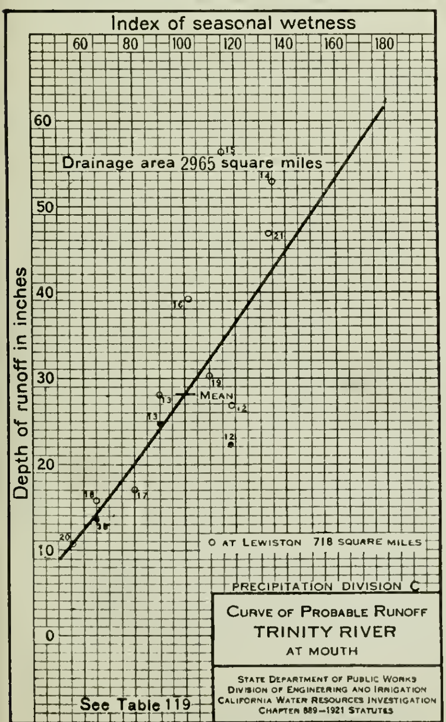
See Table 118


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
60
50
40
30
20
10
0
Drainage area 2965 square miles
MEAN
O AT LEWISTON 718 SQUARE MILES
PRECIPITATION DIVISION C
CURVE OF PROBABLE RUNOFF
TRINITY RIVER
AT MOUTH
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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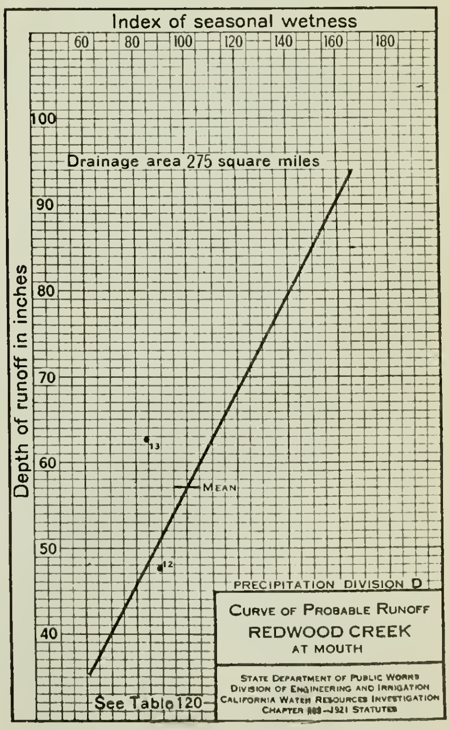
See Table 119


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
100
90
80
70
60
50
40
Drainage area 275 square miles
13
12
MEAN
PRECIPITATION DIVISION D
CURVE OF PROBABLE RUNOFF
REDWOOD CREEK
AT MOUTH
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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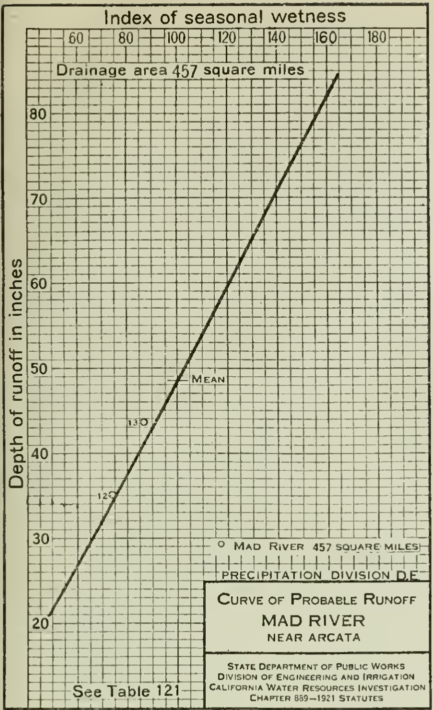
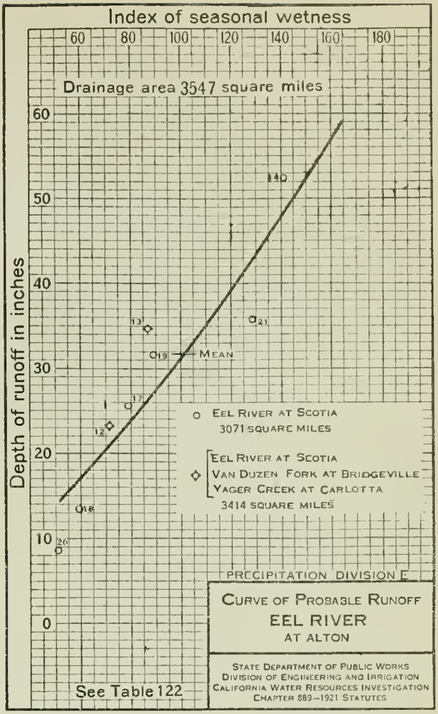
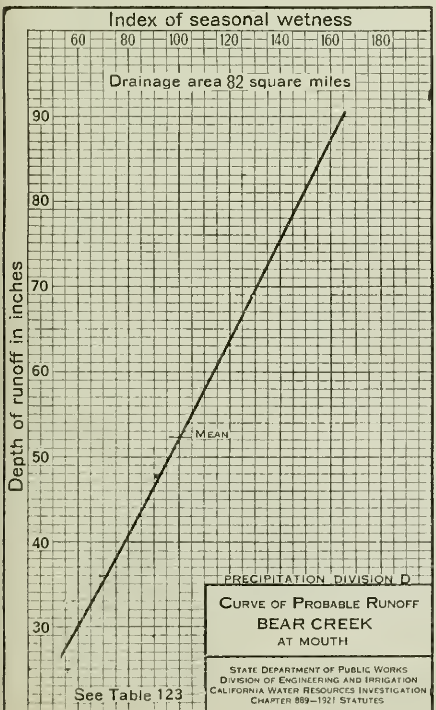
See Table 120



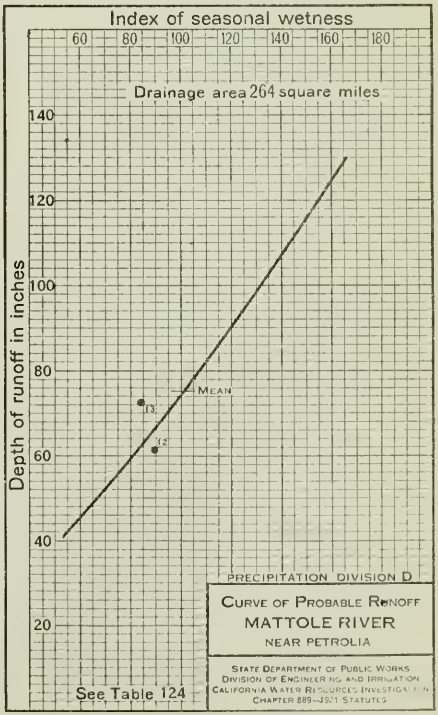
Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 457 square miles
Depth of runoff in inches
20
30
40
50
60
70
80
Mean
12
13
○ Mad River 457 square miles
Precipitation division D.E
Curve of Probable Runoff
MAD RIVER
NEAR ARCATA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 121



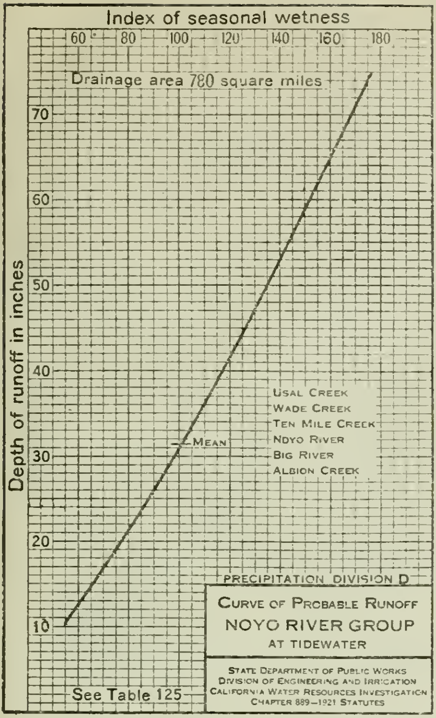
Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 3547 square miles
Depth of runoff in inches
0
10
20
30
40
50
60
Mean
○ Eel River at Scotia
3071 square miles
Eel River at Scotia
◇ Van Duzen Fork at Bridgeville
Yager Creek at Carlotta
3414 square miles
Precipitation division E
Curve of Probable Runoff
EEL RIVER
AT ALTON
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 122

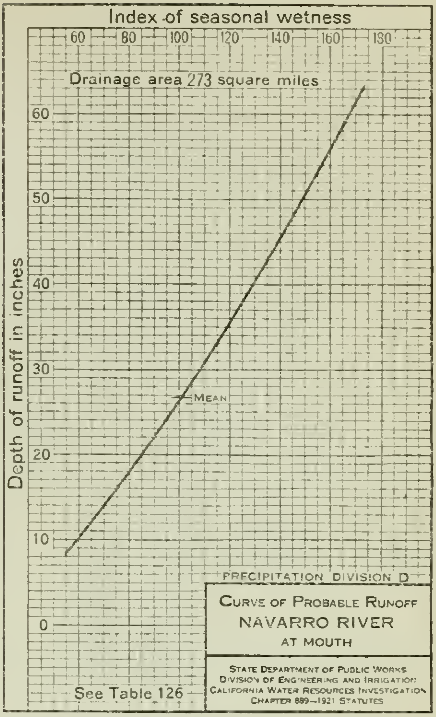


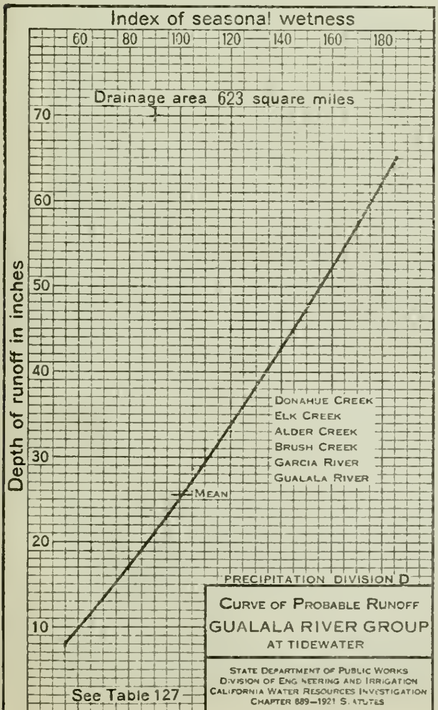
Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 82 square miles
Depth of runoff in inches
30
40
50
60
70
80
90
Mean
Precipitation division D
Curve of Probable Runoff
BEAR CREEK
AT MOUTH
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 123

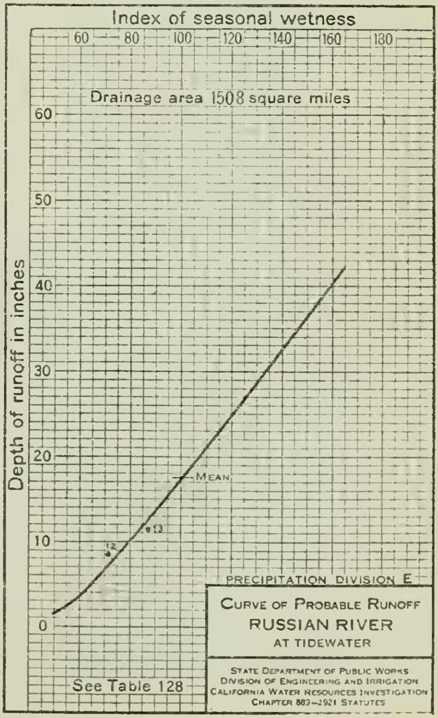


Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 264 square miles
Depth of runoff in inches
20
40
60
80
100
120
140
Mean
13
12
Precipitation division D
Curve of Probable Runoff
MATTOLE RIVER
NEAR PETROLIA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 124


Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 780 square miles
Depth of runoff in inches
70
60
50
40
30
20
10
Mean
Usal Creek
Wade Creek
Ten Mile Creek
Noyo River
Big River
Albion Creek
Precipitation Division D
Curve of Probable Runoff
NOYO RIVER GROUP
AT TIDEWATER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 125


Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 273 square miles
Depth of runoff in inches
60
50
40
30
20
10
0
Mean
Precipitation Division D
Curve of Probable Runoff
NAVARRO RIVER
AT MOUTH
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 126


Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 623 square miles
Depth of runoff in inches
70
60
50
40
30
20
10
Mean
Donahue Creek
Elk Creek
Alder Creek
Brush Creek
Garcia River
Gualala River
Precipitation Division D
Curve of Probable Runoff
GUALALA RIVER GROUP
AT TIDEWATER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 127


Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 1508 square miles
Depth of runoff in inches
60
50
40
30
20
10
0
Mean
12
13
Precipitation Division E
Curve of Probable Runoff
RUSSIAN RIVER
AT TIDEWATER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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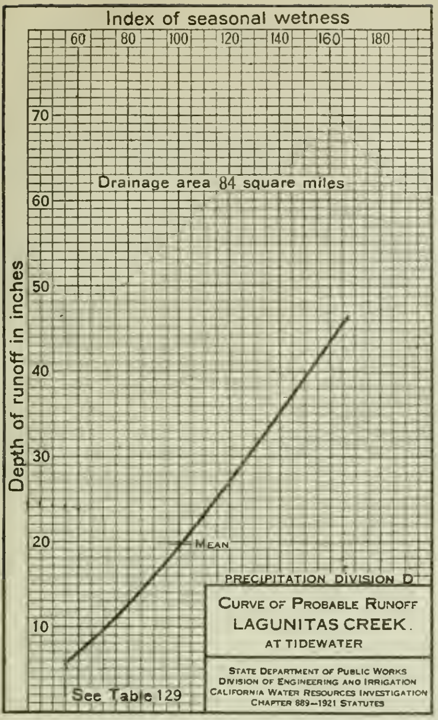
See Table 128


Index of seasonal wetness
60
80
100
120
140
160
180
70
60
50
40
30
20
10
Depth of runoff in inches
Drainage area 84 square miles
MEAN
PRECIPITATION DIVISION D
CURVE OF PROBABLE RUNOFF
LAGUNITAS CREEK.
AT TIDEWATER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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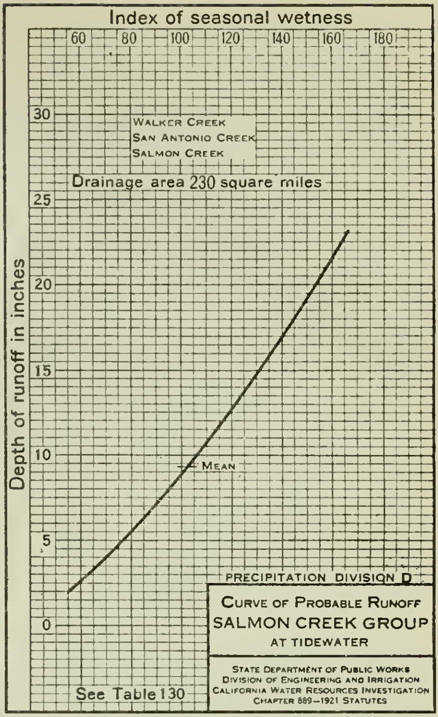
See Table 129


Index of seasonal wetness
60
80
100
120
140
160
180
30
25
20
15
10
5
0
Depth of runoff in inches
WALKER CREEK
SAN ANTONIO CREEK
SALMON CREEK
Drainage area 230 square miles
MEAN
PRECIPITATION DIVISION D
CURVE OF PROBABLE RUNOFF
SALMON CREEK GROUP
AT TIDEWATER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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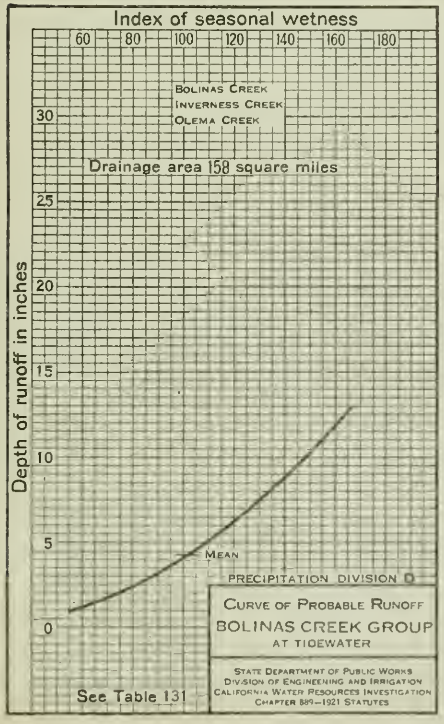
See Table 130


Index of seasonal wetness
60
80
100
120
140
160
180
30
25
20
15
10
5
0
Depth of runoff in inches
BOLINAS CREEK
INVERNESS CREEK
OLEMA CREEK
Drainage area 158 square miles
MEAN
PRECIPITATION DIVISION D
CURVE OF PROBABLE RUNOFF
BOLINAS CREEK GROUP
AT TIDEWATER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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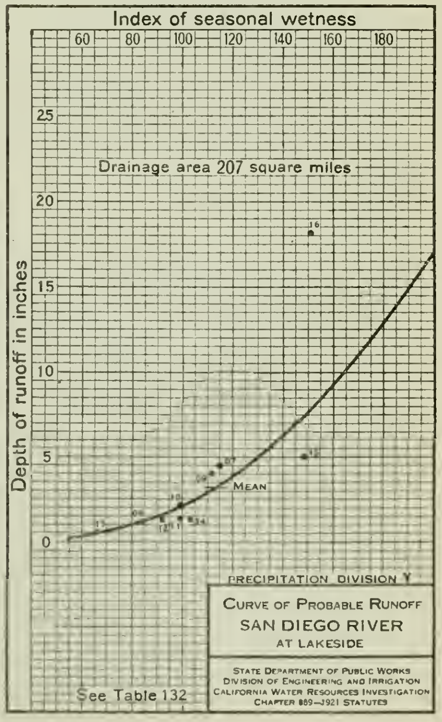
See Table 131


Index of seasonal wetness
60
80
100
120
140
160
180
25
20
15
10
5
0
Depth of runoff in inches
Drainage area 207 square miles
MEAN
PRECIPITATION DIVISION Y
CURVE OF PROBABLE RUNOFF
SAN DIEGO RIVER
AT LAKESIDE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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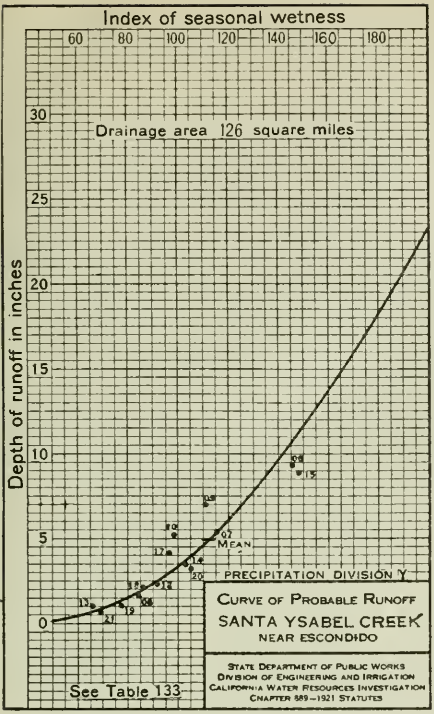
See Table 132


Index of seasonal wetness
Drainage area 126 square miles
Depth of runoff in inches
MEAN
PRECIPITATION DIVISION Y
CURVE OF PROBABLE RUNOFF
SANTA YSABEL CREEK
NEAR ESCONDIDO
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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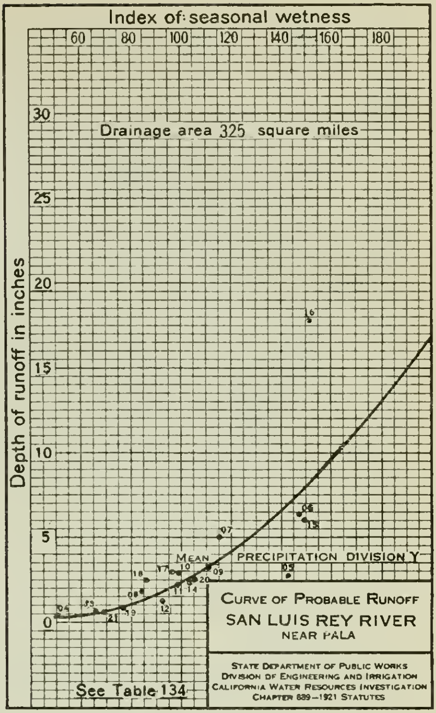
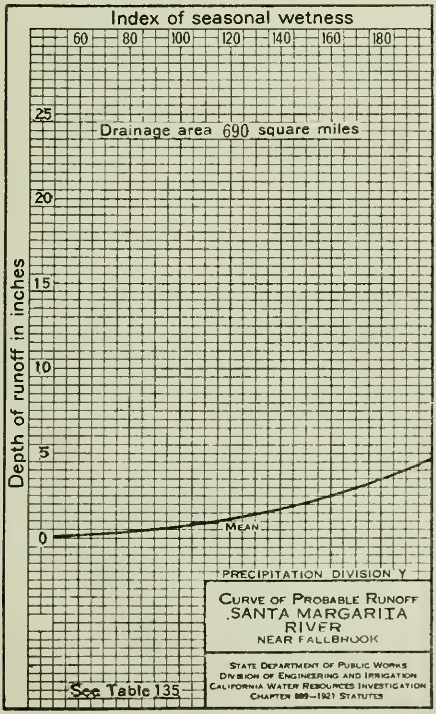
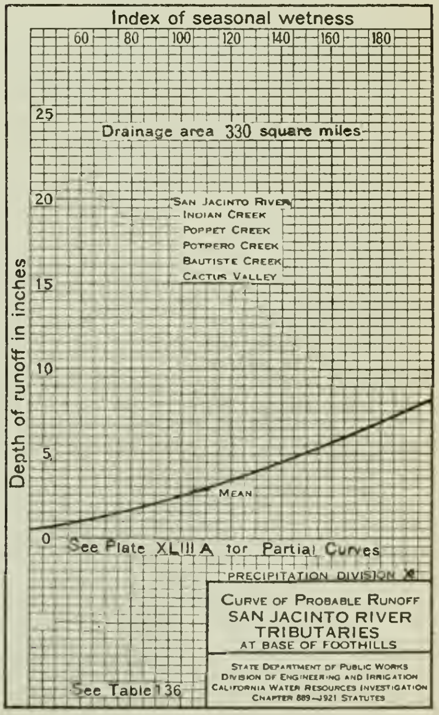
See Table 133


Index of seasonal wetness
Drainage area 325 square miles
Depth of runoff in inches
MEAN
PRECIPITATION DIVISION Y
CURVE OF PROBABLE RUNOFF
SAN LUIS REY RIVER
NEAR PALA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 134


Index of seasonal wetness
Drainage area 690 square miles
Depth of runoff in inches
MEAN
PRECIPITATION DIVISION Y
CURVE OF PROBABLE RUNOFF
SANTA MARGARITA RIVER
NEAR FALLBROOK
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 135


Index of seasonal wetness
Drainage area 330 square miles
Depth of runoff in inches
SAN JACINTO RIVER
INDIAN CREEK
POPPET CREEK
POTRERO CREEK
BAUTISTE CREEK
CACTUS VALLEY
MEAN
See Plate XLIII A for Partial Curves
PRECIPITATION DIVISION X
CURVE OF PROBABLE RUNOFF
SAN JACINTO RIVER
TRIBUTARIES
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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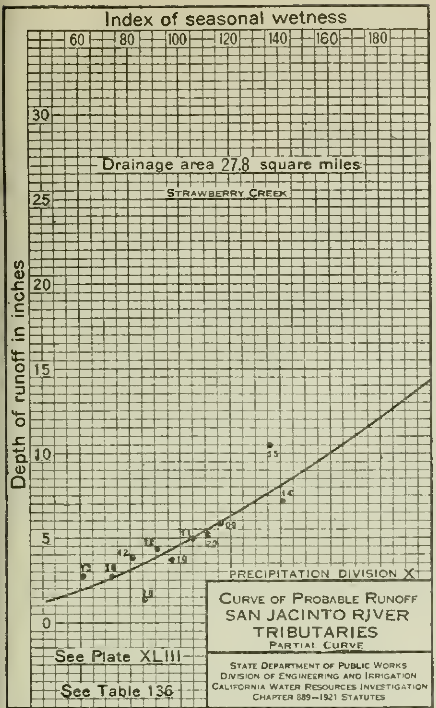
See Table 136


Index of seasonal wetness
Depth of runoff in inches
Drainage area 27.8 square miles
STRAWBERRY CREEK
PRECIPITATION DIVISION X
CURVE OF PROBABLE RUNOFF
SAN JACINTO RIVER
TRIBUTARIES
PARTIAL CURVE
See Plate XLIII
See Table 136
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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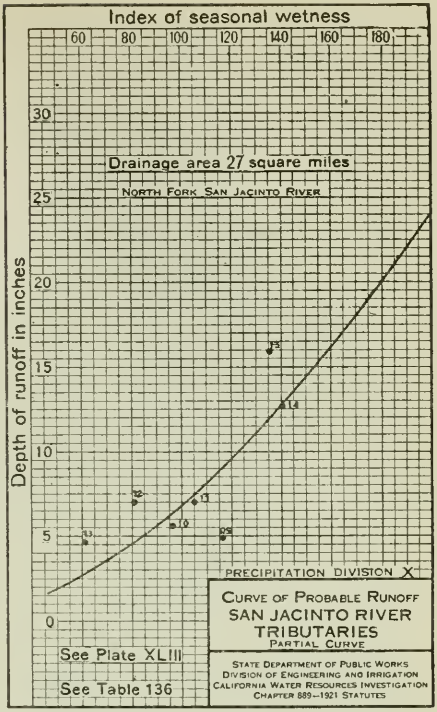
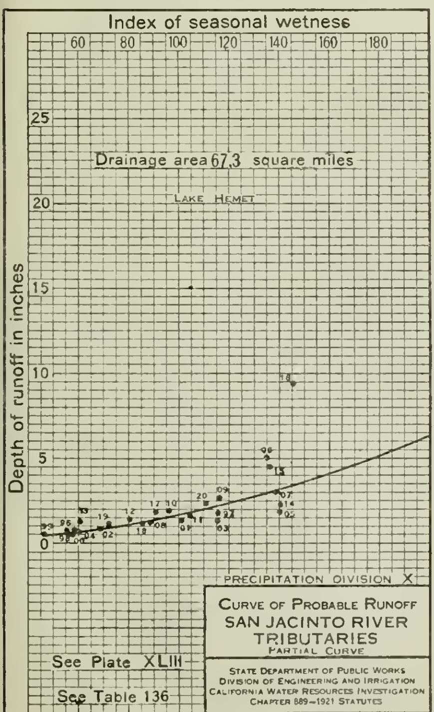

Index of seasonal wetness
Depth of runoff in inches
Drainage area 27 square miles
NORTH FORK SAN JACINTO RIVER
PRECIPITATION DIVISION X
CURVE OF PROBABLE RUNOFF
SAN JACINTO RIVER
TRIBUTARIES
PARTIAL CURVE
See Plate XLIII
See Table 136
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES


Index of seasonal wetness
Depth of runoff in inches
Drainage area 67.3 square miles
LAKE HEMET
PRECIPITATION DIVISION X
CURVE OF PROBABLE RUNOFF
SAN JACINTO RIVER
TRIBUTARIES
PARTIAL CURVE
See Plate XLIII
See Table 136
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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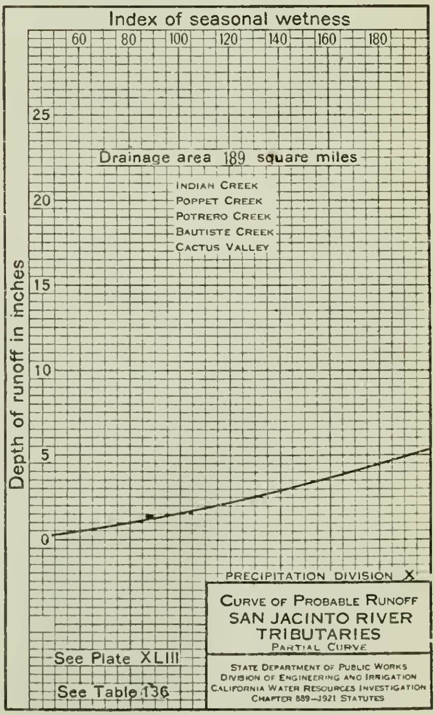
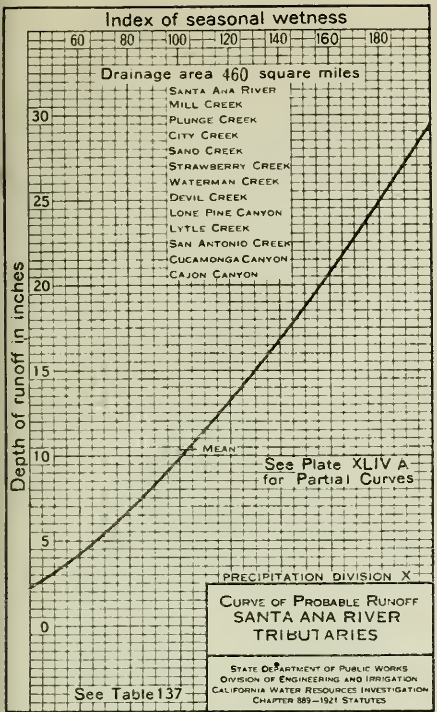
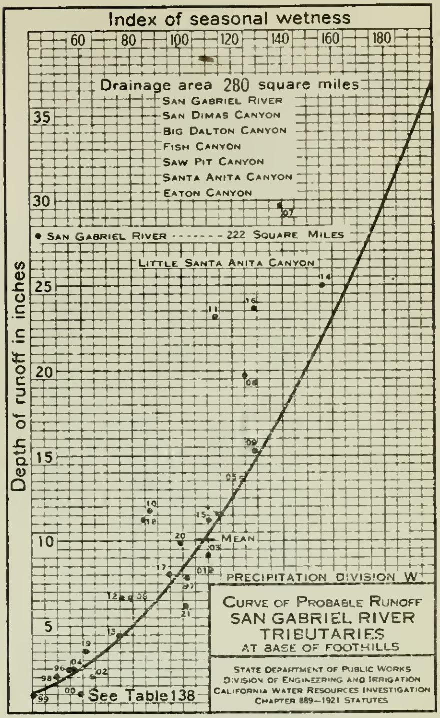
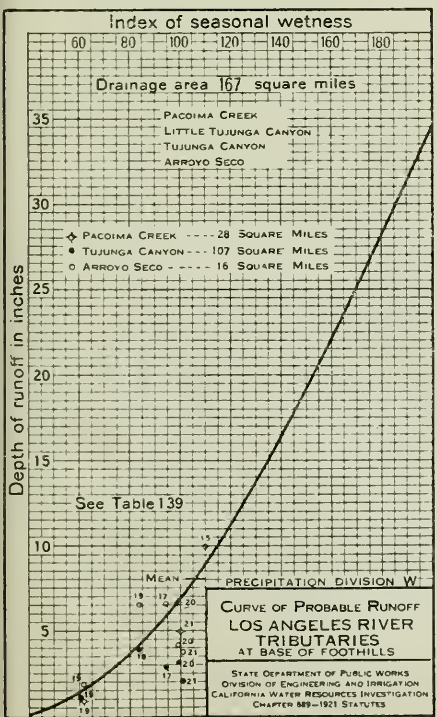
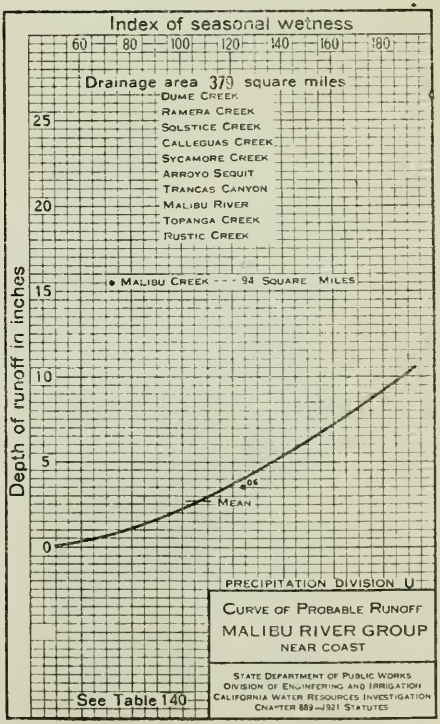
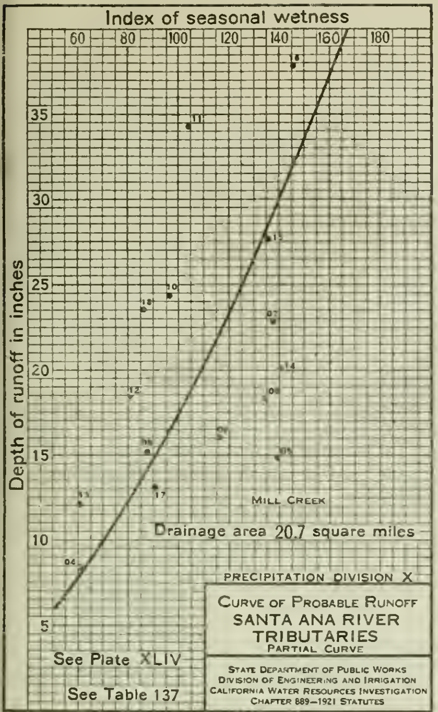

Index of seasonal wetness
Depth of runoff in inches
Drainage area 189 square miles
INDIAN CREEK
POPPET CREEK
POTRERO CREEK
BAUTISTE CREEK
CACTUS VALLEY
PRECIPITATION DIVISION X
CURVE OF PROBABLE RUNOFF
SAN JACINTO RIVER
TRIBUTARIES
PARTIAL CURVE
See Plate XLIII
See Table 136
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES


Index of seasonal wetness
60 80 100 120 140 160 180
Drainage area 460 square miles
Santa Ana River
Mill Creek
Plunge Creek
City Creek
Sand Creek
Strawberry Creek
Waterman Creek
Devil Creek
Lone Pine Canyon
Lytle Creek
San Antonio Creek
Cucamonga Canyon
Cajon Canyon
Depth of runoff in inches
0 5 10 15 20 25 30
Mean
See Plate XLIV A for Partial Curves
Precipitation division X
See Table 137
Curve of Probable Runoff
SANTA ANA RIVER TRIBUTARIES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes


Index of seasonal wetness
60 80 100 120 140 160 180
Drainage area 280 square miles
San Gabriel River
San Dimas Canyon
Big Dalton Canyon
Fish Canyon
Saw Pit Canyon
Santa Anita Canyon
Eaton Canyon
• San Gabriel River ------- 222 square miles
Little Santa Anita Canyon
Depth of runoff in inches
5 10 15 20 25 30 35
Mean
Precipitation division W
See Table 138
Curve of Probable Runoff
SAN GABRIEL RIVER TRIBUTARIES
at base of foothills
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes


Index of seasonal wetness
60 80 100 120 140 160 180
Drainage area 167 square miles
Pacoima Creek
Little Tujunga Canyon
Tujunga Canyon
Arroyo Seco
Pacoima Creek ---- 28 square miles
Tujunga Canyon --- 107 square miles
Arroyo Seco ---- 16 square miles
Depth of runoff in inches
5 10 15 20 25 30 35
See Table 139
Mean
Precipitation division W
Curve of Probable Runoff
LOS ANGELES RIVER TRIBUTARIES
at base of foothills
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes


Index of seasonal wetness
60 80 100 120 140 160 180
Drainage area 379 square miles
Dume Creek
Ramera Creek
Solstice Creek
Calleguas Creek
Sycamore Creek
Arroyo Sequit
Trancas Canyon
Malibu River
Topanga Creek
Rustic Creek
• Malibu Creek --- 94 square miles
Depth of runoff in inches
0 5 10 15 20 25
Mean
Precipitation division U
See Table 140
Curve of Probable Runoff
MALIBU RIVER GROUP
near coast
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
35
30
25
20
15
10
5
Mill Creek
Drainage area 20.7 square miles
Precipitation division X
Curve of Probable Runoff
SANTA ANA RIVER
TRIBUTARIES
Partial Curve
See Plate XLIV
See Table 137
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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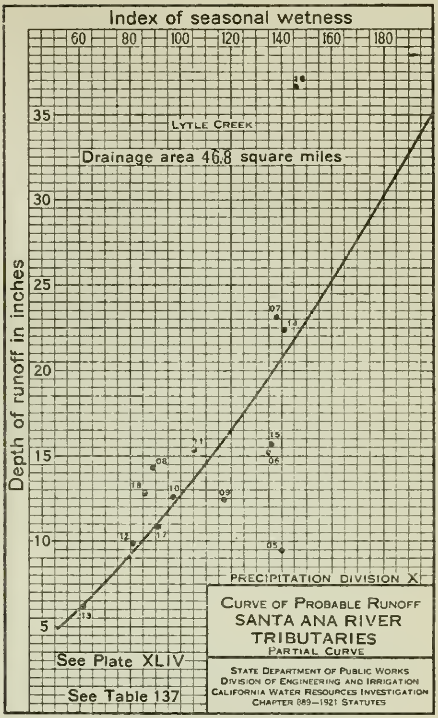
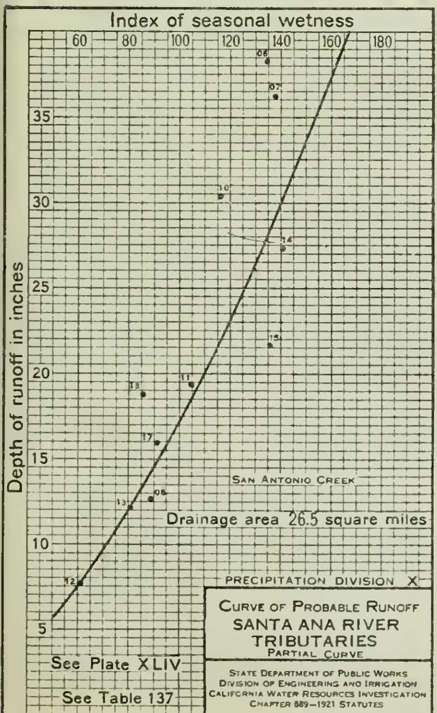
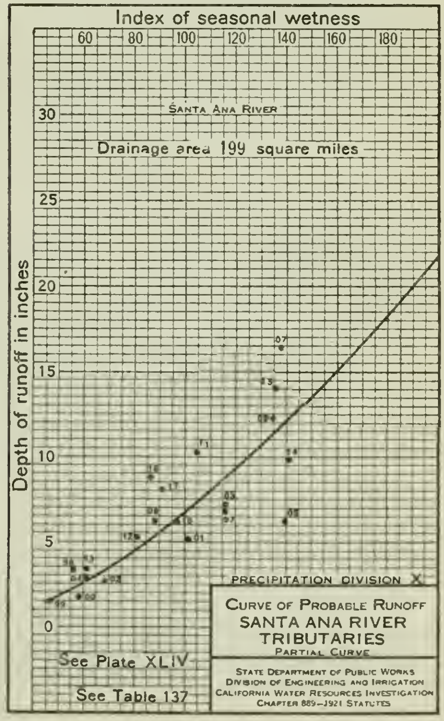
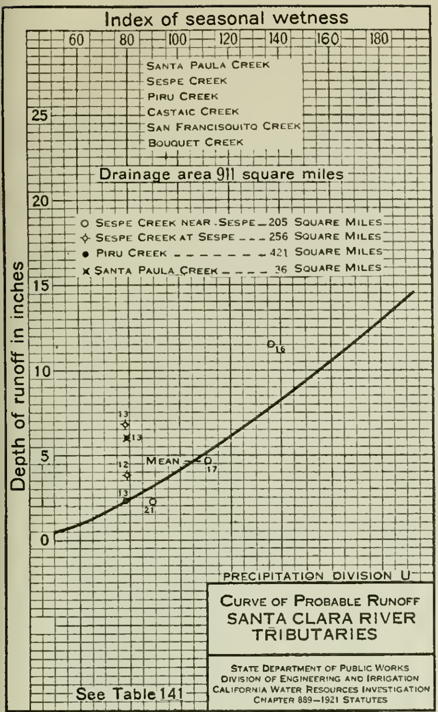
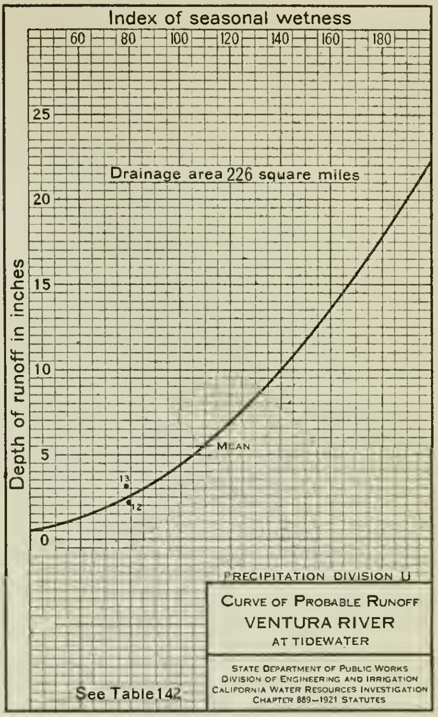
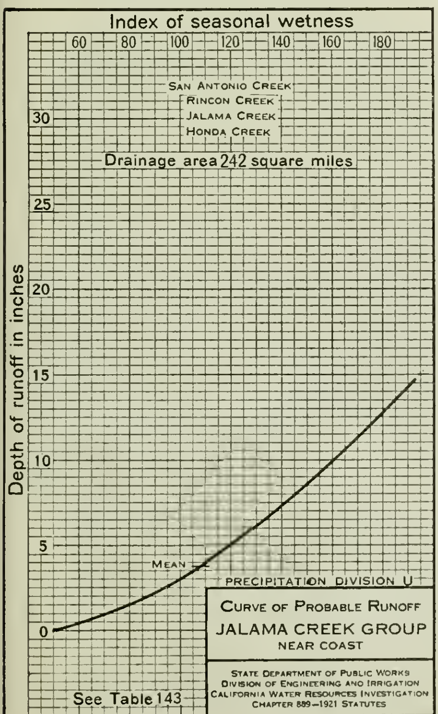

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
35
30
25
20
15
10
5
Lytle Creek
Drainage area 46.8 square miles
Precipitation division X
Curve of Probable Runoff
SANTA ANA RIVER
TRIBUTARIES
Partial Curve
See Plate XLIV
See Table 137
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes

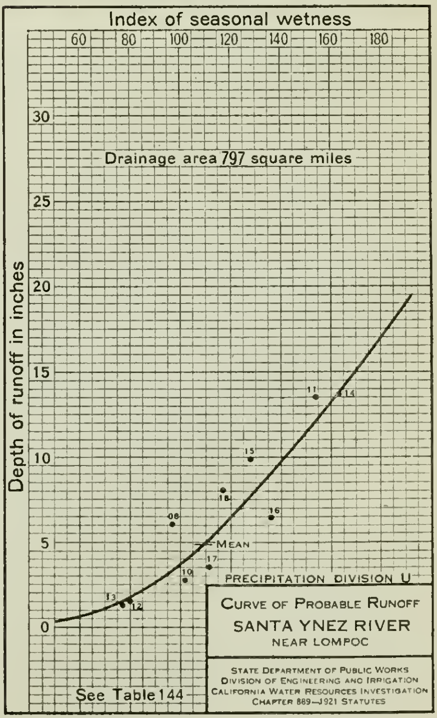

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
35
30
25
20
15
10
5
San Antonio Creek
Drainage area 26.5 square miles
Precipitation division X
Curve of Probable Runoff
SANTA ANA RIVER
TRIBUTARIES
Partial Curve
See Plate XLIV
See Table 137
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes

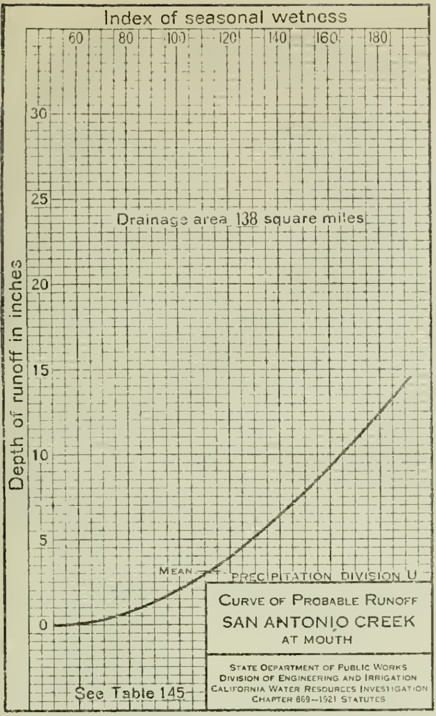

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
30
25
20
15
10
5
0
Santa Ana River
Drainage area 199 square miles
Precipitation division X
Curve of Probable Runoff
SANTA ANA RIVER
TRIBUTARIES
Partial Curve
See Plate XLIV
See Table 137
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes

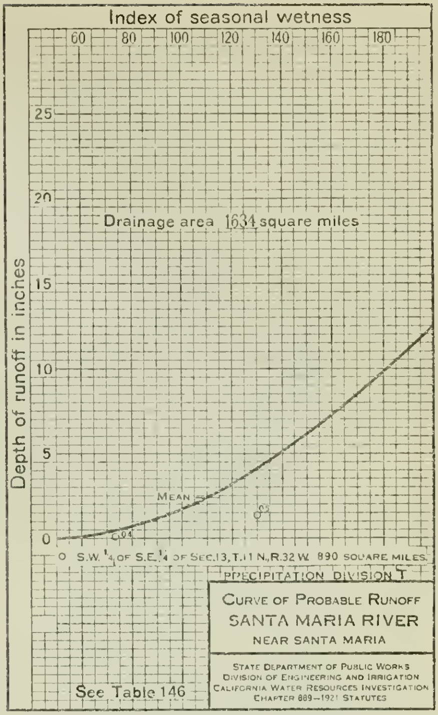

Index of seasonal wetness
60
80
100
120
140
160
180
Santa Paula Creek
Sespe Creek
Piru Creek
Castaic Creek
San Francisquito Creek
Bouquet Creek
Drainage area 911 square miles
O Sespe Creek near Sespe — 205 Square Miles
✧ Sespe Creek at Sespe — 256 Square Miles
● Piru Creek — 421 Square Miles
✕ Santa Paula Creek — 36 Square Miles
Depth of runoff in inches
0
5
10
15
20
25
Mean
Precipitation Division U
Curve of Probable Runoff
SANTA CLARA RIVER TRIBUTARIES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 141


Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 226 square miles
Depth of runoff in inches
0
5
10
15
20
25
Mean
Precipitation Division U
Curve of Probable Runoff
VENTURA RIVER
AT TIDEWATER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 142


Index of seasonal wetness
60
80
100
120
140
160
180
San Antonio Creek
Rincon Creek
Jalama Creek
Honda Creek
Drainage area 242 square miles
Depth of runoff in inches
0
5
10
15
20
25
30
Mean
Precipitation Division U
Curve of Probable Runoff
JALAMA CREEK GROUP
NEAR COAST
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 143


Index of seasonal wetness
60
80
100
120
140
160
180
Drainage area 797 square miles
Depth of runoff in inches
0
5
10
15
20
25
30
Mean
Precipitation Division U
Curve of Probable Runoff
SANTA YNEZ RIVER
NEAR LOMPOC
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 144


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
30
25
20
15
10
5
0
Drainage area 138 square miles
MEAN
PRECIPITATION DIVISION U
CURVE OF PROBABLE RUNOFF
SAN ANTONIO CREEK
AT MOUTH
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 869—1921 STATUTES
See Table 145


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
Drainage area 1634 square miles
MEAN
O S.W. ¼ OF S.E. ¼ OF SEC.13, T.11 N., R.32 W. 890 SQUARE MILES.
PRECIPITATION DIVISION T
CURVE OF PROBABLE RUNOFF
SANTA MARIA RIVER
NEAR SANTA MARIA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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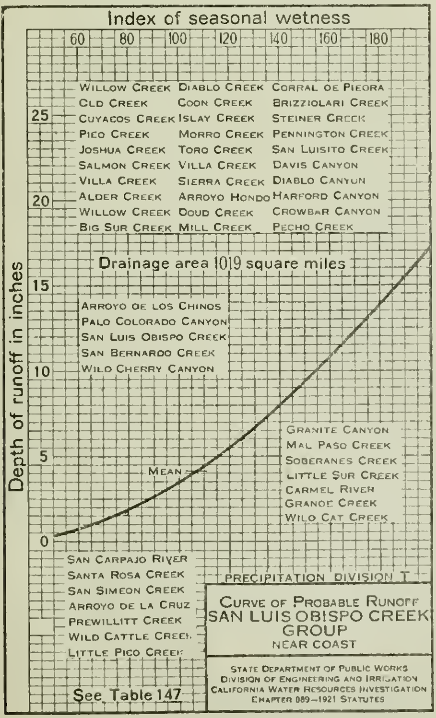
See Table 146


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
WILLOW CREEK
OLD CREEK
CUYACOS CREEK
PICO CREEK
JOSHUA CREEK
SALMON CREEK
VILLA CREEK
ALDER CREEK
WILLOW CREEK
BIG SUR CREEK
DIABLO CREEK
COON CREEK
ISLAY CREEK
MORRO CREEK
TORO CREEK
VILLA CREEK
SIERRA CREEK
ARROYO HONDO
DOUD CREEK
MILL CREEK
CORRAL DE PIEDRA
BRIZZIOLARI CREEK
STEINER CREEK
PENNINGTON CREEK
SAN LUISITO CREEK
DAVIS CANYON
DIABLO CANYON
HARFORD CANYON
CROWBAR CANYON
PECHO CREEK
Drainage area 1019 square miles
ARROYO DE LOS CHINOS
PALO COLORADO CANYON
SAN LUIS OBISPO CREEK
SAN BERNARDO CREEK
WILD CHERRY CANYON
GRANITE CANYON
MAL PASO CREEK
SOBERANES CREEK
LITTLE SUR CREEK
CARMEL RIVER
GRANDE CREEK
WILD CAT CREEK
MEAN
SAN CARPAJO RIVER
SANTA ROSA CREEK
SAN SIMEON CREEK
ARROYO DE LA CRUZ
PREWILLITT CREEK
WILD CATTLE CREEK
LITTLE PICO CREEK
PRECIPITATION DIVISION T
CURVE OF PROBABLE RUNOFF
SAN LUIS OBISPO CREEK
GROUP
NEAR COAST
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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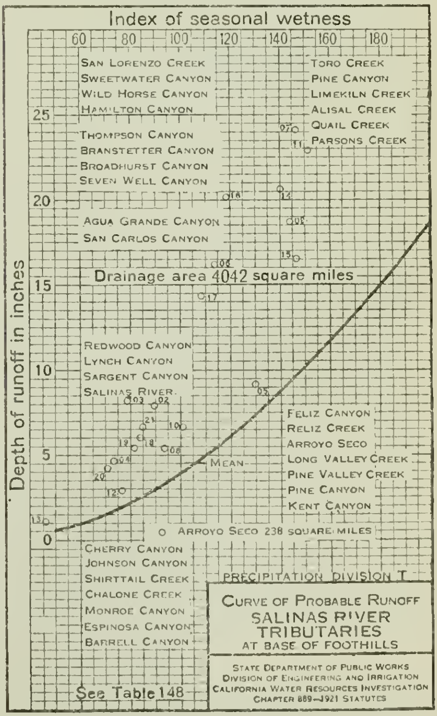
See Table 147


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
25
20
15
10
5
0
SAN LORENZO CREEK
SWEETWATER CANYON
WILD HORSE CANYON
HAMILTON CANYON
THOMPSON CANYON
BRANSTETTER CANYON
BROADHURST CANYON
SEVEN WELL CANYON
AGUA GRANDE CANYON
SAN CARLOS CANYON
TORO CREEK
PINE CANYON
LIMEKILN CREEK
ALISAL CREEK
QUAIL CREEK
PARSONS CREEK
Drainage area 4042 square miles
REDWOOD CANYON
LYNCH CANYON
SARGENT CANYON
SALINAS RIVER
FELIZ CANYON
RELIZ CREEK
ARROYO SECO
LONG VALLEY CREEK
PINE VALLEY CREEK
PINE CANYON
KENT CANYON
MEAN
O ARROYO SECO 238 SQUARE MILES
CHERRY CANYON
JOHNSON CANYON
SHIRTTAIL CREEK
CHALONE CREEK
MONROE CANYON
ESPINOSA CANYON
BARRELL CANYON
PRECIPITATION DIVISION T
CURVE OF PROBABLE RUNOFF
SALINAS RIVER
TRIBUTARIES
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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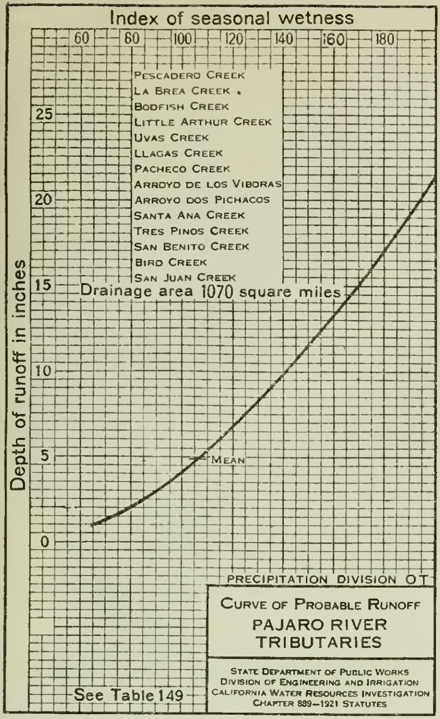
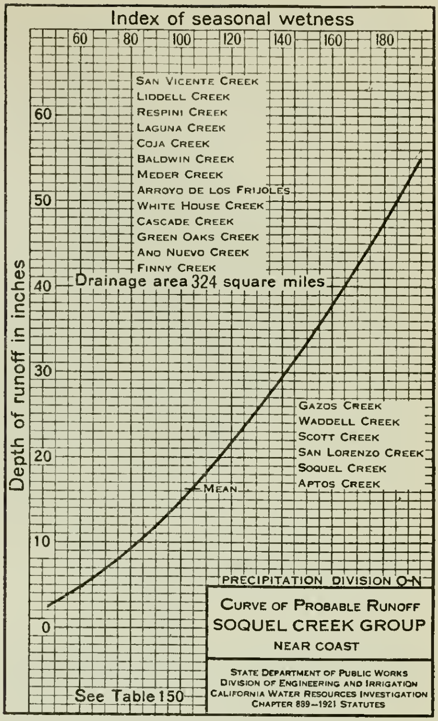
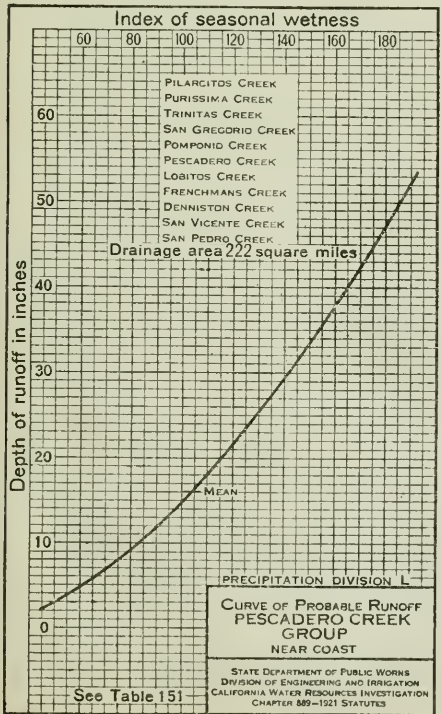
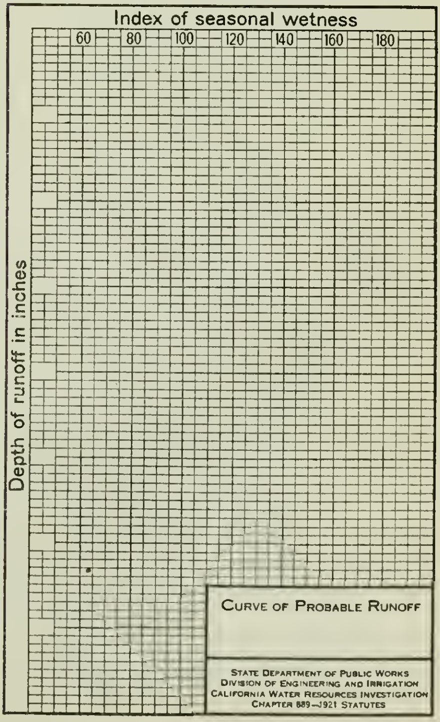
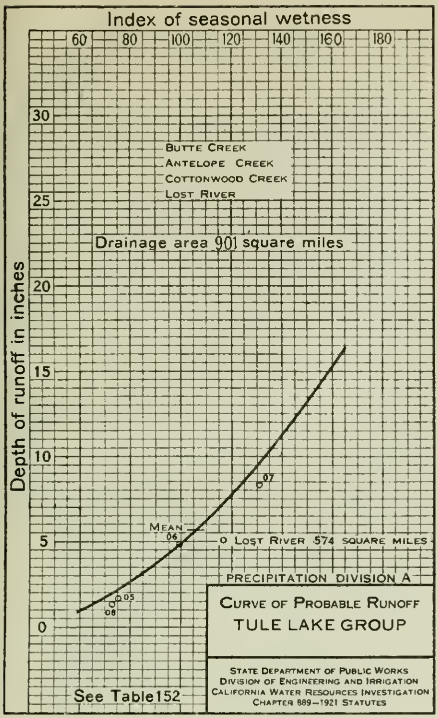
See Table 148

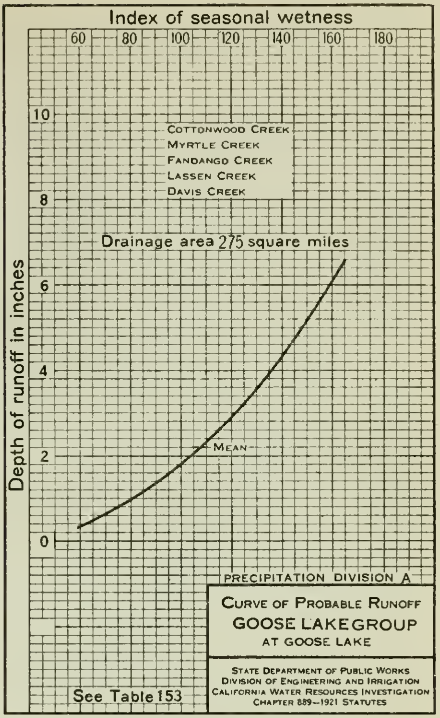

Index of seasonal wetness
Depth of runoff in inches
Pescadero Creek
La Brea Creek
Bodfish Creek
Little Arthur Creek
Uvas Creek
Llagas Creek
Pacheco Creek
Arroyo de los Viboras
Arroyo dos Pichacos
Santa Ana Creek
Tres Pinos Creek
San Benito Creek
Bird Creek
San Juan Creek
Drainage area 1070 square miles
Mean
Precipitation division O T
Curve of Probable Runoff
PAJARO RIVER TRIBUTARIES
See Table 149
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes

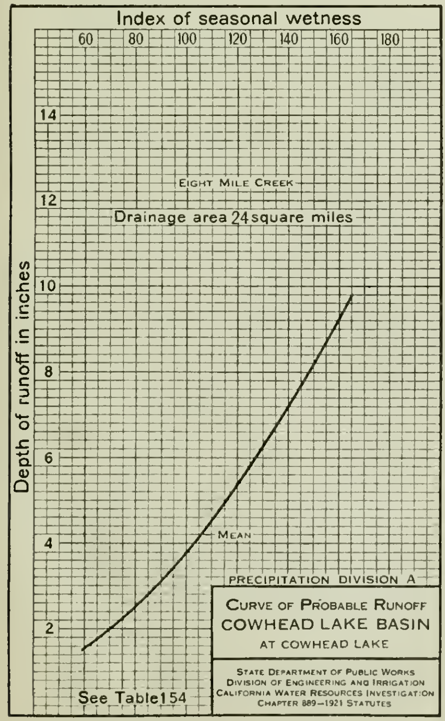

Index of seasonal wetness
Depth of runoff in inches
San Vicente Creek
Liddell Creek
Respini Creek
Laguna Creek
Coja Creek
Baldwin Creek
Meder Creek
Arroyo de los Frijoles
White House Creek
Cascade Creek
Green Oaks Creek
Ano Nuevo Creek
Finny Creek
Drainage area 324 square miles
Gazos Creek
Waddell Creek
Scott Creek
San Lorenzo Creek
Soquel Creek
Aptos Creek
Mean
Precipitation division O-N
Curve of Probable Runoff
SOQUEL CREEK GROUP
NEAR COAST
See Table 150
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes

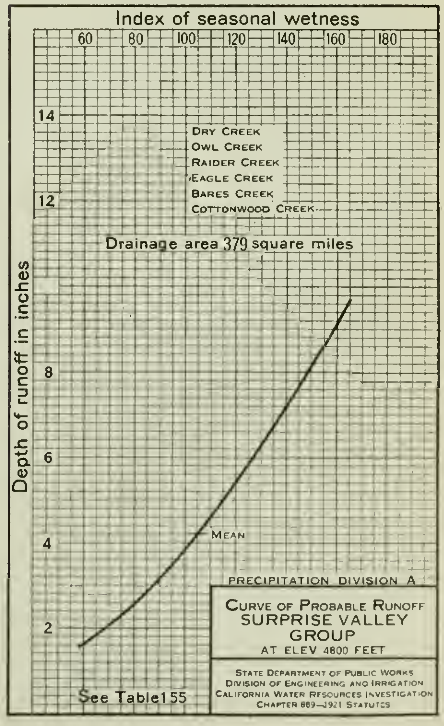

Index of seasonal wetness
Depth of runoff in inches
Pilarcitos Creek
Purissima Creek
Trinitas Creek
San Gregorio Creek
Pomponio Creek
Pescadero Creek
Lobitos Creek
Frenchmans Creek
Denniston Creek
San Vicente Creek
San Pedro Creek
Drainage area 222 square miles
Mean
Precipitation division L
Curve of Probable Runoff
PESCADERO CREEK GROUP
NEAR COAST
See Table 151
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes

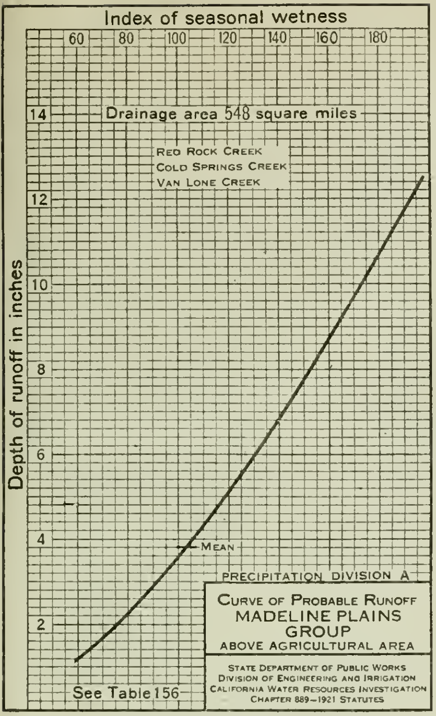

Index of seasonal wetness
Depth of runoff in inches
Curve of Probable Runoff
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes

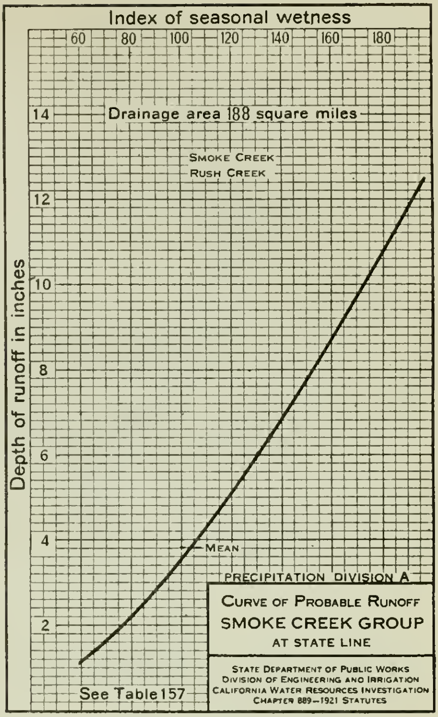

Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
30
25
20
15
10
5
0
Butte Creek
Antelope Creek
Cottonwood Creek
Lost River
Drainage area 901 square miles
Mean
06
07
05
08
o Lost River 574 square miles
Precipitation Division A
Curve of Probable Runoff
TULE LAKE GROUP
See Table 152
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
10
8
6
4
2
0
Cottonwood Creek
Myrtle Creek
Fandango Creek
Lassen Creek
Davis Creek
Drainage area 275 square miles
Mean
Precipitation Division A
Curve of Probable Runoff
GOOSE LAKE GROUP
AT GOOSE LAKE
See Table 153
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
14
12
10
8
6
4
2
Eight Mile Creek
Drainage area 24 square miles
Mean
Precipitation Division A
Curve of Probable Runoff
COWHEAD LAKE BASIN
AT COWHEAD LAKE
See Table 154
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
14
12
10
8
6
4
2
Dry Creek
Owl Creek
Raider Creek
Eagle Creek
Bares Creek
Cottonwood Creek
Drainage area 379 square miles
Mean
Precipitation Division A
Curve of Probable Runoff
SURPRISE VALLEY GROUP
AT ELEV 4800 FEET
See Table 155
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
14
12
10
8
6
4
2
Drainage area 548 square miles
Red Rock Creek
Cold Springs Creek
Van Lone Creek
Mean
Precipitation Division A
Curve of Probable Runoff
MADELINE PLAINS GROUP
ABOVE AGRICULTURAL AREA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 156


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
14
12
10
8
6
4
2
Drainage area 188 square miles
Smoke Creek
Rush Creek
Mean
Precipitation Division A
Curve of Probable Runoff
SMOKE CREEK GROUP
AT STATE LINE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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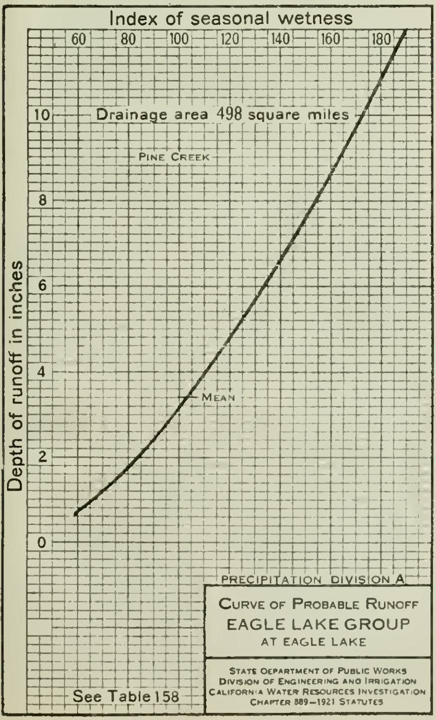
See Table 157


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
10
8
6
4
2
0
Drainage area 498 square miles
Pine Creek
Mean
Precipitation Division A
Curve of Probable Runoff
EAGLE LAKE GROUP
AT EAGLE LAKE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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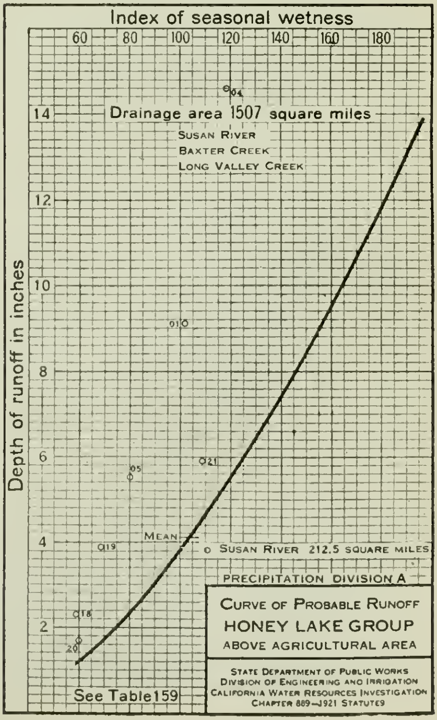
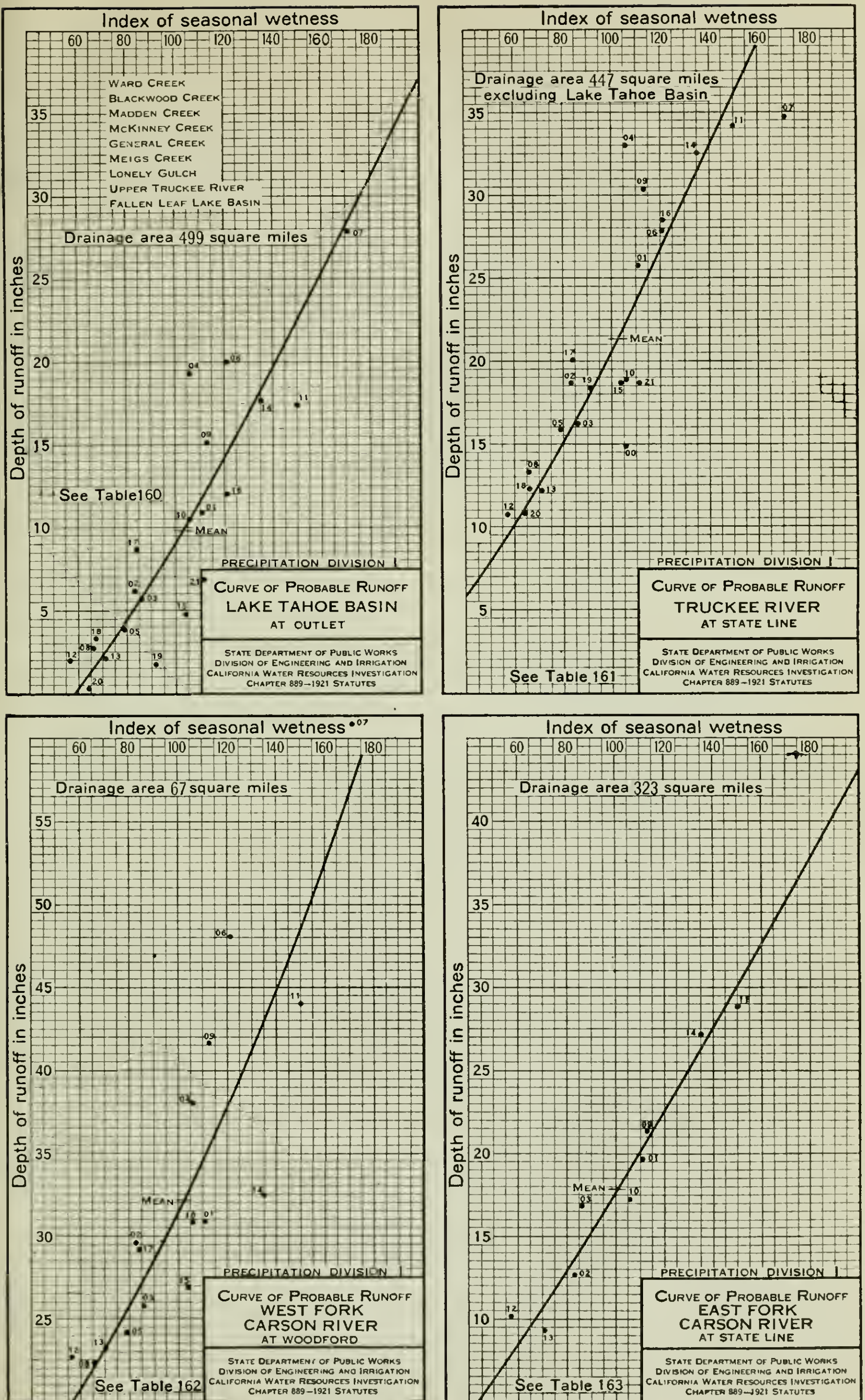
See Table 158


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
14
12
10
8
6
4
2
Drainage area 1507 square miles
Susan River
Baxter Creek
Long Valley Creek
04
10
05
21
19
18
20
Mean
o Susan River 212.5 square miles
Precipitation Division A
Curve of Probable Runoff
HONEY LAKE GROUP
ABOVE AGRICULTURAL AREA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 159


Index of seasonal wetness
Depth of runoff in inches
Ward Creek
Blackwood Creek
Madden Creek
McKinney Creek
General Creek
Meigs Creek
Lonely Gulch
Upper Truckee River
Fallen Leaf Lake Basin
Drainage area 499 square miles
See Table 160
Mean
Precipitation Division I
Curve of Probable Runoff
Lake Tahoe Basin
at Outlet
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
Index of seasonal wetness
Depth of runoff in inches
Drainage area 447 square miles
excluding Lake Tahoe Basin
Mean
See Table 161
Precipitation Division I
Curve of Probable Runoff
Truckee River
at State Line
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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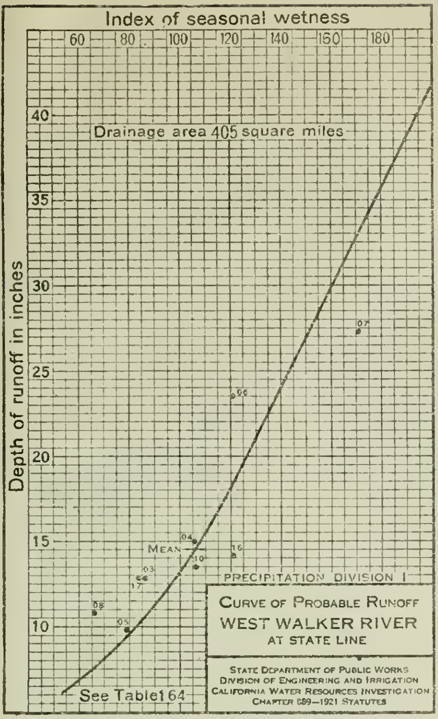
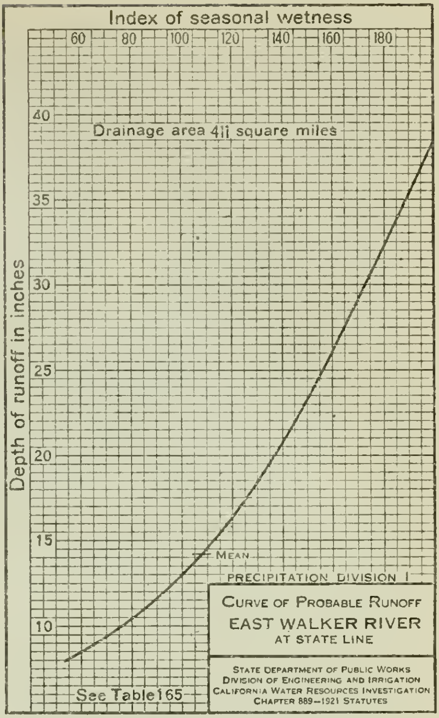
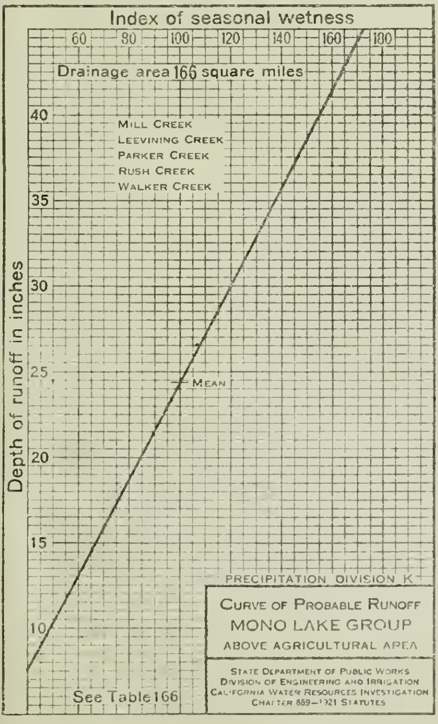
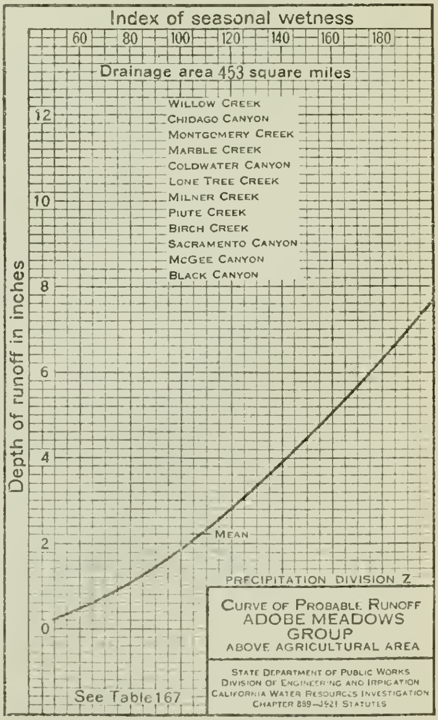
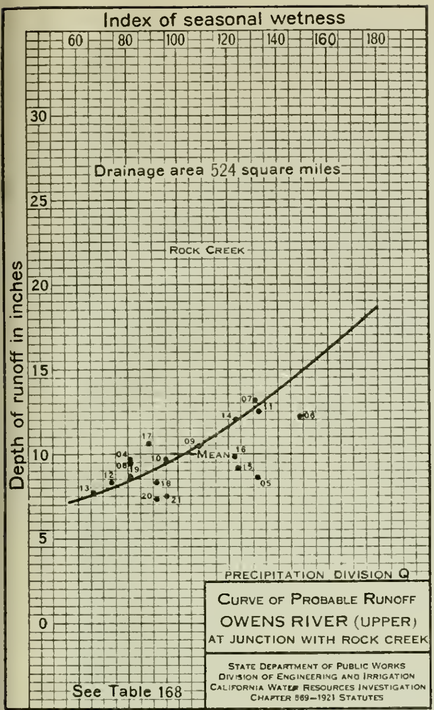
Index of seasonal wetness
Depth of runoff in inches
Drainage area 67 square miles
Mean
See Table 162
Precipitation Division I
Curve of Probable Runoff
West Fork
Carson River
at Woodford
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
Index of seasonal wetness
Depth of runoff in inches
Drainage area 323 square miles
Mean
See Table 163
Precipitation Division I
Curve of Probable Runoff
East Fork
Carson River
at State Line
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
40
35
30
25
20
15
10
Drainage area 405 square miles
MEAN
PRECIPITATION DIVISION I
CURVE OF PROBABLE RUNOFF
WEST WALKER RIVER
AT STATE LINE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 164


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
40
35
30
25
20
15
10
Drainage area 411 square miles
MEAN
PRECIPITATION DIVISION I
CURVE OF PROBABLE RUNOFF
EAST WALKER RIVER
AT STATE LINE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 165


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
40
35
30
25
20
15
10
Drainage area 166 square miles
MILL CREEK
LEEVINING CREEK
PARKER CREEK
RUSH CREEK
WALKER CREEK
MEAN
PRECIPITATION DIVISION K
CURVE OF PROBABLE RUNOFF
MONO LAKE GROUP
ABOVE AGRICULTURAL AREA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 166


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
12
10
8
6
4
2
0
Drainage area 453 square miles
WILLOW CREEK
CHIDAGO CANYON
MONTGOMERY CREEK
MARBLE CREEK
COLDWATER CANYON
LONE TREE CREEK
MILNER CREEK
PIUTE CREEK
BIRCH CREEK
SACRAMENTO CANYON
MCGEE CANYON
BLACK CANYON
MEAN
PRECIPITATION DIVISION Z
CURVE OF PROBABLE RUNOFF
ADOBE MEADOWS
GROUP
ABOVE AGRICULTURAL AREA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889—1921 STATUTES
See Table 167


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
30 25 20 15 10 5 0
Drainage area 524 square miles
Rock Creek
Mean
13 12 04 06 19 17 10 09 20 18 21 14 07 11 16 15 05 08
Precipitation division Q
Curve of Probable Runoff
OWENS RIVER (UPPER)
AT JUNCTION WITH ROCK CREEK
State Department of Public Works
Division of Engineering and Irrigation
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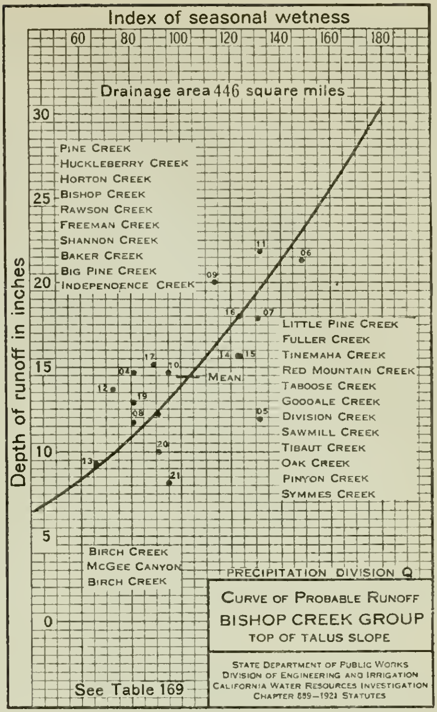
See Table 168


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
30 25 20 15 10 5 0
Drainage area 446 square miles
Pine Creek
Huckleberry Creek
Horton Creek
Bishop Creek
Rawson Creek
Freeman Creek
Shannon Creek
Baker Creek
Big Pine Creek
Independence Creek
Little Pine Creek
Fuller Creek
Tinemaha Creek
Red Mountain Creek
Taboose Creek
Goodale Creek
Division Creek
Sawmill Creek
Tibaut Creek
Oak Creek
Pinyon Creek
Symmes Creek
Birch Creek
McGee Canyon
Birch Creek
Mean
11 06 09 16 07 14 15 17 04 10 12 19 08 05 20 13 21
Precipitation division Q
Curve of Probable Runoff
BISHOP CREEK GROUP
TOP OF TALUS SLOPE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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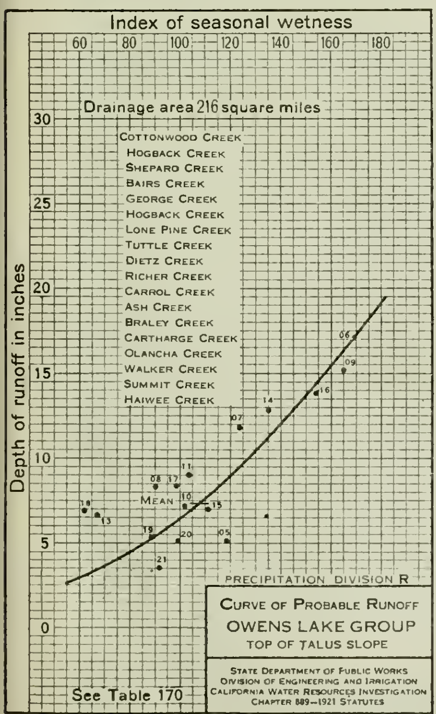
See Table 169


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
30 25 20 15 10 5 0
Drainage area 216 square miles
Cottonwood Creek
Hogback Creek
Shepard Creek
Bairs Creek
George Creek
Hogback Creek
Lone Pine Creek
Tuttle Creek
Dietz Creek
Richer Creek
Carrol Creek
Ash Creek
Braley Creek
Cartharge Creek
Olancha Creek
Walker Creek
Summit Creek
Haiwee Creek
Mean
06 09 16 14 07 11 08 17 10 15 18 13 19 20 05 21
Precipitation division R
Curve of Probable Runoff
OWENS LAKE GROUP
TOP OF TALUS SLOPE
State Department of Public Works
Division of Engineering and Irrigation
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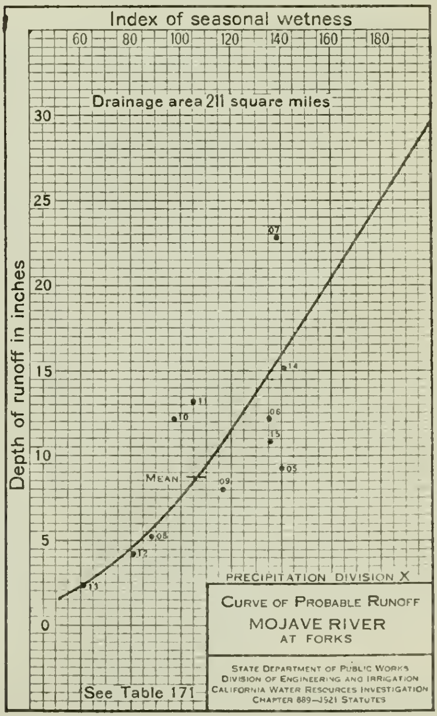
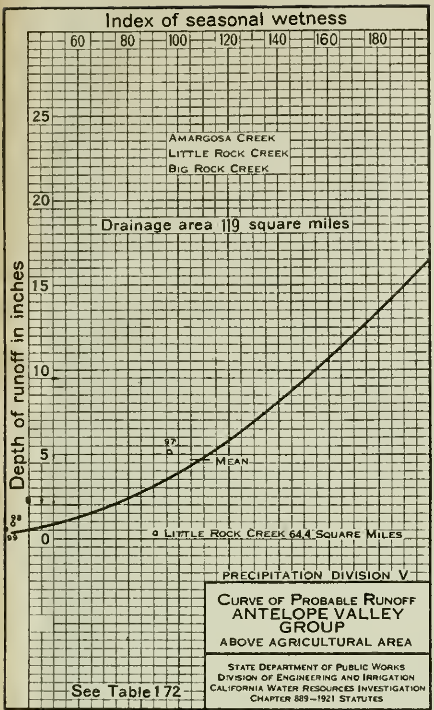
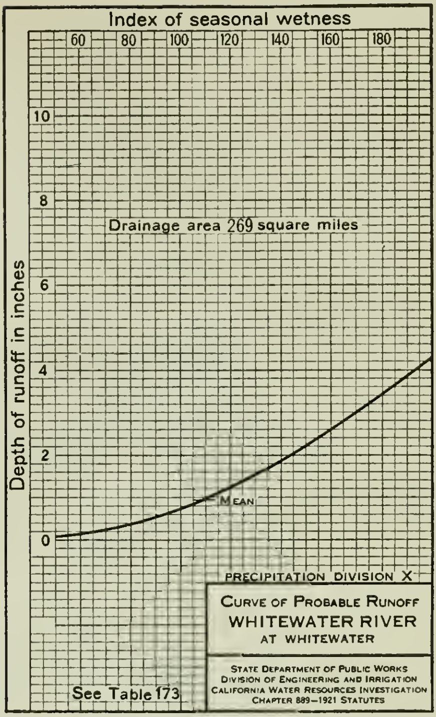
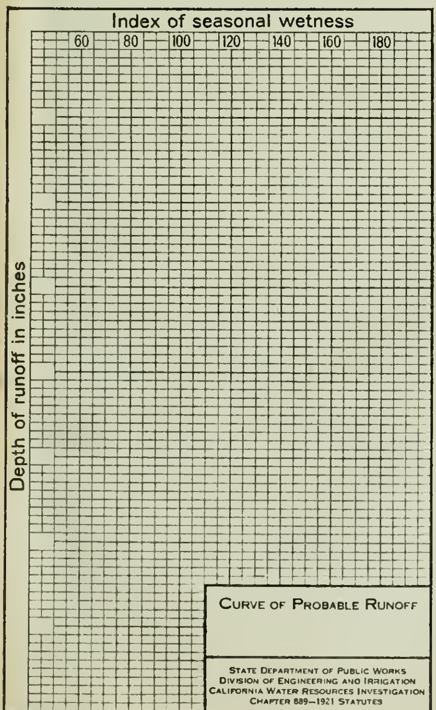
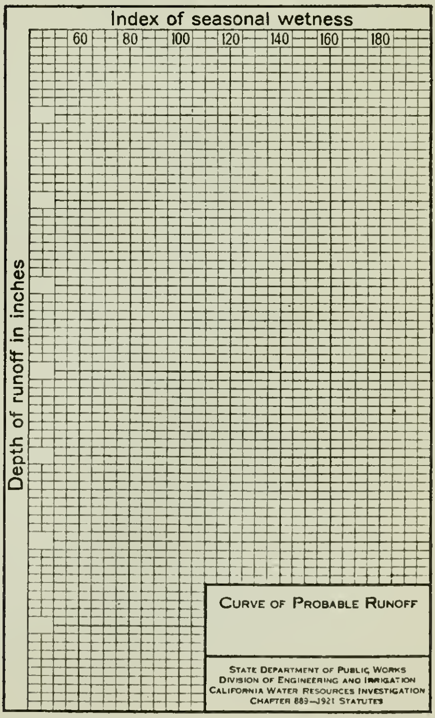
See Table 170


Index of seasonal wetness
60 80 100 120 140 160 180
Depth of runoff in inches
30 25 20 15 10 5 0
Drainage area 211 square miles
Mean
07 14 11 10 06 15 05 09 08 12 13
Precipitation division X
Curve of Probable Runoff
MOJAVE RIVER
AT FORKS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 171


Index of seasonal wetness
60
80
100
120
140
160
180
25
20
15
10
5
0
Depth of runoff in inches
Amargosa Creek
Little Rock Creek
Big Rock Creek
Drainage area 119 square miles
Mean
o Little Rock Creek 64.4 Square Miles
Precipitation Division V
Curve of Probable Runoff
ANTELOPE VALLEY GROUP
ABOVE AGRICULTURAL AREA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 172


Index of seasonal wetness
60
80
100
120
140
160
180
10
8
6
4
2
0
Depth of runoff in inches
Drainage area 269 square miles
Mean
Precipitation Division X
Curve of Probable Runoff
WHITEWATER RIVER
AT WHITEWATER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes
See Table 173


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
Curve of Probable Runoff
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889—1921 Statutes


Index of seasonal wetness
60
80
100
120
140
160
180
Depth of runoff in inches
Curve of Probable Runoff
State Department of Public Works
Division of Engineering and Irrigation
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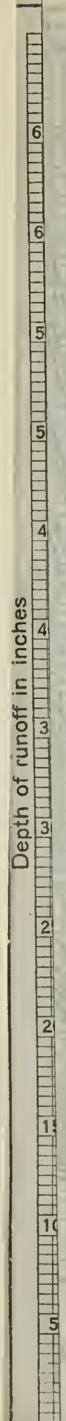
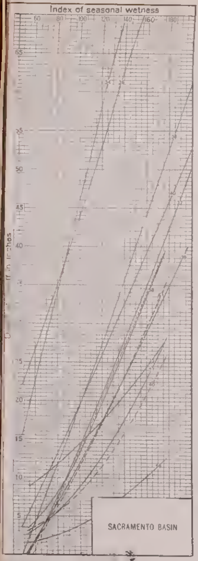
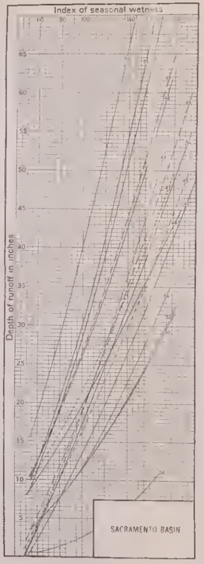


20273

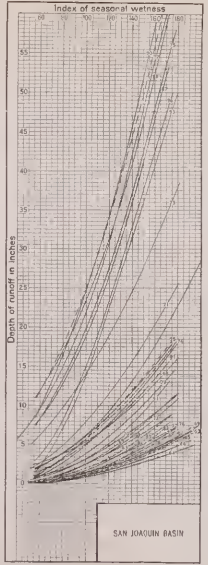


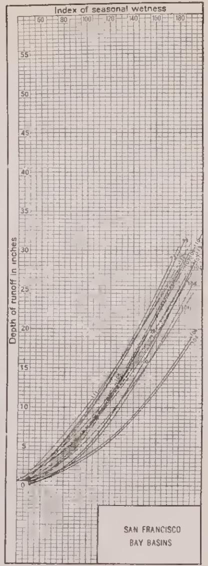


34 SACRAMENTO RIVER (UPPER)
35 PIT RIVER
36 MCCLOUD RIVER
37 CHURN CREEK GROUP
38 COW CREEK
39 BEAR CREEK GROUP
40 BATTLE CREEK
57 ELDER CREEK GROUP
58 STONY CREEK
59 WILLOW CREEK GROUP
60 CACHE CREEK
61 PUTAH CREEK

41 INKS CREEK
42 PAYNES CREEK
43 BACKBONE CREEK GROUP
44 CLEAR CREEK
45 COTTONWOOD CREEK
46 SACRAMENTO RIVER
47 MILL CREEK GROUP
48 BUTTE CREEK GROUP
49 FEATHER RIVER
50 HONCUT CREEK GROUP
51 YUBA RIVER
52 DRY CREEK
53 BEAR RIVER
54 COON CREEK GROUP
55 AMERICAN RIVER
56 RED BANK CREEK GROUP

62 ORESTIMBA CREEK GROUP
63 PANOCHE CREEK
64 CANTUA CREEK GROUP
65 LOS GATOS CREEK
66 TEJON CREEK GROUP
67 CALIENTE CREEK
68 KERN RIVER
69 POSO CREEK GROUP
70 DEER CREEK
71 TULE RIVER
72 YOKOHL CREEK GROUP
73 KAWEAH RIVER
74 LIMEKILN CREEK GROUP
75 KINGS RIVER
76 DRY CREEK
77 SAN JOAQUIN RIVER (UPPER)
78 COTTONWOOD CREEK
79 FRESNO RIVER
80 DAULTON CREEK GROUP
81 CHOWCHILLA RIVER
82 DUTCHMAN CREEK GROUP
83 MARIPOSA CREEK
84 OWENS CREEK
85 BEAR CREEK
86 BURNS CREEK GROUP
87 MERCED RIVER
88 TUOLUMNE RIVER
89 WILDCAT CREEK GROUP
90 STANISLAUS RIVER
91 LITTLEJOHNS CREEK
92 MARTELLS CREEK GROUP
93 CALAVERAS RIVER
94 MOKELUMNE RIVER
95 SUTTER CREEK GROUP
96 COSUMNES RIVER

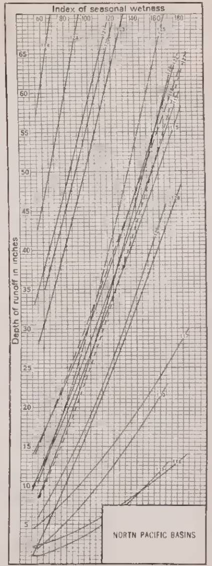


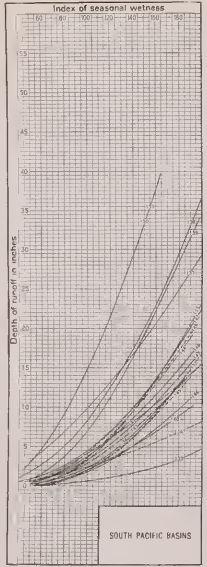


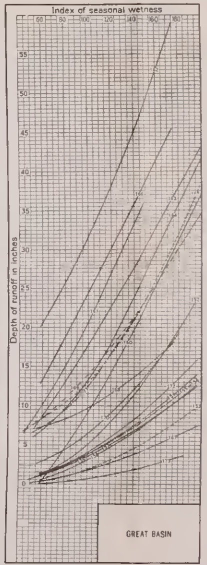
97 PETALUMA CREEK GROUP
98 SONOMA CREEK TRIBUTARIES
99 NAPA RIVER TRIBUTARIES
100 SUISUN CREEK GROUP
101 MT DIABLO CREEK GROUP
102 SAN PABLO CREEK
103 SAN LEANDRO CREEK
104 CLAREMONT CREEK GROUP
105 SAN LORENZO CREEK
106 ALAMEDA CREEK
107 MISSION CREEK GROUP
108 PENITENCIA CREEK
109 COYOTE RIVER
110 GUADALUPE RIVER
111 LOS GATOS CREEK GROUP
112 SAN FRANCISQUITO CREEK
113 SAN MATEO CREEK GROUP

114 SMITH RIVER
115 KLAMATH RIVER
116 SHASTA RIVER
117 SCOTT RIVER
118 SALMON RIVER
119 TRINITY RIVER
120 REDWOOD CREEK
121 MAD RIVER
122 EEL RIVER
123 BEAR CREEK
124 MATTOLE RIVER
125 NOYO RIVER GROUP
126 NAVARRO RIVER
127 GUALALA RIVER GROUP
128 RUSSIAN RIVER
129 LAGUNITAS CREEK
130 SALMON CREEK GROUP
131 BOLINAS CREEK GROUP

132 SAN DIEGO RIVER
133 SANTA YSABEL CREEK
134 SAN LUIS REY RIVER
135 SANTA MARGARITA RIVER
136 SAN JACINTO RIVER TRIBUTARIES
137 SANTA ANA RIVER TRIBUTARIES
138 SAN GABRIEL RIVER TRIBUTARIES
139 LOS ANGELES RIVER TRIBUTARIES
140 MALIBU RIVER GROUP
141 SANTA CLARA RIVER TRIBUTARIES
142 VENTURA RIVER
143 JALAMA CREEK GROUP
144 SANTA YNEZ RIVER
145 SAN ANTONIO CREEK
146 SANTA MARIA RIVER
147 SAN LUIS OBISPO CREEK GROUP
148 SALINAS RIVER TRIBUTARIES
149 PAJARO RIVER TRIBUTARIES
150 SOQUEL CREEK GROUP
151 PESCADERO CREEK GROUP







152 TULE LAKE GROUP
153 GOOSE LAKE GROUP
154 COWHEAD LAKE GROUP
155 SURPRISE VALLEY GROUP
156 MADELINE PLAINS GROUP
157 SMOKE CREEK GROUP
158 EAGLE LAKE GROUP
159 HONEY LAKE GROUP
160 LAKE TAHOE BASIN
161 TRUCKEE RIVER
162 WEST FORK CARSON RIVER
163 EAST FORK CARSON RIVER
164 WEST WALKER RIVER
165 EAST WALKER RIVER
166 MONO LAKE GROUP
167 ADOBE MEADOWS GROUP
168 OWENS RIVER (UPPER)
169 BISHOP CREEK GROUP
170 OWENS LAKE GROUP
171 MOJAVE RIVER
172 ANTELOPE VALLEY GROUP
173 WHITEWATER RIVER

COMPARISON OF RUNOFF CURVES
GROUPED GEOGRAPHICALLY

State Department of Public Works
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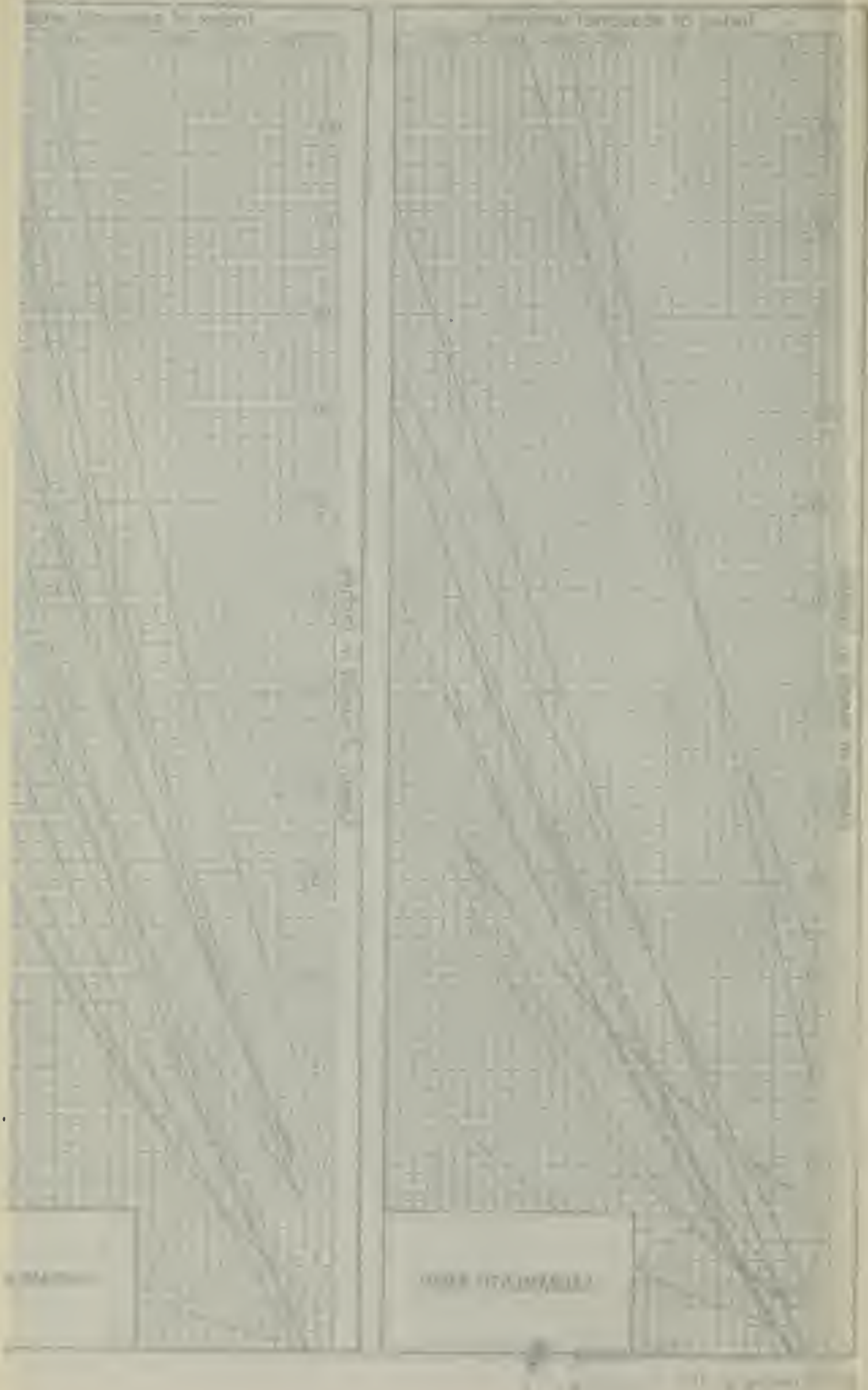
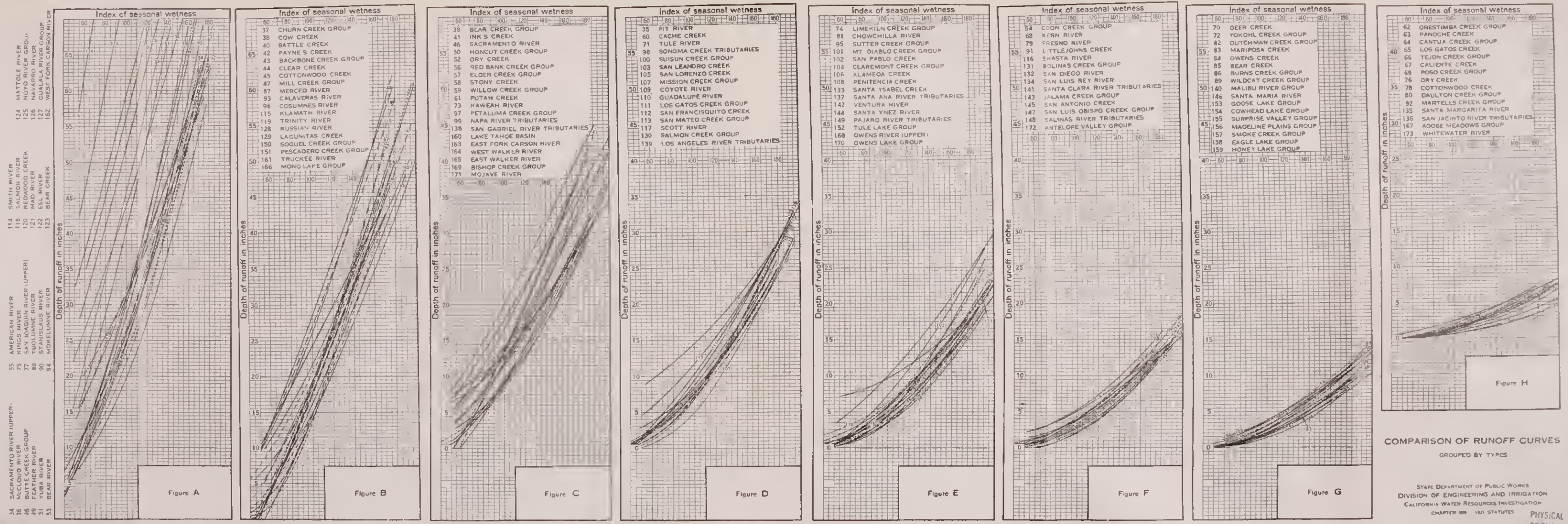
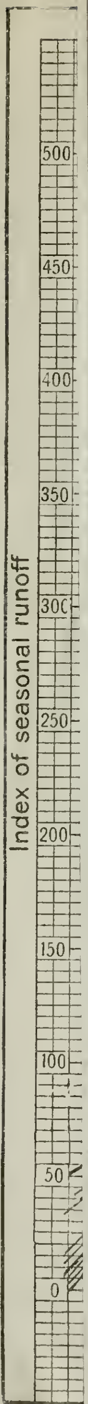




COMPARISON OF RUNOFF CURVES

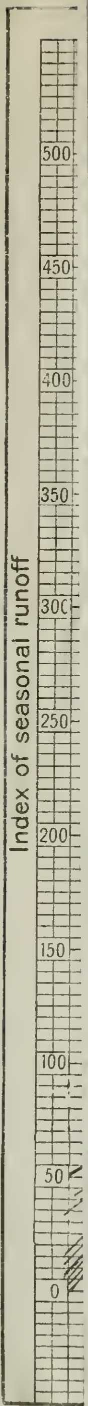
GROUPED BY TYPES

State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 1921 Statutes

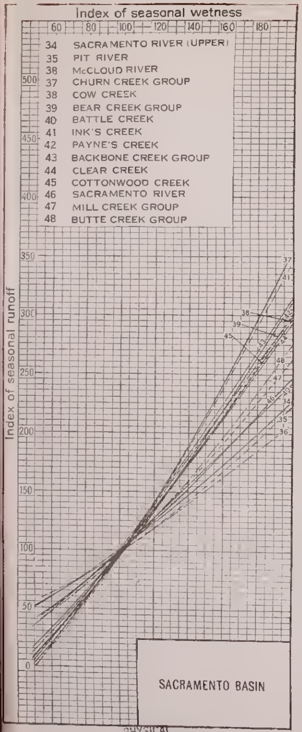


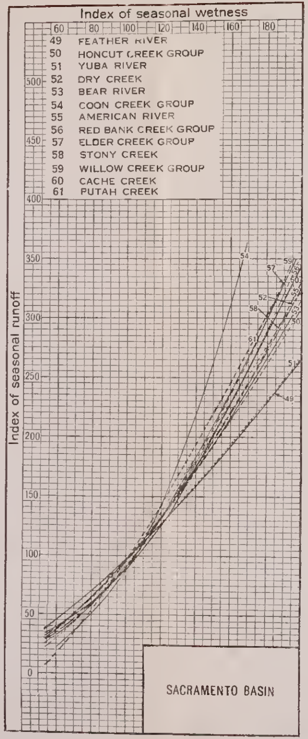
Index of seasonal runoff
500
450
400
350
300
250
200
150
100
50
0

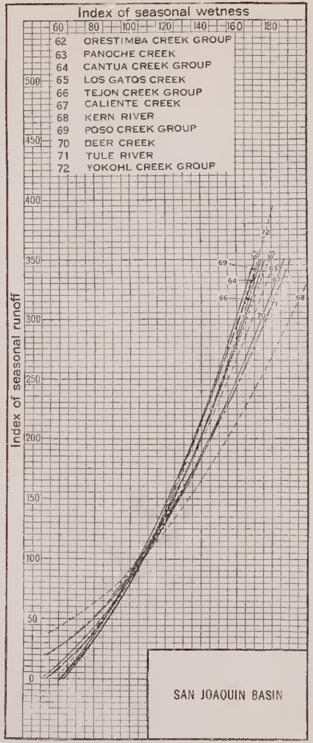
20273 1

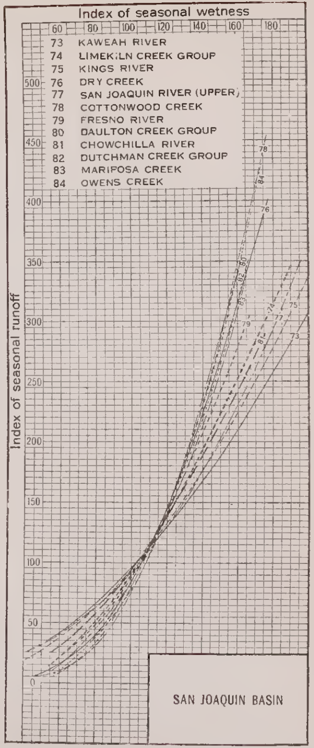

Index of seasonal runoff
500
450
400
350
300
250
200
150
100
50
0

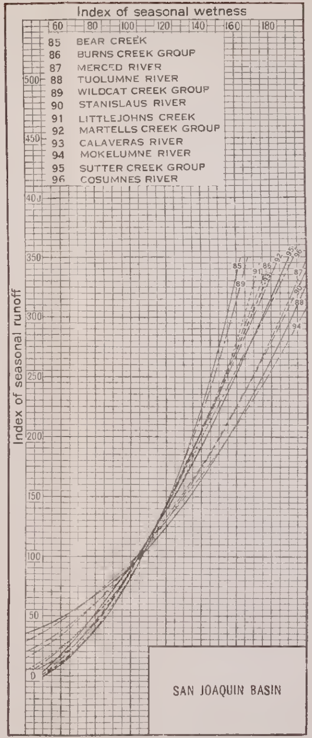
20273 1

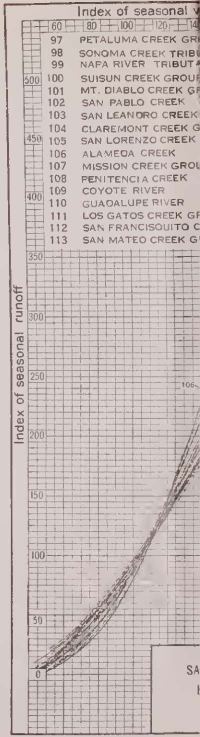

Index of seasonal wetness
Index of seasonal runoff
34 SACRAMENTO RIVER (UPPER)
35 PIT RIVER
38 McCLOUD RIVER
37 CHURN CREEK GROUP
38 COW CREEK
39 BEAR CREEK GROUP
40 BATTLE CREEK
41 INK'S CREEK
42 PAYNE'S CREEK
43 BACKBONE CREEK GROUP
44 CLEAR CREEK
45 COTTONWOOD CREEK
46 SACRAMENTO RIVER
47 MILL CREEK GROUP
48 BUTTE CREEK GROUP
SACRAMENTO BASIN

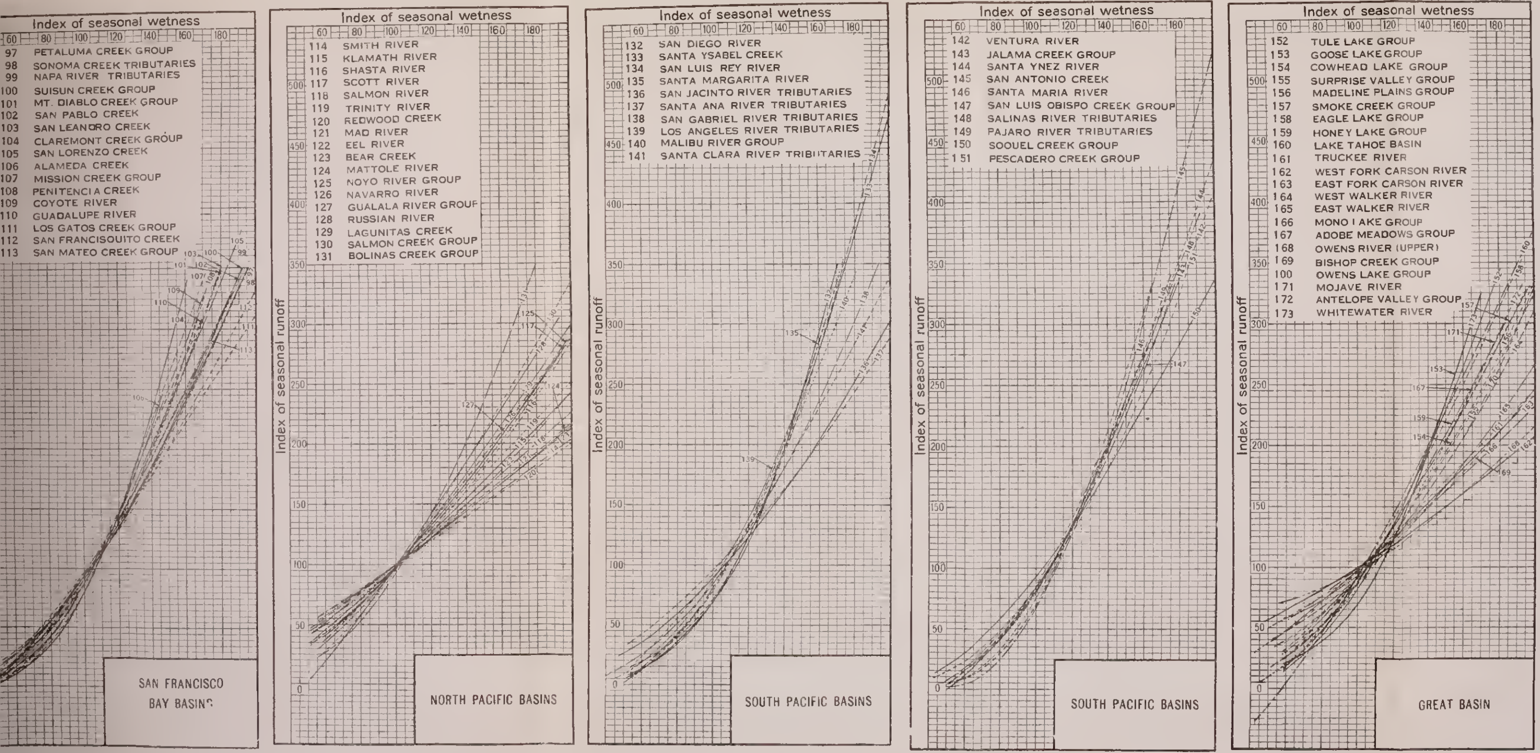

Index of seasonal wetness
Index of seasonal runoff
49 FEATHER RIVER
50 HONCUT CREEK GROUP
51 YUBA RIVER
52 DRY CREEK
53 BEAR RIVER
54 COON CREEK GROUP
55 AMERICAN RIVER
56 RED BANK CREEK GROUP
57 ELDER CREEK GROUP
58 STONY CREEK
59 WILLOW CREEK GROUP
60 CACHE CREEK
61 PUTAH CREEK
SACRAMENTO BASIN


Index of seasonal wetness
Index of seasonal runoff
62 ORESTIMBA CREEK GROUP
63 PANOCHE CREEK
64 CANTUA CREEK GROUP
65 LOS GATOS CREEK
66 TEJON CREEK GROUP
67 CALIENTE CREEK
68 KERN RIVER
69 POSO CREEK GROUP
70 DEER CREEK
71 TULE RIVER
72 YOKOHL CREEK GROUP
SAN JOAQUIN BASIN


Index of seasonal wetness
Index of seasonal runoff
73 KAWEAH RIVER
74 LIMEKILN CREEK GROUP
75 KINGS RIVER
76 DRY CREEK
77 SAN JOAQUIN RIVER (UPPER)
78 COTTONWOOD CREEK
79 FRESNO RIVER
80 DAULTON CREEK GROUP
81 CHOWCHILLA RIVER
82 DUTCHMAN CREEK GROUP
83 MARIPOSA CREEK
84 OWENS CREEK
SAN JOAQUIN BASIN


Index of seasonal wetness
Index of seasonal runoff
85 BEAR CREEK
86 BURNS CREEK GROUP
87 MERCED RIVER
88 TUOLUMNE RIVER
89 WILDCAT CREEK GROUP
90 STANISLAUS RIVER
91 LITTLEJOHNS CREEK
92 MARTELLS CREEK GROUP
93 CALAVERAS RIVER
94 MOKELUMNE RIVER
95 SUTTER CREEK GROUP
96 COSUMNES RIVER
SAN JOAQUIN BASIN


Index of seasonal runoff
97 PETALUMA CREEK GR
98 SONOMA CREEK TRIB
99 NAPA RIVER TRIBUT
100 SUISUN CREEK GROU
101 MT. DIABLO CREEK G
102 SAN PABLO CREEK
103 SAN LEANDRO CREEK
104 CLAREMONT CREEK G
105 SAN LORENZO CREEK
106 ALAMEDA CREEK
107 MISSION CREEK GRO
108 PENITENCIA CREEK
109 COYOTE RIVER
110 GUADALUPE RIVER
111 LOS GATOS CREEK G
112 SAN FRANCISQUITO C
113 SAN MATEO CREEK G



COMPARISON OF CURVES

EXPRESSING RELATION BETWEEN

INDICES OF WETNESS

AND

INDICES OF RUNOFF

GROUPED GEOGRAPHICALLY

State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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153 G
54 C
69 F
72 Y
76 D
78 C
80 D
82 D
83 N
84 C
85 E
86 E
89 V
91 L
66 T
65 L
62 C
64 C
101 N
104 C
103 S
106 A
107 N
109 C
108 F
132 S
133 S
134 S
135 S
139 L
144 S
145 S
146 S
149 F
173 V
131 E

153 GOOSE LAKE GROUP
54 COON CREEK GROUP
69 POSO CREEK GROUP
72 YOKOHL CREEK GROUP
76 DRY CREEK
78 COTTONWOOD CREEK
80 DAULTON CREEK GROUP
82 DUTCHMAN CREEK GROUP
83 MARIPOSA CREEK
84 OWENS CREEK
85 BEAR CREEK
86 BURNS CREEK GROUP
89 WILDCAT CREEK GROUP
91 LITTLEJOHNS CREEK
66 TEJON CREEK GROUP
65 LOS GATOS CREEK
62 ORESTIMBA CREEK GROUP
64 CANTUA CREEK GROUP
101 MT. DIABLO CREEK GROUP
104 CLAREMONT CREEK GROUP
103 SAN LEANDRO CREEK
106 ALAMEDA CREEK
107 MISSION CREEK GROUP
109 COYOTE RIVER
108 PENITENCIA CREEK
132 SAN DIEGO RIVER
133 SANTA YSABEL CREEK
134 SAN LUIS REY RIVER
135 SANTA MARGARITA RIVER
139 LOS ANGELES RIVER TRIBUTARIES
144 SANTA YNEZ RIVER
145 SAN ANTONIO CREEK
146 SANTA MARIA RIVER
149 PAJARO RIVER TRIBUTARIES
173 WHITEWATER RIVER
131 BOLINAS CREEK GROUP

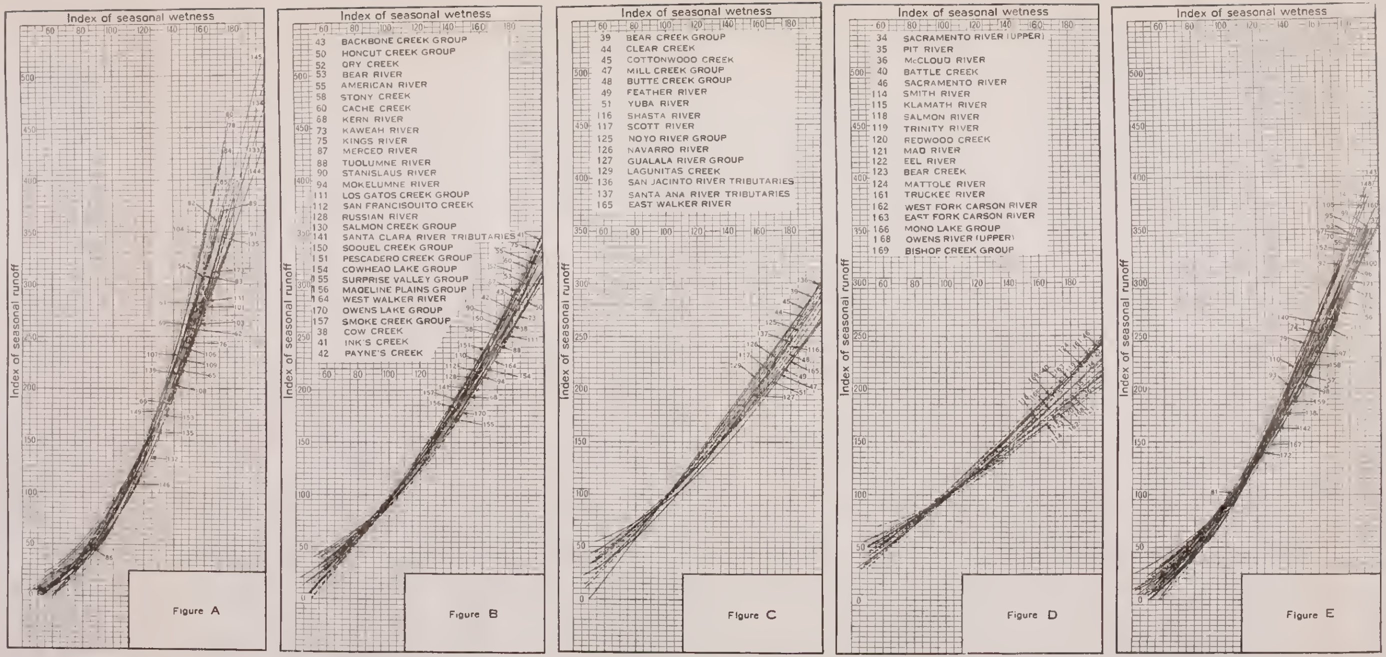
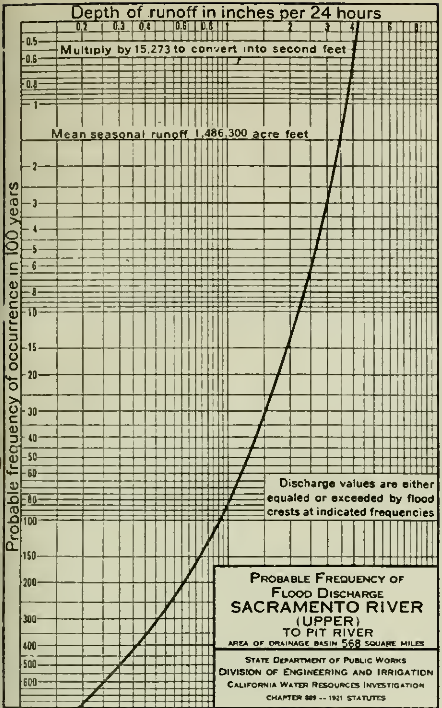


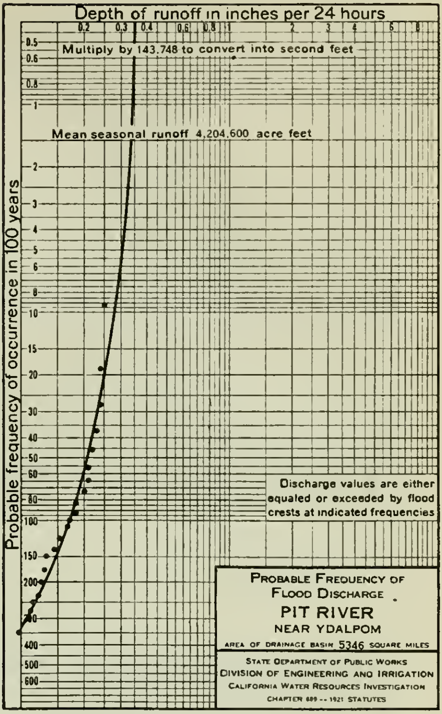
PLATE LVII

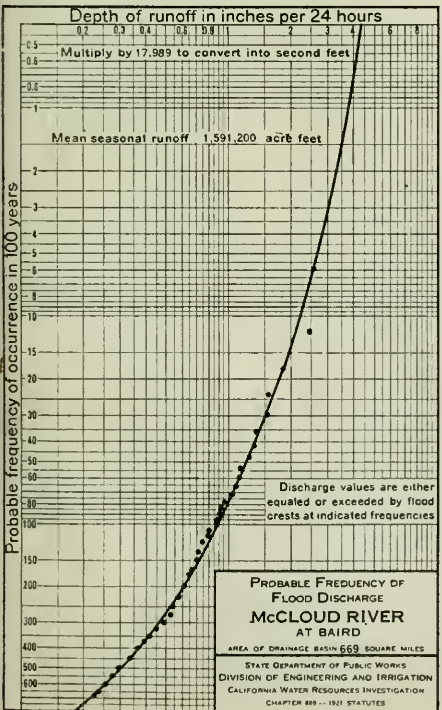
37 CHURN CREEK GROUP
56 RED BANK CREEK GROUP
57 ELDER CREEK GROUP
59 WILLOW CREEK GROUP
61 PUTAH CREEK
67 CALIENTE CREEK
70 DEER CREEK
74 LIMEKILN CREEK GROUP
79 FRESNO RIVER
81 CHOWCHILLA RIVER
92 MARTELLS CREEK GROUP
93 CALAVERAS RIVER
95 SUTTER CREEK GROUP
96 COSUMNES RIVER
63 PANOCHE CREEK
71 TULE RIVER
77 SAN JOAQUIN RIVER (UPPER)
97 PETALUMA CREEK GROUP
98 SONOMA CREEK TRIBUTARIES
99 NAPA RIVER TRIBUTARIES
100 SUISUN CREEK GROUP
102 SAN PABLO CREEK
105 SAN LORENZO CREEK
110 GUADALUPE RIVER
113 SAN MATEO CREEK GROUP
138 SAN GABRIEL RIVER TRIBUTARIES
140 MALIBU RIVER GROUP
142 VENTURA RIVER
143 JALAMA CREEK GROUP
147 SAN LUIS OBISPO CREEK GROUP
148 SALINAS RIVER TRIBUTARIES
152 TULE LAKE GROUP
158 EAGLE LAKE GROUP
159 HONEY LAKE GROUP
160 LAKE TAHOE BASIN
171 MOJAVE RIVER
172 ANTELOPE VALLEY GROUP
167 ADOBE MEADOWS GROUP

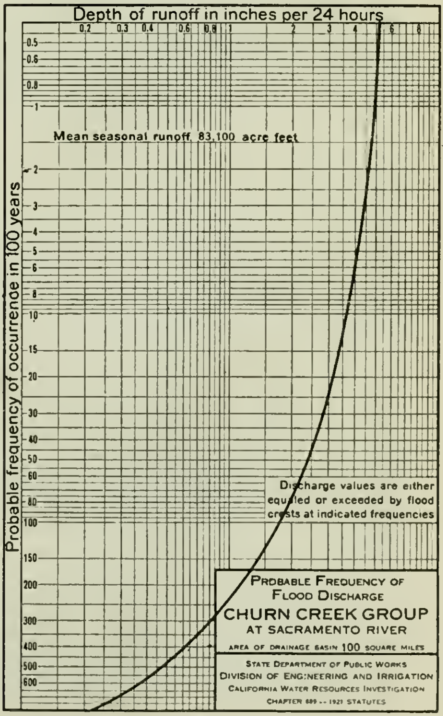
COMPARISON OF CURVES
EXPRESSING RELATION
BETWEEN
INDICES OF WETNESS
AND
INDICES OF RUNOFF
GROUPED BY TYPES

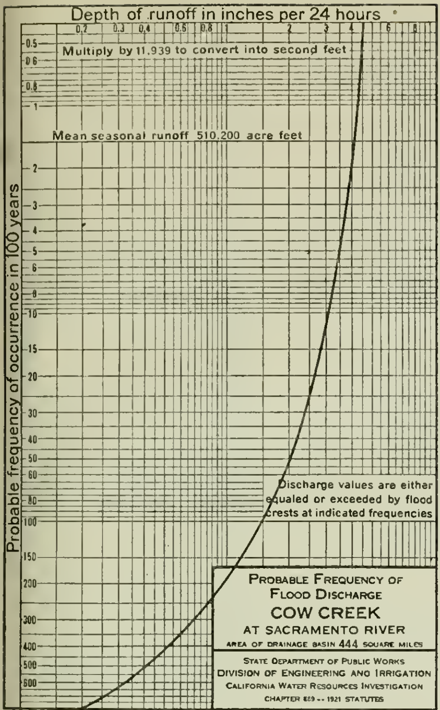
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES


Depth of runoff in inches per 24 hours
Multiply by 15,273 to convert into second feet
Mean seasonal runoff 1,486,300 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SACRAMENTO RIVER
(UPPER)
TO PIT RIVER
Area of drainage basin 568 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 143,748 to convert into second feet
Mean seasonal runoff 4,204,600 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
PIT RIVER
NEAR YDALPOM
Area of drainage basin 5346 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 17,989 to convert into second feet
Mean seasonal runoff 1,591,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
McCLOUD RIVER
AT BAIRD
Area of drainage basin 669 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Mean seasonal runoff 83,100 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
CHURN CREEK GROUP
AT SACRAMENTO RIVER
Area of drainage basin 100 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 11.939 to convert into second feet
Mean seasonal runoff 510,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
COW CREEK
AT SACRAMENTO RIVER
AREA OF DRAINAGE BASIN 444 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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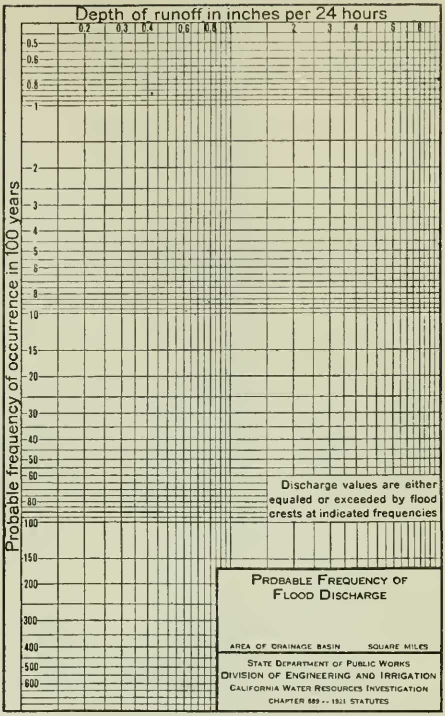
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
AREA OF DRAINAGE BASIN SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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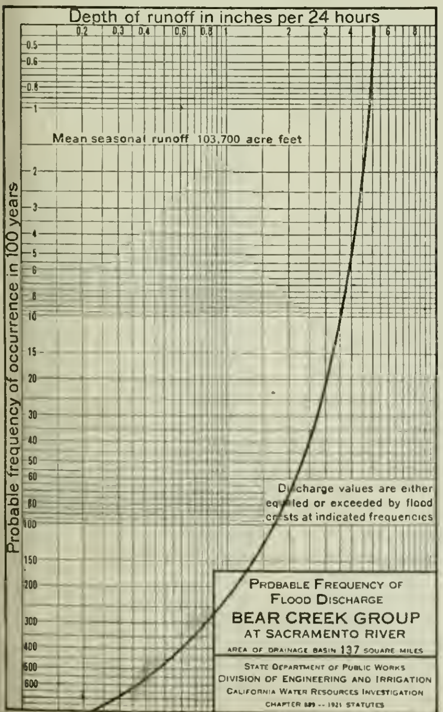
Depth of runoff in inches per 24 hours
Mean seasonal runoff 103,700 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
BEAR CREEK GROUP
AT SACRAMENTO RIVER
AREA OF DRAINAGE BASIN 137 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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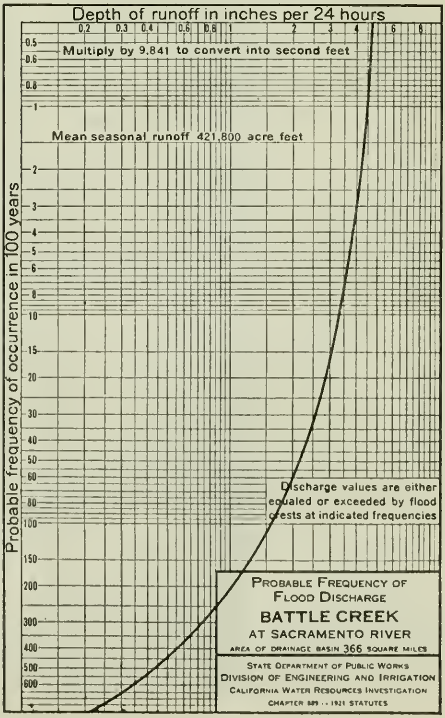
Depth of runoff in inches per 24 hours
Multiply by 9.841 to convert into second feet
Mean seasonal runoff 421,800 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
BATTLE CREEK
AT SACRAMENTO RIVER
AREA OF DRAINAGE BASIN 366 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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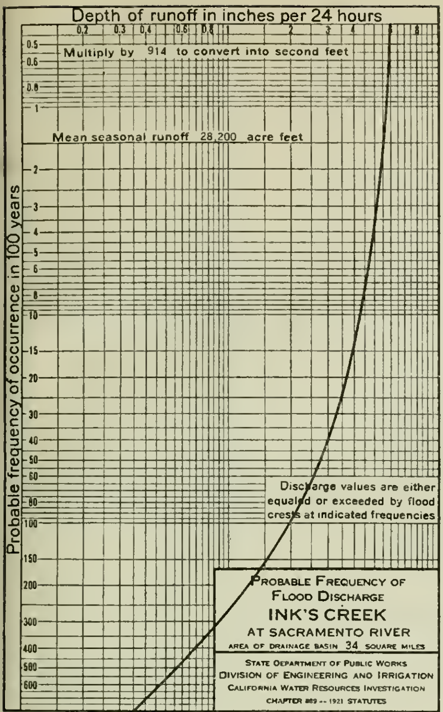
Depth of runoff in inches per 24 hours
Multiply by 914 to convert into second feet
Mean seasonal runoff 28,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
INK'S CREEK
AT SACRAMENTO RIVER
AREA OF DRAINAGE BASIN 34 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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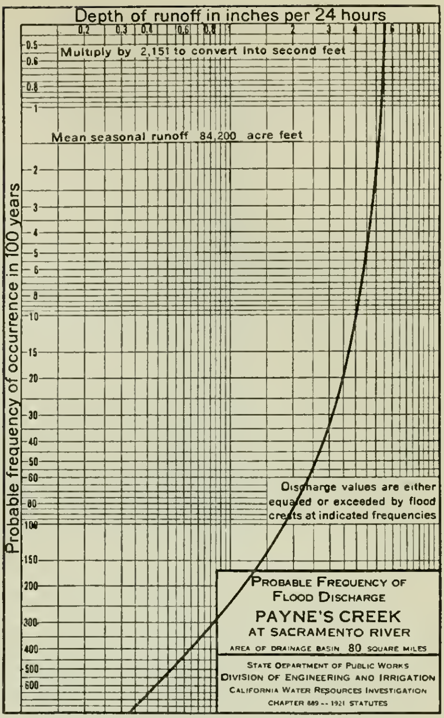
Depth of runoff in inches per 24 hours
Multiply by 2,151 to convert into second feet
Mean seasonal runoff 84,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
PAYNE'S CREEK
AT SACRAMENTO RIVER
AREA OF DRAINAGE BASIN 80 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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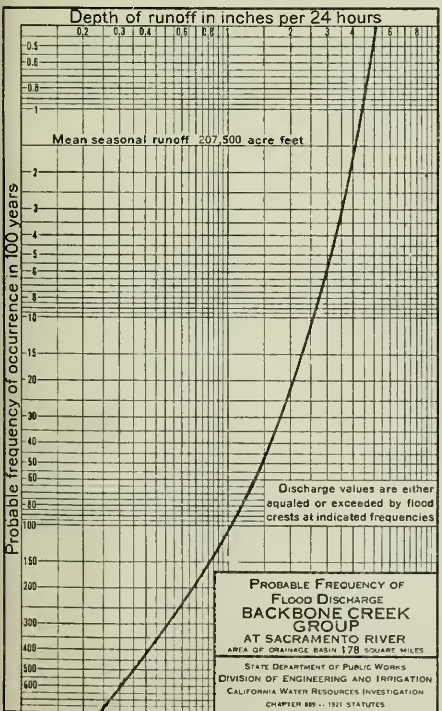
Depth of runoff in inches per 24 hours
Mean seasonal runoff 207,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
BACKBONE CREEK GROUP
AT SACRAMENTO RIVER
AREA OF DRAINAGE BASIN 178 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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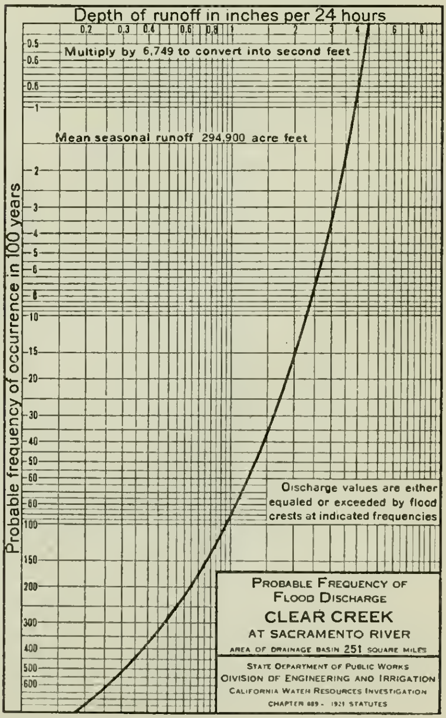
Depth of runoff in inches per 24 hours
Multiply by 6,749 to convert into second feet
Mean seasonal runoff 294,900 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
CLEAR CREEK
AT SACRAMENTO RIVER
AREA OF DRAINAGE BASIN 251 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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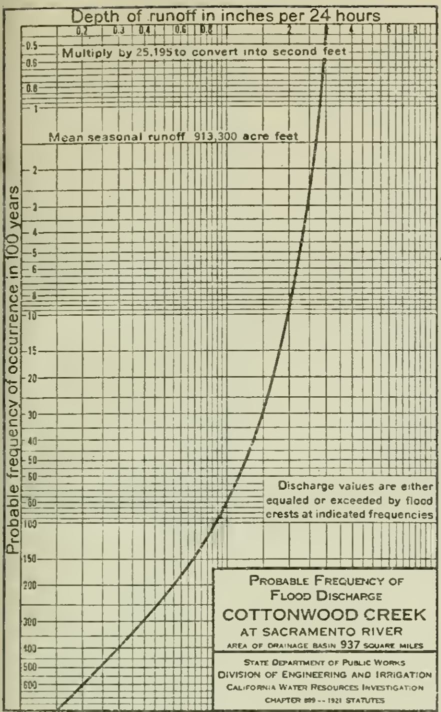
Depth of runoff in inches per 24 hours
Multiply by 25,195 to convert into second feet
Mean seasonal runoff 913,300 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
COTTONWOOD CREEK
AT SACRAMENTO RIVER
AREA OF DRAINAGE BASIN 937 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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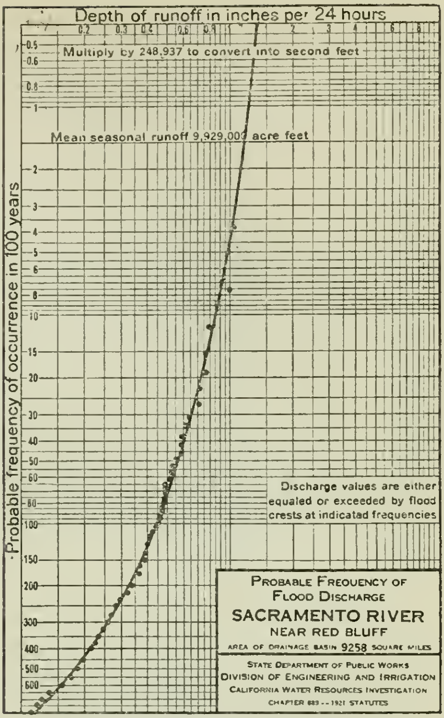
Depth of runoff in inches per 24 hours
Multiply by 248,937 to convert into second feet
Mean seasonal runoff 9,929,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicatad frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SACRAMENTO RIVER
NEAR RED BLUFF
AREA OF DRAINAGE BASIN 9258 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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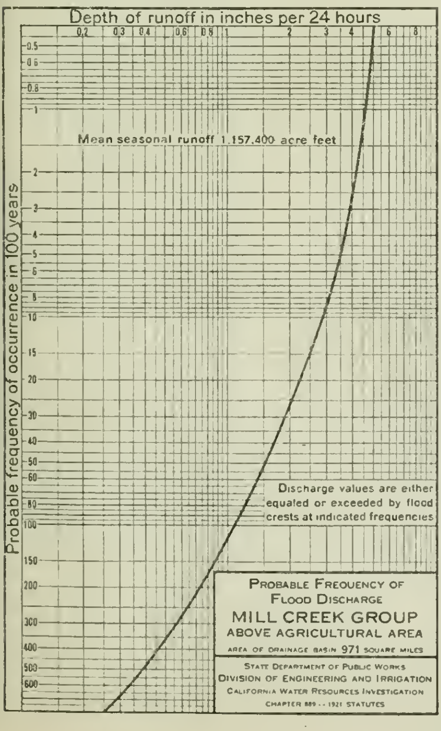
Depth of runoff in inches per 24 hours
Mean seasonal runoff 1,157,400 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
MILL CREEK GROUP
ABOVE AGRICULTURAL AREA
AREA OF DRAINAGE BASIN 971 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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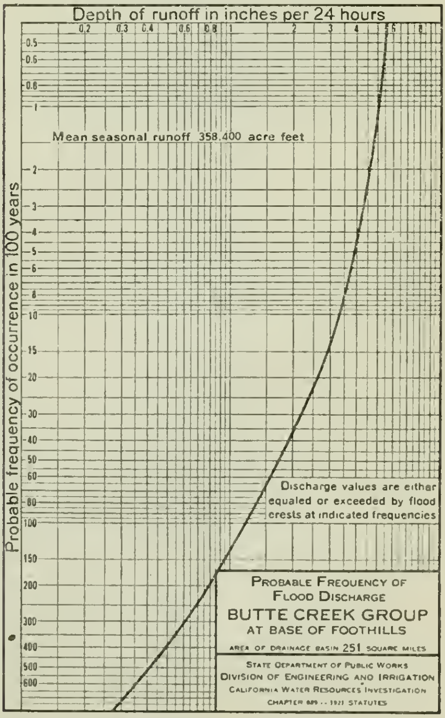
Depth of runoff in inches per 24 hours
Mean seasonal runoff 358,400 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
BUTTE CREEK GROUP
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 251 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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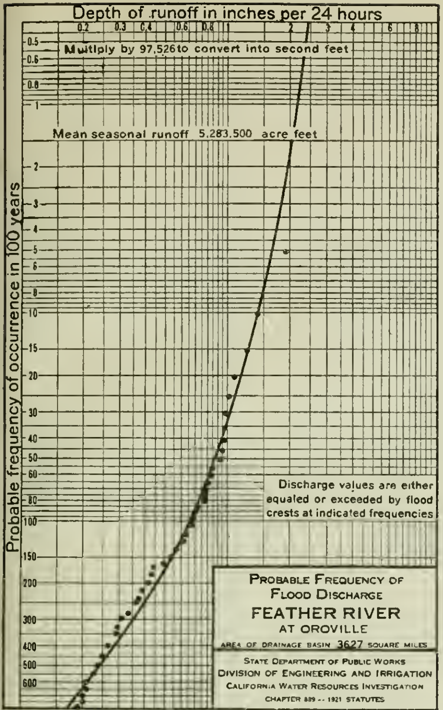
Depth of runoff in inches per 24 hours
Multiply by 97,526 to convert into second feet
Mean seasonal runoff 5,283,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
FEATHER RIVER
AT OROVILLE
AREA OF DRAINAGE BASIN 3627 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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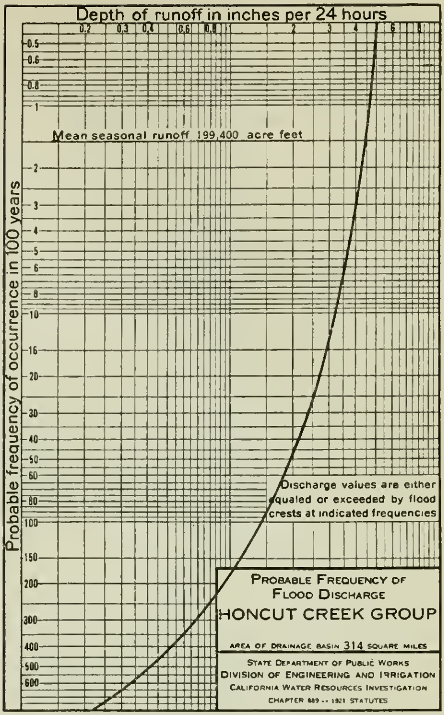
Depth of runoff in inches per 24 hours
Mean seasonal runoff 199,400 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
HONCUT CREEK GROUP
AREA OF DRAINAGE BASIN 314 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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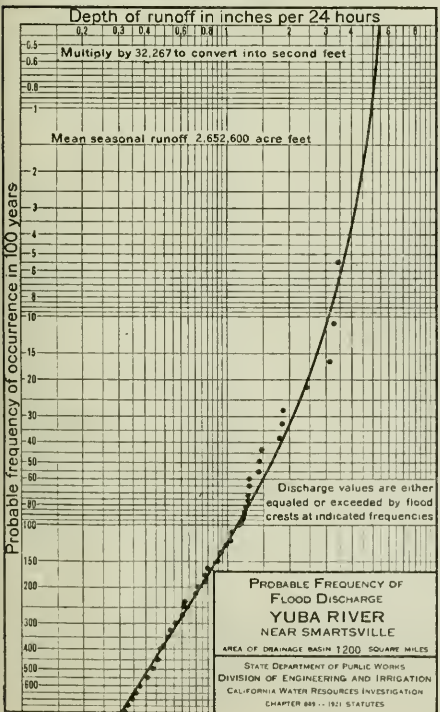
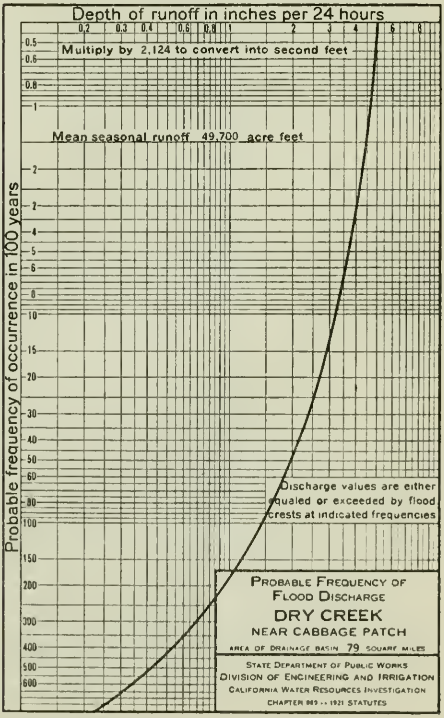
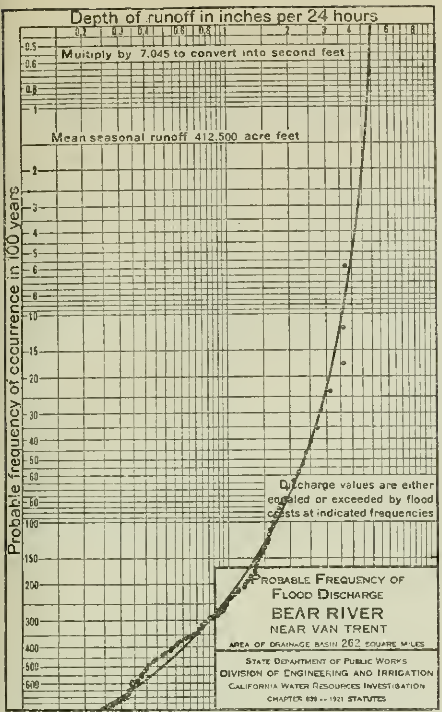
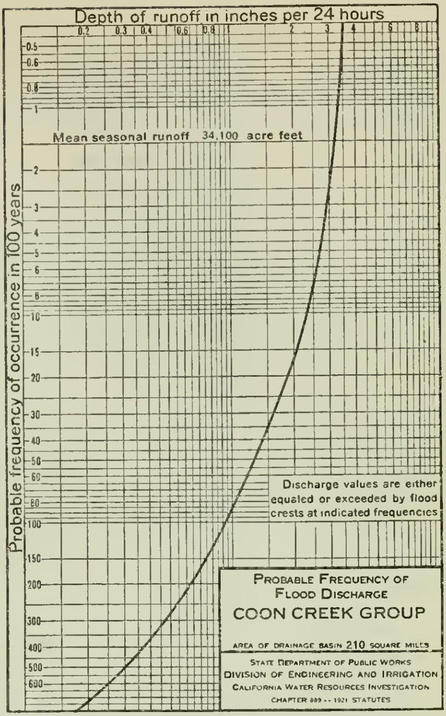

Depth of runoff in inches per 24 hours
Multiply by 32,267 to convert into second feet
Mean seasonal runoff 2,652,600 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
YUBA RIVER
NEAR SMARTSVILLE
AREA OF DRAINAGE BASIN 1200 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 2,124 to convert into second feet
Mean seasonal runoff 49,700 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
DRY CREEK
NEAR CABBAGE PATCH
AREA OF DRAINAGE BASIN 79 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 7,045 to convert into second feet
Mean seasonal runoff 412,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
BEAR RIVER
NEAR VAN TRENT
AREA OF DRAINAGE BASIN 262 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
CHAPTER 889 -- 1921 STATUTES


Depth of runoff in inches per 24 hours
Mean seasonal runoff 34,100 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
COON CREEK GROUP
AREA OF DRAINAGE BASIN 210 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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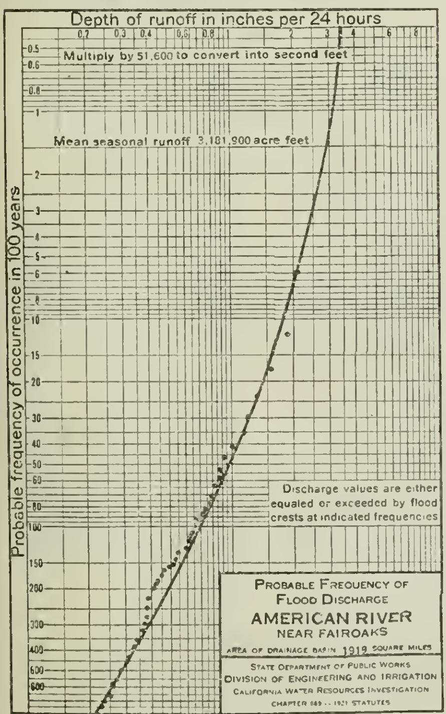
Depth of runoff in inches per 24 hours
Multiply by 51,600 to convert into second feet
Mean seasonal runoff 3,181,900 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
AMERICAN RIVER
NEAR FAIROAKS
AREA OF DRAINAGE BASIN 1919 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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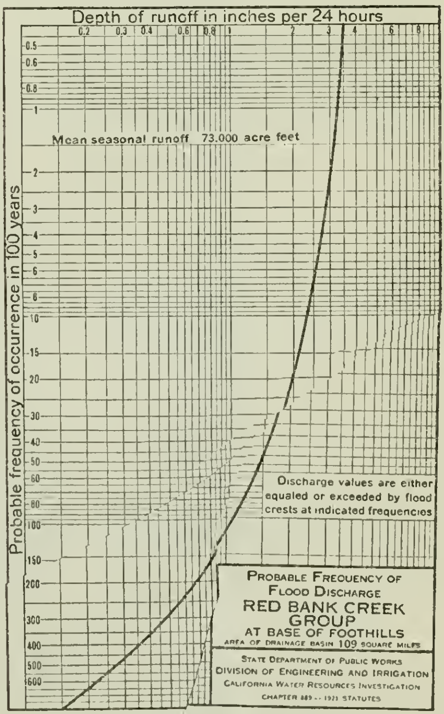
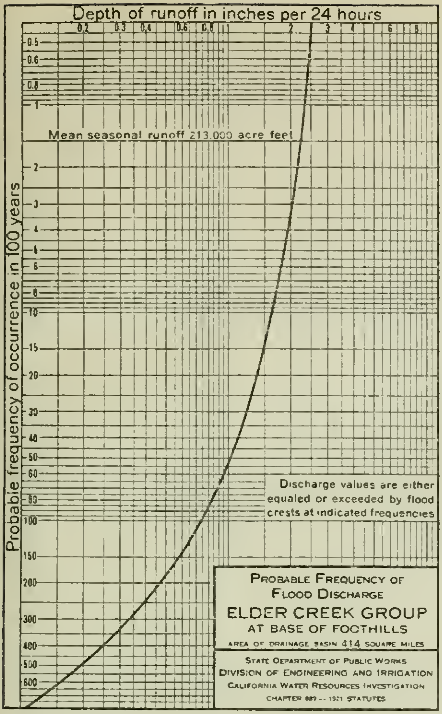

Depth of runoff in inches per 24 hours
Mean seasonal runoff 73,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
RED BANK CREEK GROUP
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 109 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
CHAPTER 889 -- 1921 STATUTES


Depth of runoff in inches per 24 hours
Mean seasonal runoff 213,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
ELDER CREEK GROUP
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 414 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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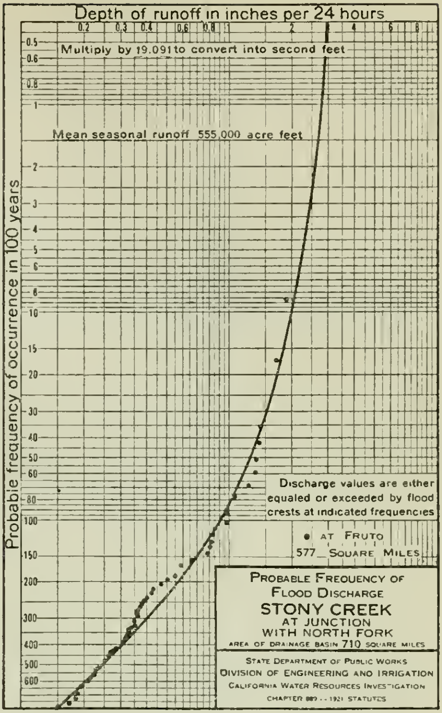
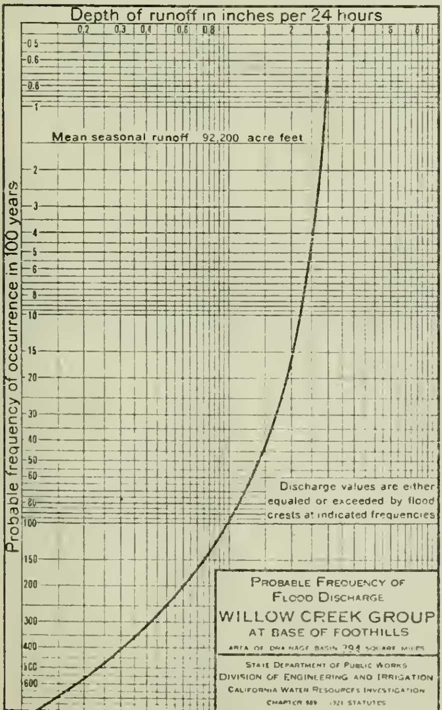
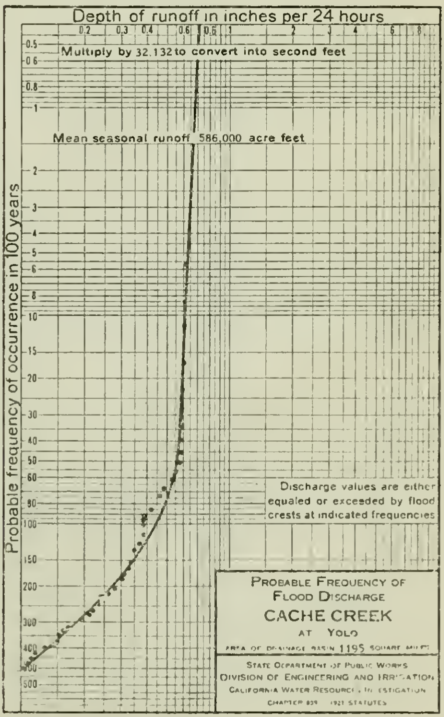

Depth of runoff in inches per 24 hours
Multiply by 19.091 to convert into second feet
Mean seasonal runoff 555,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
• at Fruto
577 Square Miles
Probable Frequency of Flood Discharge
STONY CREEK
AT JUNCTION
WITH NORTH FORK
AREA OF DRAINAGE BASIN 710 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Mean seasonal runoff 92,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
WILLOW CREEK GROUP
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 294 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 32.132 to convert into second feet
Mean seasonal runoff 586,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
CACHE CREEK
AT YOLO
AREA OF DRAINAGE BASIN 1195 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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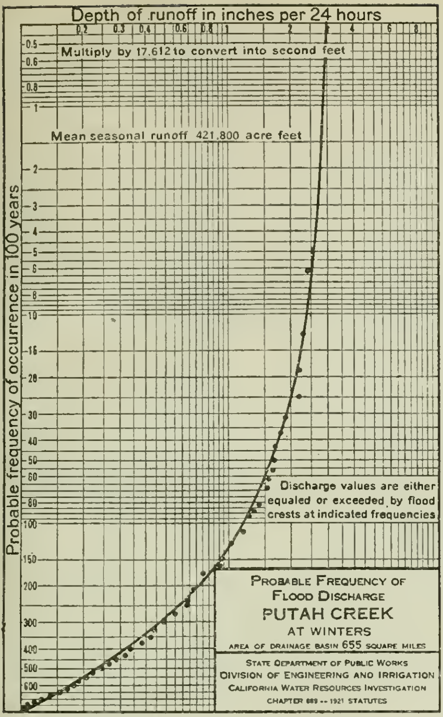
Depth of runoff in inches per 24 hours
Multiply by 17.612 to convert into second feet
Mean seasonal runoff 421,800 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
PUTAH CREEK
AT WINTERS
AREA OF DRAINAGE BASIN 655 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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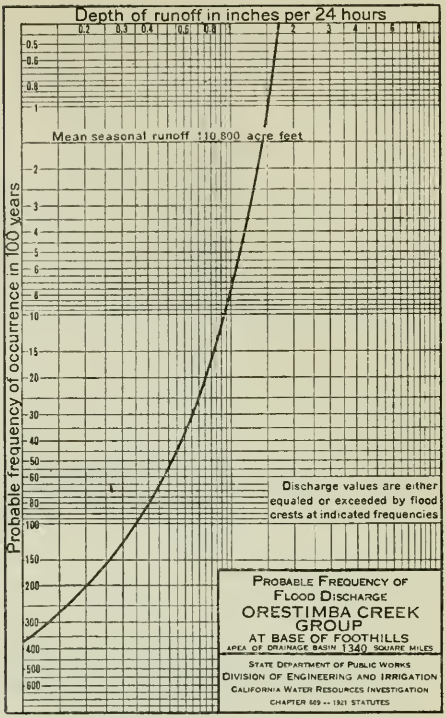
Depth of runoff in inches per 24 hours
Mean seasonal runoff 110,800 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
ORESTIMBA CREEK GROUP
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 1340 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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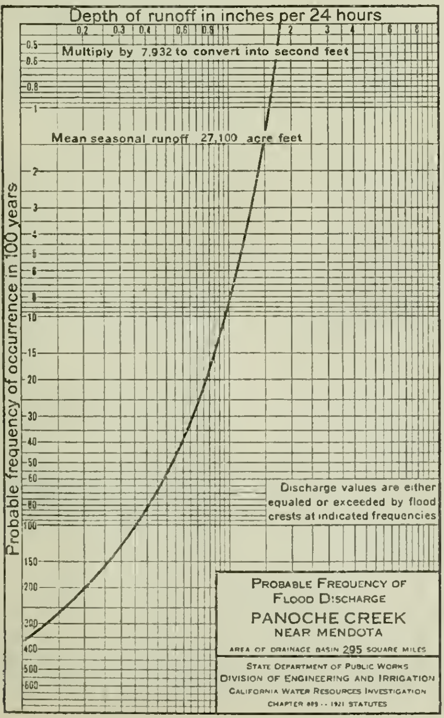
Depth of runoff in inches per 24 hours
Multiply by 7.932 to convert into second feet
Mean seasonal runoff 27,100 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
PANOCHE CREEK
NEAR MENDOTA
AREA OF DRAINAGE BASIN 295 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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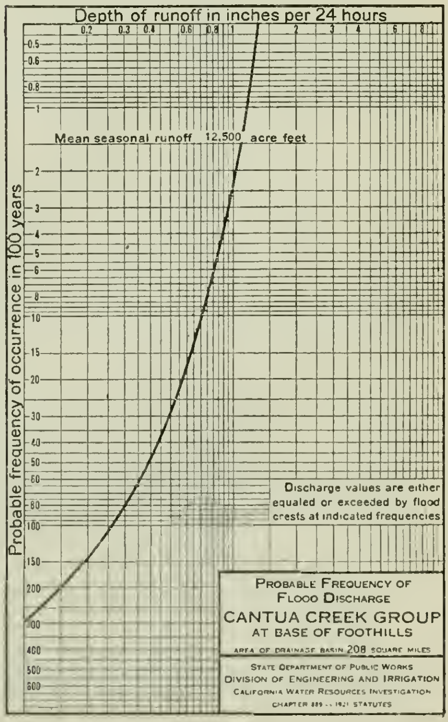
Depth of runoff in inches per 24 hours
Mean seasonal runoff 12,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
CANTUA CREEK GROUP
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 208 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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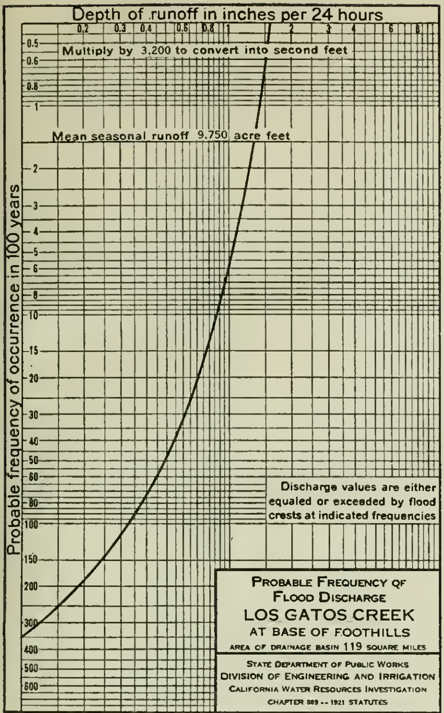
Depth of runoff in inches per 24 hours
Multiply by 3,200 to convert into second feet
Mean seasonal runoff 9,750 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
LOS GATOS CREEK
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 119 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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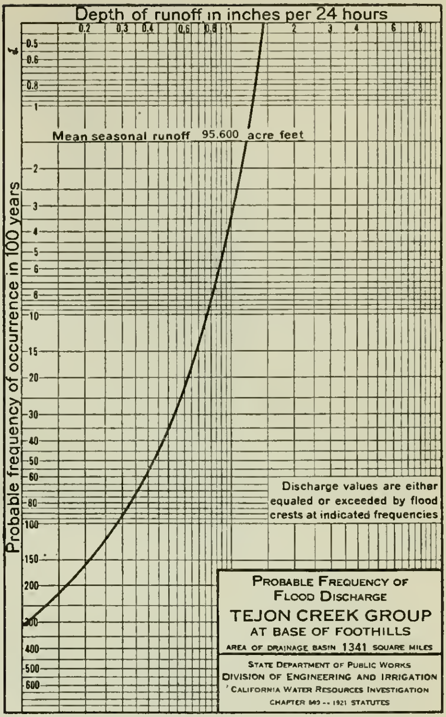
Depth of runoff in inches per 24 hours
Mean seasonal runoff 95,600 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
TEJON CREEK GROUP
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 1341 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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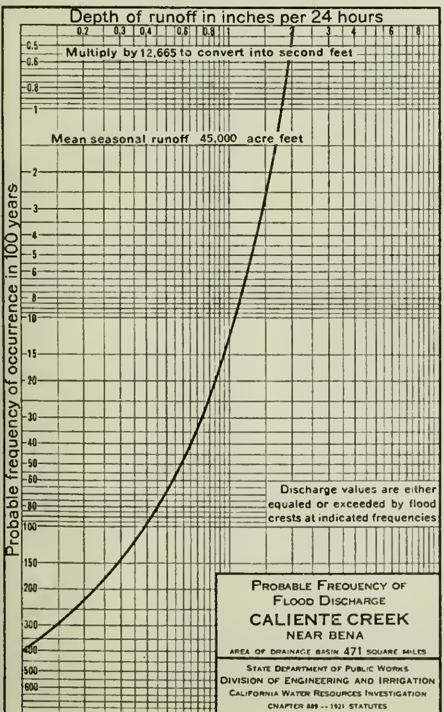
Depth of runoff in inches per 24 hours
Multiply by 12,665 to convert into second feet
Mean seasonal runoff 45,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
CALIENTE CREEK
NEAR BENA
AREA OF DRAINAGE BASIN 471 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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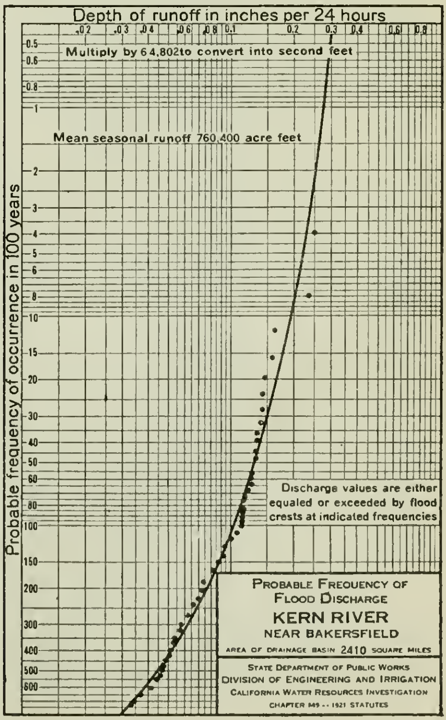
Depth of runoff in inches per 24 hours
Multiply by 64,802 to convert into second feet
Mean seasonal runoff 760,400 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
KERN RIVER
NEAR BAKERSFIELD
AREA OF DRAINAGE BASIN 2410 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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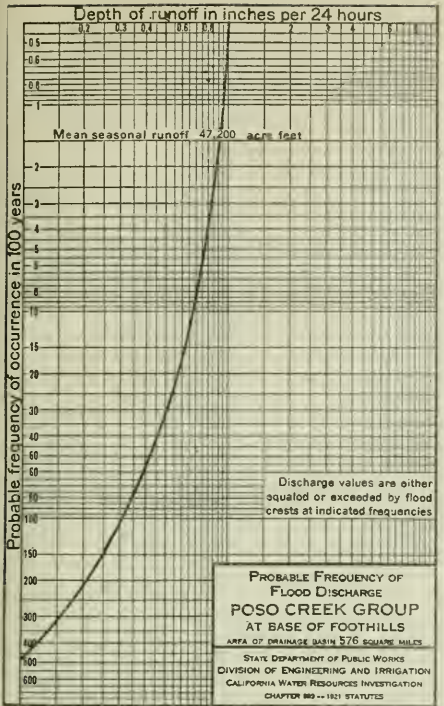
Depth of runoff in inches per 24 hours
Mean seasonal runoff 47,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
POSO CREEK GROUP
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 576 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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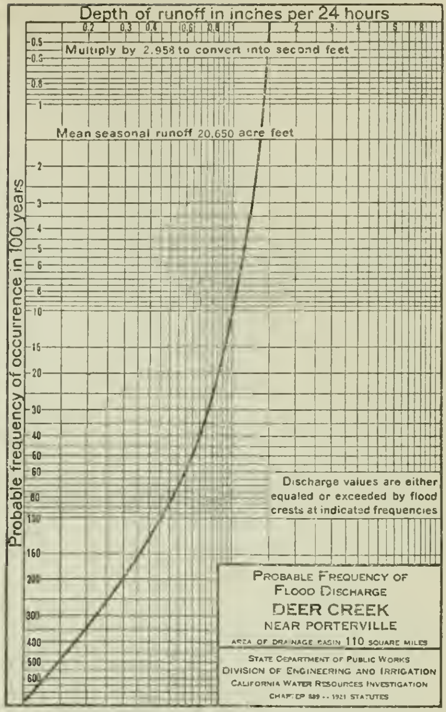
Depth of runoff in inches per 24 hours
Multiply by 2.958 to convert into second feet
Mean seasonal runoff 20,650 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
DEER CREEK
NEAR PORTERVILLE
AREA OF DRAINAGE BASIN 110 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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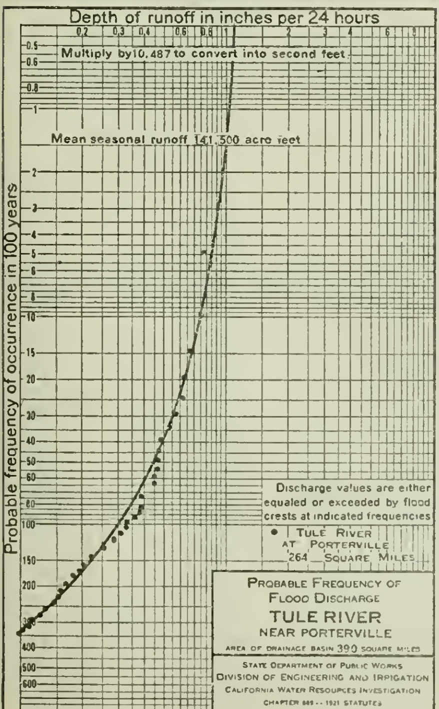
Depth of runoff in inches per 24 hours
Multiply by 10.487 to convert into second feet
Mean seasonal runoff 141,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
• Tule River at Porterville 264 Square Miles
Probable Frequency of Flood Discharge
TULE RIVER
NEAR PORTERVILLE
AREA OF DRAINAGE BASIN 390 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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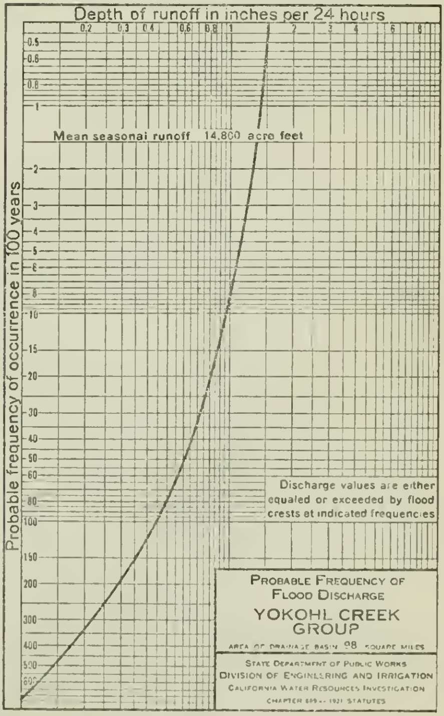
Depth of runoff in inches per 24 hours
Mean seasonal runoff 14,800 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
YOKOHL CREEK
GROUP
AREA OF DRAINAGE BASIN 98 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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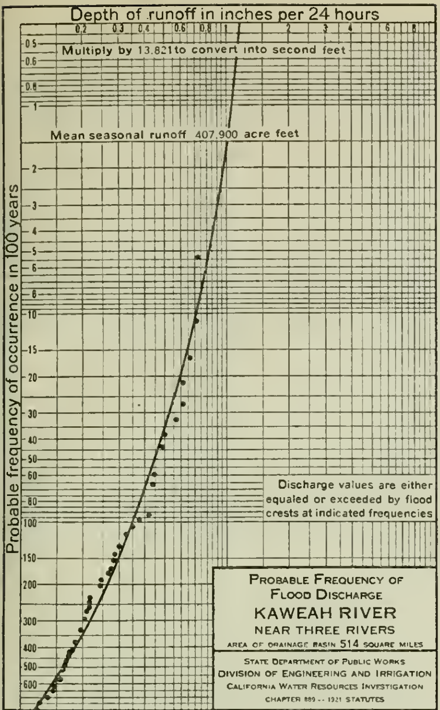
Depth of runoff in inches per 24 hours
Multiply by 13.821 to convert into second feet
Mean seasonal runoff 407,900 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
KAWEAH RIVER
NEAR THREE RIVERS
AREA OF DRAINAGE BASIN 514 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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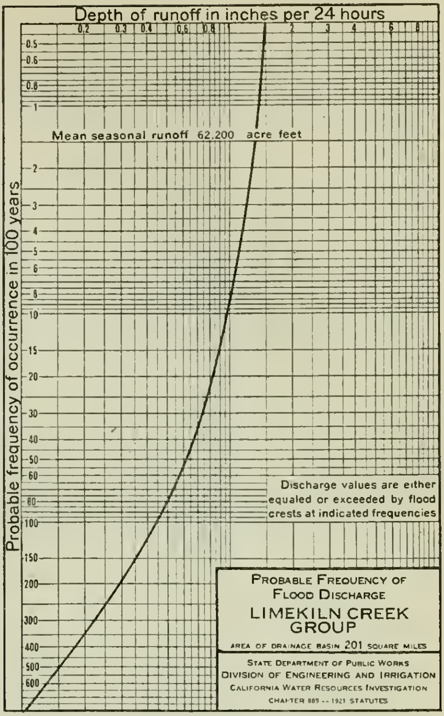
Depth of runoff in inches per 24 hours
Mean seasonal runoff 62,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
LIMEKILN CREEK GROUP
AREA OF DRAINAGE BASIN 201 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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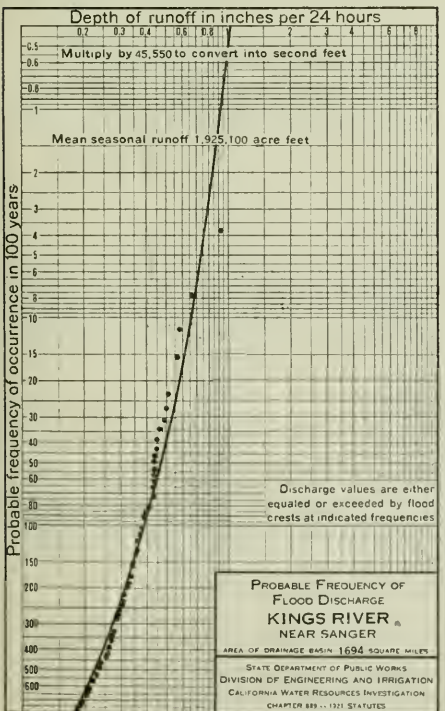
Depth of runoff in inches per 24 hours
Multiply by 45,550 to convert into second feet
Mean seasonal runoff 1,925,100 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
KINGS RIVER
NEAR SANGER
AREA OF DRAINAGE BASIN 1694 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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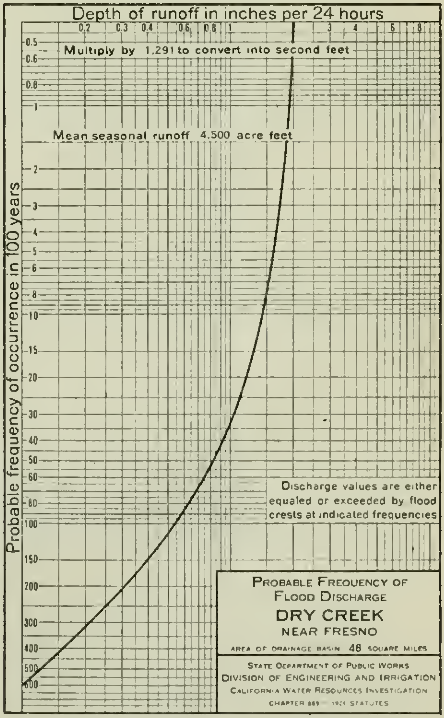
Depth of runoff in inches per 24 hours
Multiply by 1,291 to convert into second feet
Mean seasonal runoff 4,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
DRY CREEK
NEAR FRESNO
AREA OF DRAINAGE BASIN 48 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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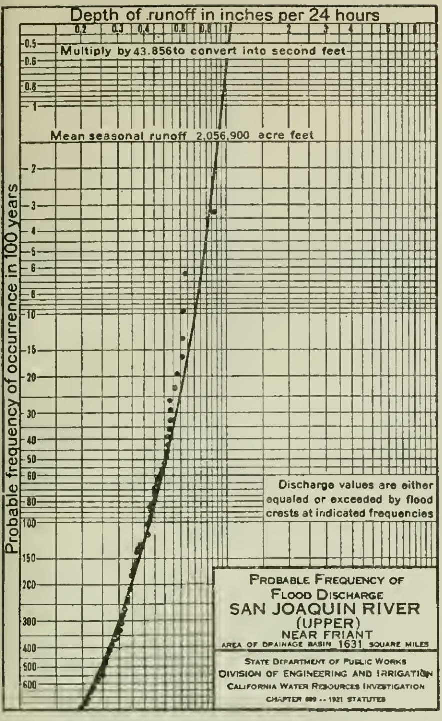
Depth of runoff in inches per 24 hours
Multiply by 43.856 to convert into second feet
Mean seasonal runoff 2,056,900 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SAN JOAQUIN RIVER (UPPER)
NEAR FRIANT
AREA OF DRAINAGE BASIN 1631 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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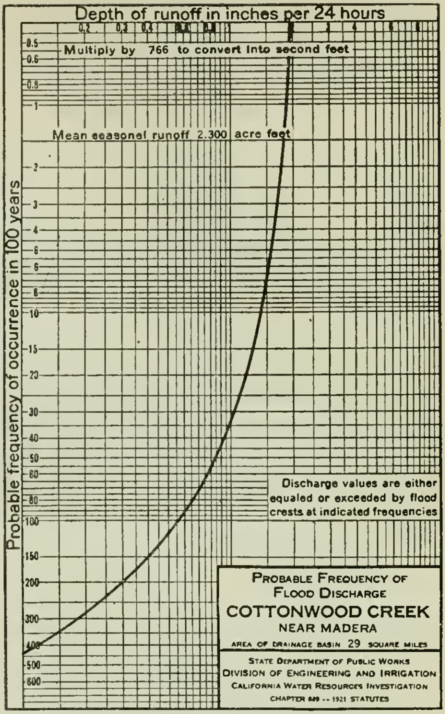
Depth of runoff in inches per 24 hours
Multiply by 766 to convert into second feet
Mean seasonal runoff 2,300 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
COTTONWOOD CREEK
NEAR MADERA
AREA OF DRAINAGE BASIN 29 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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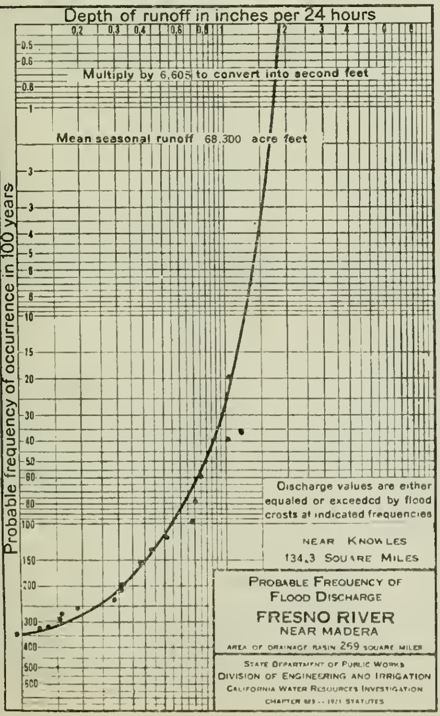
Depth of runoff in inches per 24 hours
Multiply by 6,605 to convert into second feet
Mean seasonal runoff 68,300 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
NEAR KNOWLES
134.3 SQUARE MILES
PROBABLE FREQUENCY OF FLOOD DISCHARGE
FRESNO RIVER
NEAR MADERA
AREA OF DRAINAGE BASIN 269 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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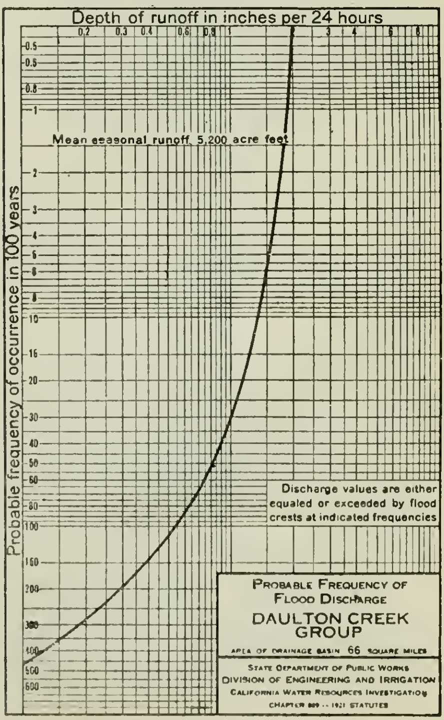
Depth of runoff in inches per 24 hours
Mean seasonal runoff 5,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
DAULTON CREEK GROUP
AREA OF DRAINAGE BASIN 66 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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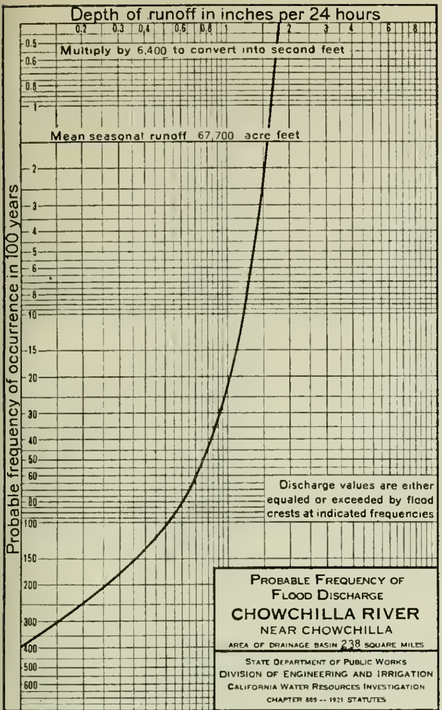
Depth of runoff in inches per 24 hours
Multiply by 6,400 to convert into second feet
Mean seasonal runoff 67,700 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
CHOWCHILLA RIVER
NEAR CHOWCHILLA
AREA OF DRAINAGE BASIN 238 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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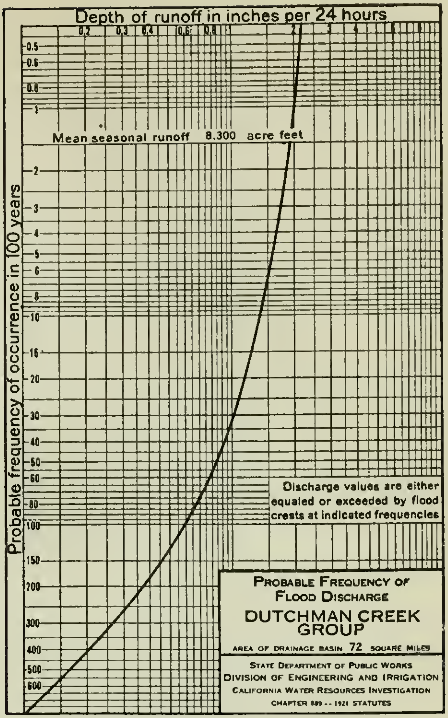
Depth of runoff in inches per 24 hours
Mean seasonal runoff 8,300 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
DUTCHMAN CREEK GROUP
AREA OF DRAINAGE BASIN 72 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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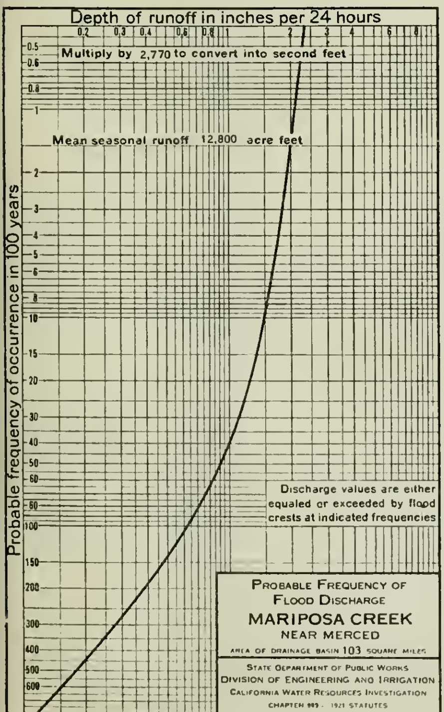
Depth of runoff in inches per 24 hours
Multiply by 2,770 to convert into second feet
Mean seasonal runoff 12,800 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
MARIPOSA CREEK
NEAR MERCED
AREA OF DRAINAGE BASIN 103 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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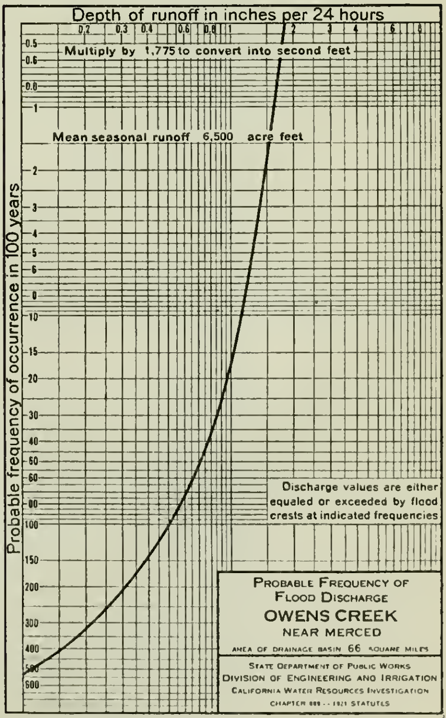
Depth of runoff in inches per 24 hours
Multiply by 1,775 to convert into second feet
Mean seasonal runoff 6,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
OWENS CREEK
NEAR MERCED
AREA OF DRAINAGE BASIN 66 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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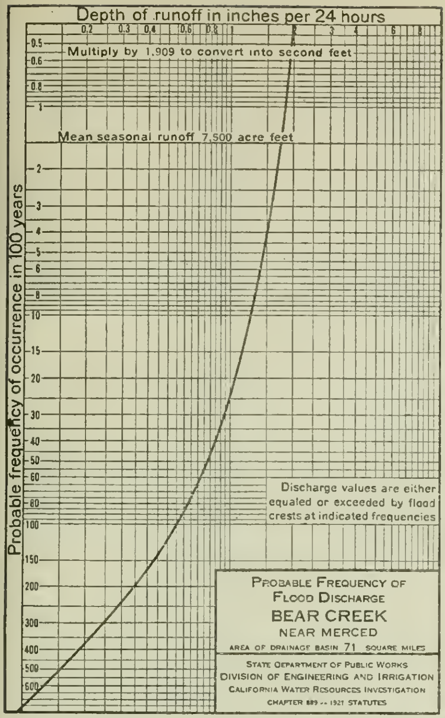
Depth of runoff in inches per 24 hours
Multiply by 1,909 to convert into second feet
Mean seasonal runoff 7,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
BEAR CREEK
NEAR MERCED
AREA OF DRAINAGE BASIN 71 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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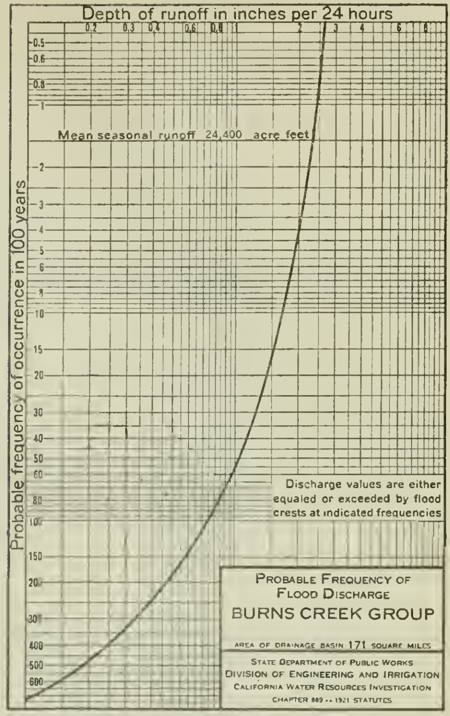
Depth of runoff in inches per 24 hours
Mean seasonal runoff 24,400 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
BURNS CREEK GROUP
AREA OF DRAINAGE BASIN 171 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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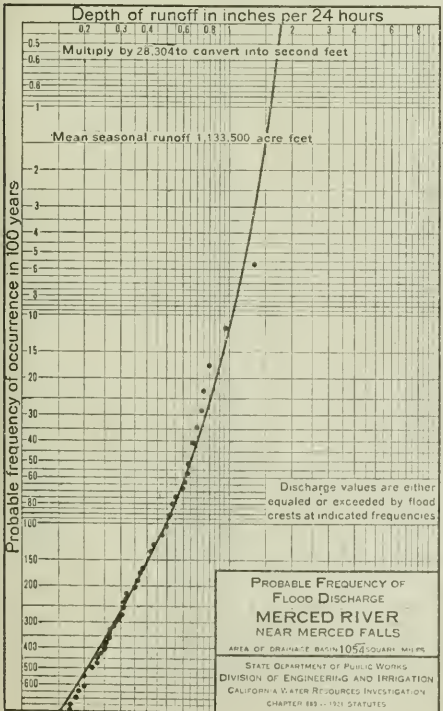
Depth of runoff in inches per 24 hours
Multiply by 28,304 to convert into second feet
Mean seasonal runoff 1,133,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
MERCED RIVER
NEAR MERCED FALLS
AREA OF DRAINAGE BASIN 1054 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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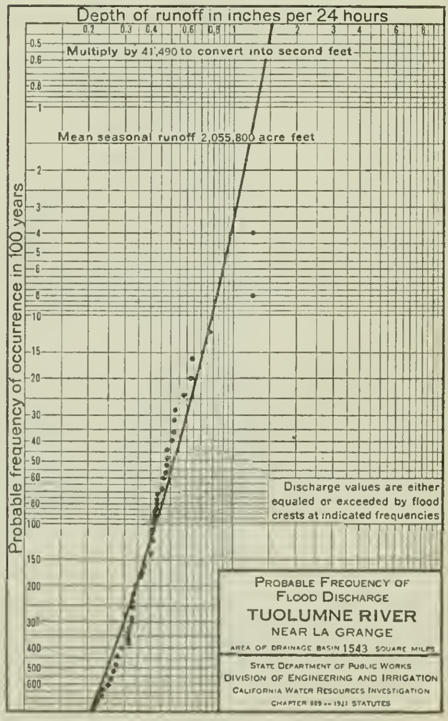
Depth of runoff in inches per 24 hours
Multiply by 41,490 to convert into second feet
Mean seasonal runoff 2,055,800 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
TUOLUMNE RIVER
NEAR LA GRANGE
AREA OF DRAINAGE BASIN 1543 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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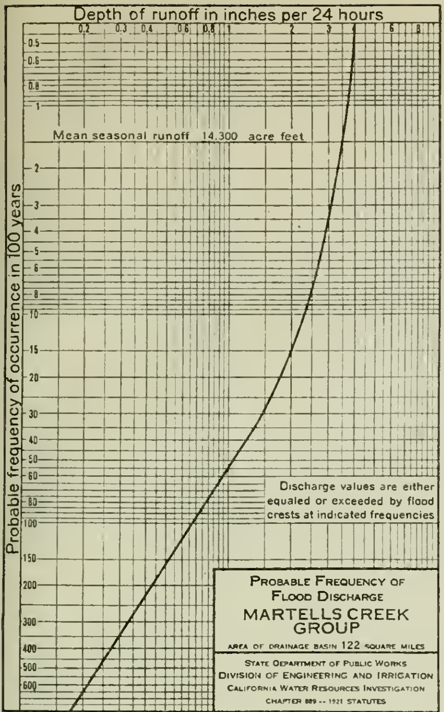
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 14,300 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
MARTELLS CREEK GROUP
Area of drainage basin 122 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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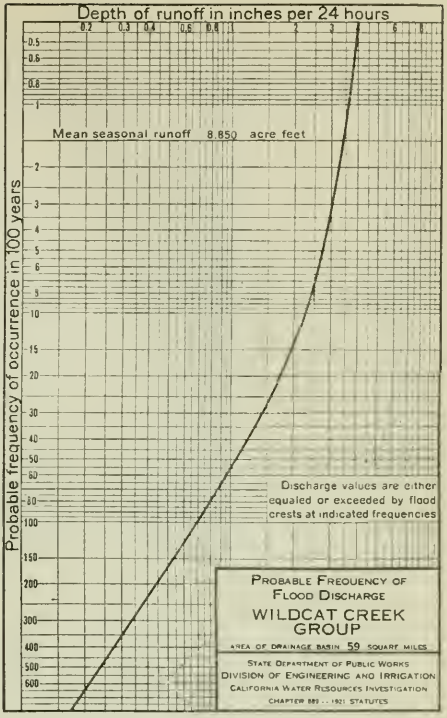
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 8,850 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
WILDCAT CREEK GROUP
Area of drainage basin 59 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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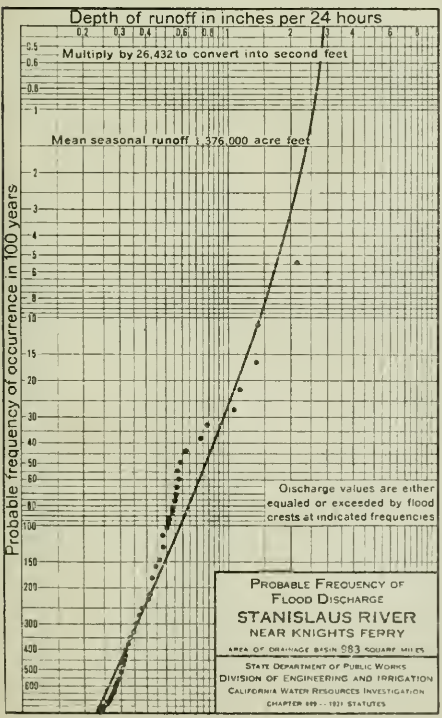
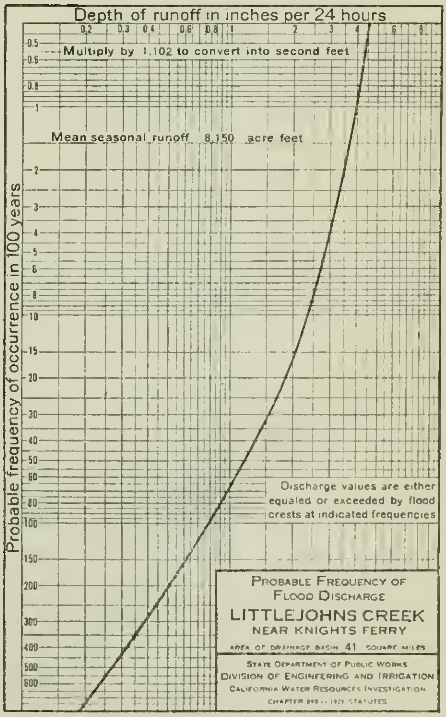

Depth of runoff in inches per 24 hours
Multiply by 26,432 to convert into second feet
Probable frequency of occurrence in 100 years
Mean seasonal runoff 1,376,000 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
STANISLAUS RIVER
NEAR KNIGHTS FERRY
Area of drainage basin 983 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 1,102 to convert into second feet
Probable frequency of occurrence in 100 years
Mean seasonal runoff 8,150 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
LITTLEJOHNS CREEK
NEAR KNIGHTS FERRY
Area of drainage basin 41 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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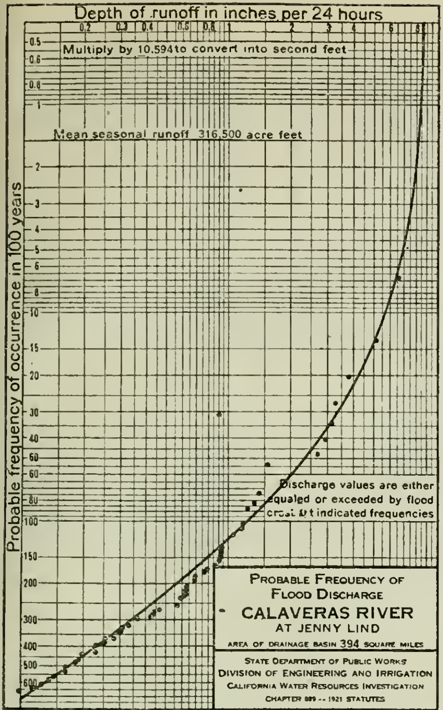
Depth of runoff in inches per 24 hours
Multiply by 10.594 to convert into second feet
Mean seasonal runoff 316,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crest at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
CALAVERAS RIVER
AT JENNY LIND
AREA OF DRAINAGE BASIN 394 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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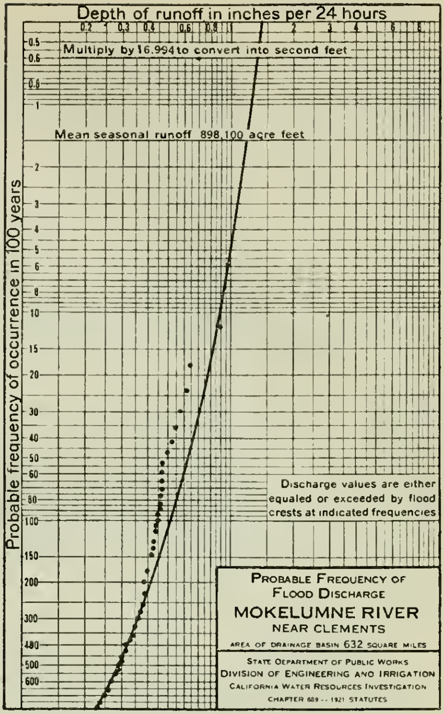
Depth of runoff in inches per 24 hours
Multiply by 16.994 to convert into second feet
Mean seasonal runoff 898,100 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
MOKELUMNE RIVER
NEAR CLEMENTS
AREA OF DRAINAGE BASIN 632 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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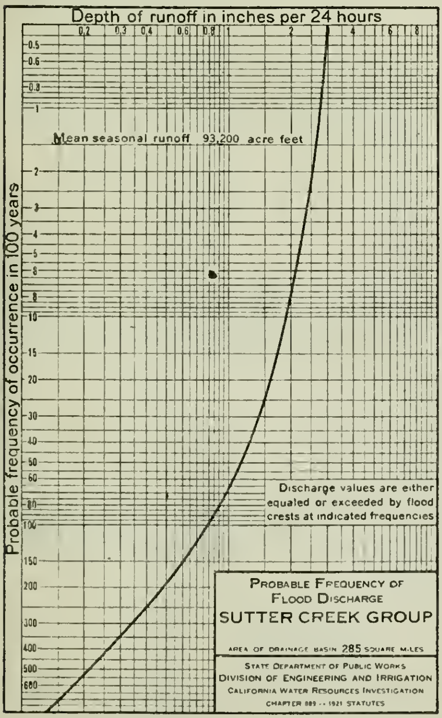
Depth of runoff in inches per 24 hours
Mean seasonal runoff 93,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SUTTER CREEK GROUP
AREA OF DRAINAGE BASIN 285 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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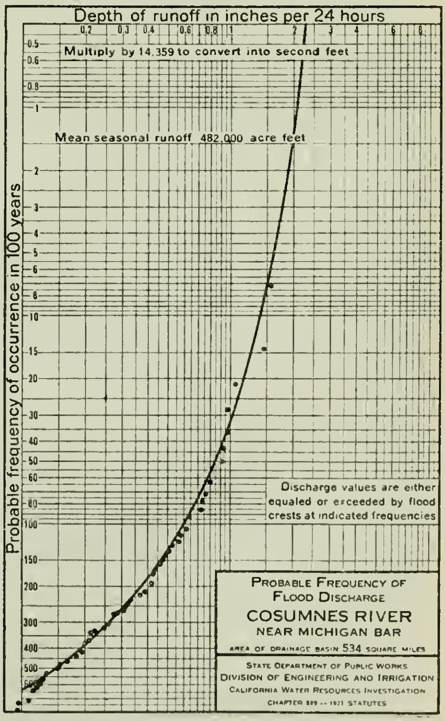
Depth of runoff in inches per 24 hours
Multiply by 14.359 to convert into second feet
Mean seasonal runoff 482,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
COSUMNES RIVER
NEAR MICHIGAN BAR
AREA OF DRAINAGE BASIN 534 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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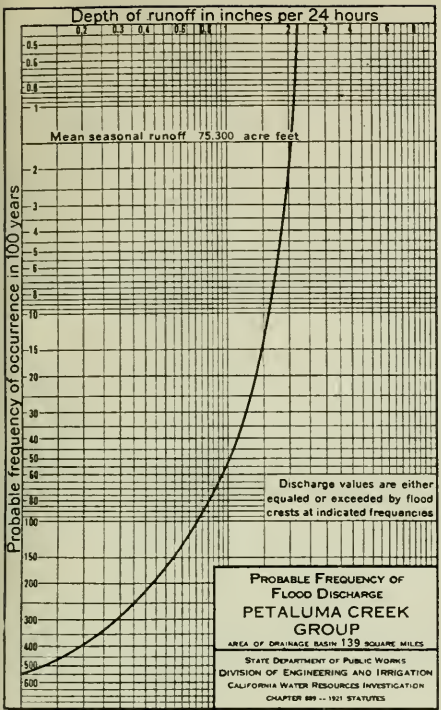
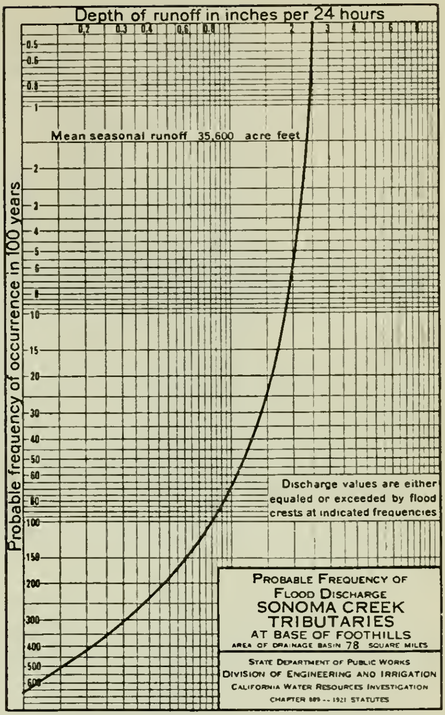
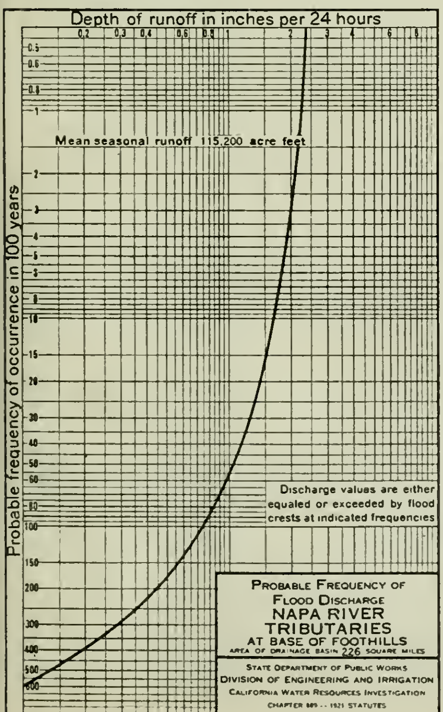
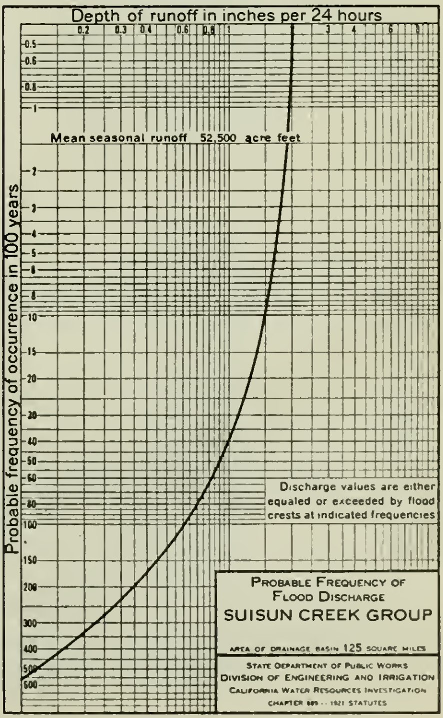
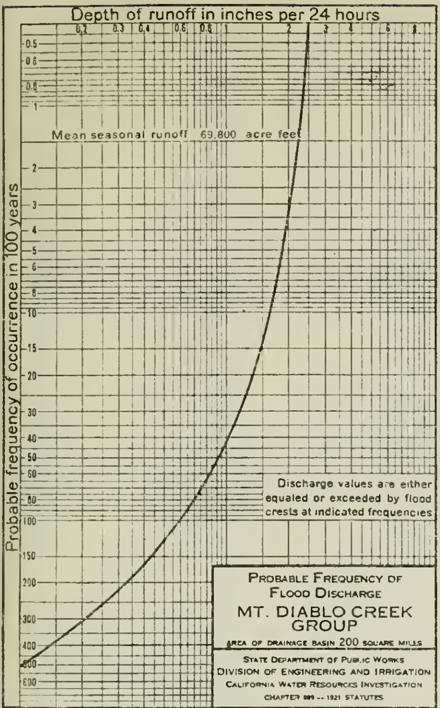

Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 75,300 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
PETALUMA CREEK GROUP
AREA OF DRAINAGE BASIN 139 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 35,600 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SONOMA CREEK TRIBUTARIES
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 78 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 115,200 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
NAPA RIVER TRIBUTARIES
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 226 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 52,500 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SUISUN CREEK GROUP
AREA OF DRAINAGE BASIN 125 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 69,800 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
MT. DIABLO CREEK GROUP
Area of drainage basin 200 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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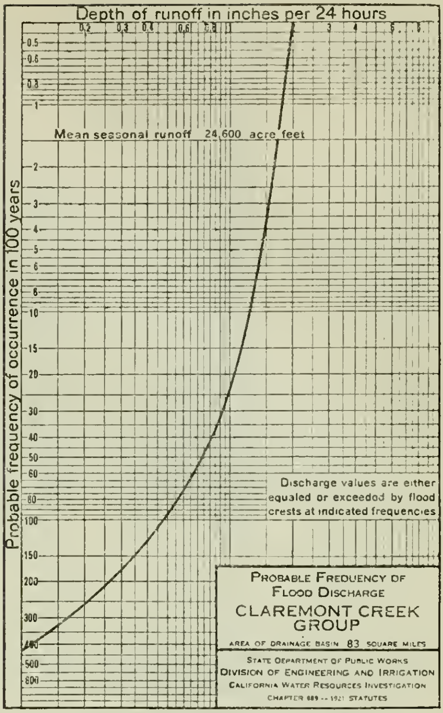
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 24,600 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
CLAREMONT CREEK GROUP
Area of drainage basin 83 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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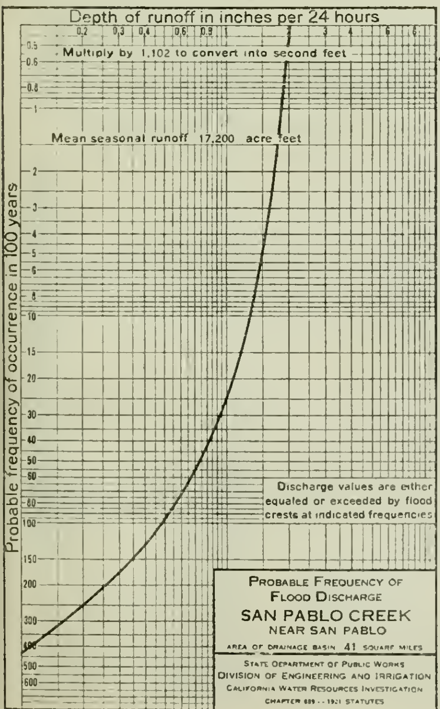
Depth of runoff in inches per 24 hours
Multiply by 1,102 to convert into second feet
Probable frequency of occurrence in 100 years
Mean seasonal runoff 17,200 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SAN PABLO CREEK
NEAR SAN PABLO
Area of drainage basin 41 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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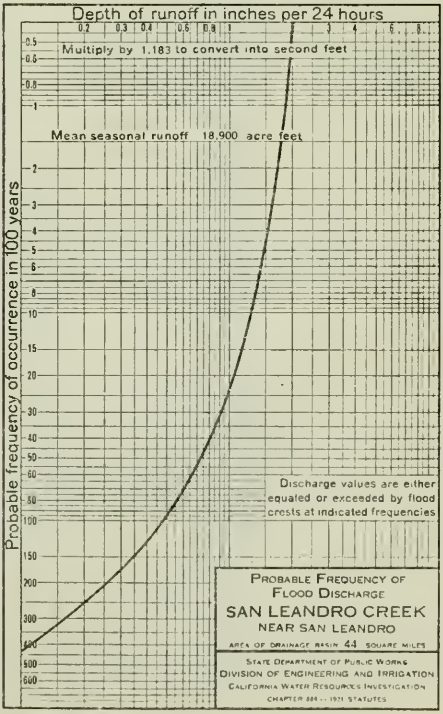
Depth of runoff in inches per 24 hours
Multiply by 1,183 to convert into second feet
Probable frequency of occurrence in 100 years
Mean seasonal runoff 18,900 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SAN LEANDRO CREEK
NEAR SAN LEANDRO
Area of drainage basin 44 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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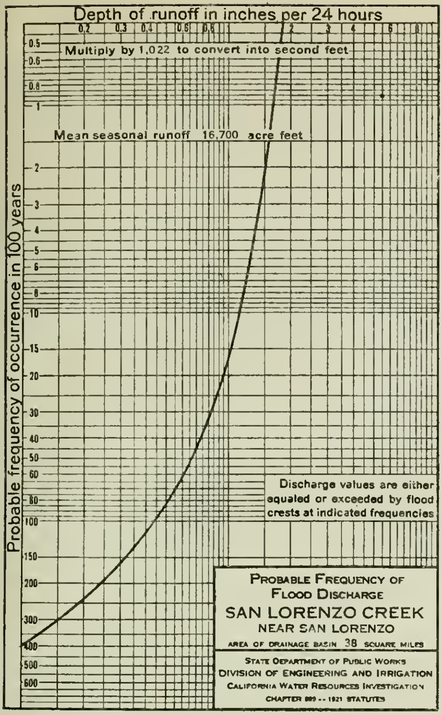
Depth of runoff in inches per 24 hours
Multiply by 1,022 to convert into second feet
Mean seasonal runoff 16,700 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SAN LORENZO CREEK
NEAR SAN LORENZO
AREA OF DRAINAGE BASIN 38 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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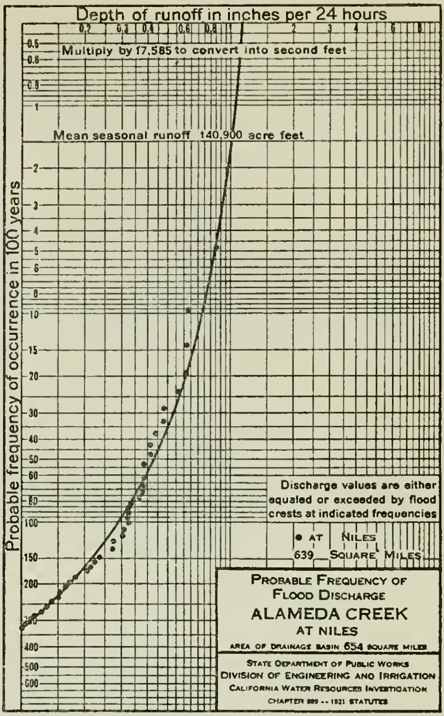
Depth of runoff in inches per 24 hours
Multiply by 17,585 to convert into second feet
Mean seasonal runoff 140,900 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
● AT NILES
639 SQUARE MILES
PROBABLE FREQUENCY OF FLOOD DISCHARGE
ALAMEDA CREEK
AT NILES
AREA OF DRAINAGE BASIN 654 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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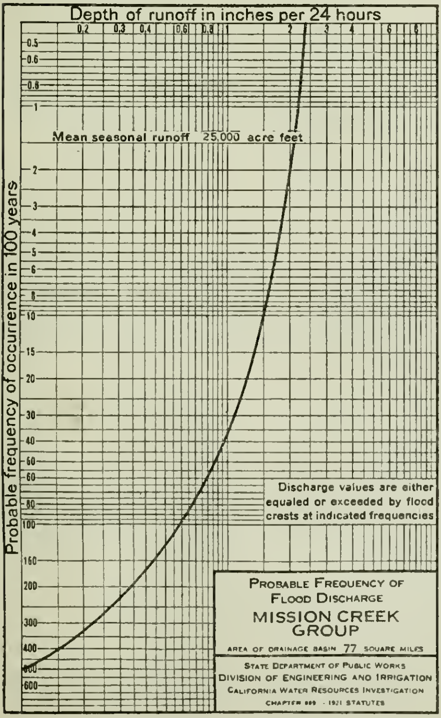
Depth of runoff in inches per 24 hours
Mean seasonal runoff 25,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
MISSION CREEK
GROUP
AREA OF DRAINAGE BASIN 77 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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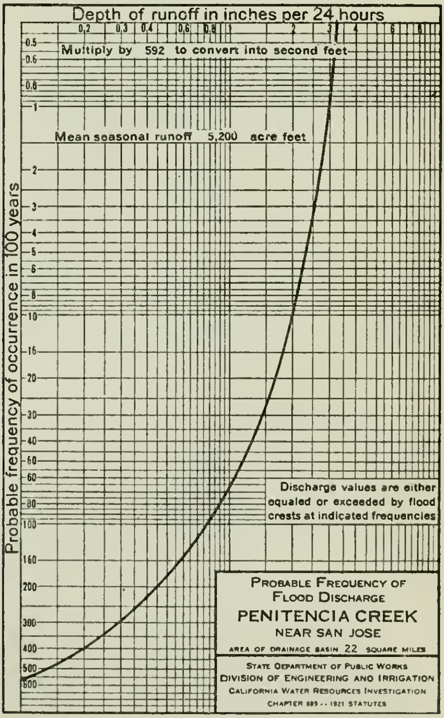
Depth of runoff in inches per 24 hours
Multiply by 592 to convert into second feet
Mean seasonal runoff 5,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
PENITENCIA CREEK
NEAR SAN JOSE
AREA OF DRAINAGE BASIN 22 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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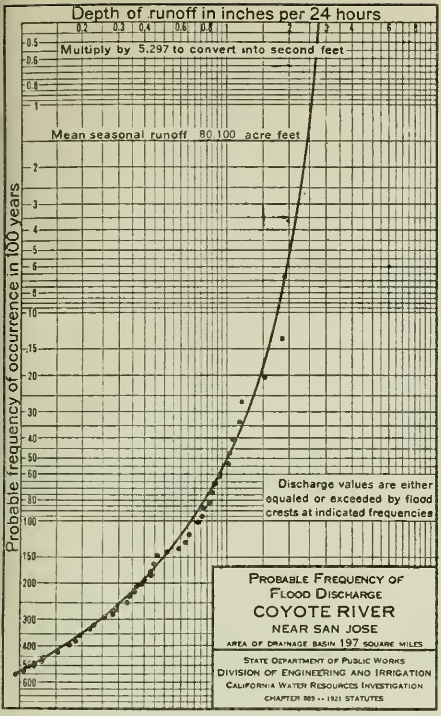
Depth of runoff in inches per 24 hours
Multiply by 5.297 to convert into second feet
Mean seasonal runoff 80,100 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
COYOTE RIVER
NEAR SAN JOSE
AREA OF DRAINAGE BASIN 197 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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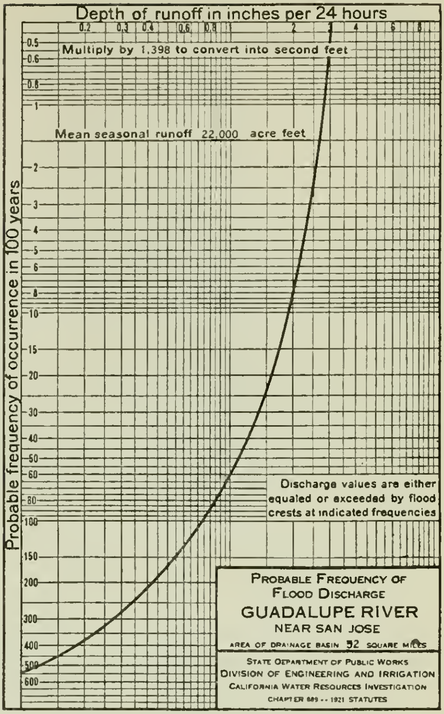
Depth of runoff in inches per 24 hours
Multiply by 1.398 to convert into second feet
Mean seasonal runoff 22,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
GUADALUPE RIVER
NEAR SAN JOSE
AREA OF DRAINAGE BASIN 52 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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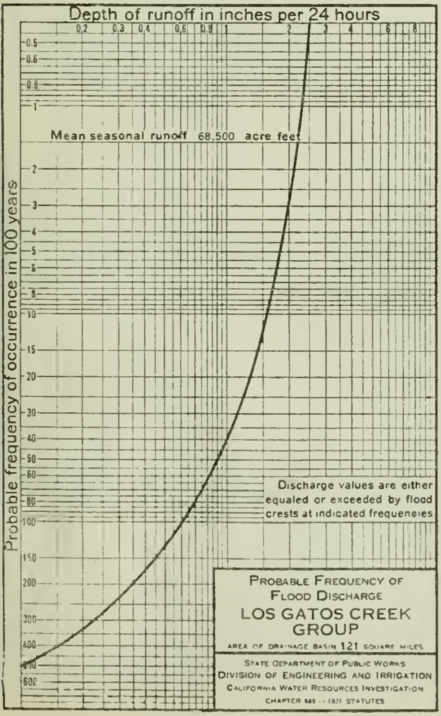
Depth of runoff in inches per 24 hours
Mean seasonal runoff 68,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
LOS GATOS CREEK GROUP
AREA OF DRAINAGE BASIN 121 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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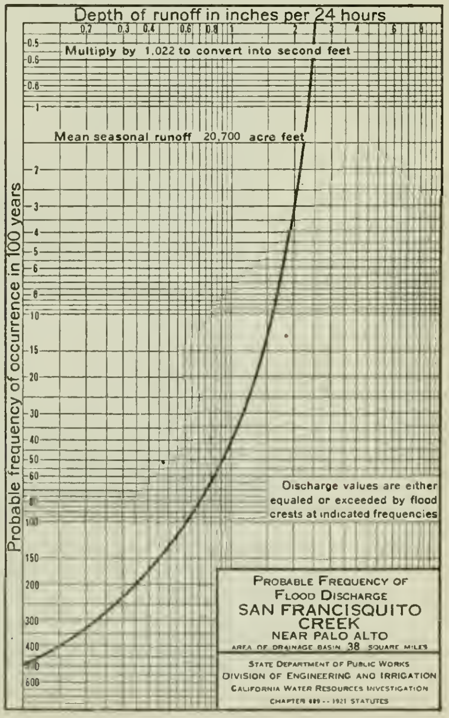
Depth of runoff in inches per 24 hours
Multiply by 1.022 to convert into second feet
Mean seasonal runoff 20,700 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SAN FRANCISQUITO CREEK
NEAR PALO ALTO
AREA OF DRAINAGE BASIN 38 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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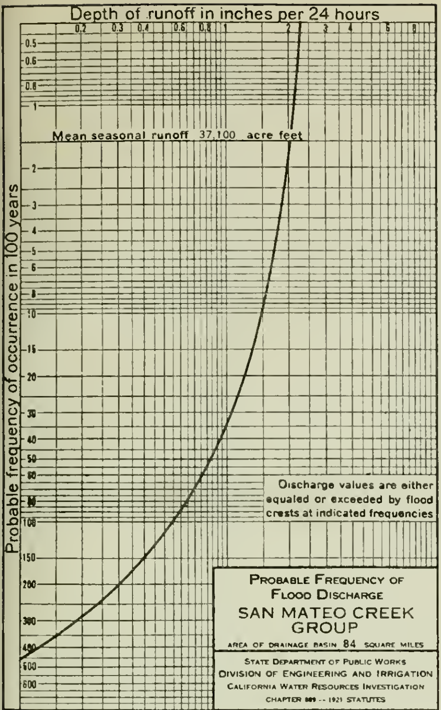
Depth of runoff in inches per 24 hours
Mean seasonal runoff 37,100 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SAN MATEO CREEK GROUP
AREA OF DRAINAGE BASIN 84 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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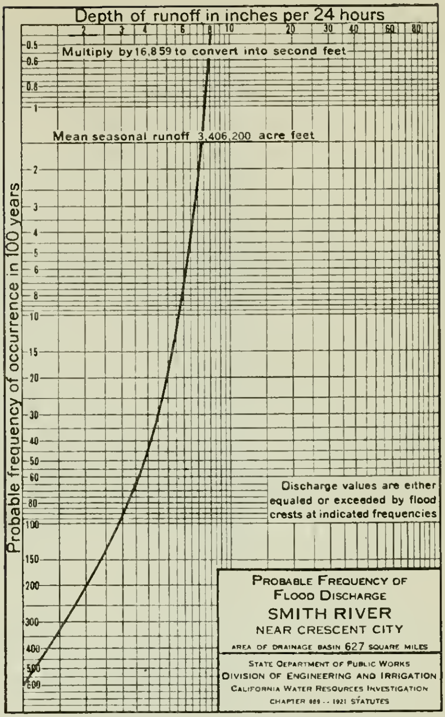
Depth of runoff in inches per 24 hours
Multiply by 16,859 to convert into second feet
Mean seasonal runoff 3,406,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SMITH RIVER
NEAR CRESCENT CITY
AREA OF DRAINAGE BASIN 627 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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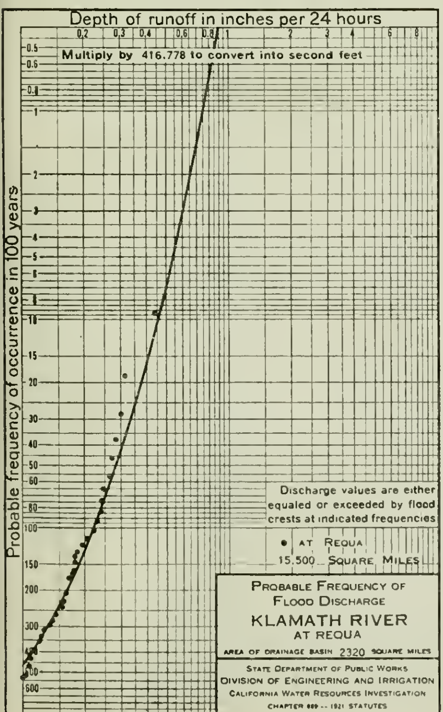
Depth of runoff in inches per 24 hours
Multiply by 416.778 to convert into second feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
• AT REQUA
15,500 SQUARE MILES
PROBABLE FREQUENCY OF FLOOD DISCHARGE
KLAMATH RIVER
AT REQUA
AREA OF DRAINAGE BASIN 2320 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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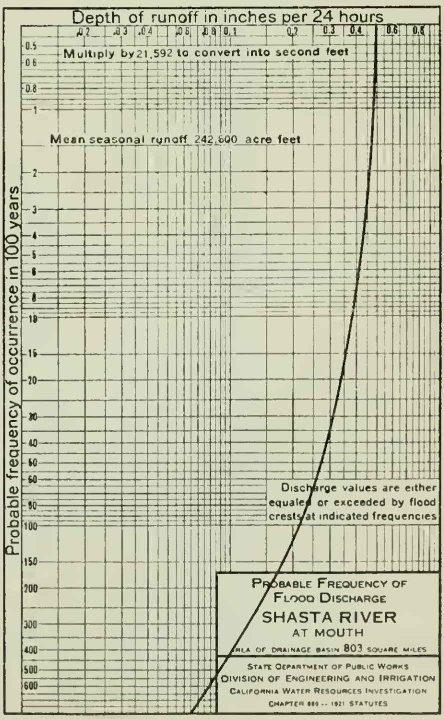
Depth of runoff in inches per 24 hours
Multiply by 21,592 to convert into second feet
Mean seasonal runoff 242,600 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SHASTA RIVER
AT MOUTH
AREA OF DRAINAGE BASIN 803 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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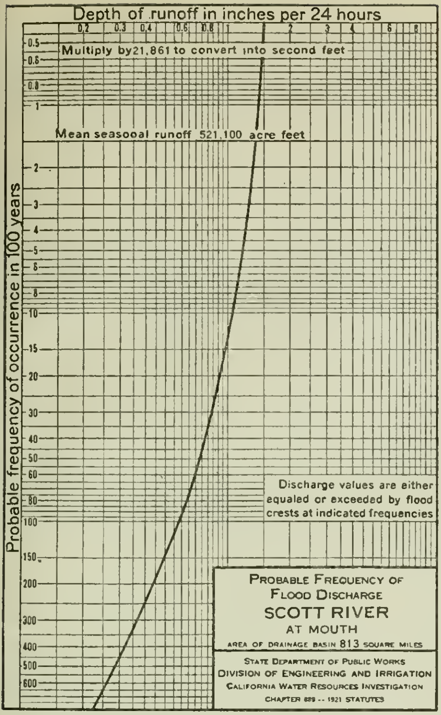
Depth of runoff in inches per 24 hours
Multiply by 21,861 to convert into second feet
Mean seasonal runoff 521,100 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SCOTT RIVER
AT MOUTH
AREA OF DRAINAGE BASIN 813 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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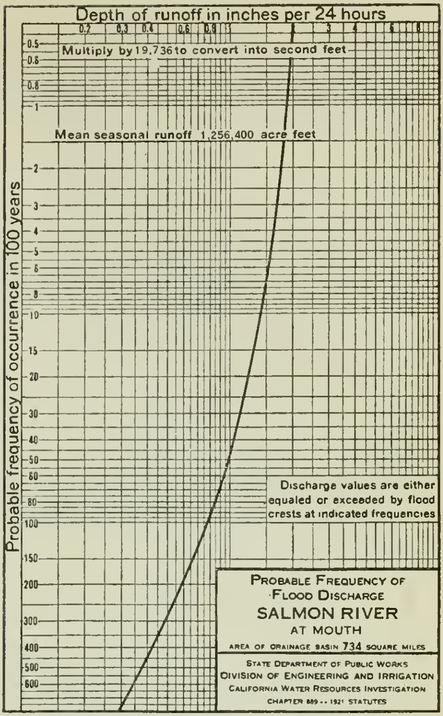
Depth of runoff in inches per 24 hours
Multiply by 19,736 to convert into second feet
Mean seasonal runoff 1,256,400 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SALMON RIVER
AT MOUTH
AREA OF DRAINAGE BASIN 734 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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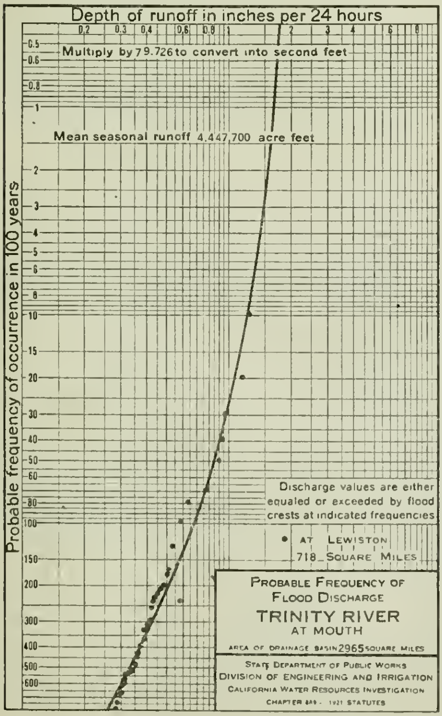
Depth of runoff in inches per 24 hours
Multiply by 79.726 to convert into second feet
Mean seasonal runoff 4,447,700 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
• AT LEWISTON
718 SQUARE MILES
PROBABLE FREQUENCY OF FLOOD DISCHARGE
TRINITY RIVER
AT MOUTH
AREA OF DRAINAGE BASIN 2965 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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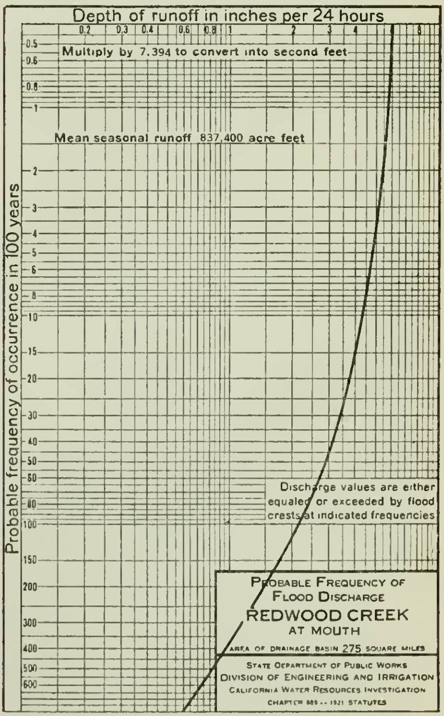
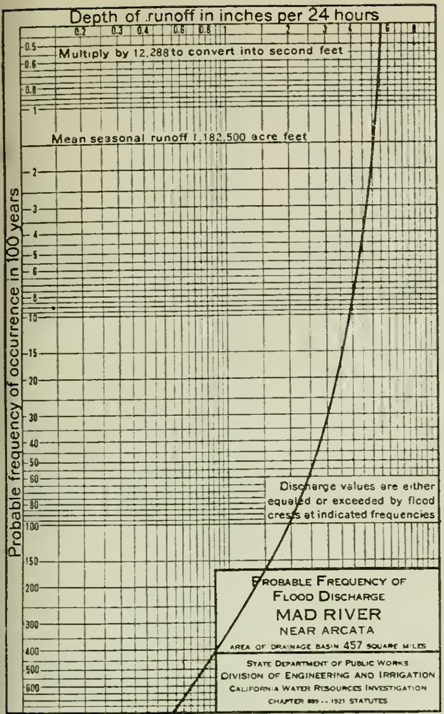
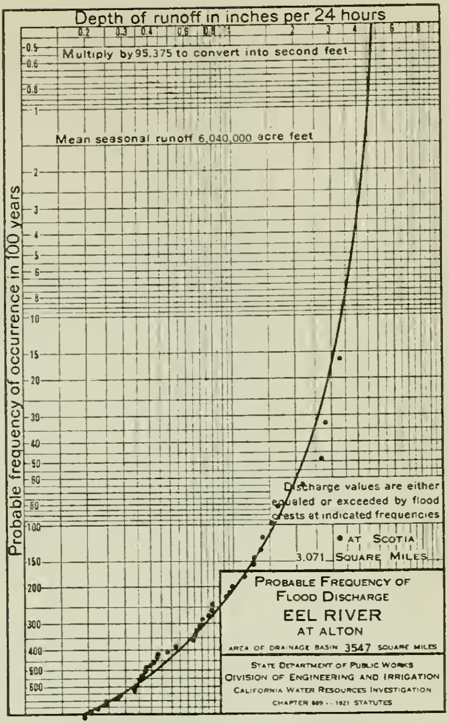
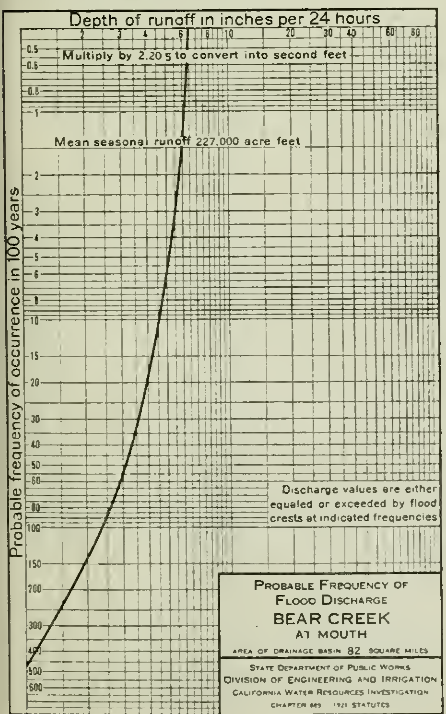
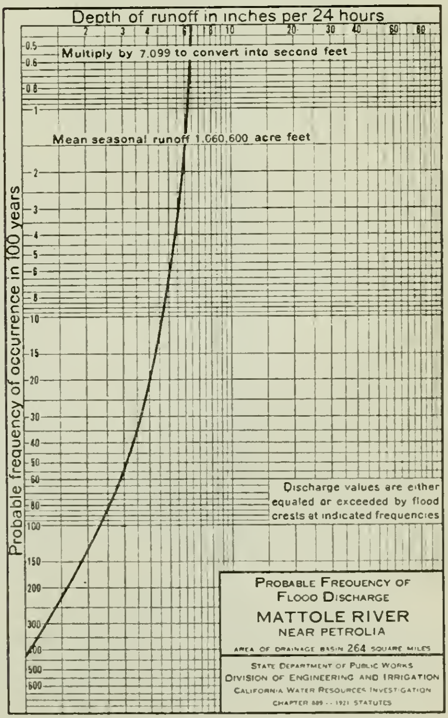
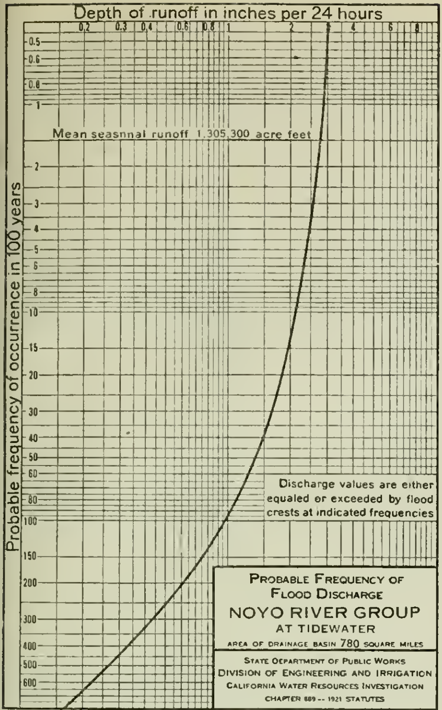

Depth of runoff in inches per 24 hours
Multiply by 7.394 to convert into second feet
Mean seasonal runoff 837,400 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
REDWOOD CREEK
AT MOUTH
AREA OF DRAINAGE BASIN 275 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

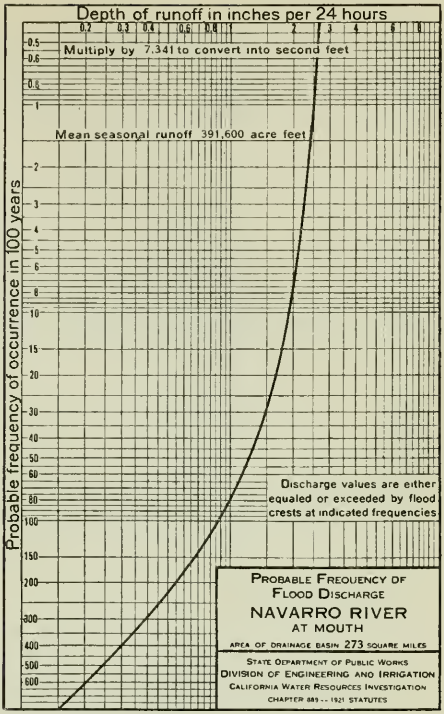

Depth of runoff in inches per 24 hours
Multiply by 12.288 to convert into second feet
Mean seasonal runoff 1,182,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
MAD RIVER
NEAR ARCATA
Area of drainage basin 457 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 95.375 to convert into second feet
Mean seasonal runoff 6,040,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
• At Scotia
3,071 Square Miles
Probable Frequency of Flood Discharge
EEL RIVER
AT ALTON
Area of drainage basin 3547 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 2.205 to convert into second feet
Mean seasonal runoff 227,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
BEAR CREEK
AT MOUTH
Area of drainage basin 82 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 7.099 to convert into second feet
Mean seasonal runoff 1,060,600 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
MATTOLE RIVER
NEAR PETROLIA
Area of drainage basin 264 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasnnal runoff 1,305,300 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
NOYO RIVER GROUP
AT TIDEWATER
AREA OF DRAINAGE BASIN 780 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES


Depth of runoff in inches per 24 hours
Multiply by 7.341 to convert into second feet
Probable frequency of occurrence in 100 years
Mean seasonal runoff 391,600 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
NAVARRO RIVER
AT MOUTH
AREA OF DRAINAGE BASIN 273 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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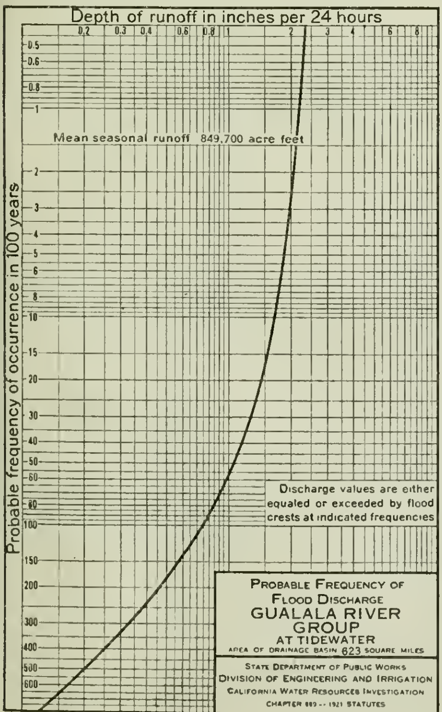
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 849,700 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
GUALALA RIVER GROUP
AT TIDEWATER
AREA OF DRAINAGE BASIN 623 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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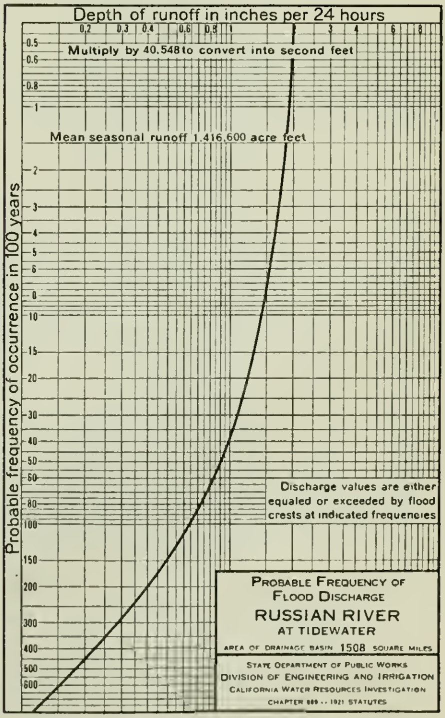
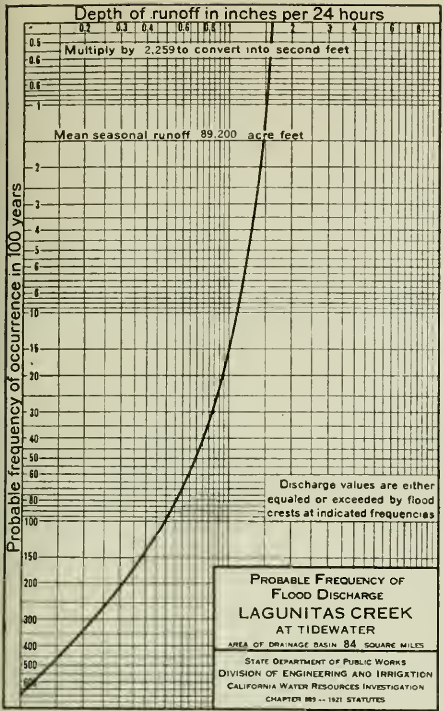

Depth of runoff in inches per 24 hours
Multiply by 40.548 to convert into second feet
Probable frequency of occurrence in 100 years
Mean seasonal runoff 1,416,600 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
RUSSIAN RIVER
AT TIDEWATER
AREA OF DRAINAGE BASIN 1508 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES


Depth of runoff in inches per 24 hours
Multiply by 2,259 to convert into second feet
Mean seasonal runoff 89,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
LAGUNITAS CREEK
AT TIDEWATER
AREA OF DRAINAGE BASIN 84 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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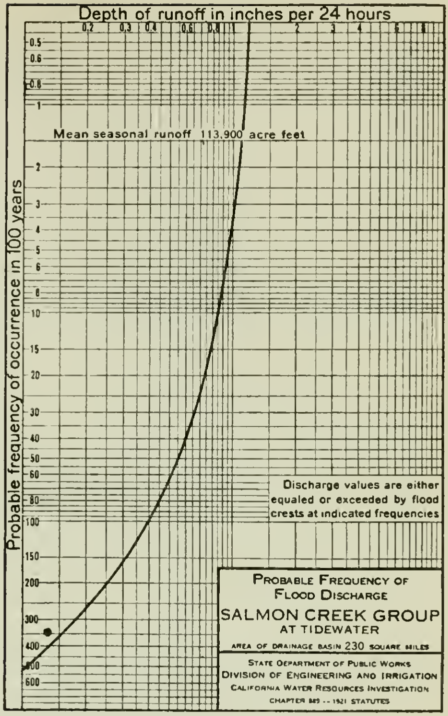
Depth of runoff in inches per 24 hours
Mean seasonal runoff 113,900 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SALMON CREEK GROUP
AT TIDEWATER
AREA OF DRAINAGE BASIN 230 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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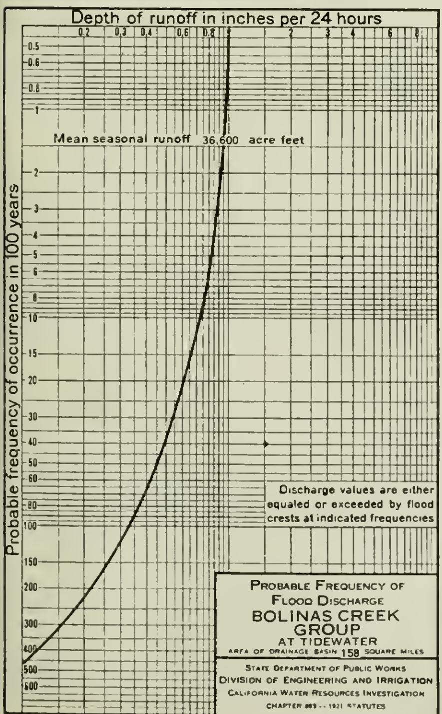
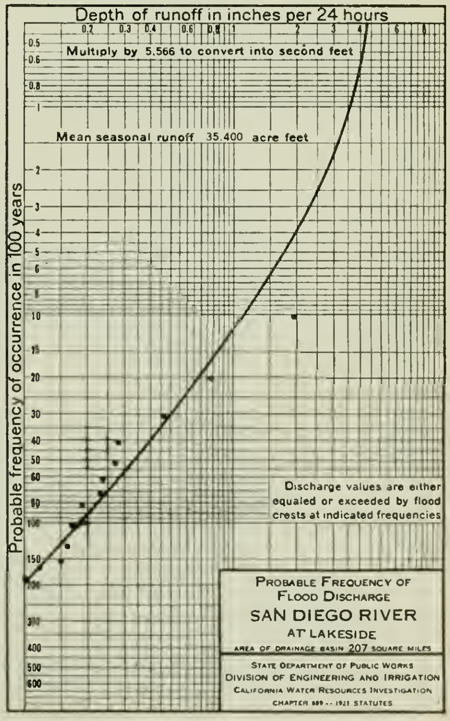
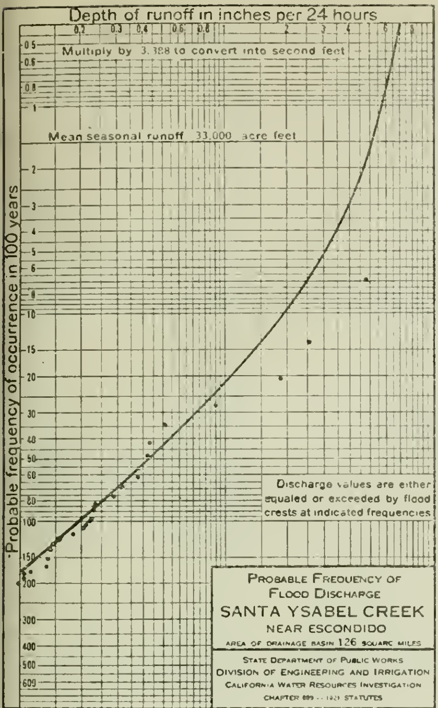
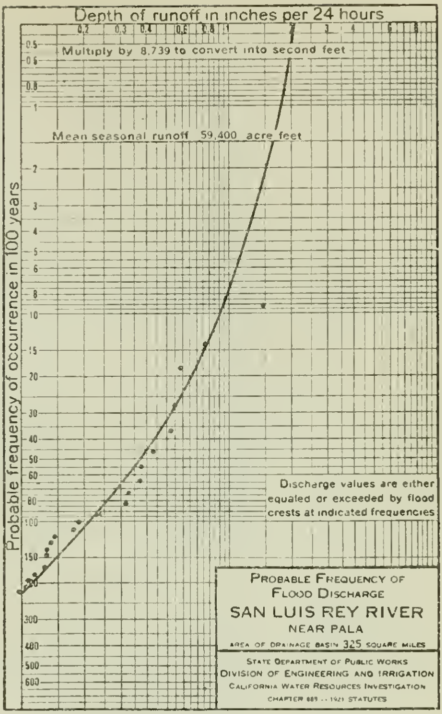
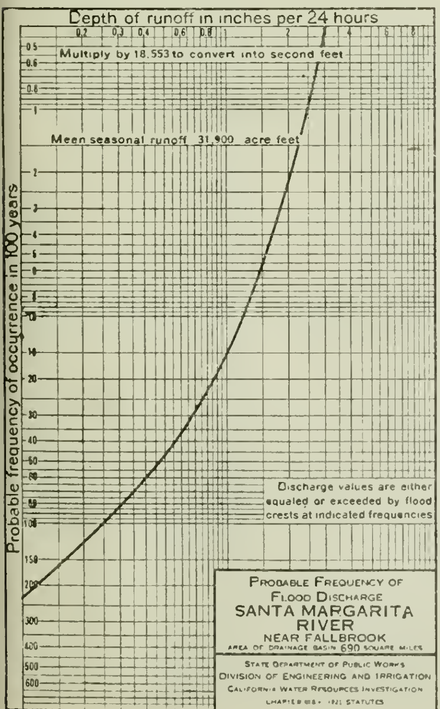
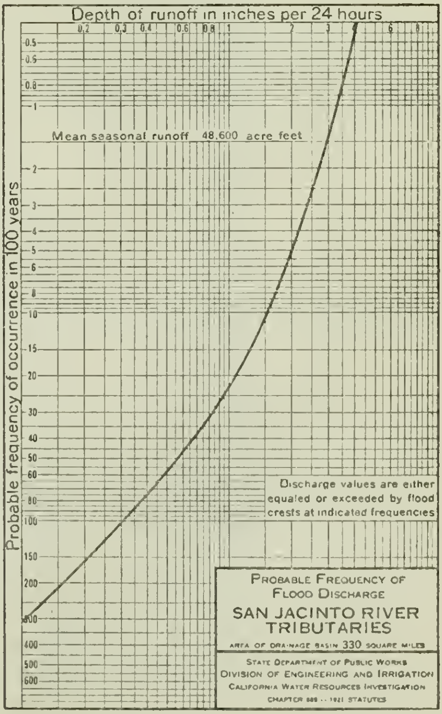

Depth of runoff in inches per 24 hours
Mean seasonal runoff 36,600 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
BOLINAS CREEK GROUP
AT TIDEWATER
AREA OF DRAINAGE BASIN 158 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

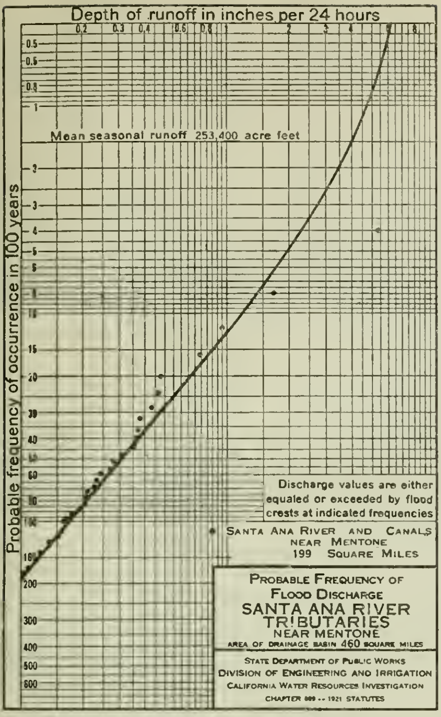

Depth of runoff in inches per 24 hours
Multiply by 5,566 to convert into second feet
Mean seasonal runoff 35,400 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SAN DIEGO RIVER
AT LAKESIDE
AREA OF DRAINAGE BASIN 207 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

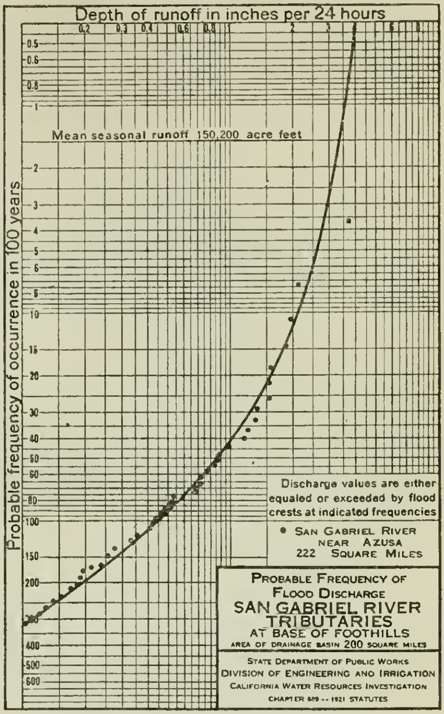

Depth of runoff in inches per 24 hours
Multiply by 3.388 to convert into second feet
Mean seasonal runoff 33,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SANTA YSABEL CREEK
NEAR ESCONDIDO
AREA OF DRAINAGE BASIN 126 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

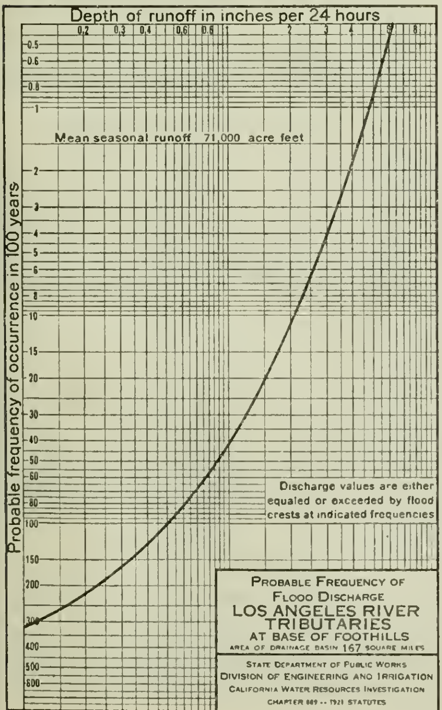

Depth of runoff in inches per 24 hours
Multiply by 8.739 to convert into second feet
Mean seasonal runoff 59,400 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SAN LUIS REY RIVER
NEAR PALA
AREA OF DRAINAGE BASIN 325 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

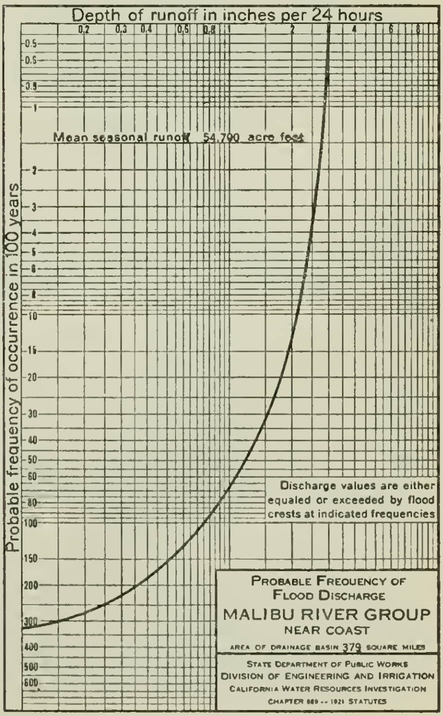

Depth of runoff in inches per 24 hours
Multiply by 18.553 to convert into second feet
Mean seasonal runoff 31,900 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SANTA MARGARITA RIVER
NEAR FALLBROOK
AREA OF DRAINAGE BASIN 690 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Mean seasonal runoff 48,600 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SAN JACINTO RIVER TRIBUTARIES
AREA OF DRAINAGE BASIN 330 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 253,400 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Santa Ana River and Canals near Mentone 199 Square Miles
Probable Frequency of Flood Discharge
SANTA ANA RIVER TRIBUTARIES
NEAR MENTONE
AREA OF DRAINAGE BASIN 460 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 150,200 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
• San Gabriel River near Azusa 222 Square Miles
Probable Frequency of Flood Discharge
SAN GABRIEL RIVER TRIBUTARIES
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 200 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 71,000 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
LOS ANGELES RIVER TRIBUTARIES
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 167 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 54,790 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
MALIBU RIVER GROUP
NEAR COAST
AREA OF DRAINAGE BASIN 379 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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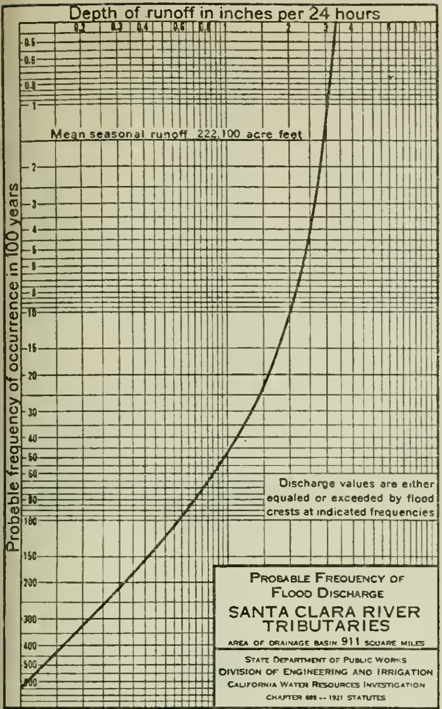
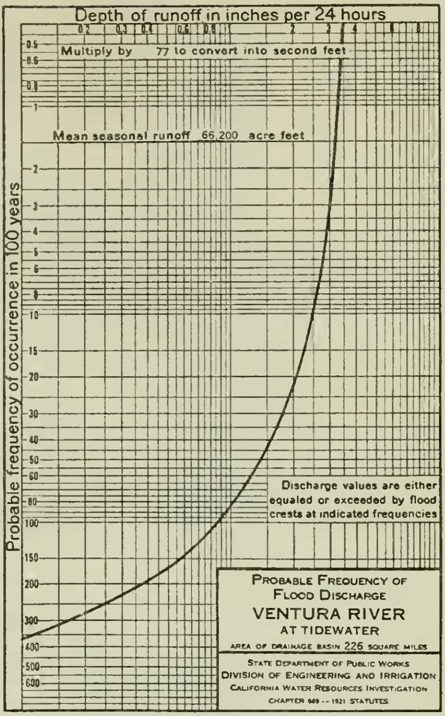
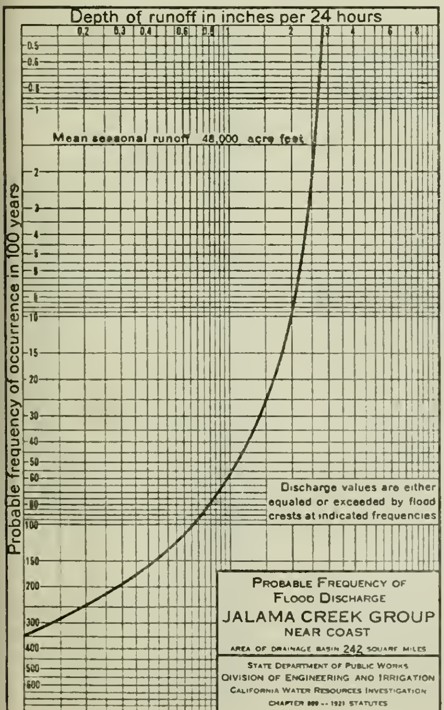
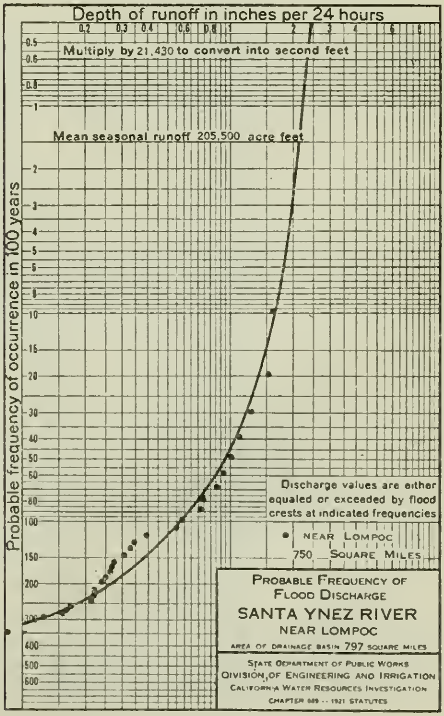
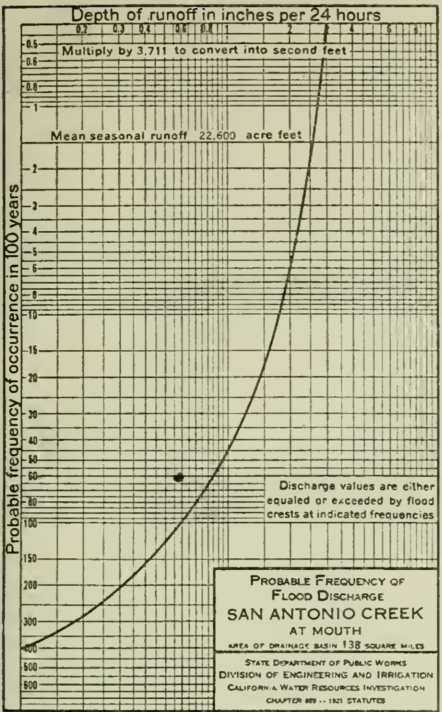
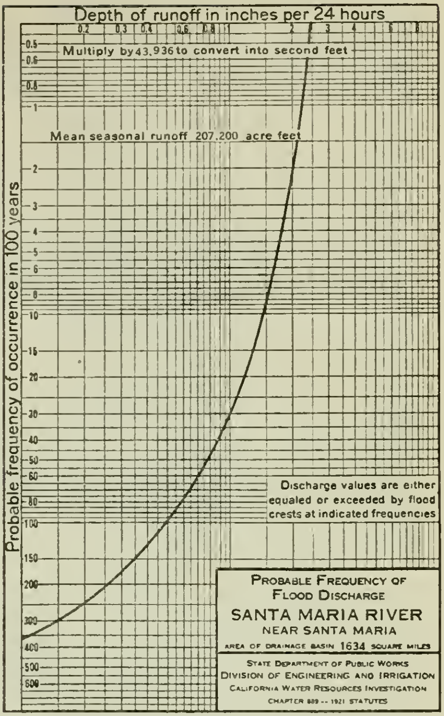

Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 222,100 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SANTA CLARA RIVER TRIBUTARIES
AREA OF DRAINAGE BASIN 911 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

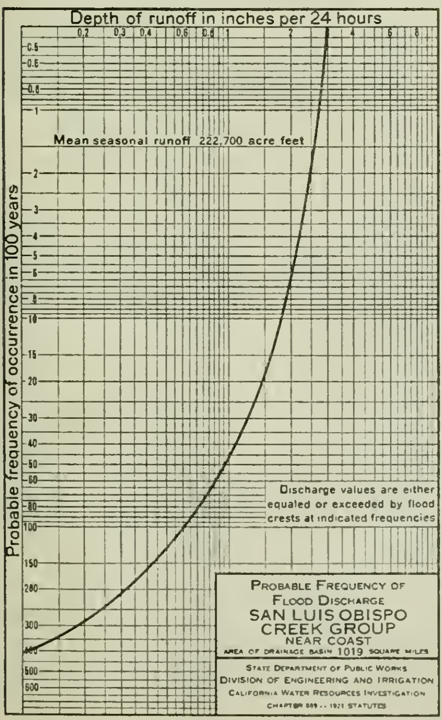

Depth of runoff in inches per 24 hours
Multiply by 77 to convert into second feet
Probable frequency of occurrence in 100 years
Mean seasonal runoff 66,200 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
VENTURA RIVER
AT TIDEWATER
AREA OF DRAINAGE BASIN 226 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 48,000 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
JALAMA CREEK GROUP
NEAR COAST
AREA OF DRAINAGE BASIN 242 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 21,430 to convert into second feet
Probable frequency of occurrence in 100 years
Mean seasonal runoff 205,500 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
• NEAR LOMPOC
750 SQUARE MILES
Probable Frequency of Flood Discharge
SANTA YNEZ RIVER
NEAR LOMPOC
AREA OF DRAINAGE BASIN 797 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 3,711 to convert into second feet
Mean seasonal runoff 22,600 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SAN ANTONIO CREEK
AT MOUTH
AREA OF DRAINAGE BASIN 138 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Multiply by 43,936 to convert into second feet
Mean seasonal runoff 207,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SANTA MARIA RIVER
NEAR SANTA MARIA
AREA OF DRAINAGE BASIN 1634 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Mean seasonal runoff 222,700 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SAN LUIS OBISPO CREEK GROUP
NEAR COAST
AREA OF DRAINAGE BASIN 1019 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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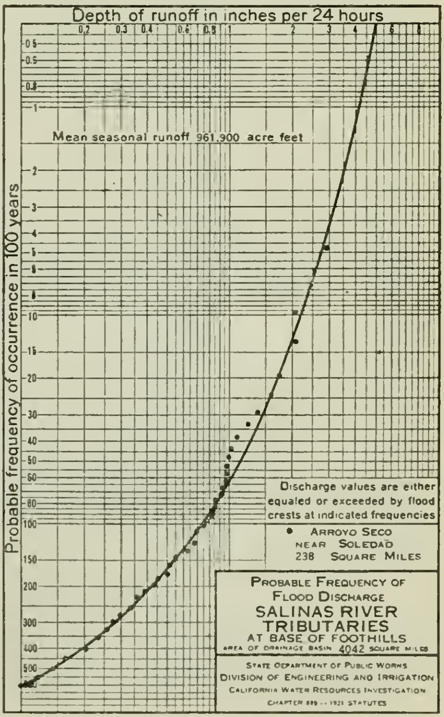
Depth of runoff in inches per 24 hours
Mean seasonal runoff 961,900 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
• Arroyo Seco near Soledad 238 Square Miles
Probable Frequency of Flood Discharge
SALINAS RIVER TRIBUTARIES
AT BASE OF FOOTHILLS
AREA OF DRAINAGE BASIN 4042 SQUARE MILES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
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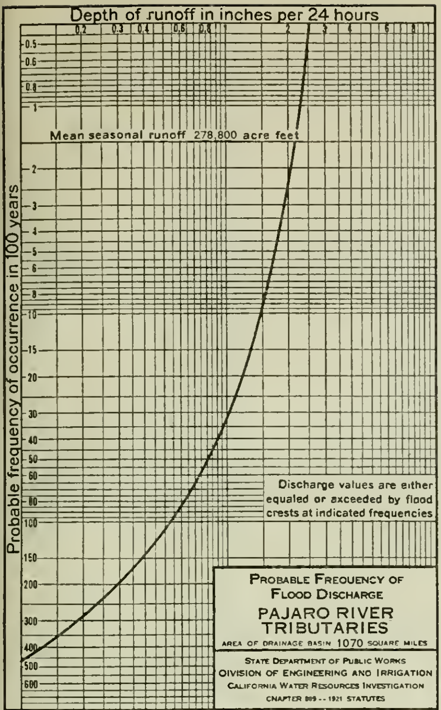
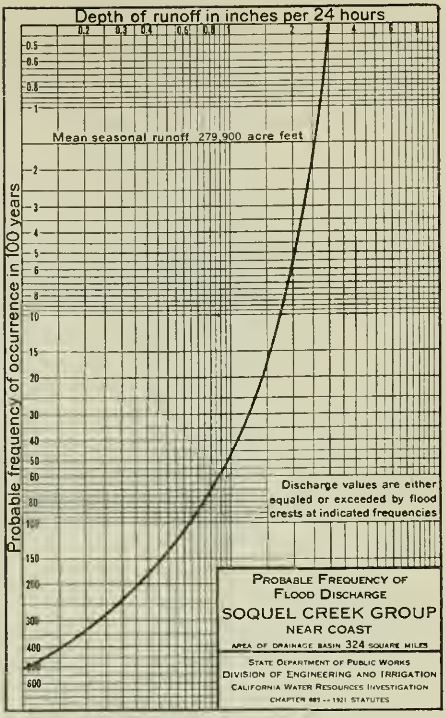
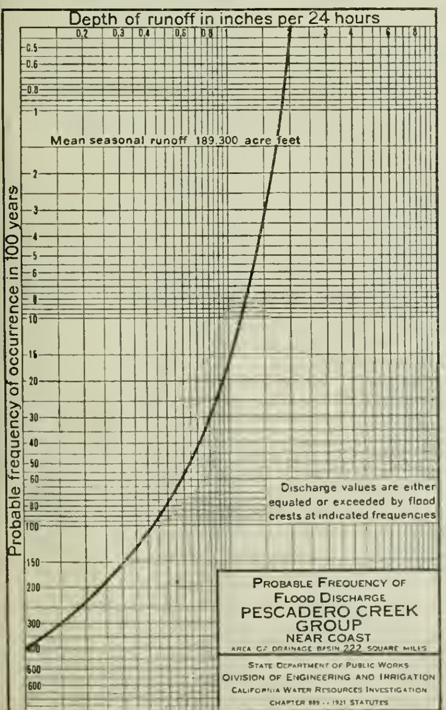
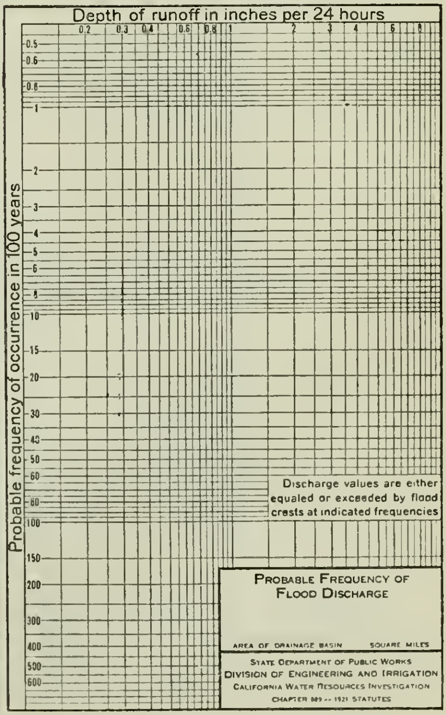
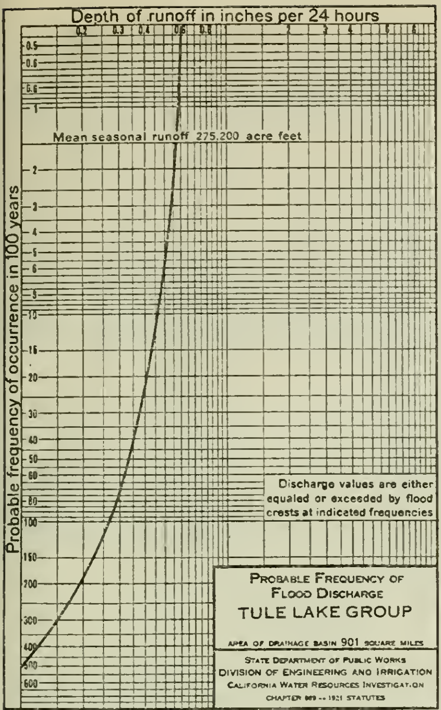

Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 278,800 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
PAJARO RIVER TRIBUTARIES
Area of drainage basin 1070 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 279,900 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
SOQUEL CREEK GROUP
NEAR COAST
Area of drainage basin 324 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 189,300 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
PESCADERO CREEK GROUP
NEAR COAST
Area of drainage basin 222 square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
Probable Frequency of Flood Discharge
Area of drainage basin square miles
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 275,200 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
TULE LAKE GROUP
AREA OF DRAINAGE BASIN 901 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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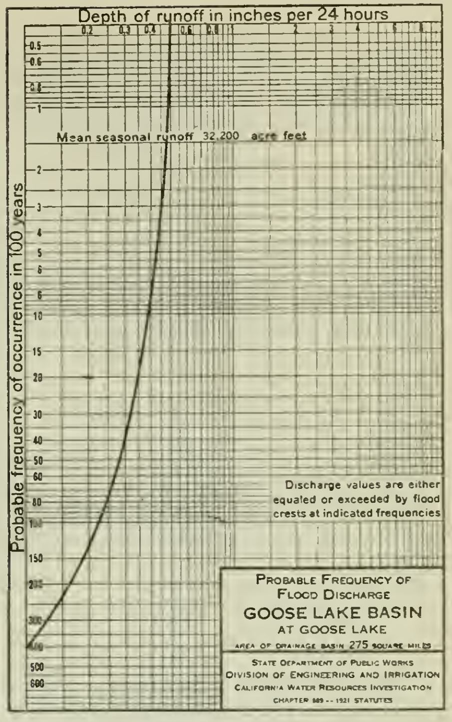
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 32,200 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
GOOSE LAKE BASIN
AT GOOSE LAKE
AREA OF DRAINAGE BASIN 275 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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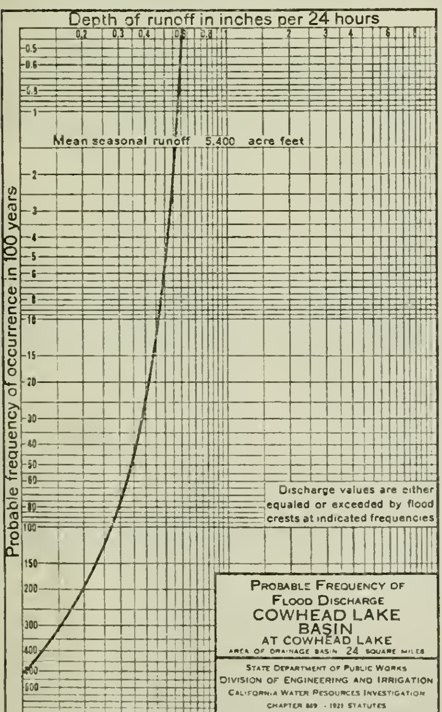
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 5,400 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
COWHEAD LAKE BASIN
AT COWHEAD LAKE
AREA OF DRAINAGE BASIN 24 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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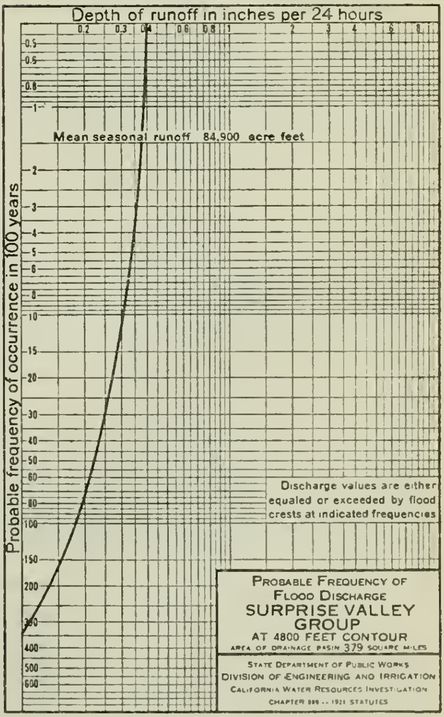
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 84,900 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SURPRISE VALLEY GROUP
AT 4800 FEET CONTOUR
AREA OF DRAINAGE BASIN 379 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
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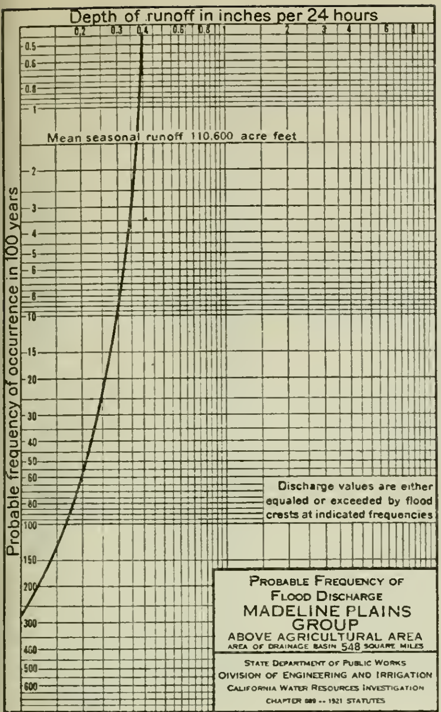
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 110,600 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
MADELINE PLAINS GROUP
ABOVE AGRICULTURAL AREA
AREA OF DRAINAGE BASIN 548 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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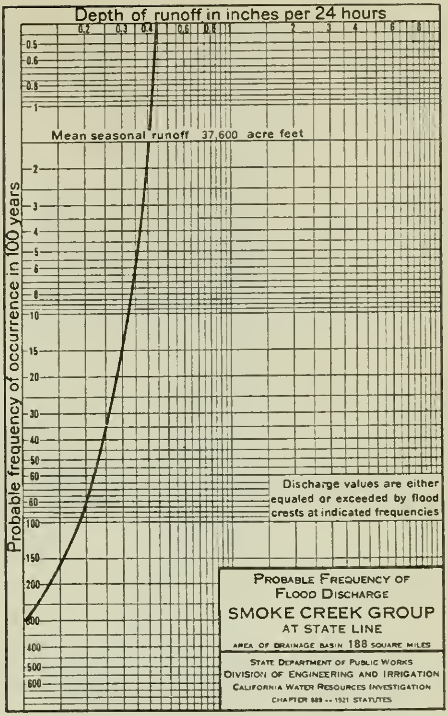
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 37,600 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
SMOKE CREEK GROUP
AT STATE LINE
AREA OF DRAINAGE BASIN 188 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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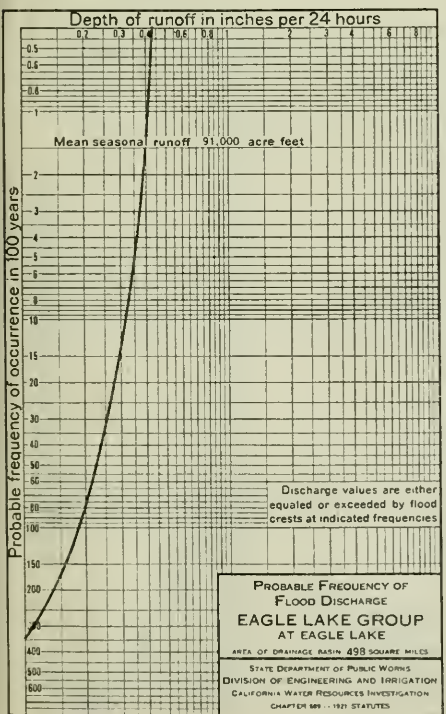
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 91,000 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
EAGLE LAKE GROUP
AT EAGLE LAKE
AREA OF DRAINAGE BASIN 498 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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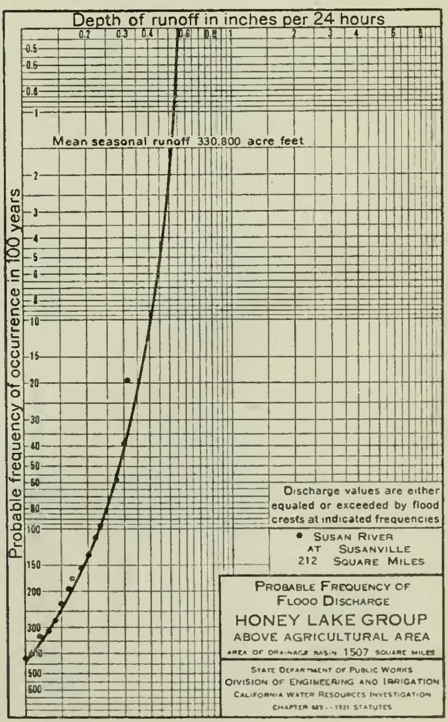
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 330,800 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
• SUSAN RIVER AT SUSANVILLE 212 SQUARE MILES
PROBABLE FREQUENCY OF FLOOD DISCHARGE
HONEY LAKE GROUP
ABOVE AGRICULTURAL AREA
AREA OF DRAINAGE BASIN 1507 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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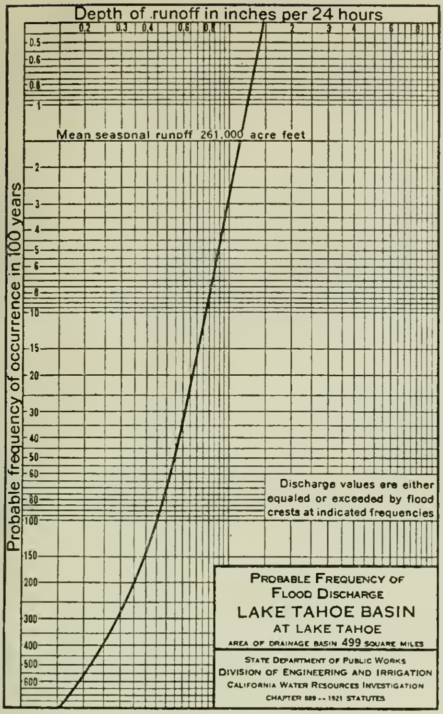
Depth of runoff in inches per 24 hours
Mean seasonal runoff 261,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
LAKE TAHOE BASIN
AT LAKE TAHOE
AREA OF DRAINAGE BASIN 499 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
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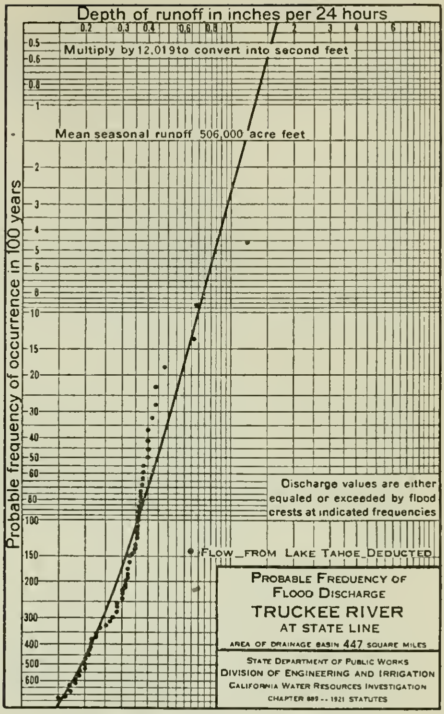
Depth of runoff in inches per 24 hours
Multiply by 12,019 to convert into second feet
Mean seasonal runoff 506,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
FLOW FROM LAKE TAHOE DEDUCTED
PROBABLE FREQUENCY OF FLOOD DISCHARGE
TRUCKEE RIVER
AT STATE LINE
AREA OF DRAINAGE BASIN 447 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
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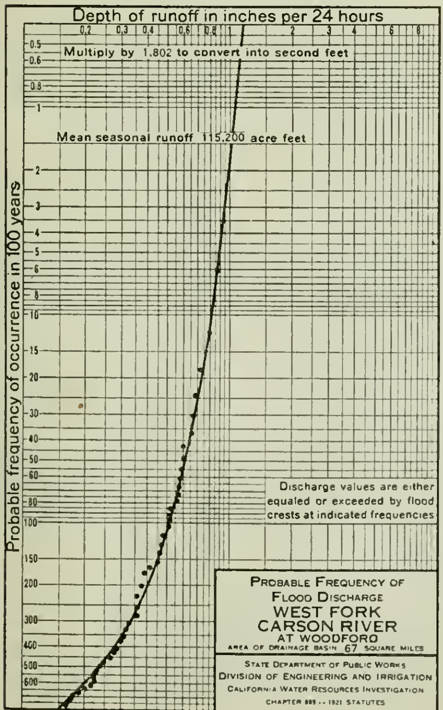
Depth of runoff in inches per 24 hours
Multiply by 1.802 to convert into second feet
Mean seasonal runoff 115,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
WEST FORK
CARSON RIVER
AT WOODFORD
AREA OF DRAINAGE BASIN 67 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
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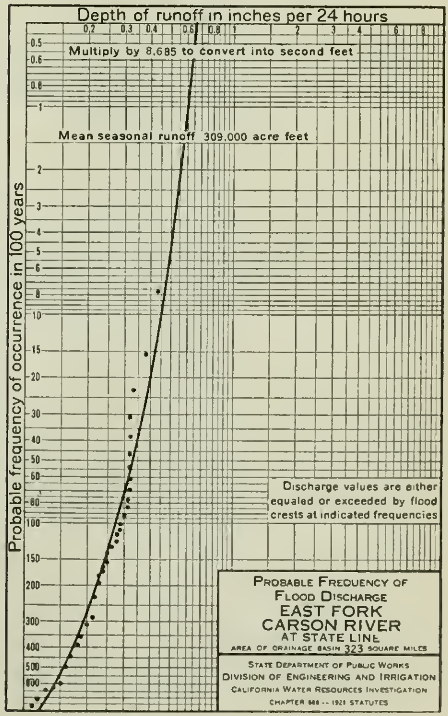
Depth of runoff in inches per 24 hours
Multiply by 8.685 to convert into second feet
Mean seasonal runoff 309,000 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
EAST FORK
CARSON RIVER
AT STATE LINE
AREA OF DRAINAGE BASIN 323 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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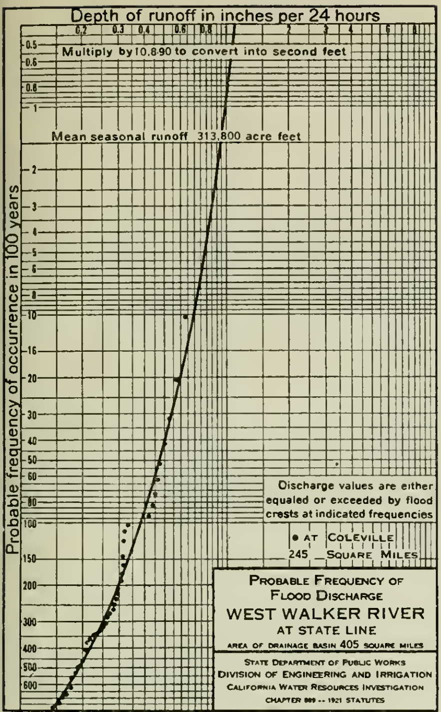
Depth of runoff in inches per 24 hours
Multiply by 10.890 to convert into second feet
Mean seasonal runoff 313,800 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
● AT COLEVILLE
245 SQUARE MILES
PROBABLE FREQUENCY OF FLOOD DISCHARGE
WEST WALKER RIVER
AT STATE LINE
AREA OF DRAINAGE BASIN 405 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
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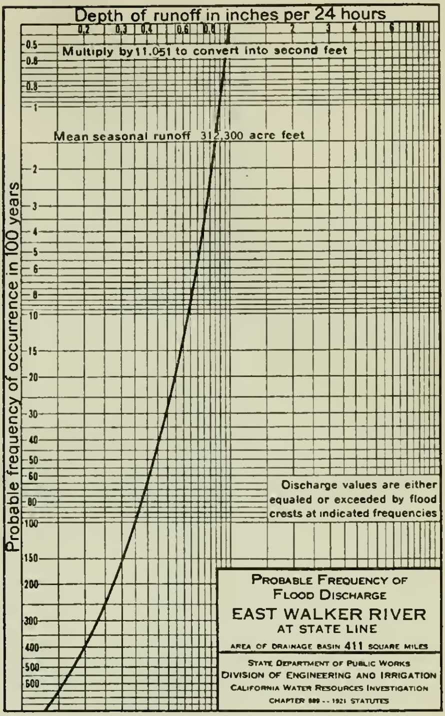
Depth of runoff in inches per 24 hours
Multiply by 11.051 to convert into second feet
Mean seasonal runoff 312,300 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
EAST WALKER RIVER
AT STATE LINE
AREA OF DRAINAGE BASIN 411 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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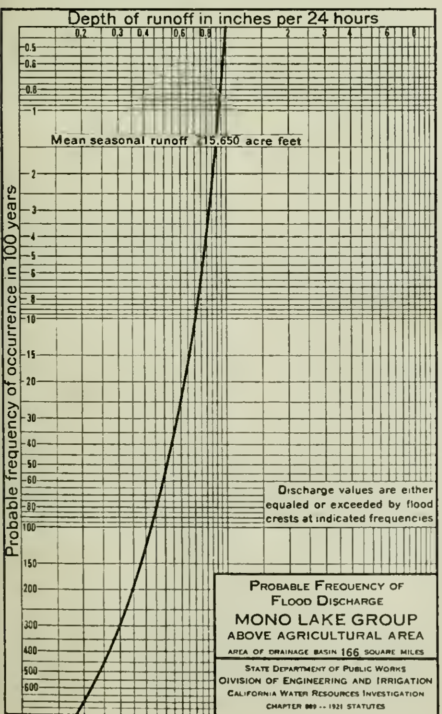
Depth of runoff in inches per 24 hours
Mean seasonal runoff 15,650 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
MONO LAKE GROUP
ABOVE AGRICULTURAL AREA
AREA OF DRAINAGE BASIN 166 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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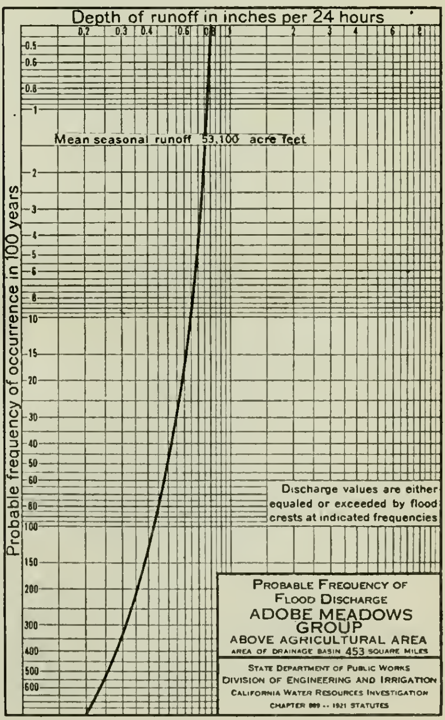
Depth of runoff in inches per 24 hours
Mean seasonal runoff 53,100 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
ADOBE MEADOWS GROUP
ABOVE AGRICULTURAL AREA
AREA OF DRAINAGE BASIN 453 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
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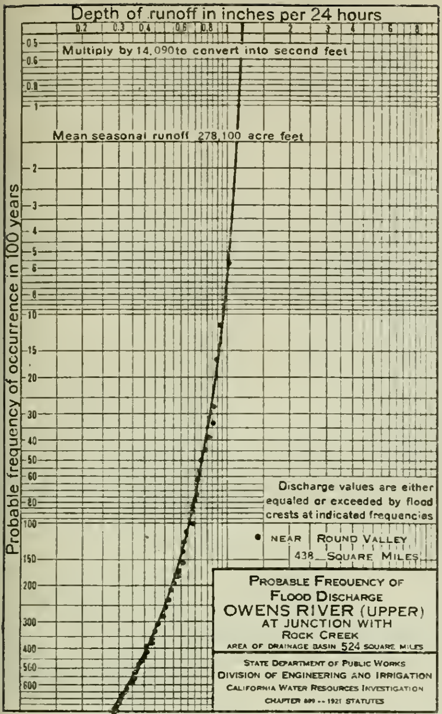
Depth of runoff in inches per 24 hours
Multiply by 14,090 to convert into second feet
Mean seasonal runoff 278,100 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
• NEAR ROUND VALLEY 438 SQUARE MILES
PROBABLE FREQUENCY OF FLOOD DISCHARGE
OWENS RIVER (UPPER)
AT JUNCTION WITH
ROCK CREEK
AREA OF DRAINAGE BASIN 524 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
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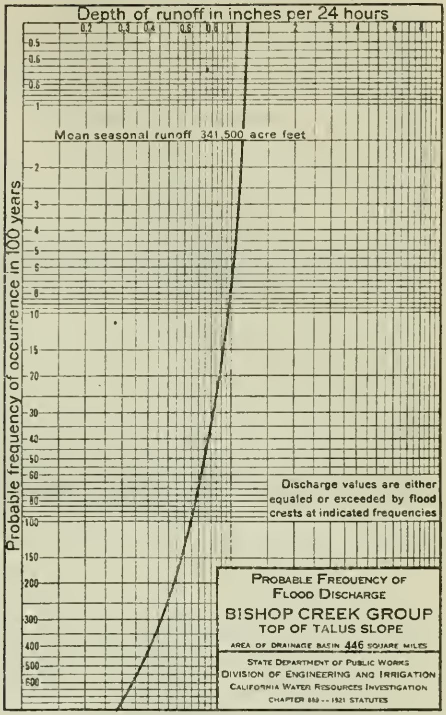
Depth of runoff in inches per 24 hours
Mean seasonal runoff 341,500 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
BISHOP CREEK GROUP
TOP OF TALUS SLOPE
AREA OF DRAINAGE BASIN 446 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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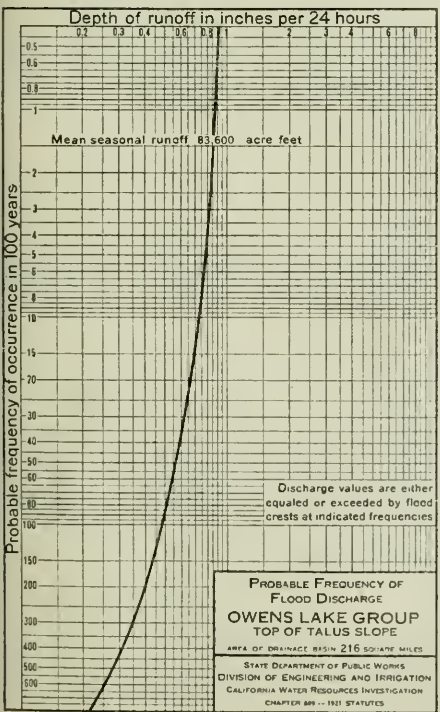
Depth of runoff in inches per 24 hours
Mean seasonal runoff 83,600 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
OWENS LAKE GROUP
TOP OF TALUS SLOPE
AREA OF DRAINAGE BASIN 216 SQUARE MILES
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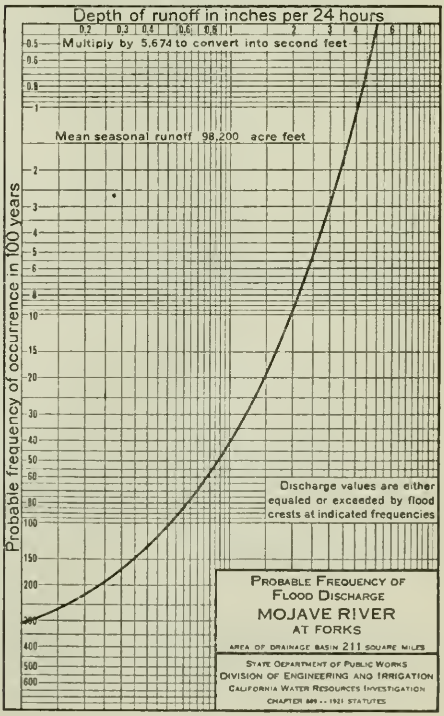
Depth of runoff in inches per 24 hours
Multiply by 5,674 to convert into second feet
Mean seasonal runoff 98,200 acre feet
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
MOJAVE RIVER
AT FORKS
AREA OF DRAINAGE BASIN 211 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
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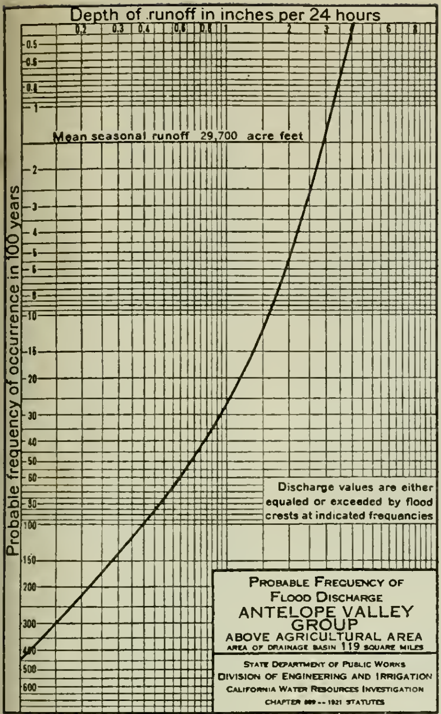
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Mean seasonal runoff 29,700 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
ANTELOPE VALLEY GROUP
ABOVE AGRICULTURAL AREA
AREA OF DRAINAGE BASIN 119 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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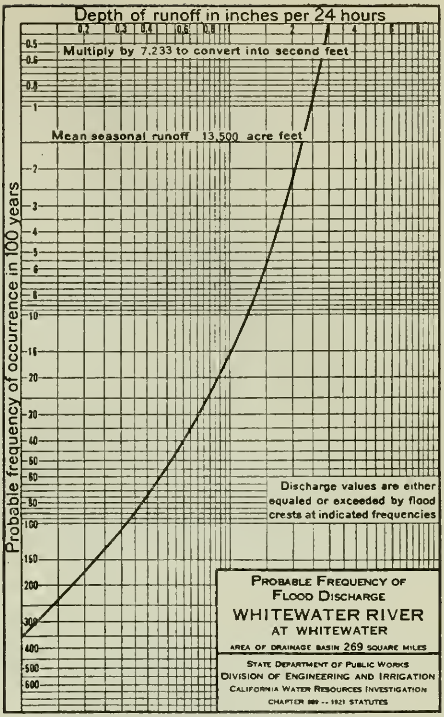
Depth of runoff in inches per 24 hours
Multiply by 7,233 to convert into second feet
Probable frequency of occurrence in 100 years
Mean seasonal runoff 13,500 acre feet
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
WHITEWATER RIVER
AT WHITEWATER
AREA OF DRAINAGE BASIN 269 SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
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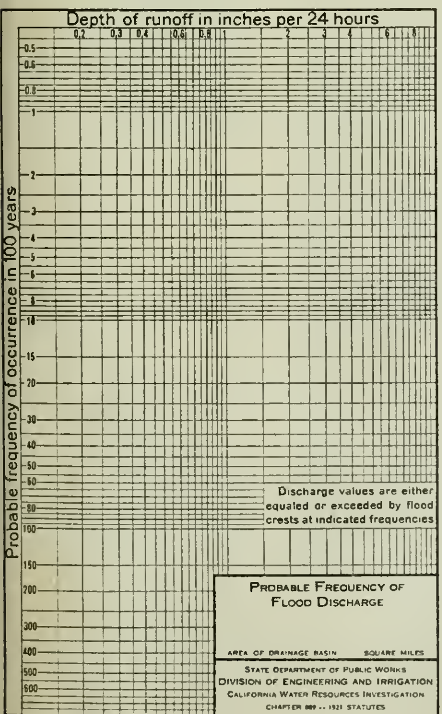
CALIFORNIA WATER RESOURCES INVESTIGATION


Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
AREA OF DRAINAGE BASIN SQUARE MILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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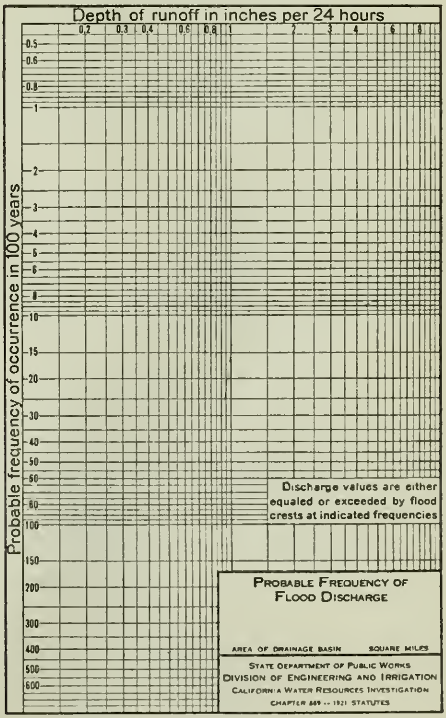
Depth of runoff in inches per 24 hours
Probable frequency of occurrence in 100 years
Discharge values are either equaled or exceeded by flood crests at indicated frequencies
PROBABLE FREQUENCY OF FLOOD DISCHARGE
AREA OF DRAINAGE BASIN SQUARE MILES
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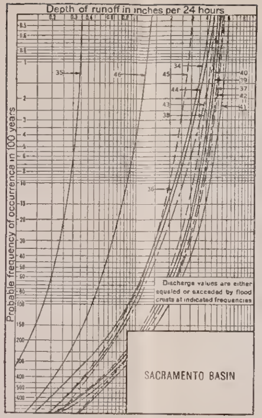
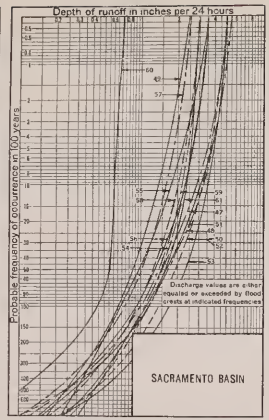
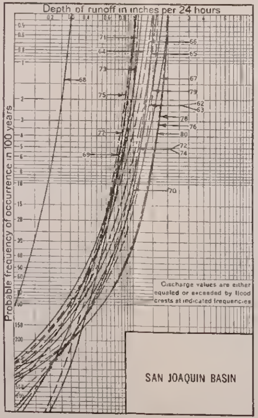
34 SACRAMENTO RIVER (UPPER)
35 PIT RIVER
36 McCLOUD RIVER
37 CHURN CREEK GROUP
38 COW CREEK
39 BEAR CREEK GROUP
40 BATTLE CREEK
41 INK'S CREEK
42 PAYNE'S CREEK
43 BACKBONE CREEK GROUP
44 CLEAR CREEK
45 COTTONWOOD CREEK
46 SACRAMENTO RIVER

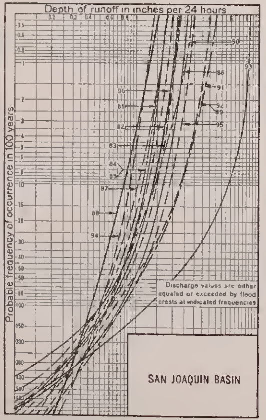




47 MILL CREEK GROUP
48 BUTTE CREEK GROUP
49 FEATHER RIVER
50 HONCUT CREEK GROUP
51 YUBA RIVER
52 DRY CREEK
53 BEAR RIVER
54 COON CREEK GROUP
55 AMERICAN RIVER
56 RED BANK CREEK GROUP
57 ELDER CREEK GROUP
58 STONY CREEK
59 WILLOW CREEK GROUP
60 CACHE CREEK
61 PUTAH CREEK

62 ORESTIMBA CREEK GROUP
63 PANOCHE CREEK
64 CANTUA CREEK GROUP
65 LOS GATOS CREEK
66 TEJON CREEK GROUP
67 CALIENTE CREEK
68 KERN RIVER
69 POSO CREEK GROUP
70 DEER CREEK
71 TULE RIVER
72 YOKOHL CREEK GROUP
73 KAWEAH RIVER
74 LIMEKILN CREEK GROUP
75 KINGS RIVER
76 DRY CREEK
77 SAN JOAQUIN RIVER (UPPER)
78 COTTONWOOD CREEK
79 FRESNO RIVER
80 DAULTON CREEK GROUP

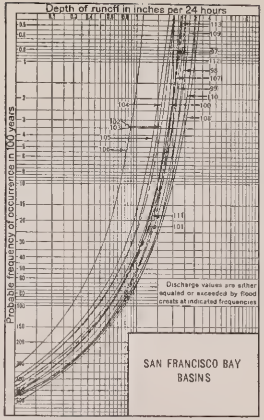


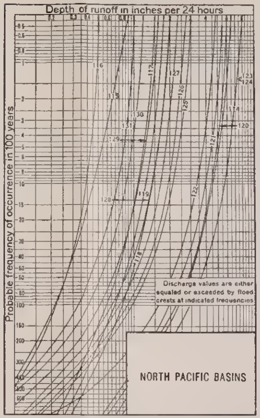


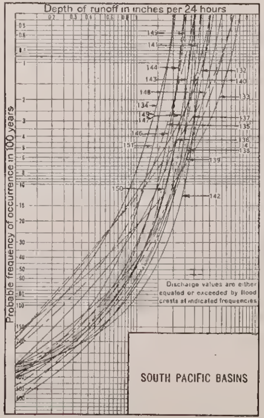
81 CHOWCHILLA RIVER
82 DUTCHMAN CREEK GROUP
83 MARIPOSA CREEK
84 OWENS CREEK
85 BEAR CREEK
86 BURNS CREEK GROUP
87 MERCED RIVER
88 TUOLUMNE RIVER
89 WILDCAT CREEK GROUP
90 STANISLAUS RIVER
91 LITTLEJOHNS CREEK
92 MARTELLS CREEK GROUP
93 CALAVERAS RIVER
94 MOKELUMNE RIVER
95 SUTTER CREEK GROUP
96 COSUMNES RIVER

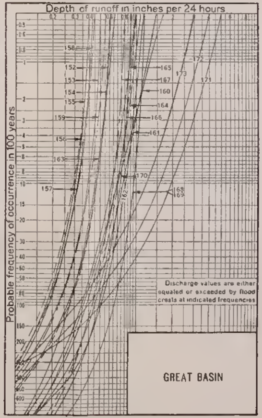
97 PETALUMA CREEK GROUP
98 SONOMA CREEK TRIBUTARIES
99 NAPA RIVER TRIBUTARIES
100 SUISUN CREEK GROUP
101 MT DIABLO CREEK GROUP
102 SAN PABLO CREEK
103 SAN LEANDRO CREEK
104 CLAREMONT CREEK GROUP
105 SAN LORENZO CREEK
106 ALAMEDA CREEK
107 MISSION CREEK GROUP
108 PENITENCIA CREEK
109 COYOTE RIVER
110 GUADALUPE RIVER
111 LOS GATOS CREEK GROUP
112 SAN FRANCISQUITO CREEK
113 SAN MATEO CREEK GROUP

114 SMITH RIVER
115 KLAMATH RIVER
116 SHASTA RIVER
117 SCOTT RIVER
118 SALMON RIVER
119 TRINITY RIVER
120 REDWOOD CREEK
121 MAD RIVER
122 EEL RIVER
123 BEAR CREEK
124 MATTOLE RIVER
125 NOYO RIVER GROUP
126 NAVARRO RIVER
127 GUALALA RIVER GROUP
128 RUSSIAN RIVER
129 LAGUNITAS CREEK
130 SALMON CREEK GROUP
131 BOLINAS CREEK GROUP









132 SAN DIEGO RIVER
133 SANTA YSABEL CREEK
134 SAN LUIS REY RIVER
135 SANTA MARGARITA RIVER
136 SAN JACINTO RIVER TRIBUTARIES
137 SANTA ANA RIVER TRIBUTARIES
138 SAN GABRIEL RIVER TRIBUTARIES
139 LOS ANGELES RIVER TRIBUTARIES
140 MALIBU RIVER GROUP
141 SANTA CLARA RIVER TRIBUTARIES
142 VENTURA RIVER
143 JALAMA CREEK GROUP
144 SANTA YNEZ RIVER
145 SAN ANTONIO CREEK
146 SANTA MARIA RIVER
147 SAN LUIS OBISPO CREEK GROUP
148 SALINAS RIVER TRIBUTARIES
149 PAJARO RIVER TRIBUTARIES
150 SOQUEL CREEK GROUP
151 PESCADERO CREEK GROUP

152 TULE LAKE GROUP
153 GOOSE LAKE GROUP
154 COWHEAD LAKE BASIN
155 SURPRISE VALLEY GROUP
156 MADELINE PLAINS GROUP
157 SMOKE CREEK GROUP
158 EAGLE LAKE GROUP
159 HONEY LAKE GROUP
160 LAKE TAHOE BASIN
161 TRUCKEE RIVER
162 WEST FORK CARSON RIVER
163 EAST FORK CARSON RIVER
164 WEST WALKER RIVER
165 EAST WALKER RIVER
166 MONO LAKE GROUP
167 ADOBE MEADOWS GROUP
168 OWENS RIVER (UPPER)
169 BISHOP CREEK GROUP
170 OWENS LAKE GROUP
171 MOJAVE RIVER
172 ANTELOPE VALLEY GROUP
173 WHITEWATER RIVER

COMPARISON OF CURVES OF PROBABLE FREQUENCY OF FLOOD DISCHARGE

GROUPED GEOGRAPHICALLY

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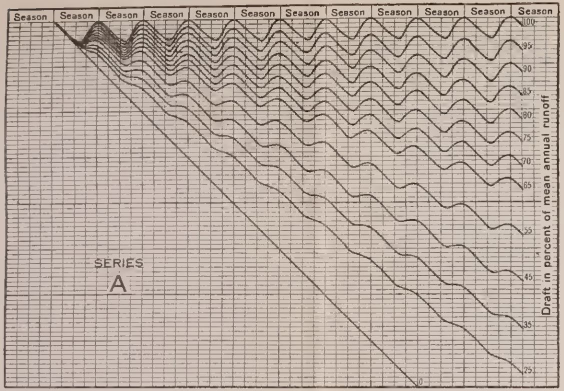
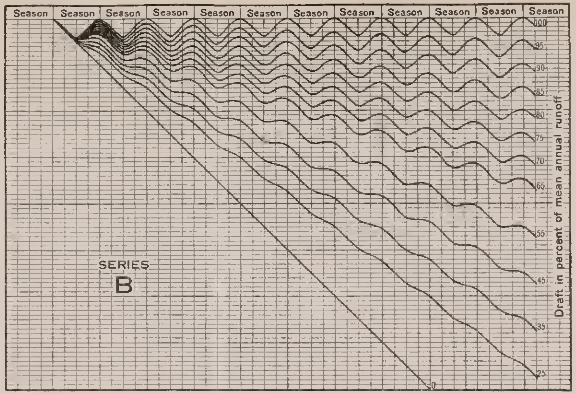
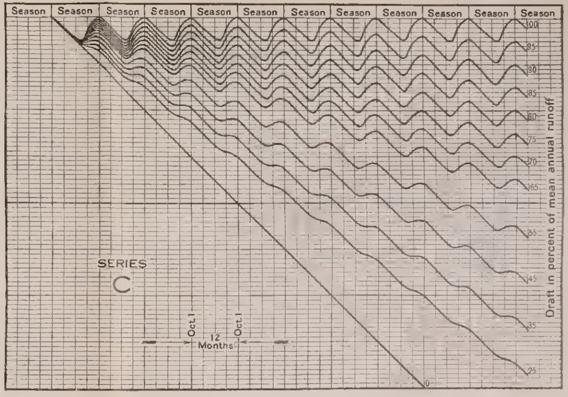
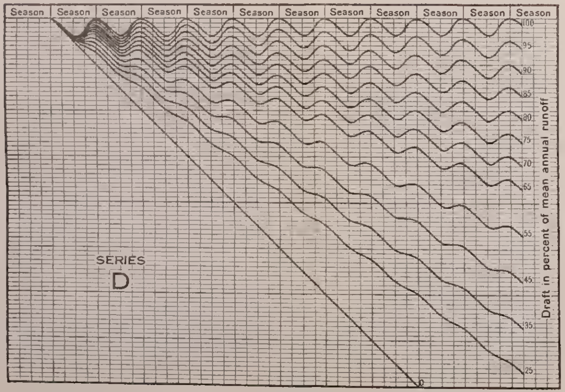
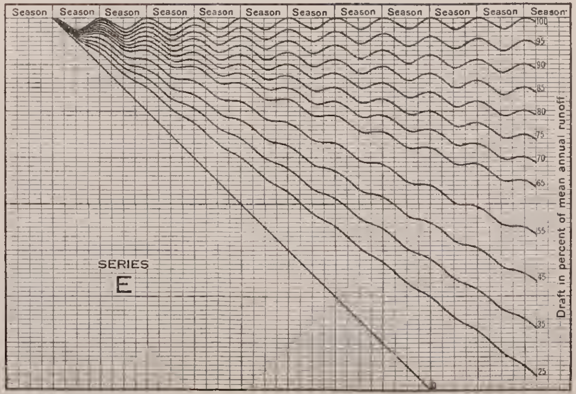










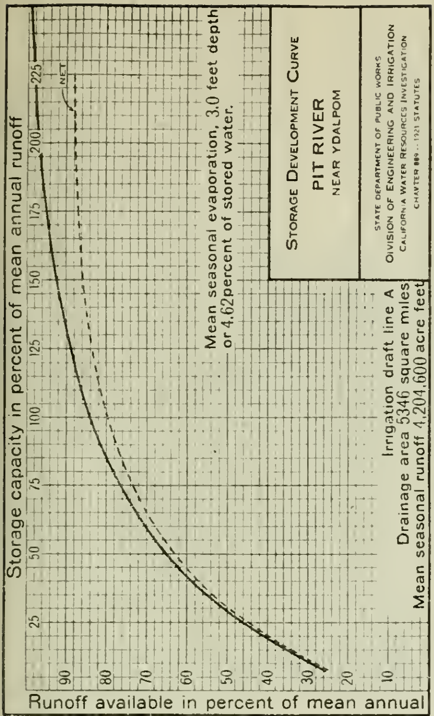
MONTHLY DISTRIBUTION OF IRRIGATION DRAFT

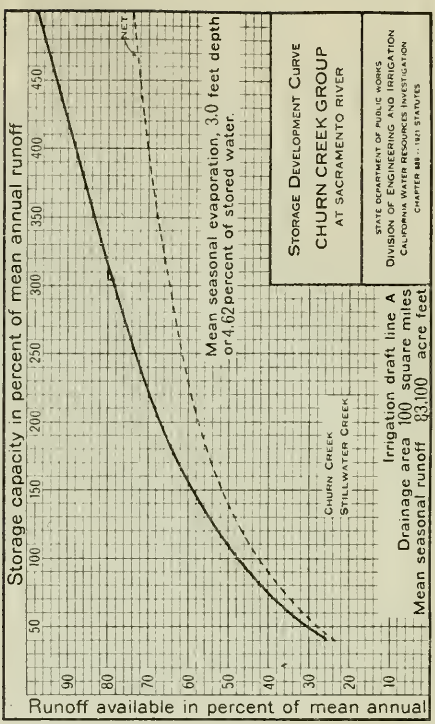
Used in construction of draft lines presented hereon, for storage development studies with mass curves of stream flow, the results of which are shown by "Storage Development Curves"

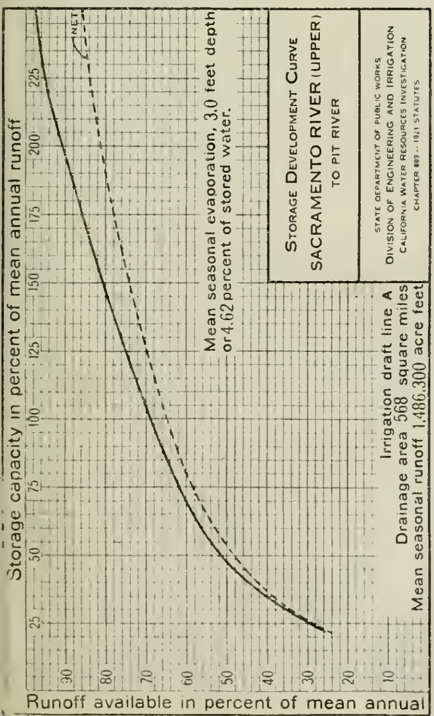
Distribution of irrigation draft by months, in percent of total seasonal use.												
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Draft Line A	0	0	1	4	15	20	24	20	12	4	0	0
Draft Line B	0	2	4	11	16	17	18	16	11	4	1	0
Draft Line C	0	0	1	5	15	22	24	20	12	1	0	0
Draft Line D	1	1	2	9	15	18	20	17	10	5	1	1
Draft Line E	3	3	3	7	12	14	15	14	12	9	5	3

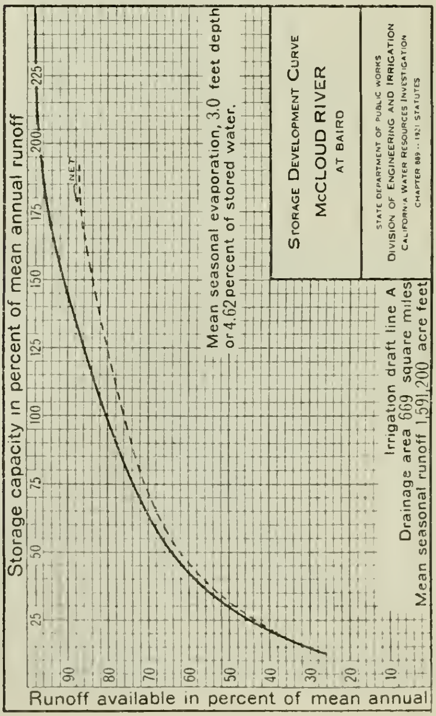
IRRIGATION DRAFT LINES
FOR
STORAGE DEVELOPMENT STUDIES

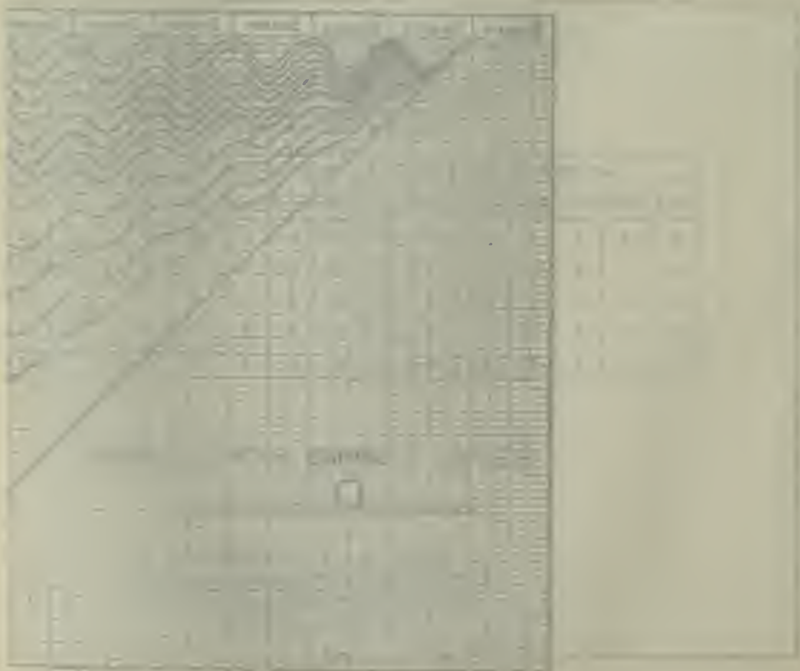
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

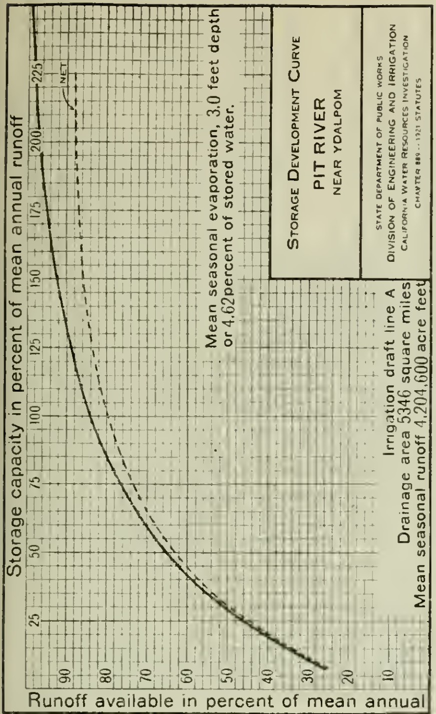

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth or 4.62 percent of stored water.
NET
Irrigation draft line A
Drainage area 5346 square miles
Mean seasonal runoff 4,204,600 acre feet
Storage Development Curve
PIT RIVER
NEAR YDALPOM
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes

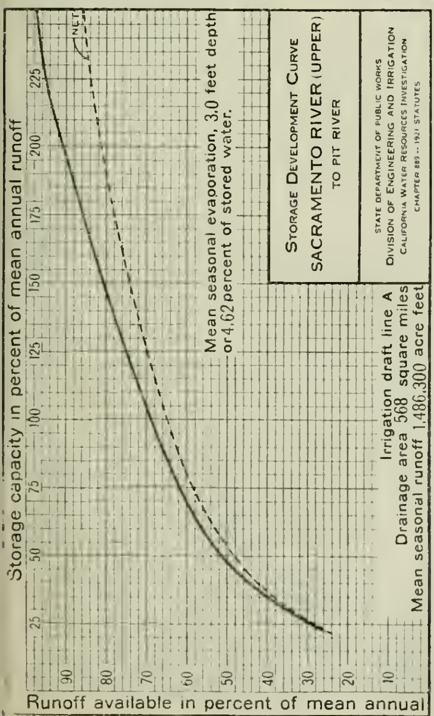

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth or 4.62 percent of stored water.
NET
Churn Creek
Stillwater Creek
Irrigation draft line A
Drainage area 100 square miles
Mean seasonal runoff 83,100 acre feet
Storage Development Curve
CHURN CREEK GROUP
AT SACRAMENTO RIVER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes

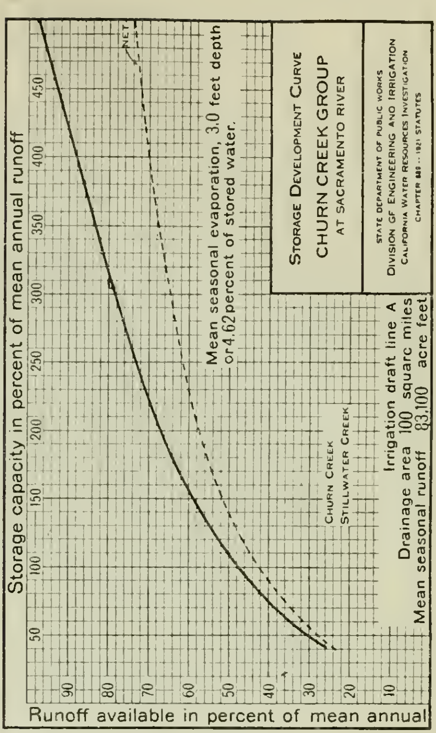

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth or 4.62 percent of stored water.
NET
Irrigation draft line A
Drainage area 568 square miles
Mean seasonal runoff 1,486,300 acre feet
Storage Development Curve
SACRAMENTO RIVER (UPPER)
TO PIT RIVER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes

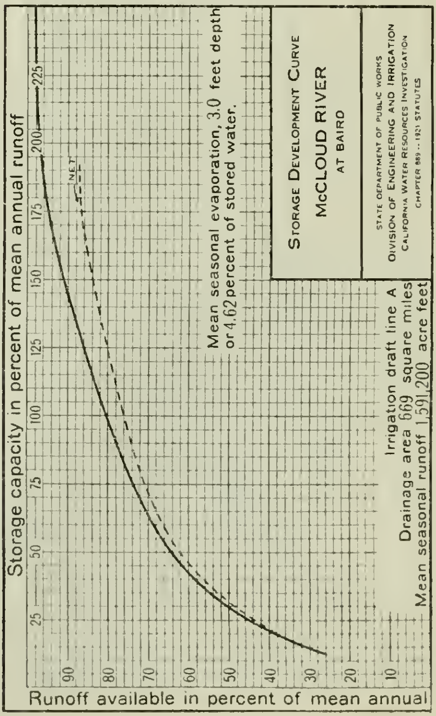

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth or 4.62 percent of stored water.
NET
Irrigation draft line A
Drainage area 669 square miles
Mean seasonal runoff 1,591,200 acre feet
Storage Development Curve
McCLOUD RIVER
AT BAIRD
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes

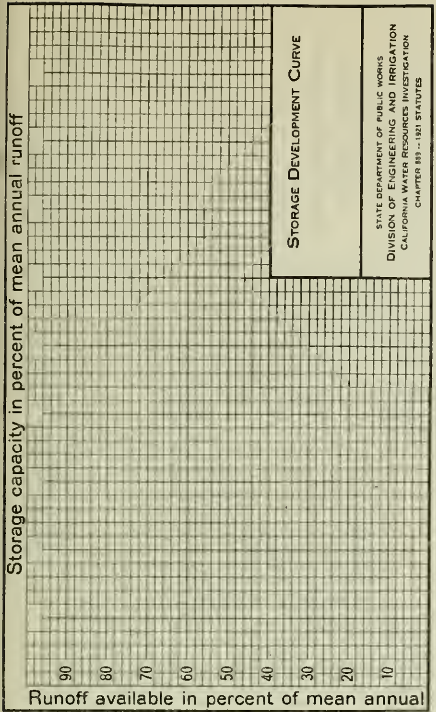


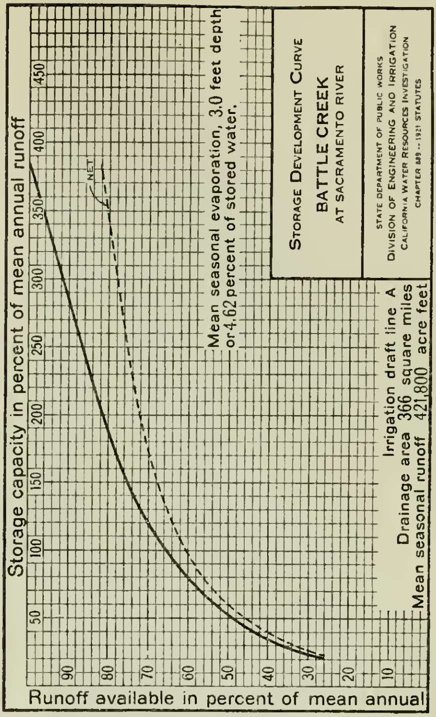

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
NET
Irrigation draft line A
Drainage area 5346 square miles
Mean seasonal runoff 4,204,600 acre feet
STORAGE DEVELOPMENT CURVE
PIT RIVER
NEAR YDALPOM
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

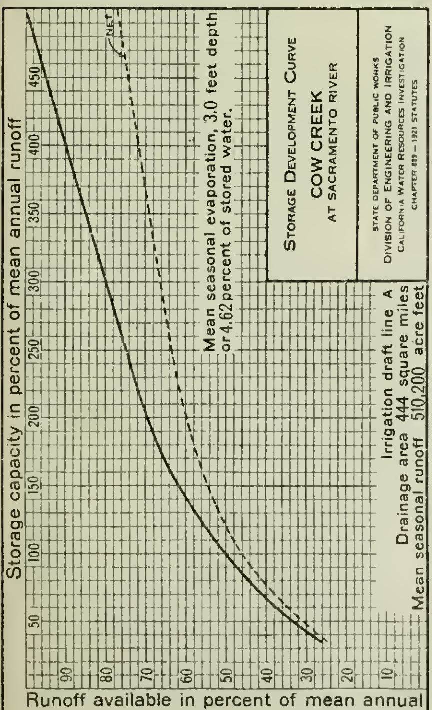

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
NET
Irrigation draft line A
Drainage area 568 square miles
Mean seasonal runoff 1,486,300 acre feet
STORAGE DEVELOPMENT CURVE
SACRAMENTO RIVER (UPPER)
TO PIT RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

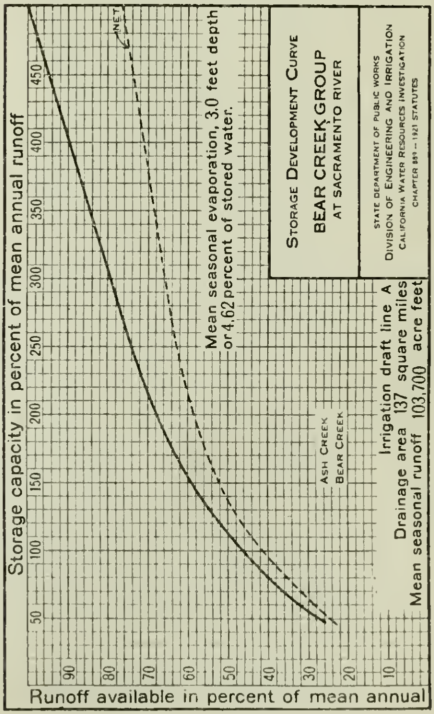

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
NET
CHURN CREEK
STILLWATER CREEK
Irrigation draft line A
Drainage area 100 square miles
Mean seasonal runoff 83,100 acre feet
STORAGE DEVELOPMENT CURVE
CHURN CREEK GROUP
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

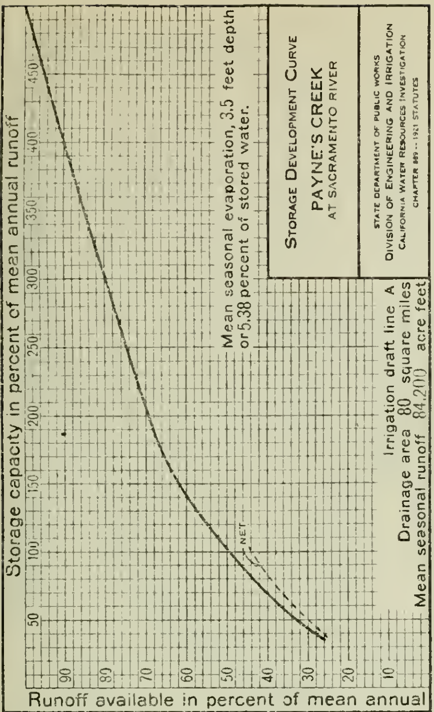

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
NET
Irrigation draft line A
Drainage area 669 square miles
Mean seasonal runoff 1,591,200 acre feet
STORAGE DEVELOPMENT CURVE
McCLOUD RIVER
AT BAIRD
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

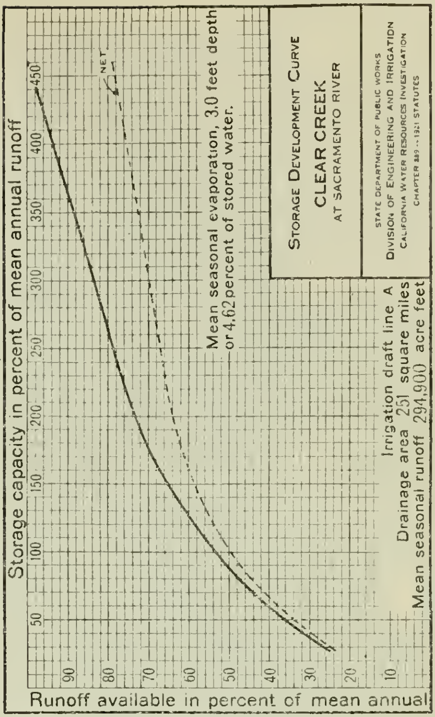

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Storage Development Curve
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

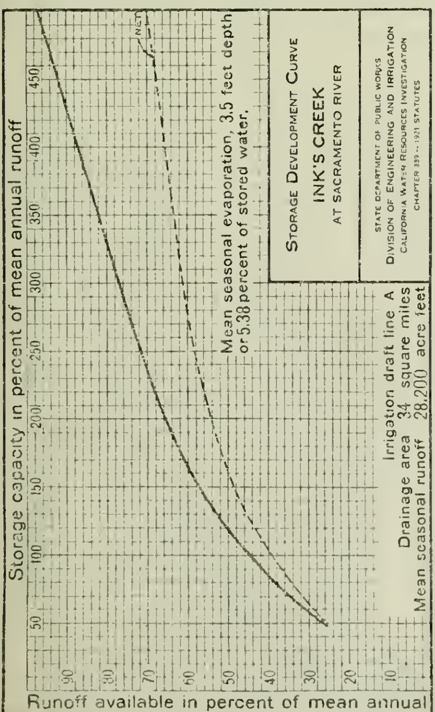

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
Storage Development Curve
BATTLE CREEK
AT SACRAMENTO RIVER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line A
Drainage area 366 square miles
Mean seasonal runoff 421,800 acre feet

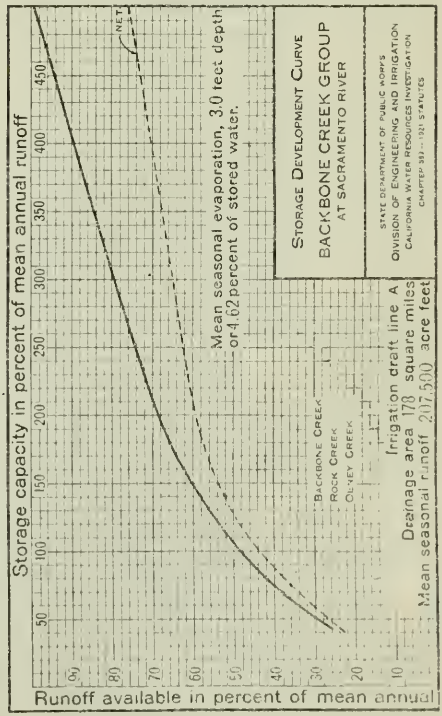

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
Storage Development Curve
COW CREEK
AT SACRAMENTO RIVER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line A
Drainage area 444 square miles
Mean seasonal runoff 510,200 acre feet

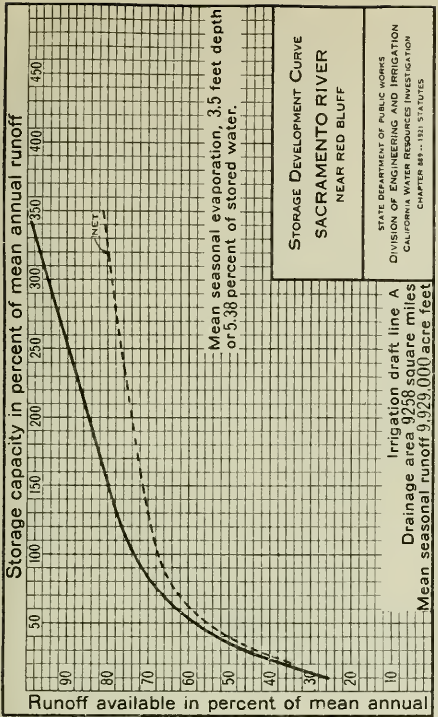

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
Storage Development Curve
BEAR CREEK GROUP
AT SACRAMENTO RIVER
Ash Creek
Bear Creek
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line A
Drainage area 137 square miles
Mean seasonal runoff 103,700 acre feet

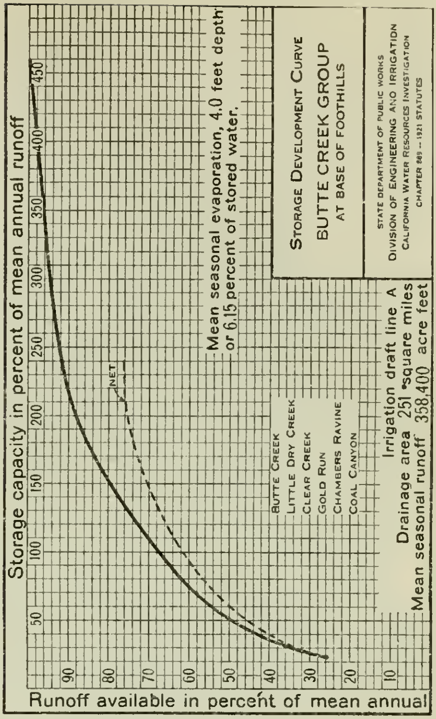

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
STORAGE DEVELOPMENT CURVE
PAYNE'S CREEK
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line A
Drainage area 80 square miles
Mean seasonal runoff 84,200 acre feet

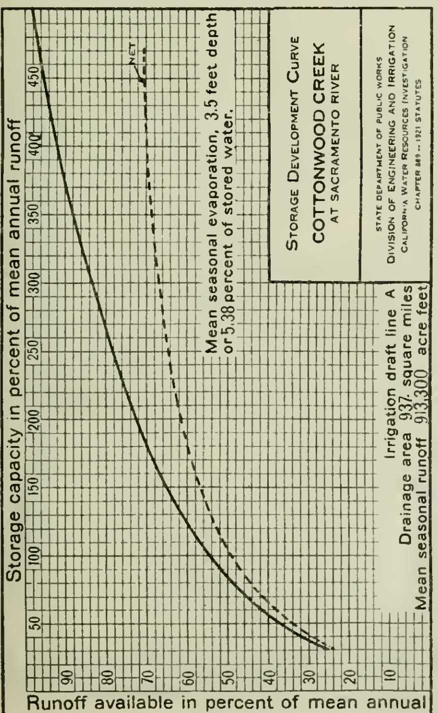

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
STORAGE DEVELOPMENT CURVE
CLEAR CREEK
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line A
Drainage area 251 square miles
Mean seasonal runoff 294,900 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
STORAGE DEVELOPMENT CURVE
INK'S CREEK
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line A
Drainage area 34 square miles
Mean seasonal runoff 28,200 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
STORAGE DEVELOPMENT CURVE
BACKBONE CREEK GROUP
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
BACKBONE CREEK
ROCK CREEK
OLNEY CREEK
Irrigation draft line A
Drainage area 178 square miles
Mean seasonal runoff 207,500 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
NET
Storage Development Curve
SACRAMENTO RIVER
NEAR RED BLUFF
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line A
Drainage area 9258 square miles
Mean seasonal runoff 9,929,000 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
NET
Storage Development Curve
BUTTE CREEK GROUP
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Butte Creek
Little Dry Creek
Clear Creek
Gold Run
Chambers Ravine
Coal Canyon
Irrigation draft line A
Drainage area 251 square miles
Mean seasonal runoff 358,400 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
NET
Storage Development Curve
COTTONWOOD CREEK
AT SACRAMENTO RIVER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line A
Drainage area 937 square miles
Mean seasonal runoff 913,300 acre feet

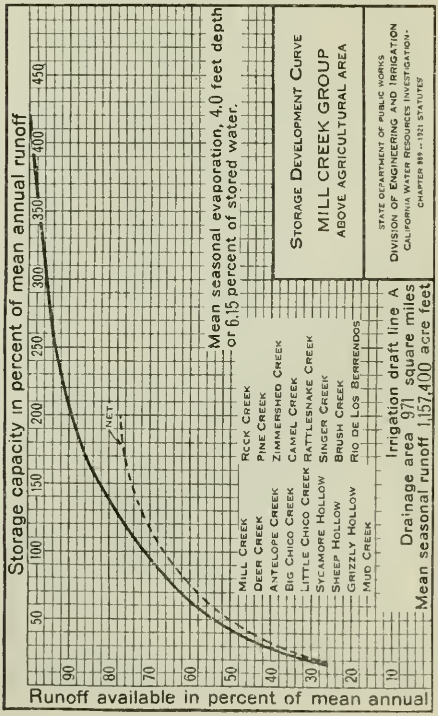
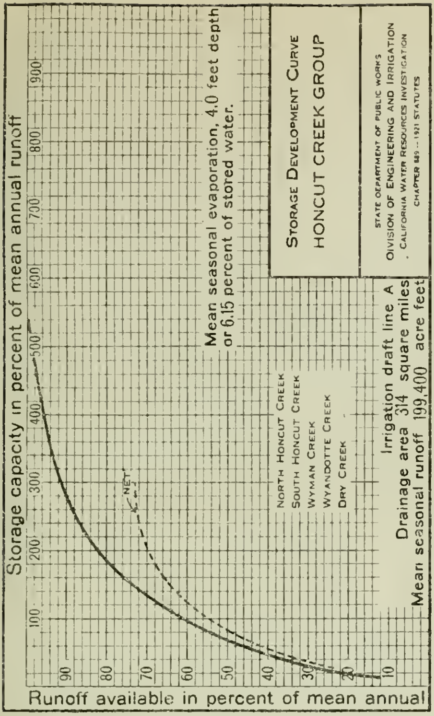
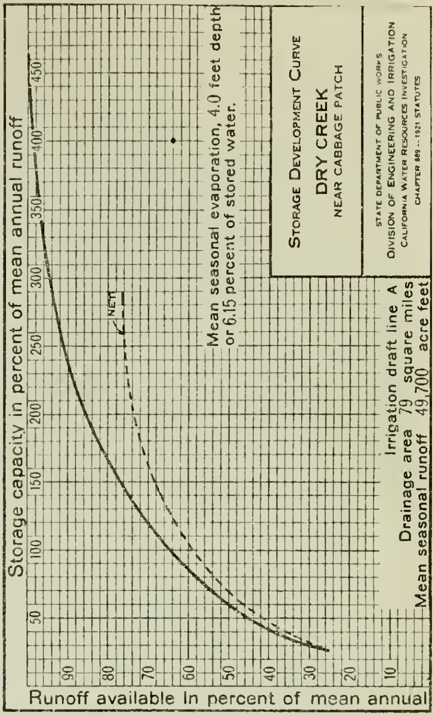

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
NET
Storage Development Curve
MILL CREEK GROUP
ABOVE AGRICULTURAL AREA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Mill Creek
Deer Creek
Antelope Creek
Big Chico Creek
Little Chico Creek
Sycamore Hollow
Sheep Hollow
Grizzly Hollow
Mud Creek
Rock Creek
Pine Creek
Zimmershed Creek
Camel Creek
Rattlesnake Creek
Singer Creek
Brush Creek
Rio de los Berrendos
Irrigation draft line A
Drainage area 971 square miles
Mean seasonal runoff 1,157,400 acre feet

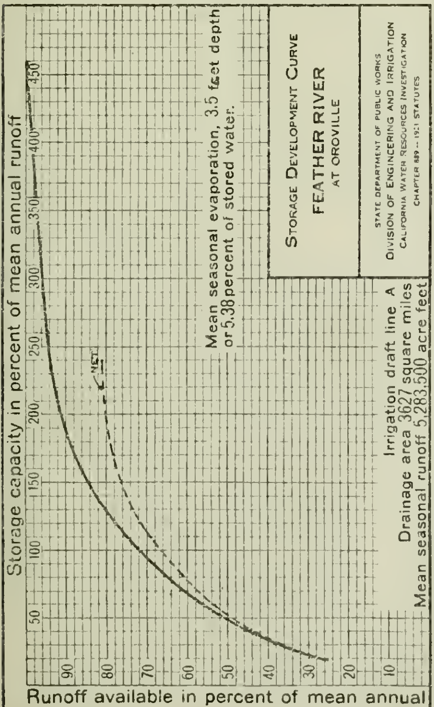
PLATE CLIV.



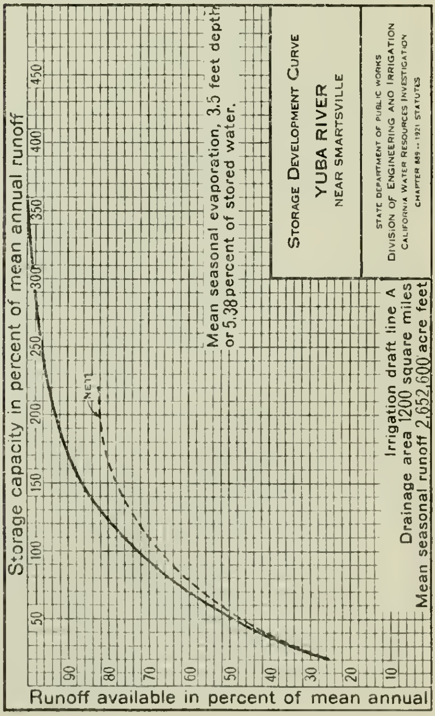
Storage Development Curve
HONCUT CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes
North Honcut Creek
South Honcut Creek
Wyman Creek
Wyandotte Creek
Dry Creek
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Irrigation draft line A
Drainage area 314 square miles
Mean seasonal runoff 199,400 acre feet
NET
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual



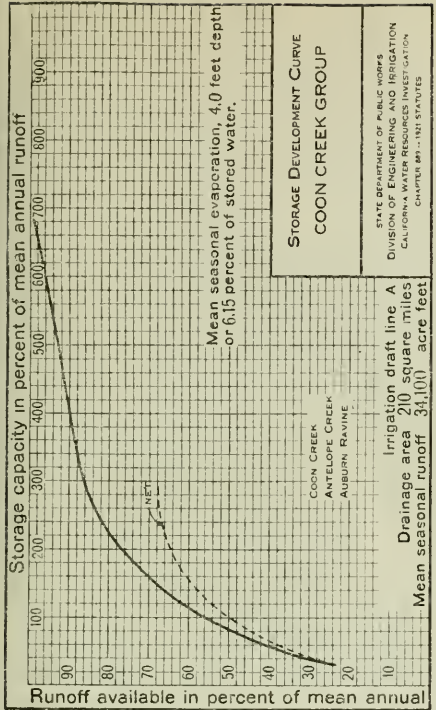
Storage Development Curve
DRY CREEK
NEAR CABBAGE PATCH
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Irrigation draft line A
Drainage area 79 square miles
Mean seasonal runoff 49,700 acre feet
NET
Storage capacity in percent of mean annual runoff
Runoff available In percent of mean annual

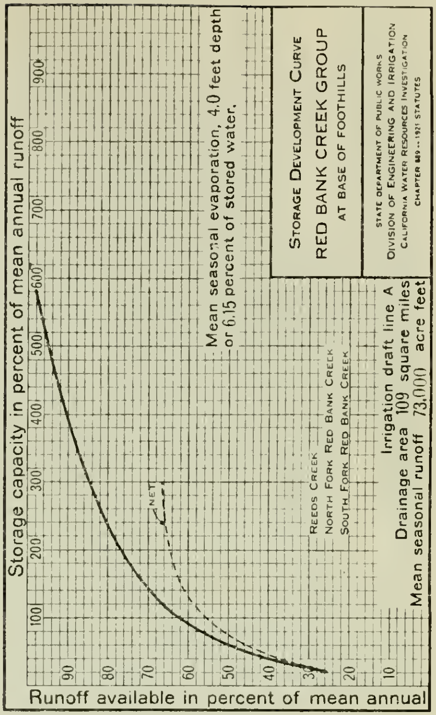


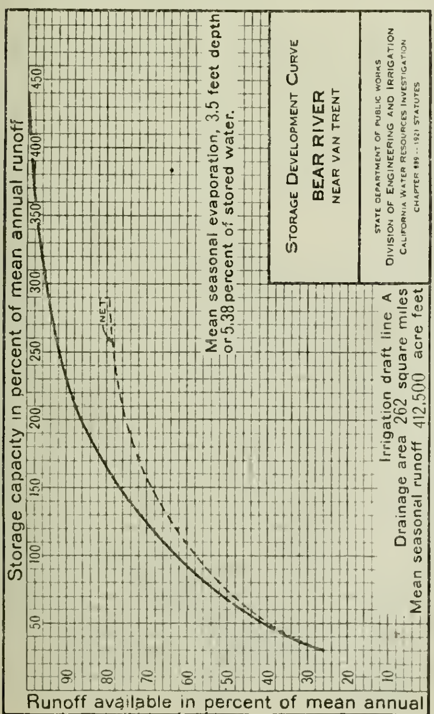
Storage Development Curve
FEATHER RIVER
AT OROVILLE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
Irrigation draft line A
Drainage area 3627 square miles
Mean seasonal runoff 5,283,500 acre feet
NET
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual

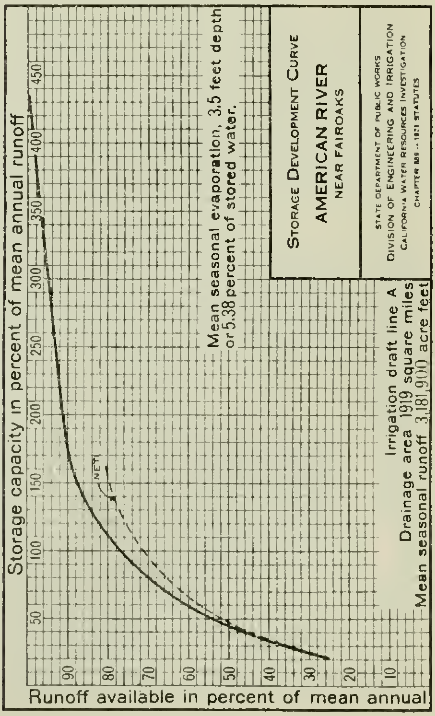


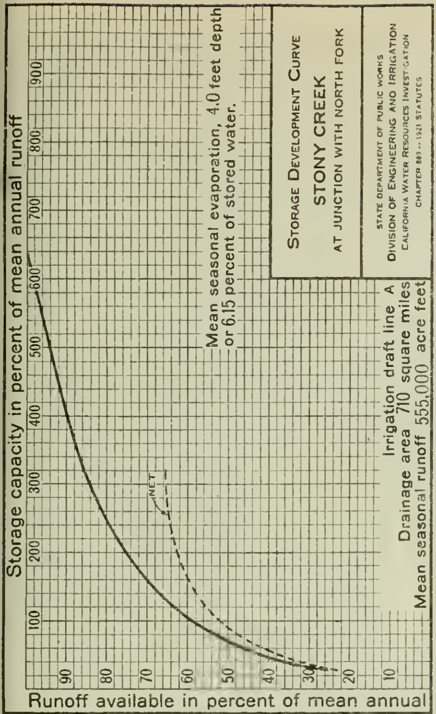
Storage Development Curve
YUBA RIVER
NEAR SMARTSVILLE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
Irrigation draft line A
Drainage area 1200 square miles
Mean seasonal runoff 2,652,600 acre feet
NET
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual

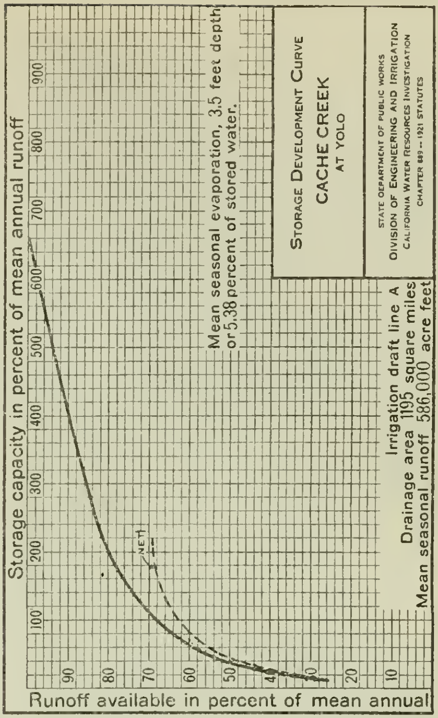

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Coon Creek
Antelope Creek
Auburn Ravine
Irrigation draft line A
Drainage area 210 square miles
Mean seasonal runoff 34,100 acre feet
Storage Development Curve
COON CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 - 1921 Statutes

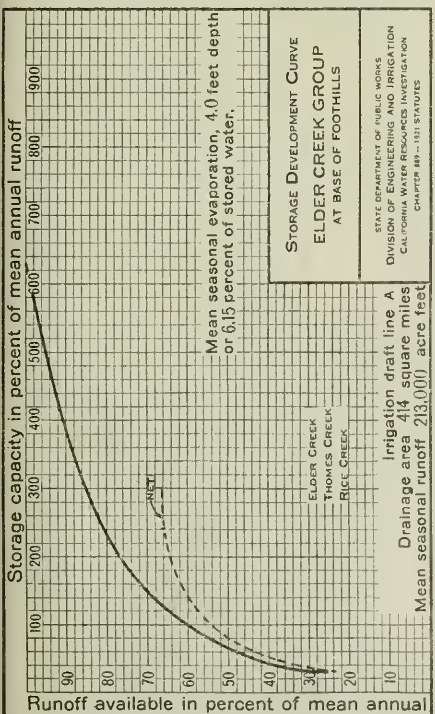

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Reeds Creek
North Fork Red Bank Creek
South Fork Red Bank Creek
Irrigation draft line A
Drainage area 109 square miles
Mean seasonal runoff 73,000 acre feet
Storage Development Curve
RED BANK CREEK GROUP
AT BASE OF FOOTHILLS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 - 1921 Statutes

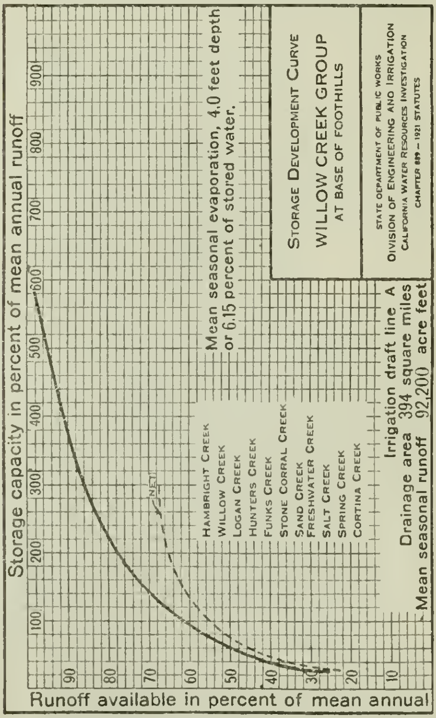

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.5 feet depth or 5.38 percent of stored water.
NET
Irrigation draft line A
Drainage area 262 square miles
Mean seasonal runoff 412,500 acre feet
Storage Development Curve
BEAR RIVER
NEAR VAN TRENT
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 - 1921 Statutes

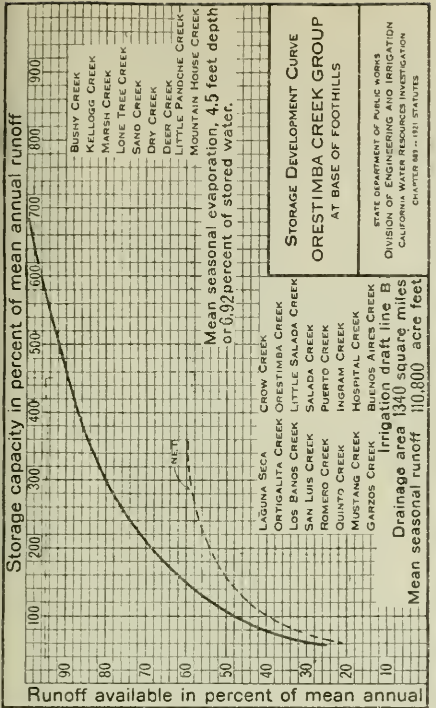

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.5 feet depth or 5.38 percent of stored water.
NET
Irrigation draft line A
Drainage area 1919 square miles
Mean seasonal runoff 3,181,900 acre feet
Storage Development Curve
AMERICAN RIVER
NEAR FAIROAKS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 - 1921 Statutes

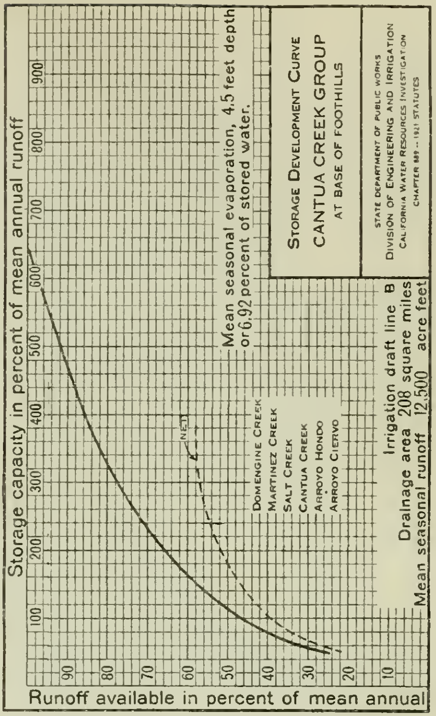

Storage Development Curve
STONY CREEK
AT JUNCTION WITH NORTH FORK
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
NET
Irrigation draft line A
Drainage area 710 square miles
Mean seasonal runoff 555,000 acre feet

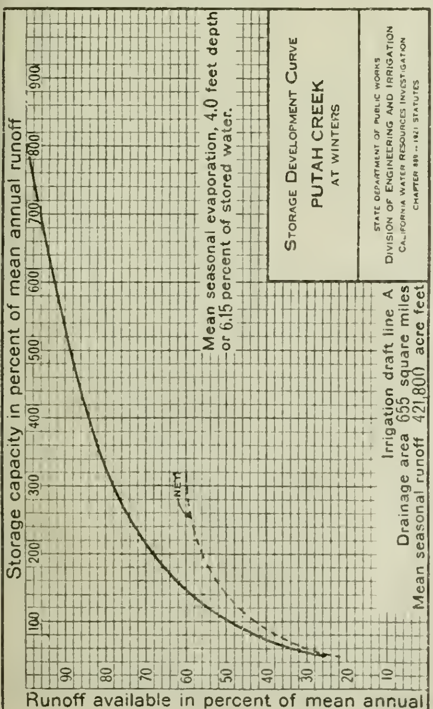

Storage Development Curve
CACHE CREEK
AT YOLO
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
NET
Irrigation draft line A
Drainage area 1195 square miles
Mean seasonal runoff 586,000 acre feet

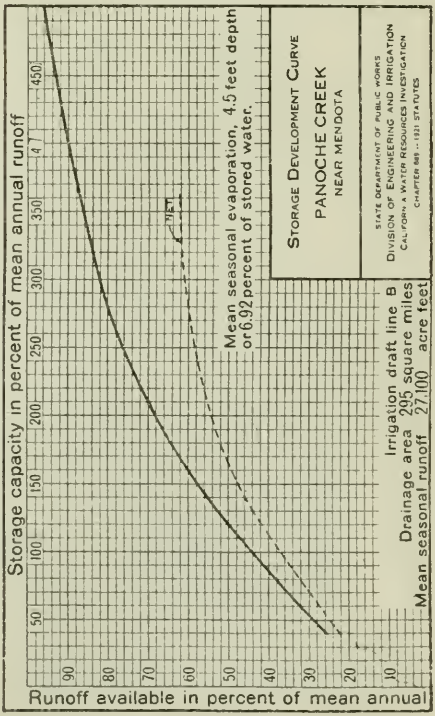

Storage Development Curve
ELDER CREEK GROUP
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
NET
Elder Creek
Thomes Creek
Rice Creek
Irrigation draft line A
Drainage area 414 square miles
Mean seasonal runoff 213,000 acre feet

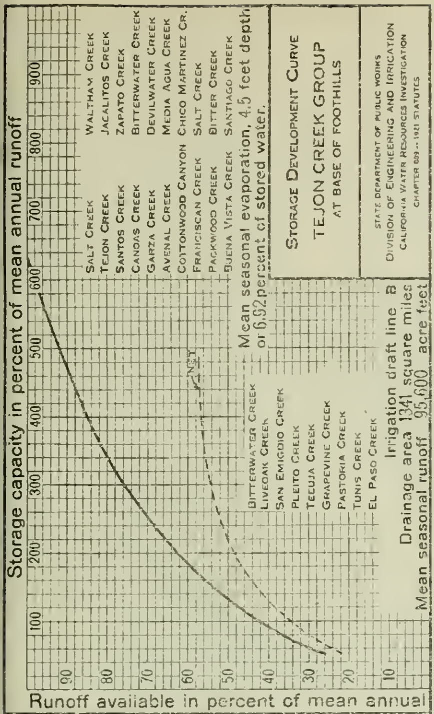

Storage Development Curve
WILLOW CREEK GROUP
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
NET
Hambright Creek
Willow Creek
Logan Creek
Hunters Creek
Funks Creek
Stone Corral Creek
Sand Creek
Freshwater Creek
Salt Creek
Spring Creek
Cortina Creek
Irrigation draft line A
Drainage area 394 square miles
Mean seasonal runoff 92,200 acre feet

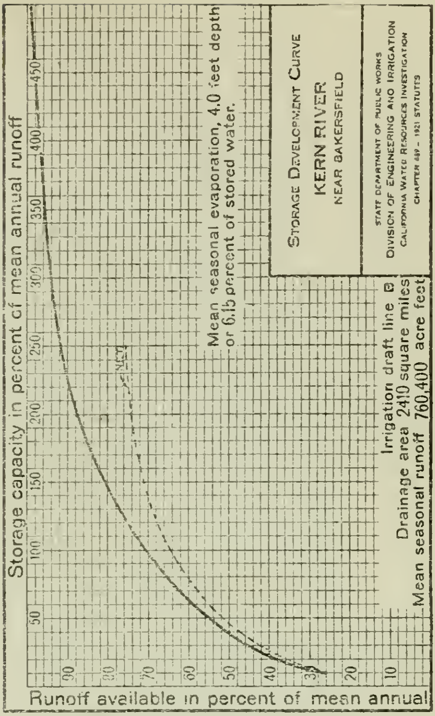

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Bushy Creek
Kellogg Creek
Marsh Creek
Lone Tree Creek
Sand Creek
Dry Creek
Deer Creek
Little Panoche Creek
Mountain House Creek
Laguna Seca
Ortigalita Creek
Los Banos Creek
San Luis Creek
Romero Creek
Quinto Creek
Mustang Creek
Garzos Creek
Crow Creek
Orestimba Creek
Little Salada Creek
Salada Creek
Puerto Creek
Ingram Creek
Hospital Creek
Buenos Aires Creek
NET
Mean seasonal evaporation, 4.5 feet depth or 6.92 percent of stored water.
Storage Development Curve
ORESTIMBA CREEK GROUP
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 .. 1921 STATUTES
Irrigation draft line B
Drainage area 1340 square miles
Mean seasonal runoff 110,800 acre feet

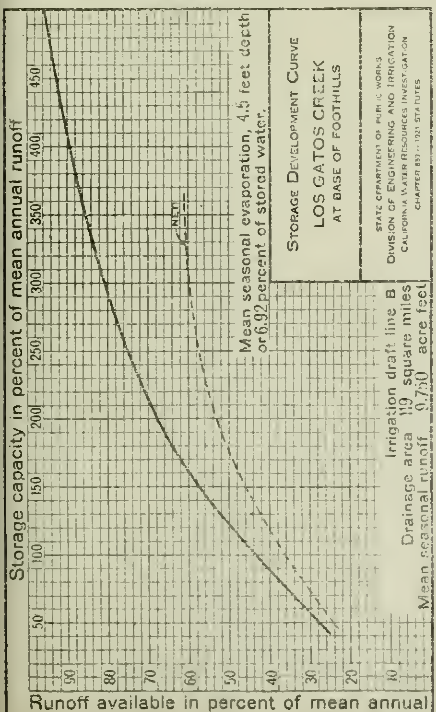

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Domengine Creek
Martinez Creek
Salt Creek
Cantua Creek
Arroyo Hondo
Arroyo Ciervo
NET
Mean seasonal evaporation, 4.5 feet depth or 6.92 percent of stored water.
Storage Development Curve
CANTUA CREEK GROUP
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 .. 1921 STATUTES
Irrigation draft line B
Drainage area 208 square miles
Mean seasonal runoff 12,500 acre feet

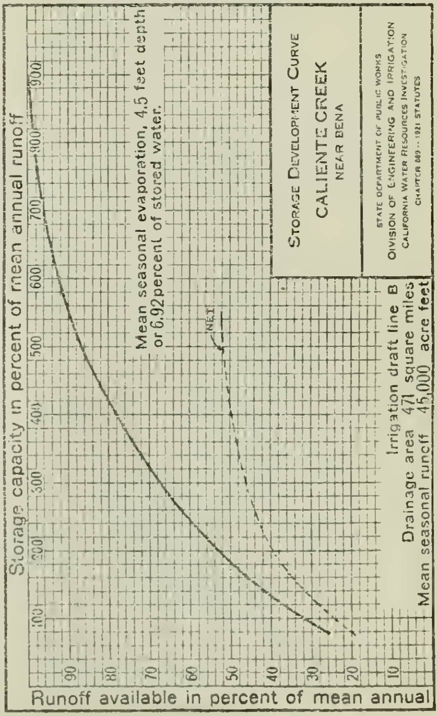

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
Storage Development Curve
PUTAH CREEK
AT WINTERS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 .. 1921 STATUTES
Irrigation draft line A
Drainage area 655 square miles
Mean seasonal runoff 421,800 acre feet

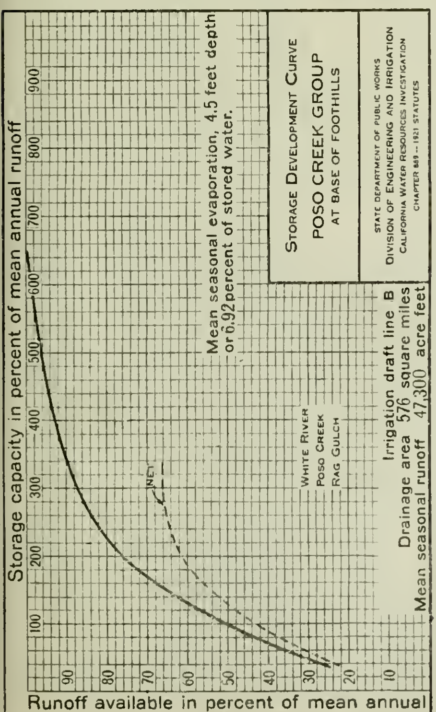

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 4.5 feet depth or 6.92 percent of stored water.
Storage Development Curve
PANOCHE CREEK
NEAR MENDOTA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 .. 1921 STATUTES
Irrigation draft line B
Drainage area 295 square miles
Mean seasonal runoff 27,100 acre feet

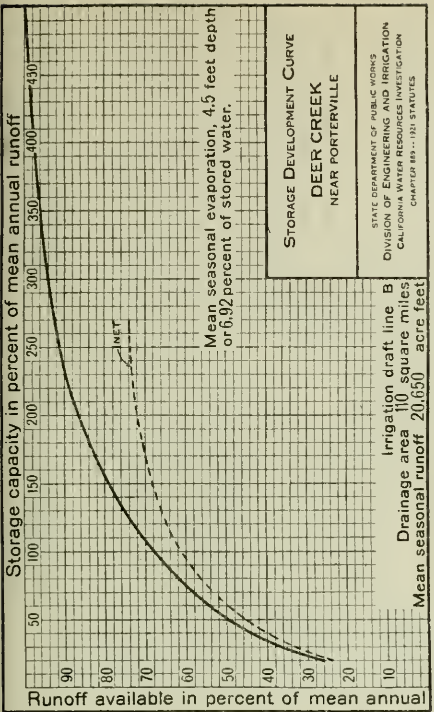

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Salt Creek
Tejon Creek
Santos Creek
Canoas Creek
Garza Creek
Avenal Creek
Cottonwood Canyon
Franciscan Creek
Packwood Creek
Buena Vista Creek
Waltham Creek
Jacalitos Creek
Zapato Creek
Bitterwater Creek
Devilwater Creek
Media Agua Creek
Chico Martinez Cr.
Salt Creek
Bitter Creek
Santiago Creek
Bitterwater Creek
Liveoak Creek
San Emigdio Creek
Pleito Creek
Tecuja Creek
Grapevine Creek
Pastoria Creek
Tunis Creek
El Paso Creek
Mean seasonal evaporation, 4.5 feet depth
or 6.92 percent of stored water.
NET
Irrigation draft line B
Drainage area 1341 square miles
Mean seasonal runoff 95,600 acre feet
Storage Development Curve
TEJON CREEK GROUP
AT BASE OF FOOTHILLS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 – 1921 Statutes

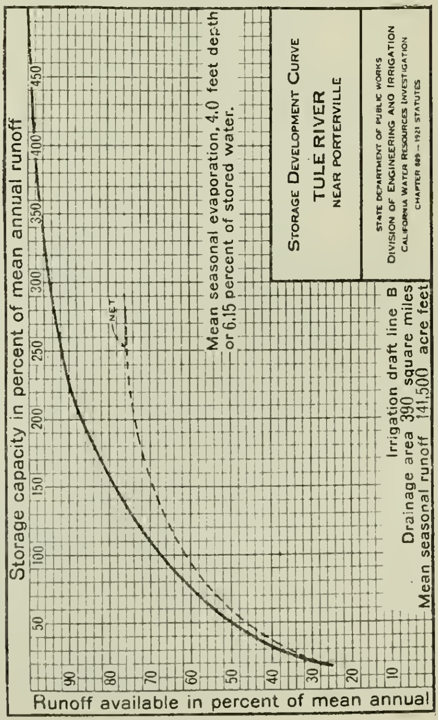

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
NET
Irrigation draft line B
Drainage area 2410 square miles
Mean seasonal runoff 760,400 acre feet
Storage Development Curve
KERN RIVER
NEAR BAKERSFIELD
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 – 1921 Statutes

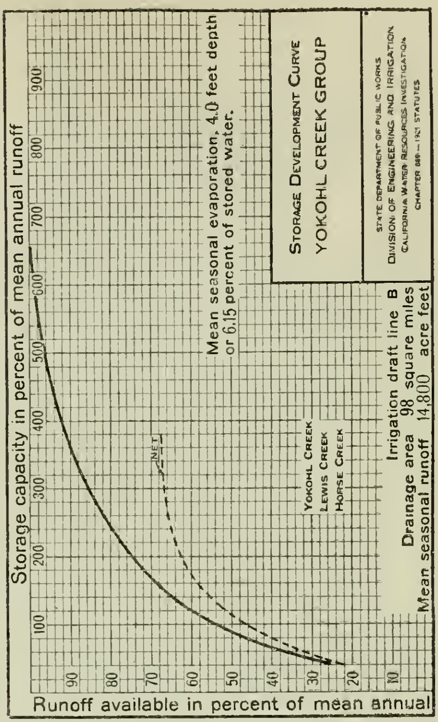

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.5 feet depth
or 6.92 percent of stored water.
NET
Irrigation draft line B
Drainage area 119 square miles
Mean seasonal runoff 9,730 acre feet
Storage Development Curve
LOS GATOS CREEK
AT BASE OF FOOTHILLS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 – 1921 Statutes

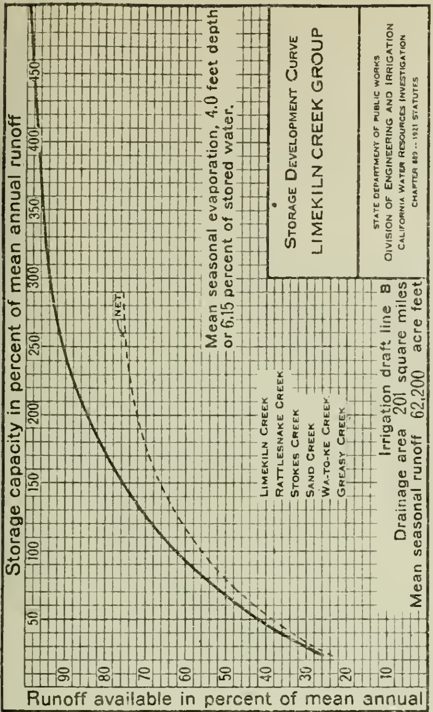

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.5 feet depth
or 6.92 percent of stored water.
NET
Irrigation draft line B
Drainage area 471 square miles
Mean seasonal runoff 45,000 acre feet
Storage Development Curve
CALIENTE CREEK
NEAR BENA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 – 1921 Statutes

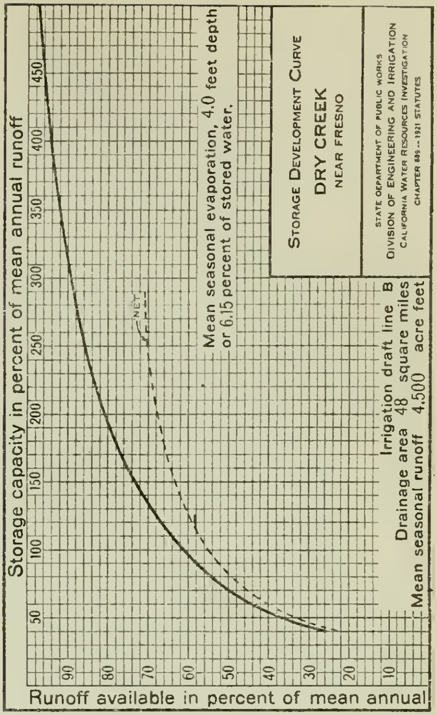

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.5 feet depth
or 6.92 percent of stored water.
NET
White River
Poso Creek
Rag Gulch
Storage Development Curve
POSO CREEK GROUP
AT BASE OF FOOTHILLS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line B
Drainage area 576 square miles
Mean seasonal runoff 47,300 acre feet

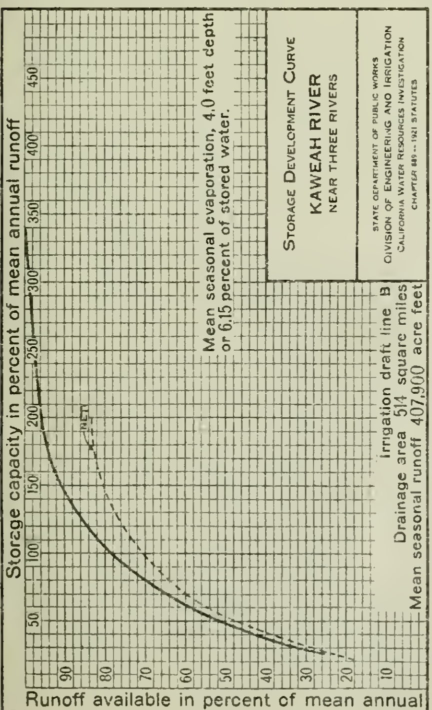

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.5 feet depth
or 6.92 percent of stored water.
NET
Storage Development Curve
DEER CREEK
NEAR PORTERVILLE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line B
Drainage area 110 square miles
Mean seasonal runoff 20,650 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
NET
Storage Development Curve
TULE RIVER
NEAR PORTERVILLE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line B
Drainage area 390 square miles
Mean seasonal runoff 141,500 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
NET
Yokohl Creek
Lewis Creek
Horse Creek
Storage Development Curve
YOKOHL CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line B
Drainage area 98 square miles
Mean seasonal runoff 14,800 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Limekiln Creek
Rattlesnake Creek
Stokes Creek
Sand Creek
Wa-to-ke Creek
Greasy Creek
Storage Development Curve
LIMEKILN CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line B
Drainage area 201 square miles
Mean seasonal runoff 62,200 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Storage Development Curve
DRY CREEK
NEAR FRESNO
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line B
Drainage area 48 square miles
Mean seasonal runoff 4,500 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Storage Development Curve
KAWEAH RIVER
NEAR THREE RIVERS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line B
Drainage area 514 square miles
Mean seasonal runoff 407,900 acre feet

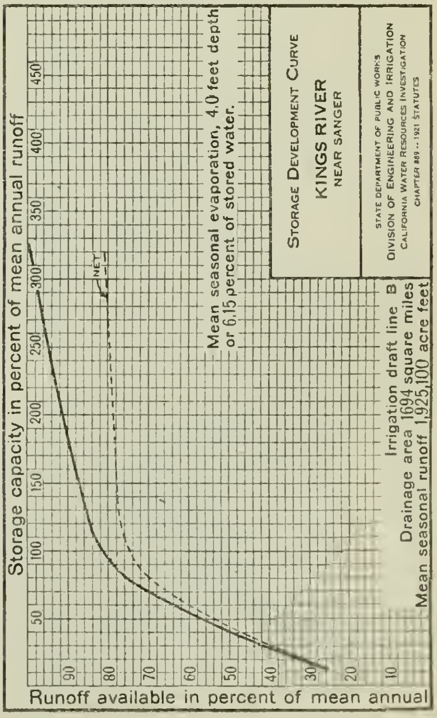
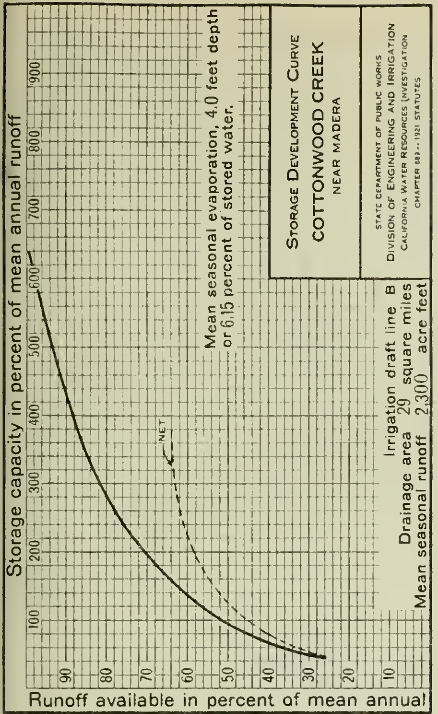
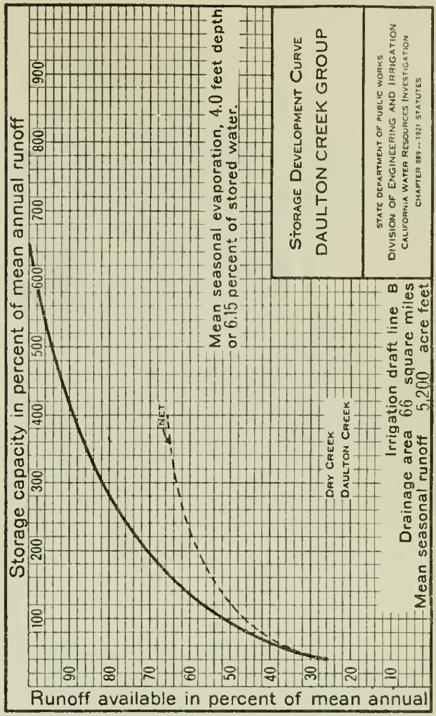
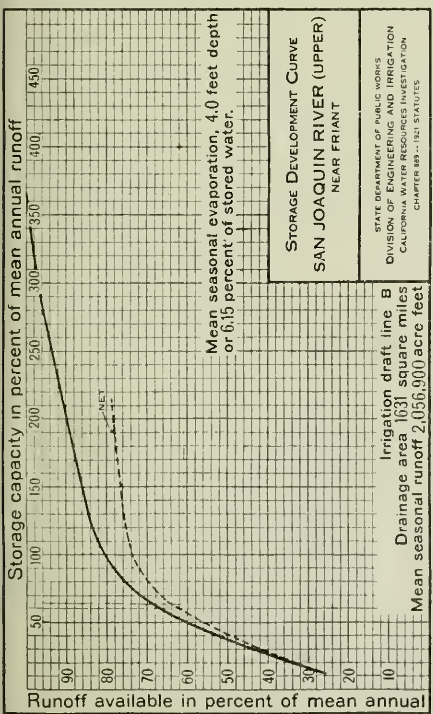
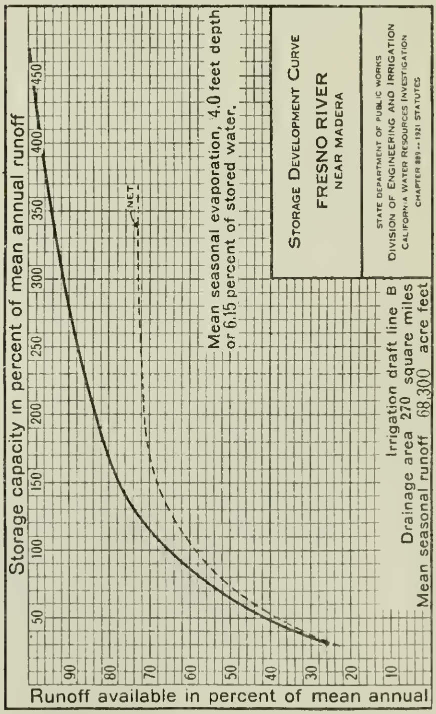

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Storage Development Curve
KINGS RIVER
NEAR SANGER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line B
Drainage area 1694 square miles
Mean seasonal runoff 1,925,100 acre feet

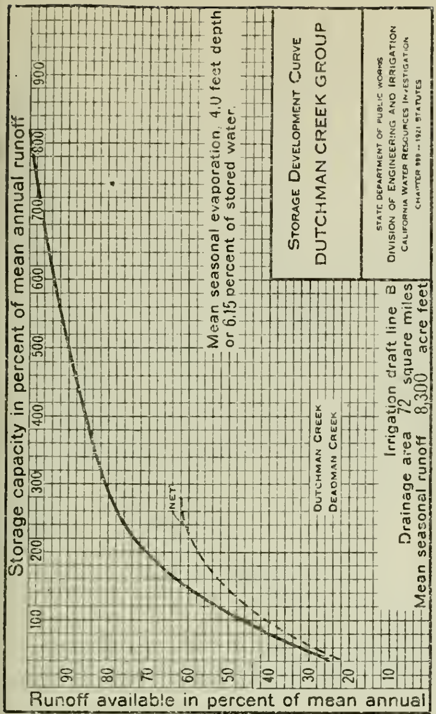
PLATE CLXI.

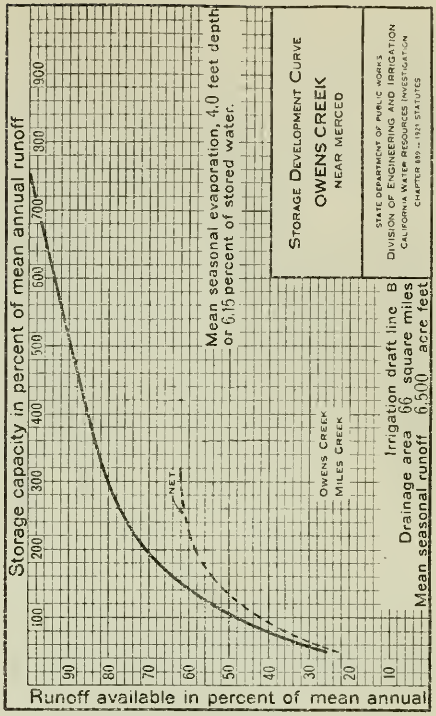

Storage Development Curve
COTTONWOOD CREEK
NEAR MADERA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Irrigation draft line B
Drainage area 29 square miles
Mean seasonal runoff 2,300 acre feet
NET

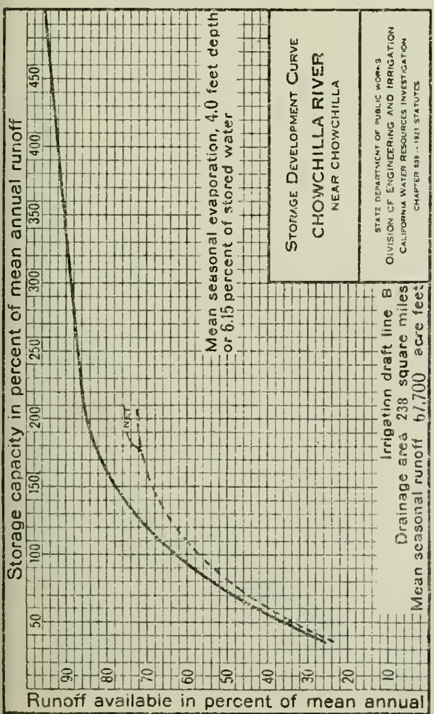

Storage Development Curve
DAULTON CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Dry Creek
Daulton Creek
Irrigation draft line B
Drainage area 66 square miles
Mean seasonal runoff 5,200 acre feet
NET


Storage Development Curve
SAN JOAQUIN RIVER (UPPER)
NEAR FRIANT
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Irrigation draft line B
Drainage area 1631 square miles
Mean seasonal runoff 2,056,900 acre feet
NET


Storage Development Curve
FRESNO RIVER
NEAR MADERA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Irrigation draft line B
Drainage area 270 square miles
Mean seasonal runoff 68,300 acre feet
NET


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Dutchman Creek
Deadman Creek
Irrigation draft line B
Drainage area 72 square miles
Mean seasonal runoff 8,300 acre feet
Storage Development Curve
DUTCHMAN CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Owens Creek
Miles Creek
Irrigation draft line B
Drainage area 66 square miles
Mean seasonal runoff 6,500 acre feet
Storage Development Curve
OWENS CREEK
NEAR MERCED
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water
NET
Irrigation draft line B
Drainage area 238 square miles
Mean seasonal runoff 67,700 acre feet
Storage Development Curve
CHOWCHILLA RIVER
NEAR CHOWCHILLA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

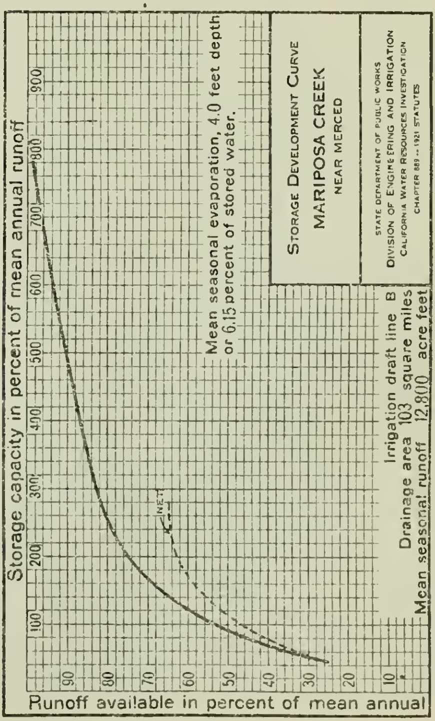
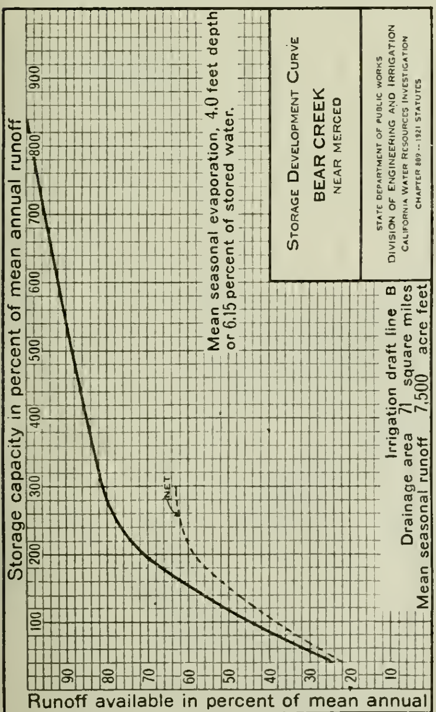
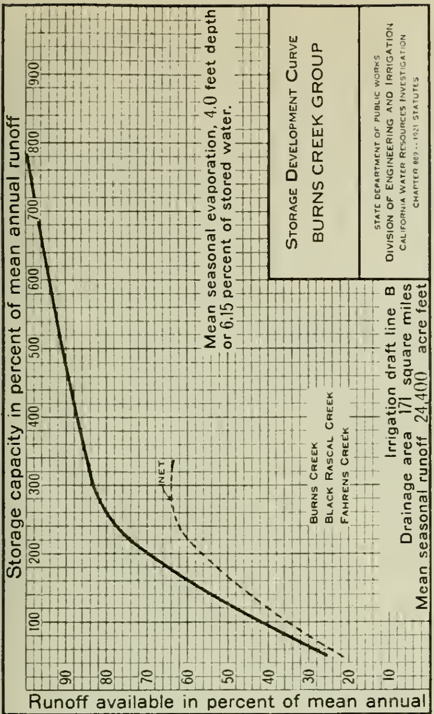
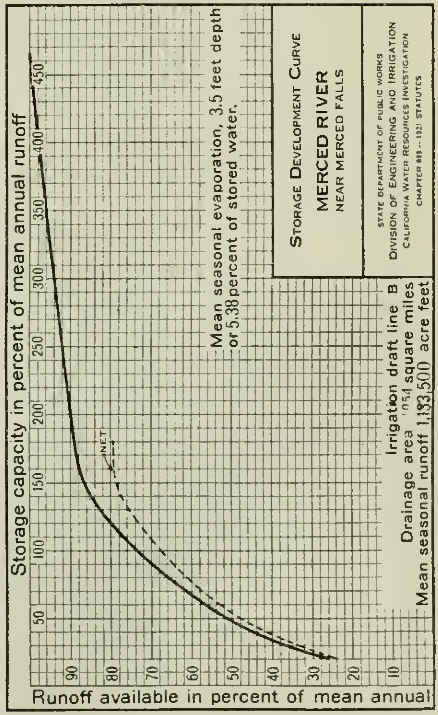
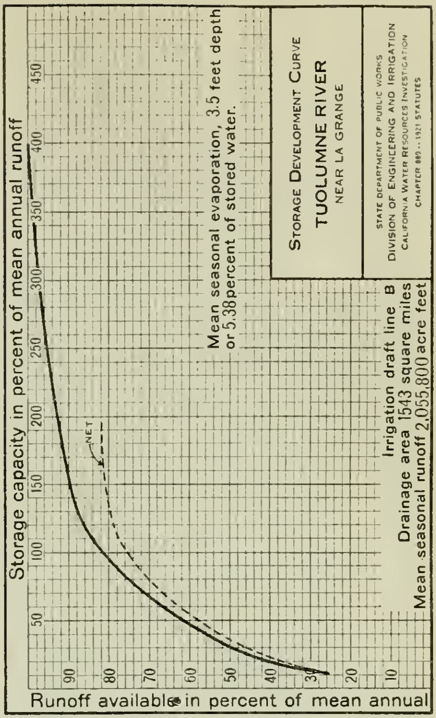

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Irrigation draft line B
Drainage area 103 square miles
Mean seasonal runoff 12,800 acre feet
Storage Development Curve
MARIPOSA CREEK
NEAR MERCED
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

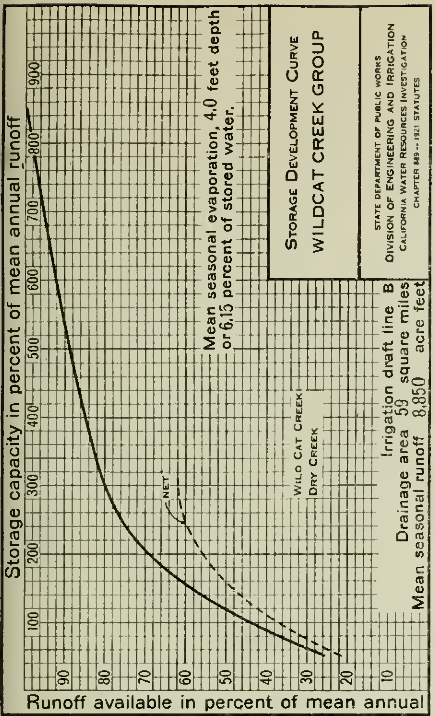
PLATE CLXIII.



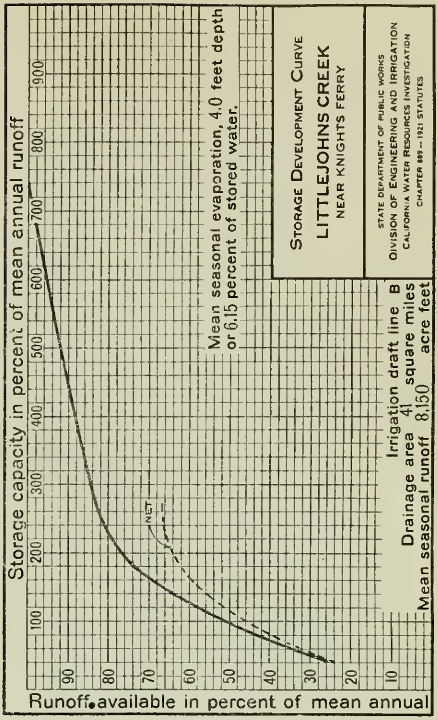




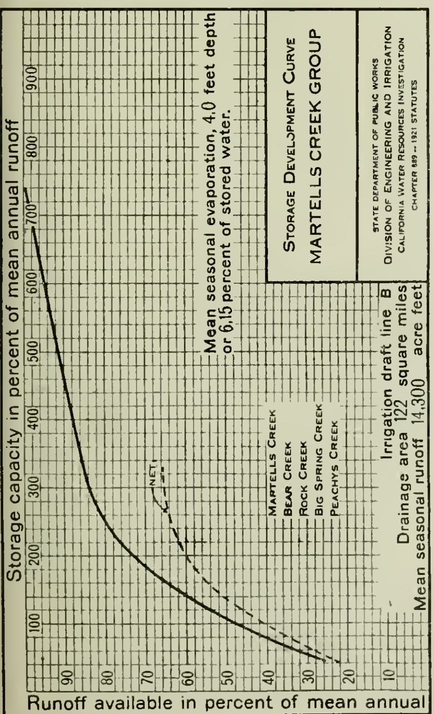




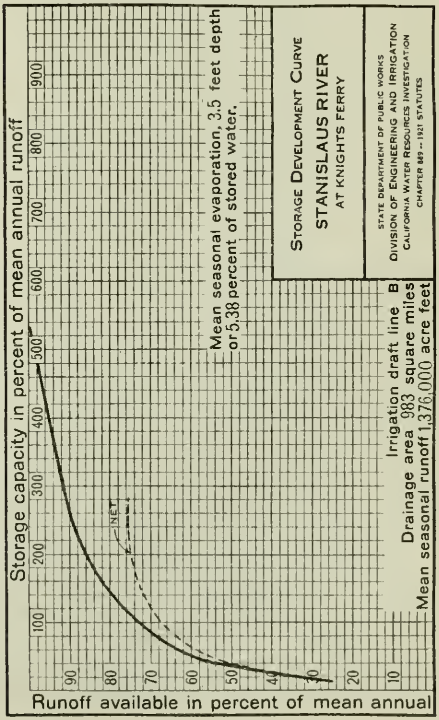
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Wild Cat Creek
Dry Creek
Irrigation draft line B
Drainage area 59 square miles
Mean seasonal runoff 8,850 acre feet
Storage Development Curve
WILDCAT CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes



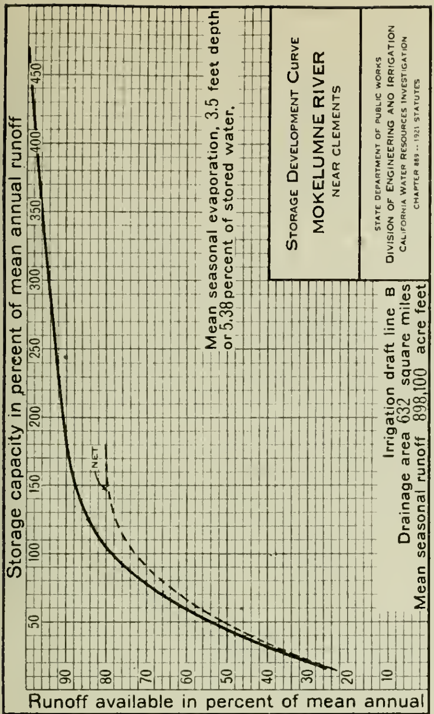
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Irrigation draft line B
Drainage area 41 square miles
Mean seasonal runoff 8,150 acre feet
Storage Development Curve
LITTLEJOHNS CREEK
NEAR KNIGHTS FERRY
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

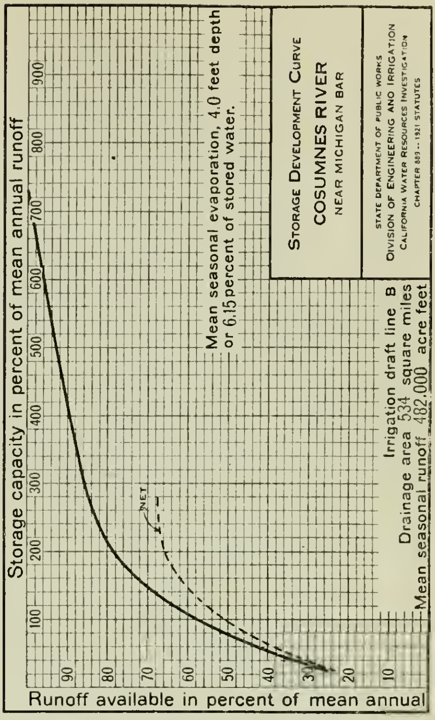


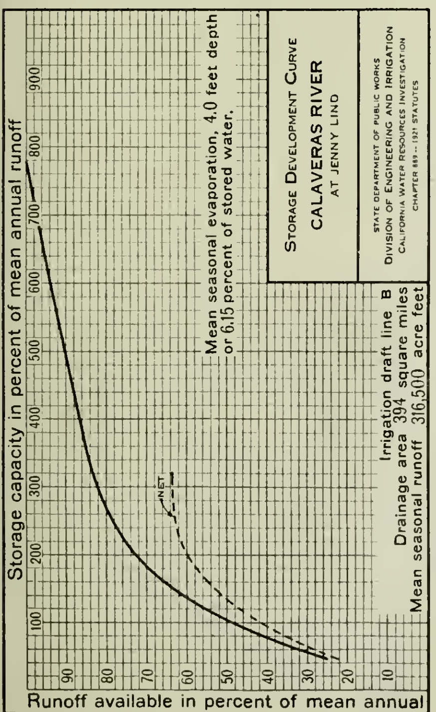
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Martells Creek
Bear Creek
Rock Creek
Big Spring Creek
Peachys Creek
Irrigation draft line B
Drainage area 122 square miles
Mean seasonal runoff 14,300 acre feet
Storage Development Curve
MARTELLS CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

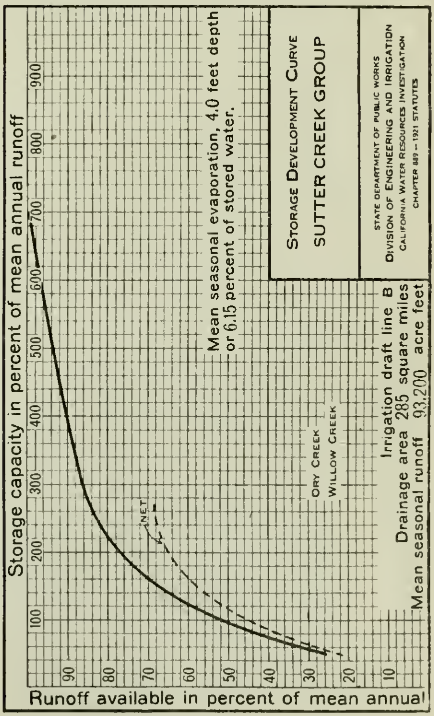


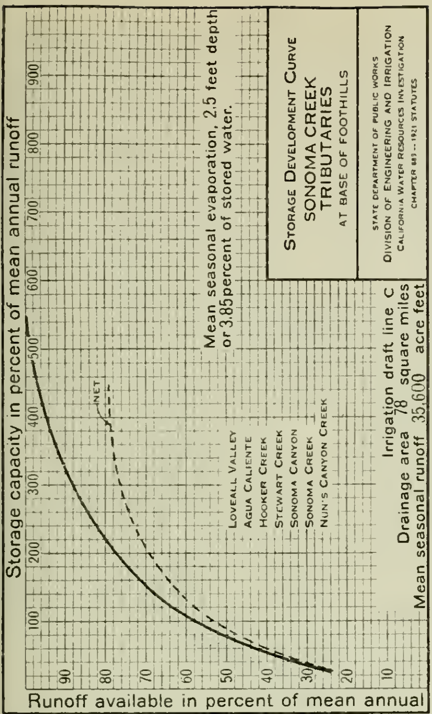
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.5 feet depth or 5.38 percent of stored water.
NET
Irrigation draft line B
Drainage area 983 square miles
Mean seasonal runoff 1,376,000 acre feet
Storage Development Curve
STANISLAUS RIVER
AT KNIGHTS FERRY
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

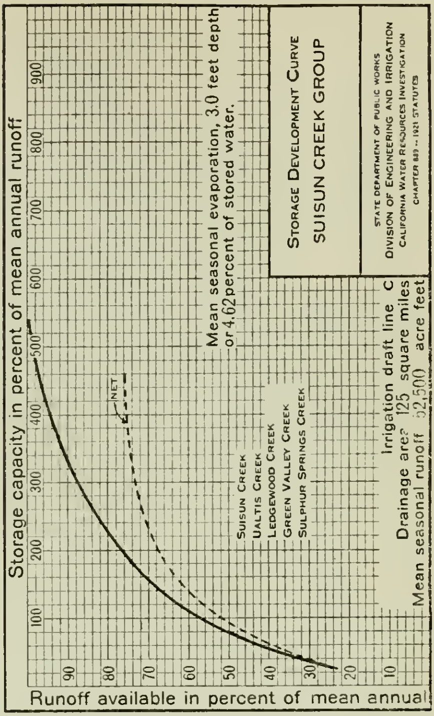

Storage Development Curve
MOKELUMNE RIVER
NEAR CLEMENTS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 - 1921 Statutes
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
Irrigation draft line B
Drainage area 632 square miles
Mean seasonal runoff 898,100 acre feet
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET

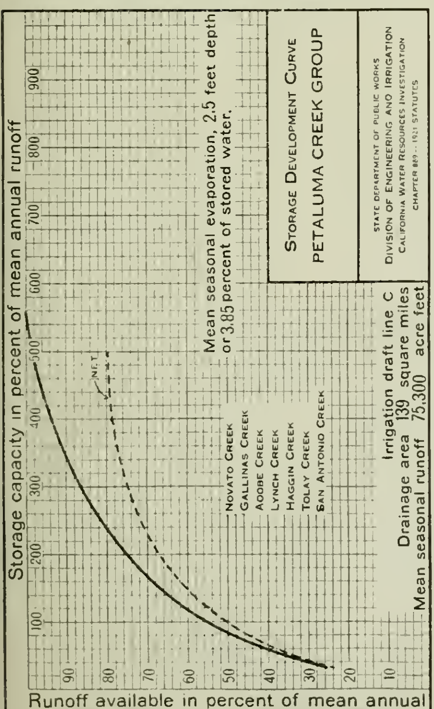

Storage Development Curve
COSUMNES RIVER
NEAR MICHIGAN BAR
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 - 1921 Statutes
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Irrigation draft line B
Drainage area 534 square miles
Mean seasonal runoff 482,000 acre feet
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET

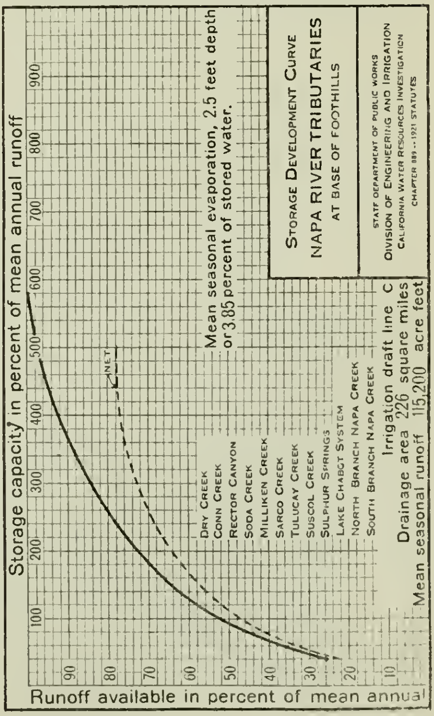

Storage Development Curve
CALAVERAS RIVER
AT JENNY LIND
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 - 1921 Statutes
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Irrigation draft line B
Drainage area 394 square miles
Mean seasonal runoff 316,500 acre feet
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET

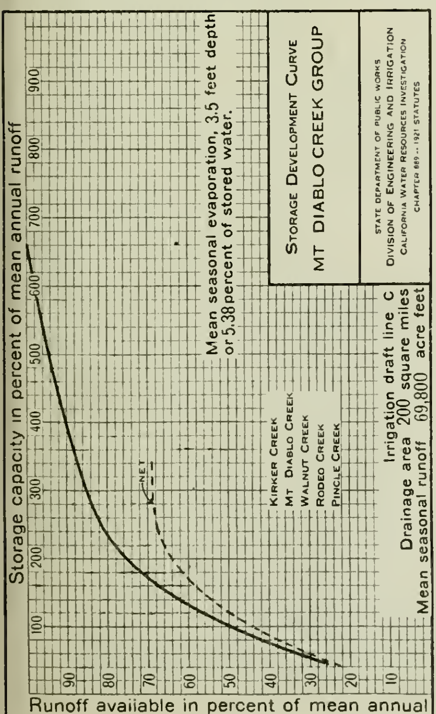

Storage Development Curve
SUTTER CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 - 1921 Statutes
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Dry Creek
Willow Creek
Irrigation draft line B
Drainage area 285 square miles
Mean seasonal runoff 93,200 acre feet
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET

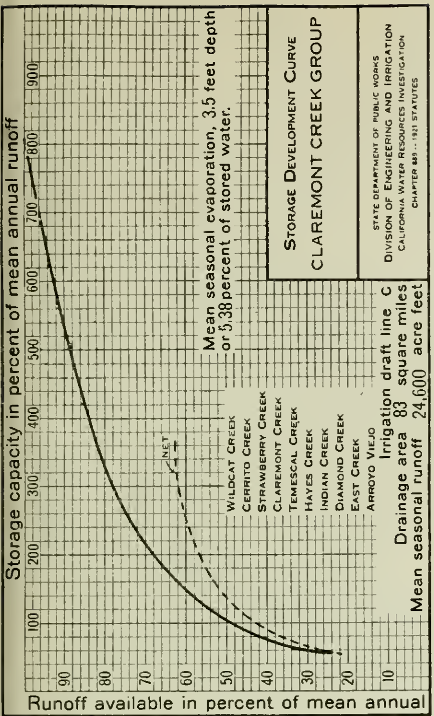

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 2.5 feet depth
or 3.85 percent of stored water.
NET
Loveall Valley
Agua Caliente
Hooker Creek
Stewart Creek
Sonoma Canyon
Sonoma Creek
Nun's Canyon Creek
Storage Development Curve
SONOMA CREEK
TRIBUTARIES
AT BASE OF FOOTHILLS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 78 square miles
Mean seasonal runoff 35,600 acre feet

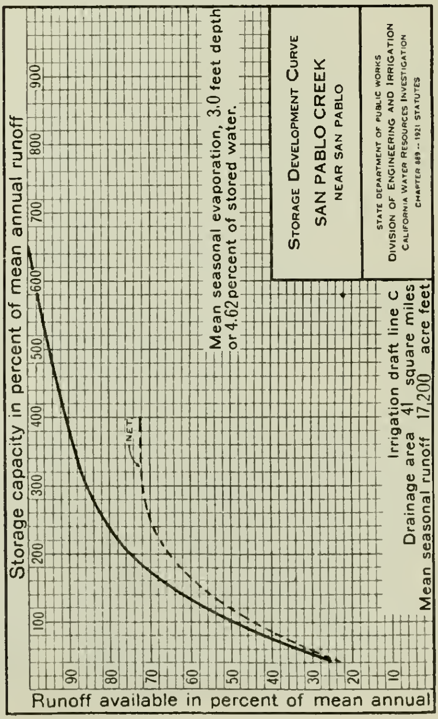

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
NET
Suisun Creek
Ualtis Creek
Ledgewood Creek
Green Valley Creek
Sulphur Springs Creek
Storage Development Curve
SUISUN CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 125 square miles
Mean seasonal runoff acre feet

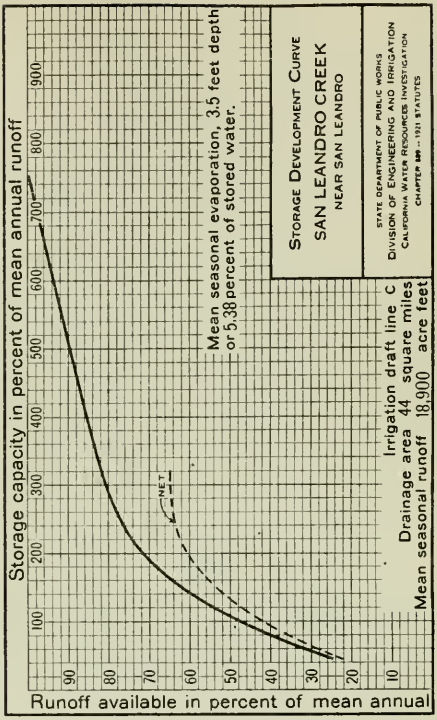

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 2.5 feet depth
or 3.85 percent of stored water.
NET
Novato Creek
Gallinas Creek
Adobe Creek
Lynch Creek
Haggin Creek
Tolay Creek
San Antonio Creek
Storage Development Curve
PETALUMA CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 139 square miles
Mean seasonal runoff 75,300 acre feet

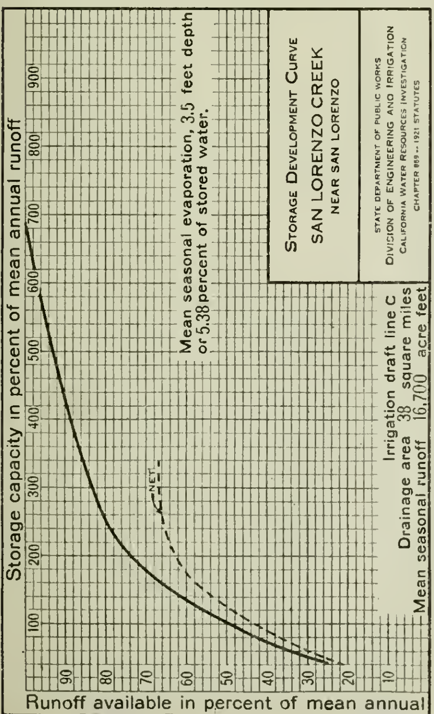

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 2.5 feet depth
or 3.85 percent of stored water.
NET
Dry Creek
Conn Creek
Rector Canyon
Soda Creek
Milliken Creek
Sarco Creek
Tulucay Creek
Suscol Creek
Sulphur Springs
Lake Chabot System
North Branch Napa Creek
South Branch Napa Creek
Storage Development Curve
NAPA RIVER TRIBUTARIES
AT BASE OF FOOTHILLS
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 226 square miles
Mean seasonal runoff 115,200 acre feet

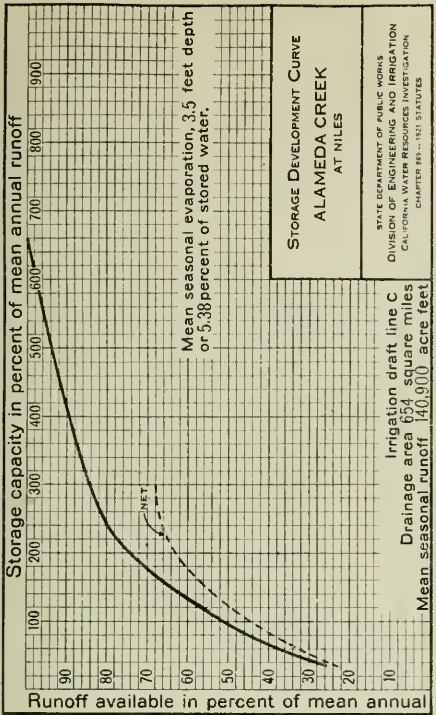

Storage capacity in percent of mean annual runoff
100
200
300
400
500
600
700
800
900
Runoff available in percent of mean annual
90
80
70
60
50
40
30
20
10
NET
Mean seasonal evaporation, 3.5 feet depth or 5.38 percent of stored water.
Kirker Creek
Mt Diablo Creek
Walnut Creek
Rodeo Creek
Pingle Creek
Irrigation draft line C
Drainage area 200 square miles
Mean seasonal runoff 69,800 acre feet
Storage Development Curve
MT DIABLO CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes

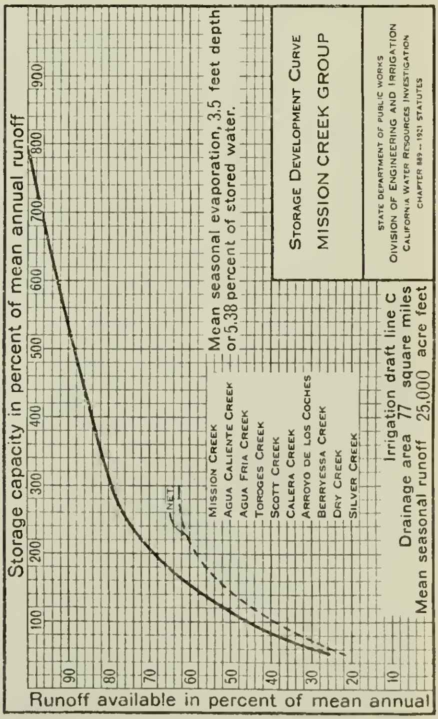

Storage capacity in percent of mean annual runoff
100
200
300
400
500
600
700
800
900
Runoff available in percent of mean annual
90
80
70
60
50
40
30
20
10
NET
Mean seasonal evaporation, 3.5 feet depth or 5.38 percent of stored water.
Wildcat Creek
Cerrito Creek
Strawberry Creek
Claremont Creek
Temescal Creek
Hayes Creek
Indian Creek
Diamond Creek
East Creek
Arroyo Viejo
Irrigation draft line C
Drainage area 83 square miles
Mean seasonal runoff 24,600 acre feet
Storage Development Curve
CLAREMONT CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes

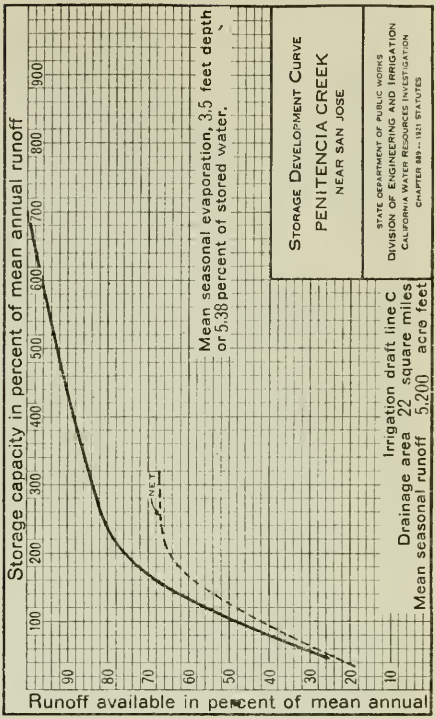

Storage capacity in percent of mean annual runoff
100
200
300
400
500
600
700
800
900
Runoff available in percent of mean annual
90
80
70
60
50
40
30
20
10
NET
Mean seasonal evaporation, 3.0 feet depth or 4.62 percent of stored water.
Irrigation draft line C
Drainage area 41 square miles
Mean seasonal runoff 17,200 acre feet
Storage Development Curve
SAN PABLO CREEK
NEAR SAN PABLO
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes

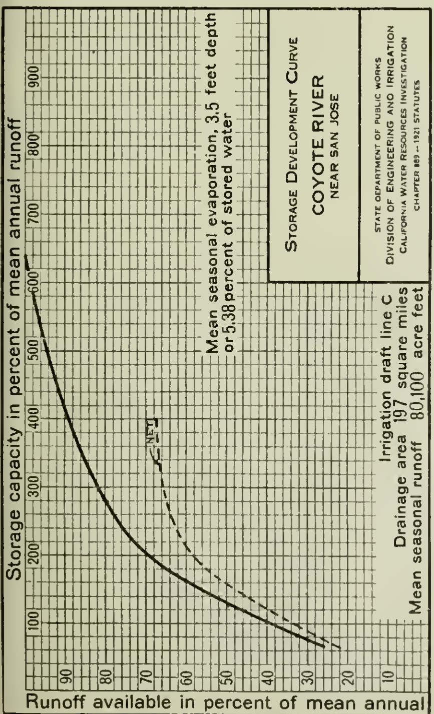

Storage capacity in percent of mean annual runoff
100
200
300
400
500
600
700
800
900
Runoff available in percent of mean annual
90
80
70
60
50
40
30
20
10
NET
Mean seasonal evaporation, 3.5 feet depth or 5.38 percent of stored water.
Irrigation draft line C
Drainage area 44 square miles
Mean seasonal runoff 18,900 acre feet
Storage Development Curve
SAN LEANDRO CREEK
NEAR SAN LEANDRO
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes

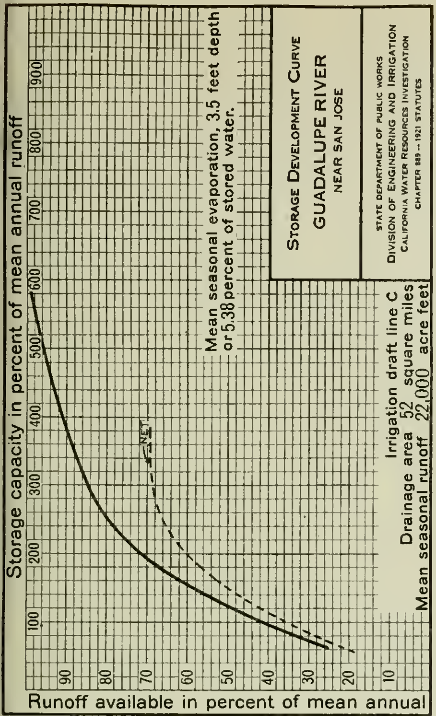

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
Irrigation draft line C
Drainage area 38 square miles
Mean seasonal runoff 16,700 acre feet
STORAGE DEVELOPMENT CURVE
SAN LORENZO CREEK
NEAR SAN LORENZO
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

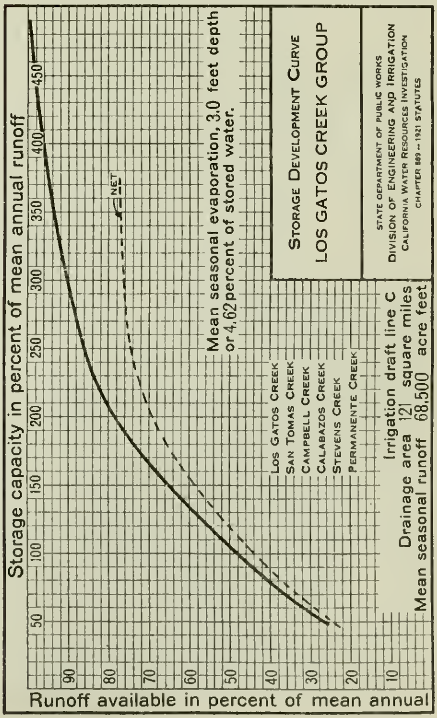

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
Irrigation draft line C
Drainage area 654 square miles
Mean seasonal runoff 140,900 acre feet
STORAGE DEVELOPMENT CURVE
ALAMEDA CREEK
AT NILES
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

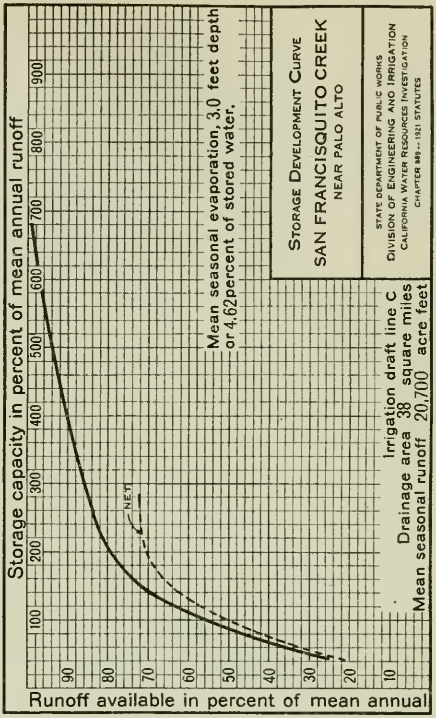

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
MISSION CREEK
AGUA CALIENTE CREEK
AGUA FRIA CREEK
TORODGES CREEK
SCOTT CREEK
CALERA CREEK
ARROYO DE LOS COCHES
BERRYESSA CREEK
DRY CREEK
SILVER CREEK
Irrigation draft line C
Drainage area 77 square miles
Mean seasonal runoff 25,000 acre feet
STORAGE DEVELOPMENT CURVE
MISSION CREEK GROUP
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES

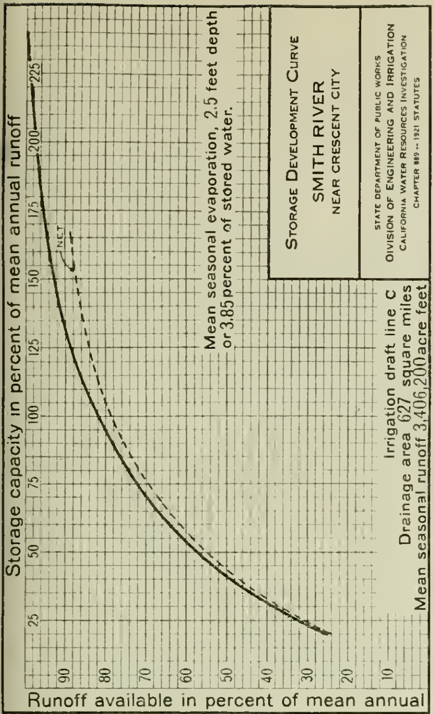

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
Irrigation draft line C
Drainage area 22 square miles
Mean seasonal runoff 5,200 acre feet
STORAGE DEVELOPMENT CURVE
PENITENCIA CREEK
NEAR SAN JOSE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES


Storage capacity in percent of mean annual runoff
100 200 300 400 500 600 700 800 900
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
NET
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water
Storage Development Curve
COYOTE RIVER
NEAR SAN JOSE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 197 square miles
Mean seasonal runoff 80,100 acre feet

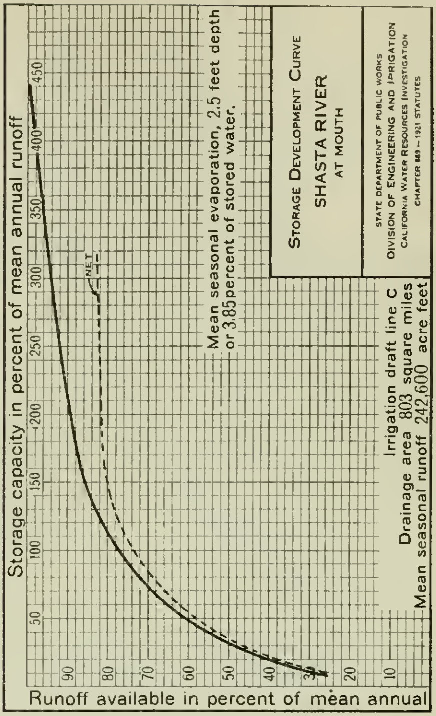

Storage capacity in percent of mean annual runoff
100 200 300 400 500 600 700 800 900
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
NET
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
Storage Development Curve
GUADALUPE RIVER
NEAR SAN JOSE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 52 square miles
Mean seasonal runoff 22,000 acre feet


Storage capacity in percent of mean annual runoff
50 100 150 200 250 300 350 400 450
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
Los Gatos Creek
San Tomas Creek
Campbell Creek
Calabazos Creek
Stevens Creek
Permanente Creek
Storage Development Curve
LOS GATOS CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 121 square miles
Mean seasonal runoff 68,500 acre feet

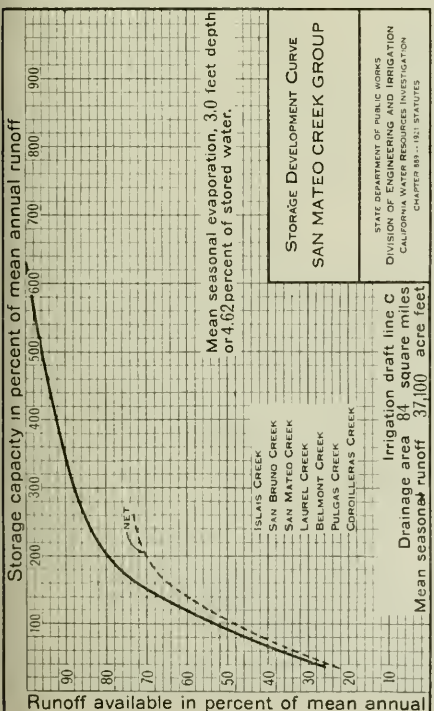

Storage capacity in percent of mean annual runoff
100 200 300 400 500 600 700 800 900
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
Storage Development Curve
SAN FRANCISQUITO CREEK
NEAR PALO ALTO
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 38 square miles
Mean seasonal runoff 20,700 acre feet



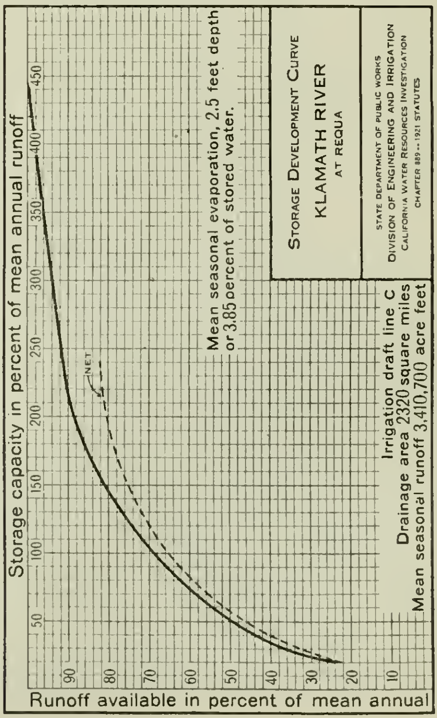
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
NET
Storage Development Curve
SMITH RIVER
NEAR CRESCENT CITY
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 627 square miles
Mean seasonal runoff 3,406,200 acre feet



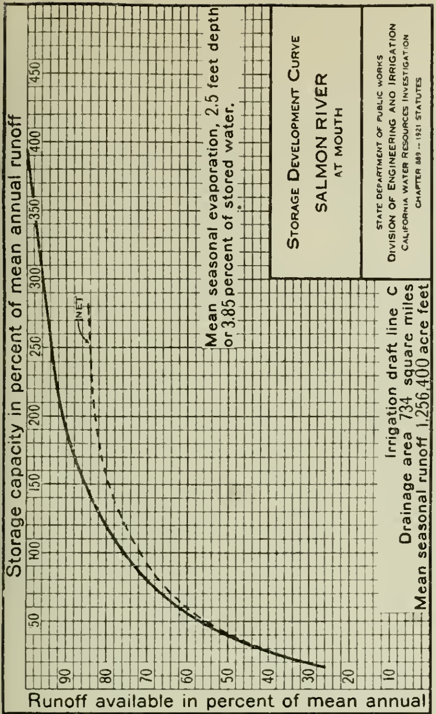
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
NET
Storage Development Curve
SHASTA RIVER
AT MOUTH
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 803 square miles
Mean seasonal runoff 242,600 acre feet

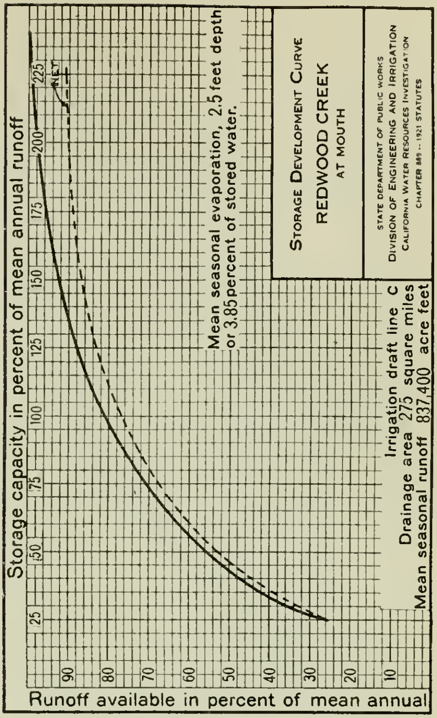


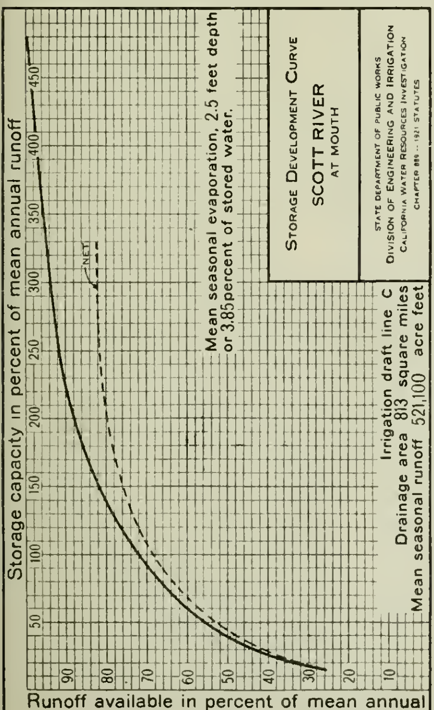
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth or 4.62 percent of stored water.
NET
Islais Creek
San Bruno Creek
San Mateo Creek
Laurel Creek
Belmont Creek
Pulgas Creek
Cordilleras Creek
Storage Development Curve
SAN MATEO CREEK GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 84 square miles
Mean seasonal runoff 37,100 acre feet

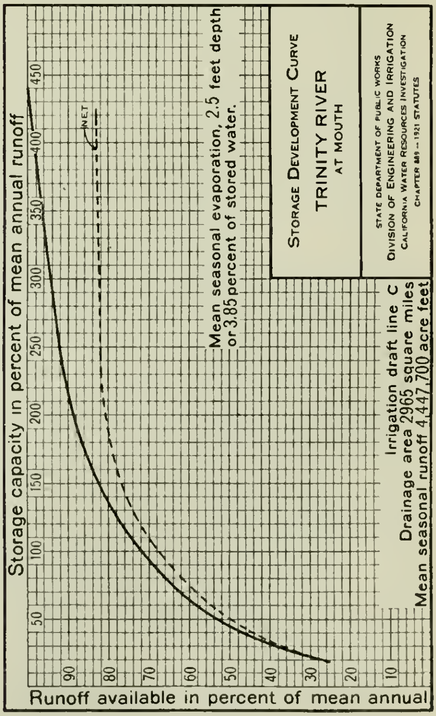


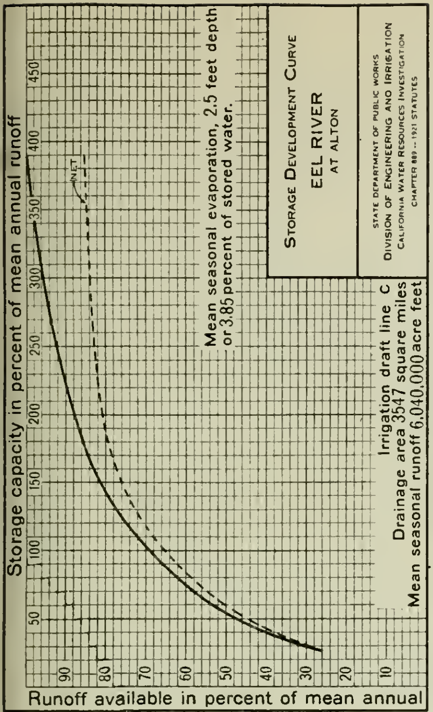
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
NET
Storage Development Curve
KLAMATH RIVER
AT REQUA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 2320 square miles
Mean seasonal runoff 3,410,700 acre feet

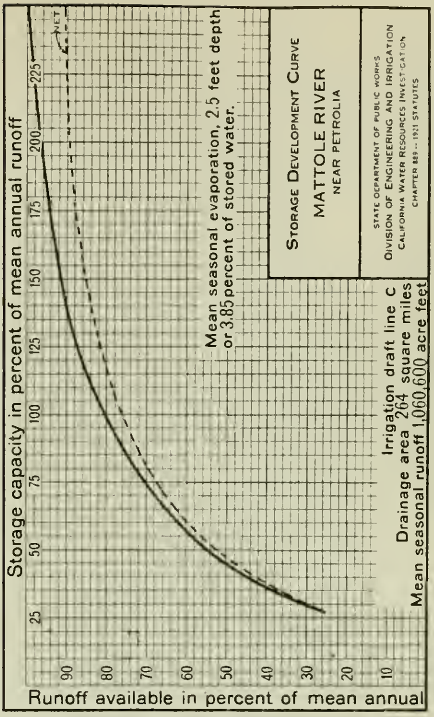

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
NET
Storage Development Curve
SALMON RIVER
AT MOUTH
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line C
Drainage area 734 square miles
Mean seasonal runoff 1,256,400 acre feet

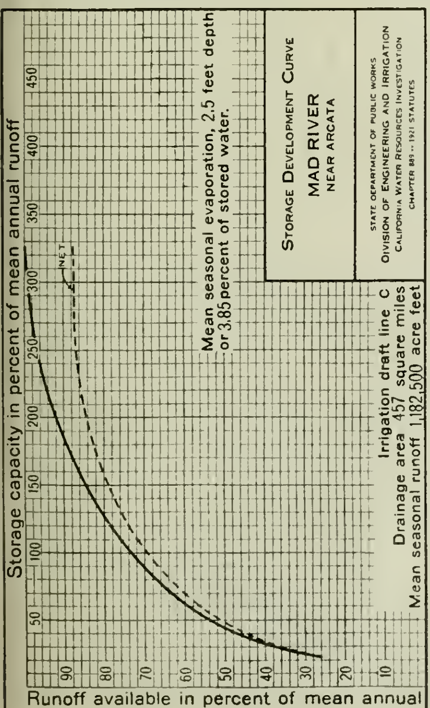

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
NET
Storage Development Curve
REDWOOD CREEK
AT MOUTH
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line C
Drainage area 275 square miles
Mean seasonal runoff 837,400 acre feet

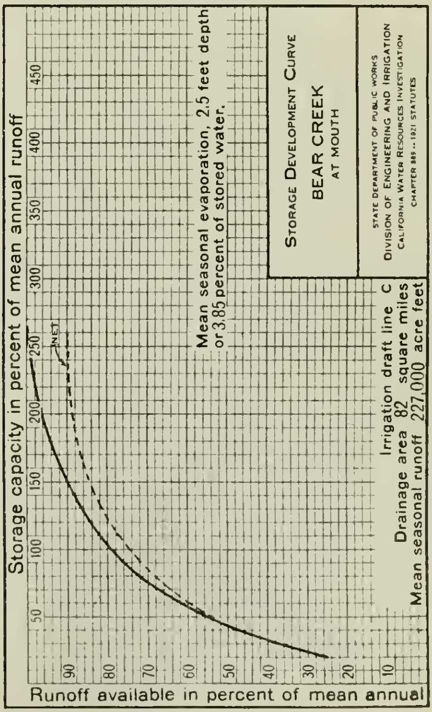

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
NET
Storage Development Curve
SCOTT RIVER
AT MOUTH
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line C
Drainage area 813 square miles
Mean seasonal runoff 521,100 acre feet

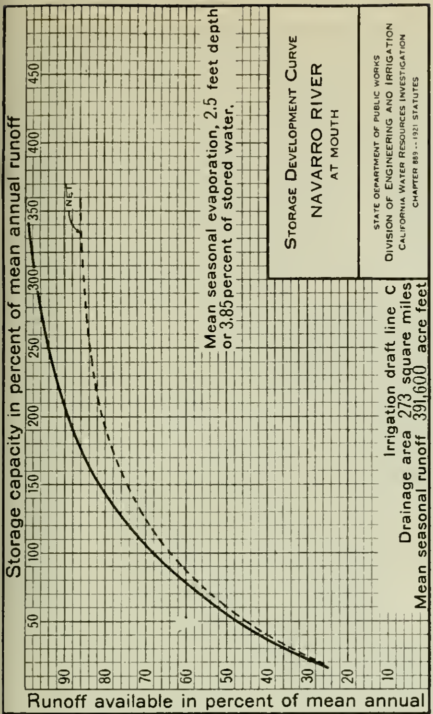

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
NET
Storage Development Curve
TRINITY RIVER
AT MOUTH
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line C
Drainage area 2965 square miles
Mean seasonal runoff 4,447,700 acre feet

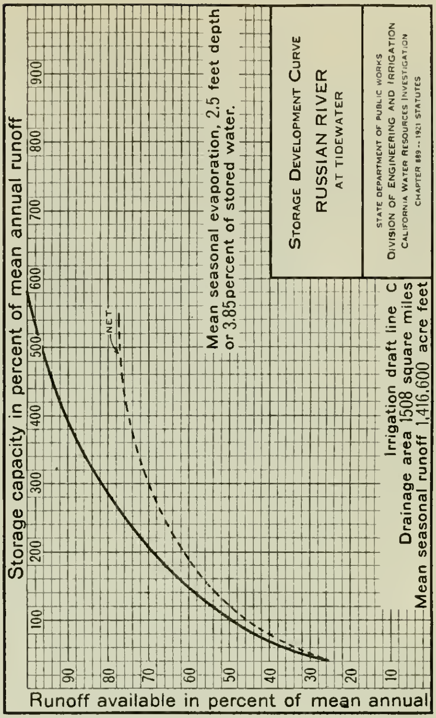

Storage Development Curve
EEL RIVER
AT ALTON
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
Irrigation draft line C
Drainage area 3547 square miles
Mean seasonal runoff 6,040,000 acre feet
NET
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual

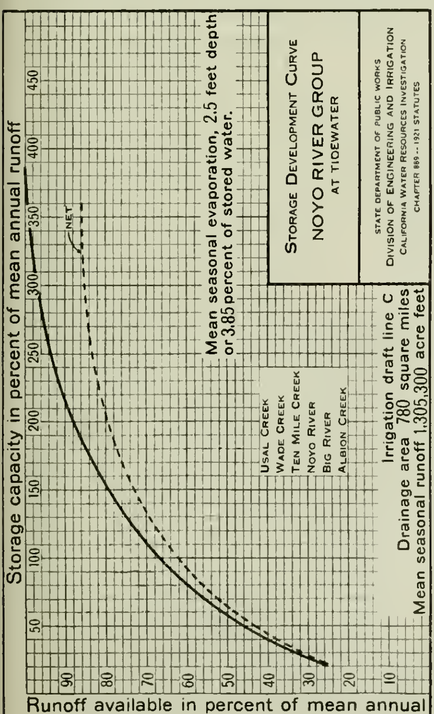

Storage Development Curve
MATTOLE RIVER
NEAR PETROLIA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
Irrigation draft line C
Drainage area 264 square miles
Mean seasonal runoff 1,060,600 acre feet
NET
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual

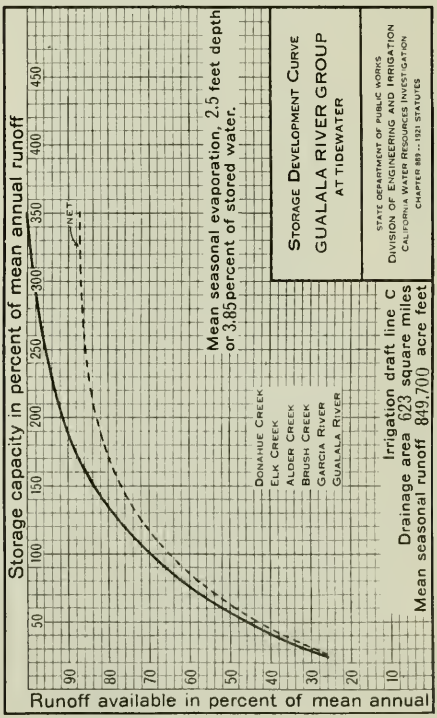

Storage Development Curve
MAD RIVER
NEAR ARCATA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
Irrigation draft line C
Drainage area 457 square miles
Mean seasonal runoff 1,182,500 acre feet
NET
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual

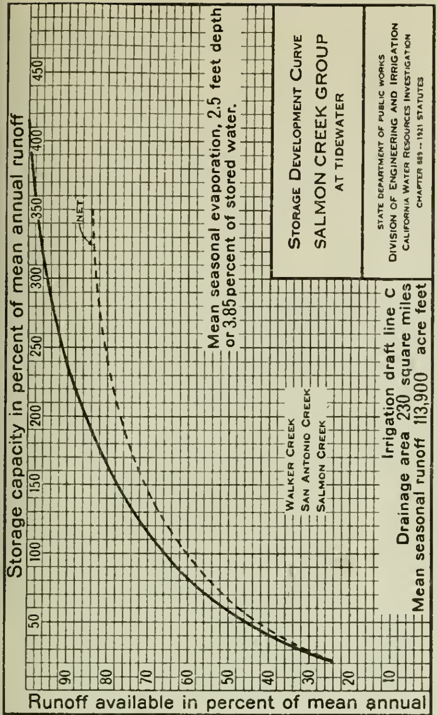

Storage Development Curve
BEAR CREEK
AT MOUTH
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
Irrigation draft line C
Drainage area 82 square miles
Mean seasonal runoff 227,000 acre feet
NET
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual

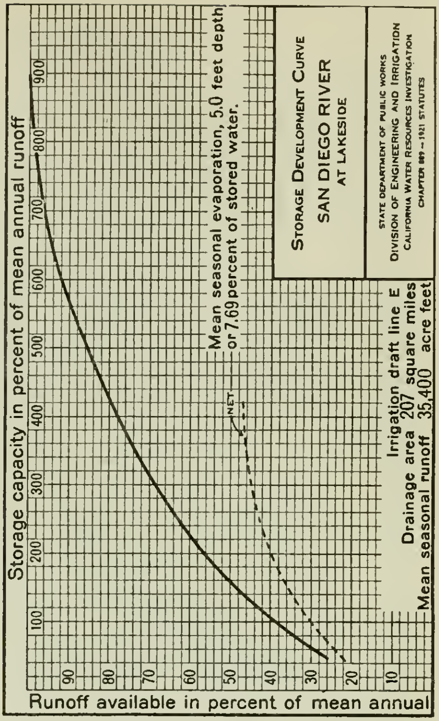

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 2.5 feet depth
or 3.85 percent of stored water.
Storage Development Curve
NAVARRO RIVER
AT MOUTH
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 273 square miles
Mean seasonal runoff 391,600 acre feet

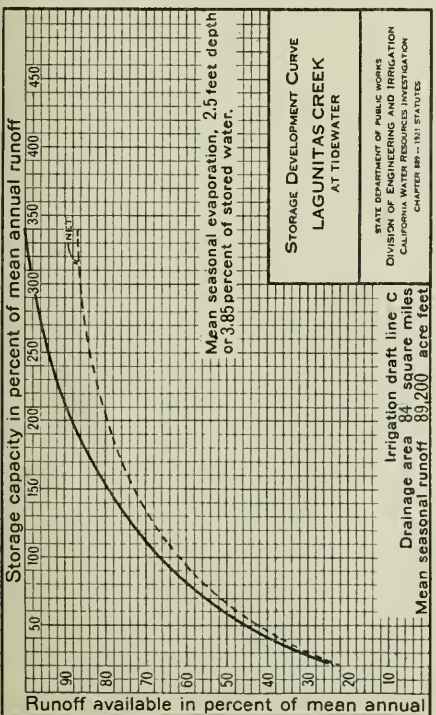

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 2.5 feet depth
or 3.85 percent of stored water.
Storage Development Curve
RUSSIAN RIVER
AT TIDEWATER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 1508 square miles
Mean seasonal runoff 1,416,600 acre feet

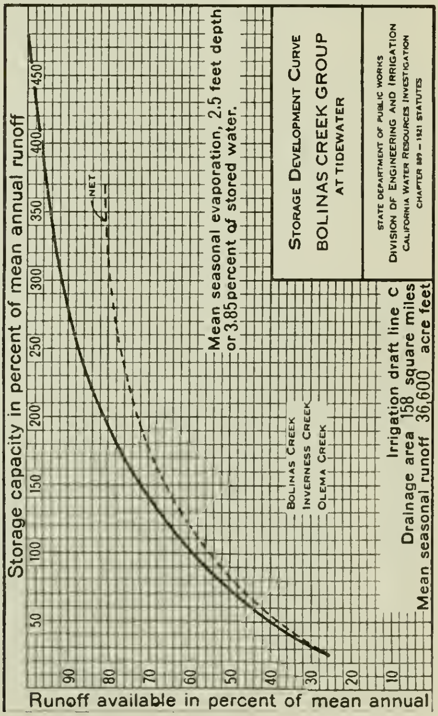

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 2.5 feet depth
or 3.85 percent of stored water.
Usal Creek
Wade Creek
Ten Mile Creek
Noyo River
Big River
Albion Creek
Storage Development Curve
NOYO RIVER GROUP
AT TIDEWATER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 780 square miles
Mean seasonal runoff 1,305,300 acre feet

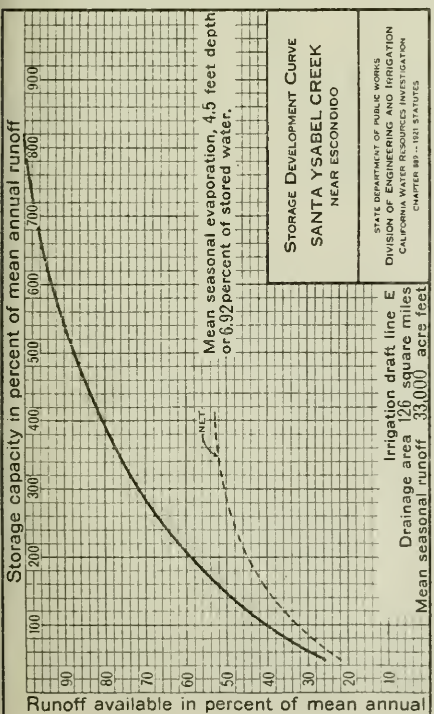

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
NET
Mean seasonal evaporation, 2.5 feet depth
or 3.85 percent of stored water.
Donahue Creek
Elk Creek
Alder Creek
Brush Creek
Garcia River
Gualala River
Storage Development Curve
GUALALA RIVER GROUP
AT TIDEWATER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 623 square miles
Mean seasonal runoff 849,700 acre feet

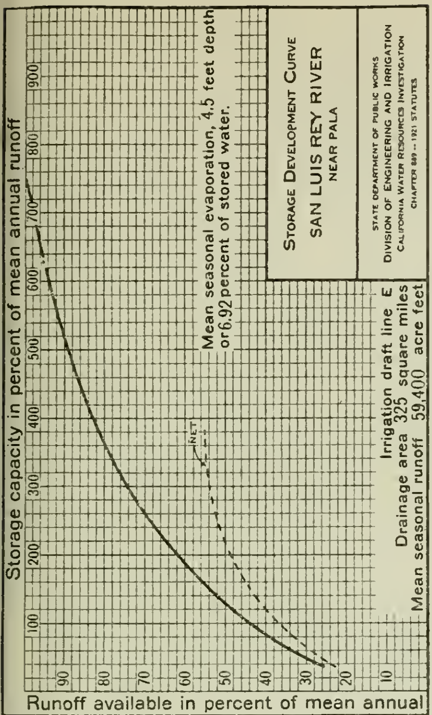

Storage capacity in percent of mean annual runoff
50 100 150 200 250 300 350 400 450
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
NET
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
Walker Creek
San Antonio Creek
Salmon Creek
Storage Development Curve
SALMON CREEK GROUP
AT TIDEWATER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line C
Drainage area 230 square miles
Mean seasonal runoff 113,900 acre feet

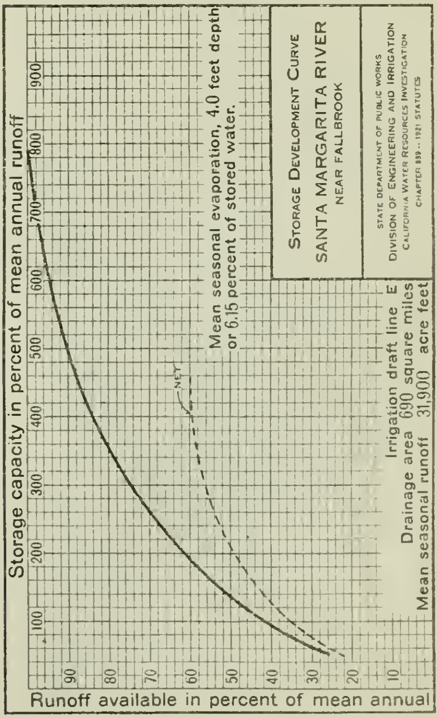

Storage capacity in percent of mean annual runoff
100 200 300 400 500 600 700 800 900
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
NET
Mean seasonal evaporation, 5.0 feet depth or 7.69 percent of stored water.
Storage Development Curve
SAN DIEGO RIVER
AT LAKESIDE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line E
Drainage area 207 square miles
Mean seasonal runoff 35,400 acre feet

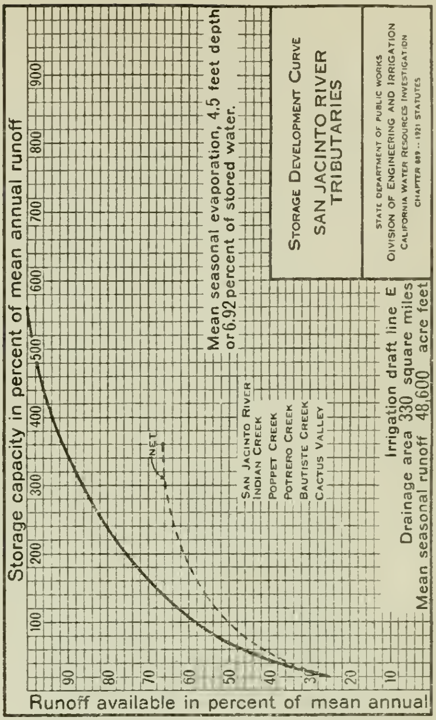

Storage capacity in percent of mean annual runoff
50 100 150 200 250 300 350 400 450
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
NET
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
Storage Development Curve
LAGUNITAS CREEK
AT TIDEWATER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line C
Drainage area 84 square miles
Mean seasonal runoff 89,200 acre feet

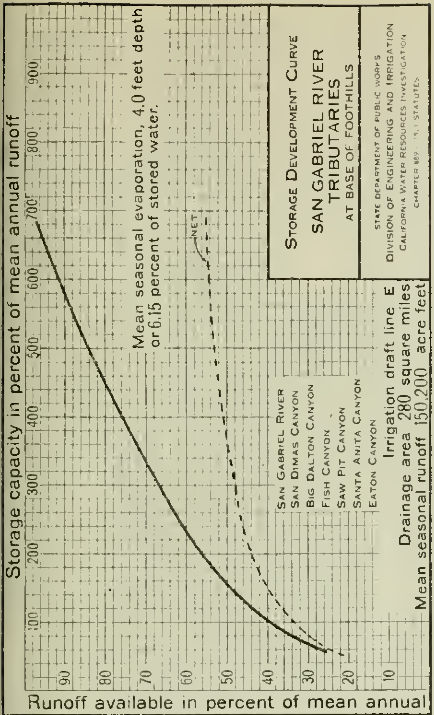

Storage capacity in percent of mean annual runoff
50 100 150 200 250 300 350 400 450
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
NET
Mean seasonal evaporation, 2.5 feet depth or 3.85 percent of stored water.
Bolinas Creek
Inverness Creek
Olema Creek
Storage Development Curve
BOLINAS CREEK GROUP
AT TIDEWATER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line C
Drainage area 158 square miles
Mean seasonal runoff 36,600 acre feet

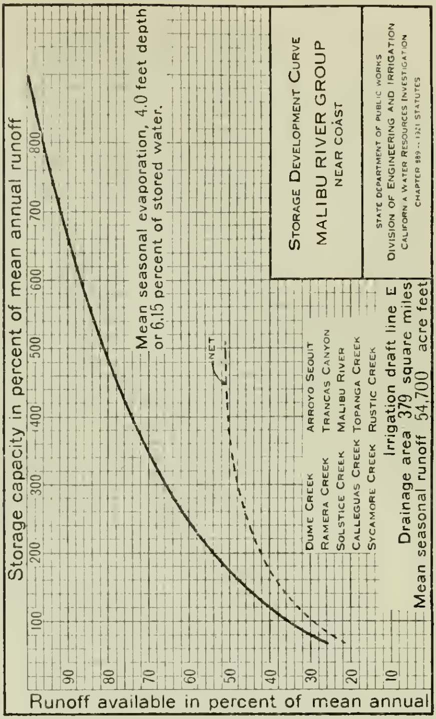

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.5 feet depth or 6.92 percent of stored water.
NET
Storage Development Curve
SANTA YSABEL CREEK
NEAR ESCONDIDO
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes
Irrigation draft line E
Drainage area 126 square miles
Mean seasonal runoff 33,000 acre feet

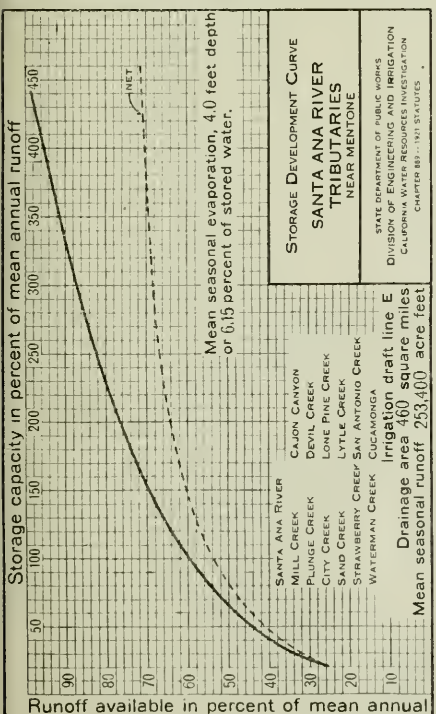

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.5 feet depth or 6.92 percent of stored water.
NET
Storage Development Curve
SAN LUIS REY RIVER
NEAR PALA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes
Irrigation draft line E
Drainage area 325 square miles
Mean seasonal runoff 59,400 acre feet

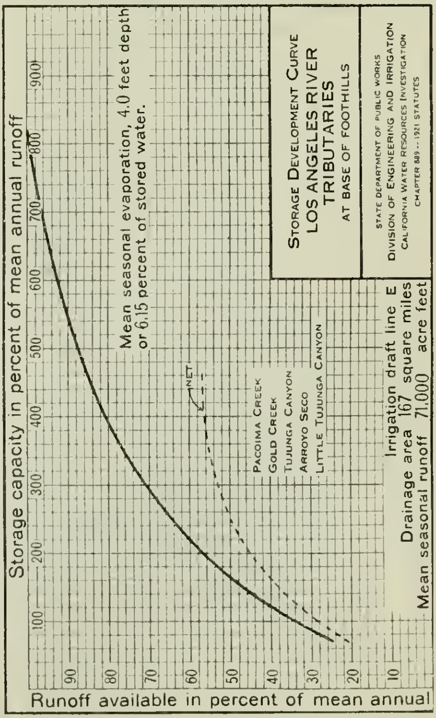

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Storage Development Curve
SANTA MARGARITA RIVER
NEAR FALLBROOK
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes
Irrigation draft line E
Drainage area 690 square miles
Mean seasonal runoff 31,900 acre feet

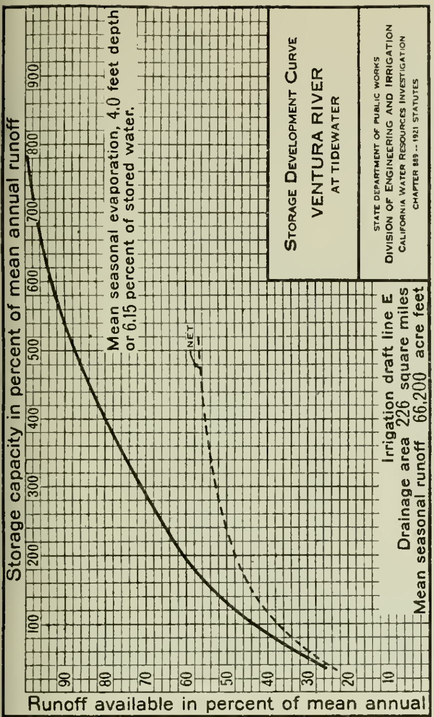

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.5 feet depth or 6.92 percent of stored water.
NET
San Jacinto River
Indian Creek
Poppet Creek
Potrero Creek
Bautiste Creek
Cactus Valley
Storage Development Curve
SAN JACINTO RIVER TRIBUTARIES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 .. 1921 Statutes
Irrigation draft line E
Drainage area 330 square miles
Mean seasonal runoff 48,600 acre feet

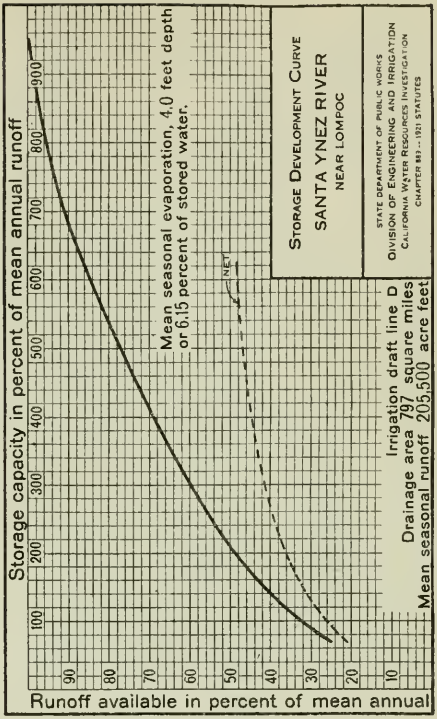

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Storage Development Curve
SAN GABRIEL RIVER TRIBUTARIES
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
San Gabriel River
San Dimas Canyon
Big Dalton Canyon
Fish Canyon
Saw Pit Canyon
Santa Anita Canyon
Eaton Canyon
Irrigation draft line E
Drainage area 280 square miles
Mean seasonal runoff 150,200 acre feet

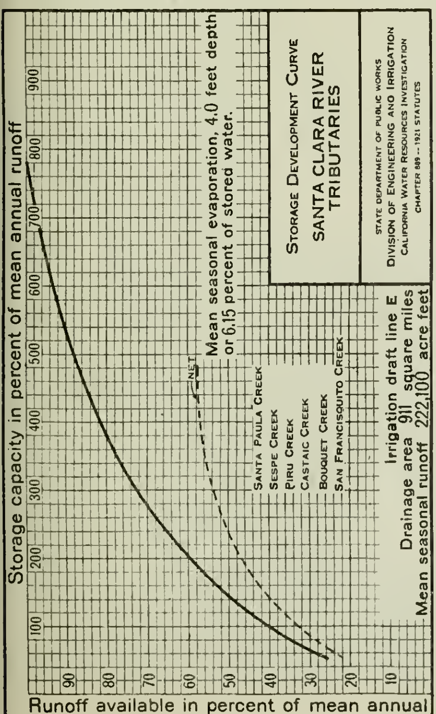

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Storage Development Curve
MALIBU RIVER GROUP
NEAR COAST
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Dume Creek
Ramera Creek
Solstice Creek
Callegúas Creek
Sycamore Creek
Arroyo Sequit
Trancas Canyon
Malibu River
Topanga Creek
Rustic Creek
Irrigation draft line E
Drainage area 379 square miles
Mean seasonal runoff 54,700 acre feet

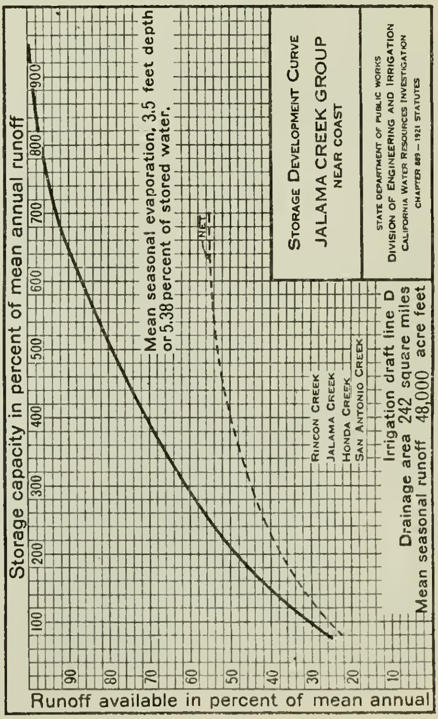

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Storage Development Curve
SANTA ANA RIVER TRIBUTARIES
NEAR MENTONE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Santa Ana River
Mill Creek
Plunge Creek
City Creek
Sand Creek
Strawberry Creek
Waterman Creek
Cajon Canyon
Devil Creek
Lone Pine Creek
Lytle Creek
San Antonio Creek
Cucamonga
Irrigation draft line E
Drainage area 460 square miles
Mean seasonal runoff 253,400 acre feet

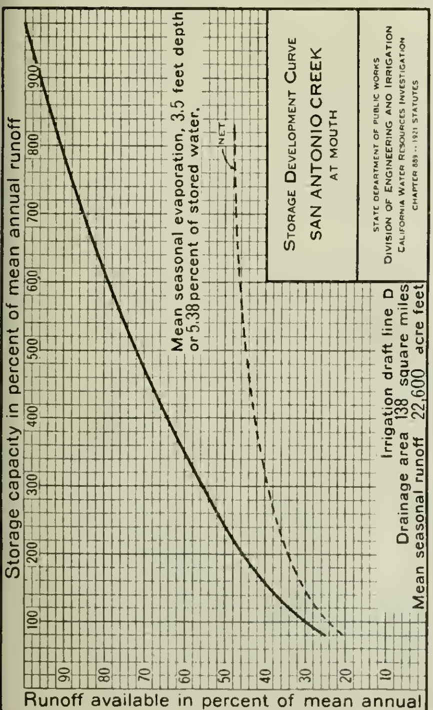

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Storage Development Curve
LOS ANGELES RIVER TRIBUTARIES
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Pacoima Creek
Gold Creek
Tujunga Canyon
Arroyo Seco
Little Tujunga Canyon
Irrigation draft line E
Drainage area 167 square miles
Mean seasonal runoff 71,000 acre feet

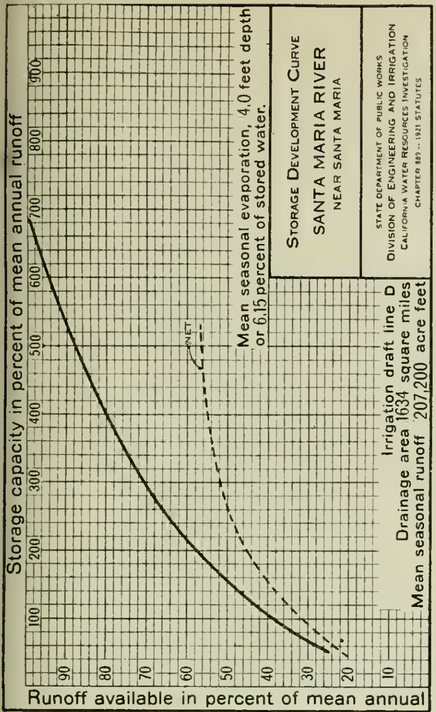

Storage capacity in percent of mean annual runoff
100
200
300
400
500
600
700
800
900
Runoff available in percent of mean annual
10
20
30
40
50
60
70
80
90
NET
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Storage Development Curve
VENTURA RIVER
AT TIDEWATER
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line E
Drainage area 226 square miles
Mean seasonal runoff 66,200 acre feet

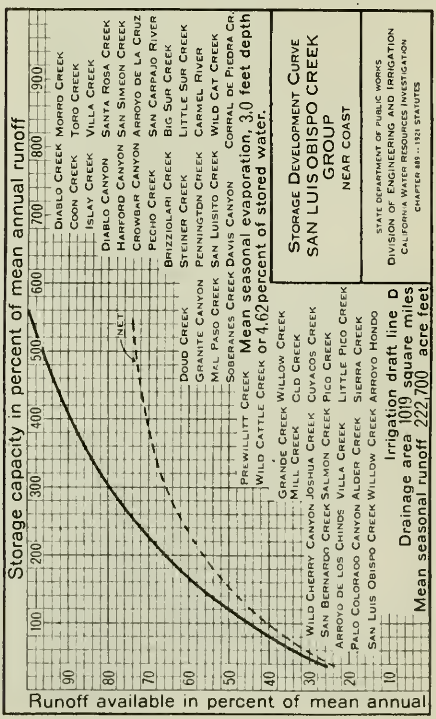

Storage capacity in percent of mean annual runoff
100
200
300
400
500
600
700
800
900
Runoff available in percent of mean annual
10
20
30
40
50
60
70
80
90
NET
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Storage Development Curve
SANTA YNEZ RIVER
NEAR LOMPOC
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line D
Drainage area 797 square miles
Mean seasonal runoff 205,500 acre feet

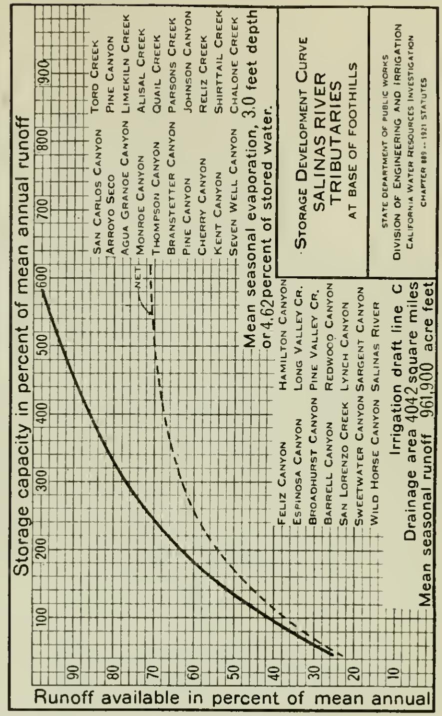

Storage capacity in percent of mean annual runoff
100
200
300
400
500
600
700
800
900
Runoff available in percent of mean annual
10
20
30
40
50
60
70
80
90
NET
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
Santa Paula Creek
Sespe Creek
Piru Creek
Castaic Creek
Bouquet Creek
San Francisquito Creek
Storage Development Curve
SANTA CLARA RIVER
TRIBUTARIES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line E
Drainage area 911 square miles
Mean seasonal runoff 222,100 acre feet

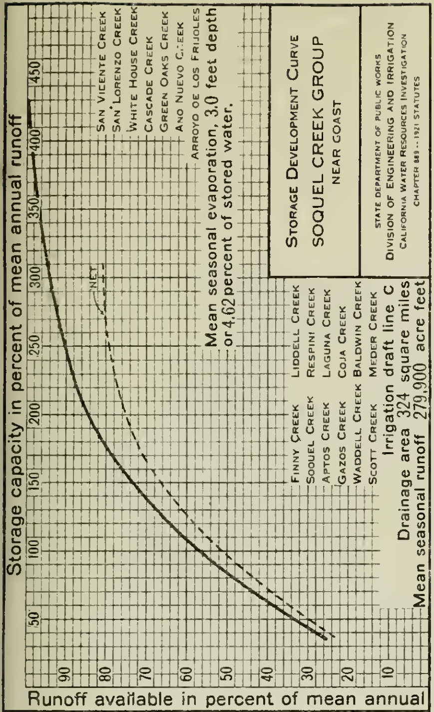

Storage capacity in percent of mean annual runoff
100
200
300
400
500
600
700
800
900
Runoff available in percent of mean annual
10
20
30
40
50
60
70
80
90
NET
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
Rincon Creek
Jalama Creek
Honda Creek
San Antonio Creek
Storage Development Curve
JALAMA CREEK GROUP
NEAR COAST
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line D
Drainage area 242 square miles
Mean seasonal runoff 48,000 acre feet

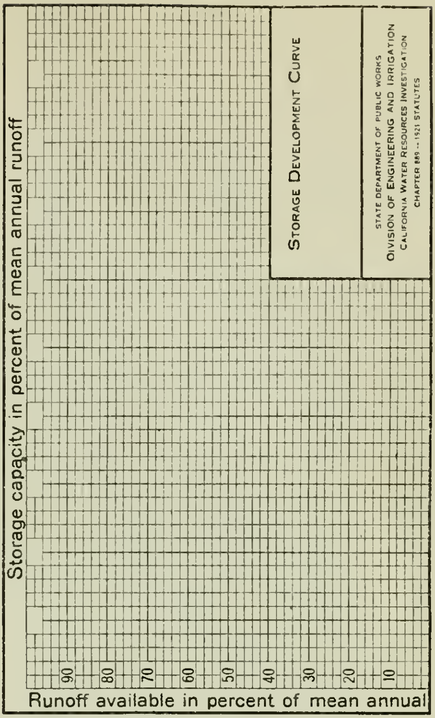

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.5 feet depth or 5.38 percent of stored water.
NET
Storage Development Curve
SAN ANTONIO CREEK
AT MOUTH
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 .. 1921 STATUTES
Irrigation draft line D
Drainage area 138 square miles
Mean seasonal runoff 22,600 acre feet

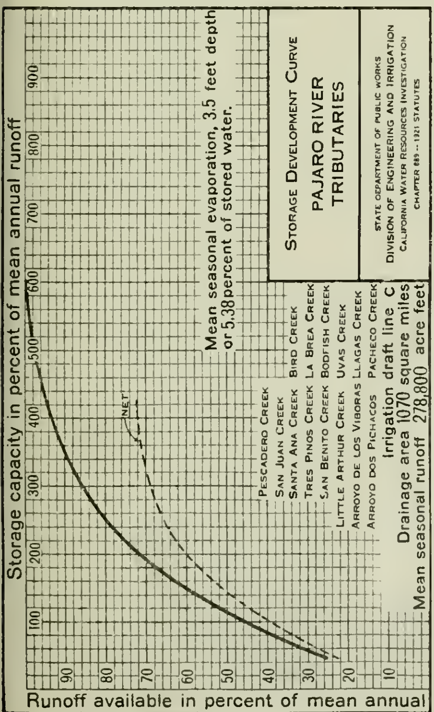

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth or 6.15 percent of stored water.
NET
Storage Development Curve
SANTA MARIA RIVER
NEAR SANTA MARIA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 .. 1921 STATUTES
Irrigation draft line D
Drainage area 1634 square miles
Mean seasonal runoff 207,200 acre feet

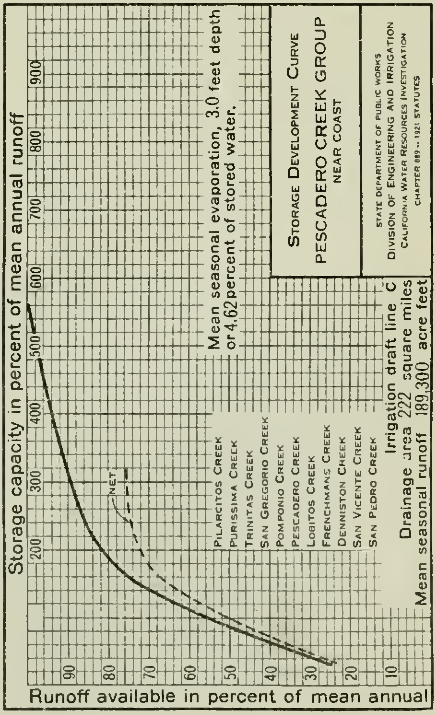

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Diablo Creek Morro Creek
Coon Creek Toro Creek
Islay Creek Villa Creek
Diablo Canyon Santa Rosa Creek
Harford Canyon San Simeon Creek
Crowbar Canyon Arroyo de la Cruz
Pecho Creek San Carpajo River
Brizziolari Creek Big Sur Creek
Steiner Creek Little Sur Creek
Doud Creek
Granite Canyon Pennington Creek Carmel River
Mal Paso Creek San Luisito Creek Wild Cat Creek
Soberanes Creek Davis Canyon Corral de Piedra Cr.
Prewillitt Creek Mean seasonal evaporation, 3.0 feet depth
Wild Cattle Creek or 4.62 percent of stored water.
Grande Creek Willow Creek
Mill Creek Old Creek
Wild Cherry Canyon Joshua Creek Cuyacos Creek
San Bernardo Creek Salmon Creek Pico Creek
Arroyo de los Chinos Villa Creek Little Pico Creek
Palo Colorado Canyon Alder Creek Sierra Creek
San Luis Obispo Creek Willow Creek Arroyo Hondo
NET
Storage Development Curve
SAN LUIS OBISPO CREEK
GROUP
NEAR COAST
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 .. 1921 STATUTES
Irrigation draft line D
Drainage area 1019 square miles
Mean seasonal runoff 222,700 acre feet

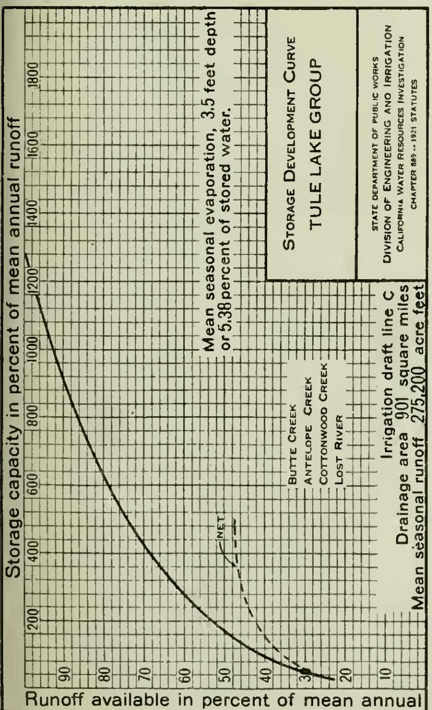

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
San Carlos Canyon Toro Creek
Arroyo Seco Pine Canyon
Agua Grande Canyon Limekiln Creek
Monroe Canyon Alisal Creek
Thompson Canyon Quail Creek
Branstetter Canyon Parsons Creek
Pine Canyon Johnson Canyon
Cherry Canyon Reliz Creek
Kent Canyon Shirttail Creek
Seven Well Canyon Chalone Creek
Mean seasonal evaporation, 3.0 feet depth or 4.62 percent of stored water.
Feliz Canyon Hamilton Canyon
Espinosa Canyon Long Valley Cr.
Broadhurst Canyon Pine Valley Cr.
Barrell Canyon Redwood Canyon
San Lorenzo Creek Lynch Canyon
Sweetwater Canyon Sargent Canyon
Wild Horse Canyon Salinas River
NET
Storage Development Curve
SALINAS RIVER
TRIBUTARIES
AT BASE OF FOOTHILLS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 .. 1921 STATUTES
Irrigation draft line C
Drainage area 4042 square miles
Mean seasonal runoff 961,900 acre feet

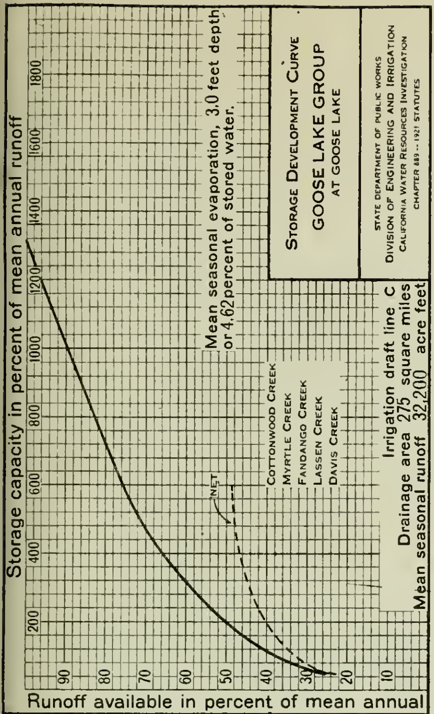

Storage capacity in percent of mean annual runoff
50 100 150 200 250 300 350 400 450
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
San Vicente Creek
San Lorenzo Creek
White House Creek
Cascade Creek
Green Oaks Creek
Ano Nuevo Creek
Arroyo de los Frijoles
Finny Creek
Soquel Creek
Aptos Creek
Gazos Creek
Waddell Creek
Scott Creek
Liddell Creek
Respini Creek
Laguna Creek
Coja Creek
Baldwin Creek
Meder Creek
Irrigation draft line C
Drainage area 324 square miles
Mean seasonal runoff 279,900 acre feet
Storage Development Curve
SOQUEL CREEK GROUP
NEAR COAST
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

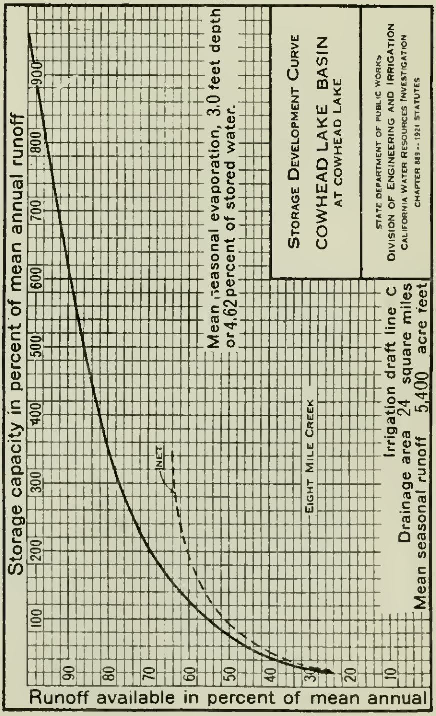

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
Storage Development Curve
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

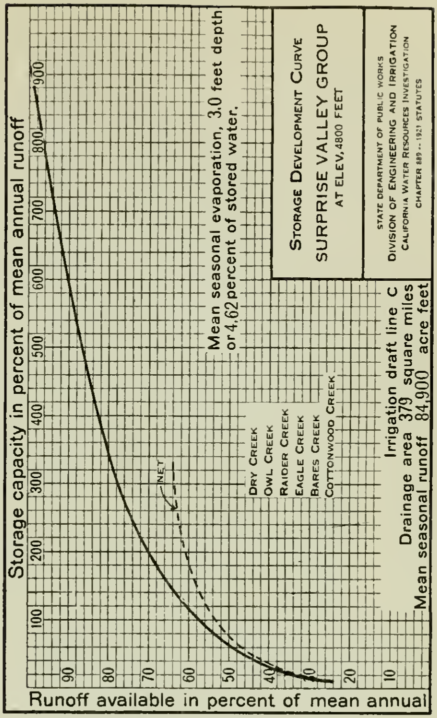

Storage capacity in percent of mean annual runoff
100 200 300 400 500 600 700 800 900
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
NET
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
Pescadero Creek
San Juan Creek
Santa Ana Creek
Tres Pinos Creek
San Benito Creek
Little Arthur Creek
Arroyo de los Viboras
Arroyo dos Pichacos
Bird Creek
La Brea Creek
Bodfish Creek
Uvas Creek
Llagas Creek
Pacheco Creek
Irrigation draft line C
Drainage area 1070 square miles
Mean seasonal runoff 278,800 acre feet
Storage Development Curve
PAJARO RIVER
TRIBUTARIES
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

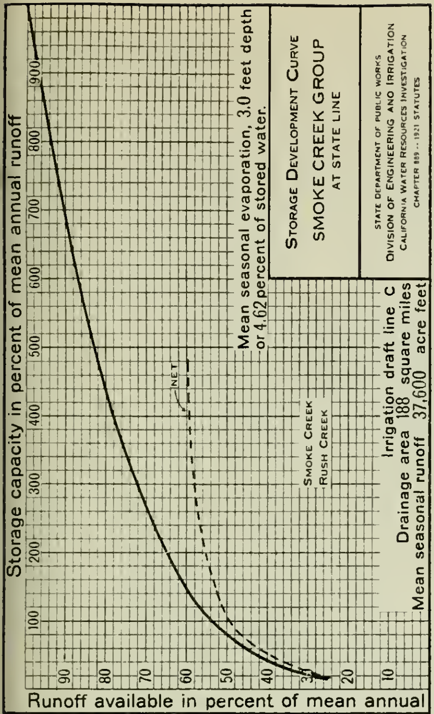

Storage capacity in percent of mean annual runoff
200 300 400 500 600 700 800 900
Runoff available in percent of mean annual
90 80 70 60 50 40 30 20 10
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
Pilarcitos Creek
Purissima Creek
Trinitas Creek
San Gregorio Creek
Pomponio Creek
Pescadero Creek
Lobitos Creek
Frenchmans Creek
Denniston Creek
San Vicente Creek
San Pedro Creek
Irrigation draft line C
Drainage area 222 square miles
Mean seasonal runoff 189,300 acre feet
Storage Development Curve
PESCADERO CREEK GROUP
NEAR COAST
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes

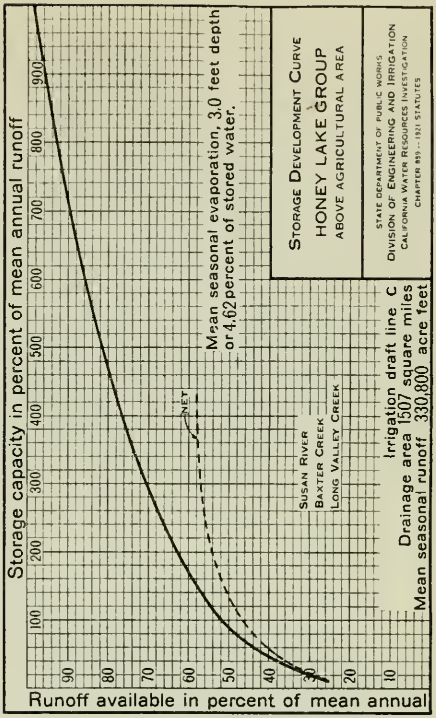

Storage capacity in percent of mean annual runoff
200
400
600
800
1000
1200
1400
1600
1800
Runoff available in percent of mean annual
90
80
70
60
50
40
30
20
10
NET
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
Butte Creek
Antelope Creek
Cottonwood Creek
Lost River
Storage Development Curve
TULE LAKE GROUP
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 901 square miles
Mean seasonal runoff 275,200 acre feet

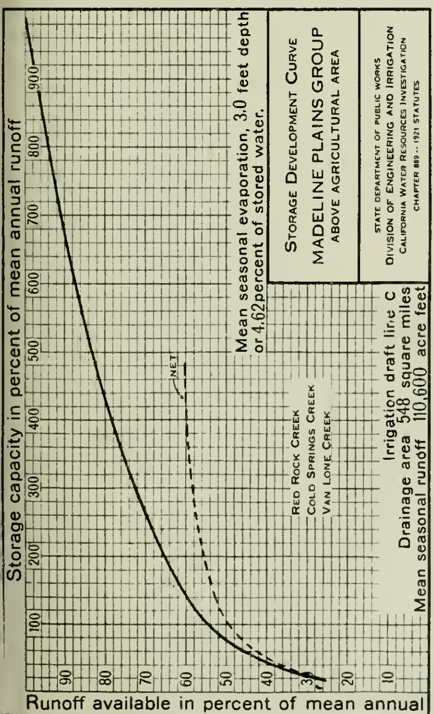

Storage capacity in percent of mean annual runoff
200
400
600
800
1000
1200
1400
1600
1800
Runoff available in percent of mean annual
90
80
70
60
50
40
30
20
10
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
Cottonwood Creek
Myrtle Creek
Fandango Creek
Lassen Creek
Davis Creek
Storage Development Curve
GOOSE LAKE GROUP
AT GOOSE LAKE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 275 square miles
Mean seasonal runoff 32,200 acre feet

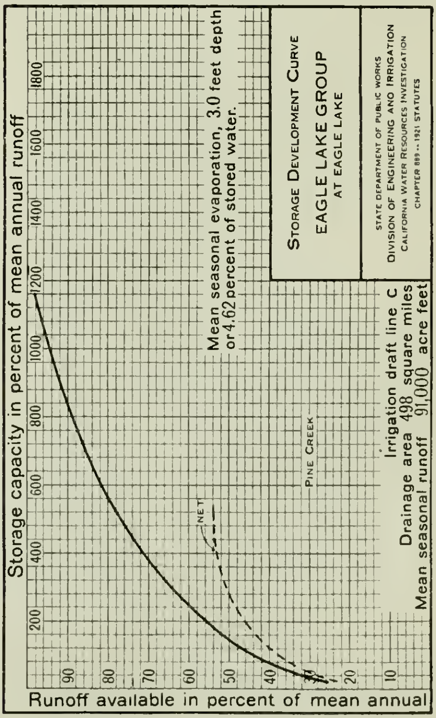

Storage capacity in percent of mean annual runoff
100
200
300
400
500
600
700
800
900
Runoff available in percent of mean annual
90
80
70
60
50
40
30
20
10
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
Eight Mile Creek
Storage Development Curve
COWHEAD LAKE BASIN
AT COWHEAD LAKE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 24 square miles
Mean seasonal runoff 5,400 acre feet

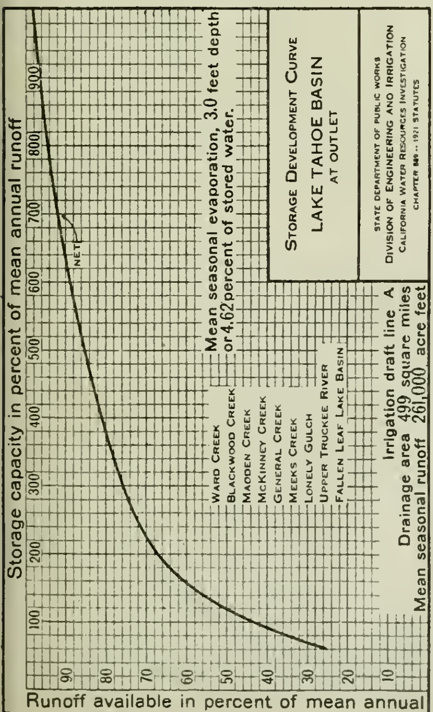

Storage capacity in percent of mean annual runoff
100
200
300
400
500
600
700
800
900
Runoff available in percent of mean annual
90
80
70
60
50
40
30
20
10
NET
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
Dry Creek
Owl Creek
Raider Creek
Eagle Creek
Bares Creek
Cottonwood Creek
Storage Development Curve
SURPRISE VALLEY GROUP
AT ELEV. 4800 FEET
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line C
Drainage area 379 square miles
Mean seasonal runoff 84,900 acre feet

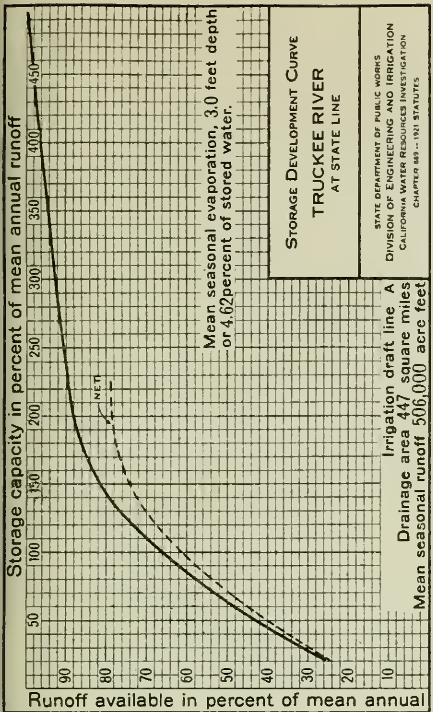

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth or 4.62 percent of stored water.
Storage Development Curve
SMOKE CREEK GROUP
AT STATE LINE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
NET
Smoke Creek
Rush Creek
Irrigation draft line C
Drainage area 188 square miles
Mean seasonal runoff 37,600 acre feet

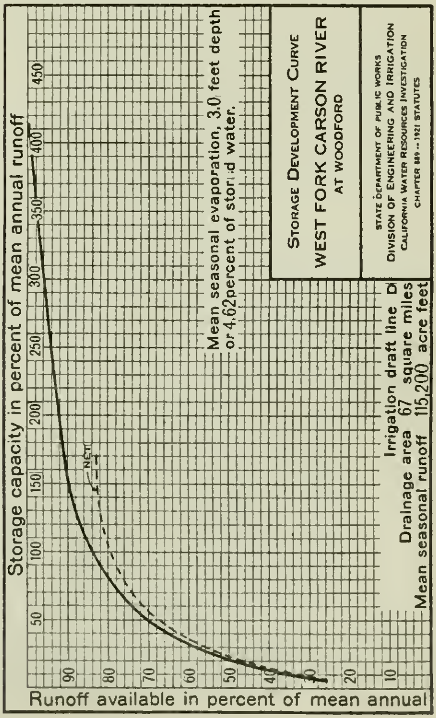

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth or 4.62 percent of stored water.
Storage Development Curve
HONEY LAKE GROUP
ABOVE AGRICULTURAL AREA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
NET
Susan River
Baxter Creek
Long Valley Creek
Irrigation draft line C
Drainage area 1507 square miles
Mean seasonal runoff 330,800 acre feet

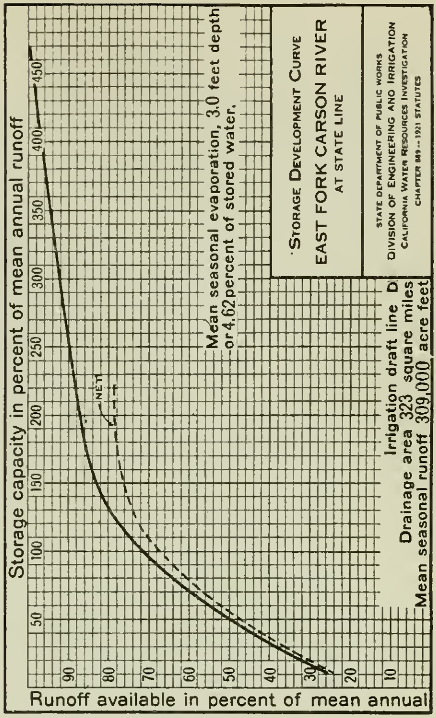

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth or 4.62 percent of stored water.
Storage Development Curve
MADELINE PLAINS GROUP
ABOVE AGRICULTURAL AREA
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
NET
Red Rock Creek
Cold Springs Creek
Van Lone Creek
Irrigation draft line C
Drainage area 548 square miles
Mean seasonal runoff 110,600 acre feet

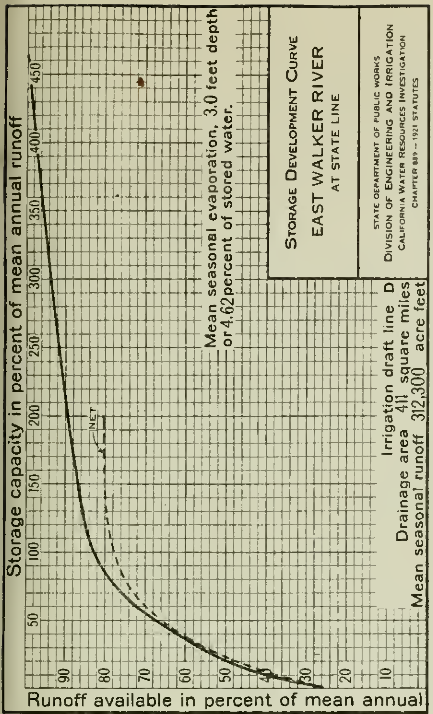

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth or 4.62 percent of stored water.
Storage Development Curve
EAGLE LAKE GROUP
AT EAGLE LAKE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
NET
Pine Creek
Irrigation draft line C
Drainage area 498 square miles
Mean seasonal runoff 91,000 acre feet

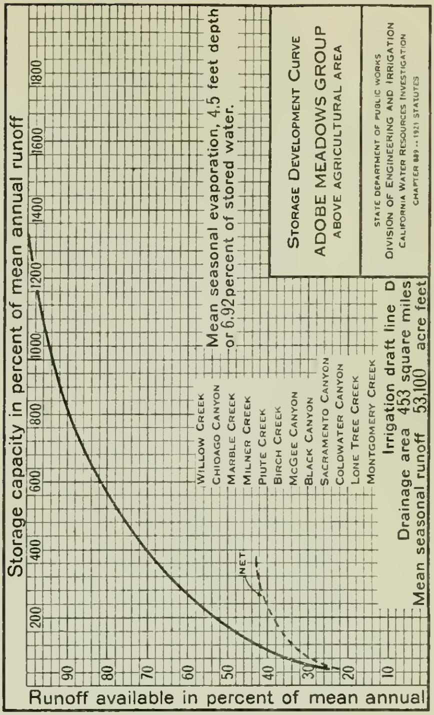

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
NET
Ward Creek
Blackwood Creek
Madden Creek
McKinney Creek
General Creek
Meeks Creek
Lonely Gulch
Upper Truckee River
Fallen Leaf Lake Basin
Storage Development Curve
LAKE TAHOE BASIN
AT OUTLET
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line A
Drainage area 499 square miles
Mean seasonal runoff 261,000 acre feet

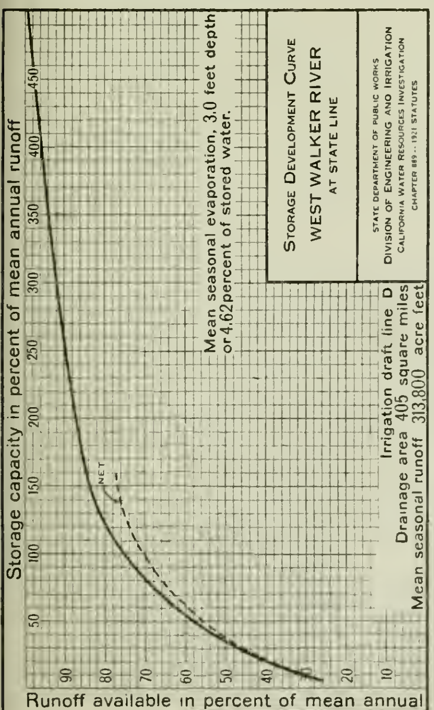

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
NET
Storage Development Curve
TRUCKEE RIVER
AT STATE LINE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line A
Drainage area 447 square miles
Mean seasonal runoff 506,000 acre feet

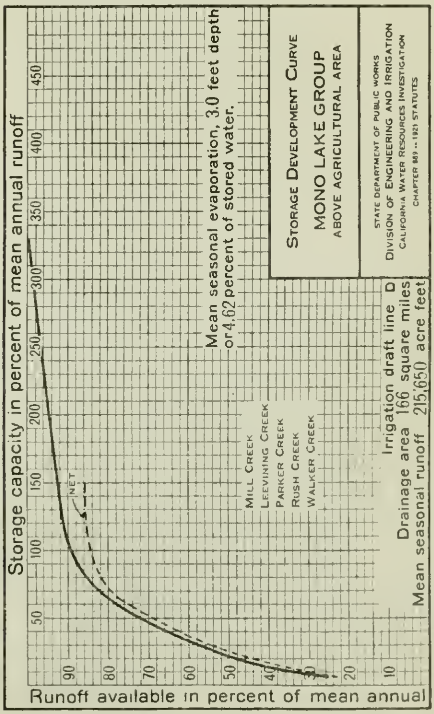

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
NET
Storage Development Curve
WEST FORK CARSON RIVER
AT WOODFORD
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line D
Drainage area 67 square miles
Mean seasonal runoff 115,200 acre feet

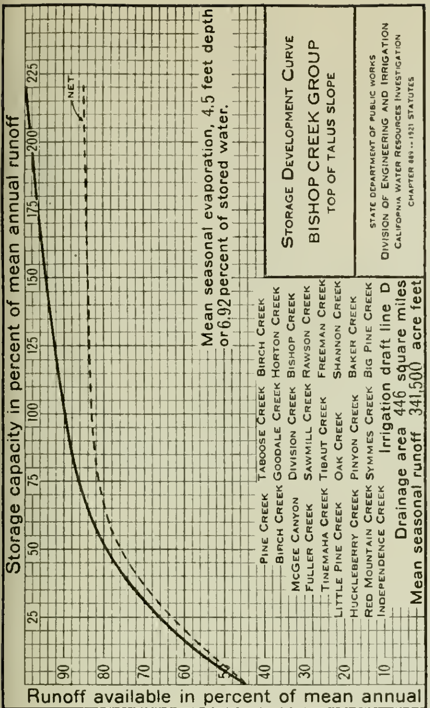

Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
NET
Storage Development Curve
EAST FORK CARSON RIVER
AT STATE LINE
State Department of Public Works
Division of Engineering and Irrigation
California Water Resources Investigation
Chapter 889 -- 1921 Statutes
Irrigation draft line D
Drainage area 323 square miles
Mean seasonal runoff 309,000 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
NET
Storage Development Curve
EAST WALKER RIVER
AT STATE LINE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 - 1921 STATUTES
Irrigation draft line D
Drainage area 411 square miles
Mean seasonal runoff 312,300 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.5 feet depth
or 6.92 percent of stored water.
Willow Creek
Chiogo Canyon
Marble Creek
Milner Creek
Piute Creek
Birch Creek
McGee Canyon
Black Canyon
Sacramento Canyon
Coldwater Canyon
Lone Tree Creek
Montgomery Creek
NET
Storage Development Curve
ADOBE MEADOWS GROUP
ABOVE AGRICULTURAL AREA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 - 1921 STATUTES
Irrigation draft line D
Drainage area 453 square miles
Mean seasonal runoff 53,100 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
NET
Storage Development Curve
WEST WALKER RIVER
AT STATE LINE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 - 1921 STATUTES
Irrigation draft line D
Drainage area 405 square miles
Mean seasonal runoff 313,800 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.0 feet depth
or 4.62 percent of stored water.
Mill Creek
Leevining Creek
Parker Creek
Rush Creek
Walker Creek
NET
Storage Development Curve
MONO LAKE GROUP
ABOVE AGRICULTURAL AREA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 - 1921 STATUTES
Irrigation draft line D
Drainage area 166 square miles
Mean seasonal runoff 215,650 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.5 feet depth
or 6.92 percent of stored water.
NET
Storage Development Curve
BISHOP CREEK GROUP
TOP OF TALUS SLOPE
STATE DEPARTMENT OF PUBLIC WORKS
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CALIFORNIA WATER RESOURCES INVESTIGATION
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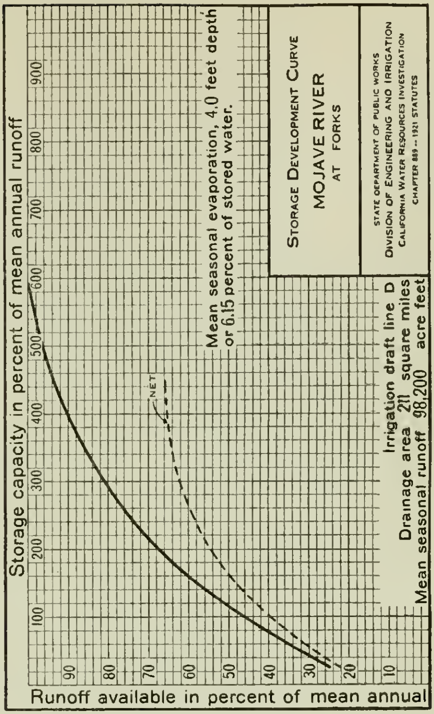
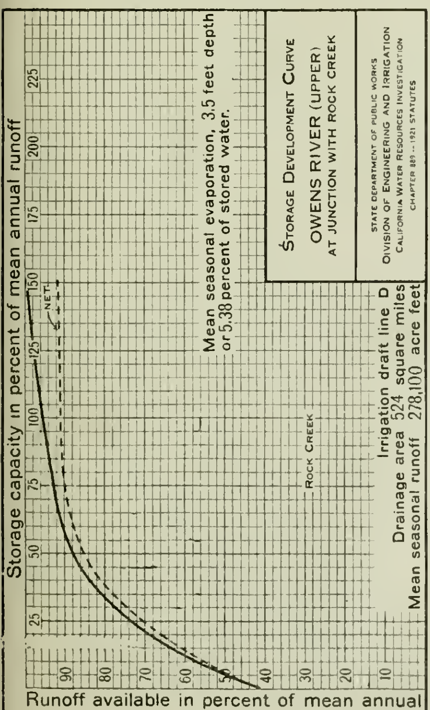
Pine Creek
Taboose Creek
Birch Creek
Birch Creek
Goodale Creek
Horton Creek
McGee Canyon
Division Creek
Bishop Creek
Fuller Creek
Sawmill Creek
Rawson Creek
Tinemaha Creek
Tibaut Creek
Freeman Creek
Little Pine Creek
Oak Creek
Shannon Creek
Huckleberry Creek
Pinyon Creek
Baker Creek
Red Mountain Creek
Symmes Creek
Big Pine Creek
Independence Creek
Irrigation draft line D
Drainage area 446 square miles
Mean seasonal runoff 341,500 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.0 feet depth
or 6.15 percent of stored water.
NET
Storage Development Curve
MOJAVE RIVER
AT FORKS
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Irrigation draft line D
Drainage area 211 square miles
Mean seasonal runoff 98,200 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 3.5 feet depth
or 5.38 percent of stored water.
NET
Storage Development Curve
OWENS RIVER (UPPER)
AT JUNCTION WITH ROCK CREEK
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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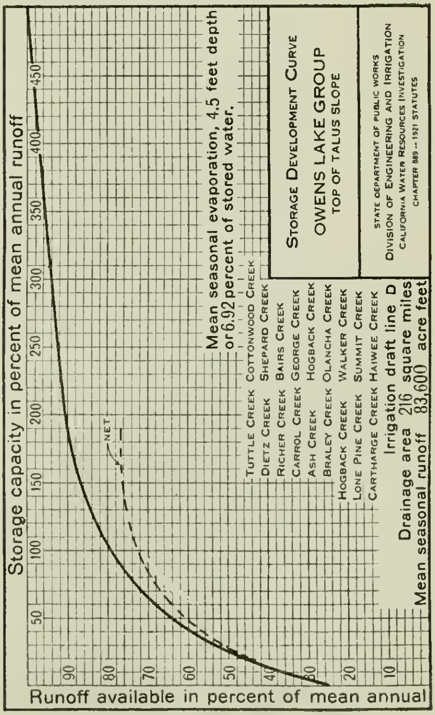
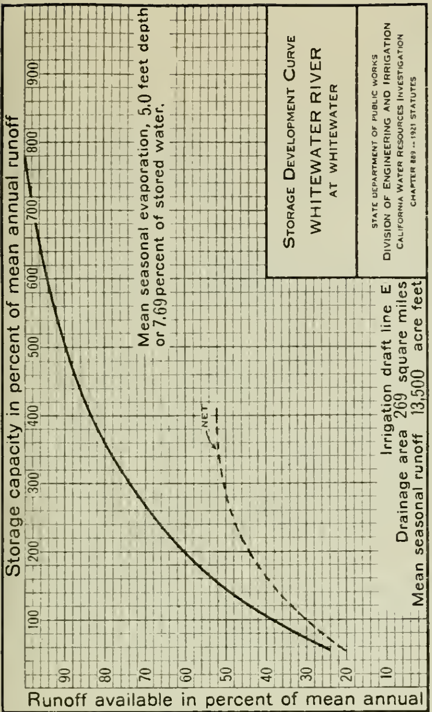
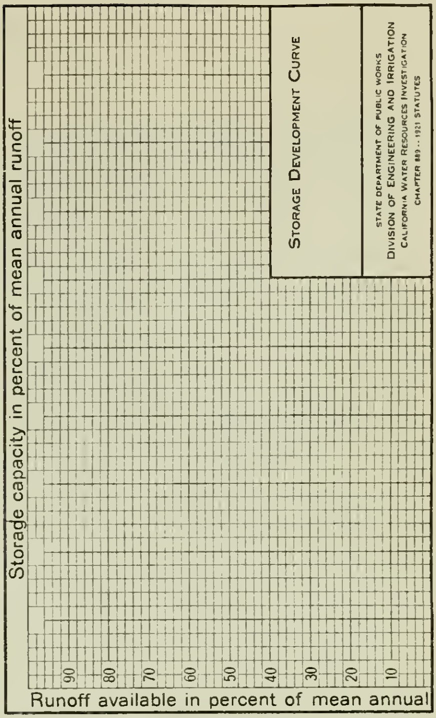
Rock Creek
Irrigation draft line D
Drainage area 524 square miles
Mean seasonal runoff 278,100 acre feet


Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
Mean seasonal evaporation, 4.5 feet depth
or 6.92 percent of stored water.
NET
Storage Development Curve
OWENS LAKE GROUP
TOP OF TALUS SLOPE
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Tuttle Creek
Cottonwood Creek
Dietz Creek
Shepard Creek
Richer Creek
Bairs Creek
Carrol Creek
George Creek
Ash Creek
Hogback Creek
Braley Creek
Olancha Creek
Hogback Creek
Walker Creek
Lone Pine Creek
Summit Creek
Cartharge Creek
Haiwee Creek
Irrigation draft line D
Drainage area 216 square miles
Mean seasonal runoff 83,600 acre feet


Storage Development Curve
WHITEWATER RIVER
AT WHITEWATER
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Mean seasonal evaporation, 5.0 feet depth
or 7.69 percent of stored water.
NET
Irrigation draft line E
Drainage area 269 square miles
Mean seasonal runoff 13,500 acre feet
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
100
200
300
400
500
600
700
800
900
90
80
70
60
50
40
30
20
10


Storage Development Curve
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
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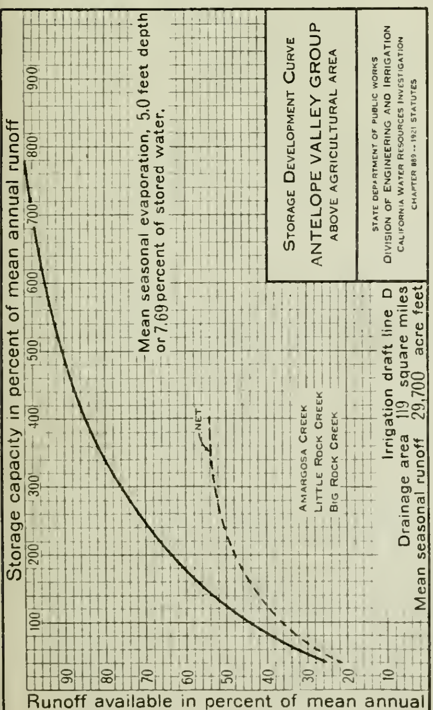
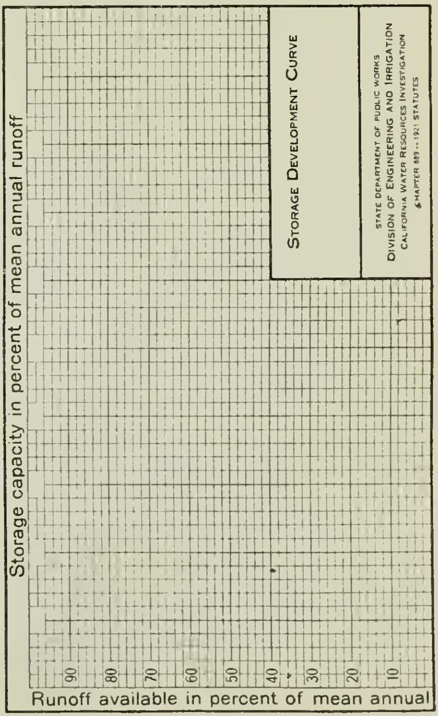
CHAPTER 889 -- 1921 STATUTES
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
90
80
70
60
50
40
30
20
10


Storage Development Curve
ANTELOPE VALLEY GROUP
ABOVE AGRICULTURAL AREA
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 -- 1921 STATUTES
Mean seasonal evaporation, 5.0 feet depth
or 7.69 percent of stored water.
NET
Amargosa Creek
Little Rock Creek
Big Rock Creek
Irrigation draft line D
Drainage area 119 square miles
Mean seasonal runoff 29,700 acre feet
Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
100
200
300
400
500
600
700
800
900
90
80
70
60
50
40
30
20
10


Storage Development Curve
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
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Storage capacity in percent of mean annual runoff
Runoff available in percent of mean annual
90
80
70
60
50
40
30
20
10

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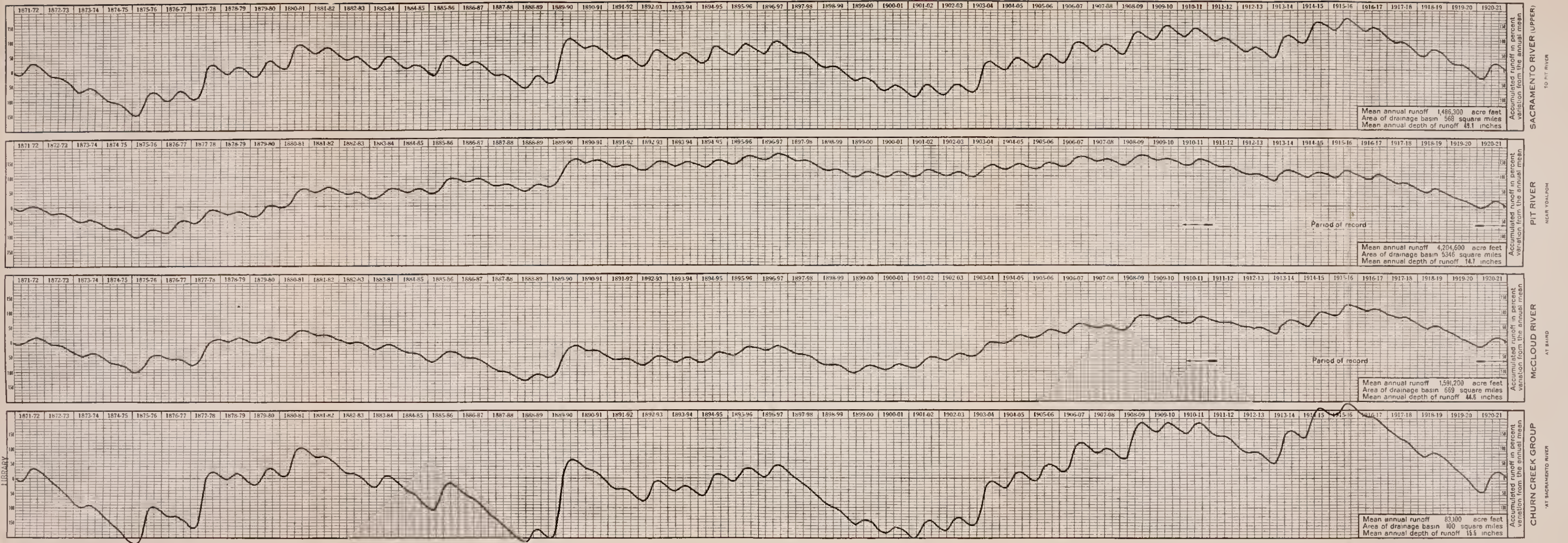
in pocket



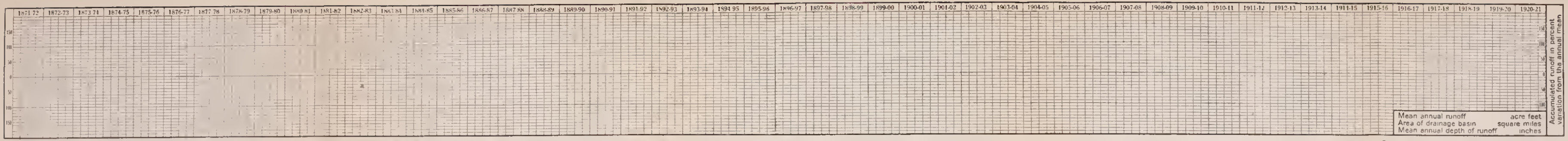
MASS DIAGRAMS OF RUNOFF

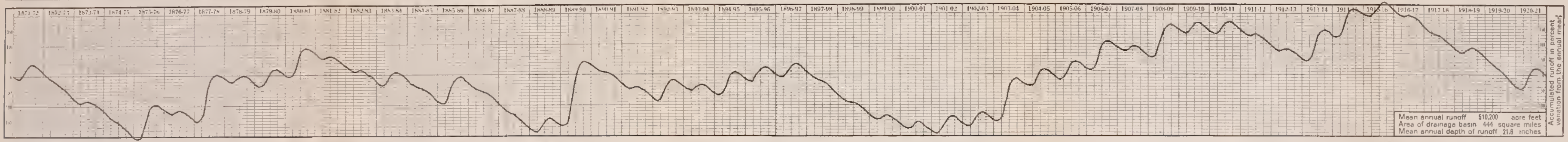
STATE DEPARTMENT OF PUBLIC WORKS

DIVISION OF ENGINEERING AND IRRIGATION

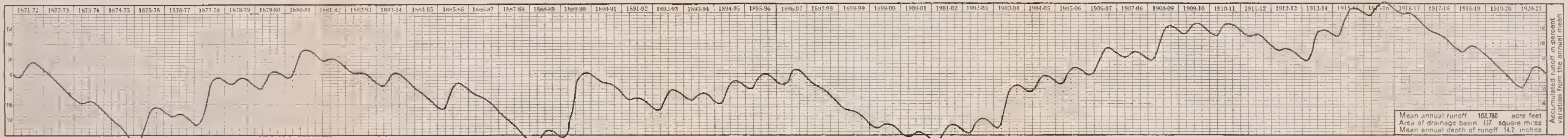
CALIFORNIA WATER RESOURCES INVESTIGATION

CHAPTER 889 1921 STATUTES

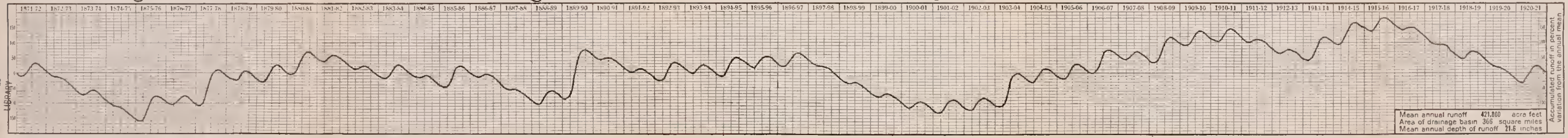




COW CREEK
AT SACRAMENTO RIVER



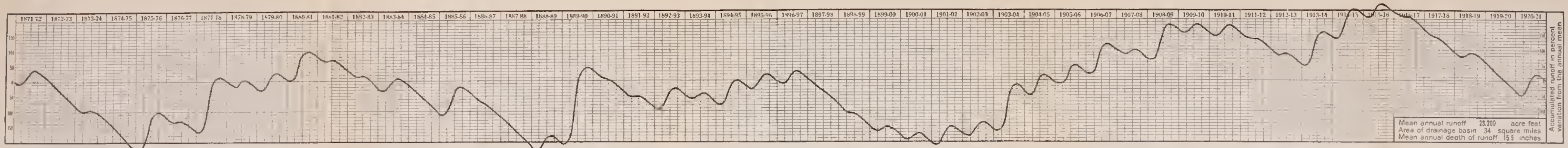
BEAR CREEK
AT SACRAMENTO RIVER



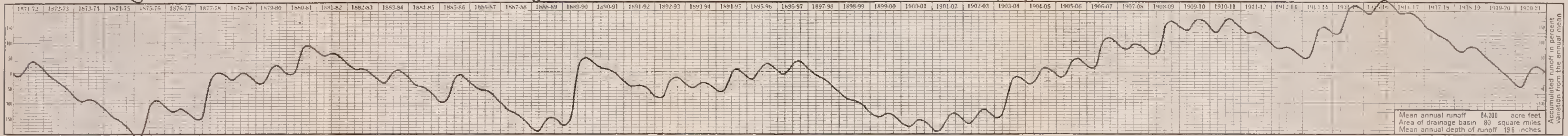
BATTLE CREEK
AT SACRAMENTO RIVER

MASS DIAGRAMS OF RUNOFF

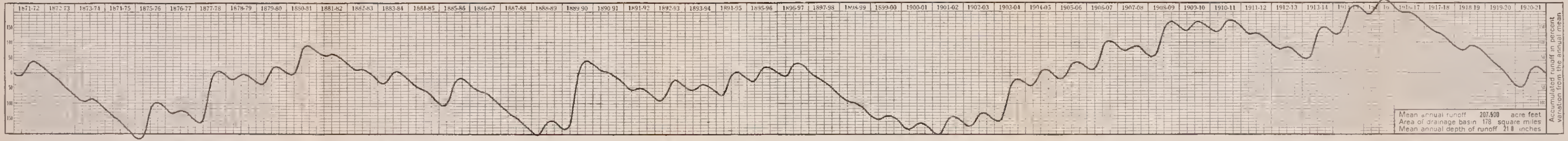
STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND IRRIGATION
CALIFORNIA WATER RESOURCES INVESTIGATION
CHAPTER 889 – 1921 STATUTES



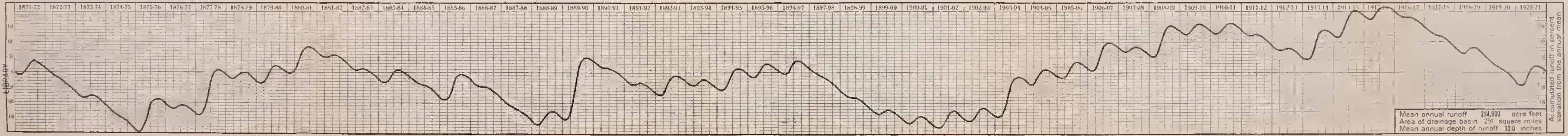
INK'S CREEK
AT SACRAMENTO RIVER



PAYNE'S CREEK
AT SACRAMENTO RIVER



BACKBONE CREEK GROUP
AT SACRAMENTO RIVER



CLEAR CREEK
AT SACRAMENTO RIVER

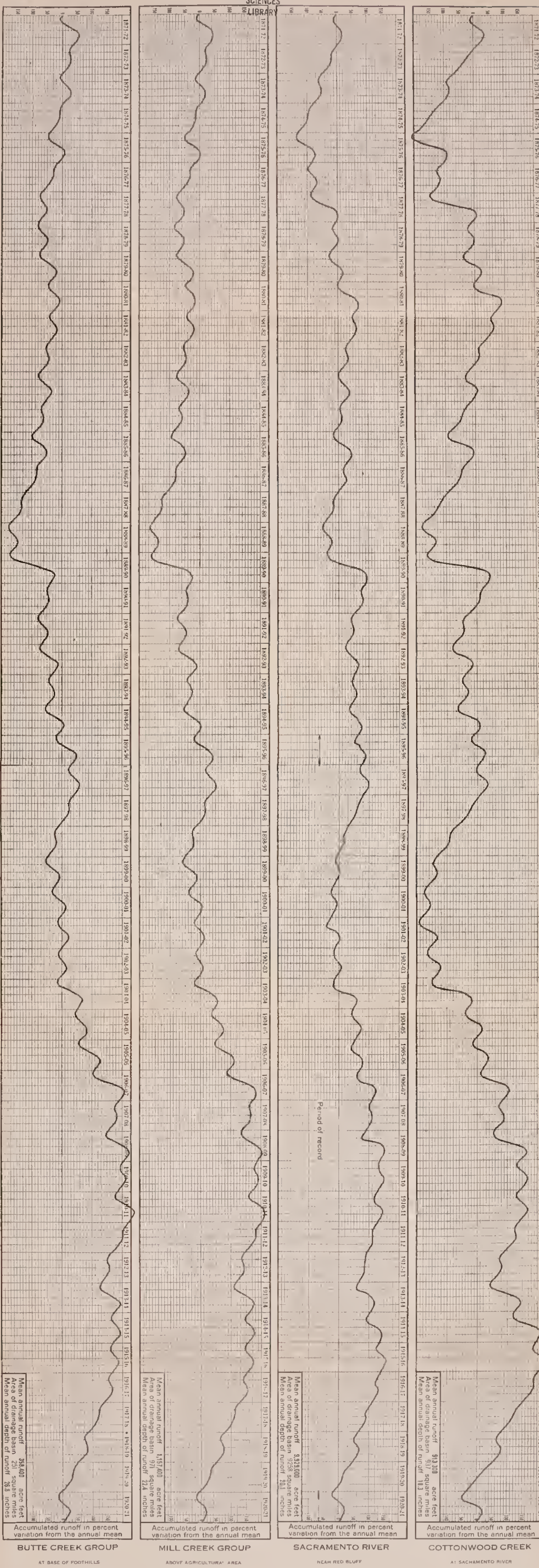
MASS DIAGRAMS OF RUNOFF

STATE DEPARTMENT OF PUBLIC WORKS

DIVISION OF ENGINEERING AND IRRIGATION

CALIFORNIA WATER RESOURCES INVESTIGATION

CHAPTER 889 1921 STATUTES



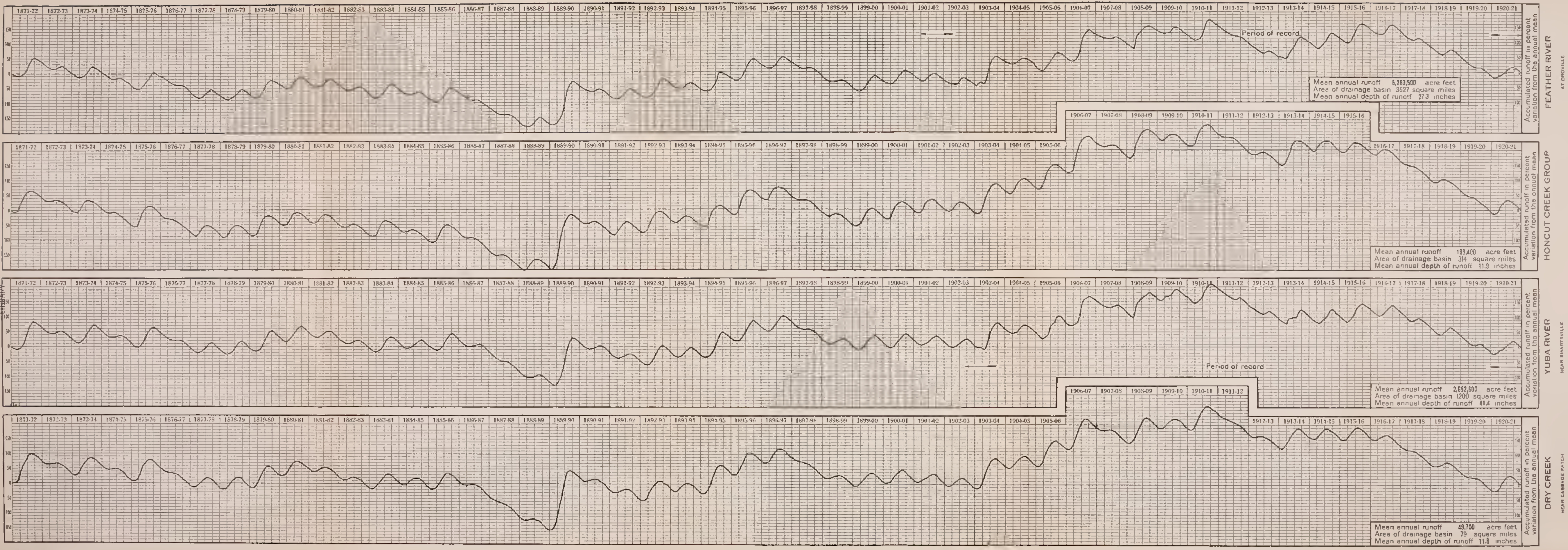
MASS DIAGRAMS OF RUNOFF

STATE DEPARTMENT OF PUBLIC WORKS

DIVISION OF ENGINEERING AND IRRIGATION

CALIFORNIA WATER RESOURCES INVESTIGATION

CHAPTER 889 1921 STATUTES



MASS DIAGRAMS OF RUNOFF

STATE DEPARTMENT OF PUBLIC WORKS

DIVISION OF ENGINEERING AND IRRIGATION

CALIFORNIA WATER RESOURCES INVESTIGATION

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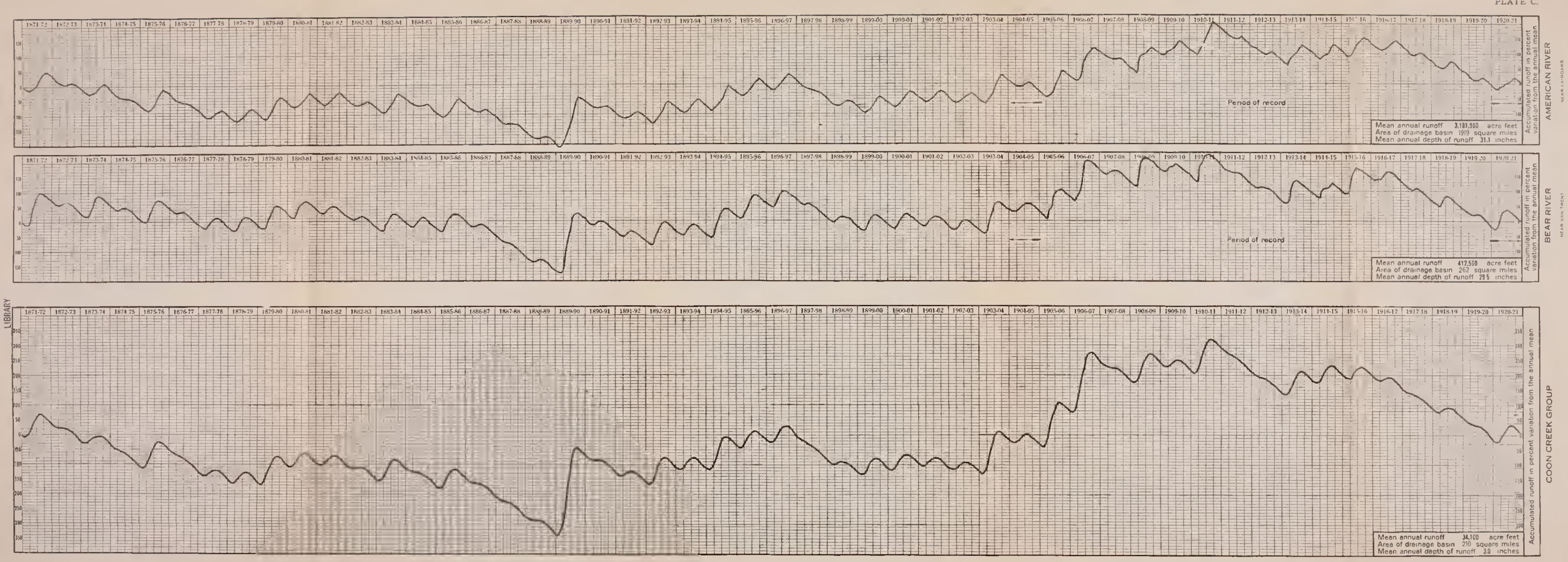

MASS DIAGRAMS OF RUNOFF

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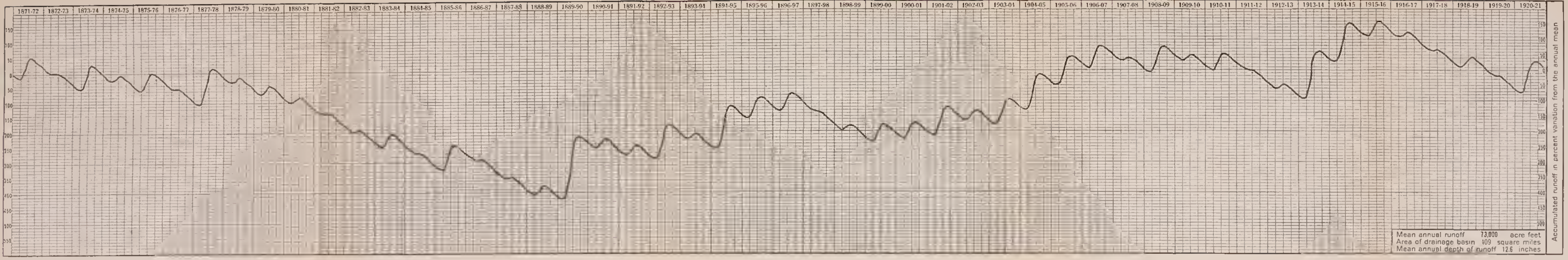

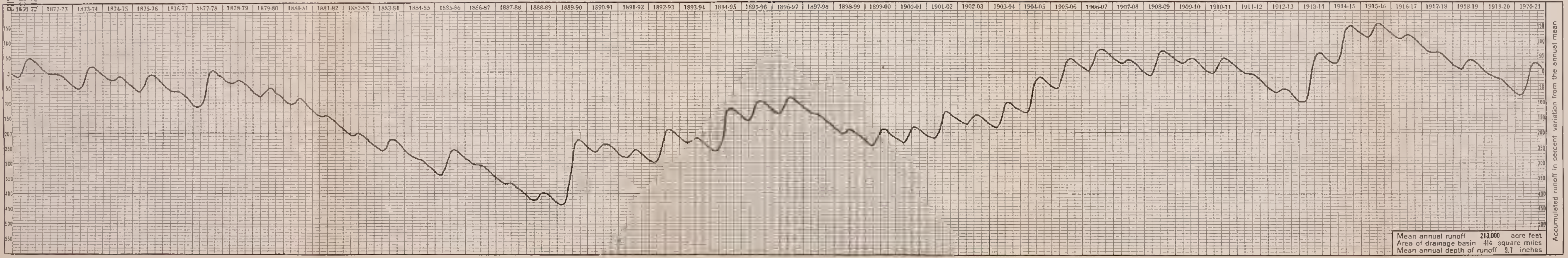

MASS DIAGRAMS OF RUNOFF

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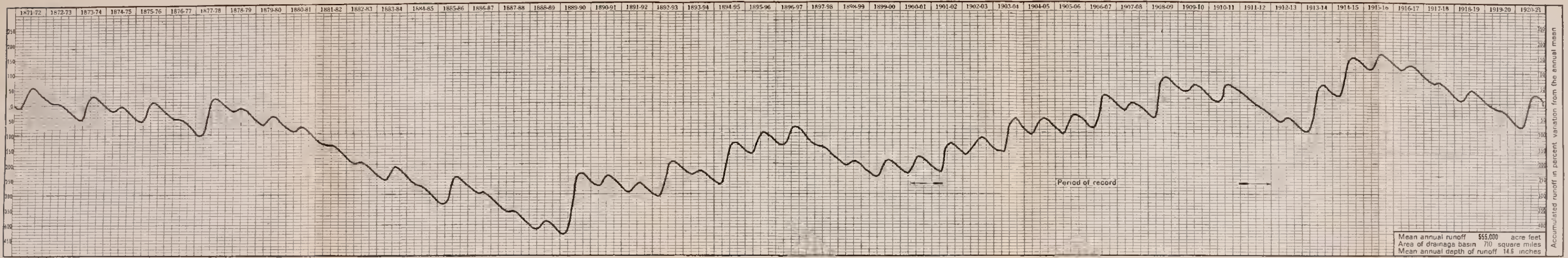
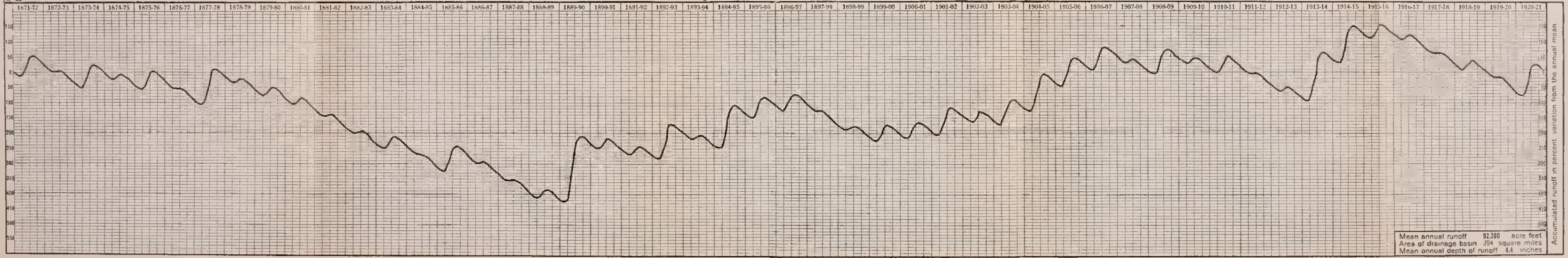


STONY CREEK

AT JUNCTION WITH NORTH FORK



WILLOW CREEK GROUP

AT BASE OF FOOTHILLS

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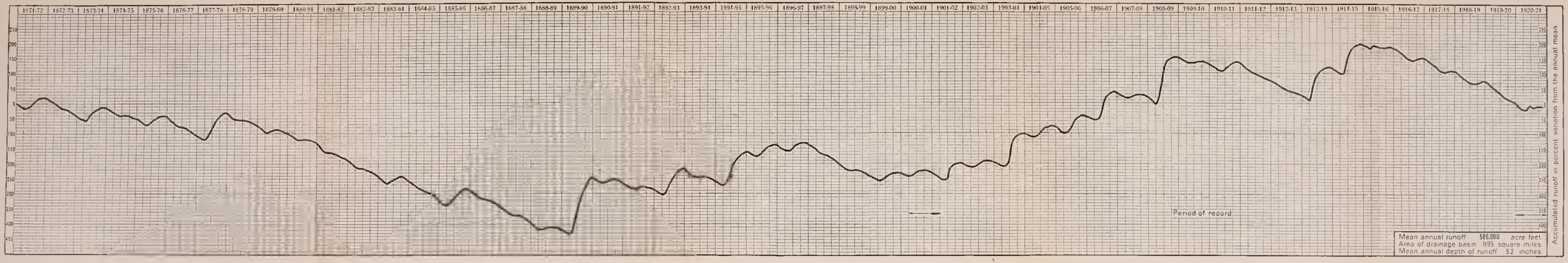

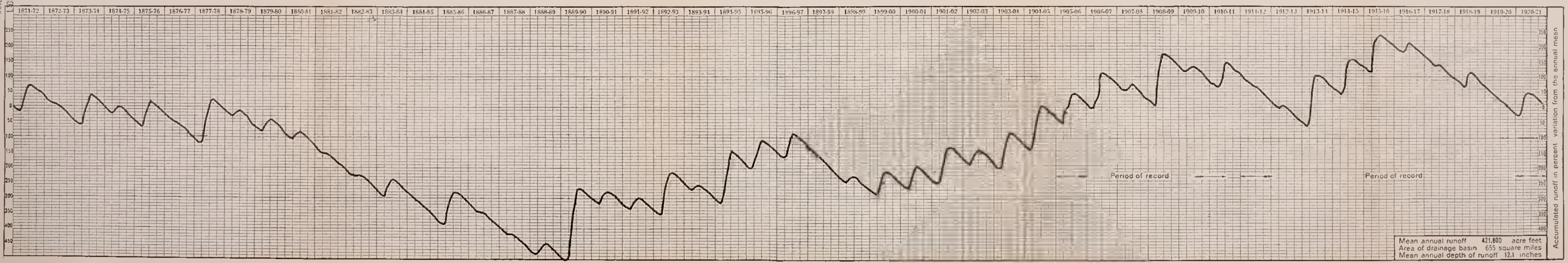

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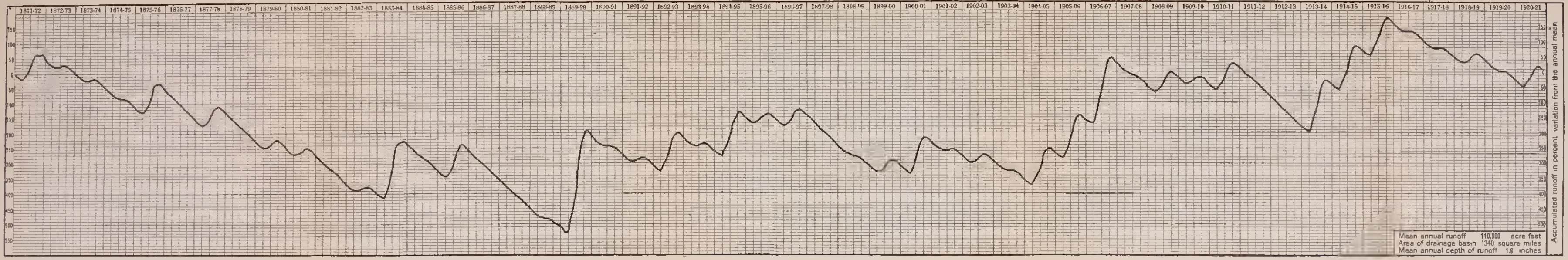
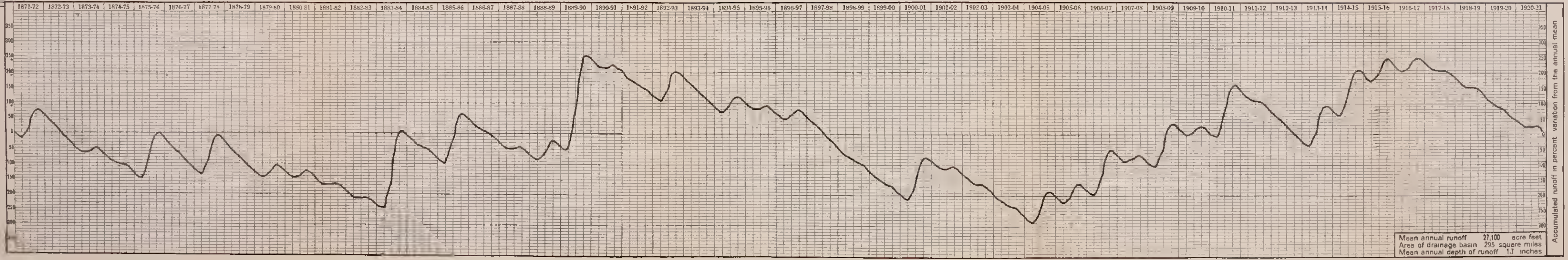


ORESTIMBA CREEK GROUP

AT BASE OF FOOTHILLS



PANOCHE CREEK

NEAR MENDOTA

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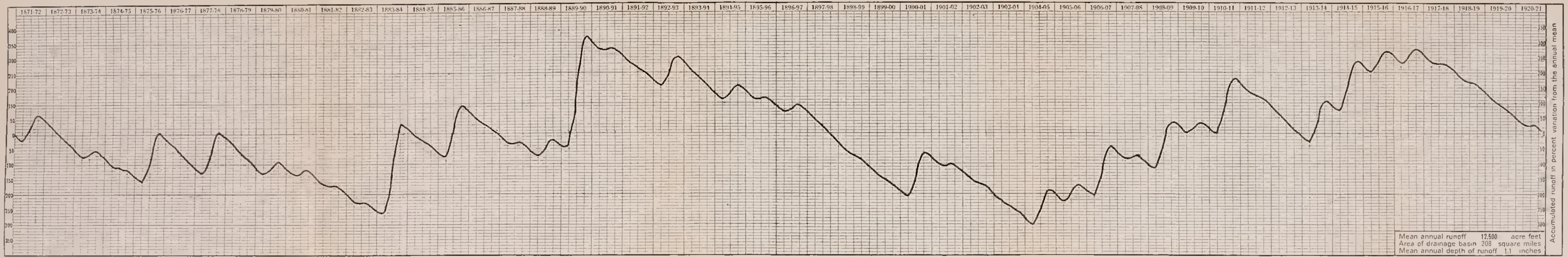
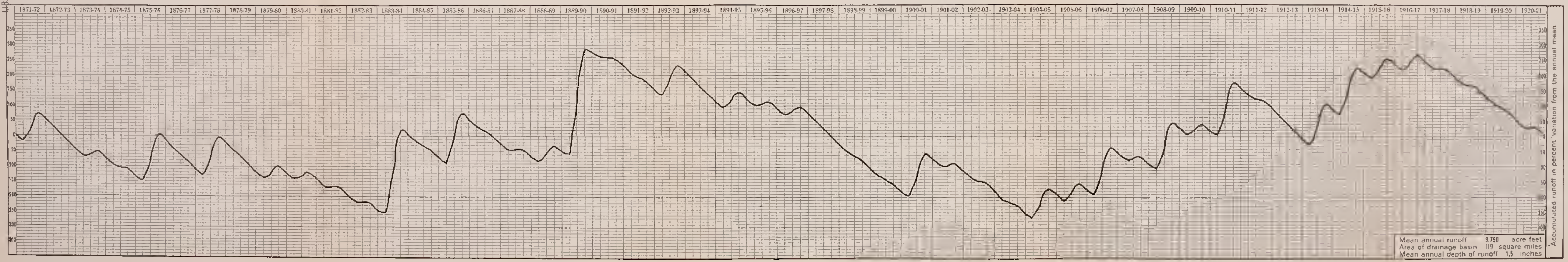


CANTUA CREEK GROUP

AT BASE OF FOOTHILLS



LOS GATOS CREEK,

AT BASE OF FOOTHILLS

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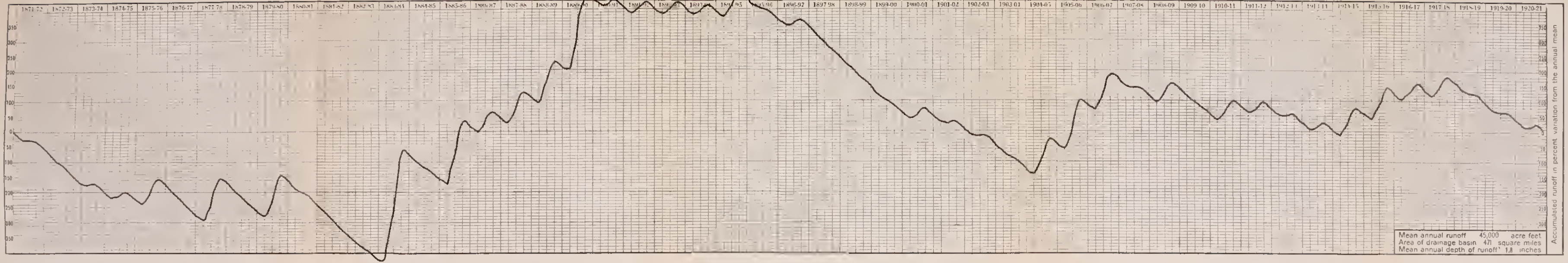
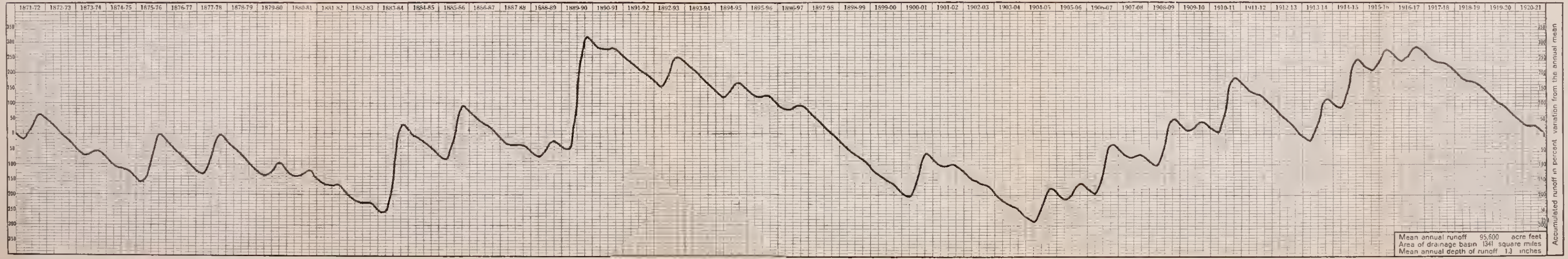


CALIENTE CREEK
NEAR BENA



TEJON CREEK GROUP
AT BASE OF FOOTHILLS

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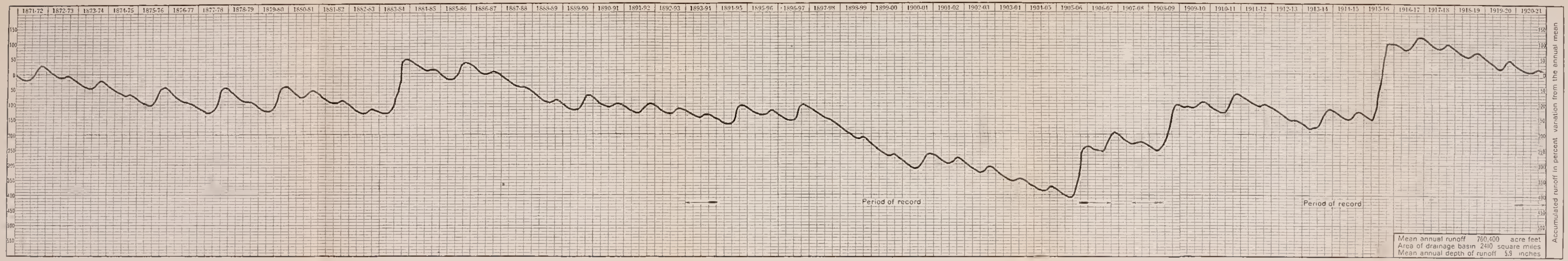
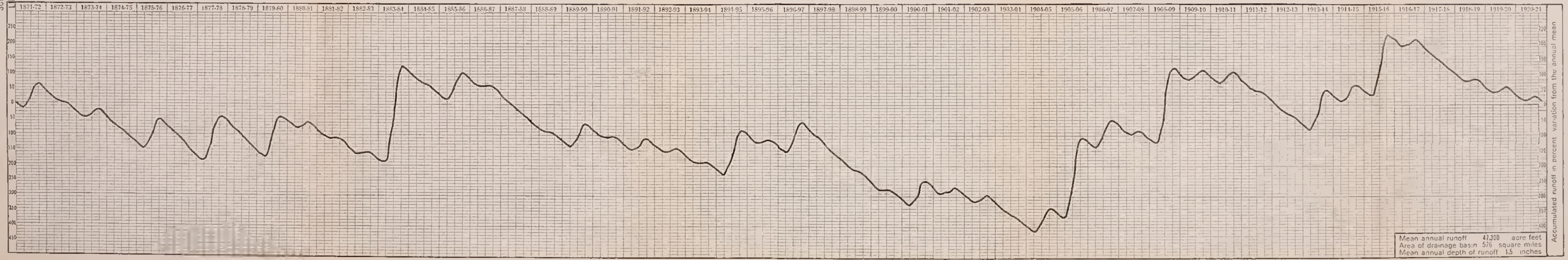


KERN RIVER

NEAR BAKERSFIELD



POSO CREEK GROUP

AT BASE OF FOOTHILLS

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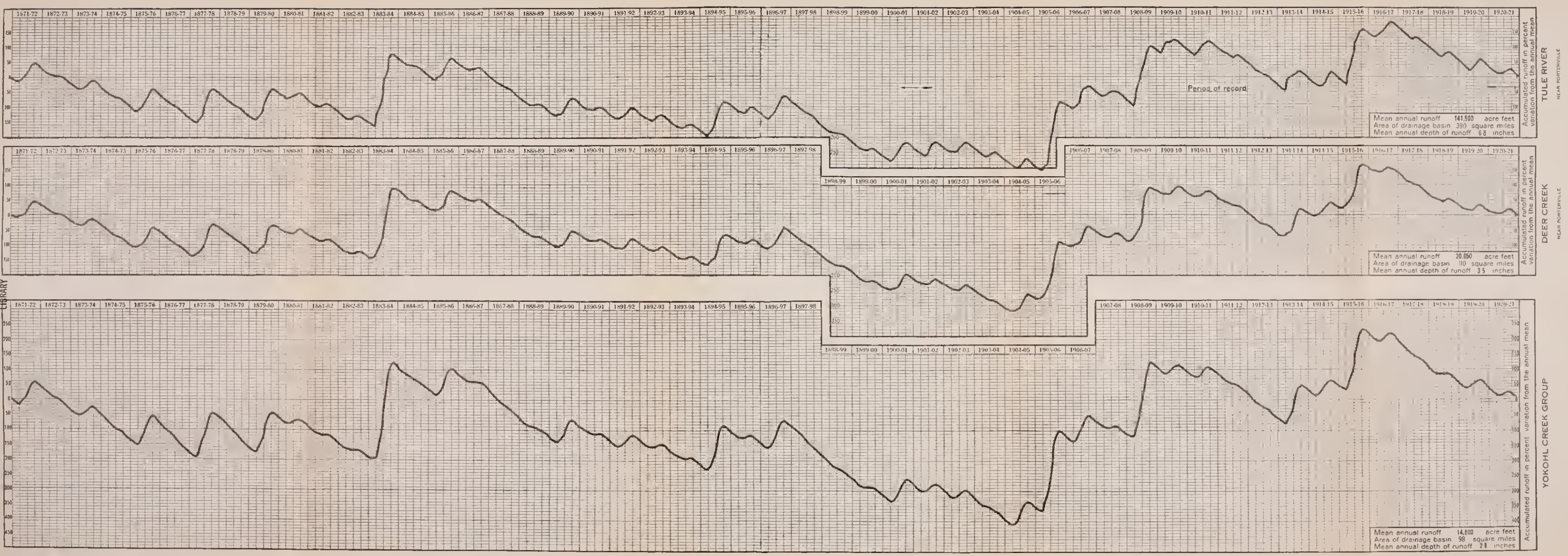
PLATE CVIII.



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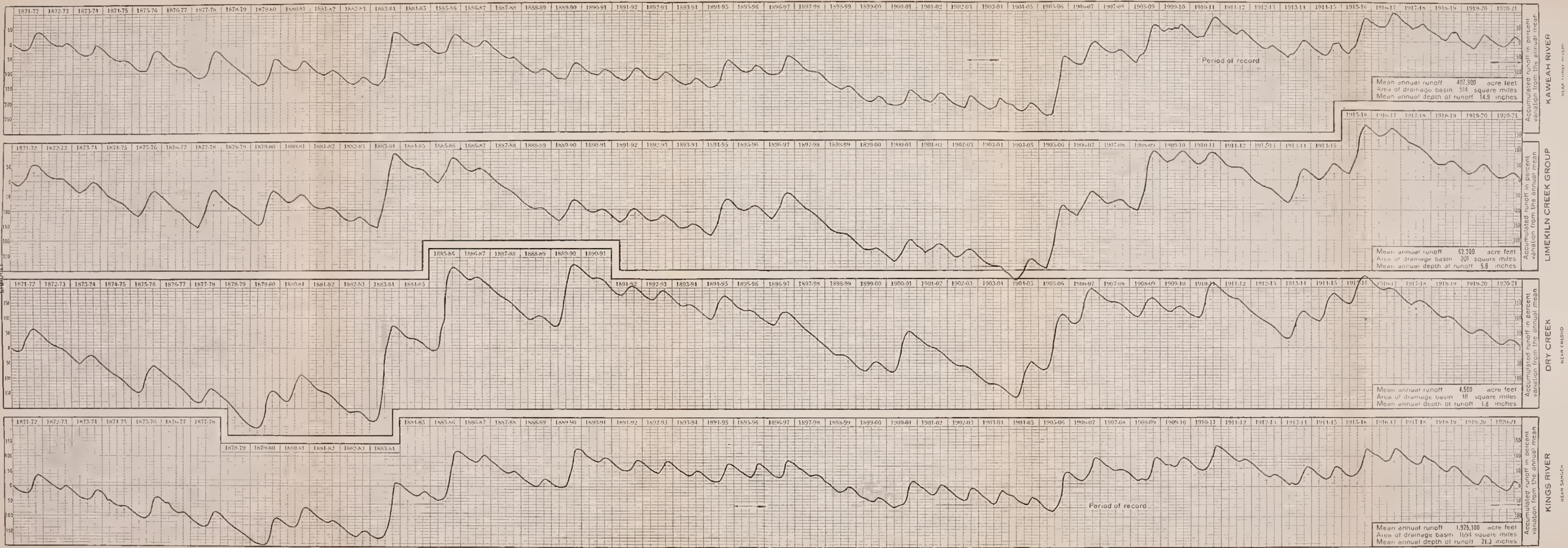

MASS DIAGRAMS OF RUNOFF

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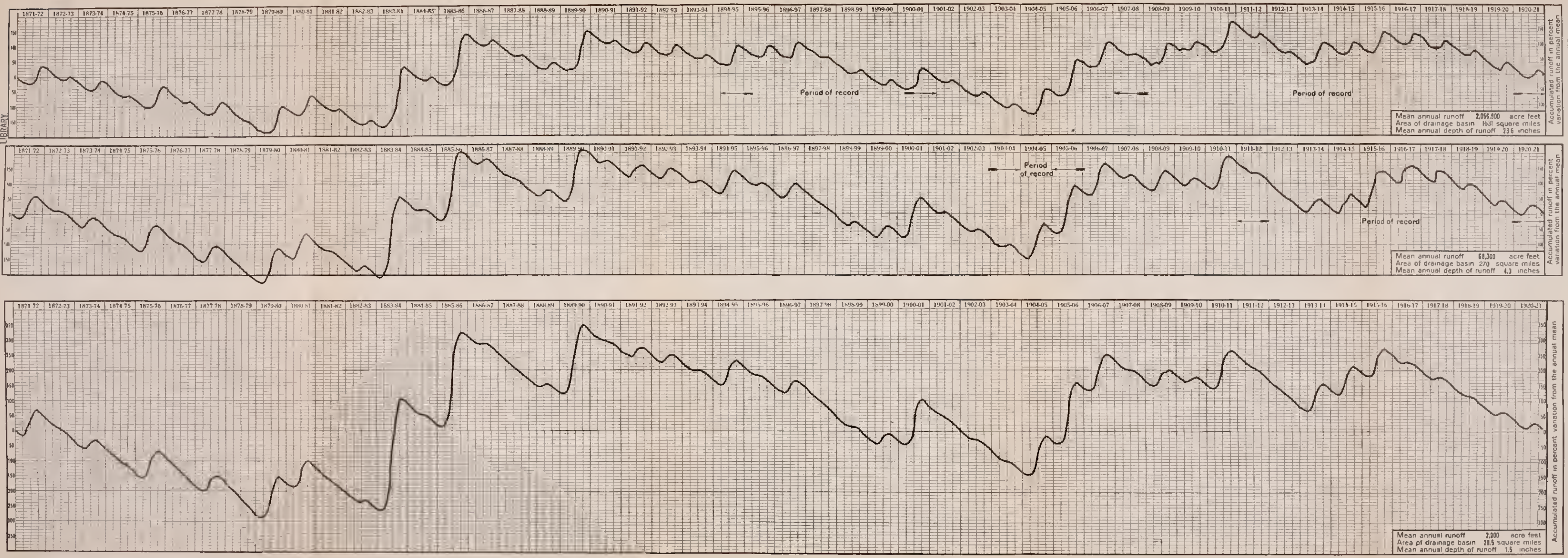

SAN JOAQUIN RIVER (UPPER) NEAR FRIANT

FRESNO RIVER NEAR MADERA

COTTONWOOD CREEK NEAR MADERA

MASS DIAGRAMS OF RUNOFF

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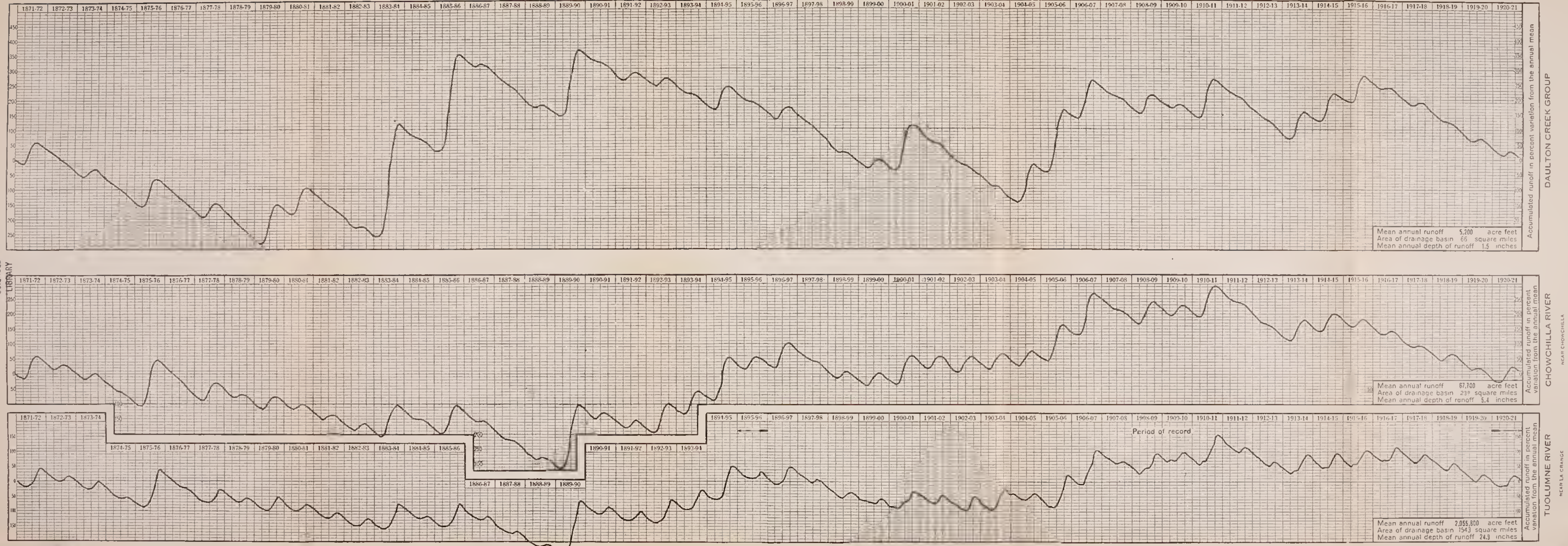

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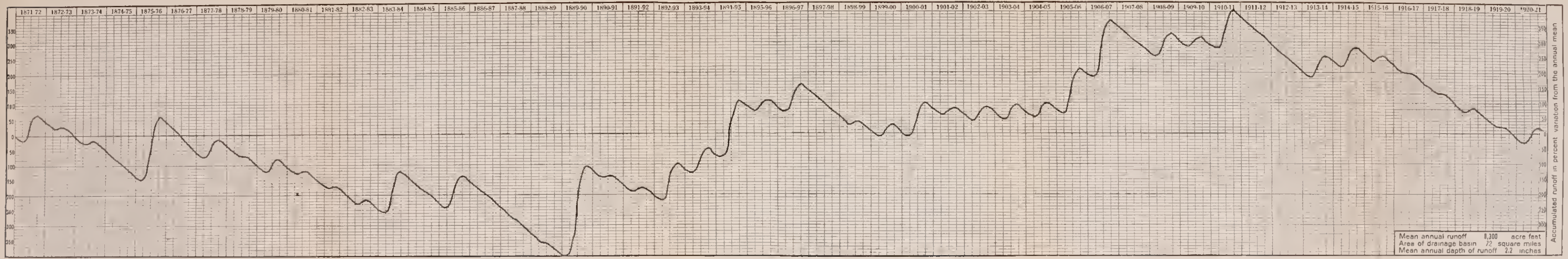
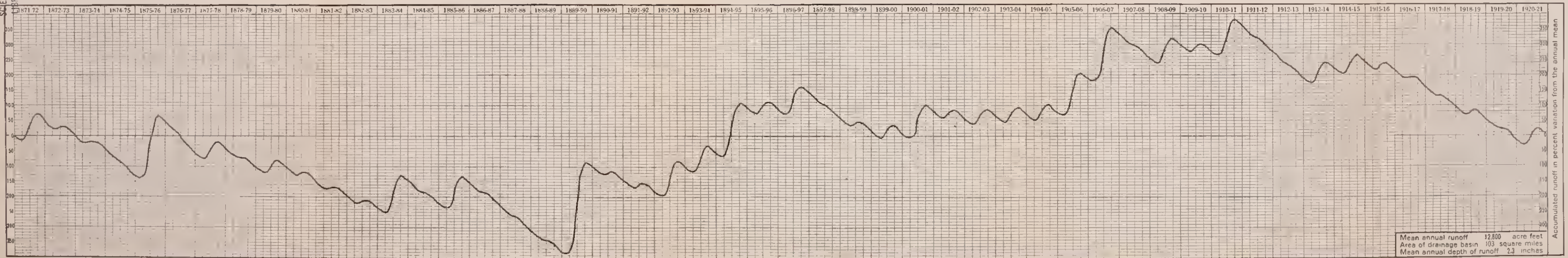


DUTCHMAN CREEK GROUP



MARIPOSA CREEK

NEAR MERCED

MASS DIAGRAMS OF RUNOFF

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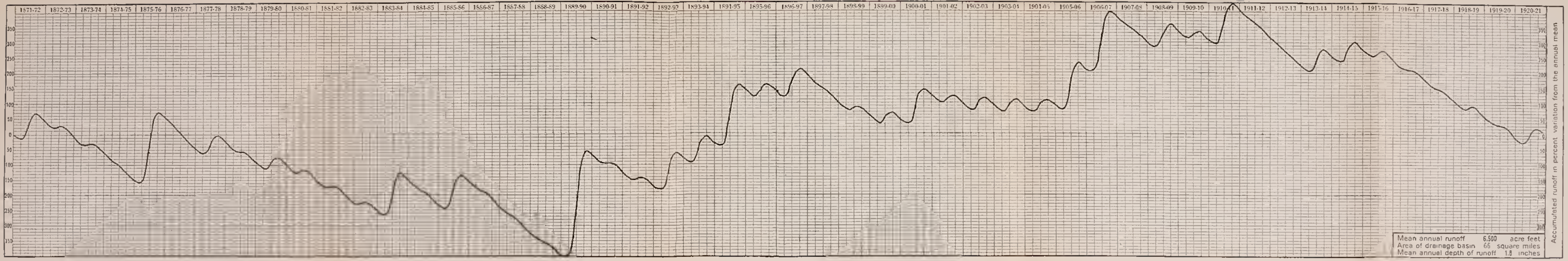
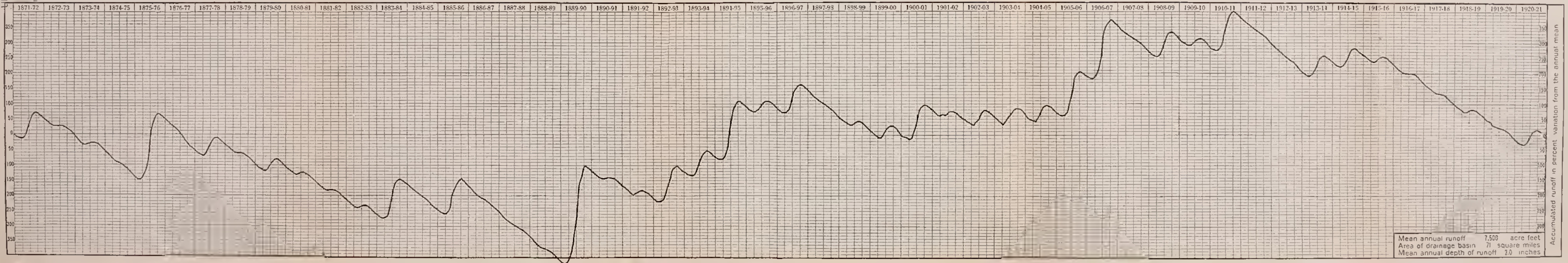


OWENS CREEK
NEAR MERCED



BEAR CREEK
NEAR MERCED

MASS DIAGRAMS OF RUNOFF

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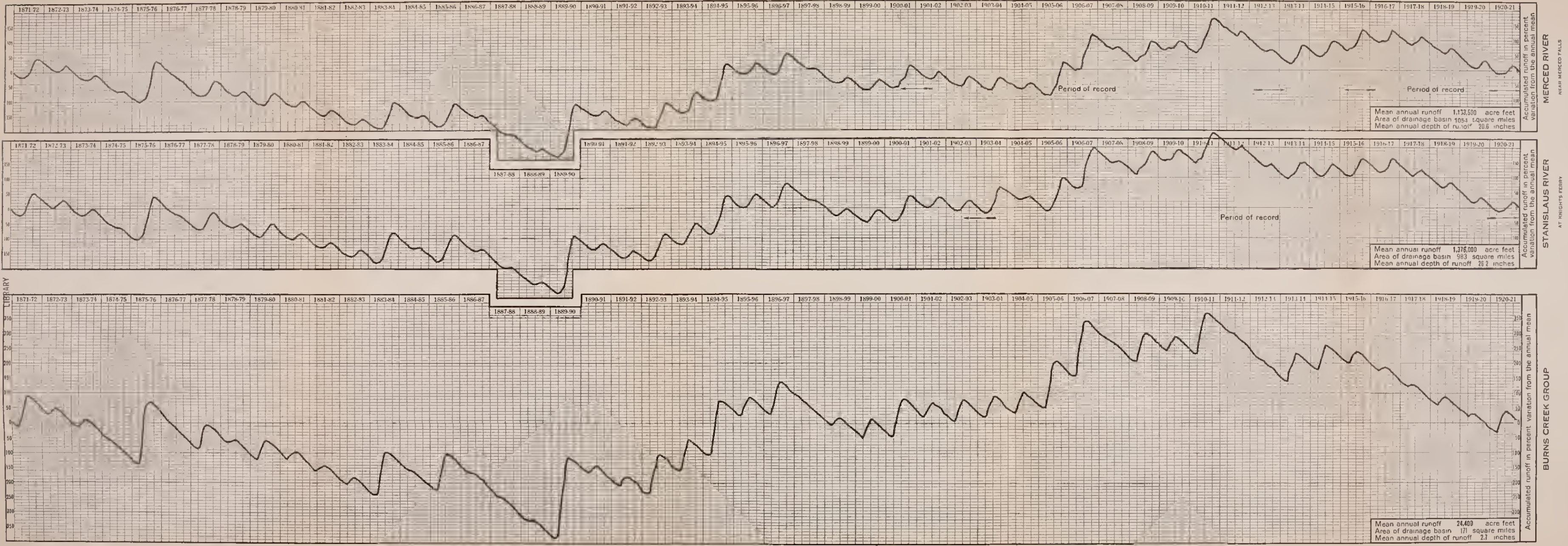

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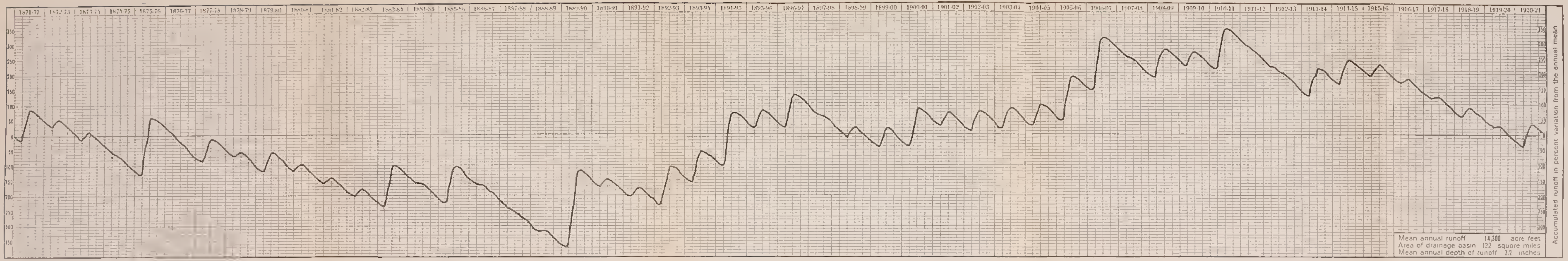

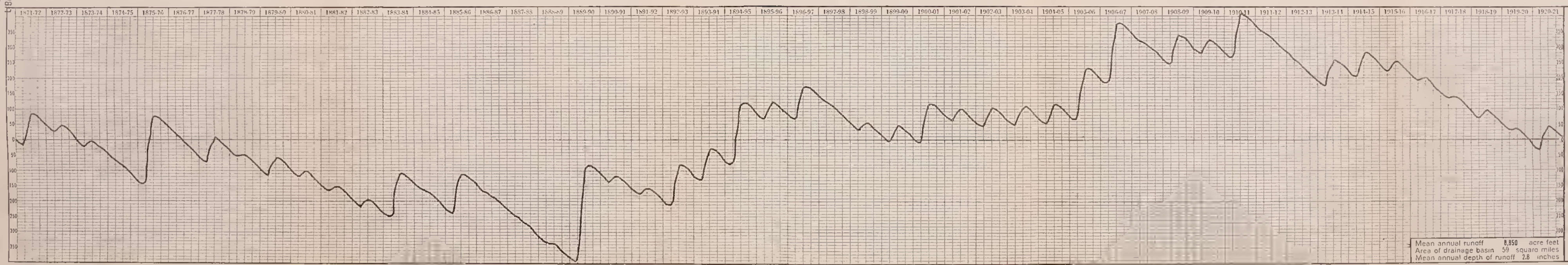

MASS DIAGRAMS OF RUNOFF

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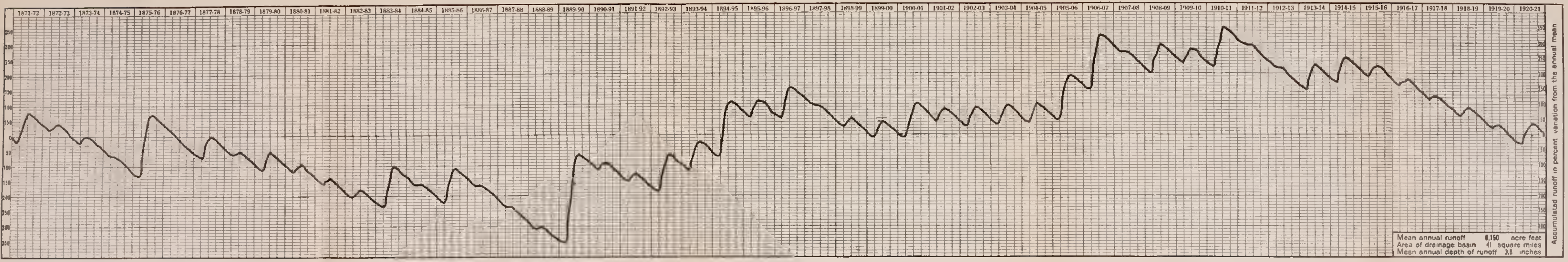
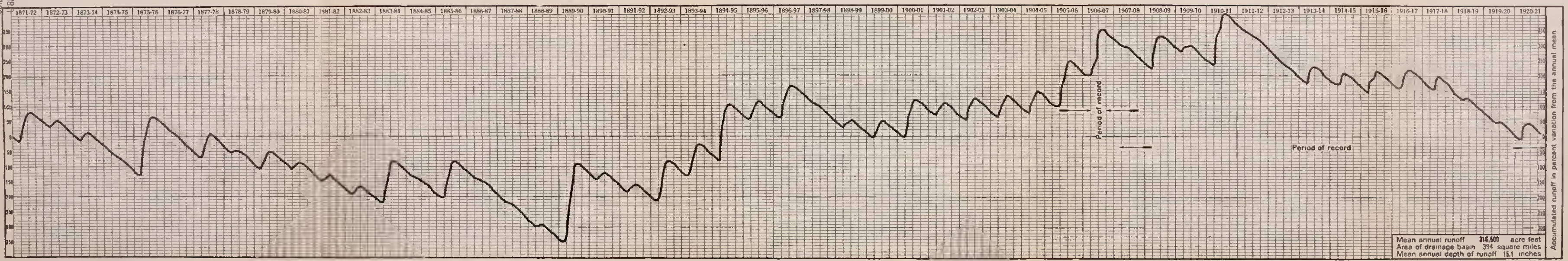


LITTLEJOHNS CREEK
NEAR KNIGHTS FERRY



CALAVERAS RIVER
AT JENNY LIND

MASS DIAGRAMS OF RUNOFF

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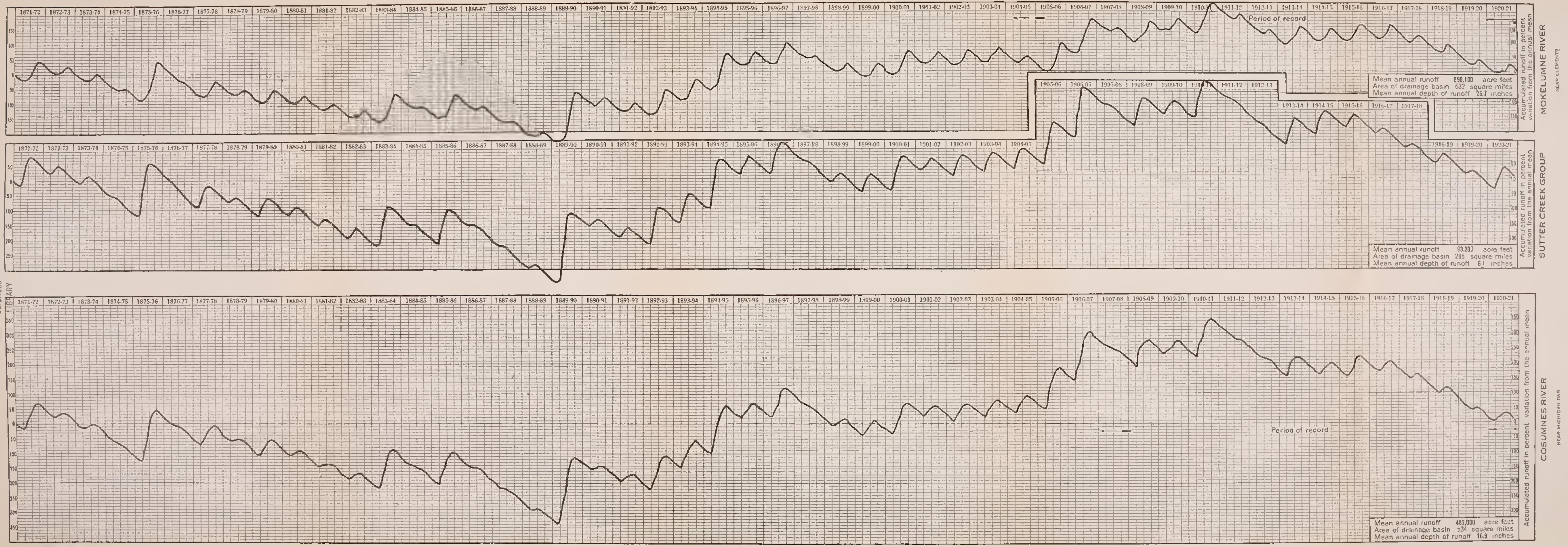

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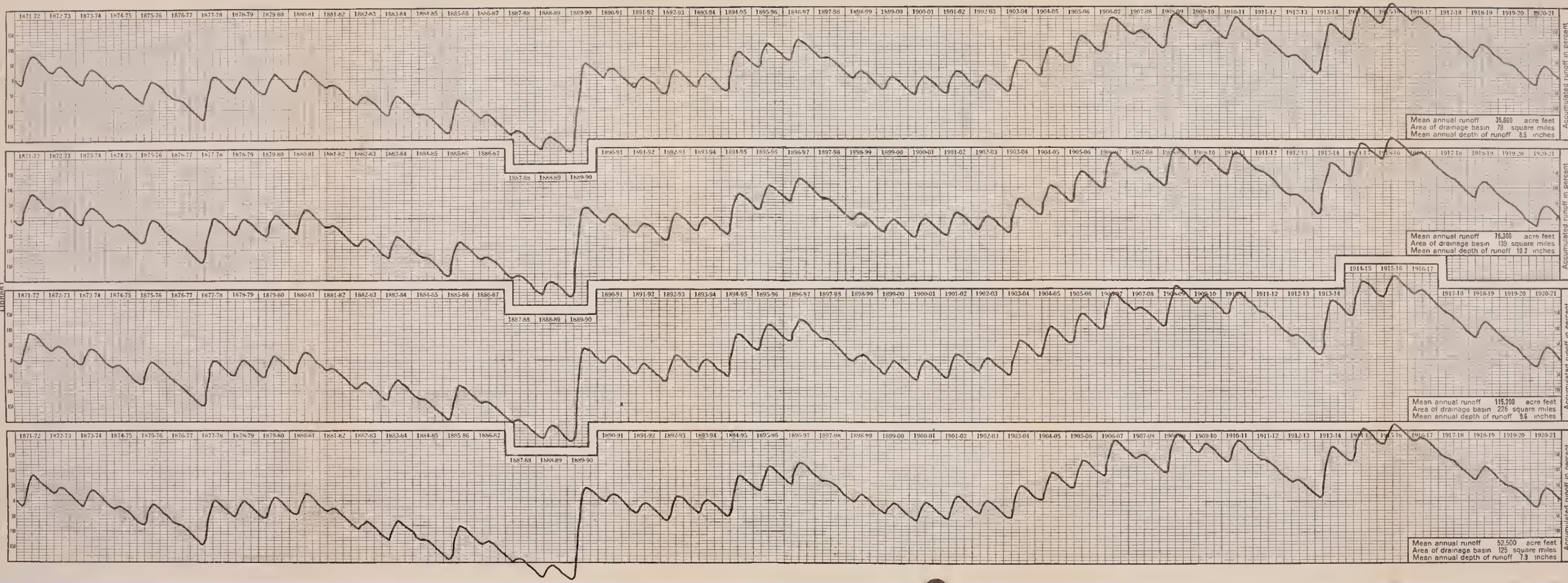

SONOMA CREEK TRIBUTARIES

AT BASE OF FOOTHILLS

PETALUMA CREEK GROUP

NAPA RIVER TRIBUTARIES

AT BASE OF FOOTHILLS

SUISUN CREEK GROUP

MASS DIAGRAMS OF RUNOFF

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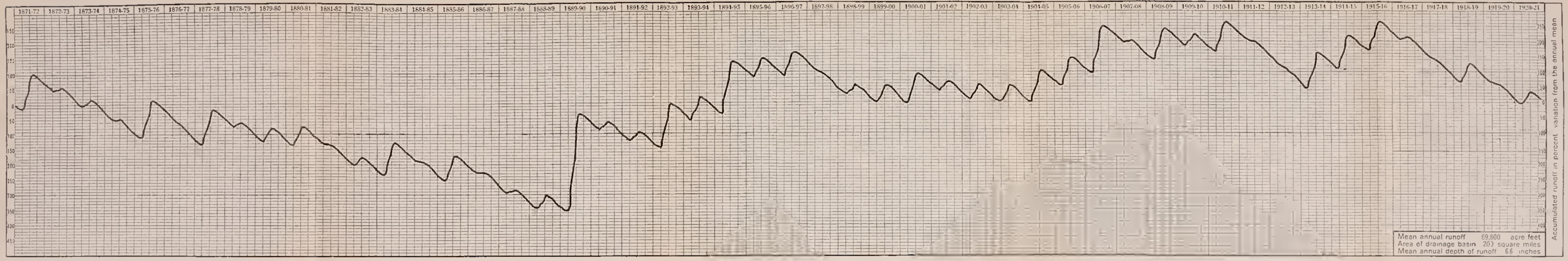
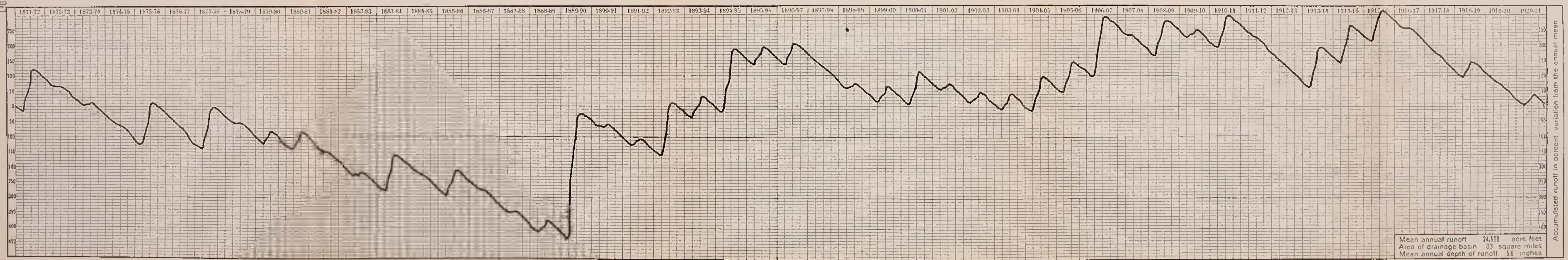


MOUNT DIABLO CREEK GROUP



CLAREMONT CREEK GROUP

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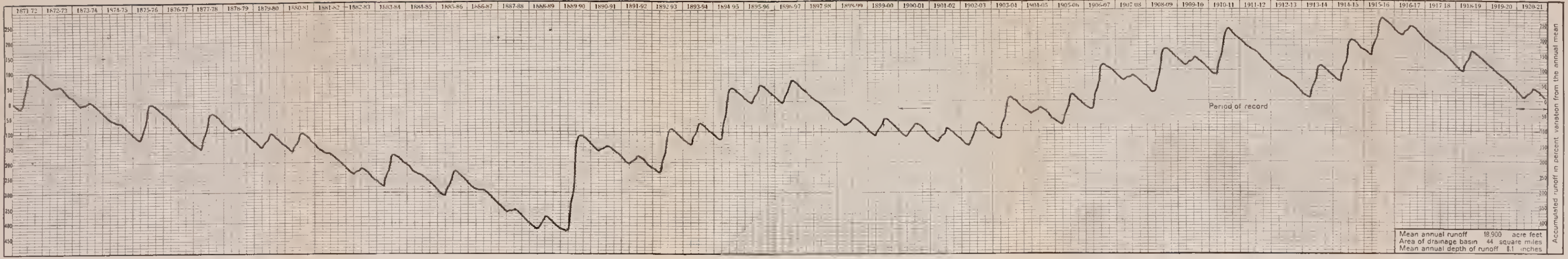
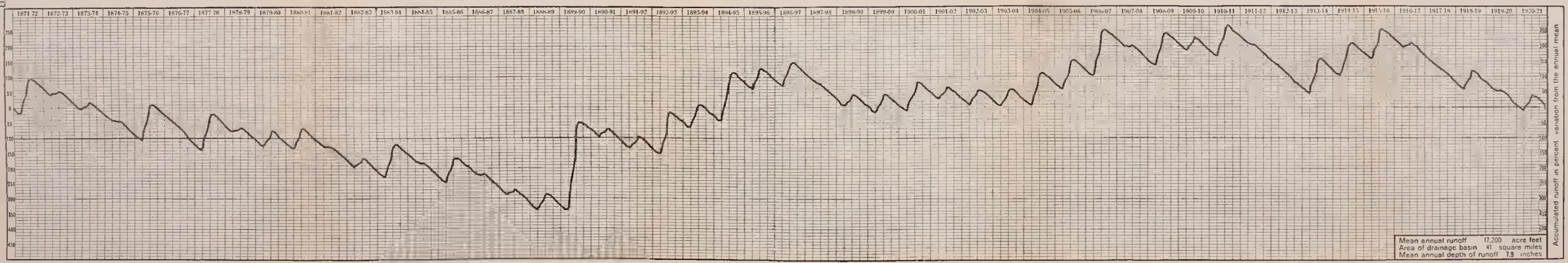


SAN LEANDRO CREEK
NEAR SAN LEANDRO



SAN PABLO CREEK
NEAR SAN PABLO

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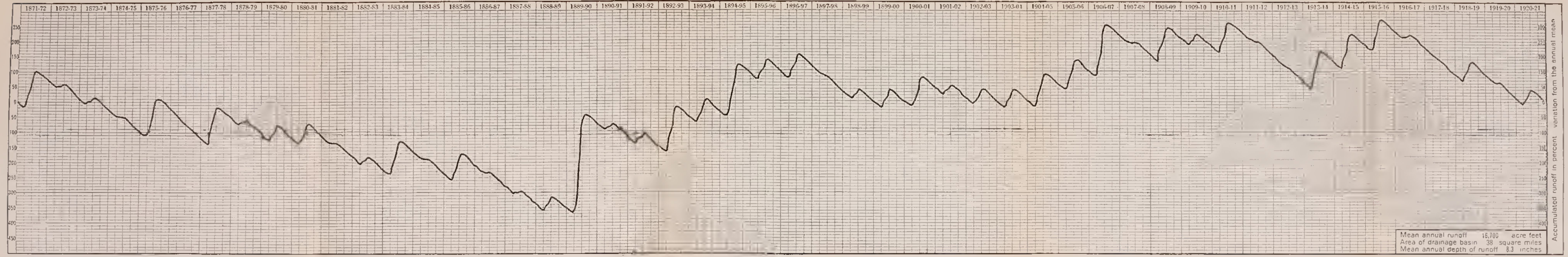
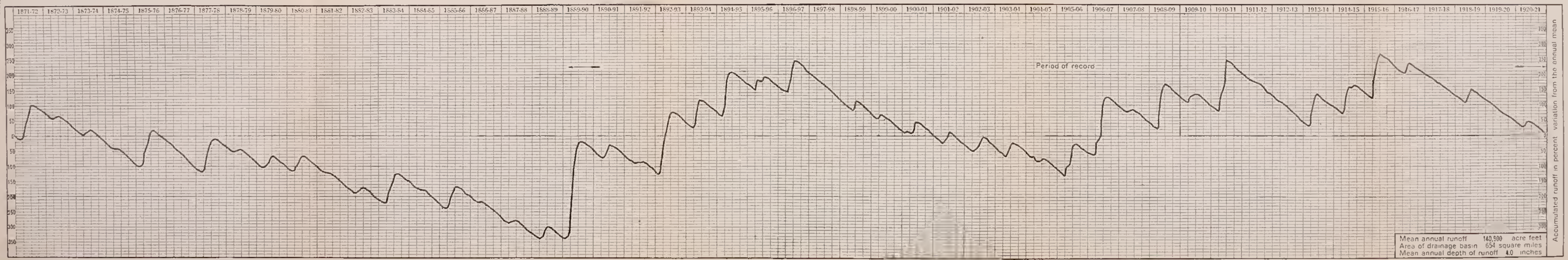


SAN LORENZO CREEK

NEAR SAN LORENZO



ALAMEDA CREEK

AT NILES

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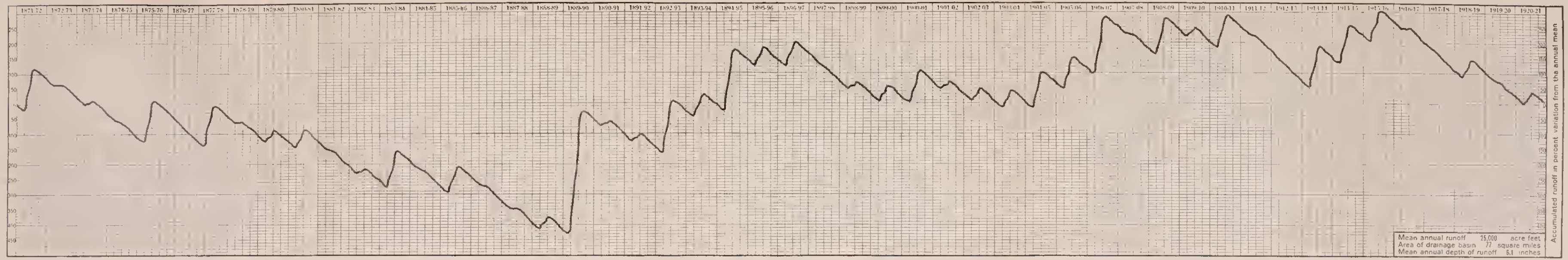
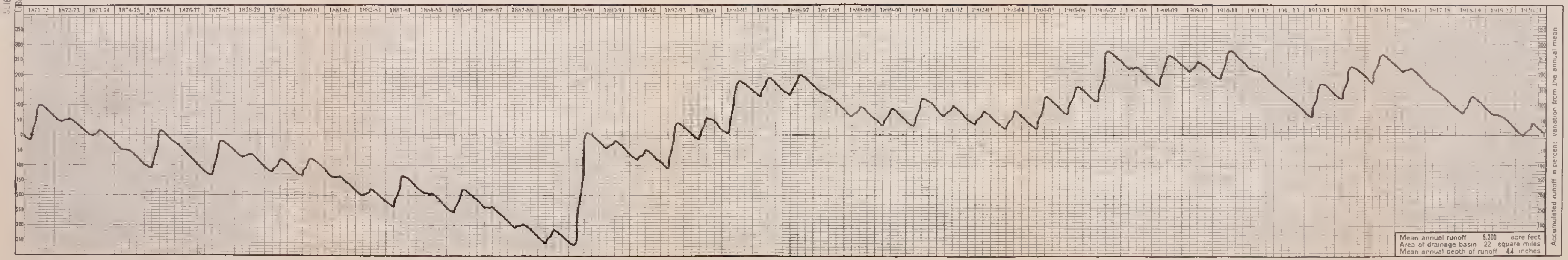


MISSION CREEK GROUP



PENITENCIA CREEK

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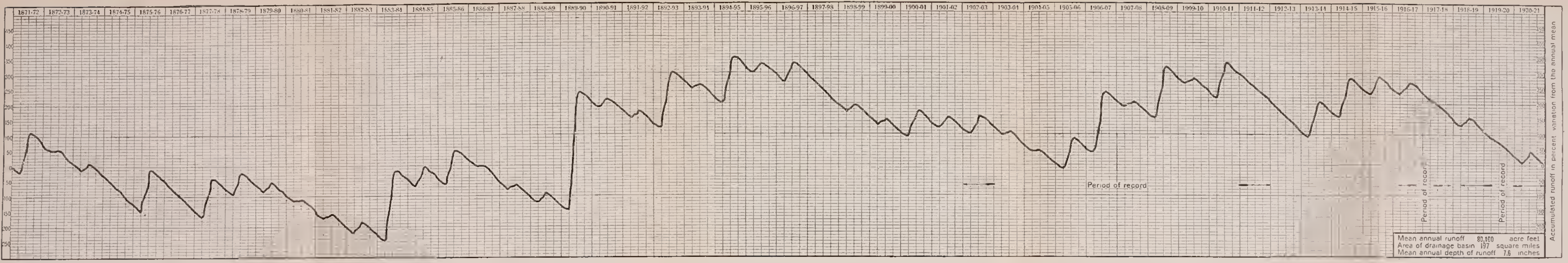
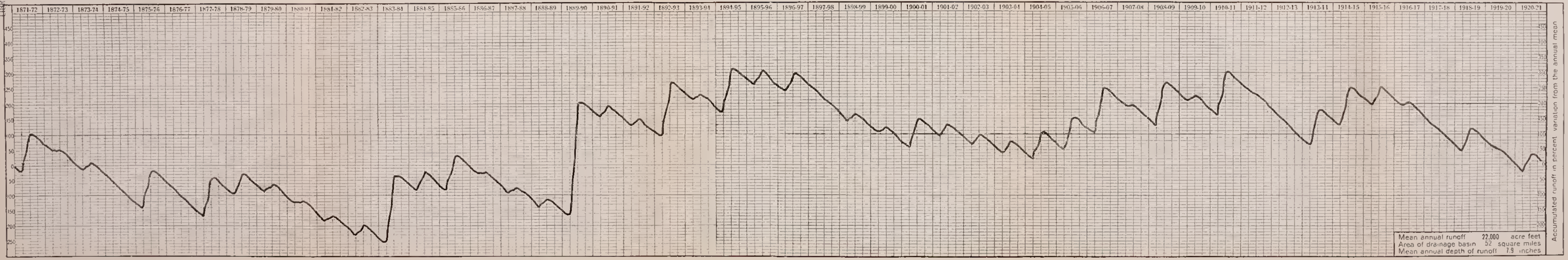


COYOTE RIVER



GUADALUPE RIVER

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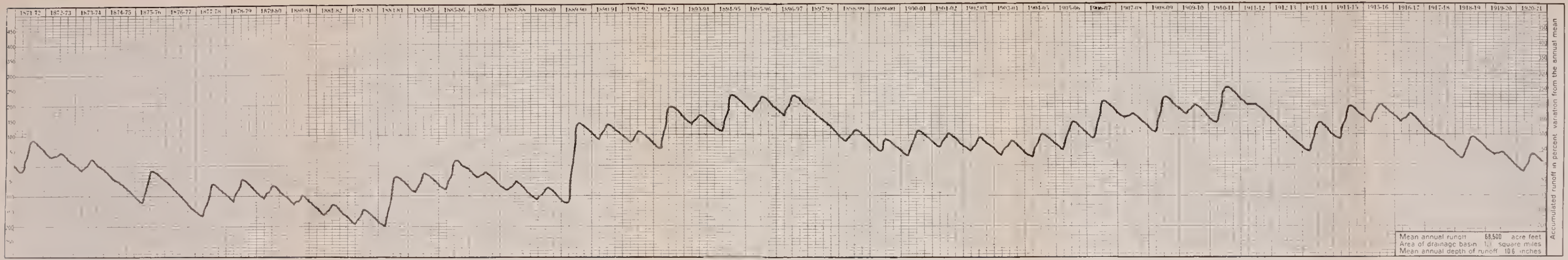
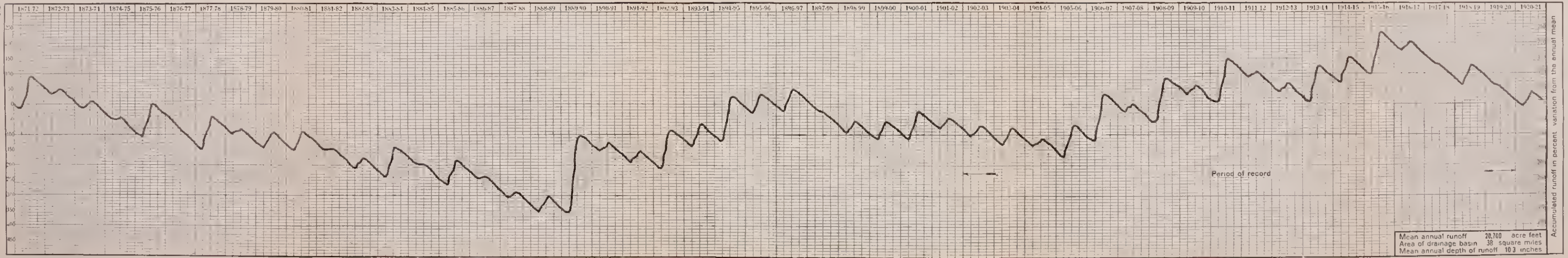


LOS GATOS CREEK GROUP



SAN FRANCISQUITO CREEK

NEAR PALO ALTO

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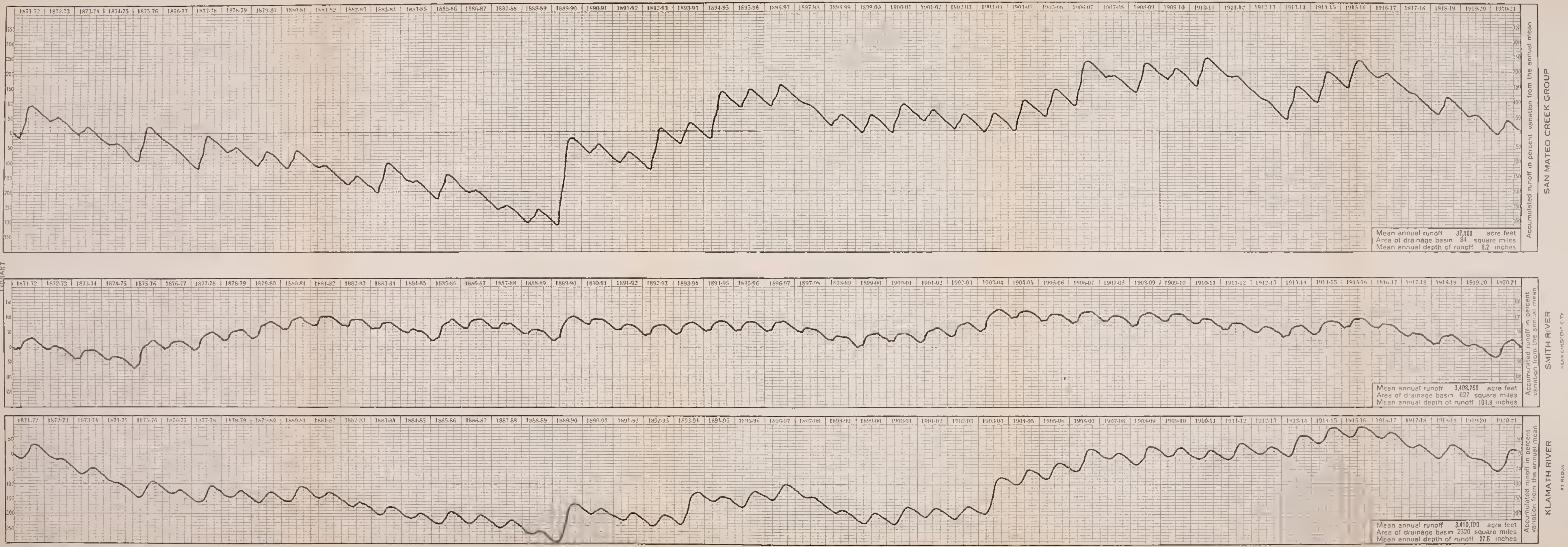

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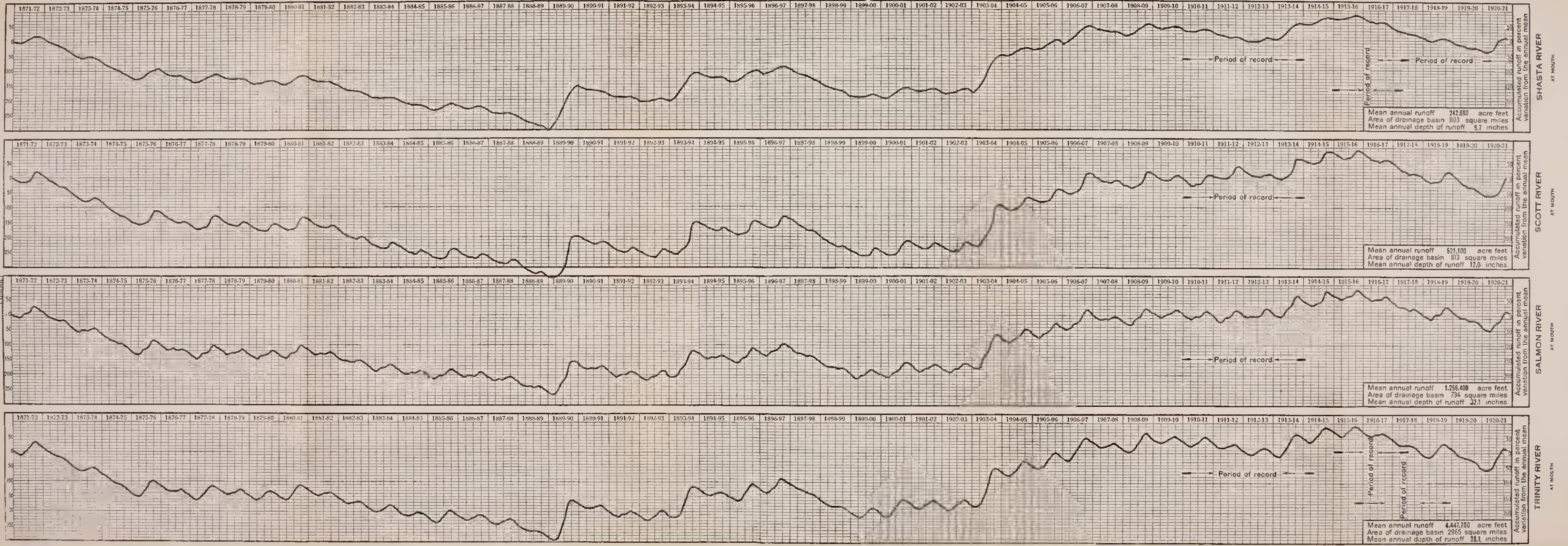

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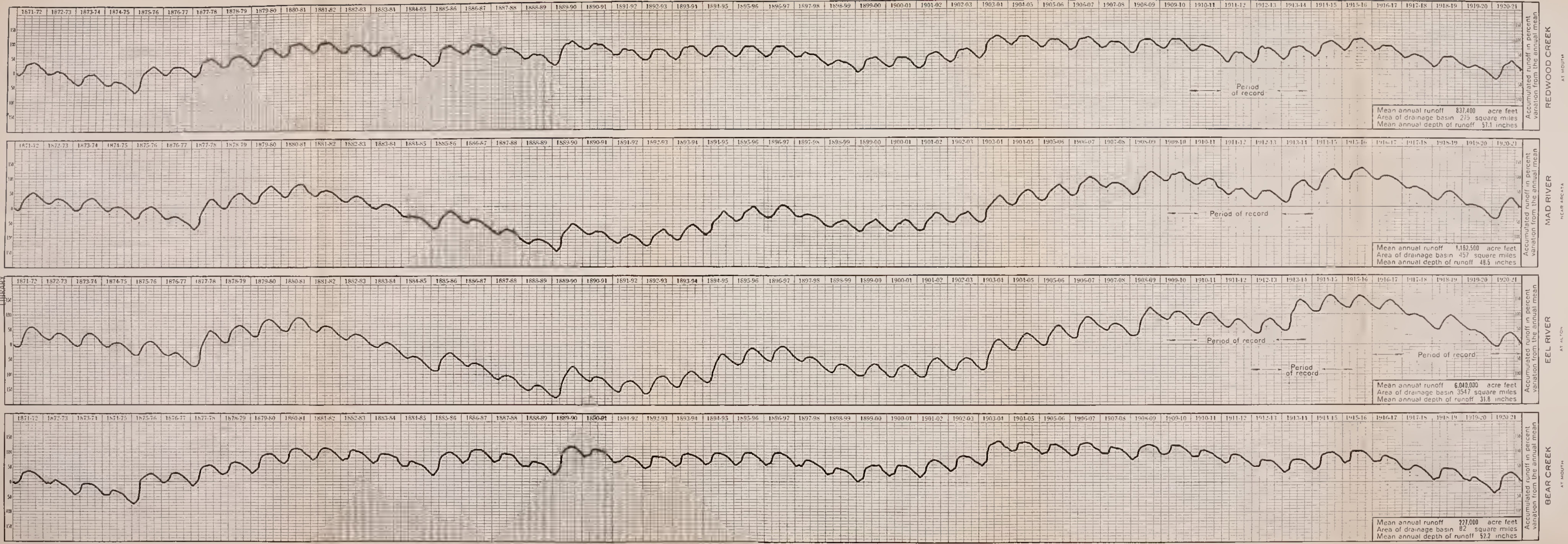

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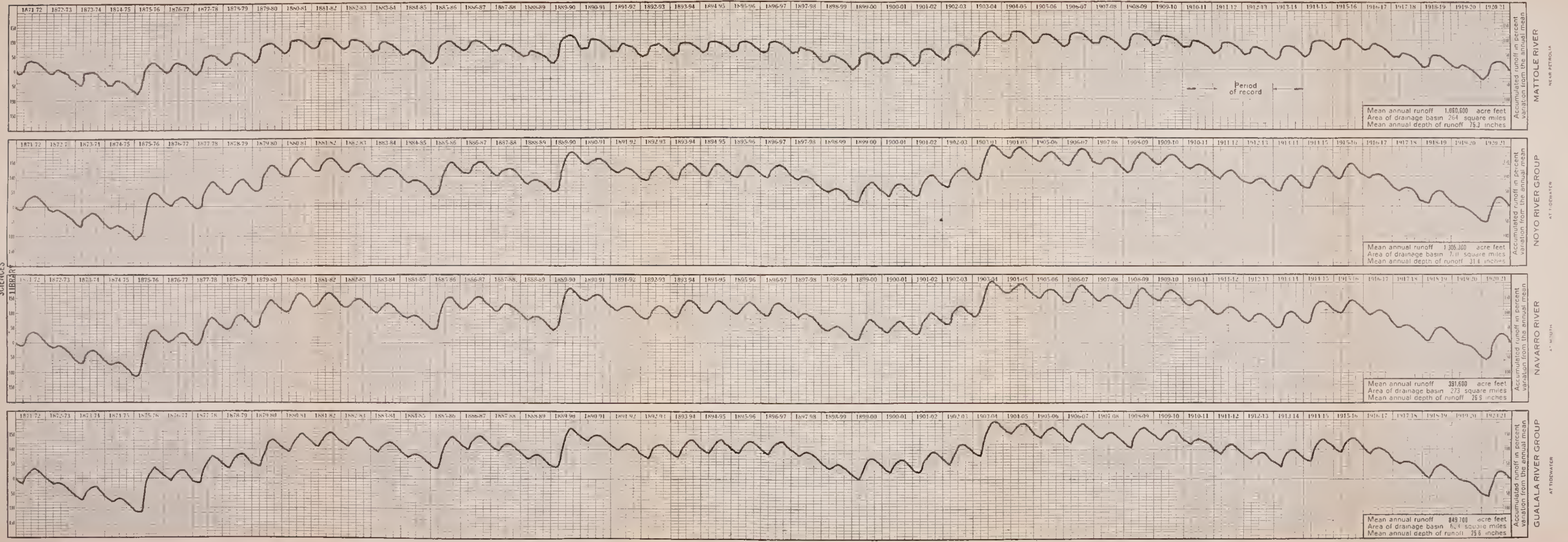

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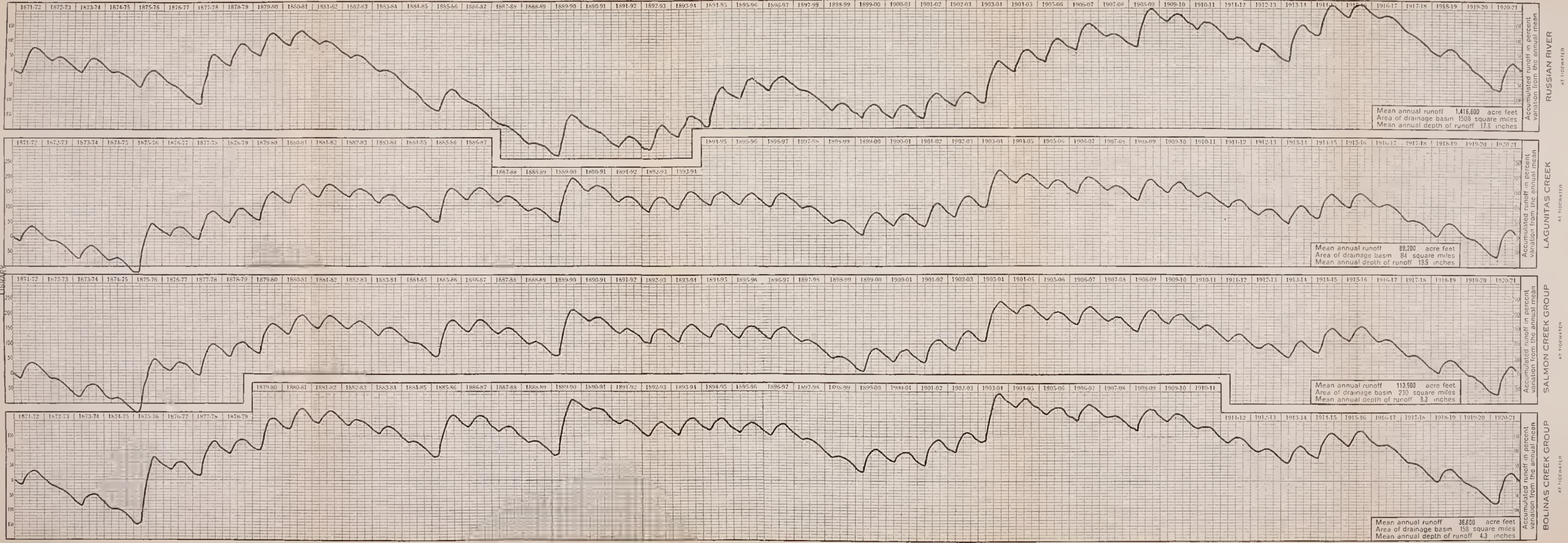

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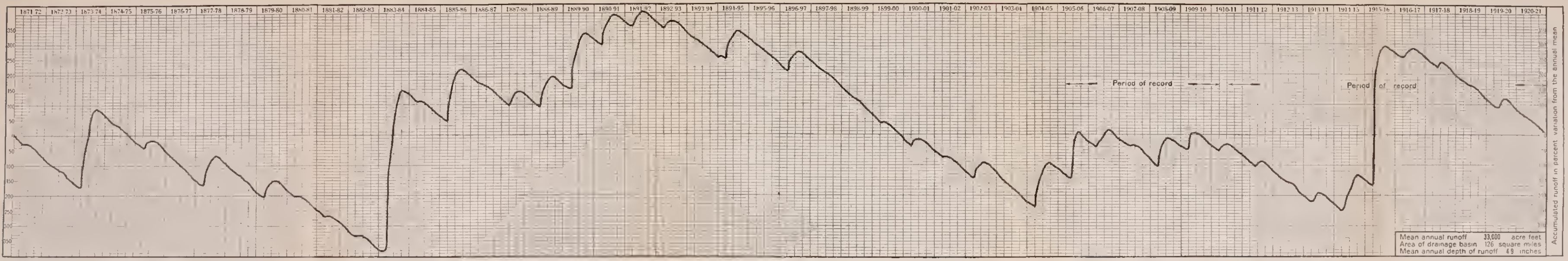

SANTA YSABEL CREEK

NEAR ESCONDIDO

SAN DIEGO RIVER

AT LAKESIDE

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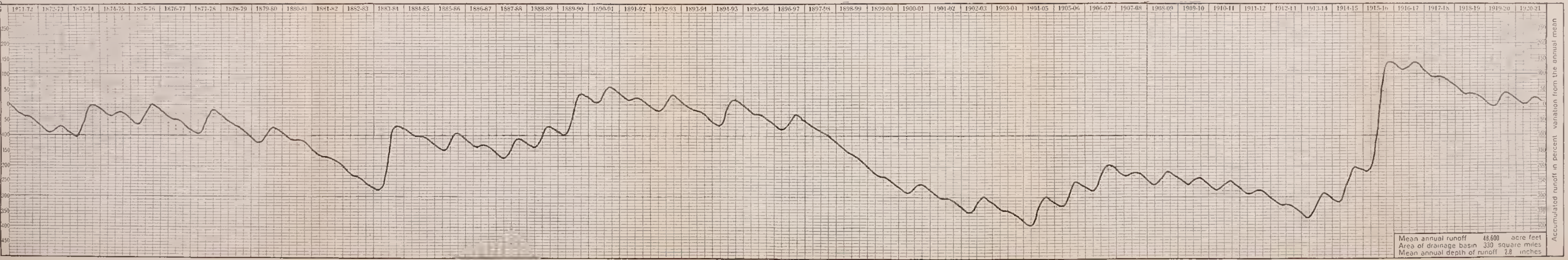

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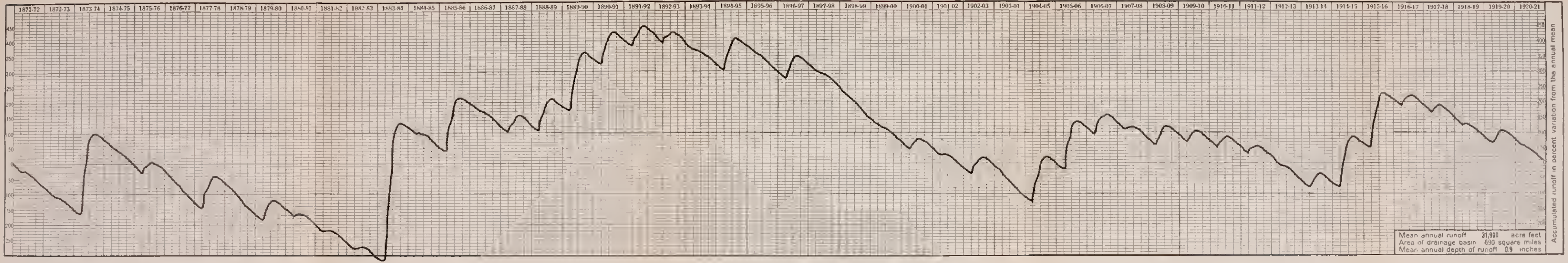

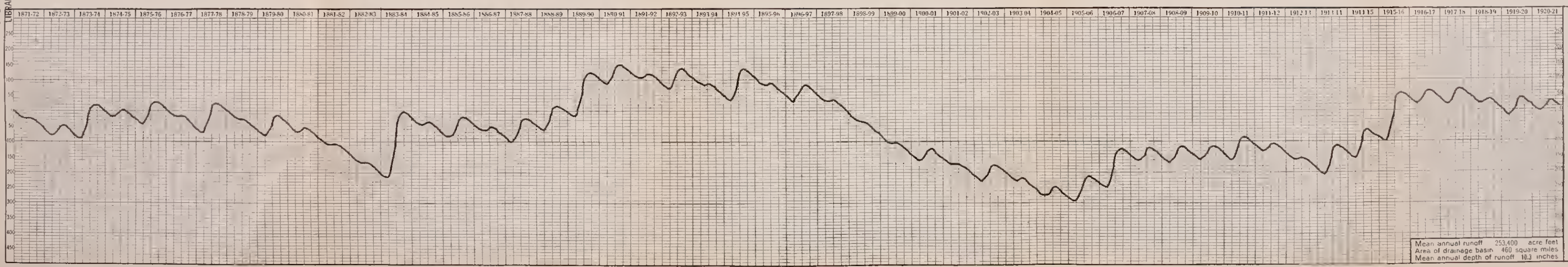

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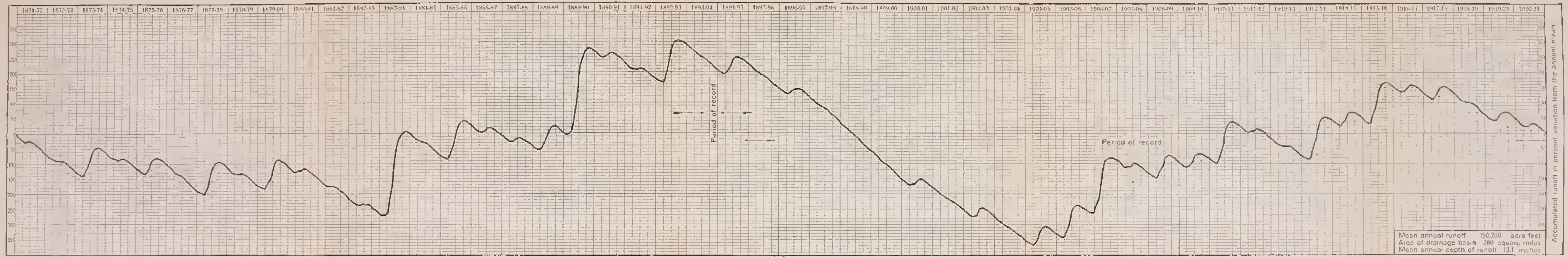
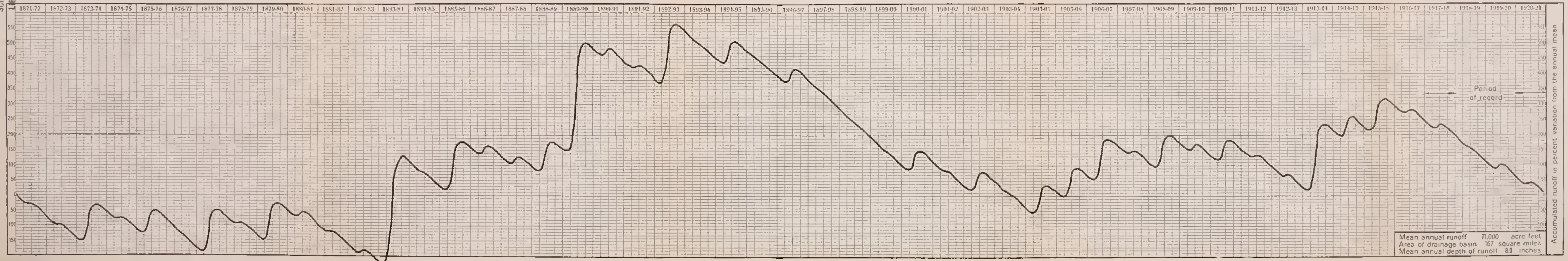


SAN GABRIEL RIVER TRIBUTARIES
AT BASE OF FOOTHILLS



LOS ANGELES RIVER TRIBUTARIES
AT BASE OF FOOTHILLS

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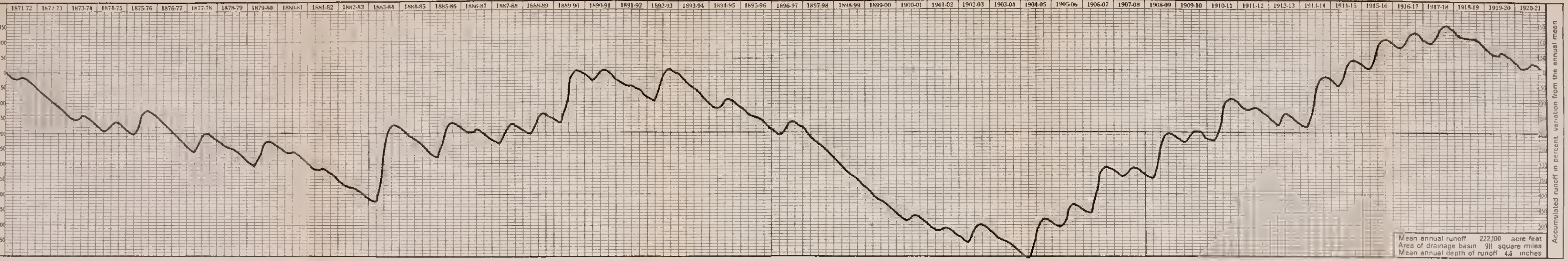

SANTA CLARA RIVER TRIBUTARIES

MALIBU RIVER GROUP

NEAR COAST

MASS DIAGRAMS OF RUNOFF

STATE DEPARTMENT OF PUBLIC WORKS

DIVISION OF ENGINEERING AND IRRIGATION

CALIFORNIA WATER RESOURCES INVESTIGATION

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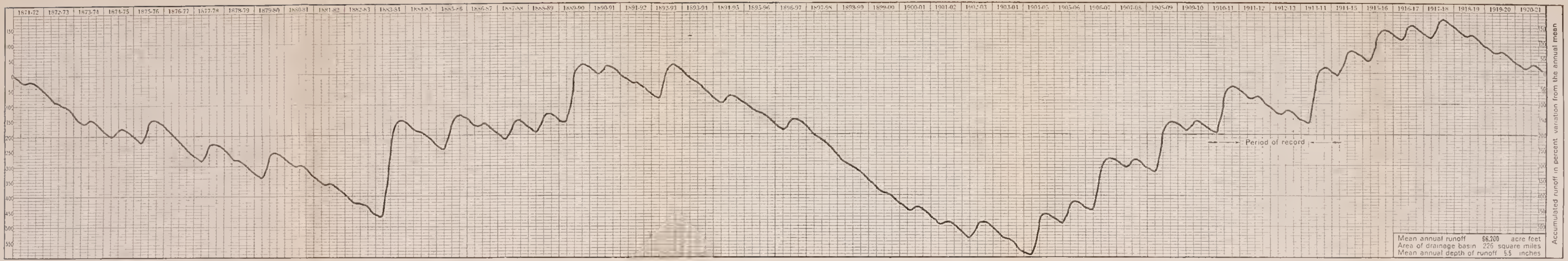

MASS DIAGRAMS OF RUNOFF

STATE DEPARTMENT OF PUBLIC WORKS

DIVISION OF ENGINEERING AND IRRIGATION

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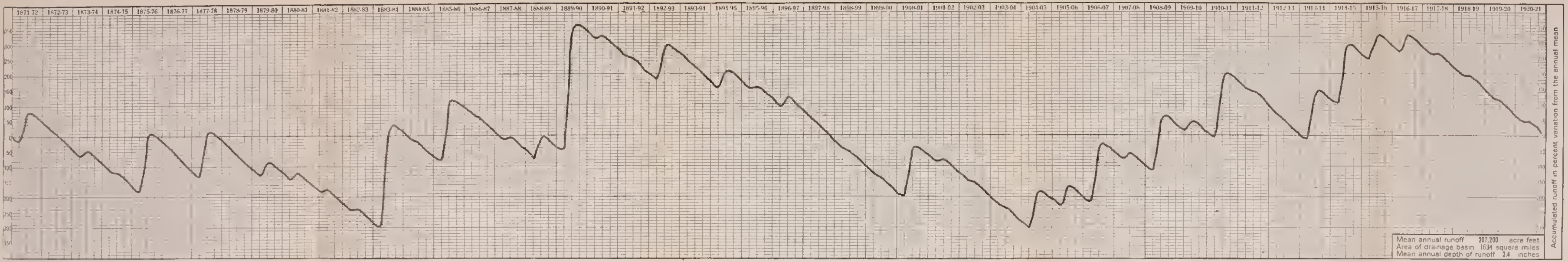

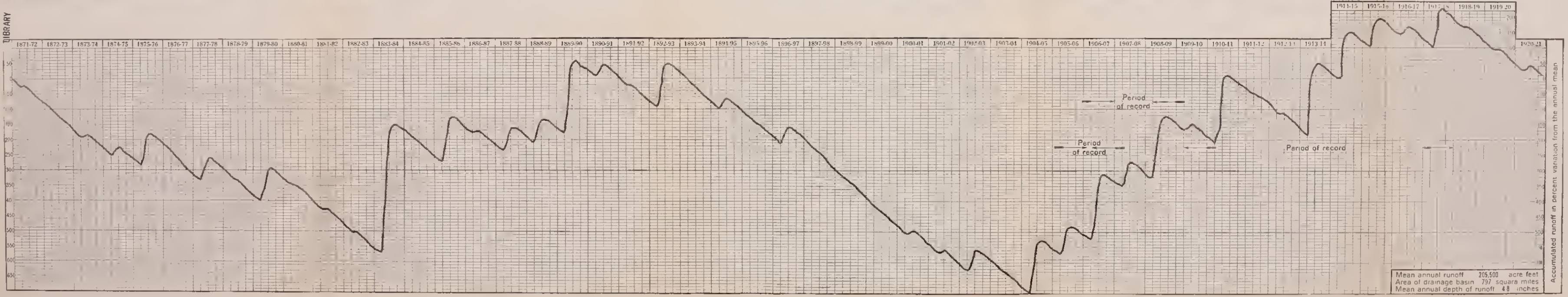

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STATE DEPARTMENT OF PUBLIC WORKS

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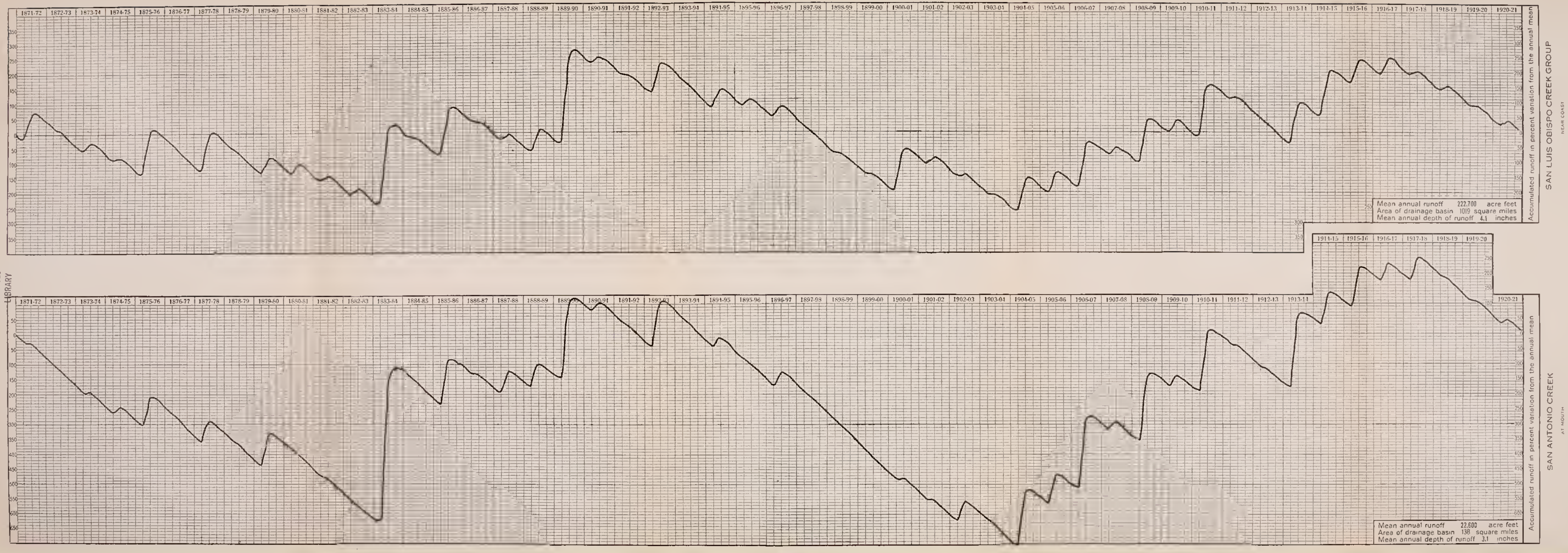

MASS DIAGRAMS OF RUNOFF

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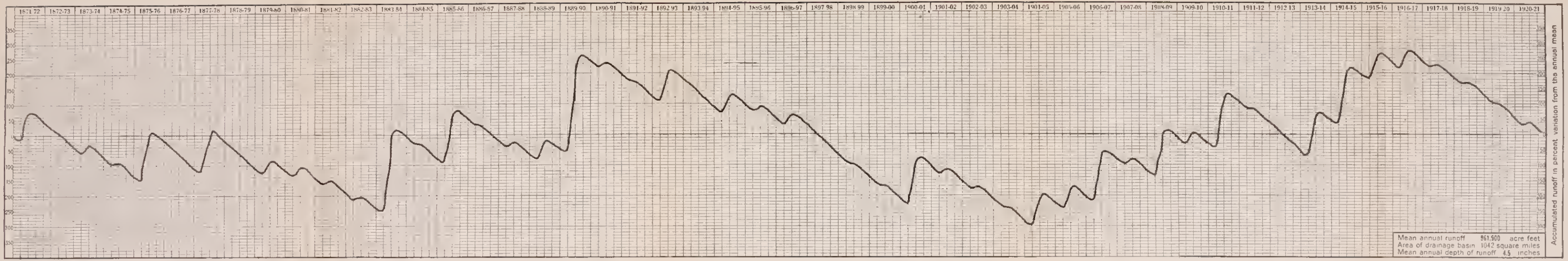
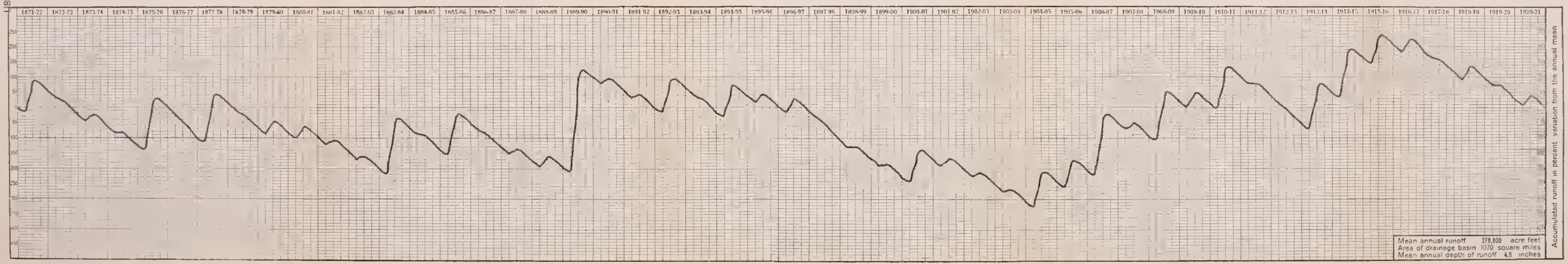


SALINAS RIVER TRIBUTARIES

AT BASE OF FOOTHILLS



PAJARO RIVER TRIBUTARIES

MASS DIAGRAMS OF RUNOFF

STATE DEPARTMENT OF PUBLIC WORKS

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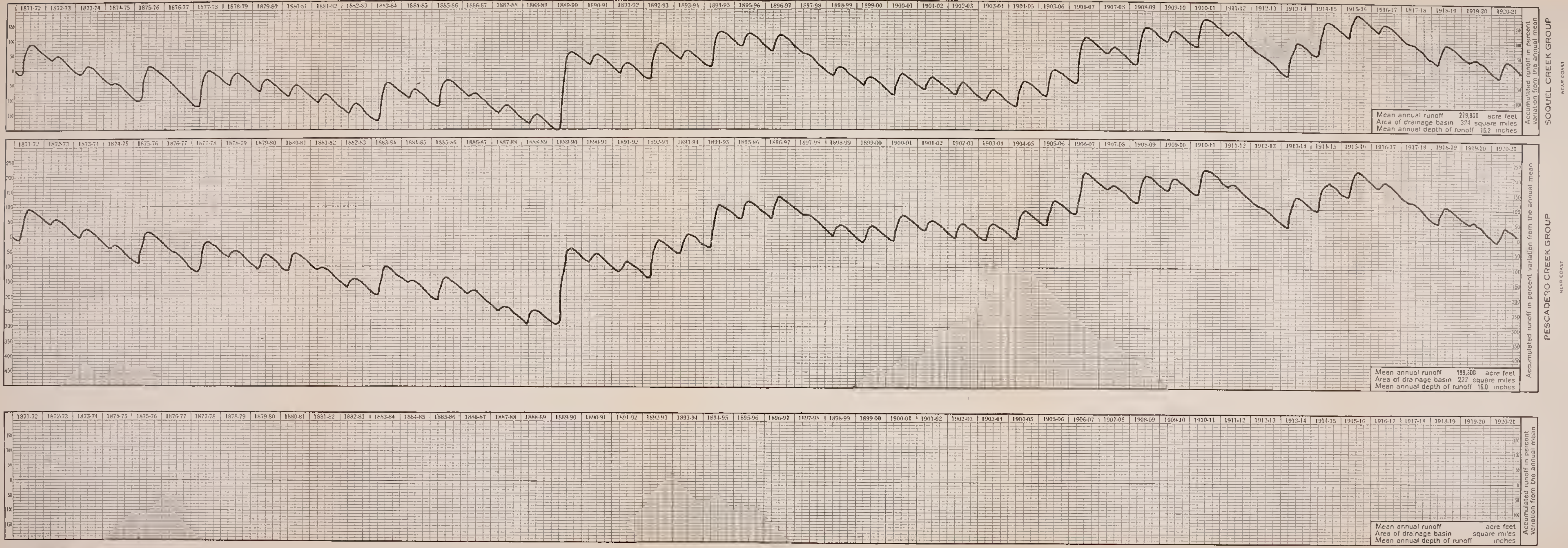

MASS DIAGRAMS OF RUNOFF

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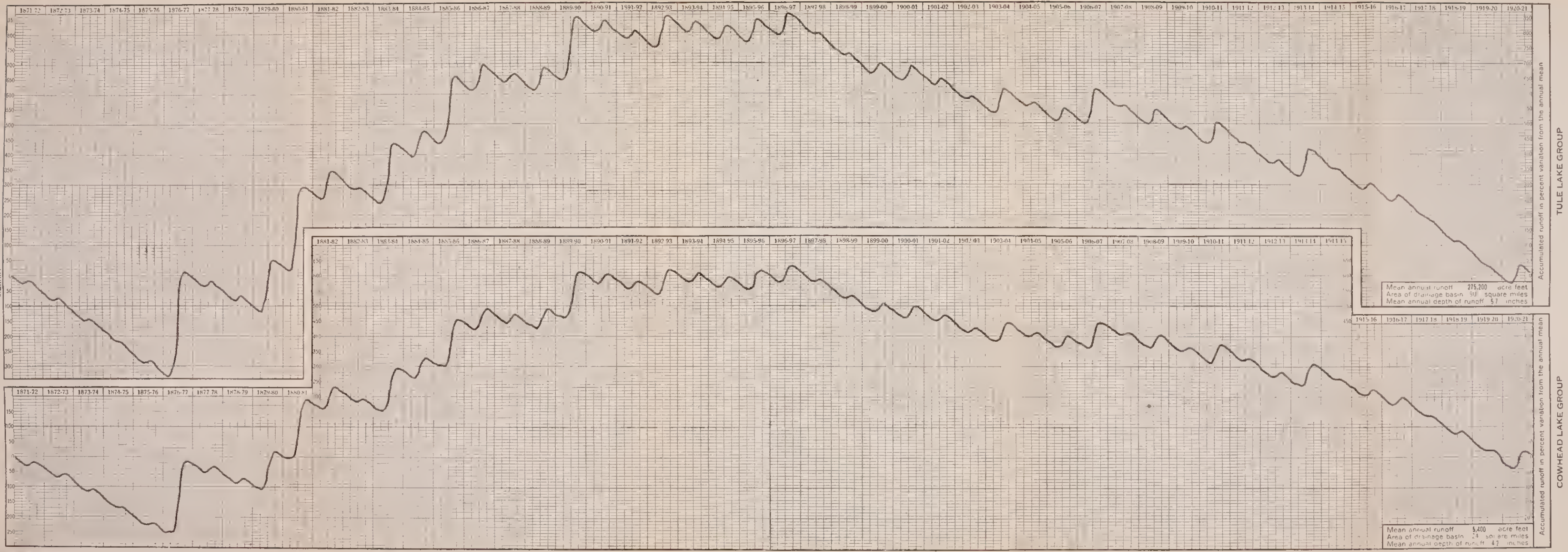

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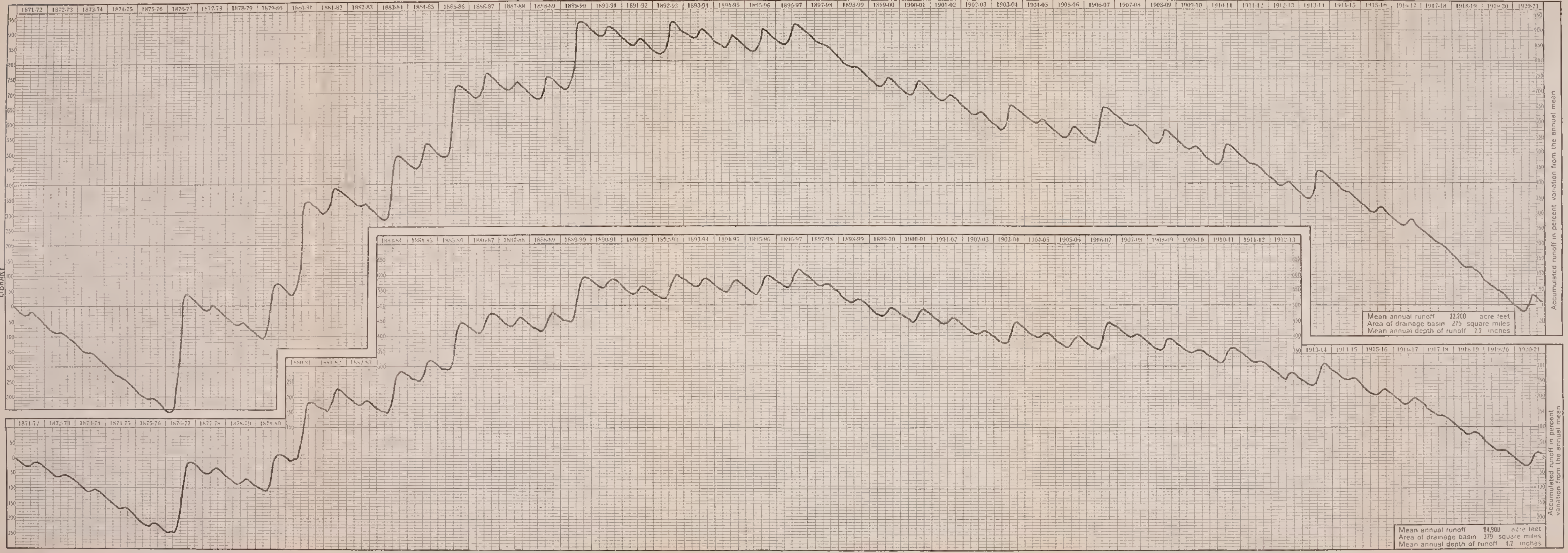

MASS DIAGRAMS OF RUNOFF

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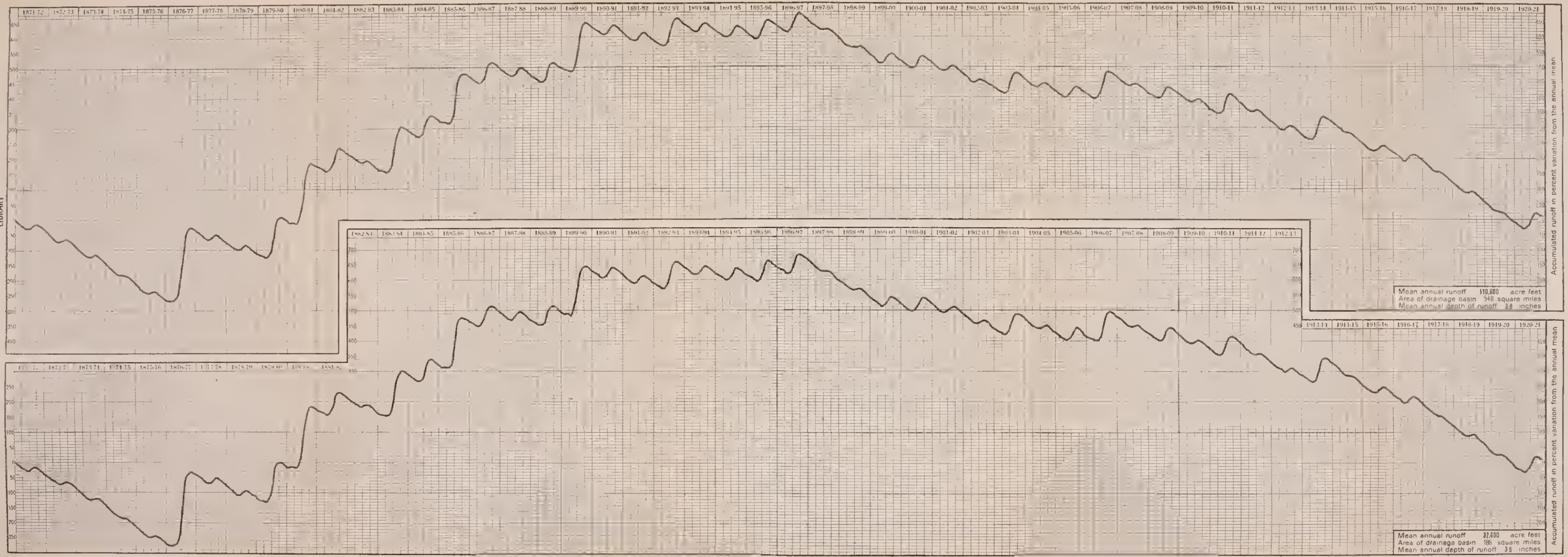

MADELINE PLAINS GROUP
ABOVE AGRICULTURAL AREA

SMOKE CREEK GROUP
AT STATE LINE

MASS DIAGRAMS OF RUNOFF

STATE DEPARTMENT OF PUBLIC WORKS

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CALIFORNIA WATER RESOURCES INVESTIGATION

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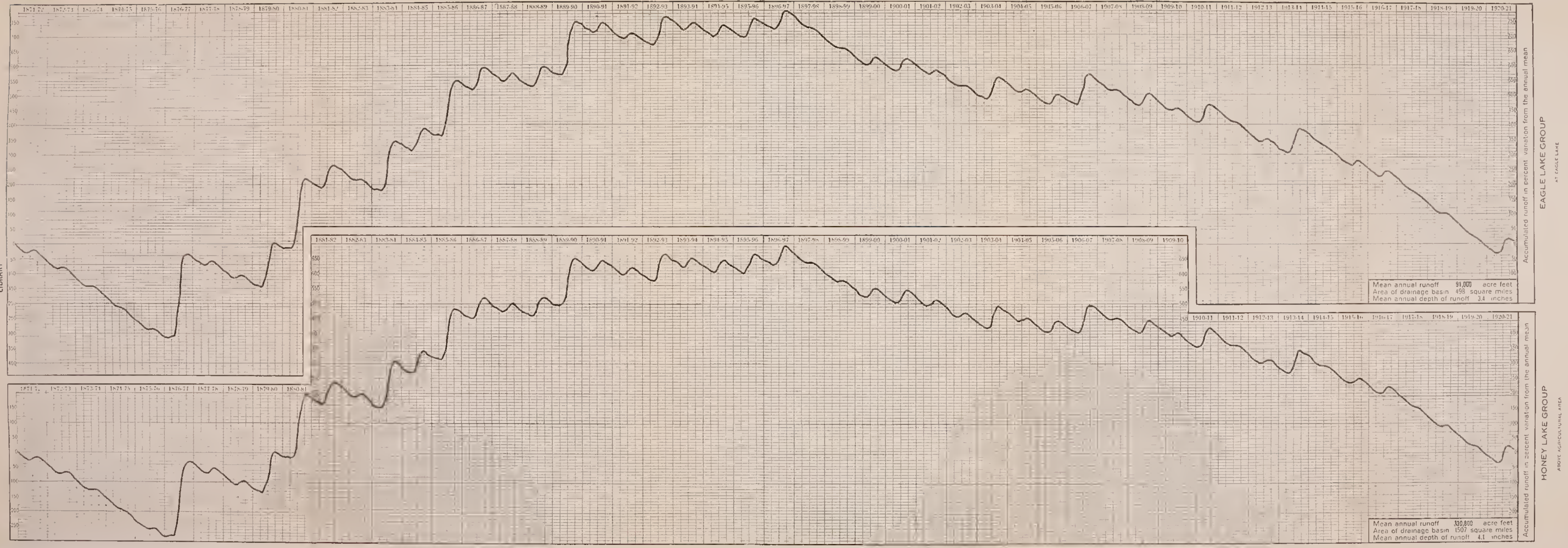

MASS DIAGRAMS OF RUNOFF

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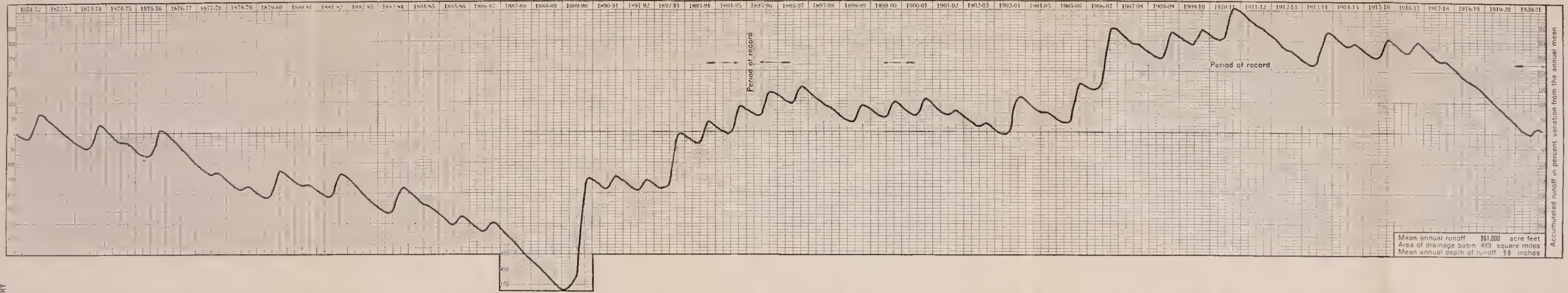
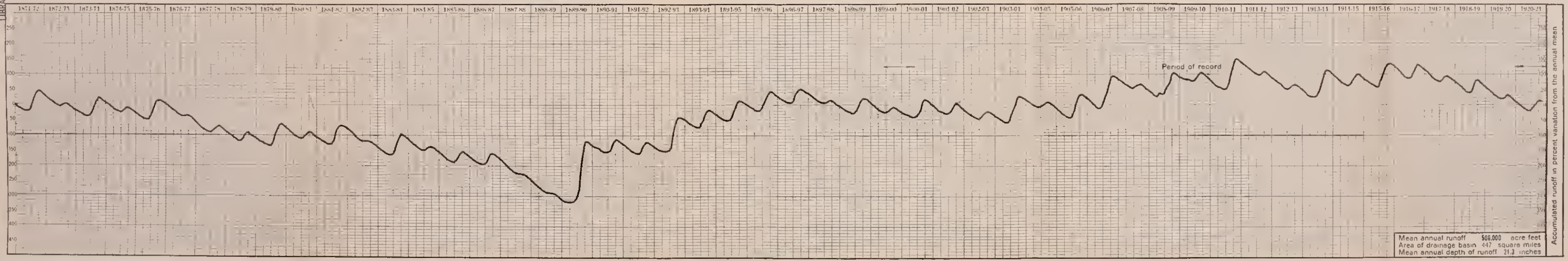


LAKE TAHOE BASIN



TRUCKEE RIVER

MASS DIAGRAMS OF RUNOFF

STATE DEPARTMENT OF PUBLIC WORKS

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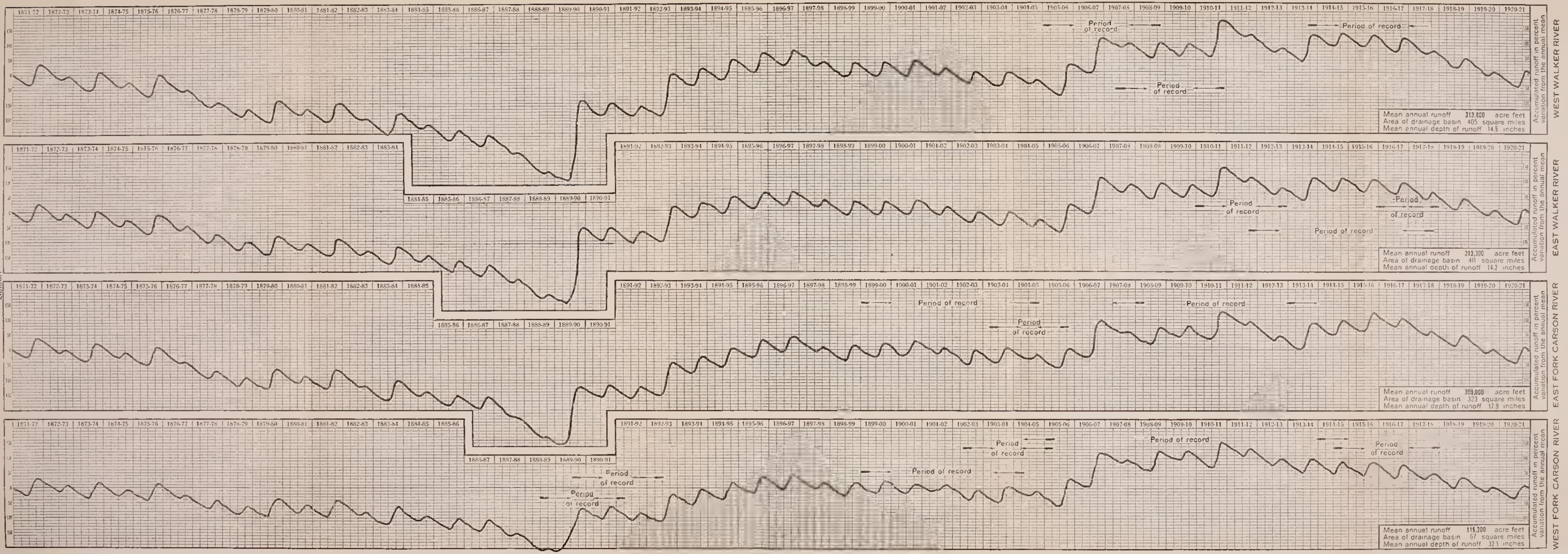

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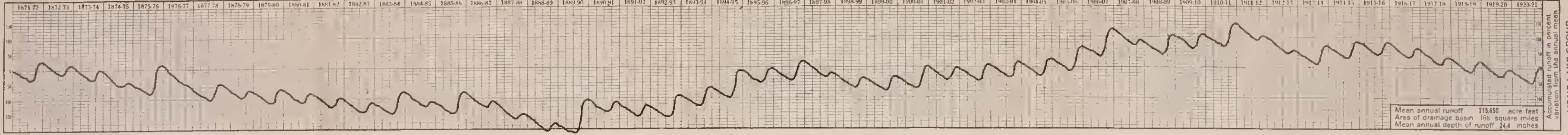

MONO LAKE GROUP

ABOVE AGRICULTURAL AREA

ADOBE MEADOWS GROUP

ABOVE AGRICULTURAL AREA

MASS DIAGRAMS OF RUNOFF

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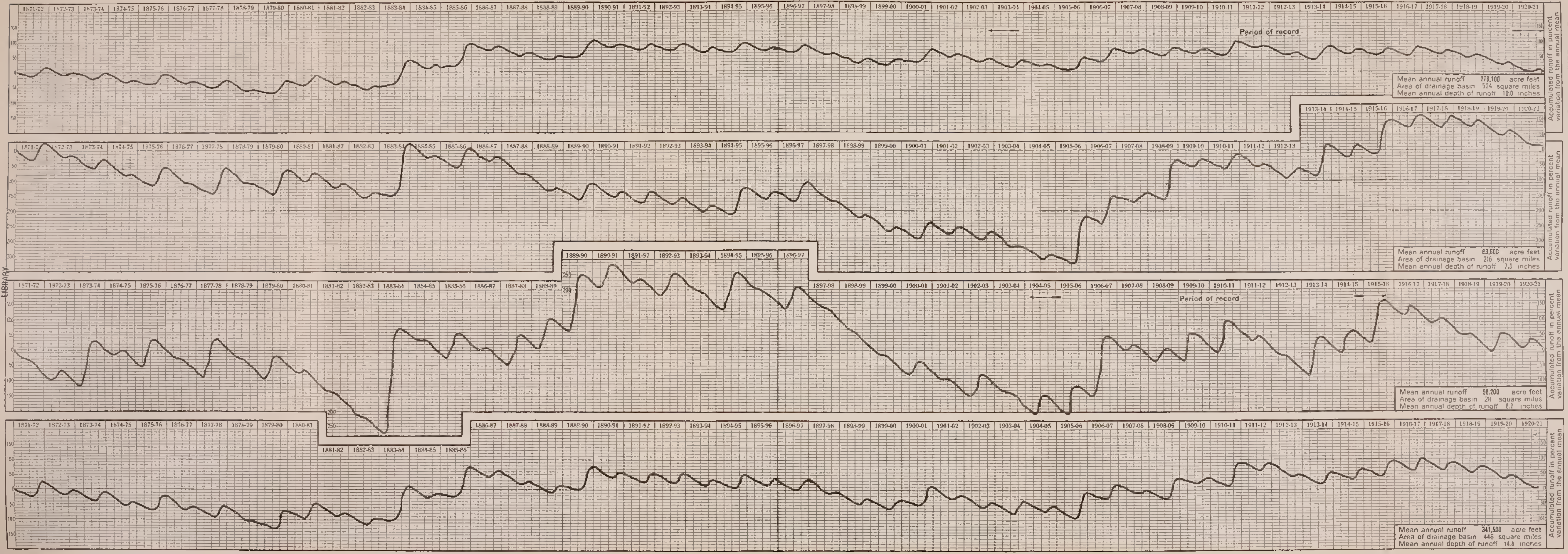

MASS DIAGRAMS OF RUNOFF

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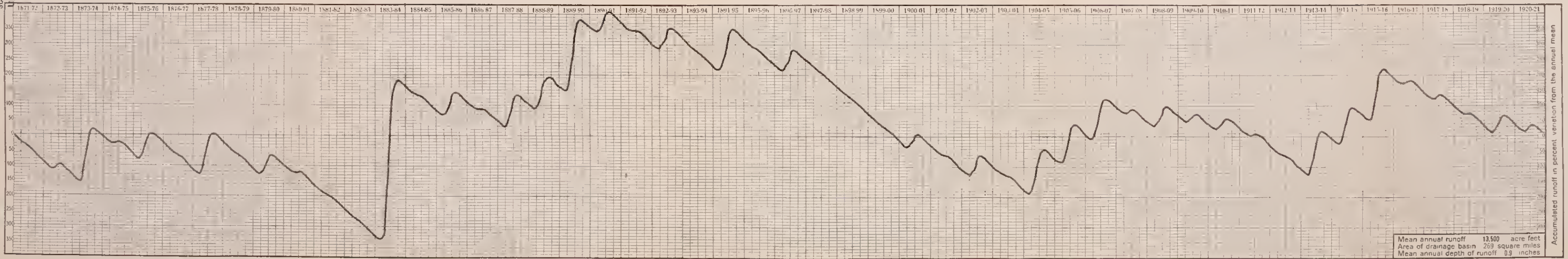
ANTELOPE VALLEY GROUP

ABOVE AGRICULTURAL AREA



WHITEWATER RIVER

AT WHITEWATER

MASS DIAGRAMS OF RUNOFF

STATE DEPARTMENT OF PUBLIC WORKS

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