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GAZETTEER OF SURFACE WATERS OF CALIFORNIA

PART III. PACIFIC COAST AND GREAT BASIN STREAMS

PREPARED UNDER THE DIRECTION OF JOHN C. HOYT

BY

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In cooperation with the State Water Commission and the Conservation Commission of the State of California

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NOTE.

A complete list of the gaging stations maintained on streams in the Great Basin and the streams tributary to the Pacific Ocean from 1888 to July 1, 1912, is presented on pages 241–244.

GAZETTEER OF SURFACE WATERS IN THE PACIFIC COAST DRAINAGE BASINS AND THE GREAT BASIN, CALIFORNIA.

By B. D. Wood.

INTRODUCTION.

This gazetteer is the third of a series of reports on the surface waters of California prepared by the United States Geological Survey under cooperative agreement with the State of California as represented by the State Conservation Commission, George C. Pardee, chairman; Francis Cuttle; and J. P. Baumgartner, and by the State Water Commission, Hiram W. Johnson, governor; Charles D. Marx, chairman; S. C. Graham; Harold T. Powers; and W. F. McClure. Louis R. Glavis is secretary of both commissions. The reports are published as Water-Supply Papers 295 to 300 and bear the following titles:

295. Gazetteer of surface waters of California, Part I, Sacramento River basin.
296. Gazetteer of surface waters of California, Part II, San Joaquin River basin.
297. Gazetteer of surface waters of California, Part III, Great Basin and Pacific coast streams.
298. Water resources of California, Part I, Stream measurements in the Sacramento River basin.
299. Water resources of California, Part II, Stream measurements in the San Joaquin River basin.
300. Water resources of California, Part III, Stream measurements in the Great Basin and Pacific coast river basins.

The gazetteers embrace descriptions of all the streams named on the maps shown by the following list:

Maps covering areas drained by streams flowing to the Great Basin or to the Pacific Ocean.

Topographic sheets of the United States Geological Survey.[1]

Alturas.	Camulos.	Cucamonga.
Anaheim.	Capistrano.	Cuyamaca.
Antioch.	Carquinez.	Deep Creek.
Arroyo Grande.	Cayucos.	Downey.
Ballarat.	Concord.	Elcajon.
Calabasas.	Corona.	Elsinore.

[1] An index map showing the area covered by each sheet may be obtained by applying to the Director, United States Geological Survey, Washington, D. C.

Maps covering areas drained by streams flowing to the Great Basin or to the Pacific Ocean—Continued.

Topographic sheets of the United States Geological Survey—Continued.

Escondido.
Fernando.
Furnace Creek.
Goleta special.
Guadalupe.
Hawthorne.
Haywards.
Hesperia.
Holtville.
Honey Lake.
Hueneme.
Indio special.
Ivanpah.
La Jolla.
Las Bolsas.
Las Vegas.
Lida.
Lompoc.
McKittrick.
Markleeville.
Modoc Lava Bed.
Mount Diablo.
Mount Hamilton.
Mount Lyell.
Mount Pinos.
Mount Whitney.
Napa.
Oceanside.
Olancha.
Palo Alto.
Parker.
Pasadena.
Pleasanton.
Pomona.
Port Harford.
Pyramid Peak.
Ramona.
Red Bluff.
Redding.
Redondo.
Riverside.
Rock Creek.
Salinas Valley.
Salton Sink.
San Antonio.
San Bernardino.
San Diego.
San Francisco.
San Gorgonio.
San Jacinto.
San Jose.
San Luis.
San Luis Obispo.
San Luis Rey.
San Mateo.
San Pedro.
Santa Ana.
Santa Barbara special.
Santa Cruz.
Santa Monica.
Santa Paula.
Santa Susana.
Santa Ynez.
Shasta.
Sierraville.
Tamalpais.
Tejon.
Tesla.
Truckee.
Tujunga.
Vacaville.
Ventura.
Wellington.
Yosemite National Park.
Yuma.

County maps.[1]

Del Norte County.
Eldorado and Amador counties.
Glenn County.
Humboldt County.
Mendocino County.
Mendocino and Lake counties.
Napa and Solano counties.
Nevada County.
Placer County.
Plumas County.
Siskiyou County.
Sonoma and Marin counties.
Trinity County.

For areas not covered by topographic sheets or by county maps the Land Office map of California, edition of 1907, has been used.

Each stream is described as rising near the point at which its beginning—that is, the head of the upper tributary apparently draining the largest area—is shown on the map, and the elevation of that point is given as the elevation of the source. It is of course recognized that this method does not give results of great precision, but it probably causes no greater errors in the determination of length and fall than would be caused by extending each stream to the head of the divide between its basin and that of the adjoining streams. It should be understood, however, that all statements of elevation, length, and fall are merely approximate.

[1] Published by Punnett Brothers.

Except where otherwise stated, the descriptions are based only on the maps, and they vary in accuracy as the maps vary. Hundreds of the watercourses shown and named on the maps, particularly those in the southern and eastern parts of the State, are for by far the greater part of each year streams by courtesy only. During the rainy season or after an occasional "cloudburst" the channels may be filled to overflowing; at all other times they are dry. On the topographic sheets published by the United States Geological Survey such watercourses are as a rule indicated by a dotted blue line, and in the gazeteer they are characterized as "intermittent." The other maps used make no distinction between perennial and intermittent streams, and the "intermittent" has doubtless been omitted from many of the descriptions to which it properly belongs. Free use has been made of the descriptive matter in Wm. Ham. Hall's report on "Irrigation in southern California," published as part 2 of the report of the State engineer, Sacramento, 1888.

No systematic attempt has been made to correlate the names used on the county maps with those applied to the same streams on the Land Office map, but variations incidentally noted have been recorded. The names on the topographic sheets have been accepted as authoritative.

GAZETTEER.

Abel Canyon Creek; Santa Barbara County; an intermittent stream, 5 miles long, rising on the west slope of McPherson Peak in Santa Barbara National Forest and flowing southwestward into Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific Ocean). Santa Ynez sheet.

Ackermans Creek; Mendocino County; rises in the western part of T. 16 N., R. 13 W., Mount Diablo base and meridian; flows southward 3 miles, then eastward 8 miles to its junction with Russian River (which discharges to the Pacific Ocean) 2 miles north of Ukiah. Punnett's map of Menodcino County.

Adams Canyon Creek; Ventura County; rises in the northeastern part of Ex Mission San Buenaventura; flows southward toward Santa Clara River (tributary to the Pacific Ocean); length, about 4½ miles; fall above edge of the valley, about 700 feet; tributary, Salt Marsh Canyon Creek. Santa Paula sheet.

Agnew Lake; Mono County, Mono National Forest; southwestern part of T. 2 S., R. 26 E., Mount Diablo base and meridian; inlet, Rush Creek; outlet, Rush Creek, which discharges to Mono Lake; altitude, 8,650 feet; fall of Rush Creek in the one-fourth mile between Gem Lake and Agnew Lake, 380 feet. Mount Lyell sheet.

Agua Alta Creek; Riverside County; an intermittent stream, 3 miles long, rising on the south slope of Martinez Mountain and flowing southeastward toward Martinez Canyon, which opens to the Colorado Desert. Indio special sheet.

Agua Blanca Creek; Ventura County; formed in the central part of T. 6 N., R. 19 W., San Bernardino base and meridian, by two forks, one of which drains the eastern slope of McDonald Peak, and the other, the western slope of White Mountain; flows southeastward to its junction with Piru Creek (tributary to Santa Clara River, which discharges to the Pacific Ocean); length to head of longest fork, 12 miles, in which distance the fall is 4,300 feet. Tejon sheet.

Agua Caliente Canyon Creek; Santa Ynez River basin; Santa Barbara County; rises in the Santa Barbara National Forest, on the west slope of Hildreth Peak, at altitude 4,500 feet above sea level; flows somewhat west of south 7 miles into Santa Ynez River, which discharges to the Pacific Ocean; fall, 2,900 feet. Santa Ynez sheet.

Agua Caliente Canyon Creek; Sonoma Creek basin; Sonoma County; rises in the western part of T. 6 N., R. 5 W., Mount Diablo base and meridian, at altitude 1,700 feet above sea level; flows southwestward about 4 miles; carries water to Sonoma Creek (tributary to San Pablo Bay) only at flood stages. Napa sheet.

Agua Caliente Creek; Coyote River basin; Alameda County; rises in the central part of T. 5 S., R. 1 E., Mount Diablo base and meridian, south of Mission Peak, at altitude 2,500 feet above sea level; flows northwestward 1 mile, then southwesterly to Mud Slough in the tidal marsh through which Coyote River enters San Francisco Bay; length, about 6 miles. Pleasanton and San Jose sheets.

Agua Caliente Creek; San Luis Rey River basin; San Diego County; rises in the southwestern part of T. 9 S., R. 4 E., San Bernardino base and meridian, at altitude 4,800 feet above sea level; flows southwestward and westward to San Luis Rey River, which discharges to the Pacific Ocean; intermittent; length, about 10 miles; fall, about 2,000 feet; connected with the channel of San Luis Rey River in San Jose Del Valle Rancho by a broad sandy wash. Ramona sheet.

Agua Dulce Creek; Los Angeles County; rises in the southeastern part of T. 5 N., R. 14 W., San Bernardino base and meridian, at altitude 2,450 feet above sea level; flows west of south to Santa Clara River (tributary to the Pacific Ocean), which it enters in Soledad Canyon; length, 3½ miles; fall, about 500 feet; principal tributary, Escondido Canyon Creek; intermittent. Fernando sheet.

Agua Fria Creek; Alameda County; a stream, about 5 miles long, rising half a mile north of Monument Peak; flows westward and southwestward to Mud Slough in the tidal marsh through which Coyote River enters San Francisco Bay. San Jose sheet.

Agua Hedionda Creek; San Diego County; rises in the central part of T. 11 S., R. 3 W., San Bernardino base and meridian, on the southern slope of San Marcos Mountains, at altitude about 1,000 feet above sea level; flows southwestward 7 miles, then somewhat north of west to the brackish-water marsh about 1 mile southeast of Carlsbad; intermittent. This marsh is separated from the Pacific by a narrow sand bar which may be cut through by the flood waters of the creek. Escondido and Oceanside sheets.

Ah-Pah Creek; Humboldt County; rises in the southwestern part of T. 12 N., R. 2 E., Humboldt base and meridian; flows northeastward 4 miles into Klamath River (tributary to the Pacific). Punnett's map of Humboldt County.

Alameda Creek; Santa Clara and Alameda counties; rises in the southeastern part of T. 6 S., R. 3 E., Mount Diablo base and meridian, on the north slope of Packard Ridge, at altitude 2,900 feet above sea level; takes a general northwesterly course to a point 1 mile west of Sunol in Alameda County, whence it winds very irregularly westward to San Francisco Bay; including its major windings, the creek is about 40 miles long; principal tributaries, Arroyo Hondo, Calaveras, Welch, San Antonio, and Alamo creeks, which drain a large area lying east of Alameda Canyon; below Niles the creek divides, one channel carrying water directly to San Francisco Bay, and the other, called Sanjen de los Alisos, passing southwestward to Beard Creek, which flows

through the tidal marsh at the southeast end of the bay. Mount Hamilton, San Jose, Pleasanton, and Haywards sheets.

Alamo Canyon Creek; Santa Maria River basin; Santa Barbara County; rises in the Santa Barbara National Forest, 4 miles northeast of Big Pine Mountain, at altitude 4,800 feet above sea level; flows northeastward and eastward into Santa Barbara Canyon Creek (tributary to Cuyama River, Santa Maria River, which discharges to the Pacific Ocean), length, 4 miles; fall, 1,500 feet. Santa Ynez sheet.

Alamo Creek; Alameda Creek basin; Contra Costa and Alameda counties; rises in Contra Costa County, in the southern part of T. 1 S., R. 1 E., Mount Diablo base and meridian, near the southeastern end of Black Hills, at altitude 1,150 feet above sea level; flows west of south about 9 miles to Amador Valley, where it joins Arroyo de la Laguna (tributary to Alameda Creek, which discharges to San Francisco Bay); fall, 850 feet; principal tributary, West Branch; intermittent in the valley. Mount Diablo and Pleasanton sheets.

Alamo Creek; Santa Clara River basin; Ventura County; rises in the southeastern part of T. 7 N., R. 20 W., San Bernardino base and meridian, on the west slope of Alamo Mountain, at altitude 6,700 feet above sea level; flows northwestward into Mutau Creek (tributary to Piru Creek and thus to Santa Clara River, which discharges to the Pacific); length, about 4 miles; fall, 2,100 feet. Tejon and Mount Pinos sheets.

Alamo Creek; Santa Maria River basin; Ventura County; rises in the northern part of T. 6 N., R. 22 W., San Bernardino base and meridian, at altitude 6,500 feet above sea level; flows irregularly northward and northwestward into Cuyama River (Santa Maria River, which discharges to the Pacific Ocean); length, about 6 miles; fall, 2,000 feet. Mount Pinos sheet.

Alamo Creek, West Branch; Alameda Creek basin; Contra Costa County; rises in the western part of T. 1 S., R. 1 E., Mount Diablo base and meridian, on the northern slope of the Black Hills, at altitude 1,550 feet above sea level; flows in general west of south to its junction with Alamo Creek (tributary through Arroyo de la Laguna to Alameda Creek, which discharges to San Francisco Bay) in San Ramon Rancho; length, about 7½ miles; fall, 1,000 feet. Mount Diablo and Pleasanton sheets.

Alamo Pintado Creek; Santa Barbara County; an intermittent southward-flowing stream tributary to Santa Ynez River (tributary to the Pacific Ocean) near Santa Ynez Mission. Lompoc sheet.

Alamo River; Riverside County; extends northward from the Imperial Canal in the southern end of Imperial Valley to Salton Sea; carries the waste water from the irrigation system and the power plant. The river occupies a channel which had been one of the distributaries of Colorado River during the formation of its delta. Gaging station near Brawley (1908–1912). Land Office map of California, 1907; Water-Supply Paper U. S. Geol. Survey No. 251, 1910, p. 42. See also Water-Supply Paper U. S. Geol. Survey No. 225.

Alamos Creek; San Luis Obispo County; rises in the northern part of T. 31 S., R. 17 E., Mount Diablo base and meridian, in the San Luis Obispo National Forest; flows southwestward into Cuyama River (Santa Maria River, which discharges to the Pacific Ocean); length, about 18 miles. Land Office map of California, 1907.

Alascadero Creek; Santa Barbara County, rises in the Pueblo Lands of Santa Barbara, west of Irma; flows south of west 4 miles to the tidal marsh through which it enters the Pacific Ocean, just west of Goleta Landing; principal tributary, Maria Ygnacio Creek. Goleta special sheet.

Albion River; Mendocino County; rises in the west-central part of T. 16 N., R. 15 W., Mount Diablo base and meridian; flows irregularly westward 8 miles,

then takes a southwesterly course to Albion, where it enters the Pacific; length, including major windings, 14 miles; receives a number of short tributaries, none of which are named on the map. Punnett's map of Mendocino County.

Alder Creek; Los Angeles River basin; Los Angeles County; formed in the west-central part of T. 3 N., R. 11 W., San Bernardino base and meridian, at altitude 5,500 feet above sea level, by the union of its North and Middle forks. The North Fork, which drains the larger area and must therefore be considered the continuation of the main stream, rises in the northwestern part of the same township and flows in general southward to its junction with the Middle Fork; below the forks the creek flows southward about 1 mile, then southwestward 2 miles into Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific); length, about 6 miles; fall, 2,050 feet; below the forks the principal tributary is the East Fork; headwaters intermittent. Tujunga sheet.

Alder Creek; Mendocino County; rises in the eastern part of T. 13 N., R. 15 W., Mount Diablo base and meridian; and flows southwestward 1 mile, then in general northwestward 13 miles; enters the Pacific 4 miles northeast of Point Arena. Punnett's map of Mendocino County.

Alder Creek; Russian River basin; Mendocino County; rises on the west slope of the Coast Range in the western part of T. 16 N., R. 10 W., Mount Diablo base and meridian; flows northwestward 6 miles to its junction with East Fork of Russian River (tributary through Russian River to the Pacific). Punnett's map of Mendocino County.

Alder Creek; Santa Ana River basin; San Bernardino County; rises in the northern part of T. 1 N., R. 2 W., San Bernardino base and meridian, at altitude 6,500 feet above sea level; flows southward 1½ miles, then southeastward 3 miles into Hemlock Creek (tributary to Santa Ana River, which discharges to the Pacific); fall, 3,850 feet. Redlands sheet.

Alder Creek; Santa Clara River basin; Ventura County; rises in the northeastern part of T. 6 N., R. 20 W., San Bernardino base and meridian, at altitude 6,000 feet above sea level; flows southeastward 4 miles, then southwestward 2½ miles into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific Ocean); fall, 3,900 feet; principal tributary, East Fork. Mount Pinos sheet.

Alder Creek; Truckee River basin; Nevada County; rises in the northern part of T. 17 N., R. 16 E., Mount Diablo base and meridian, at altitude 6,500 feet above sea level; flows south of east 1½ miles, then northeastward 3½ miles into Prosser Creek (tributary to Truckee River, which discharges to Pyramid and Winnemucca lakes); fall, 840 feet, of which 500 feet is made in 1 mile at the head. Truckee sheet.

Alder Creek, East Fork; Los Angeles River basin; Los Angeles County; rises in southeastern part of T. 3 N., R. 11 W., San Bernardino base and meridian, at altitude 5,400 feet above sea level; flows in general northwestward to its junction with Alder Creek (tributary to Tujunga Creek and thus to Los Angeles River, which discharges to the Pacific Ocean); fall, 1,650 feet. Tujunga sheet.

Alder Creek, East Fork; Santa Clara River basin; Ventura County; rises in the south-central part of T. 6 N., R. 19 W., San Bernardino base and meridian, at altitude 4,300 feet above sea level; flows southwesterly into Alder Creek (tributary through Sespe Creek to Santa Clara River, which discharges to the Pacific Ocean); length, about 3 miles; fall, 1,600 feet. Tejon sheet.

Alder Creek, Middle Fork; Los Angeles River basin; Los Angeles County, rises in the northeastern part of T. 3 N., R. 11 W., San Bernardino base and meridian, at altitude 5,500 feet above sea level; flows in general southwestward to its junction with the North Fork, with which it forms Alder Creek (tributary

through Tujunga Creek to Los Angeles River, which discharges to the Pacific Ocean); length, about 3 miles; fall, 1,700 feet. Tujunga sheet.

Alger Lake; Mono County, Mono National Forest; 1 mile east of Blacktop Mountain; 1 inlet; no outlet shown on map; nearby drainage passes to Rush Creek in the Mono Lake basin; altitude, 10,500 feet. Mount Lyell sheet.

Alisal Creek; Salinas River basin; Monterey County; an intermittent southward-flowing stream, discharging into Salinas Valley 1½ miles northeast of Heins Lake. Salinas Valley map, sheet 1.

Alisal Creek; Santa Ynez River basin; Santa Barbara County; an intermittent stream, 6 miles long, rising on the northern slope of the Santa Ynez Mountains in the Santa Barbara National Forest and flowing west of north into Santa Ynez River (which discharges to the Pacific Ocean) 1 mile southwest of Santa Ynez Mission. Lompoc sheet.

Aliso Canyon Creek; Los Angeles River basin; Los Angeles County; an intermittent stream rising in the central part of T. 3 N., R. 16 W., San Bernardino base and meridian, and flowing southward to San Fernando Valley. Santa Susana sheet.

Aliso Canyon Creek; San Diego County; rises in the southern part of Santa Margarita y las Flores Rancho, at altitude 500 feet above sea level; flows southwestward 10 miles and enters the Pacific 2 miles south of Las Flores station. San Luis Rey sheet.

Aliso Canyon Creek; Santa Clara River basin; Los Angeles County; rises in the San Gabriel Timber Land Reserve, 2½ miles north of Gleason Mountain, at altitude 4,400 feet above sea level; flows in general somewhat west of north to its junction with Santa Clara River (which discharges to the Pacific) in the Santa Barbara Forest Reserve; length, about 7 miles; fall, 1,550 feet; intermittent. Tujunga sheet.

Aliso Canyon Creek; Santa Clara River basin; Ventura County; rises on the south slope of Sulphur Mountain at altitude 2,500 feet above sea level; flows east of south to the valley of Santa Clara River (which discharges to the Pacific Ocean) in Santa Paula y Saticoy Rancho; length, about 7 miles; fall above the edge of the valley, 2,250 feet. Santa Paula sheet.

Aliso Canyon Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream rising in the Santa Barbara National Forest southeast of McPherson Peak and flowing northward to Cuyama River (Santa Maria River, which discharges to the Pacific Ocean); length, about 8 miles. Santa Ynez sheet.

Aliso Canyon Creek. *See also* Devil Creek.

Aliso Creek; Orange County; an intermittent stream, about 16 miles long, flowing southwesterly and entering the Pacific at Aliso Point; fall, about 1,000 feet. Corona sheet.

Alisol Slough; Salinas River basin; Monterey County; one of the channels through which Salinas River reaches Monterey Bay; this channel leaves the main channel about 2 miles south of Heins Lake and winds northwestward through the city of Salinas. Salinas Valley map, sheet 1.

Alkali Lake; Mono County, Cal., Douglas County, Nev.; inlets, several small intermittent streams; no outlet; about 2 miles long; 1 mile in maximum width; three-fourths of the lake is in Nevada; altitude, somewhat under 5,000 feet. Markleeville sheet.

Alkali Lakes; Modoc County; Surprise Valley; no outlets; three lakes of which the lower two (Lower and Middle lakes) are connected; the lakes receive the drainage from the eastern slope of Warner Mountains: they are typical playa lakes and during extreme dry seasons they become completely desiccated, leaving either fields of salt or playas of cream-colored mud. "The upper lake

became dry in the summers of 1872 and 1873, leaving a broad mud-plain that was soon whitened with the saline effervescence. From the above date to the present time [1882] it has always contained some water. The lower lake was last completely desiccated about 10 years since [1874] when it deposited a large quantity of tolerably pure salt."[1]

The lakes are shallow but are shown on the Alturas sheet as permanent bodies of water; altitude, about 4,700 feet above sea level.

Alpine Creek; San Mateo County; rises in the west-central part of T. 7 S., R. 3 W., Mount Diablo base and meridian, at altitude 2,000 feet above sea level; flows south of west to its junction with Mindego Creek to form San Gregorio Creek, which discharges to the Pacific; length, about 3 miles; fall, 1,500 feet. Santa Cruz sheet.

Alum Rock Canyon Creek. *See* Penitencia Creek.

Alviso Creek; Mendocino County; rises in the southeastern part of T. 22 N., R. 17 W., Mount Diablo base and meridian; flows in general south of west about 5 miles, enters the Pacific 1 mile south of Hardy. Punnett's map of Mendocino County.

Alviso Slough; Santa Clara County; in the tidal marsh at the south end of San Francisco Bay; extends northwestward from Alviso to the mouth of Coyote River. San Jose and Palo Alto sheets.

Amargosa Creek; Los Angeles County; an intermittent stream heading somewhat below the snow line in the San Gabriel Mountains, flowing northeastward and entering Antelope Valley about 3 miles west of Palmdale. Water-Supply Paper U. S. Geol. Survey No. 278, 1911, Pl. VI.

Amargosa River; Nevada-California; rises in Nye County, Nev., in springs in the mountains northeast of Bullfrog; flows southward intermittently across the desert through Franklin Lake to Resting Springs Dry Lake. On leaving the lake it enters a canyon about 10 miles long between Black and Kingston mountains, from which it emerges into the south end of Death Valley and turns westward to Saratoga Springs, whence it flows northwestward to the sink of Death Valley. The north end of Death Valley lies nearly due west of the head of the river, so that the depression as a whole has the form of a long, narrow U.

The Amargosa is about 140 miles long; it repeatedly appears, disappears, and reappears, flowing a short distance and then sinking, its water being absorbed by the sands until its channel crosses a ledge of bedrock, where it again emerges to view. Ordinarily water is seen at only a few places along the channel, but when a cloud-burst occurs in its drainage area it may become for a few hours a raging torrent. At Resting Springs Dry Lake the stream at such times has been over a mile wide and several feet deep, but since 1850 the river has not been known to carry enough water to flow on the surface as far as the lowest depression of Death Valley, and in its heaviest floods it rarely extends more than 4 or 5 miles below Saratoga Springs.

The water of the Amargosa is potable near its source, where it first rises in the springs, but as it percolates slowly downward through the sands it takes up increasing quantities of alkaline salts from the soil, so that when it comes to the surface along its lower course its waters are briny; where it widens out into the large playa at Resting Springs Dry Lake it leaves fields of salt as well as of borax and niter. The desert for many miles on either side of the river is dotted with spots and patches of salt. Hot springs discharge into it at a number of places.

[1] Russell, I. C., A geological reconnaissance in southern Oregon: Fourth Ann. Rept. U. S. Geol. Survey, 1884, p. 457.

Authority.—Water-Supply Paper U. S. Geol. Survey No. 224, 1909, pp. 9, 14, Pl. I.

American Canyon Creek; Solano County; rises in the southern part of T. 4 N., R. 3 W., Mount Diablo base and meridian, at altitude 400 feet above sea level; flows northeastward 3 miles, then eastward 2 miles into Cordelia Slough, in the marsh on the north side of Suisun Bay. Napa sheet.

Anaheim Creek; Orange County; an intermittent stream which enters the ocean in a tidal marsh at Anaheim Landing, at Los Alamitos. Downey and Las Bolsas sheets.

Anderson Creek; Mendocino County; rises in the northern part of T. 13 N., R. 13 W., Mount Diablo base and meridian; takes a general northwesterly course to the western part of T. 14 N., R. 14 W., where it unites with Rancheria and Indian creeks to form Navarro River (tributary to the Pacific); length, 10 miles; principal tributaries, South Fork and Soda Creek. Punnett's map of Mendocino County.

Anderson Creek, South Fork; Mendocino County; rises in the southeastern part of T. 13 N., R. 13 W., Mount Diablo base and meridian; flows northwestward into Anderson Creek (tributary to Navarro River and thus to the Pacific); length, 5 miles. Punnett's map of Mendocino County.

Andreas Canyon Creek; Riverside County; rises in the northeastern part of T. 5 S., R. 3 E., San Bernardino base and meridian, at altitude 6,500 feet above sea level; flows southeastward 3 miles, then northeastward 2½ miles to the valley of Palm Canyon Creek (tributary to Whitewater River) where its waters sink. San Jacinto sheet.

Angela Lake; Nevada County; western part of T. 17 N., R. 15 E., Mount Diablo base and meridian; outlet, a stream about 2 miles long flowing very irregularly eastward into Donner Lake (outlet Donner Creek to Truckee River, which discharges to Pyramid and Winnemucca lakes); altitude, 7,150 feet; fall of outlet, about 1,200 feet. Truckee sheet.

Angelo Creek; a channel in the tidal marsh at the south end of San Francisco Bay. San Mateo sheet.

Anna River; Klamath County, Oreg.; heads south of Crater Lake in a large spring supposed to be fed by the waters of the lake; flows in general southeastward and discharges into Upper Klamath Lake (outlet to Klamath River, which discharges to the Pacific); called Wood River on the Klamath sheet and Anna Creek on the Ashland sheet, but described as Anna River in Water-Supply Paper U. S. Geol. Survey No. 291, 1912, p. 178.

Annie Lake; Modoc County; northeastern part; 3 miles southeast of Bidwell Peak; no outlet; altitude, about 5,000 feet. Alturas sheet.

Antelope Creek; San Bernardino County; rises in the northwestern part of T. 1 N., R. 3 E., San Bernardino base and meridian, at altitude 8,200 feet above sea level; takes a general easterly and southeasterly course to the Colorado Desert; intermittent. San Gorgonio sheet.

Año Nuevo Creek; Santa Cruz and San Mateo counties; a stream about 4 miles long, rising in The Chalks and flowing southwestward into the Pacific in Año Nuevo Bay. Santa Cruz sheet.

Apache Canyon Creek; Santa Maria River basin; Ventura County; rises in the Santa Barbara National Forest, in the northeastern part of T. 8 N., R. 22 W., San Bernardino base and meridian, on the west slope of Sawmill Mountain, at altitude 7,500 feet above sea level; flows westward and southwestward 14 miles to its junction with Cuyama River (Santa Maria River, which discharges to the Pacific); intermittent. Mount Pinos sheet.

Apperson Creek; Alameda County; rises in the southwestern part of T. 4 S., R. 2 E., Mount Diablo base and meridian, on the northern slope of Valpe

Ridge, at altitude 1,900 feet above sea level; flows northwestward 3 miles into San Antonio Creek (tributary to Alameda Creek, which discharges to San Francisco Bay); fall, 1,550 feet; tributary, South Fork. Pleasanton sheet.

Apperson Creek, South Fork; Alameda County; rises in the southeastern part of T. 4. S., R. 1 E., Mount Diablo base and meridian, on the western slope of Valpe Ridge, at altitude 1,750 feet above sea level; flows westward and northwestward to its junction with Apperson Creek (tributary to Alameda Creek, which discharges to San Francisco Bay); length, 2½ miles; fall, 1,250 feet. Pleasanton sheet.

Applegate Creek; Siskiyou County; rises in the central part of T. 47 N., R. 12 W., Mount Diablo base and meridian; flows northward 4 miles, then in general northeastward 6 miles to the western part of T. 48 N., R. 11 W., where it crosses the Oregon-California boundary line; it discharges into Rogue River (tributary to Illinois River, which flows to the Pacific) in the east-central part of Josephine County; principal tributary in Californa, Elliott Creek; other tributaries lie wholly in Oregon. Punnett's map of Siskiyou County; Land Office map of Oregon.

Archibald Creek; Scott Creek basin; Santa Cruz County; a stream, about 1½ miles long, rising in the western part of San Vicente Rancho and flowing southwestward toward Scott Creek, which discharges to the Pacific. Santa Cruz sheet.

Arctic Canyon Creek; San Bernardino County; T. 3 N., R. 1 E.; an intermittent stream, 3 miles long, flowing north of east into Mohave Desert, 1 mile south of Box S Springs. San Gorgonio sheet.

Arkansas Canyon; Salton Sink basin; San Diego County; central part of T. 12 S., R. 4 E., San Bernardino base and meridian; a drainage way about 2 miles long, carrying an intermittent stream to San Felipe Valley. Ramona sheet.

Arrastre Canyon Creek; San Bernardino County; rises in the northeastern part of T. 3 N., R. 2 W., San Bernardino base and meridian, at altitude 5,950 feet above sea level; flows northwestward 6 miles to the edge of Mohave Desert, where its waters sink; intermittent. Deep Creek sheet.

Arrastre Canyon Creek; Santa Clara River basin; Los Angeles County; rises in the San Gabriel Timber land reserve, 1½ miles northeast of Gleason Mountain, at altitude 4,250 feet above sea level; flows northwestward into Santa Clara River (tributary to the Pacific) in the northeastern part of T. 4 N., R. 13 W.; length, about 4½ miles; fall above the mouth of the canyon, 1,500 feet; intermittent. Tujunga sheet.

Arrastre Creek; San Bernardino County; rises in the northeastern part of T. 1 N., R. 2 E., San Bernardino base and meridian, just north of Cienaga Seca, at altitude 8,000 feet above sea level; flows somewhat west of north to the Mohave Desert; its flood waters are carried out upon the desert near Old Woman Springs; fall in the 12 miles above the mouth of the canyon, 3,700 feet. San Gorgonio sheet.

Arroyo Aguague; Coyote River basin; Santa Clara County; rises in the eastern part of Canada de Palo Rancho, at altitude 2,400 feet above sea level; flows northwestward to its junction with Penitencia Creek (tributary to Coyote River, which discharges to San Francisco Bay) in Alum Rock Canyon; length, about 8 miles; fall, about 1,750 feet. Mount Hamilton sheet.

Arroyo Bayo; Alameda Creek basin; Santa Clara County; rises in the eastern part of T. 7 S., R. 4 E., opposite the head of Isabel Creek, at altitude about 2,300 feet above sea level; flows northwestward and northward about 7 miles to the southwestern part of T. 6 S., R. 4 E., where it joins San Antonio Creek to form Arroyo del Valle (tributary through Arroyo de la Laguna to

Alameda Creek, which discharges to San Francisco Bay); length, about 7 miles; fall, 500 feet. Mount Hamilton sheet; on the Land Office Map of California, 1907, the name Bayo Creek is applied to a stream which on the Survey sheet is called Arroyo del Valle; Colorado Creek is called Bayo Creek, North Fork, on the Land Office map.

Arroyo Burro; Alascadero Creek basin; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 3,500 feet above sea level; flows southwestward 3 miles into San Antonio Creek, through which it is tributary to Maria Ygnacio Creek (tributary to Alascadero Creek, which discharges to the Pacific); fall, 2,900 feet. Santa Barbara and Goleta special sheets.

Arroyo Burro; Santa Ynez River basin; Santa Barbara County; an intermittent stream, 2 miles long, rising on the north slope of the Santa Ynez Mountains, in T. 5 N., R. 28 W., San Bernardino base and mridian, and flowing northwestward into Santa Ynez River, which discharges to the Pacific. Santa Ynez sheet.

Arroyo Calabasas; Los Angeles River basin; Los Angeles County; an intermittent stream, about 6 miles long, rising on the north slope of Santa Monica Mountains and flowing northeastward into San Fernando Valley. Calabasas sheet.

Arroyo de las Ortegas; Santa Barbara County; an intermittent stream rising on the south slope of the Santa Ynez Mountains, in the Santa Barbara National Forest, and flowing southwestward to the point at which it enters the Pacific Ocean near Miramar; upper stretch called Romero Canyon; tributary, Ficay Creek. Santa Barbara special sheet.

Arroyo del Hambre; rises in the northern part of Boca de la Canada de Pinole Rancho, at altitude 700 feet above sea level; flows in general eastward through Vaca Canyon, then northward to Martinez, where it enters Suisun Bay; principal tributary, Franklin Creek. Concord and Carquinez sheets.

Arroyo de los Alamos; San Antonio Creek basin; Santa Barbara County. *See* San Antonio Creek.

Arroyo de los Coches; Coyote River basin; Santa Clara County; rises in T. 6 S., R. 1 E., Mount Diablo base and meridian, on the northwest slope of Los Buellis Hills, at altitude 1,700 feet above sea level; flows westerly to Milpitas, then northwestward to its junction with Penitencia Creek (tributary to Coyote River, which discharges to San Francisco Bay); length, about 5 miles. San Jose sheet.

Arroyo Cavelano. *See* Cayetano Creek.

Arroyo de la Laguna; Alameda Creek basin; Contra Costa and Alameda counties; rises in Contra Costa County, in the northeastern part of T. 1 S., R. 1 W., Mount Diablo base and meridian, at altitude 650 feet above sea level; flows east of south through Amador Valley, along the eastern base of Pleasanton Ridge, and joins Alameda Creek (tributary to San Francisco Bay) at the northern end of Sunol Valley; length, about 15 miles; principal tributaries, Alamo, Tassajero, Arroyo las Positas, and Arroyo del Valle, intermittent streams which drain Las Positas and Livermore valleys. The stream in Arroyo de la Laguna is intermittent above Livermore Valley. Mount Diablo and Pleasanton sheets.

Arroyo de la Laguna; Coyote River basin; Alameda County; rises in the marsh south of The Lagoon, in Ex Mission San Jose Rancho; flows southward about 3 miles; sinks before reaching the tidal marsh through which Coyote River enters San Francisco Bay. Pleasanton sheet.

Arroyo de los Frijoles; San Mateo County; an intermittent stream, about 4 miles long, rising in the northeastern part of Punto del Año Nuevo Rancho,

and flowing northwestward into the Pacific through a small bay 1½ miles southeast of Pescadero Point; forms the south boundary of Butano Rancho. Santa Cruz sheet.

Arroyo del Toro; San Jacinto River basin; Riverside County; western part of T. 5 S., R. 4 W., San Bernardino base and meridian; a drainage channel extending southward toward North Elsinore, 2 miles north of Elsinore Lake. Elsinore sheet.

Arroyo del Valle; Alameda Creek basin; Santa Clara and Alameda counties; formed in the southwestern part of T. 6 S., R. 4 E., Mount Diablo base and meridian, by the junction of San Antonio Creek and Arroyo Bayo (q. v.); flows northwestward to the southern edge of Livermore Valley, then westward to Arroyo de la Laguna (tributary to Alameda Creek, which discharges to San Francisco Bay) 2 miles west of Pleasanton; length, including major windings, 32 miles; principal tributary below the mouth of San Antonio Creek, Colorado Creek; intermittent below the canyon. Mount Hamilton, Tesla, and Pleasanton sheets.

Arroyo de San Augustin; Santa Barbara County; an intermittent stream, about 2 miles long, flowing southward into the Pacific near San Augustin station. Lompoc sheet.

Arroyo el Bulito; Santa Barbara County; an intermittent stream. 3 miles long, flowing southward toward the Pacific 1 mile east of San Augustin. Lompoc sheet.

Arroyo Grande Creek; San Luis Obispo County; rises on the west slope of the Santa Lucia Range; flows southwestward to the point at which it enters the Pacific, west of Oceano. Arroyo Grande sheet.

Arroyo Hondo; Alameda Creek basin; Santa Clara County; formed in the southwestern part of T. 6 S., R. 3 E., Mount Diablo base and meridian, at altitude 1,700 feet above sea level, by the junction of Isabel and Smith creeks (q. v.); flows northwestward to the north end of Calaveras Valley, where it joins Calaveras Creek (tributary through Alameda Creek to San Francisco Bay); length, about 11 miles; fall, 1,075 feet. Mount Hamilton and San Jose sheets.

Arroyo Hondo; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains; flows southward 3 miles to the point at which it enters the Pacific, 4 miles east of Alcatraz. Lompoc sheet.

Arroyo las Positas; Alameda Creek basin; Alameda County; rises in the northern part of T. 3 S., R. 3 E., Mount Diablo base and meridian, at altitude 1,250 feet above sea level; flows westerly through Las Positas and Livermore valleys to the south end of Amador Valley, where it joins Arroyo de la Laguna (tributary to Alameda Creek, which discharges to San Francisco Bay); length, about 16 miles; principal tributaries, Arroyo Seco, Cayetano, Collier Canyon, Cottonwood, and Arroyo Mocho creeks; intermittent throughout its course. Tesla and Pleasanton sheets.

Arroyo Mocho; Alameda Creek basin; Santa Clara and Alameda counties; rises in the northeastern part of T. 7 S., R. 4 E., Mount Diablo base and meridian, at altitude about 3,250 feet above sea level; flows northward and northwestward to the west end of Livermore Valley, where it joins Arroyo las Positas (tributary through Arroyo de la Laguna to Alameda Creek, which discharges to San Francisco Bay); length, about 30 miles; fall, 2,900 feet. Mount Hamilton, Tesla, and Pleasanton sheets.

Arroyo Parida; Santa Barbara County; rises on the south slope of the Santa Ynez Mountains in the Santa Barbara National Forest, at altitude 3,350 feet above sea level; flows in general west of south to the point at which it

enters the Pacific near Carpinteria Landing; length, about 5 miles; tributary, Oil Canyon Creek; intermittent. Santa Barbara special sheet.

Arroyo Quemado; Santa Barbara County; an intermittent stream, rising in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 1,500 feet above sea level, and flowing southward into the Pacific Ocean 1 mile northwest of Tajiguas. Lompoc sheet.

Arroyo San Antonio; Sonoma and Marin counties; rises in the northern part of Rancho Laguna de San Antonio; flows southwestward 2 miles, southward 2½ miles, then westward to Tomales Bay, through which it enters the Pacific; length, about 13 miles. Punnett's map of Sonoma and Marin counties.

Arroyo San Mateo. *See* San Mateo Creek.

Arroyo San Onofre; San Diego County; rises on the western slope of Santa Margarita Mountains, at altitude 2,500 feet; flows southwestward and enters the Pacific at San Onofre; length, about 15 miles; of the total fall, 1,500 feet is made in less than 4 miles in the canyon. San Luis Rey and Capistrano sheets.

Arroyo Santa Rosa; Ventura County; an intermittent stream, 4½ miles long, tributary to Canejo Creek (and thus to Calleguas Creek, which discharges to the Pacific) in the northern part of El Canejo Rancho. Camulos sheet.

Arroyo Seco; Alameda Creek basin; Alameda County; rises in the east-central part of T. 3 S., R. 3 E., Mount Diablo base and meridian, at altitude about 2,000 feet above sea level; flows in general northwestward to Livermore Valley, where it joins Arroyo las Positas (tributary through Arroyo de la Laguna to Alameda Creek, which discharges to San Francisco Bay); length, about 10 miles; fall, 1,450 feet. Tesla sheet.

Arroyo Seco; Los Angeles River basin; Los Angeles County; rises on the southeast slope of Strawberry Peak, 2 miles north of the head of the West Fork of the San Gabriel, at altitude 5,000 feet above sea level; takes a general southwesterly course of the city of Los Angeles, where it joins Los Angeles River. The stream has a mountain drainage area about 5 miles deep, extending in a direct line back to the top of the ridge from the canyon opening, and comprises 16 to 17 square miles of territory, made up of bare granite slopes, crumbling masses of rock, and glistening ridges practically destitute of vegetation. The river emerges from the mountains into the San Gabriel basin, as defined by the more commanding hills, but its waters pass through a gorge in those hills to the Los Angeles; it receives an insignificant amount of water from the western end of the Canada Pass north of the San Rafael Hills, and at times of flood, a small quantity of water from 6½ square miles on the eastern and southerly slopes of these hills, but there is no territory on its eastern side below the cañada which drains into it above ground. One and a half miles below the main canyon, the creek reaches the northeastern point of the San Rafael Hills and passes through a rocky gorge, 70 to 80 feet deep and at one point not over 30 feet wide at the bottom, known as the Devils Gate; above the Devils Gate the arroyo presents the appearance of a gravel-filled basin, 1½ miles long and half a mile wide, the eastern rim being a nearly perpendicular gravel bluff, 70 to 100 feet high, the western side a series of lower benches rising to the mesa in the cañada.

Except in times of flood the waters of the stream sink into the gravel in the mouth of the canyon or near the upper end of this basin into which it opens. Out of the gravels of the basin near its lower end, and within a few hundred feet of the Devils Gate, two groups of springs rise whose waters join in one channel at the gorge, flow on through it, and again sink into the gravels of a second basin immediately below. The second basin is bounded on the west by the San Rafael Hills and on the east by the mesa bluff; it is 2½ miles long and three-fourths mile wide. Through the lower end of this basin the arroyo cuts

for several hundred feet through another bedrock point of the hills, and just at the entrance of this gorge, which is due west of the main part of the city of Pasadena, is another group of springs whose waters flow above ground through the narrow pass below and within several hundred yards are lost in the gravels of a third arroyo basin. About a mile below there is another uprising of waters, and finally at the entrance of the arroyo to the lower canyon, where it turns west through the hills toward the San Fernando basin, some rising waters are again encountered. Except in times of flood no water from Arroyo Seco reaches Los Angeles River above ground.

Principal tributaries are Little Bear Creek, Bear Canyon Creek, and Millard Canyon Creek.

Gaging station near Pasadena (1910–1912).

Authorities.—Tujunga and Pasadena sheets: Hall, Wm. Ham., Irrigation in southern California, Sacramento, 1888, pp. 385–389.

Arroyo Seco; Salinas River basin; Monterey County; rises in the eastern part of T. 19 S., R. 3 E., Mount Diablo base and meridian, in the Monterey National Forest; flows eastward about 15 miles, then northward 10 miles to its junction with Salinas River (tributary through Monterey Bay to the Pacific) near Soledad; principal tributaries, Fresno Canyon, Portero Canyon, and Release Canyon creeks. Gaging station near Soledad (1900–1912). Land Office map of California, 1907.

Arroyo Seco; Santa Margarita River basin; San Diego and Riverside counties; rises in San Diego County on the eastern slope of Agua Tibia Mountains, at altitude 3,100 feet above sea level; takes a circuitous but in general northerly course to its junction with Temecula Creek (Santa Margarita River, which discharges to the Pacific) at the upper end of Nigger Canyon; length, about 8 miles; fall, 1,800 feet. Ramona sheet.

Arroyo Seco; Sonoma County; rises in the southern part of T. 6 N., R. 5 W., Mount Diablo base and meridian, at altitude 1,000 feet above sea level; flows southward into Steamboat Slough, one of the sloughs between Sonoma Creek and Napa River. Napa sheet.

Arroyo Sequit; Ventura and Los Angeles counties; formed in the eastern part of T. 1 S., R. 20 W., San Bernardino base and meridian, by the union of its East and West forks. The East Fork rises in Los Angeles County, 2 miles southeast of Triunfo Pass and flows in general southwestward. The West Fork rises in Triunfo Pass and flows east of south. Below the forks the course of the creek is west of south to the point at which it enters the Pacific; length below the forks, about 3 miles; total length to head of West Fork, 5 miles. Camulos sheet.

Arroyo Sequit, East and West forks. *See* Arroyo Sequit.

Arroyo Trabuco; Orange County; rises between Trabuco and Los Pinos peaks, at altitude 4,000 feet above sea level; flows in general southwesterly to its junction with San Juan Creek (tributary to the Pacific Ocean) at Capistrano; length, about 22 miles; fall, 3,900 feet, of which 2,500 feet is made in 5 miles in passing through Trabuco Canyon at the head. Elsinore and Corona sheets.

Arroyo Viejo; Alameda County; rises 2½ miles northeast of San Leandro and 1 mile north of Lake Chabot; flows westward to the tidal marsh through which it enters San Leandro Bay, a branch of San Francisco Bay. Concord sheet.

Ash Creek; Klamath River basin; Siskiyou County; rises in the southern part of T. 47 N., R. 7 W., Mount Diablo base and meridian, on the south slope of Ash Peak; flows southward 3 miles into Klamath River (tributary to the Pacific). Punnett's map of Siskiyou County.

Ash Creek; Owens Lake basin; Inyo County; rises on the east slope of the Sierra in the northeastern part of T. 18 S., R. 35 E., Mount Diablo base and meridian, at altitude 10,050 feet above sea level; flows eastward about 8½ miles to the point at which it enters Owens Lake; fall, about 6,500 feet; intermittent in lower course; principal tributary, South Fork. Gaging station near Lone Pine (1906–1909). Olancha sheet.

Ash Creek, South Fork; Inyo County; rises on the east slope of the Sierra at altitude 9,500 feet above sea level; flows northeastward 4 miles to its junction with Ash Creek (tributary to Owens Lake); fall, 4,600 feet. Olancha sheet.

Aspen Lake; Klamath County; Oreg.; several inflowing streams; outlet, a stream, 6 miles long, flowing northward into Pelican Bay, Upper Klamath Lake (outlet, Klamath River, which discharges to the Pacific); altitude, about 4,500 feet above sea level. Klamath and Ashland sheets.

Asphaltum Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 2 miles long, flowing southwestward from Asphaltum Mine in Sisquoc Rancho toward the head of Foxen Canyon Creek (tributary through Sisquoc River to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Aurora Canyon Creek; Walker River basin; Mono County; rises in the northern part of T. 4 N., R. 26 E., Mount Diablo base and meridian, at altitude 8,650 feet above sea level; flows northwestward 3½ miles, then southwestward 4½ miles to its junction with East Walker River (tributary to Walker River, which discharges to Walker Lake) at Bridgeport; fall, 2,200 feet; intermittent. Bridgeport sheet.

Austin Creek; Sonoma County; rises in the eastern part of T. 9 N., R. 12 W., Mount Diablo base and meridian; takes a general southeasterly course to the northeastern part of T. 7 N., R. 11 W., where it enters Russian River (tributary to the Pacific); length, 12 miles; principal tributaries, Wards Creek, East Fork, and Kidd Creek. Punnett's map of Sonoma County.

Austin Creek, East Fork; Sonoma County; rises in the northern part of T. 8 N., R. 11 W., Mount Diablo base and meridian; flows southward 4½ miles to its junction with Austin Creek (tributary to Russian River and thus to the Pacific) near Watson. It seems possible that the name, East Fork of Austin, has been carried up the wrong branch of this stream, as it receives within 2 miles of its head, an unnamed stream rising in the northwestern part of T. 9 N., R. 11 W. and flowing in general southeastward to the junction with the East Fork as named. This stream is about 9 miles long and receives from the east an unnamed tributary 5 miles long. Punnett's map of Sonoma County.

Avawatz Dry Lake; San Bernardino County; in T. 16 N., R. 4 E., San Bernardino base and meridian, south of Avawatz Mountains and north of Granite Mountains. Water-Supply Paper U. S. Geol. Survey No. 224, Pl. I.

Ayers Creek; Ventura River basin; Ventura County; an intermittent stream, 2 miles long, flowing eastward into Coyote Creek (tributary to Ventura River, which discharges to the Pacific Ocean) one-fourth mile south of mouth of Santa Ana Creek. Ventura sheet.

Bailey Canyon Creek; Los Angeles County; northwestern part of T. 1 N., R. 11 W., San Bernardino base and meridian; an intermittent stream, about 1 mile long, flowing southward to the edge of San Gabriel Valley (drained by San Gabriel River, which discharges to the Pacific). Pasadena sheet.

Bairs Creek; Inyo County; rises 1½ miles south of east from Mount Williamson, at altitude 11,500 feet above sea level; flows northeastward 8 miles to the edge of Owens Valley (Owens Lake basin) where its waters sink; fall, 7,500

feet, of which 5,500 feet is made in the first 4 miles. Gaging station near Thebe (1906–1909). Mount Whitney sheet.

Baisley Creek; Riverside County; rises in the northern part of T. 6 S., R. 2 E., San Bernardino base and meridian, at altitude 4,500 feet above sea level; flows southwestward 2½ miles to Bautiste Creek (tributary to San Jacinto River); intermittent; fall, 1,700 feet. San Jacinto sheet.

Baker Canyon Creek; Orange County; rises on the west slope of Santa Ana Mountains, at altitude 1,800 feet above sea level; flows southwestward 3 miles, then northwestward 1 mile into Santiago Creek (tributary to Santa Ana River, which discharges to the Pacific); fall, about 900 feet; intermittent. Corona sheet.

Baker Creek; Inyo County; rises on the east slope of the Sierra in the western part of T. 9 S., R. 32 E., Mount Diablo base and meridian, at altitude 12,000 feet above sea level; flows northeastward 4½ miles, southeastward 5 miles, then northeastward 5 miles into Owens Valley (Owens Lake basin) north of Big Pine; fall, about 8,000 feet. Gaging station near Big Pine (1907–1910). Bishop and Mount Goddard sheets.

Baldwin Creek; Santa Cruz County; a stream about 3 miles long, rising in the northern part of Refugio Rancho and flowing southwestward into the Pacific 1 mile northwest of Needle Rock Point. Santa Cruz sheet.

Baldwin Lake; San Bernardino County; T. 2 N., Rs. 1 and 2 E., at the eastern end of Bear Valley; a temporary water body occupying a completely closed depression, at an altitude of 6,674 feet. San Gorgonio sheet.

Ballard Creek; Santa Barbara County; an intermittent stream, 5 miles long, rising on the north slope of Santa Ynez Mountains, in Lomas de la Purificacion Rancho, and flowing northwestward to Santa Ynez River (tributary to the Pacific) 2 miles southeast of Santa Ynez Mission. Lompoc sheet.

Ballinger Canyon Creek; Ventura and Santa Barbara counties; rises in the north-central part of T. 9 N., R. 23 W., San Bernardino base and meridian, in the Santa Barbara National Forest, at altitude 5,000 feet above sea level; flows north of west into Cuyama River (Santa Maria River, which discharges to the Pacific); length, 8 miles, in which distance the fall is 2,400 feet; intermittent. Mount Pinos sheet.

Ballona Creek; Los Angeles County; rises in springs issuing on La Brea and Rodeo de las Aguas ranchos; flows southward to the base of the Centinela Hills where it turns to the south and southwest and discharges into Ballona Lagoon. Santa Monica and Redondo sheets; Hall, Wm. Ham., Report of the State Engineer of California on irrigation and the irrigation question, pt. 2, Sacramento, 1888, p. 572.

Ballona Lagoon; Los Angeles County; La Ballona Rancho; receives the drainage of Ballona and Centinela creeks. The lagoon lies behind the sandbar, which is cut through near Port Ballona. Redondo sheet.

Banner Canyon Creek; San Diego County; rises in the northern part of T. 13 S., R. 4 E., San Bernardino base and meridian; flows northwestward 2 miles, then making an abrupt turn flows southeastward 3 miles, then to the northeast 2 miles into San Felipe Valley, which drains southeastward toward Salton Sink. Ramona sheet.

Bare's Creek; Lassen County; northeastern part; rises on the north slope of Hat Peak in a small lake, at altitude 5,800 feet above sea level; flows northeastward about 10 miles, and discharges into the south end of Lower Alkali Lake; principal tributary, a stream from Snake Lake. Alturas sheet.

Barkhouse Creek; Siskiyou County; rises in the northeastern part of T. 45 N., R. 9 W., Mount Diablo base and meridian; flows in general somewhat east of

north to its junction with Klamath River (tributary to the Pacific) half a mile below the mouth of Little Humbug Creek. Punnett's map of Siskiyou County.

Barlow Canyon Creek; Ventura County; an intermittent stream draining a small area in the southwestern part of Ex Mission San Buenaventura and flowing south of west toward Santa Clara River, which discharges to the Pacific. Santa Paula sheet.

Barney Lake; Mono County; northern part of T. 3 N., R. 23 E., Mount Diablo base and meridian; inlet, Robinson Creek, which flows through this lake and Twin Lakes to its junction with East Walker River (tributary to Walker River, which discharges to Walker Lake); altitude, 8,250 feet; fall of Robinson Creek in the 3 miles above the upper Twin Lake, 1,150 feet; very small. Bridgeport sheet.

Bartlett Canyon Creek. *See* Cameros Valley Creek.

Barton Canyon Creek; San Diego and Riverside counties; an intermittent stream, 3 miles long, rising in the northeastern part of T. 9 S., R. 7 E., San Bernardino base and meridian, and flowing northeastward toward the Colorado Desert. Indio special sheet.

Basquez Creek; San Luis Obispo County; rises on the western slope of the Santa Lucia Mountains in T. 31 S., R. 13 E., Mount Diablo base and meridian; flows southeastward to its junction with Arroyo Grande Creek, which discharges to the Pacific. Arroyo Grande sheet.

Batiquitos Lagoon; San Diego County; 3 miles north of Encinitas; a brackish-water marsh separated from the Pacific by a narrow sand ridge which may at times be cut through by the flood waters of San Marcos Creek. Escondido and Oceanside sheets.

Bautiste Creek; rises in the southwestern part of T. 6 S., R. 3 E., San Bernardino base and meridian, at altitude 5,300 feet above sea level; takes a general northwesterly course to San Jacinto Valley at the city of San Jacinto; fall in the 10 miles above the mouth of the canyon, 3,000 feet. San Jacinto sheet.

Baxter Creek; Lassen County; rises in the northwestern part of T. 28 N., R. 12 E., at altitude 4,400 feet above sea level; flows northeastward 2 miles, then southeastward 10 miles to the point at which it enters Honey Lake; fall, about 500 feet. Honey Lake sheet.

Bayo Creek, North Fork. *See* Colorado Creek.

Bean Creek; Santa Cruz County; rises in the northwestern part of T. 10 S., R. 1 W., Mount Diablo base and meridian, at altitude 1,000 feet above sea level; flows southwestward to its junction with Zayante Creek (tributary to San Lorenzo River, which discharges to the Pacific) near Felton; fall, about 700 feet. Santa Cruz sheet.

Bear Canyon Creek; Los Angeles River basin; Los Angeles County; rises on the west slope of San Gabriel Peak, at altitude 5,500 feet above sea level; flows northwestward into Arroyo Seco (tributary to Los Angeles River, which discharges to the Pacific); fall, 2,700 feet. Pasadena sheet.

Bear Canyon Creek; Riverside County; an intermittent stream, about 2 miles long, flowing northward and entering San Juan Creek in southwestern part of T. 6 S., R. 5 W., San Bernardino base and meridian; fall, about 900 feet. Elsinore sheet.

Bear Canyon Creek; Santa Ana River basin; Los Angeles County; rises in northwestern part of T. 2 N., R. 7 W., San Bernardino base and meridian, at altitude 7,750 feet above sea level; flows southward into San Antonio Canyon Creek (tributary to Santa Ana River, which discharges to the Pacific). San Antonio and Cucamonga sheets.

Bear Canyon Creek; Santa Clara River basin; Los Angeles County; an intermittent stream, 4 miles long, rising at the eastern end of the Liebre Mountains in T. 7 N., R. 17 W., San Bernardino base and meridian, and flowing southwestward into Castac Creek (tributary to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Bear Canyon Creek; Santa Clara River basin; Los Angeles County; rises in the northwestern part of T. 3 N., R. 14 W., San Bernardino base and meridian, at altitude 2,750 feet above sea level; flows northwestward into Sand Canyon Creek (tributary to Santa Clara River, which discharges to the Pacific), to which it delivers water only in times of flood; length, 2 miles; fall, 1,300 feet. Fernando sheet.

Bear Canyon Creek; Santa Clara River basin; Ventura County; rises in the southwestern part of T. 5 N., R. 21 W., San Bernardino base and meridian, in the Santa Barbara National Forest, at altitude 3,250 feet above sea level; flows southwestward to Sisar Creek (tributary to Santa Paula Creek and thus to Santa Clara River, which discharges to the Pacific); length, 2½ miles; fall, 1,700 feet; sinks before reaching the creek. Santa Paula sheet.

Bear Canyon Creek; Santa Clara River basin; Ventura County; rises in the west-central part of T. 5 N., R. 21 W., San Bernardino base and meridian, on the north slope of Topatopa Mountains, at altitude 6,000 feet above sea level; flows west of north into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); length, 3½ miles; fall, 3,200 feet. Mount Pinos sheet.

Bear Canyon Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 4½ miles long, rising in the southern part of T. 11 N., R. 31 W., and flowing southward to the North Fork of Labrea Creek (tributary through Sisquoc River to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Bear Canyon Creek; Santa Maria River basin; Ventura County; an intermittent stream, 3½ miles long, rising in the southeastern part of T. 7 N., R. 24 W., San Bernardino base and meridian, and flowing northeastward to Cuyama River (Santa Maria River). Mount Pinos sheet.

Bear Canyon Creek; Santa Ynez River basin; Santa Barbara County; an intermittent stream, 2 miles long, rising on the north slope of the Santa Ynez Mountains, and flowing northeastward into Santa Ynez River (which discharges to the Pacific) in Tequepis Rancho. Santa Ynez sheet.

Bear Creek; Eel River basin; Humboldt County; rises in the northeastern part of T. 1 S., R. 1 E., Humboldt base and meridian; flows in general northeastward to its junction with Eel River (tributary to the Pacific); length, about 5 miles. Punnett's map of Humboldt County.

Bear Creek; Eel River basin; Lake County; rises in the southern part of T. 18 N., R. 8 W., Mount Diablo base and meridian, on the west slope of Snow Mountain; takes a general southwesterly course to its junction with Rice Fork of Eel River (tributary to Eel River, which flows to the Pacific); length, 8 miles. Punnett's map of Lake and Mendocino counties.

Bear Creek; Klamath River basin; Siskiyou County; rises on the north slope of Willow Creek Mountain, at altitude 6,000 feet above sea level; flows northeastward 6 miles into Shovel Creek (tributary to Klamath River, which flows to the Pacific). Shasta sheet. Called Shovel Creek on Punnett's map of Siskiyou County.

Bear Creek; Klamath River basin; Trinity County; rises in the northern part of T. 35 N., R. 10 W., Mount Diablo base and meridian; flows southwestward 2 miles into Canon Creek (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Bear Creek; Klamath River basin; Trinity County; rises in the eastern part of T. 40 N., R. 6 W., Mount Diablo base and meridian, on the west slope of Eddy Mountain, at altitude 6,000 feet above sea level; flows northwestward 1½ miles, then westward 1½ miles into Trinity River (tributary to Klamath River, which discharges to the Pacific); fall, 600 feet. Shasta sheet (on which it is not named); Punnett's map of Trinity County.

Bear Creek; Salinas River basin; Monterey County; rises in the southeastern part of T. 20 S., R. 5 E., Mount Diablo base and meridian, east of Pinon Peak, flows southeastward 6 miles into San Antonio River (tributary to the Salinas River, which discharges to the Pacific in Monterey Bay). Land Office map of California, 1907.

Bear Creek; San Dieguito River basin; San Diego County; rises in the southern part of T. 11 S., R. 1 E., San Bernardino base and meridian, at altitude about 3,000 feet above sea level; flows west of south 2 miles, then southeastward 1½ miles into Temescal Creek (tributary to Santa Ysabel Creek—San Dieguito River, which discharges to the Pacific); intermittent; fall, about 2,000 feet. Ramona sheet.

Bear Creek; San Francisquito Creek basin; San Mateo County; rises half a mile northeast of Sierra Morena, at altitude 2,000 feet above sea level, flows very irregularly eastward to its junction with San Francisquito Creek (tributary to San Francisco Bay) just below Searsville Lake; tributary, West Union Creek. Santa Cruz and Palo Alto sheets.

Bear Creek; San Gabriel River basin; Los Angeles County; rises in the northwestern part of T. 3 N., R. 9 W., San Bernardino base and meridian, on the northwest slope of Mount Islip, at altitude 6,500 feet above sea level; flows west of south about 10 miles into the West Fork of San Gabriel River (tributary to San Gabriel River, which discharges to the Pacific); fall, 4,900 feet; principal tributary, West Fork. Rock Creek and Pomona sheets.

Bear Creek; San Lorenzo River basin; Santa Cruz County; rises in the southeastern part of T. 8 S., R. 2 W., Mount Diablo base and meridian, on the west slope of Castle Rock Ridge, at altitude 2,300 feet above sea level; flows southwestward to its junction with San Lorenzo River (tributary to the Pacific) near the town of Boulder Creek; length, about 8 miles; fall, about 1,800 feet; tributary, Deer Creek. Santa Cruz sheet.

Bear Creek; San Pablo Creek basin; Contra Costa County; rises in the eastern part of Boca de la Canada del Pinole Rancho, at altitude 1,200 feet above sea level; flows, in general, southwestward to its junction with San Pablo Creek, which discharges to San Pablo Bay; length, about 6½ miles; fall, 900 feet. Concord sheet.

Bear Creek; Santa Ana River basin; San Bernardino County; rises in Bear Lake, in the central part of T. 2 N., R. 1 W., San Bernardino base and meridian, at altitude 6,650 feet above sea level; flows west of south to its junction with Santa Ana River (tributary to the Pacific); length, about 7 miles; fall, 3,250 feet; principal tributaries, North Fork, Camp, Lake, and Johnson creeks. See Bear Lake. San Gorgonio and Redlands sheets.

Bear Creek; Santa Barbara County; an intermittent stream, about 1 mile long, draining a small area in the western part of Lompoc Rancho and flowing northwestward to a completely closed depression just east of the coast line. Guadalupe sheet.

Bear Creek; Santa Clara River basin; Ventura County; an intermittent stream, 2 miles long, rising in the southwestern part of T. 5 N., R. 19 W., San Bernardino base and meridian, and flowing northwestward into Tar Creek (tributary through Sespe Creek to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Bear Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 2½ miles long, rising 3 miles southwest of Cuyama Peak, and flowing east of south into Rancho Nuevo Creek, which is tributary to Cuyama River (Santa Maria River, which discharges to the Pacific). Santa Ynez sheet.

Bear Creek; Truckee River basin; Placer County; rises in the northwestern part of T. 15 N., R. 16 E., Mount Diablo base and meridian, on the north slope of Ward Peak, at altitude 8,000 feet above sea level; flows northeastward into Truckee River (tributary to Pyramid and Winnemucca lakes); length, about 5 miles; fall, 1,900 feet. Truckee sheet.

Bear Creek, Big; Klamath River basin; Trinity County; rises in the central part of T. 33 N., R. 12 W., Mount Diablo base and meridian; flows northward into Trinity River (tributary to Klamath River, which discharges to the Pacific); length, 4 miles. Punnett's map of Trinity County.

Bear Creek, Little; Los Angeles River basin; Los Angeles County; rises 1½ miles northwest of San Gabriel Peak, at altitude 4,650 feet above sea level; flows north of west 1½ miles into Arroyo Seco; fall, 1,700 feet. Tujunga sheet.

Bear Creek, Little; Mohave River basin; San Bernardino County; rises in the southwestern part of T. 2 N., R. 3 W., 1 mile east of Strawberry Peak, at altitude 5,500 feet above sea level; flows northeastward about 6 miles to its junction with Deep Creek (tributary to Mohave River); fall, 800 feet; principal tributaries, Burnt Mill, Fleming, and Hooks creeks. Redlands and Deep Creek sheets.

Bear Creek, North Fork; Santa Ana River basin; San Bernardino County; rises in the western part of T. 2 N., R. 1 W., on the southern slope of Crafts Peak, at altitude 8,000 feet above sea level; flows southeastward 2 miles to its junction with Bear Creek (tributary to Santa Ana River, which discharges to the Pacific); fall, 2,750 feet. Redlands sheet.

Bear Creek, West Fork; San Gabriel River basin; Los Angeles County; rises in the southwestern part of T. 3 N., R. 10 W., San Bernardino base and meridian, 1 mile west of Waterman Mountain, at altitude 6,750 feet above sea level; flows southeastward about 5 miles to its junction with Bear Creek (tributary through West Fork San Gabriel River to San Gabriel River, which discharges to the Pacific); fall, 4,600 feet. Rock Creek sheet.

Bear Gulch Creek; Alameda Creek basin; Alameda and Santa Clara counties; rises in the western part of T. 5 S., R. 3 E., Mount Diablo base and meridian, on the south slope of Valpe Ridge, at altitude 3,350 feet above sea level; flows southwestward to Alameda Creek, which discharges to San Francisco Bay; length, 2 miles; fall, 1,950 feet. Mount Hamilton sheet.

Bear Lake; San Bernardino County; T. 2 N., Rs. 1 E. and 1 W., San Bernardino base and meridian. The valley of the Upper Santa Ana River extends in an east-west direction along the northern base of the San Bernardino and San Gorgonio mountains. To the north of the valley is a long rugged mountain ridge whose crests hold the general altitude of about 7,500 feet above sea level, and beyond this ridge, with its axis in the same direction and about 4½ miles from the main mountains on the south, is a remarkably flat mountain basin called Bear Valley. This valley has the appearance of once having held a lake whose waters, at an elevation of 125 feet from its bottom, overflowed at the east end into the head of a canyon which leads away to the Colorado Desert. Now, however, the valley contracts at its western end to a narrow rock-bound gorge which extends southward around the west end of the mountain ridge and joins the canyon of Santa Ana River about 10 miles above its outlet into San Bernardino Valley. This gorge holds Bear Creek, at whose point of departure from the valley a dam has been built, making or remaking the basin into a lake. The dam is remarkable chiefly because of its slender proportions,

which have made it to the engineering fraternity the "eighth wonder of the world." The waters of the reservoir, when liberated, flow down Bear Creek to Santa Ana River.

The waters stored in Bear Lake are used in the settlements of Redlands, Crafton, and Highlands, which are among the choicest of the orange-growing regions of Southern California, and the irrigation districts of Alessandro and Perris are the outgrowth of this water storage, although Perris receives only a small portion of its supply from this source.

Authorities: San Gorgonio sheet; Hall, Wm. Ham., Irrigation in California [southern]: Report of the State Engineer of California on irrigation and the irrigation question, pt. 2, Sacramento, 1888, pp. 177–183. See also Reservoirs for irrigation, water powers, and domestic supply, by J. D. Schuyler, 2d ed., 1908, pp. 246–256.

Bear River; Humboldt County; rises in the southwestern part of T. 1 S., R. 1 E., Humboldt base and meridian; flows east of north 4 miles, then northwestward 18 miles to the central part of T. 1 N., R. 3 W., where it enters the Pacific. Punnett's map of Humboldt County.

Beard Creek; Alameda County; a channel in the tidal marsh in the southern end of San Francisco Bay, extending from the bay to Newark Creek. Haywards sheet.

Beartrap Canyon Creek; Los Angeles County; an intermittent stream, about 2 miles long, rising in the northern part of T. 6 N., R. 18 W., San Bernardino base and meridian, and flowing northeastward into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Beartrap Creek; Ventura County; rises in the northwestern part of T. 6 N., R. 22 W., San Bernardino base and meridian, on the north slope of Pine Mountain, at altitude 7,000 feet above sea level; flows northwestward to Cuyama River (Santa Maria River, which discharges to the Pacific); length, about 7 miles; fall, 3,200 feet. Mount Pinos sheet.

Beaver Creek; Klamath River basin; Siskiyou County; rises in the central part of T. 48 N., R. 8 W., Mount Diablo base and meridian; flows southwestward 5 miles, then irregularly southward about 6 miles to its junction with Klamath River (tributary to the Pacific) in the northwestern part of T. 46 N., R. 8 W.; principal tributaries Grouse and Hungry creeks, and West Fork. Punnett's map of Siskiyou County.

Beaver Creek; Rhett Lake basin; Modoc County; rises on the northwest slope of Timbered Mountain; flows northwestward into South Fork of Willow Creek (tributary through Willow Creek to Lost River, which discharges to Rhett Lake); length, 3 miles. Alturas sheet.

Beaver Creek, West Fork; Klamath River basin; Siskiyou County; rises in the southwestern part of T. 48 N., R. 9 W., Mount Diablo base and meridian; flows in general somewhat south of east 7 miles to its junction with Beaver Creek (tributary through Klamath River to the Pacific). Punnett's map of Siskiyou County.

Bedford Canyon Creek; Riverside County; an intermittent stream, 6 miles long, rising on the north slope of Bedford Peak (altitude 3,720 feet) and flowing northeastward into Temescal Creek (tributary to Santa Ana River, which discharges to the Pacific). Corona sheet.

Bee Canyon; San Luis Obispo County; southern part of Corral de Piedro Rancho; opens southeastward to Corbett Canyon (tributary to Arroyo Grande Creek, which discharges to the Pacific). Arroyo Grande sheet.

Bee Canyon Creek; Los Angeles River basin; Los Angeles County; an intermittent stream rising in the central part of T. 3 N., R. 16 W., San Bernardino

base and meridian, and flowing southeastward into San Fernando Valley. Santa Susana sheet.

Bee Canyon Creek; Tia Juana River basin; San Diego County; rises in the northeastern part of T. 18 S., R. 2 E., San Bernardino base and meridian, at altitude 1,500 feet above sea level; flows southward into Cottonwood Creek (tributary to Tia Juana River, which discharges to the Pacific); length, 3 miles; fall, 800 feet; intermittent. Cuyamaca sheet.

Bee Rock Canyon Creek; Santa Barbara County; an intermittent stream, 2 miles long, rising in the San Rafael Mountains in the southern part of Sisquoc Rancho and flowing northwestward into Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Bell Canyon Creek; Los Angeles River basin; Ventura and Los Angeles counties; an intermittent stream, 2 miles long, rising in the Simi Hills and flowing eastward into San Fernando Valley. Calabasas sheet.

Bell Canyon Creek; Orange County; rises on the west slope of Los Pinos Peak, at altitude 3,500 feet above sea level; flows westward 4 miles, then southwesterly and southward 9 miles into San Juan Canyon Creek (tributary to the Pacific); fall, 3,150 feet. Elsinore and Corona sheets.

Bell Canyon Creek; San Gabriel River basin; Los Angeles County; an intermittent stream, about 2 miles long, rising in the northeastern part of T. 1 N., R. 9 W., San Bernardino base and meridian, and flowing southwestward to the head of Big Dalton Canyon. Pomona sheet.

Bell Canyon Creek; Santa Barbara County; formed by the union of Elwood and Winchester Canyon creeks. Elwood Canyon Creek rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, west of Brush Peak, at altitude 2,150 feet above sea level, and flows in general west of south to the head of Bell Canyon through which the southwesterly course is continued to the Pacific; length of Bell Canyon Creek below the mouth of Winchester Canyon Creek, about 1 mile; of Elwood above the mouth of Winchester, about 6 miles. Goleta special sheet.

Bell Creek; Trinity County; rises in the southeastern part of T. 7 N., R. 6 E., Humboldt base and meridian; flows southward into New River (tributary through Trinity River to Klamath River and thus to the Pacific); length, about 5 miles. Punnett's map of Trinity County.

Bell Rock Creek; Mendocino County; rises in the eastern part of T. 23 N., R. 15 W., Mount Diablo base and meridian, near Redwine; takes a general easterly course to its junction with Eel River (tributary to the Pacific); length, about 3 miles. Punnett's map of Mendocino County.

Bell Springs Creek; Mendocino County; rises in the eastern part of T. 24 N., R. 16, W., Mount Diablo base and meridian; flows north of east 5 miles, then southeastward 3 miles to its junction with Eel River (tributary to the Pacific). Punnett's map of Mendocino County.

Belmont Creek; San Mateo County; rises in Pugas Rancho, southeast of San Mateo County almshouse; flows north of east to the tidal marsh at the south end of San Francisco Bay. San Mateo sheet.

Bend Canyon Creek, Big; Santa Maria River basin; Santa Barbara County; an intermittent stream, about 3 miles long, rising on the north slope of the San Rafael Mountains and flowing east and north to Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Santa Ynez sheet.

Benedict Canyon Creek; Los Angeles County; an intermittent stream, 3½ miles long, draining a small area in the Santa Monica Mountains, and flowing southerly into Rodeo de las Aguas Rancho (drained by Ballona Creek, which discharges to Ballona Lagoon). Santa Monica sheet.

Bennett Creek; Sonoma County; rises in the eastern part of T. 6 N., R. 7 W., Mount Diablo base and meridian; flows northwestward to its junction with Santa Rosa Creek (tributary to Russian River, which flows into the Pacific) at Santa Rosa; length, 10 miles. Punnett's map of Sonoma County. Called Matanzas Creek on Land Office map of California, 1907.

Bergona Lake; Mono County; south-central part of T. 3 N., R. 24 E., Mount Diablo base and meridian; 1 small inlet which may be considered the head of the West Fork of Green Creek; outlet, West Fork Green to Green Creek (tributary through Virginia Creek to East Walker River and thus to Walker River, which discharges to Walker Lake); altitude, about 10,150 feet; very small. Bridgeport sheet.

Bernardo River. *See* San Dieguito River.

Berry Creek; San Mateo and Santa Cruz counties; rises in the southeastern part of T. 8 S., R. 4 W., Mount Diablo base and meridian; flows east of south into West Waddell Creek (tributary through Waddell Creek to the Pacific); length, about 2 miles. Santa Cruz sheet.

Berryessa Creek; Coyote River basin; Santa Clara County; rises in T. 6 S., R. 1 E., Mount Diablo base and meridian, on the west slope of Los Buellis Hills, at altitude 1,750 feet above sea level; flows irregularly westward to the valley of Coyote River (tributary to San Francisco Bay), in which it sinks north of Berryessa. San Jose sheet.

Bidwell, Lake; Lassen County; north-central part of T. 31 N., R. 6 E., Mount Diablo base and meridian; outlet, Butte Creek, which flows northward and sinks in the region west of Poison Lake; called Butte Lake on Starkweather's map of Lassen County. The lake is about 2 miles in greatest length, 1 mile in maximum width, and lies at an altitude of about 6,500 feet above sea level. Lassen Peak sheet.

Big Creek; Klamath River basin; Trinity County; rises in the northwestern part of T. 6 N., R. 8 E., Humboldt base and meridian; flows southwestward into New River (tributary through Trinity River to Klamath River and thus to the Pacific); length, about 8 miles. Punnett's map of Trinity County.

Big Creek; Scott Creek basin; Santa Cruz County; rises in the central part of T. 9 S., R. 3 W., Mount Diablo base and meridian, on the southern slope of Ben Lomond Mountain, near Eagle Peak, at altitude 2,400 feet above sea level; flows southerly 3 miles, then southwesterly about 4 miles to its junction with Scott Creek, which discharges to the Pacific. Santa Cruz sheet.

Big Lagoon; Humboldt County; T. 9 N., Rs. 1 E., and 1 W., Humboldt base and meridian; principal inlet, Maple Creek. Punnett's map of Humboldt County.

Big River; Mendocino County; rises in the east-central part of T. 17 N., R. 14 W., Mount Diablo base and meridian; flows southward 2 miles, then winds very irregularly westward to Mendocino Bay, where it enters the Pacific; length, including major windings, 34 miles; principal tributaries, Valentine and Martin creeks and South, Middle, and North forks. Punnett's map of Mendocino County.

Big River, Middle Fork; Mendocino County; rises in the southwestern part of T. 18 N., R. 14 W., Mount Diablo base and meridian; flows southwestward 4 miles, north of west 3 miles, then southward 4 miles to its junction with Big River (tributary to the Pacific) in the southwestern part of T. 17 N., R. 15 W.; principal tributaries, two unnamed streams which drain the southern part of T. 18 N., R 15 W. and enter from the north. Punnett's map of Mendocino County.

Big River, North Fork; Big River basin; Mendocino County; rises in the northern part of T. 17 N., R. 16 W., Mount Diablo base and meridian; flows

irregularly southwestward to its junction with Big River (tributary to the Pacific) in the eastern part of T. 17 N., R. 17 W.; length, including major windings, about 6 miles. Punnett's map of Mendocino County.

Big River, South Fork; Mendocino County; rises in the western part of T. 16 N., R. 13 W., Mount Diablo base and meridian, flows irregularly westward to the western part of T. 16 N., R. 14 W., then northwestward to its junction with Big River; length, 14 miles; principal tributary, Dougherty Creek. Punnett's map of Mendocino County.

Big Sulphur Creek and other "Big" creeks. *See* the significant noun.

Billings Creek; Mendocino County; rises in the south-central part of T. 12 N., R. 13 W., Mount Diablo base and meridian, flows northwestward 4½ miles, then west of south 3 miles to its junction with North Fork of Gualala River (tributary through Gualala River to the Pacific). Punnett's map of Mendocino County.

Birch Creek; Owens Lake basin; Inyo County, Inyo National Forest; formed in the southern part of T. 7 S., R. 31 E., by two forks, one rising on the south slope of Mount Humphreys and the other on the north slope of Mount Emerson; flows northeastward to its junction with Owens River, which discharges into Owens Lake; length, to head of the fork draining the larger area, about 22 miles; fall below the forks, 3,200 feet. Mount Goddard and Bishop sheets.

Birch Creek; Owens Lake basin; Inyo County, Inyo National Forest; rises on the east slope of the Sierra, at altitude 12,500 feet above sea level; flows irregularly eastward to Owens Valley near the north end of Poverty Hills, where it unites with Tinemaha Creek; fall, 8,400 feet. Gaging station near Tinemaha (1905–1911). Bishop sheet.

Birch Creek; Santa Ana River basin; San Bernardino County; an intermittent stream, about 2 miles long, rising in the eastern part of T. 1 S., R. 1 W., San Bernardino base and meridian, and flowing southwestward to the head of Potato Canyon, which drains through Yucaipe Creek to San Timoteo Creek and thus to Santa Ana River, which discharges to the Pacific. San Gorgonio sheet.

Bishop Creek; Inyo County, Inyo National Forest; formed near the center of T. 8 S., R. 31 E., Mount Diablo base and meridian, by the union of its South and Middle forks. The South Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises about 1 mile northeast of Bishop Pass, at altitude 12,200 feet above sea level, and takes a general northerly course to its junction with the Middle Fork; below the forks the creek flows northeastward into Owens Valley. Gaging station near Bishop (1903–1911). Mount Goddard and Bishop sheets.

Bishop Creek, Middle Fork; Owens River basin; Inyo County, Inyo National Forest; rises on the north slope of Mount Powell (altitude 13,361 feet); flows northward and northeastward to its junction with the South Fork, with which it forms Bishop Creek (tributary to Owens River, which discharges to Owens Lake); passes through Lake Sebrina; fall, 4,800 feet. Mount Goddard sheet.

Bishop Creek, North Fork; Owens River basin; Inyo County, Inyo National Forest; rises on the east slope of the Sierra, near Piute Pass, at altitude 11,400 feet above sea level; flows eastward into Middle Fork of Bishop Creek (tributary through Bishop Creek to Owens River, which discharges to Owens Lake); length, 5 miles; fall, 2,900 feet; passes through several small lakes. Mount Goddard sheet.

Bitter Creek; Klamath River basin; Trinity County; rises in the western part of T. 2 N., R. 8 E., Humboldt base and meridian; flows northwestward 4 miles, then in general south of west 4 miles to its junction with Indian Valley

Creek (tributary through South Fork of Trinity River to Trinity River and thus to the Klamath, which discharges to the Pacific). Punnett's map of Trinity County.

Bitter Creek; Santa Clara River basin; Los Angeles County; an intermittent stream, about 3½ miles long, rising in the northern part of T. 5 N., R. 16 W., San Bernardino base and meridian, and flowing southwestward into Charlie Canyon Creek (tributary to Castac Creek and thus to Santa Clara River, which discharges to the Pacific). Tejon and Santa Susana sheet.

Bitter Creek; Santa Clara River basin; Ventura County; rises in the northwestern part of T. 8 N., R. 21 W., San Bernardino base and meridian, on the eastern slope of Mount Pinos, at altitude 7,800 feet above sea level; flows southeastward 5 miles to north edge of Lockwood Valley, which is drained by Lockwood Creek to Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); fall in the 4 miles above the mouth of the canyon, 2,300 feet; intermittent. Mount Pinos sheet.

Bitter Dry Lake; San Bernardino County; Tps. 13 and 14 N., R. 5 E., San Bernardino base and meridian. The spring near the southeast end of this lake is the first watering place reached by the traveler on the old emigrant road to Salt Lake City; it has been known since 1852; the water contains too much sodium sulphate to be wholesome, but it can be used. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I, p. 61.

Bitterwater Creek; Salinas River basin; Monterey County; rises in the southern part of T. 21 S., R. 12 E., Mount Diablo base and meridian; flows southwestward to the valley of Salinas River (tributary to the Pacific in Monterey Bay) 6 miles southeast of San Ardo; sinks before reaching the river; length, about 12 miles; tributary, Powell Creek. Land Office map of California, 1907.

Bitterwater Creek; Salinas River basin; San Benito County; rises in the northeastern part of T. 18 S., R. 9 E., Mount Diablo base and meridian, a short distance northeast of Bitterwater; flows irregularly southward to Loanoke (spelled Lonoak on the post route map), where it joins San Lorenzo Creek (tributary to Salinas River, which discharges to the Pacific in Monterey Bay); length, about 8 miles; its principal tributary, Lewis Creek, is much longer and drains a much larger area than the creek itself. Land Office map of California, 1907.

Bixby Slough; Los Angeles County; occupies a completely inclosed depression just northwest of Wilmington. Redondo sheet.

Black Bear Creek; Siskiyou County; rises in the southern part of T. 39 N., R. 11 W., Mount Diablo base and meridian; flows northwestward about 4 miles, then southwestward 6 miles to its junction with Salmon River (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Black Canyon Creek; San Diego County; rises in the southwestern part of T. 11 S., R. 2 E., San Bernardino base and meridian, at altitude 3,400 feet; flows southward 4 miles into Santa Ysabel Creek (San Dieguito River, which discharges to the Pacific); intermittent; fall, 1,700 feet. Ramona sheet.

Black Hawk Canyon Creek; San Bernardino County; T. 3. N., R. 2 E.; an intermittent stream, 3 miles long, flowing northward to Mohave Desert. San Gorgonio sheet.

Black Lake; San Luis Obispo County; in Bolsa de Chamisal Rancho 1½ miles east of the coast; receives the drainage of Black Lake Canyon. Arroyo Grande sheet.

Black Lake Canyon Creek; San Luis Obispo County; rises in Nipomo Rancho and flows westward 3 miles into Black Lake; marshy. Arroyo Grande sheet.

Black Rabbit Canyon Creek; Riverside County; an intermittent stream, about 3 miles long, flowing south of east into Martinez Canyon Creek, which discharges to the Colorado Desert. Indio special sheet.

Black Star Canyon Creek; Orange County; rises on the east slope of the Santa Ana Mountains, at altitude 2,500 feet above sea level; flows southwestward 4 miles into Santiago Creek (tributary to Santa Ana River, which discharges to the Pacific); fall, 1,600 feet. Corona sheet.

Blacksmith Creek; Mono County; rises in the eastern part of T. 3 N., R 23 E., Mount Diablo base and meridian, on the north slope of Sawtooth Ridge, at altitude 10,500 feet above sea level; flows east of north 2½ miles to its junction with Robinson Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake) half a mile above upper Twin Lake; fall, 3,300 feet. Bridgeport sheet.

Blackwood Creek; Placer County; rises in the northwestern part of T. 14 N., R. 16 E., Mount Diablo base and meridian, at altitude 8,000 feet above sea level; flows northward and northeastward and enters Lake Tahoe (outlet, Truckee River to Pyramid and Winnemucca lakes) near McKinney; length, 5 miles; fall, 1,775 feet. Truckee sheet.

Blaisdell Canyon; Riverside County; Tps. 4 and 3 S., R. 3 E., San Bernardino base and meridian; opens northeastward toward Whitewater River, which discharges to Colorado Desert. San Jacinto sheet.

Blanchard Canyon Creek; Ventura County; an intermittent stream, 1½ miles long, flowing eastward into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific) in Temescal Rancho. Camulos sheet.

Blooms Creek; Santa Cruz County; rises near Blooms Mill, in the northern part of T. 9 S., R. 3 W., Mount Diablo base and meridian; flows westward into East Waddell Creek (tributary through Waddell Creek to the Pacific); principal tributary, Sempervirens Creek. Santa Cruz sheet.

Blue Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest on the north slope of the Santa Ynez Mountains, at altitude 3,250 feet above sea level; flows in general northwestward to its junction with Santa Ynez River (tributary to the Pacific) 2 miles above the mouth of Mono Creek; length, about 5 miles; fall, 1,750 feet. Santa Barbara special and Santa Ynez sheets.

Blue Creek; Del Norte and Humboldt counties; rises in Del Norte County in the eastern part of T. 14 N., R. 4 E., Humboldt base and meridian; flows southwestward 20 miles and unites with Klamath River (tributary to the Pacific) in Humboldt County, in the central part of T. 12 N., R. 2 E.; no tributaries named on the map. Punnett's map of Del Norte County.

Blue Lake; Mono County; southwestern part of T. 2 N., R. 25 E., Mount Diablo base and meridian; the smallest of several lakes through which Lake Canyon Creek flows to its junction with Mill Creek (tributary to Mono Lake); altitude, about 9,450 feet. Bridgeport sheet.

Blue Rock Creek; Mendocino County; rises in the northern part of T. 23 N., R. 15 W., Mount Diablo base and meridian; flows northwestward, northward, and then north of east to its junction with Eel River (tributary to the Pacific); length, about 9 miles. Punnet's map of Mendocino County.

Bluff Creek; Del Norte and Humboldt counties; rises in Del Norte County in the central part of T. 13 N., R. 4 E., Humboldt base and meridian; flows in general somewhat east of south to its junction with Klamath River (tributary to the Pacific) in the southwestern part of T. 10 N., R. 5 E.; length, including major windings, 21 miles; many small tributaries but none named on maps. Punnett's maps of Del Norte and Humboldt counties

Bluff Lake; San Bernardino County; southeastern part of T. 2 N., R. 1 W., San Bernardino base and meridian; a small marshy lake discharging through Lake Creek to Bear Creek (tributary to Santa Ana River, which discharges to the Pacific); altitude, 7,450 feet above sea level. San Gorgonio sheet.

Bob Canyon Creek; Los Angeles County; rises in the southwestern part of T. 4 N., R. 8 W., San Bernardino base and meridian, on the north slope of Pinon Ridge, at altitude 6,100 feet; flows northwestward toward the Mohave Desert, where its waters sink; about 3 miles long. San Antonio and Rock Creek sheets.

Bodie Creek; California-Nevada; rises in Mono County, Cal., on the east slope of Bodie Mountain, at altitude 9,300 feet above sea level; flows south of east 3 miles to Bodie, northeastward 14 miles to a point north of Fletcher, Nev., and then northwestward 2 miles to its junction with Rough Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake); fall, 3,300 feet. Bridgeport and Hawthorne sheets.

Bogess Creek; San Gregorio Creek basin; San Mateo County; an intermittent stream, 5 miles long, rising in T. 6 S., R. 4 W., Mount Diablo base and meridian, and flowing west of south to its junction with San Gregorio Creek, which discharges to the Pacific. Santa Cruz sheet.

Bogus Creek; Siskiyou County; rises in the eastern part of T. 46 N., R. 4 W., Mount Diablo base and meridian, on the west slope of Willow Creek Mountain, at altitude 5,000 feet above sea level; flows northwestward 14 miles to its junction with Klamath River (tributary to the Pacific); fall, 2,800 feet. Shasta sheet.

Bogus Creek, Little; Klamath River basin; Siskiyou County; rises in the southern part of T. 47 N., R. 5 W., Mount Diablo base and meridian; on the north slope of Bogus Mountain, at altitude 3,300 feet above sea level; flows north of west 4 miles to its junction with Klamath River (tributary to the Pacific); fall, 1,100 feet; intermittent. Shasta sheet.

Boise Creek; Humboldt County; rises in the east-central part of T. 10 N., R. 6 E., Humboldt base and meridian; flows in general somewhat north of west to its junction with Klamath River (tributary to the Pacific); length, about 6 miles. Punnett's map of Humboldt County.

Bolam Creek; Siskiyou County; flows from Bolam Glacier on the north slope of Mount Shasta (altitude 14,380 feet) northwestward to its junction with Whitney Creek (q. v.). Shasta special map.

Boles Creek; Siskiyou County; rises in the northeastern part of T. 41 N., R. 5 W., Mount Diablo base and meridian; flows northwestward 5 miles; unites with Shasta River (tributary to Klamath River, which flows to the Pacific) near Butteville; fall, 800 feet. Shasta sheet.

Bolinas Creek; San Lorenzo Creek basin; Alameda County; rises in the southwestern part of T. 1 S., R. 2 W., Mount Diablo base and meridian, at altitude 1,500 feet above sea level; flows southeastward about 3 miles into Crow Creek (tributary through Cull Creek to San Lorenzo Creek, which discharges to San Francisco Bay); fall, 1,000 feet. Concord sheet.

Bolsas Creek; Orange County; the channel through the tidal marsh in the southern part of La Bolsa Chica Rancho. Downey sheet.

Boneyard Canyon; Los Angeles County; a drainage way in the eastern part of T. 4 N., Rs. 7 and 8 W., San Bernardino base and meridian, sending its flood waters northward into the Mohave Desert. San Antonio sheet.

Bonito Creek; Alameda Creek basin; Santa Clara County; an intermittent stream, 5 miles long, rising on the eastern slope of Mount Day in the northwestern part of T. 6 S., R. 3 E., Mount Diablo base and meridian, and flowing southeastward into Isabel Creek (tributary through Arroyo Hondo to Cala-

veras Creek, and thus through Alameda Creek to San Francisco Bay); fall, 1,100 feet. Mount Hamilton sheet.

Bottle Creek; Modoc County; rises in the northern part of the county, 4 miles west of Timbered Mountain; flows northwestward into South Fork of Willow Creek (tributary through Willow Creek to Lost River, which discharges to Rhett Lake); length, 2 miles. Alturas sheet.

Boulder Canyon Creek; Ventura County; an intermittent stream, 3 miles long, rising in the southern part of T. 7 N., R. 23 W., San Bernardino base and meridian; flows northwestward into Cuyama River (Santa Maria River, which discharges to the Pacific). Mount Pinos sheet.

Boulder Creek; Mad River basin; Humboldt County; rises in the central part of T. 4 N., R. 4 E., Humboldt base and meridian, between Mount Andy and Chaparral Mountain; flows northwestward into Mad River (tributary to the Pacific); length, about 8 miles. Punnett's map of Humboldt County.

Boulder Creek; Klamath River basin; Trinity County; rises in the western part of T. 37 N., R. 8 W., Mount Diablo base and meridian; flows northeastward 4 miles into Coffee Creek (tributary to Trinity River, which discharges through Klamath River to the Pacific). Punnett's map of Trinity County.

Boulder Creek; San Diego River basin; San Diego County; rises in Cuyamaca Reservoir at altitude 4,800 feet above sea level; flows irregularly westward into San Diego River, which discharges to the Pacific through False Bay; length, about 12 miles; fall, 4,000 feet. Cuyamaca sheet.

Boulder Creek; San Lorenzo River basin; Santa Cruz County; rises in the southern part of T. 8 S., R. 3 W., Mount Diablo base and meridian, at altitude 1,700 feet above sea level; flows southeastward 7 miles into San Lorenzo River (tributary to the Pacific) at the town of Boulder Creek; fall, 1,200 feet. Santa Cruz sheet.

Boulder Creek; Santa Clara River basin; Ventura County; an intermittent stream, about 3 miles long, rising on the western slope of San Cayetano Mountain and flowing southeastward toward the wash of Sespe Creek (tributary to Santa Clara River); fall in the 2½ miles above the mouth of the canyon, about 2,000 feet. Camulos sheet.

Boulder Creek, Little; Trinity County; rises in the central part of T. 37 N., R. 8 W., Mount Diablo base and meridian; flows northeastward 3 miles to its junction with Coffee Creek (tributary to Trinity River and thus through Klamath River to the Pacific). Punnett's map of Trinity County.

Boulder. *See also* Bowlder.

Bouton Lake; San Gabriel River basin; Los Angeles County; 5 miles north of Long Beach; the map (Downey sheet) shows outlet eastward toward San Gabriel River.

Bowlder Creek; Klamath River basin; Siskiyou County; rises in the northeastern part of T. 39 N., R. 8 W., Mount Diablo base and meridian, in Bowlder Lake, on the west slope of Scott Mountain; flows westward 4 miles, then northward 3 miles to junction with South Fork of Scott River (tributary through Scott River to Klamath River, which discharges to the Pacific); principal tributary, a stream (unnamed on the map) about 9 miles long, rising in a small lake near the center of T. 38 N., R. 8 W., and flowing, in general, northward. Punnett's map of Siskiyou County.

Bowlder Creek; Klamath River basin; Siskiyou County; rises in the southeastern part of T. 17 N., R. 6 E., Humboldt base and meridian; flows in general southward to its junction with Clear Creek (tributary to Klamath River, which flows to the Pacific); length, 10 miles. Punnett's map of Siskiyou County.

Bowlder Lake; Siskiyou County; northeastern part of T. 39 N., R. 8 W., Mount Diablo base and meridian, on west slope of Scott Mountain; outlet,

Bowlder Creek to South Fork of Scott River (tributary through Scott River to Klamath River, which discharges to the Pacific). Punnett's map of Siskiyou County.

Boynton Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends westward from Suisun Creek. Napa sheet.

Bradley Canyon; Riverside County; northeastern part of T. 5 S., R. 5 E.; an intermittent stream, about 2 miles long, flowing northeastward to Whitewater River. Indio special sheet.

Braley Creek; Inyo County; rises on the east slope of the Sierra at altitude 9,000 feet above sea level; flows eastward to the edge of Owens Valley where its waters sink; length, about 3 miles; fall, 4,800 feet. Olancha sheet.

Branch Canyon Creek; Santa Barbara County; an intermittent stream, rising in Salisbury Potrero, in the southwestern part of T. 9 N., R. 26 W., San Bernardino base and meridian, and flowing northward toward Cuyama River (Santa Maria River, which discharges to the Pacific) in Cuyama No. 1. Santa Ynez sheet.

Branciforte Creek; San Lorenzo River basin; Santa Cruz County; rises in the northwestern part of T. 10 S., R. 1 W., Mount Diablo base and meridian, at altitude 1,000 feet above sea level; flows somewhat west of south to the city of Santa Cruz, where it enters San Lorenzo River; length, about 8 miles. Santa Cruz sheet.

Brea Canyon Creek; Los Angeles and Orange counties; rises in the central part of T. 2 S., R. 9 W., San Bernardino base and meridian, at altitude 900 feet above sea level; flows southwestward 11 miles, then westerly 6 miles to its junction with Coyote Creek (tributary to San Gabriel River, which discharges to the Pacific); fall, 850 feet; intermittent. Anaheim and Downey sheets.

Breakneck Creek; Los Angeles River basin; Los Angeles County; an intermittent stream, about 2 miles long, flowing southward into Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific) about 2 miles above Hoyt Ranch, Tujunga sheet.

Breakneck Creek; Santa Ana River basin; San Bernardino County; rises in the northwestern part of T. 1 N., R. 1 W., San Bernardino base and meridian, at altitude 6,750 feet above sea level; flows southward 1½ miles, then southeastward 1 mile into Santa Ana River, which discharges to the Pacific; fall, 1,900 feet; intermittent. Redlands sheet.

Bridge Creek; Lassen County; rises in the central part of T. 31 N., R. 9 E., Mount Diablo base and meridian; flows southeastward 18 miles to its junction with Susan River (tributary to Honey Lake); fall, about 900 feet. Honey Lake sheet.

Bridgeport Canyon Creek; Mono County; rises in the northern part of T. 3 N., R. 26 E., Mount Diablo base and meridian, at altitude 8,300 feet above sea level; flows southeastward into Mono Lake; fall, about 1,900 feet; intermittent. Bridgeport sheet.

Bristol Dry Lake; San Bernardino County; Tps. 4 and 5 N., Rs. 11, 12, and 13 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Brizziolari Creek; San Luis Obispo County; rises on the western slope of the Santa Lucia Mountains in T. 30 S., R. 12 E., Mount Diablo base and meridian; flows southwestward and southward, and joins San Luis Obispo Creek (which discharges to the Pacific) near the western edge of the city of San Luis Obispo; length, about 4 miles. San Luis Obispo sheet.

Bronco Creek; Nevada County; rises in Washoe County, Nev., on the west slope of Mount Rose, at altitude 9,600 feet above sea level; flows in general north of west 6 miles, then southwestward 2 miles to its junction with Truckee

River (tributary to Pyramid and Winnemucca lakes) in the southwestern part of T. 18 N., R. 18 E.; fall, 4,100 feet. Carson and Truckee sheets.

Brown Canyon Creek; Ballona Creek basin; Los Angeles County; an intermittent stream, about 6½ miles long, draining a small area in the Santa Monica Mountains, and flowing east of south to a point near Palms, where its waters sink. Santa Monica sheet.

Brown Canyon Creek; Santa Ana River basin; Riverside County; an intermittent stream 3 miles long; flows northeastward into Temescal Wash. Corona and Elsinore sheets.

Browns Canyon Creek; Los Angeles River basin; Los Angeles County; an intermittent stream rising on the southern slope of Santa Susana Mountains, in T. 3 N., R. 16 W., San Bernardino base and meridian, and flowing southeastward to San Fernando Valley. Santa Susana sheet.

Browns Creek; Klamath River basin; Trinity County; rises in the west-central part of T. 34 N., R. 9 W., Mount Diablo base and meridian; flows somewhat east of south 4 miles, then southwestward 4½ miles to its junction with Weaver Creek (tributary through Trinity River to Klamath River, which discharges to the Pacific) 2 miles southeast of Weaverville. Punnett's map of Trinity County.

Browns Creek; Klamath River basin; Trinity County; rises in the central part of T. 30 N., R. 10 W., Mount Diablo base and meridian; flows southeastward 2 miles, then takes a general northerly course to its junction with Trinity River (tributary to the Klamath, which discharges to the Pacific) in the southern part of T. 33 N., R. 10 W.; length, about 20 miles. Punnett's map of Trinity County.

Browns Creek; Pajaro River basin; Santa Cruz County; rises in the southwestern part of T. 10 S., R. 2 E., Mount Diablo base and meridian; flows irregularly southward, and joins Pajaro River (tributary to the Pacific in Monterey Bay) near Watsonville; length, about 15 miles. Land Office map of California, 1907.

Browns Gulch Creek; Klamath River basin; Del Norte County; rises in the southern part of T. 13 N., R. 1 E., Humboldt base and meridian; flows northward 2 miles into Klamath River (tributary to the Pacific). Punnett's map of Del Norte County.

Browns Gulch Creek; San Gabriel River basin; Los Angeles County; rises in southeastern part of T. 2 N., R. 10 W., San Bernardino base and meridian, at altitude 3,250 feet above sea level; flows southeastward 2½ miles into San Gabriel River; fall, 2,050 feet; intermittent. Pomona sheet.

Browns Lake; Humboldt County; eastern part of T. 10 N., R. 4 E., Humboldt base and meridian; inlets, two streams draining the northern and eastern slopes of Rivet Mountain; outlet, a stream half a mile long flowing northeastward into Bluff Creek (tributary to Klamath River, which flows to the Pacific). Punnett's map of Humboldt County.

Brush Canyon Creek; Ballona Creek basin; Los Angeles County; an intermittent stream, about 2 miles long, flowing southward into La Brea Rancho. Santa Monica sheet.

Brush Creek; Eel River basin; Mendocino County; rises in the northwestern part of T. 23 N., R. 15 W., Mount Diablo base and meridian; flows southward 2 miles into Rattlesnake Creek (tributary to South Fork of Eel River and thus to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Brush Creek; Klamath River basin; Siskiyou County; rises in the southwestern part of T. 48 N., R. 5 W., Mount Diablo base and meridian, at altitude 3,000 feet above sea level; flows southeastward 4 miles into Klamath River

(tributary to the Pacific) opposite the mouth of Bogus Creek; fall, 900 feet; intermittent. Shasta sheet.

Brush Creek; Mendocino County; rises in the southern part of T. 13 N., R. 15 W., Mount Diablo base and meridian; flows westward and enters the Pacific 2 miles northeast of Point Arena; length, about 12 miles. Punnett's map of Mendocino County.

Bryant Creek; Alpine County, Cal., Douglas County, Nev.; formed in the eastern part of Alpine County by the union of Leviathan and Mountaineer creeks, at altitude 6,200 feet above sea level; flows northwestward to its junction with East Fork of Carson River (tributary through Carson River to Carson Sink) in Douglas County, Nev.; length, about 6 miles; fall, about 1,100 feet. Markleeville sheet.

Buck Canyon Creek; Los Angeles River basin, Los Angeles County; rises in the Angeles National Forest, at altitude 2,950 feet above sea level; flows south of east 2 miles into Little Tujunga Creek; fall, 1,200 feet. Fernando sheet.

Buck Creek; Ventura County; rises in the northern part of T. 6 N., R. 19 W., San Bernardino base and meridian, on the southern slope of Snowy Peak, at altitude 5,800 feet above sea level; flows northeastward into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); length, about 5 miles; fall, 3,200 feet. Tejon sheet.

Buck Mountain Creek; Humboldt County; rises in the central part of T. 4 S., R. 4 E., Humboldt base and meridian; flows southwestward 3 miles into East Branch of South Fork of Eel River (tributary through South Fork of Eel to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Buckeye Creek; Gualala River basin; Sonoma County; rises in the southeastern part of T. 11 N., R. 13 W., Mount Diablo base and meridian; flows very irregularly southwestward to its junction with Gualala River (tributary to the Pacific) in the northwestern part of T. 10 N., R. 14 W.; length, including major windings, about 14 miles; principal tributaries, Prosser and Grasshopper creeks. Punnett's map of Sonoma County.

Buckeye Creek; Klamath River basin; Trinity County; rises in the eastern part of T. 37 N., R. 8 W., Mount Diablo base and meridian, at altitude 5,200 feet above sea level; flows southeastward to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific); length, 3 miles; fall, 2,900 feet. Shasta sheet.

Buckeye Creek; Klamath River basin; Trinity County; rises in the western part of T. 34 N., R. 8 W., Mount Diablo base and meridian, at altitude 2,800 feet above sea level; flows northwestward 2 miles, then northeastward 3 miles to its junction with Stewart Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); fall, 1,200 feet. Red Bluff sheet.

Buckeye Creek; Walker River basin; Mono County; formed in the southwestern part of T. 4 N., R. 23 E., Mount Diablo base and meridian, by the union of its North and South forks. The South Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises in the northwestern part of T. 3 N., R. 23 E., on the south slope of Center Mountain at altitude 10,300 feet above sea level; encircles the east base of the mountain and passes to the northwest and north to its junction with the North Fork; below the forks Buckeye Creek flows northeastward to its junction with East Walker River (tributary to Walker River, which discharges to Walker Lake) at the lower end of Bridgeport Valley, 3 miles north of Bridgeport; length, to

head of South Fork, including major windings, about 21 miles; fall, about 3,850 feet, of which 3,300 feet is made in the 13 miles above Buckeye Hot Springs; principal tributaries, Eagle and Swager creeks. Gaging station near Bridgeport (1910–1912). Bridgeport sheet.

Buckeye Creek, North Fork; Walker River basin; Mono County; rises in the eastern part of T. 4 N., R. 22 E., Mount Diablo base and meridian, at altitude 9,700 feet above sea level; flows southeastward 2 miles to its junction with South Fork with which it forms Buckeye Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake); fall, about 1,200 feet. Dardanelles and Bridgeport sheets.

Buckhorn Canyon Creek; Santa Barbara County; an intermittent stream rising in the northwestern part of T. 10 N., R. 31 W., San Bernardino base and meridian, and flowing northwestward to Cuyama River (Santa Maria River, which dischages to the Pacific). Lompoc sheet.

Buckhorn Creek; Klamath River basin; Siskiyou County; rises in the northeastern part of T. 47 N., R. 10 W., Mount Diablo base and meridian; flows in general west of south to its junction with Horse Creek, through which it is tributary to Klamath River (tributary to the Pacific); length, 8 miles. Punnett's map of Siskiyou County.

Buckhorn Creek; Santa Ynez River basin; Santa Barbara County; rises in the Santa Barbara National Forest, on the north slope of Little Pine Mountain, at altitude 4,000 feet above sea level; flows southeastward 5 miles into Indian Creek (tributary to Mono Creek and thus to Santa Ynez River, which discharges to the Pacific); fall, 2,100 feet. Santa Ynez sheet.

Buckhorn Dry Lake; Kern County; Tps. 8 and 9 N., Rs. 10 and 11 W., San Bernardino base and meridian; contains water only during and immediately after heavy storms. Water-Supply Paper U. S. Geol. Survey No. 278, 1911, p. 14 and Pl. VI. *See* Three Sisters Lake.

Buckner Creek; Eel River basin; Lake and Mendocino counties; rises in the south-central part of T. 17 N., R. 10 W., Mount Diablo base and meridian; flows in general northwestward to its junction with Eel River (tributary to the Pacific); length, about 9 miles. Punnett's map of Mendocino and Lake counties.

Buena Vista Creek; San Diego County; rises in the north-central part of T. 11 S., R. 3 W., San Bernardino base and meridian, on the west slope of the San Marcos Mountains, at altitude 1,200 feet above sea level; flows southwestward and westward and discharges into a brackish-water marsh 2 miles southeast of Oceanside; intermittent; length to head of marsh, about 10 miles. The marsh is separated from the Pacific by a narrow sand bar which at times may be cut through by the flood water of the creek. Escondido and Oceanside sheets.

Buena Vista Creek: San Luis Rey River basin; San Diego County; an intermittent stream whose drainage line is not well marked on the map; heading near Buena Vista, flowing northwest and then southwest to its junction with Carrizo Creek (tributary to San Luis Rey River, which discharges to the Pacific). Ramona sheet.

Bug Creek; Humboldt County; rises in the southern part of T. 4 N., R. 4 E., Humboldt base and meridian, on Chapparal Mountain; flows southward 3 miles into Mad River (tributary to the Pacific). Punnett's map of Humboldt County.

Bull Canyon Creek; Los Angeles River basin; Los Angeles County; an intermittent stream rising on the southern slope of Mission Point and flowing southeastward to San Fernando Valley. Santa Susana sheet.

Bull Creek; Humboldt County; rises in the southwestern part of T. 2 S., R. 2 E., Humboldt base and meridian; flows northwestward 4 miles, then winds to the north and east to its junction with South Fork of Eel River (tributary to Eel River, which discharges to the Pacific) half a mile southwest of Dyerville; length, 11 miles. Punnett's map of Humboldt County.

Burger Creek; Eel River basin; Mendocino County; rises in the western part of T. 21 N., R. 14 W., Mount Diablo base and meridian, 2 miles southeast of Laytonville; flows northeastward 7 miles to its junction with Eel River (tributary to the Pacific). Punnett's map of Mendocino County.

Burns Canyon Creek; San Bernardino County; rises in the northeastern part of T. 1 N., R. 3 E., San Bernardino base and meridian, at altitude 6,000 feet above sea level; flows southeastward 6 miles into Pipes Creek, which discharges through Antelope Creek to the Colorado Desert; intermittent. San Gorgonio sheet.

Burnside Lake; Alpine County; about 6 miles north of west from Markleeville; a small, marshy lake; no outlet mapped; altitude, about 8,200 feet. Markleeville sheet.

Burnt Mill Creek; Mohave River basin; San Bernardino County; rises in the south-central part of T. 2 N., R. 3 W., San Bernardino base and meridian, at altitude 5,700 feet above sea level; flows northward to Little Bear Creek (tributary to Deep Creek, which discharges to Mohave River); length, 1 mile; fall, 650 feet. Redlands and Deep Creek sheets.

Burr Creek; Humboldt County; rises in the southwestern part of T. 1 N., R. 4 E., Humboldt base and meridian; flows southwestward into Larribee Creek (tributary to Eel River, which discharges to the Pacific); length, 4 miles. Punnett's map of Humboldt County.

Burrow Canyon Creek; San Gabriel River basin; Los Angeles County; rises in the west-central part of T. 2 N., R. 9 W., San Bernardino base and meridian, at altitude 3,000 feet above sea level; flows west of south into San Gabriel River, which discharges to the Pacific; length, 2 miles; fall, 1,600 feet; intermittent. Rock Creek and Pomona sheets.

Butano Creek; San Mateo County; rises in the western part of T. 8 S., R. 3 W., on the west slope of Butano Ridge at altitude 2,000 feet above sea level; flows north of west 5 miles, southwestward 4 miles, then again northwestward 5 miles to its junction with Pescadero Creek (which discharges to the Pacific) just above its mouth; principal tributary, Little Butano Creek. Santa Cruz sheet.

Butano Creek, Little; San Mateo County; rises in the south-central part of T. 8 S., R. 4 W., Mount Diablo base and meridian, at altitude 1,200 feet above sea level; flows southwestward 4 miles, then northwestward 1 mile into Butano Creek (tributary to Pescadero Creek, which discharges to the Pacific); fall, 1,100 feet. Santa Cruz sheet.

Butler Creek; Siskiyou County; rises in the east-central part of T. 11 N., R. 6 E., Humboldt base and meridian, on the east slope of Orleans Mountains; flows, in general, somewhat north of east to its junction with Salmon River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Siskiyou County.

Butte Creek; Lassen County; rises in Lake Bidwell in the north-central part of T. 31 N., R 6 E.; flows northward about 7 miles; sinks in the region west of Poison Lake. Lassen Peak sheet (on which it is not named) and Starkweather's map of Lassen County.

Butte Dry Lake; Kern County; T. 11 N., R. 9 W., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Butte Lake. *See* Bidwell Lake.

Cabin Creek; Monterey County; rises in the northwestern part of T. 26 S., R. 9 E., Mount Diablo base and meridian; flows northeastward into Franklin Creek (tributary through Sierra River to Salinas River, which discharges to the Pacific in Monterey Bay); length, about 6 miles. Land Office map of California, 1907.

Cable Canyon Creek; Santa Ana River basin; San Bernardino County; rises in the central part of T. 2 N., R. 5 W., San Bernardino base and meridian, at altitude 5,000 feet above sea level; flows southward and southwestward and enters the valley at an altitude of about 2,200 feet above sea level. San Bernardino sheet.

Cachuma Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of Cachuma Mountain, at altitude 4,000 feet above sea level; flows west of south 10 miles to its junction with Santa Ynez River, which discharges to the Pacific; fall, 3,500 feet; intermittent. Santa Ynez sheet.

Cadiz Dry Lake; San Bernardino County; Tps. 2 and 3 N., Rs. 14, 15, and 16 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Cajalco Canyon Creek; Riverside County; an intermittent stream, 4 miles long, flowing westward into Temescal Wash (tributary to Santa Ana River, which discharges to the Pacific) 5 miles southeast of Corona. Elsinore sheet.

Cajon Canyon Creek; Santa Ana River basin; San Bernardino County; drains the area lying east of north of Lytle Creek; comes to the west end of San Bernardino Valley, and except in years of great rainfall, when it turns a point of mountain adjoining Lytle Creek, it seldom flows farther than the upper edge of the great plain. Its drainage area comprises 62 square miles, nearly one-third of it draining to Lone Pine Canyon. Hesperia, San Antonio, and San Bernardino sheets; Hall, Wm. Ham., Irrigation in California [southern]: Second part of the report of the State Engineer of California on irrigation and the irrigation question, Sacramento, 1888, p. 123.

Calabazas Creek; Guadalupe River basin; Santa Clara County; a stream rising in the southeastern part of T. 7 S., R. 2 W., Mount Diablo base and meridian, flowing northeastward, and discharging to Guadalupe Slough, the channel through which Guadalupe River enters San Francisco Bay. Santa Cruz and San Jose sheets.

Calabazas Creek; Sonoma Creek basin; Sonoma County; rises in the southeastern part of T. 7 N., R. 6 W., Mount Diablo base and meridian, at altitude about 1,500 feet above sea level; takes a general southwesterly course to its junction with Sonoma Creek (tributary to San Pablo Bay) in the central part of T. 6 N., R. 6 W.; length, about 4 miles. Napa sheet.

Calaveras Creek; Alameda Creek basin; Santa Clara and Alameda counties; rises in T. 6 S., R. 2 E., Mount Diablo base and meridian, on the west slope of Poverty Ridge, at altitude 3,000 feet above sea level; takes a general northwesterly course to its junction with Alameda Creek, which discharges to San Francisco Bay; length, about 8 miles; fall, 2,500 feet; principal tributary, Arroyo Hondo; intermittent through Calaveras Valley. Mount Hamilton, San Jose, and Pleasanton sheets.

Calera Creek; Santa Clara County; rises in T. 5 S., R. 1 E., Mount Diablo base and meridian, on the south slope of Monument Peak, at altitude 2,200 feet above sea level; flows southwestward about 4½ miles to its junction with Penitencia Creek (tributary to Coyote River, which discharges to San Francisco Bay). San Jose sheet.

Calera Valley Creek; San Mateo County; an intermittent stream, about 2 miles long, rising on the western slope of Sweeney Ridge, in San Pedro Rancho, and flowing westward into the Pacific Ocean. San Mateo sheet.

Caliente Canyon Creek, Little; Santa Barbara County; an intermittent stream, 3 miles long, rising in the Santa Barbara National Forest and flowing southwestward into Mono Creek (tributary to Santa Ynez River, which discharges to the Pacific) about 1 mile above its mouth. Santa Ynez sheet.

Callahan Gulch Creek; Alameda County; an intermittent stream, about 3 miles long, rising in the northeastern part of T. 5 S., R. 4 E., Mount Diablo base and meridian, at altitude 2,800 feet above sea level; flows northwestward to Arroyo Mocho (tributary through Arroyo las Positas to Arroyo de la Laguna, and thus to Alameda Creek, which discharges to San Francisco Bay). Tesla sheet.

Calleguas Creek; Ventura County; rises near Santa Susana Pass, north of Chatsworth Peak and south of Rocky Peak; flows westerly and southwesterly to Mugu Laguna, through which it enters the Pacific. The name Calleguas Creek is applied to the stretch below Las Posas; from Somis to Moorpark it is called Arroyo Las Posas; and in Simi Valley, near its head, it takes the name Arroyo Simi; only its flood waters reach the ocean; the principal tributary is Canejo Creek. Camulos and Hueneme sheets.

Cameros Valley Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 2,000 feet above sea level; flows southerly through Bartlett Canyon and Cameros Valley; sinks before reaching the tidal marsh through which this part of Santa Barbara County is drained to the Pacific; length, about 5 miles; tributary, Dry Creek. Goleta special sheet.

Camp Creek; Klamath River basin; Jackson County, Oreg., and Siskiyou County, Cal.; rises in the southern part of T. 40 S., R. 3 E., Willamette meridian, at altitude 5,000 feet above sea level; flows southeastward 8 miles into Klamath River (tributary to the Pacific) in the northern part of T. 47 N., R. 5 W., Mount Diablo base and meridian; fall, 2,600 feet. Ashland and Shasta sheets; Land Office maps of Oregon and California; Punnett's map of Siskiyou County.

Camp Creek; Klamath River basin; Siskiyou and Humboldt counties; rises in the eastern part of T. 13 N., R. 4 E., Humboldt base and meridian; takes an irregular but in general southeasterly course to its junction with Klamath River (tributary to the Pacific) near Orleans, in the extreme northeastern part of T. 10 N., R. 5 E.; length, including major windings, 19 miles. Punnett's map of Siskiyou and Humboldt counties.

Camp Creek; Santa Ana River basin; San Bernardino County; rises in the southwestern part of T. 2 N., R. 1 W., San Bernardino base and meridian; at altitude 6,750 feet above sea level; flows southeastward into Bear Creek (tributary to Santa Ana River, which discharges to the Pacific); length, 1 mile; fall, 3,000 feet; intermittent. Redlands sheet.

Campbell Creek; Guadalupe River basin; Santa Clara County; rises in the southeastern part of T. 8 S., R. 2 W., Mount Diablo base and meridian, on the east slope of Castle Rock Ridge, at altitude 2,800 feet above sea level; flows northward to Congress Springs, then northeastward to Guadalupe Slough, the channel through which Guadalupe River enters San Francisco Bay; principal tributary, San Tomas Aquinas Creek. Santa Cruz and San Jose sheets.

Campbell Creek; Klamath River basin; Humboldt County; rises in the south-central part of T. 7 N., R. 4 E., Humboldt base and meridian; flows northeastward 5 miles into Trinity River (tributary to Klamath River, which

discharges to the Pacific) in the southern part of Hoopa Valley Indian Reservation. Punnett's map of Humboldt County.

Campo Creek; San Diego County; rises in the northern part of T. 17 S., R. 6 E., San Bernardino base and meridian; flows west of south across the Mexican boundary. The stream to which it is tributary is not shown on the available maps and is unknown to the compiler. Cuyamaca sheet.

Camuesa Canyon Creek; Santa Barbara County; an intermittent stream, 5 miles long, rising 1½ miles southeast of Little Pine Mountain and flowing southeastward to Santa Ynez River (tributary to the Pacific), which it reaches only in time of flood. Santa Ynez sheet.

Canada Agua Caliente Creek; San Diego County; rises in the northwestern part of T. 10 S., R. 4 E., San Bernardino base and meridian, at altitude 4,500 feet above sea level; flows southwestward 2 miles; sinks before reaching Agua Caliente Creek (tributary to San Luis Rey River, which discharges to the Pacific); fall, about 1,100 feet; shown on map as perennial stream. Ramona sheet.

Canada Aguanga Creek; San Diego County; rises in extreme northeastern part of T. 10 S., R. 2 E., San Bernardino base and meridian, at altitude 3,100 feet above sea level; flows southeastward to San Luis Rey River (which discharges to the Pacific) at Puerta Cruz; intermittent; length, about 3 miles; fall, 200 feet. Ramona sheet.

Canada Agua Vina Creek; Santa Barbara County; an intermittent stream, 1 mile long, flowing southwestward to the Pacific in Punta de la Concepcion Rancho. Guadalupe sheet.

Canada Arena; Santa Barbara County; northwestern part of La Laguna Rancho; opens southward to Canada los Coches (tributary to San Antonio Creek). Lompoc sheet.

Canada Chiquita Creek; Orange County; an intermittent stream, about 7 miles long, flowing southward and entering San Juan Creek 4 miles northwest of Capistrano. Corona sheet.

Canada de Aliso Creek; Ventura County; an intermittent stream, 3½ miles long, rising on the south slope of Sulphur Mountain and flowing east of south into Canada Larga (tributary to Ventura River, which discharges to the Pacific). Ventura sheet.

Canada de Cojo Creek; Santa Barbara County; an intermittent stream, 3 miles long, flowing west of south into the Pacific 2½ miles east of Concepcion. Lompoc sheet.

Canada de la Brea Creek; Santa Barbara County; an intermittent stream, 2½ miles long, rising in T. 5 N., R. 33 W., San Bernardino base and meridian, and flowing southeastward toward the Pacific just west of Santa Anita. Lompoc sheet.

Canada del Agua Amarga; Santa Barbara County; northwestern part of La Laguna Rancho; opens southward to Canada de los Coches (tributary to San Antonio Creek). Lompoc sheet.

Canada del Agua Caliente Creek; Santa Barbara County; an intermittent stream, 3 miles long, flowing southward and entering the Pacific 1½ miles west of Port Orford. Lompoc sheet.

Canada de la Laguna; Santa Barbara County; a drainage way extending southward from the Purisima Hills to Santa Ynez River, which discharges to the Pacific. Lompoc sheet.

Canada del Aliso Creek; Coyote Creek basin; Alameda County; an intermittent stream, 3½ miles long, flowing south of west into Arroyo de la Laguna, whose basin is tributary to the tidal marsh north of Coyote River (tributary to San Francisco Bay). Pleasanton sheet.

Canada de la Posta Creek; Santa Barbara County; an intermittent stream, rising in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, and flowing southward into the Pacific 1½ miles east of Alcatraz. Lompoc sheet.

Canada de la Puente; San Antonio Creek basin; Santa Barbara County; southern part of La Laguna Rancho; opens northward to Arroyo de los Alamos. Lompoc sheet.

Canada de las Cruces Creek; Santa Barbara County; a drainage way extending southward from the east end of the Santa Rosa Hills to Gaviota Creek at Las Cruces. Lompoc sheet.

Canada de las Calaveras; Santa Barbara County; southeastern part of Los Alamos Rancho; extends northward to Los Alamos Valley (drained by San Antonio Creek, which discharges to the Pacific) at the city of Los Alamos. Lompoc sheet.

Canada de las Encinas Creek; Santa Maria River basin; Santa Barbara County; western part of Sisquoc Rancho; an intermittent stream, 2 miles long, flowing southwestward to the valley of Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Canada de las Encinas Creek; Ventura River basin; Ventura County; an intermittent stream, 1 mile long, flowing westward into Ventura River. (tributary to the Pacific) 1 mile below the mouth of Canada Larga Creek. Ventura sheet.

Canada de las Flores; Santa Barbara County; western part of Los Alamos Rancho; opens southeastward to Los Alamos Valley (drained by San Antonio Creek, which discharges to the Pacific) near Careaga. Lompoc sheet.

Canada de las Llagas Creek; Santa Barbara County; an intermittent stream, 3 miles long, flowing southward to the Pacific in the central part of Canada del Corral Rancho. Lompoc sheet.

Canada de la Vina; Santa Barbara County; a drainage way in T. 6 N., R. 23 W., San Bernardino base and meridian, extending northwestward from the Santa Rosa Hills to Santa Ynez River, which discharges to the Pacific. Lompoc sheet.

Canada del Capitan Creek; Santa Barbara County; an intermittent stream, 5 miles long, rising in the Santa Barbara National Forest on the south slope of the Santa Ynez Mountains, and flowing west of south into the Pacific near Capitan. Lompoc sheet.

Canada del Cierbo Creek; Contra Costa County; an intermittent stream, 2 miles long, rising in the northwestern part of Canada del Hambre and flowing northwestward to the east end of San Pablo Bay. Carquinez sheet.

Canada del Comasa; Santa Barbara County; southeastern part of La Laguna Rancho; opens southwestward to Arroyo de los Alamos (draining to San Antonio Creek, which discharges to the Pacific). Lompoc sheet.

Canada del Corral Creek; Santa Barbara County; an intermittent stream, 3 miles long, rising in the Santa Barbara National Forest on the south slope of the Santa Ynez Mountains, and flowing southward to the Pacific west of Capitan. Lompoc sheet.

Canada del Diablo; Ventura County; rises on the south slope of Red Mountain in Canada de San Miguelito Rancho, at altitude 1,750 feet above sea level; flows southeasterly into Ventura River (which discharges to the Pacific) 1½ miles northwest of the city of Ventura; length, 4½ miles; fall, 1,700 feet; intermittent. Ventura sheet.

Canada del Dorindo Creek; Santa Clara County; rises in the northern part of T. 10 S., R. 5 E., Mount Diablo base and meridian; flows southeastward into Pacheco Creek (tributary to Pajaro River, which discharges to the Pacific in Monterey Bay); length, about 7 miles. Land Office map of California, 1907.

Canada del Gato Creek; Santa Barbara County; an intermittent stream, 2 miles long, flowing southward into the Pacific near Gato station. Lompoc sheet.

Canada del Gato Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 4 miles long, rising on the north slope of the Lompoc Hills, in T. 9 N., R. 32 W., San Bernardino base and meridian, and flowing northwestward and east of north toward the valley of Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Canada del Molino Creek; Santa Barbara County; an intermittent stream rising in the Santa Barbara National Forest, 1½ miles east of Gaviota Peak, and flowing southward into the Pacific; 2 miles long. Lompoc sheet.

Canada de los Alamos Creek; Ventura and Los Angeles counties; rises in the central part of T. 8 N., R. 19 W., San Bernardino base and meridian, at altitude 6,000 feet above sea level; flows southeastward 12 miles to its junction with Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); fall, 3,700 feet; intermittent; principal tributary, Maxy Canyon Creek. Tejon sheet.

Canada de los Alisos; Santa Barbara County; receives the drainage of the northeastern part of La Laguna Rancho; extends southwestward from the Solomon Hills toward Arroyo de los Alamos (draining to San Antonio Creek, which discharges to the Pacific). Lompoc sheet.

Canada de los Coches; San Antonio Creek basin; Santa Barbara County; northern part of La Laguna Rancho; opens southward to Arroyo de los Alamos (draining to San Antonio Creek, which discharges to the Pacific); tributaries, Canada del Agua Amarga, and Canada Arena. Lompoc sheet.

Canada de los Coches; Santa Maria River basin; Santa Barbara County; an intermittent stream, 2½ miles long, rising on the southern slope of Los Coches Mountain and flowing southwestward to Cuyama River (Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Canada de los Ladrones Creek; Santa Barbara County; an intermittent stream, 1 mile long, flowing southwestward to the Pacific in Punta de la Concepcion Rancho. Guadalupe sheet.

Canada de los Palos Blancos; Santa Barbara County; a drainage way extending southward from the Purisima Hills to Santa Ynez River, which discharges to the Pacific. Lompoc sheet.

Canada de los Sauces Creek; Santa Barbara County; an intermittent stream, about 1 mile long, flowing southwestward toward the Pacific in Punta de la Concepcion Rancho. Guadalupe sheet.

Canada del Refugio Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 1,500 feet above sea level; flows west of south toward the Pacific Ocean at Orella; length, about 5 miles. Lompoc sheet.

Canada del Rodeo Creek; Santa Barbara County; an intermittent stream, 1 mile long, flowing southwestward to the Pacific in Punta de la Concepcion Rancho. Guadalupe sheet.

Canada de Rodriguez Creek; Ventura County; an intermittent stream, 2½ miles long, rising on the east slope of Red Mountain, at altitude 1,950 feet above sea level; flows southeastward to Ventura River, which discharges to the Pacific; fall, 1,800 feet. Ventura sheet.

Canada de San Joaquin Creek; Ventura County; an intermittent stream, 1½ miles long, flowing westward into Ventura River (which discharges to the Pacific) 2 miles north of the city of Ventura. Ventura sheet.

Canada de Santa Anita Creek; Santa Barbara County; an intermittent stream, about 4 miles long, rising in T. 5 N., R. 33 W., San Bernardino base and

meridian, and flowing eastward and then southward toward the Pacific at Santa Anita. Lompoc sheet.

Canada de Santa Rosa; Santa Barbara County; southeastern part of Los Alamos Rancho; opens northward to Los Alamos Valley (draining to San Antonio Creek, which discharges to the Pacific), west of the city of Los Alamos. Lompoc sheet.

Canada de Santa Ynez; Santa Barbara County; southwestern part of La Laguna Rancho; opens northward to Arroyo de los Alamos (draining to San Antonio Creek, which discharges to the Pacific). Lompoc sheet.

Canada el Jolloru Creek; Santa Barbara County; an intermittent stream, 2 miles long, flowing southwestward toward the Pacific near Sudden station. Guadalupe sheet.

Canada el Morida Creek; Santa Barbara County; an intermittent stream, 2 miles long, flowing southwestward toward the Pacific one-half mile northwest of Sudden station. Guadalupe sheet.

Canada Gubernadora Creek; Orange County; an intermittent stream, 8 miles long, flowing into San Juan Creek 5 miles northwest of Capistrano. Corona sheet.

Canada Honda Creek; Santa Barbara County; rises on the west slope of the Lompoc Hills, at altitude 1,200 feet above sea level; flows north of west to the point at which it enters the Pacific near Point Pedernales; length, about 8 miles. Guadalupe sheet.

Canada Laguna Seca; Santa Barbara County; southern part of Los Alamos Rancho; opens northward to Los Alamos Valley (draining to San Antonio Creek, which discharges to the Pacific) 2½ miles west of the city of Los Alamos. Lompoc sheet.

Canada Larga Creek; Ventura County; rises in Ex Mission San Buenaventura Rancho at altitude 1,250 feet above sea level; flows northwestward 2 miles, then southwestward 5 miles to its junction with Ventura River (tributary to the Pacific); fall, 1,100 feet; tributaries draining Sulphur, Coche, and Leon canyons, Canada de Aliso and Canada Seca. Santa Paula and Ventura sheets.

Canada Omentero Creek; Santa Barbara County; an intermittent stream, 1½ miles long, rising on the south slope of Gaviota Peak and flowing southward into the Pacific at Alcatraz. Lompoc sheet.

Canada Salada. *See* Oso Creek.

Canada San Onofre Creek; Santa Barbara County; an intermittent stream, 2 miles long, rising on the east slope of Gaviota Peak, in the Santa Barbara National Forest, and flowing southward into the Pacific. Lompoc sheet.

Canada Seca Creek; Ventura County; an intermittent stream, about 1 mile long, flowing northwestward into Canada Larga (tributary to Ventura River, which discharges to the Pacific) opposite and below the mouth of Canada de Aliso Creek. Ventura sheet.

Canada Verde Creek; Coyote River basin; Santa Clara County. *See* San Felipe Creek.

Canada Verde Creek; San Luis Rey River basin; San Diego County; rises in the central part of T. 10 S., R. 4 E., San Bernardino base and meridian, at altitude 5,800 feet above sea level; flows southwestward to the western border of San Jose Del Valle, where it sinks; length, about 5 miles; fall, 2,700 feet. The basin is a part of that drained by Agua Caliente Creek (tributary to San Luis Rey River, which discharges to the Pacific). Shown on the map as a perennial stream. Ramona sheet.

Canada Verde Creek; San Mateo County; a stream about 2 miles long, rising in T. 6 S., R. 5 W., Mount Diablo base and meridian, and flowing westward into the Pacific near Miramontes Point. Santa Cruz sheet.

Canadian Creek; Klamath River basin; Trinity County; rises in the northern part of T. 4 N., R. 7 E., Humboldt base and meridian; flows northeastward 3 miles into Trinity River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Canejo Creek; Ventura County; rises in the eastern part of El Canejo Rancho; takes a very irregular but in general southwesterly course to its junction with Calleguas Creek in Rio de Santa Clara Rancho; intermittent; principal tributaries, North Fork and Arroyo Santa Rosa. Camulos and Hueneme sheets.

Canejo Creek, North Fork; Ventura County; rises in the northern part of El Canejo Rancho and flows south of west 4 miles into Arroyo Canejo (tributary to Calleguas Creek, which discharges to the Pacific); intermittent. Camulos sheet.

Cannon Creek; Siskiyou County; rises in a small lake in the north-central part of T. 43 N., R. 12 W., Mount Diablo base and meridian; flows in general northward 2½ miles, northeastward 4 miles, and eastward 3 miles to its junction with Scott River through which it is tributary to Klamath River (tributary to the Pacific). Punnett's map of Siskiyou County.

Canoe Creek; Humboldt County; rises in the west-central part of T. 2 S., R. 2 E., Humboldt base and meridian; flows in general north of east into South Fork of Eel River (tributary to Eel River and thus to the Pacific); length, about 4 miles. Punnett's map of Humboldt County.

Canon Creek; Humboldt County; rises in the north-central part of T. 5 N., R. 3 E., Humboldt base and meridian; flows northwestward 4 miles, then southwestward 3 miles into Mad River (tributary to the Pacific). Punnett's map of Humboldt County.

Canon Creek; Trinity County; rises in the western part of T. 36 N., R. 10 W., Mount Diablo base and meridian, on the southeast slope of Thompson Peak; takes a general southerly course to the northeastern part of T. 33 N., R. 11 W., where it enters Trinity River (tributary to Klamath River, which discharges to the Pacific); length, about 18 miles; principal tributaries, Bear Creek, Little East Fork of Canon, East Fork, and Gwin Gulch Creek; in the southwestern part of T. 36 N., R. 10 W., passes through two lakes which are connected by a short southward-flowing stream. Punnett's map of Trinity County.

Canon Creek, East Fork; Trinity County; rises in the south-central part of T. 35 N., R. 10 W., Mount Diablo base and meridian; flows westward into Canon Creek (tributary to Trinity River and thus to Klamath River, which discharges to the Pacific); length, 3 miles. Punnett's map of Trinity County.

Canon Creek, Little East Fork; Trinity County; rises in the central part of T. 35 N., R. 11 W., Mount Diablo base and meridian; flows southwestward 2 miles, then westward three-fourths mile into Canon Creek (tributary through Trinity River to Klamath River, which discharges to the Pacific) at Dedrick. Punnett's map of Trinity County.

Canton Canyon Creek; Los Angeles and Ventura counties: rises in the southwestern part of T. 6 N., R. 17 W., San Bernardino base and meridian, 1 mile northeast of Whitaker Peak, at altitude 3,500 feet above sea level; flows in general southwestward to its junction with Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); length, about 6 miles; fall, 2,300 feet. Tejon sheet.

Canyon Creek, Big; Ventura River basin; Ventura County; an intermittent stream, 1½ miles long, rising on the north slope of Sulphur Mountain and flowing northeastward into Lion Canyon Creek (tributary through San Antonio Creek to Ventura River) in Upper Ojai Valley. Santa Paula sheet.

Canyon de los Alisos Creek; San Luis Obispo County; an intermittent stream flowing southwestward into Tar Spring Creek (tributary to Arroyo Grande Creek). Arroyo Grande sheet.

Cape Horn Canyon Creek; Los Angeles County; rises in the southern part of T. 2 N., R. 9 W., San Bernardino base and meridian, at altitude 2,750 feet above sea level; flows northeastward into San Gabriel River (tributary to the Pacific); length, about 1½ miles; fall, 1,150 feet; intermittent. Pomona sheet.

Cape Horn Creek; Siskiyou County; rises in the northern part of T. 47 N., R. 6 W., Mount Diablo base and meridian, at altitude 3,000 feet above sea level; flows southeastward 3 miles into Klamath River (tributary to the Pacific); fall, 900 feet. Shasta sheet.

Caribou Creek; San Bernardino County; southern part of T. 3 N., R. 1 E.; an intermittent stream, about 1 mile long, flowing southwestward into Arrastre Flat, Mohave desert. San Gorgonio sheet.

Caribou Lake; Lassen County; northeastern part of T. 30 N., R. 7 E., Mount Diablo base and meridian; one small inlet; no outlet shown on map but contours indicate that the lake may overflow to Susan Creek; altitude, about 6,000 feet. Called Silver Lake on Starkweather's map of Lassen County. Lassen Peak sheet.

Carmen Lake; Mono County; southwestern part of T. 6 N., R. 23 E., Mount Diablo base and meridian; outlet, an intermittent stream flowing west and north to West Walker River (tributary to Walker River, which discharges to Walker Lake); altitude, about 7,175 feet; fall of outlet, about 400 feet. Bridgeport sheet.

Careaga Canyon; Santa Barbara County; central part of Los Alamos Rancho; opens southward to Los Alamos Valley (draining to San Antonio Creek, which discharges to the Pacific) near Careaga. Lompoc sheet.

Carmelo River; Monterey County; rises in the central part of T. 17 S., R. 4 E., Mount Diablo base and meridian; flows northwestward and enters the Pacific in Carmelo Bay, between Point Cypress and Point Carmelo; length, about 25 miles; principal tributaries, Glicko and Garzos creeks. Land Office map of California, 1907.

Carmelocitos River; Monterey County; rises in the southeastern part of T. 18 S., R. 1 E., Mount Diablo base and meridian; flows northeastward to Glicko Creek (tributary to Carmelo River, which discharges to the Pacific in Carmelo Bay); length, about 10 miles. Land Office map of California, 1907.

Carmel River. *See* Carmelo River.

Carneros Creek; Napa County; rises in the southern part of T. 6 N., R. 5 W., Mount Diablo base and meridian, at altitude 1,000 feet above sea level; flows southeastward into Napa River (tributary to San Pablo Bay); length, about 9 miles; intermittent. Napa sheet.

Carpenter Canyon; San Luis Obispo County; southern part of Corral de Piedra Rancho; opens southeastward to Corbett Canyon (tributary to Arroyo Grande Creek). Arroyo Grande sheet.

Carpinteria Creek; Santa Barbara County; rises on the south slope of the Santa Ynez Mountains, at altitude 1,500 feet above sea level; flows southeastward 3 miles, then southwestward 3 miles to Carpinteria, where it enters the Pacific; principal tributaries Sutton Canyon and Gobernador creeks. Ventura and Santa Barbara special sheets.

Carrizo Canyon Creek; San Luis Obispo County; an intermittent stream, 6 miles long, rising in the northeastern part of T. 32 S., R. 18 E., Mount Diablo base and meridian, and flowing southward to Cuyama River (Santa Maria River, which discharges to the Pacific); tributary, Saltos Canyon Creek. McKittrick sheet.

Carrizo Creek; Riverside County; an intermittent stream, about 3 miles long, flowing northward from Dos Palmos Spring toward Dead Indian Creek, which discharges to the Colorado Desert. Indio special map.

Carrizo Creek; San Diego County; rises in the northeastern part of T. 12 S., R. 3 E., San Bernardino base and meridian, in the Santa Ysabel Indian Reservation, at altitude 4,500 feet above sea level; flows northwestward 10 miles to its junction with San Luis Rey River, which discharges to the Pacific; fall, 1,900 feet; intermittent in lower course. Ramona sheet.

Carroll Canyon Creek; San Diego County; rises in the southern part of T. 14 S., R. 2 W., San Bernardino base and meridian, at altitude 800 feet above sea level; flows, in general, somewhat south of west into Soledad Canyon Creek (tributary through Los Penasquitos Canyon Creek to the Pacific); intermittent; length, about 9 miles; fall, 700 feet. La Jolla sheet.

Carroll Creek; Inyo County, Sequoia National Forest; rises on the south slope of Owens Point, at altitude 10,800 feet above sea level; flows north of east 3½ miles, then eastward and southeastward 4½ miles to Owens Lake; fall, 7,200 feet. Mount Whitney and Olancha sheets.

Carson River; Alpine County, Cal., and Douglas County, Nev.; formed in Carson Valley, Nev., by the union of its East and West forks. The East Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises 1 mile west of the west line of T. 6 N., R. 22 E., Mount Diablo base and meridian, at altitude 10,200 feet above sea level; takes an irregular but in general northerly course to a point near Gardnerville, Nev., where it receives West Fork; from this point the course of the river is northward to Empire, Nev., where it turns to the northeast and finally disappears in Carson Sink; length to head of East Fork, including major windings, about 160 miles; length of the East Fork above junction, 52 miles; fall of East Fork above the junction, 5,500 feet; fall of main stream in the 108 miles below the junction, about 900 feet.[1]

Carson Sink, into which the river discharges, lies in Churchill County, Nev., in the northern part of Carson Desert; during the winter and spring it receives a considerable supply of water from both Humboldt and Carson rivers and becomes a shallow, playa lake, 20 to 25 miles long and 14 miles broad. In arid summers the water supply fails and the lake completely evaporates, and as desiccation becomes more intense the salts impregnating the lake beds are brought to the surface and form an efflorescense several inches thick. In October, 1881, the Carson was a broad mud-colored plain covered in places with a white, alkaline crust that looked like patches of snow. In 1908 Carson Sink was mapped by the topographers of the United States Geological Survey as a permanent water body 12 miles long by 12 miles wide, receiving Carson River from the south. The drainage line from Humboldt Lake to the sink was marked as an intermittent river.

The water of the Carson is derived entirely from snowfall and run-off from the mountains. The basin contains no lakes but many ideal reservoir sites are available near the head-waters. These sites have been thoroughly investigated by the United States Reclamation Service and others interested. Several fertile valleys lie along the course of the river and much land is unutilized for lack of water. During the early spring and summer months the river is a raging torrent, but in the late summer the discharge is barely sufficient to supply the irrigation demand. Good power sites are available on both forks of the river.

Gaging stations on East Fork at Silver King Valley (1910–1912) and near Markleeville (1910–1912).

[1] Given as 1,900 feet in Water-Supply Paper U. S. Geol. Survey No. 270.

Authorities: Dardanelles, Markleeville, Carson, Wabuska, and Carson Sink sheets; Water-Supply Paper U. S. Geol. Survey No. 290, 1912, p. 155; No. 270, 1911, p. 137. See also annual reports of United States Reclamation Service.

Carson River, East Fork. *See* Carson River.

Carson River, West Fork; Alpine County, Cal.; and Douglas County, Nev.; rises in Alpine County on the east slope of the Sierra, near the summit of the divide which separates Carson River waters from those flowing to Mokelumne River; flows somewhat east of north 10 miles, eastward through West Carson Canyon 7 miles, then to the northeast and west of north 15 miles to Carson Valley where it unites with the East Fork to form Carson River (tributary to Carson Sink); fall above junction with East Fork, 3,900 feet, of which 3,600 feet is made in the upper 22 miles. The altitudes in this basin are in general lower than those in the basin of the East Fork. Above West Carson Canyon is Hope Valley which affords good reservoir site; water stored at this point could be used to develop a large amount of power in West Carson Canyon. Gaging station at Woodfords (1900–1912). Markleeville sheet; Water-Supply Paper U. S. Geol. Survey No. 290, 1912, p. 155.

Carson Sink. *See* Carson River.

Carthage Creek; Inyo County; Kern National Forest; rises on the east slope of the Sierra at altitude 9,200 feet above sea level; flows eastward to the edge of Owens Valley, where its waters sink; length, about 6 miles; fall, 5,500 feet. Olancha sheet.

Cascade Creek; Eldorado County. *See* Cascade Lake.

Cascade Creek; Santa Cruz and San Mateo counties; an intermittent stream, 2 miles long flowing southwestward toward the Pacific in Punto del Año Nuevo Rancho; sinks in the sands northeast of Año Nuevo Point. Santa Cruz sheet.

Cascade Lake; Eldorado County; southern part of T. 13 N., R. 17 E., Mount Diablo base and meridian; inflowing stream drains several small lakes; outlet, a stream [Cascade Creek?] half a mile long flowing northeastward to Lake Tahoe (outlet, Truckee River to Pyramid and Winnemucca lakes); altitude, about 6,450 feet; fall of outlet, 225 feet; the lake is somewhat more than a mile long and about half a mile wide. Pyramid Peak sheet.

Casitas Creek; Ventura County; an intermittent stream, 2½ miles long, rising in the southwestern part of T. 4 N., R. 24 W. at altitude 1,100 feet above sea level, and flowing westerly into Rincon Creek near Shepards; fall, 900 feet. Ventura sheet.

Caspar River; Mendocino County; rises in the southeastern part of T. 18 N., R. 17 W., Mount Diablo base and meridian; flows southwestward 3 miles, then west and northwest 3 miles to the point at which it enters the Pacific near the town of Caspar. Punnett's map of Mendocino County.

Castac Creek; Los Angeles County; rises in the northern part of T. 7 N., R. 17 W., San Bernardino base and meridian, on the south slope of the Liebre Mountains; flows southeasterly to the head of Castac Valley, then south and west of south to its junction with Santa Clara River 1½ miles southwest of Castac; the crest of the Liebre Mountains, from which the headwater streams flow, is nearly 5,800 feet above sea level; the elevation at the mouth of the stream is about 1,000 feet above sea level; the creek traverses Castac Valley in a broad, sandy wash and delivers water to Santa Clara River (tributary to the Pacific) only during floods; the principal tributary is the stream from Elizabeth Lake Canyon. Tejon and Santa Susana sheets.

Castle Canyon; Ventura County; Santa Barbara National Forest; northwestern part of T. 7 N., R. 23 W., San Bernardino base and meridian; opens westward to Cuyama River (Santa Maria River, which discharges to the Pacific). Mount Pinos sheet.

Castro Canyon Creek; Santa Barbara County; an intermittent stream, 6 miles long, rising in the southeastern part of T. 9 N., R. 26 W., San Bernardino base and meridian, and flowing northward toward Cuyama River (Santa Maria River, which discharges to the Pacific) in Cuyama Valley. Santa Ynez sheet.

Castro Creek; Contra Costa County; a channel in the tidal marsh on the south shore of San Pablo Bay. San Francisco sheet.

Cat Creek; Riverside County; southeastern part of T. 5 S., R. 5 E., San Bernardino base and meridian; an intermittent stream whose flood waters discharge to Dead Indian Creek in the Colorado Desert. Indio special sheet.

Cathedral Canyon; Riverside County; northern part of T. 5 S., R. 5 E., San Bernardino base and meridian; an intermittent stream discharging to Tahquitz Creek, which is tributary through Whitewater River to the Colorado Desert. Indio special sheet.

Cattle Creek; San Gabriel River basin; Los Angeles County; rises in the northwestern part of T. 2 N., R. 7 W., San Bernardino base and meridian, on the southwestern slope of San Antonio Peak, at altitude 8,600 feet above sea level; flows southwestward 5 miles, then westerly 3 miles into San Gabriel River (tributary to the Pacific); fall, 6,700 feet; principal tributaries, Cow Creek and Coldwater Canyon Creek. San Antonio, Cucamonga, and Pomona sheets.

Cattle Creek; Walker Lake basin; Mono County; rises in the central part of T. 3 N., R. 24 E., Mount Diablo base and meridian, on the north slope of Twin Peaks, at altitude 11,100 feet above sea level; flows northeastward 1 mile, then west of north 3 miles into Twin Lakes (outlet, Robinson Creek to East Walker River and thus to Walker River, which discharges to Walker Lake); fall, about 4,000 feet. Bridgeport sheet.

Cayetano Creek; Contra Costa and Alameda counties; rises in Contra Costa County, in the northwestern part of T. 2 S., R. 2 E., Mount Diablo base and meridian, at altitude 1,250 feet above sea level; flows southward to its junction with Arroyo las Positas (tributary through Arroyo de la Laguna to Alameda Creek, which discharges to San Francisco Bay); length, about 7 miles; fall, 800 feet; intermittent; called Arroyo Cavelano on the Mount Diablo sheet. Mount Diablo and Pleasanton sheets.

Cayucos Creek; San Luis Obispo County; rises in the Santa Lucia Mountains, in the southern part of T. 27 S., R. 10 E., Mount Diablo base and meridian; flows southward to Cayucos, on Estero Bay, where it enters the Pacific; length, about 7 miles. Cayucos sheet.

Cayucos Creek, Little; San Luis Obispo County; rises in the central part of T. 28 S., R. 10 E., Mount Diablo base and meridian, at altitude 500 feet above sea level; flows west of south 2½ miles to Cayucos, on Estero Bay, where it enters the Pacific. Cayucos sheet.

Cebada Canyon; Santa Barbara County; a drainage way extending southward through the Purisima Hills toward the valley of Santa Ynez River (tributary to the Pacific) northeast of Mission La Purisima. Lompoc sheet.

Cecil Creek; Siskiyou County; rises in the northwestern part of T. 37 N., R. 11 W., Mount Diablo base and meridian, on the north slope of New River Mountains; flows somewhat east of north to its junction with Salmon River (tributary to Klamath River which flows to the Pacific); length, 3 miles. Punnett's map of Siskiyou County.

Cedar Canyon Creek; Otay River basin; San Diego County; rises in the eastern part of T. 18 S., R. 1 E., San Bernardino base and meridian, on the north slope of Otay Mountain, at altitude 3,000 feet above sea level; flows northward 3 miles, then northwestward 1½ miles; sinks before reaching Dulzura Creek (tributary through Jamul Creek to lower Otay reservoir); fall, 2,300 feet; intermittent. Cuyamaca sheet.

Cedar Creek; Eel River basin; Mendocino County; rises in the south-central part of T. 24 N., R. 16 W., Mount Diablo base and meridian; takes a general southwesterly course to its junction with South Fork of Eel River (tributary to Eel River, which discharges to the Pacific); length, about 8 miles; several small tributaries draining the southern slopes of Red Mountain. Punnett's map of Mendocino County.

Cedar Creek; Klamath River basin; Trinity County; rises in the northeastern part of T. 37 N., R. 7 W., Mount Diablo base and meridian, at altitude 3,800 feet above sea level; flows southeastward to its junction with East Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, 4 miles; fall, about 1,500 feet. Shasta sheet.

Cedar Creek; Mohave River basin; San Bernardino County; rises in the eastern part of T. 2 N., R. 3 W., San Bernardino base and meridian, on the north slope of Heaps Peak, at altitude 6,000 feet above sea level; flows northeast and north into Shake Creek (tributary to Deep Creek, which discharges to Mohave River); length, 1½ miles; fall, 950 feet. Redlands and Deep Creek sheets.

Cedar Creek; San Diego River basin; San Diego County; rises in central part of T. 13 S., R. 4 E., San Bernardino base and meridian, at altitude 4,700 feet above sea level; flows westward and southwestward to its junction with San Diego River (tributary to the Pacific through False Bay); length, about 12 miles; fall, 3,700 feet; principal tributaries, Dehr and Sandy creeks. Ramona and Cuyamaca sheets.

Cedar Creek, Big; Ventura County; an intermittent stream, about 1 mile long, rising in the northern part of T. 6 N., R. 19 W., San Bernardino base and meridian, and flowing northwestward to Snowy Creek (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Centennial Creek; Ventura County; an intermittent stream rising in the southwestern part of T. 5 N., R. 19 W., San Bernardino base and meridian, and flowing southward into Fourfork Creek (tributary through Little Sespe Creek to Sespe Creek and thus to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Centinelia Creek; Los Angeles County; rises near Centinelia; flows northwestward about 4 miles to Mesmer, then southwestward 3 miles to Ballona Lagoon. Redondo sheet.

Cerrito Creek; Alameda County; an intermittent stream, 1½ miles long, flowing westward toward San Francisco Bay along the boundary between Contra Costa and Alameda counties. San Francisco sheet.

Chabot, Lake; Alameda County; east of the city of San Leandro; principal inlet, San Leandro Creek, which flows through the lake and discharges through San Leandro Bay into San Francisco Bay; receives also Grass Creek; dammed at outlet; altitude, 235 feet. Haywards sheet.

Chabot, Lake; Solano County; 2 miles northeast of Vallejo; inlet, Sulphur Springs Creek; outlet, a stream 1½ miles long flowing westward to Napa River. Napa sheet.

Chalona Creek; San Benito and Monterey counties; rises in the southern part of T. 16 S., R. 6 E., Mount Diablo base and meridian; flows eastward about 8 miles, then southeastward, southward and southwestward to Metz, where it joins Salinas River, which discharges to the Pacific in Monterey Bay; length, about 22 miles; principal tributary, a stream rising about 3 miles south of San Benito, flowing southwestward, and joining the creek 3 miles northeast of Metz. Land Office map of California, 1907.

Chariot Canyon Creek; Salton Sink basin; San Diego County; an intermittent stream draining the eastern part of T. 13 S., R. 4 E., and flowing

northwestward to Banner Canyon Creek, through which it discharges to San Felipe Valley; length, about 4 miles. Ramona sheet.

Charlie Canyon Creek; Los Angeles County; an intermittent stream, 7 miles long, rising in the southeastern part of T. 6 N., R. 16 W., San Bernardino base and meridian, on the south slope of Red Mountain, and flowing southwestward to Castac Creek (tributary to Santa Clara River, which discharges to the Pacific) in Castac Valley; fall, 1,900 feet; principal tributary, Bitter Creek. Tejon and Santa Susana sheets.

Cheeseboro Canyon Creek; Ventura and Los Angeles counties; an intermittent stream, 5 miles long, flowing in general southerly to Posita Canyon Creek, which is tributary through Medea Creek to Triunfo Creek and thus through Malibu Creek to the Pacific. Camulos sheet.

Chemise Creek; Mendocino, Humboldt, and Trinity counties; rises in Mendocino County in the northeastern part of T. 24 N., R. 16 W., Mount Diablo base and meridian; flows northeastward and unites with Eel River (tributary to the Pacific) in Trinity County, in the southwestern part of T. 4 S., R. 6 E., Humboldt base and meridian; length, about 10 miles. Punnett's maps of Mendocino, Humboldt, and Trinity counties.

Cheney Creek; Lassen County; rises in the southwestern part of T. 29 N., R. 11 E., Mount Diablo base and meridian, at altitude 5,100 feet above sea level; flows northward into Susan River (tributary to Honey Lake); length, about 4 miles; fall, 700 feet. Honey Lake sheet.

Cherry Creek; Klamath River basin; Klamath County, Oreg.; rises in the western part of the county; flows southeastward and eastward into Sevenmile Creek (tributary through Upper Klamath Lake to Klamath River, which discharges to the Pacific); length, 10 miles; connected with Sevenmile Creek by two channels. Ashland sheet.

Cherry Creek; Klamath River basin; Siskiyou County; rises in the southern part of T. 45 N., R. 8 W., Mount Diablo base and meridian, on the north slope of Forest Mountain; flows in general westward 3 miles, then west of south 7 miles to its junction with Moffitt Creek (tributary through Scott River to Klamath River, which flows to the Pacific); principal tributary, Deadwood Creek. Punnett's map of Siskiyou County. On Land Office map of California, 1907, Cherry Creek is called McAdams Creek.

Cherry Creek; Santa Clara River basin; Ventura County; rises in the southwestern part of T. 6 N., R. 23 W., San Bernardino base and meridian, on Ortega Hill (altitude, 4,970 feet); flows northward into Sepse Creek (tributary to Santa Clara River, which discharges to the Pacific); length, 2½ miles; intermittent. Mount Pinos sheet.

Chihuahua Creek; San Diego County; a westward flowing stream draining portions of Tps. 8 and 9 S., Rs. 2 and 3 E., San Bernardino base and meridian, and discharging into Oak Grove Valley, which is drained by Temecula Creek to Santa Margarita River; altitudes in this basin range from 2,800 feet in the valley to 5,500 feet at the summit of the range. Ramona sheet.

Chileno Canyon Creek; Los Angeles County; rises in the northwestern part of T. 2 N., R. 10 W., San Bernardino base and meridian, at altitude 4,250 feet above sea level; flows southerly 3 miles into West Fork of San Gabriel River (tributary through San Gabriel River to the Pacific); fall, 2,000 feet. Rock Creek and Pomona sheets.

Chiles Creek; Napa County; rises in the southern part of T. 8 N., R. 4 W.; Mount Diablo base and meridian; flows southeastward into Sage Canyon Creek (tributary through Napa River to San Pablo Bay); length, about 1 mile. Napa sheet.

China Dry Lake; Kern and San Barnardino counties; Tps. 25 and 26 S., Rs. 40 and 41 E., Mount Diablo base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, Pl. I, p. 42.

Chino Canyon Creek; Riverside County; T. 4 S., Rs. 3 and 4 E., San Bernardino base and meridian; flows northeastward about 3 miles toward the Colorado. San Jacinto sheet.

Chino Creek; San Bernardino County; rises opposite the opening of San Antonio Canyon; skirts along the extreme southwestern edge of the alluvial deposit of the Cucamonga Plain; is joined by several little spring streams of similar character and by Rincon Mill Creek near its mouth, and joins the Santa Ana (tributary to the Pacific) about half a mile above its canyon through the Coast Range. The creek represents the up-risings at lower points on the Cucamonga Plain of waters that have sunk at the canyon openings along its high northern edge 10 to 15 miles away. Cucamonga and Corona sheets; Irrigation in [southern] California, Sacramento, 1888, p. 126.

Chocolate Creek; San Diego County; rises in the southern part of T. 15 S., R. 2 E., San Bernardino base and meridian, at altitude 1,800 feet above sea level; flows northwestward 3 miles, then east of north 3 miles into San Diego River, which discharges to the Pacific through False Bay; intermittent; fall, 1,100 feet. Cuyamaca sheet.

Chokecherry Creek; Santa Barbara County; rises in the Santa Barbara National Forest, 2 miles northeast of Big Pine Mountain, at altitude 5,500 feet above sea level; flows northeastward into Santa Barbara Canyon Creek (tributary to Cuyama River—Santa Maria River—which discharges to the Pacific); length, 3 miles; fall, 1,700 feet. Santa Ynez sheet.

Cholame Creek; San Luis Obispo County; rises in the southern part of T. 22 S., R. 13 E., Mount Diablo base and meridian, 3 miles southwest of Stone Canyon; flows southeastward 12 miles, then southwestward 6 miles to Shandon, where it unites with San Juan Creek to form Estrella Creek (tributary to Salinas River, which discharges to the Pacific in Monterey Bay); no tributaries named on the map. Land Office map of California, 1907.

Chorro Creek; San Luis Obispo County; rises in the southern part of T. 29 S., R. 12 E., Mount Diablo base and meridian, at altitude 1,250 feet above sea level; flows west of south about 3 miles, northwestward 7 miles, then to the west and south into Morro Bay, through which it enters the Pacific; principal tributaries, Pennington, San Luisito, and San Bernardo creeks. San Luis Obispo and Cayucos sheets.

Cienaga Canyon Creek; Los Angeles County; an intermittent stream, about 2 miles long, flowing southwestward from the Liebre Mountains to Castac Creek (tributary to Santa Clara River, which discharges to the Pacific) near its head. Tejon sheet.

Cienega Creek; San Benito County; rises in the southeastern part of T. 12 S., R. 7 E., Mount Diablo base and meridian; flows west of south 12 miles, then northwestward 2 miles into Tequisquito Slough (tributary through Pacheco Creek to Pajaro River, which discharges to the Pacific in Monterey Bay). Land Office map of California, 1907.

Cienaga Seca Creek; San Bernardino County; rises 2 miles east of the east line of T. 1 N., R. 2 E., San Bernardino base and meridian, at altitude 8,700 feet above sea level; flows northwestward 3 miles, then southwestward 2½ miles, and discharges into Big Meadows near the head of Santa Ana River (tributary to the Pacific); fall, 1,700 feet. San Gorgonio sheet.

Cincas Creek; Santa Clara County; a stream about 5 miles long, joining Guadalupe River (tributary to San Francisco Bay) from the east in the city of San Jose. San Jose sheet.

City Creek; San Bernardino County; rises in the southern part of T. 2 N., R. 3 W., San Bernardino base and meridian, at altitude 5,650 feet above sea level; flows irregularly southward and southwestward into Santa Ana Wash. The basin comprises about 24 square miles and is exceedingly precipitous, for the creek falls about 4,000 feet in 8 miles; the basin is only 2 miles wide in its lower portion, but about halfway up the East Fork joins the main stream and above the fork the basin is fan-shaped. Precipitation is heavy in the upper part of the basin, the creek is subject to great and sudden floods, and its waters annually run through and join the Santa Ana in a surface current. During the flood of 1861–62 the creek cut a new channel parallel with and about 2 miles from Santa Ana River lengthwise through the valley, and joined Warm Creek on the eastern edge of the town of San Bernardino. Redlands sheet; Irrigation in California, by Wm. Ham. Hall, Sacramento, 1888, p. 122.

City Creek, East Fork; San Bernardino County; rises in the southwestern part of T. 2 N., R. 2 W., San Bernardino base and meridian, at altitude 6,150 feet above sea level; flows southwestward about 5 miles to its junction with City Creek (tributary to Santa Ana River); fall, 4,100 feet. Redlands sheet.

Clank Hollow Creek; Solano County; a short intermittent stream rising in the Montezuma Hills and flowing westward toward Montezuma Slough in the tidal marsh on the north side of Suisun Bay. Antioch sheet.

Claremont Creek; Temescal Creek basin; Alameda County; rises in the Berkeley Hills; flows southwestward 2½ miles into Temescal Creek, which discharges to San Francisco Bay. Concord and San Francisco sheets.

Clark Canyon Creek; Mono County; rises in the northeastern part of T. 4 N., R. 25 E., Mount Diablo base and meridian, in Warm Spring Flat, at altitude about 7,400 feet above sea level; flows northwestward 3½ miles into Aurora Canyon Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake); fall, 700 feet. Bridgeport sheet.

Clark Lake; San Diego County; Tps. 9 and 10 S., Rs. 6 and 7 E.; an intermittent water body occupying a depression 542 feet above sea level. Indio special sheet.

Clark Valley Creek, San Luis Obispo County; See Los Osos Creek.

Clarks Creek; Siskiyou County; rises in the eastern part of T. 41 N., R. 10 W., Mount Diablo base and meridian; flows northeastward 6 miles to its junction with Scott River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Siskiyou County.

Clear Creek; Klamath River basin; Klamath County, Oreg.; rises in the southwestern part of the county; flows eastward 6 miles, then southeastward 10 miles into Klamath River (tributary to the Pacific). Ashland sheet.

Clear Creek; Klamath River basin; Siskiyou County; rises in the southern part of T. 17 N., R. 5 E., Humboldt base and meridian, on the east slope of Siskiyou Mountains; flows southwestward 3 miles, southeastward 4 miles, then somewhat south of east 12 miles to its junction wth Klamath River (tributary to the Pacific) in the northwestern part of T. 15 N., R. 7 E.; principal tributaries, Middle Fork, Deep Creek, North Fork, Bowlder Creek, and South Fork. Punnett's map of Siskiyou County.

Clear Creek; Pajaro River basin; San Benito County; rises in the northwestern part of T. 18 S., R. 12 E., Mount Diablo base and meridian, on the west slope of San Benito Peak; flows southwestward into San Benito River (Pajaro River, which discharges to the Pacific); length, about 5 miles. Land Office map of California, 1907.

Clear Creek; San Gregorio Creek basin; San Mateo County; an intermittent stream, 3 miles long, rising in San Gregorio Rancho and flowing west of south

into San Gregorio Creek (which discharges to the Pacific), 2 miles east of San Gregorio; fall, about 700 feet. Santa Cruz sheet.

Clear Creek; San Lorenzo River basin; Santa Cruz County; a stream about 2 miles long, rising on the east slope of Ben Lomond Mountain, in T. 9 S., R. 3 W., Mount Diablo base and meridian, and flowing easterly into San Lorenzo River (tributary to the Pacific) 1 mile below the mouth of Bowlder Creek. Santa Cruz sheet.

Clear Creek, Middle Fork; Siskiyou County; rises in the southern part of T. 17 N., R. 5 E., Humboldt base and meridian, on the east slope of Preston Peak; flows southwestward 7 miles to its junction with Clear Creek (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Clear Creek, North Fork; Siskiyou County; rises in the southeastern part of T. 17 N., R. 5 E., Humboldt base and meridian, on the east slope of Preston Peak; flows in general southeastward to its junction with Clear Creek (tributary to Klamath River, which flows to the Pacific); length, about 9 miles. Punnett's map of Siskiyou County.

Clear Creek, South Fork; Siskiyou County; rises in the eastern part of T. 15 N., R. 5 E., Humboldt base and meridian; flows in general somewhat north of east to its junction with Clear Creek (tributary to Klamath River, which flows to the Pacific); length, 8 miles. Punnett's map of Siskiyou County.

Clear Lake; Modoc County; outlet, Lost River, which discharges to Rhett Lake; a portion of the flood discharge of Willow Creek passes to Clear Lake, but at the same time a large portion of the Willow Creek water passes down Lost River. When the creek falls Clear Lake begins draining into Lost River, discharging through its intake channel. The area of Clear Lake, according to the Land Office surveys, is 9,200 acres; the area of the adjacent swamp is 15,000 acres; the basin above the lake is covered by a sparse growth of pines; the elevation of lake surface is 4,533 feet. Modoc Lava bed sheet; Water-Supply Paper U. S. Geol. Survey No. 146, 1905, p. 98.

Clearwater Creek; Mono County; rises in the northern part of T. 4 N., R. 26 E., Mount Diablo base and meridian, on the south slope of Potato Peak, at altitude 9,700 feet above sea level; takes an irregular, but in general southwesterly course to Mormon Meadow, whence its course is northwestward to Virginia Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake); length, about 12 miles; fall, 2,800 feet; intermittent through upper course. Bridgeport sheet.

Coahuila Creek; Riverside County; Santa Margarita River basin; a southwestward flowing stream draining parts of T. 7 S., Rs. 2 and 1 E., San Bernardino base and meridian; the stream is about 4 miles long and flows toward Wilson Creek (tributary to Temecula Creek, Santa Margarita River, which discharges to the Pacific), but connection between the channels is not clearly shown on the maps. San Jacinto and Ramona sheets.

Coal Canyon Creek; Los Angeles County; an intermittent stream, 2½ miles long, rising in the east-central part of T. 1 S., R. 17 W., San Bernardino base and meridian, and flowing southward into Pacific Ocean. Calabasas sheet.

Coche Canyon Creek; Ventura River basin; Ventura County; an intermittent stream, 2½ miles long, rising on the south slope of Sulphur Mountain and flowing east of south into Canada Larga (tributary to Ventura River, which discharges to the Pacific). Santa Paula and Ventura sheets.

Coffee Creek; Trinity County; rises in the northeastern part of T. 38 N., R. 10 W., Mount Diablo base and meridian, at altitude 6,500 feet above sea level; flows southeastward to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific); length, 16 miles; fall, 4,100

feet, of which 1,500 feet is made in the first 2 miles; principal tributaries, Union Creek, North and East forks of Coffee Creek, Sugarpine, Boulder, and Little Boulder creeks. Gaging station at Coffee (1910–1912). Shasta sheet; Punnett's map of Trinity County.

Coffee Creek, East Fork; Trinity County; rises in the central part of T. 38 N., R. 8 W., Mount Diablo base and meridian, on the west slope of Billy's Peak; flows north of west 2 miles, then west and southwest about 3 miles to its junction with Coffee Creek (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Coffee Creek, North Fork; Trinity County; rises in the central part of T. 39 N., R. 9 W., Mount Diablo base and meridian, at altitude 6,400 feet above sea level; flows in general southeastward to its junction with Coffee Creek (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, 6 miles; fall, 3,600 feet. Shasta sheet.

Coja Creek; Santa Cruz County; a stream about 4 miles long, rising in the northern part of Refugio Rancho and flowing in general southwestward into the Pacific 1 mile north of Table Rock. Santa Cruz sheet.

Cold Creek; Eel River basin; Glenn and Mendocino counties; rises in Glenn County in the northeastern part of T. 21 N., R. 9 W., Mount Diablo base and meridian; flows westward into the South Fork of Middle Fork of Eel River (tributary through Middle Fork of Eel River to Eel River, which discharges to the Pacific); length, about 7 miles. Punnett's map of Mendocino County.

Cold Creek; Eel River basin; Lake County; rises in the south-central part of T. 19 N., R. 8 W., Mount Diablo base and meridian; flows westward into Eel River (tributary to the Pacific); length, 5 miles. Punnett's map of Lake and Mendocino counties.

Cold Creek; Malibu Creek basin; Los Angeles County; rises in the central part of T. 1 S., R. 17 W., San Bernardino base and meridian; winds circuitously westward into Malibu Creek (tributary to the Pacific); length, about 4 miles. Camulos sheet.

Cold Creek; Russian River basin; Mendocino County; rises on the west slope of the Coast Range in the southeastern part of T. 16 N., R. 11 W., Mount Diablo base and meridian; flows northwestward 7 miles to its junction with East Fork of Russian River (tributary through Russian River to the Pacific). Punnett's map of Mendocino County.

Cold Creek; Santa Ana River basin; San Bernardino County; an intermittent stream, about 1 mile long, flowing northward toward Santa Ana River (which discharges to the Pacific) in the central part of T. 1 N., R. 1 W., San Bernardino base and meridian; fall, about 1,700 feet. San Gorgonio sheet.

Cold Creek; Truckee River basin; Placer County; rises in the northern part of T. 16 N., R. 15 E., Mount Diablo base and meridian, at altitude about 8,500 feet above sea level; flows northeastward into Donner Creek (tributary to Truckee River, which discharges to Pyramid and Winnemucca lakes); length, 6 miles; fall, about 2,500 feet. Truckee sheet.

Cold Spring Canyon Creek; San Juan Creek basin; Orange County; an intermittent stream, about 4 miles long, flowing southward and entering San Juan Creek near San Juan Hot Springs; fall, 1,800 feet. Corona sheet.

Cold Spring Canyon Creek; San Mateo Creek basin; San Diego County; rises on the northern slope of the Santa Margarita Mountains, at altitude 2,000 feet above sea level; flows southwestward 2 miles into Devil Canyon Creek (tributary to San Mateo Creek, which discharges into the Pacific); fall, 1,300 feet; intermittent. San Luis Rey sheet.

Cold Spring Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at

altitude 2,750 feet above sea level; flows east of south 5 miles and enters the Pacific near Miramar; intermittent below mouth of canyon; tributaries, East and West forks and Hot Spring Canyon Creek. Santa Barbara special sheet.

Cold Spring Canyon Creek, East Fork; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 2,400 feet above sea level; flows west of south into Cold Spring Canyon Creek, which discharges to the Pacific; length, 1½ miles; fall, 1,500 feet. Santa Barbara special sheet.

Cold Spring Canyon Creek, West Fork; Santa Barbara County; an intermittent stream, 1 mile long, flowing southeastward into Cold Spring Canyon Creek, which discharges to the Pacific. Santa Barbara special sheet.

Coldwater Canyon; Ventura County; a drainage way in the northern part of T. 4 N., R. 20 W., San Bernardino base and meridian, opening northward to Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Coldwater Canyon Creek; Ballona Creek basin; Los Angeles County; an intermittent stream, 3 or 4 miles long, draining a small area in the Santa Monica Mountains, and flowing southward and southeastward into Rodeo de las Aguas Rancho. Near the mouth of its canyon it receives streams draining Franklin and Higgins canyons. Santa Monica sheet.

Coldwater Canyon Creek; Los Angeles River basin; Los Angeles County; rises on the northeast slope of Strawberry Peak, at altitude 5,000 feet above sea level; flows west of north 1½ miles into Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific); fall, 2,100 feet. Tujunga sheet.

Coldwater Canyon Creek; San Gabriel River basin; Los Angeles County; rises in the northwestern part of T. 2 N., R. 7 W., San Bernardino base and meridian, 1 mile west of San Antonio Peak, at altitude 8,750 feet above sea level; takes a general southwesterly course to its junction with Cattle Creek (tributary to San Gabriel River, which discharges to the Pacific); length, about 6½ miles; fall, 6,100 feet. San Antonio and Cucamonga sheets.

Coldwater Canyon Creek; Santa Ana River basin; San Bernardino County; rises in northeastern part of T. 2 N., R. 7 W., San Bernardino base and meridian, at altitude 6,750 feet above sea level; flows northeastward 3 miles into North Fork of Lytle Creek (tributary through Lytle Creek to Santa Ana River, which discharges to the Pacific); fall, 1,650 feet. San Antonio sheet.

Coldwater Canyon Creek; Santa Ana River basin; Riverside County; rises on the north slope of Santiago Peak at altitude 4,500 feet above sea level; flows northeastward into the valley of Temescal Creek (tributary to Santa Ana River, which discharges to the Pacific) at Hot Sulphur Springs. Corona and Elsinore sheets.

Coldwater Fork; Santa Clara River basin; Ventura County; rises in the eastern part of T. 6 N., R. 20 W., San Bernardino base and meridian, at altitude 6,000 feet above sea level; flows southwestward into Hot Springs Creek (tributary through Sespe Creek to Santa Clara River, which discharges to the Pacific); length, 4 miles; fall, 3,500 feet. Tejon sheet.

Coleman Creek; San Diego County; rises in the northern part of T. 13 S., R. 4 E., San Bernardino base and meridian, at altitude 4,300 feet above sea level; flows northwestward to its junction with San Diego River (tributary to the Pacific); length, about 6 miles; fall, 1,200 feet. Ramona sheet.

Colemans Creek; Sonoma County; rises in the southern part of T. 7 N., R. 10 W., Mount Diablo base and meridian, near Camp Meeker; takes a general course south of west to its junction with Salmon Creek (tributary to the Pacific); length, 6 miles. Punnett's map of Sonoma County.

Collier Canyon Creek; Contra Costa and Alameda counties; an intermittent stream, 4½ miles long, rising in the northeastern part of T. 2 S., R. 1 E., Mount Diablo base and meridian, and flowing east of south to Arroyo las Positas (tributary through Arroyo de la Laguna to Alameda Creek, which discharges to San Francisco Bay) near the eastern end of Livermore Valley; fall, about 500 feet. Mount Diablo and Pleasanton sheets.

Collins Creek; Siskiyou County; rises in the northwestern part of T. 45 N., R. 9 W., Mount Diablo base and meridian; flows northwestward into Klamath River (tributary to the Pacific); length, about 5 miles. Punnett's map of Siskiyou County.

Colorado Creek; Santa Clara County; rises in the southwestern part of T. 5 S., R. 5 E., Mount Diablo base and meridian; flows in general northwestward to its junction with Arroyo del Valle (tributary through Arroyo de la Laguna to Alameda Creek, which discharges to San Francisco Bay) in the northeastern part of T. 5 S., R. 3 E.; length, about 12 miles. Mount Hamilton sheet. Called Bayo Creek, North Fork, on Land Office map of California, 1907.

Colorado River; formed in the southeastern part of Utah by the junction of Grand and Green rivers. From this junction it flows in general southwestward, passes across the northwestern corner of Arizona, then turns to the south and for the remainder of its course forms a part of the southeastern boundary of Nevada and California and the western boundary of Arizona. It discharges into the Gulf of California about 60 miles below Yuma. The river receives few tributaries from California.

The Imperial Canal diverts water from the Colorado at a point about 10 miles by river below Yuma to irrigate land in the Imperial Valley.[1]

Gaging stations at Yuma, Ariz. (1891–1912); near Mohave, Ariz. (1902–3); at Hardyville, Ariz. (1905–1907).

Authority: Water-Supply Paper U. S. Geol. Survey No. 300, pp. 33–34.

Colson Fork; Santa Barbara County; an intermittent stream, 3½ miles long, rising in the San Rafael Mountains, in the northeastern part of T. 10 N., R. 32 W., San Bernardino base and meridian, and flowing southwestward into Tepusquet Creek (tributary through Sisquoc River to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Colt Canyon Creek; San Luis Obispo County; rises in the northwestern part of T. 29 S., R. 14 E., Mount Diablo base and meridian; flows westward into Salinas River, which discharges to the Pacific in Monterey Bay; about 4 miles long. Land Office map of California, 1907.

Compton Creek; Los Angeles County; rises west of Los Angeles River, about 4 miles west of Downey; flows southwestward into Wilmington Lagoon. Downey sheet.

Conejos Creek; San Diego County; rises in eastern part of T. 14 S., R. 3 E., San Bernardino base and meridian, on the west slope of Cuyamaca Peak at altitude 4,500 feet; flows westward 2 miles, then southwestward 4 miles into South Fork of San Diego River (tributary to San Diego River, which discharges to the Pacific through False Bay); intermittent; fall, 2,800 feet. Cuyamaca sheet.

Conley Creek; Humboldt County; rises in the eastern part of T. 2 S., R. 5 E., Humboldt base and meridian; flows southwestward 4 miles, then southward 2 miles into Dobbin Creek (tributary to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Conn Creek; Napa County; rises in Rancho La Jota; takes a general southeasterly course and, in times of flood, unites with Napa River (tributary to

[1] See also Salton Sink, pp. 178–179.

San Pablo Bay); length, about 13 miles; principal tributaries Sage Canyon and Rector Canyon creeks; intermittent. Napa sheet; Punnett's map of Napa County.

Coolgardie Dry Lake; San Bernardino County; T. 13 S., Rs. 46 and 47 E., Mount Diablo base and meridian. Water-Supply Paper U. S. Geol Survey No. 224, Pl. I, and p. 58.

Coon Canyon Creek; San Luis Obispo County; rises in T. 31 S., R. 11 E., Mount Diablo base and meridian, in the San Luis Range, at altitude 1,200 feet above sea level; flows somewhat north of west to Pecho y Islay Rancho, where it enters the Pacific. Port Harford and Cayucos sheets.

Coon Creek; Eel River basin; Del Norte County; rises in the northwestern part of T. 16 N., R. 3 E., Humboldt base and meridian; flows northwestward 1 mile, then in general southwestward 8 miles to its junction with South Fork of Smith River (tributary to Smith River, which flows to the Pacific). Punnett's map of Del Norte County.

Coon Creek; Santa Ana River basin; San Bernardino County; rises one-half mile east of the east line of T. 1 N., R. 2 E., San Bernardino base and meridian, at altitude 8,000 feet above sea level; flows north of west 4 miles and discharges into Big Meadows near the head of Santa Ana River (tributary to the Pacific); fall, 800 feet; intermittent. San Gorgonio sheet.

Cooskie Creek; Humboldt County; rises in the western part of T. 3 S., R. 2 W., Humboldt base and meridian; flows northwestward, westward, and southwestward to the point at which it enters the Pacific; length 4 miles. Punnett's map of Humboldt County.

Copeland Creek; Sonoma County; rises in the eastern part of Cotati Rancho; flows north of west 5 miles to its junction with Robert Crane Creek (tributary through Laguna de Santa Rosa to Santa Rosa Creek, Russian River, and the Pacific). Punnett's map of Sonoma County.

Coppell Creek; Humboldt County; rises in the eastern part of T. 11 N., R. 3 E., Humboldt base and meridian; flows southwest and south to its junction with Klamath River (tributary to the Pacific); length, 4 miles. Punnett's map of Trinity County.

Copper Creek; Trinity County; rises in the central part of T. 37 N., R. 7 W., Mount Diablo base and meridian, at altitude 4,000 feet above sea level; flows in general south of west to its junction with Trinity River (tributary through Klamath River to the Pacific); length, 3 miles; fall, 1,600 feet. Shasta sheet.

Copper Rock Canyon Creek; Lake County; rises in the north-central part of T. 18 N., R. 8 W., Mount Diablo base and meridian, on the west slope of Mount St. John; flows somewhat south of west to its junction with Eel River (tributary to the Pacific); length, about 6 miles. Punnett's map of Lake and Mendocino counties.

Corbett Canyon; San Luis Obispo County; southern part of Corral de Piedra Rancho; opens southwestward to Arroyo Grande Valley at Arroyo Grande. This canyon is followed by the Pacific Coast Railroad. Arroyo Grande sheet.

Cordelia Slough; Solano County; in the marsh on the north side of Suisun Bay; winds southward from the mouth of Green Creek near Cordelia to Suisun Creek Slough. Napa sheet.

Cordilleras Creek; San Mateo County; an intermittent stream rising in Pulgas Rancho and flowing northeastward to the tidal marsh at the southern end of San Francisco Bay. Santa Cruz sheet.

Cordonices Creek; Alameda County; an intermittent stream, about 2 miles long, flowing westward to the tidal marsh on the east shore of San Francisco Bay, just north of Berkeley. San Francisco sheet.

Corkscrew Creek; a channel in the tidal marsh in the southern end of San Francisco Bay between Steinberger and Redwood creeks. Haywards sheet.

Corral Canyon Creek; Los Angeles County; an intermittent stream, about 3 miles long, rising on the southern slope of Santa Monica Mountains in T. 1 S., R. 18 W., San Bernardino base and meridian, and flowing southward into the Pacific Ocean. Camulos sheet.

Corral Canyon Creek; Santa Maria River basin; Ventura County; an intermittent stream, 4 miles long, rising in the Santa Barbara National Forest, in the southwestern part of T. 8 N., R. 23 W., San Bernardino base and meridian, and flowing southwestward into Cuyama River (Santa Maria River, which discharges to the Pacific). Mount Pinos sheet.

Corral de Piedra Creek; San Luis Obispo County; formed near Asphalt Mines, in Corral de Piedra Rancho, by the union of the East and West forks. East Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises on the western slope of the Santa Lucia Mountains, in Corral de Piedra Rancho, and flows southwesterly to the point of junction with the West Fork; below the forks the creek flows southward to Pismo Creek, which discharges to the Pacific; length below the forks, about one-half mile; length to head of East Fork, 6 miles; principal tributary of East Fork, Villa Creek. Arroyo Grande sheet.

Corral de Piedra Creek, West Fork; San Luis Obispo County; rises on the western slope of the Santa Lucia Range, west of Piney ridge, at altitude 2,250 feet above sea level; flows southwestward about 6½ miles to Asphalt Mines, where it unites with East Fork to form Corral de Piedra Creek (tributary to Pismo Creek, which discharges to the Pacific); fall, about 2,000 feet. San Luis Obispo and Arroyo Grande sheets.

Corralillas Creek; Santa Barbara County; an intermittent stream, rising in the southern part of Guadalupe Rancho, north of Mount Lospe; flows northwestward, westward, and eastward into Santa Maria Valley (drained by Santa Maria River, which discharges to the Pacific) 2 miles northwest of Guadalupe Lake. Guadalupe sheet.

Corte de Madero Creek; San Mateo County; a stream about 3 miles long, rising in El Corte de Madero Rancho, and flowing northwestward into Searsville Lake, which discharges through San Francisquito Creek to San Francisco Bay. Santa Cruz and Palo Alto sheets.

Corte Madera Creek; Marin County; rises near the western boundary of Canada de Herrera Rancho; flows southeastward into San Francisco Bay, which it enters just above San Quentin. Tamalpais sheet; Punnett's map of Marin County.

Cotteneva Creek; Mendocino County; rises in the southeastern part of T. 23 N., R. 18 W., Mount Diablo base and meridian; flows southwestward 2 miles, east of south about 3 miles, then turns abruptly and flows southwestward one-half mile into the Pacific at Rockport Landing; principal tributary, South Fork, Punnett's map of Mendocino County.

Cotteneva Creek, South Fork; Mendocino County; rises in the western part of T. 22 N., R. 17 W., Mount Diablo base and meridian; flows southwestward about 2½ miles to Rockport, where it joins Cotteneva Creek, through which it is tributary to the Pacific. Punnett's map of Mendocino County.

Cottontail Creek; San Luis Obispo County; rises in T. 28 S., R. 10 E., Mount Diablo base and meridian, at altitude about 500 feet above sea level; flows southeastward 3 miles into Old Creek, which discharges to the Pacific through Estero Bay. Cayucos sheet.

Cottonwood Canyon Creek; Carson Sink basin; Alpine County; rises about 4 miles northeast of Markleeville, at altitude 7,400 feet above sea level; flows

northeastward 2 miles, then northwestward 2 miles into East Fork of Carson River (tributary through Carson River to Carson Sink); fall, 2,200 feet; intermittent. Markleeville sheet.

Cottonwood Canyon Creek; Mono Lake basin; Mono County; rises in the central part of T. 4 N., R. 27 E., Mount Diablo base and meridian, 1 mile south of Bodie, at altitude 8,400 feet above sea level; flows southward 6 miles; sinks before reaching Mono Lake to which its basin is tributary; fall, about 1,800 feet. Bridgeport sheet.

Cottonwood Canyon Creek; San Jacinto River basin; Riverside County; an intermittent stream, 3 miles long, flowing northwestward to the south end of Railroad Canyon—the old gorge through which the waters of the San Jacinto River occasionally flow to Elsinore Lake. *See* San Jacinto River. Elsinore sheet.

Cottonwood Canyon Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 8 miles long, rising in the southwestern part of T. 10 N., R. 28 W., San Bernardino base and meridian, and flowing northward to Cuyama River (Santa Maria River, which discharges to the Pacific). Santa Ynez and McKittrick sheets.

Cottonwood Creek; Alameda Creek basin; Contra Costa and Alameda counties; an intermittent stream, 5 miles long, rising in the eastern part of T. 2 S., R. 1 E., Mount Diablo base and meridian, at altitude 900 feet above sea level; flows in general southward to Arroyo las Positas (tributary through Arroyo de la Laguna to Alameda Creek, which discharges into San Francisco Bay); fall, about 500 feet; flows through Doolan Canyon. Mount Diablo and Pleasanton sheets.

Cottonwood Creek; Alkali Lake basin; Modoc County; rises on the east slope of Warner Mountains, 3 miles northeast of Warren Peak, at altitude 6,000 feet above sea level; flows north of east 5 miles into Middle Alkali Lake; fall, 1,300 feet. Alturas sheet.

Cottonwood Creek; Antelope Valley basin; Kern County; rises on the north slope of Tehachapi Mountains in T. 10 N., R. 16 W., San Bernardino base and meridian, at altitude about 6,000 feet above sea level; flows east and southeast into Antelope Valley; the most important stream flowing into Antelope Valley from the Tehachapi Range. Water-Supply Paper U. S. Geol. Survey No. 278, 1911, p. 13 and Pl. VI; Tejon sheet.

Cottonwood Creek; Klamath River basin; Jackson County, Oreg., and Siskiyou County, Cal.; rises in the central part of T. 40 S., R. 1 E., Willamette meridian, on the eastern slope of Siskiyou Peak, at altitude 5,400 feet above sea level; flows southeastward 14 miles to its junction with Klamath River (tributary to the Pacific) in Siskiyou County, Cal., in the southern part of T. 47 N., R. 6 W., Mount Diablo base and meridian; fall, 3,300 feet; principal tributaries, Hudson and Sheller creeks. Ashland and Shasta sheets.

Cottonwood Creek; Klamath River basin; Siskiyou County; rises in the east-central part of T. 46 N., R. 2 E., Mount Diablo base and meridian; flows northwestward 9 miles, then northeastward 4 miles into Lower Klamath Lake; fall, about 200 feet, of which 100 feet is made in the first 2 miles; called Willow Creek in upper stretch. Modoc Lava Bed sheet.

Cottonwood Creek; Klamath River basin; Siskiyou County; rises in the central part of T. 48 N., R. 7 W., Mount Diablo base and meridian; flows southeastward 10 miles into Klamath River (tributary to the Pacific) near Klamathon; principal tributaries, West Branch and Rocky Gulch Creek. Punnett's map of Siskiyou County.

Cottonwood Creek; Owens Lake basin; Inyo County; Sequoia National Forest; rises on the east slope of the Sierra 1 mile southeast of Mount Langley,

at altitude 11,500 feet above sea level; flows southeastward into Owens Lake; length, about 16 miles; fall, 7,900 feet; principal tributary, Little Cottonwood Creek and an unnamed stream entering from the right in the lower end of Horseshoe Meadow; passes through Cottonwood Lakes. Gaging station near Olancha (1906–1911). Mount Whitney and Olancha sheets.

Cottonwood Creek; Walker Lake basin; Mono County; rises in the southwestern part of T. 7 N., R. 24 E., Mount Diablo base and meridian, at altitude 9,500 feet above sea level; flows southwestward 2 miles, then northwestward 4½ miles to its junction with Deep Creek (tributary through West Walker River to Walker River, which discharges to Walker Lake); fall, 3,200 feet. Bridgeport sheet.

Cottonwood Creek; Santa Margarita River basin; San Diego County; eastern part of T. 9 S., R. 1 E., San Bernardino base and meridian; a northward-flowing stream rising on the northern slope of Palomar Mountain (altitude 6,126 feet) and discharging into the south side of Aguanga Valley. The stream is about 5 miles long, in which distance it falls 3,500 feet. Ramona sheet.

Cottonwood Creek; Tia Juana River basin; San Diego County; rises in the eastern part of T. 16 S., R. 4 E., San Bernardino base and meridian, east of Long Valley Peak, in the Laguna Mountains of the Coast Range, at altitude about 4,500 feet above sea level; flows south and west about 20 miles to the central part of T. 17 S., R. 3 E., where it is joined by Pine Valley Creek; it then takes a general southwesterly course to its junction with Tia Juana River at the Mexican boundary about 22 miles east of the coast line; total drainage area above junction with Tia Juana River, approximately 340 square miles; intermittent. Water is diverted from Pine Valley and Cottonwood creeks by way of Dulzura canal and the headwaters of Dulzura Creek to the lower Otay reservoir, which supplies water to the city of San Diego. Gaging station near Jamul (1905–1912). Water-Supply Paper U. S. Geol. Survey No. 291, 1912, p. 23; Cuyamaca sheet.

Cottonwood Creek, West Branch; Klamath River basin; Siskiyou County; rises in the northwestern part of T. 47 N., R. 7 W., Mount Diablo base and meridian; flows somewhat north of east 5 miles to its junction with Cottonwood Creek (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Cottonwood Creek, Little; Antelope Valley basin; Kern and Los Angeles counties; rises in the Tehachapi Mountains at altitude 4,200 feet above sea level; flows southeastward 5 miles and then winds northeast and east and enters the west end of Antelope Valley; fed by copious springs which are particularly numerous at the southwestern end of the Tehachapi Range near the foot of the steep slopes. Water-Supply Paper U. S. Geol. Survey No. 278, 1911, p. 13 and Pl. VI; Tejon sheet, on which it is shown but not named.

Cottonwood Creek, Little; Owens Lake basin; Inyo County; rises in the northeastern part of T. 17 S., R. 35 E., Mount Diablo base and meridian, at altitude 10,400 feet above sea level; flows southeastward 3½ miles into Cottonwood Creek (tributary to Owens Lake); fall, 3,000 feet. Olancha sheet.

Cottonwood Lakes; Inyo County; Sequoia National Forest; a group of small lakes southeast of Mount Langley at the head of Cottonwood Creek (tributary to Owens Lake); the highest of the lakes is about 11,150 feet above sea level. Mount Whitney and Olancha sheets.

Cow Canyon Creek; Los Angeles County; rises in the eastern part of T. 2 N., R. 8 W., San Bernardino base and meridian, at altitude 5,500 feet above sea level; flows west of south 1 mile, then north of west 2½ miles into Cattle Creek (tributary to San Gabriel River, which discharges to the Pacific); fall, 2,750 feet. Cucamonga sheet.

Cow Head Lake; Modoc County; northeastern part; inlets, Eightmile Creek and smaller unnamed streams; altitude, about 5,500 feet above sea level; as shown on the Alturas sheet the lake is about 3 miles long and 2 miles wide.

Cox Creek; San Bernardino County; rises in the western part of T. 3 N., R. 1 W., San Bernardino base and meridian, at altitude 7,300 feet above sea level; takes a circuitous but in general southwesterly course to its junction with Holcomb Creek (tributary to Deep Creek, which discharges to Mohave River); fall, 2.150 feet. Deep Creek sheet.

Coyote Canyon Creek; Los Angeles County; an intermittent stream, 1 mile long, rising in the northeastern part of T. 3 N., R. 15 W., and flowing northward to Sand Canyon Creek (tributary to Santa Clara River, which discharges to the Pacific). Fernando sheet.

Coyote Creek; Marin County; rises in Sausalito Township, at altitude 175 feet above sea level; flows eastward 2 miles into the western arm of Richardson Bay, through which it passes to San Francisco Bay, Golden Gate, and the Pacific. Tamalpais sheet.

Coyote Creek; Owens Lake basin; Inyo County; rises in the southwestern part of T. 8 S., R. 32 E., Mount Diablo base and meridian, at altitude 10,250 feet above sea level; flows somewhat east of north 5 miles, then northwestward 4 miles to its junction with Bishop Creek, which discharges to Owens Valley; fall, 4,750 feet; principal tributary, West Fork. Bishop and Mount Goddard sheets.

Coyote Creek; Riverside County; an intermittent stream, about 3 miles long, flowing northerly to the valley of Deep Canyon Creek (tributary to the Colorado Desert) near the mouth of the canyon. Indio special sheet.

Coyote Creek; Riverside and San Diego counties; rises in the central part of T. 8 S., R. 4 E., flows southeastward and discharges into Borego Valley; intermittent; length above the mouth of canyon, 10 miles, in which distance it falls about 2,500 feet. Ramona and Indio special sheets.

Coyote Creek; San Gabriel River basin; Los Angeles and Orange counties; an intermittent stream rising in the southern part of La Puente Rancho, at altitude 1,000 feet above sea level; flows southwesterly into the valley of San Gabriel River (tributary to the Pacific) in Los Coyotes Rancho; fall in the 2 miles above the mouth of the canyon, about 600 feet. Anaheim and Downey sheets.

Coyote Creek, Santa Clara County. *See* Coyote River, Middle Fork.

Coyote Creek; Ventura River basin; Ventura County; rises in the southwestern part of T. 5 N., R. 24 W., San Bernardino base and meridian, on the south slope of the Santa Ynez Mountains, at altitude 4,250 feet above sea level; flows southeastward to its junction with Ventura River (tributary to the Pacific); length, 13 miles; principal tributaries, East and West forks, Willow, Santa Ana, and Ayers creeks. Ventura sheet.

Coyote Creek, East Fork; Ventura River basin; Ventura County; an intermittent stream, 2 miles long, rising in the northeastern part of T. 4 N., R. 24 W., San Bernardino base and meridian, and flowing southerly into Coyote Creek (tributary to Ventura River, which discharges to the Pacific). Ventura sheet.

Coyote Creek, West Fork; Owens Lake basin; Inyo County; rises in the southeastern part of T. 8 S., R. 31 E., Mount Diablo base and meridian, on the east slope of Coyote Range, at altitude 11,200 feet above sea level; flows northeastward 4 miles to its junction with Coyote Creek (tributary to Bishop Creek, which discharges to Owens Valley); fall, 2,000 feet. Bishop and Mount Goddard sheets.

Coyote Creek, West Fork; Ventura River basin; Ventura County; an intermittent stream, 2½ miles long, rising on the south slope of La Granada Moun-

tain, in T. 4 N., R. 24 W., San Bernardino base and meridian, and flowing northeastward to Coyote Creek (tributary to Ventura River, which discharges to the Pacific). Ventura sheet.

Coyote Hill Creek; Alameda County; a channel extending along the northern edge of the tidal marsh at the southeastern end of San Francisco Bay, in Potrero de los Cerritos Rancho. Haywards sheet.

Coyote Dry Lake; San Bernardina County; Tps. 11 and 12 N., R. 2 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I, pp. 59–60.

Coyote River; Santa Clara County; rises in the southeastern part of T. 7 S., R. 4 E., Mount Diablo base and meridian; flows southward 16 miles to a point south of Gilroy Hot Springs, where it turns abruptly and flows westward and northwestward to the tidal marsh through which it enters San Francisco Bay, and in which it forms the boundary between Alameda and Santa Clara counties; including its major windings, the river is about 65 miles long; principal tributaries, Middle Fork, San Felipe, Silver, Dry, and Penitencia creeks. Mount Hamilton and San Jose sheets; Land Office map of California, 1907.

Coyote River, Middle Fork; Santa Clara County; rises in the western part of T. 8 S., R. 4 E., Mount Diablo base and meridian, on the south slope of Pine Ridge, at altitude about 3,000 feet above sea level; takes an irregular but in general southeasterly course to the northeastern part of T. 9 S., R. 4 E., where it unites with Coyote River (tributary to San Francisco Bay). Mount Hamilton sheet, on which a small area is shown, and Land Office map of California, 1907, on which it is called Coyote Creek.

Cozy Dell Canyon Creek; Ventura County; an intermittent stream, 3 miles long, rising in the eastern part of T. 5 N., R. 23 W., San Bernardino base and meridian, at altitude 3,750 feet above sea level; flows southwestward to the upper end of Ojai Valley (drained by Ventura River, which discharges to the Pacific); fall, 3,000 feet. Ventura sheet.

Crab Creek; San Bernardino County; rises in the central part of T. 2 N., R. 2 W., San Bernardino base and meridian, at altitude 5,750 feet above sea level; flows south of west 1½ miles into Deep Creek (tributary to Mohave River); fall, 750 feet; intermittent. Deep Creek sheet.

Craig Creek; Del Norte County; rises in the southeastern part of T. 17 N., R. 2 E., Humboldt base and meridian; flows southwestward 4 miles, then to the northwest, west, and again to the southwest to its junction with South Fork of Smith River (tributary to Smith River, which flows to the Pacific); length, including major windings, 10 miles. Punnett's map of Del Norte County.

Crapo Creek; Siskiyou County; rises in the southern part of T. 41 N., R. 12 W., Mount Diablo base and meridian; flows southwestward to its junction with Salmon River (tributary to Klamath River, which discharges to the Pacific) 1½ miles below Forks of Salmon; length, 12 miles. Punnett's map of Siskiyou County.

Crawford Creek; Siskiyou County; rises in the northern part of T. 38 N., R. 11 W., Mount Diablo base and meridian; flows in general southwestward to its junction with Salmon River (tributary to Klamath River, which discharges to the Pacific); length, about 5 miles. Punnett's map of Siskiyou County.

Cristianitos Canyon Creek; Orange and San Diego counties; rises in Mission Viejo, at altitude 800 feet above sea level; flows somewhat west of south 7 miles into Arroyo San Mateo; fall, 700 feet; principal tributaries, streams from Gabino and Talega canyons. Capistrano sheet.

Cronese Dry Lake; San Bernardino County; T. 12 N., R. 6 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I, p. 61.

Crooked River; Klamath County, Oreg.; rises 4 miles south of Fort Klamath; flows southward into Anna River (tributary through Upper Klamath Lake to Klamath River, which discharges to the Pacific); length, 4 miles; tributary, Spring Creek. Klamath sheet.

Cross Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; connects Nurse Slough with Montezuma Slough. Antioch sheet.

Crow Creek; Klamath River basin; Trinity County; rises in the northeastern part of T. 38 N., R. 6 W., Mount Diablo base and meridian; flows southward into East Fork of Trinity River (tributary through Trinity River to Klamath River, which flows to the Pacific); length, about 4 miles. Punnett's map of Trinity County.

Crow Creek; San Lorenzo Creek basin; Alameda County; rises in the western part of T. 2 S., R. 1 W., Mount Diablo base and meridian, at altitude 1,000 feet above sea level; flows northwesterly 1 mile, then southwesterly 5½ miles to its junction with Cull Creek (tributary through San Lorenzo Creek to San Francisco Bay); fall, 750 feet; tributary, Bolinas Creek. Concord and Haywards sheets.

Crowbar Canyon; San Luis Obispo County; Pecho y Islay Rancho; a short canyon opening southwestward toward the Pacific. Port Harford sheet.

Crystal Creek; Mohave River basin; San Bernardino County; T. 3 N., R. 1 W., San Bernardino base and meridian; an intermittent stream, about 3 miles long, flowing northeastward into the Mohave Desert. San Gorgonio sheet.

Crystal Creek; Santa Ana River basin; San Bernardino County; rises in the southwestern part of T. 1 N., R. 1 W., San Bernardino base and meridian, at altitude 3,900 feet above sea level; flows northwestward 2 miles into Santa Ana River (tributary to the Pacific); fall, 1,050 feet. Redlands sheet.

Crystal Lake; Mono Lake basin; Mono County; southwestern part of T. 2 N., R. 25 E., Mount Diablo base and meridian; one of several small lakes through which Lake Canyon Creek flows to its junction with Mill Creek (tributary to Mono Lake); altitude, about 9,500 feet above sea level. Mount Lyell and Bridgeport sheets.

Crystal Lake; San Gabriel River basin; Los Angeles County; southwestern part of T. 3 N., R. 9 W., San Bernardino base and meridian, on the west edge of Pine Flat, 2 miles south of Mount Islip; intermittent. No outlet shown on the map but a trail leads from the lake to a stream draining into the North Fork of San Gabriel River (tributary through West Fork to San Gabriel River, which discharges to the Pacific); altitude, about 5,600 feet. Rock Creek sheet.

Crystal Springs Lake; San Mateo Creek basin; San Mateo County; lies in a structural depression west of Buriburi and Pulgas ridges and east of Sawyer and Cahil ridges; inlets, many small intermittent streams and San Mateo Creek, which flows through the lake to San Francisco Bay; divided into an upper and lower lake by a dam. The lake is about 5 miles long from the northwest end of the upper lake to the southeast end of the lower lake, and about one-quarter mile in average width. San Mateo and San Jose sheets.

Cuarta Canyon Creek; Santa Barbara County; an intermittent stream, 2 miles long, flowing southward and entering the Pacific at Sacate. Lompoc sheet.

Cuaslui Creek; Santa Barbara County; a short, intermittent stream, rising in the Solomon Hills in the southeastern part of Tinaquaic Rancho, and flowing southwestward to Canada de los Alisos, which drains through Arroyo de los Alamos to San Antonio Creek, which discharges to the Pacific. Lompoc sheet.

Cucamonga Canyon Creek; San Bernardino County; Santa Ana River basin; rises in the southeastern part of T. 2 N., R. 7 W., San Bernardino base and

meridian, on the south slope of Cucamonga Peak, at altitude 8,000 feet above sea level; takes a general southwesterly course to San Bernardino Valley. The creek has built a large delta of gravel and sand at the mouth of its canyon. Cucamonga sheet.

Cull Creek; Contra Costa and Alameda counties; rises in the southeastern part of T. 1 S., R. 2 W., Mount Diablo base and meridian, at altitude 1,650 feet above sea level; flows generally southward to San Lorenzo, where it unites with Palomeras Creek to form San Lorenzo Creek (tributary to San Francisco Bay); length, about 8 miles; fall, 1,450 feet; principal tributary, Crow Creek. Concord and Haywards sheets.

Curly Cow Creek; Mendocino County; rises in the southeastern part of T. 20 N., R. 15 W., Mount Diablo base and meridian; flows southeastward through Sherwood Valley to Sherwood, then east and north of east to its junction with Deep Creek (tributary to Eel River, which discharges to the Pacific); length, 5 miles. Punnett's map of Mendocino County.

Cutoff Slough; Solano County; in the tidal marsh on the north side of Suisun Bay, between Montezuma and Suisun Creek sloughs. Antioch and Carquinez sheets.

Cuyamaca Reservoir; San Diego County; in the Coast Range about 70 miles east of San Diego, at altitude of 4,800 feet above sea level. The water is turned from the reservoir into Boulder Creek, down which it flows for 12½ miles with a fall of 4,000 feet to the main diverting weir of the San Diego flume, the altitude of which is 800 feet. The storage capacity of the reservoir is 11,500 acre-feet; surface area, about 1,000 acres. The catchment basin above the reservoir is only 11 square miles in area but the average annual precipitation is about 45 inches—nearly sufficient in ordinary years to fill the reservoir. Cuyamaca sheet, Thirteenth Ann. Rept. U. S. Geol. Survey, 1893, pp. 287–288. *See also* Reservoirs for irrigation, water power, and domestic water supply, by J. D. Schuyler, second edition, 1908, pp. 423–429.

Cuyama River. *See* Santa Maria River.

Daggett Creek; Siskiyou County; rises in the central part of T. 47 N., R. 9 W., Mount Diablo base and meridian; flows in general somewhat east of south to its junction with Klamath River (tributary to the Pacific); length, 4 miles. Punnett's map of Siskiyou County.

Dale Dry Lake; San Bernardino County; T. 1 N., R. 12 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Dalton Canyon, Big; San Gabriel River basin; Los Angeles County; carries an intermittent stream draining the northern and central part of T. 1 N., R. 9 W., San Bernardino base and meridian; fed by streams in Volfe, Bell, Monroe, Pine, Lewis Paul, and Little Dalton canyons. The basin is nearly oval in form, about 4½ miles long from the opening back to the crest of the main ridge, about 3 miles wide, and comprises between 9 and 10 square miles. In some years the surface flow dries up altogether for several miles up the canyon. The wash of the Dalton is fairly broad and pronounced for a mile or more below the canyon, but striking against a long narrow hill in the plain it is deflected to the west much diminished in size, fails to join the San Dimas Wash (tributary to San Gabriel River, which discharges to the Pacific), and pursues a parallel course with one-half mile space between the two, and finally becomes lost in the lower plains.

Authorities: Pomona sheet; Hall, Wm. Ham: Irrigation in California (Southern), Part II of Report of State Engineer of California on Irrigation and the irrigation question, Sacramento, 1888, p. 377.

Dalton Canyon Creek, Little; Los Angeles County; rises in the northern part of T. 1 N., R. 9 W., San Bernardino base and meridian, at altitude 3,000 feet

above sea level; flows in general west of south about 4½ miles to its junction with Big Dalton Canyon (tributary to San Gabriel River, which discharges to the Pacific); fall, about 1,900 feet. Pomona sheet.

Danby Dry Lake; San Bernardino County; Tps. 1 and 2 N., Rs. 17 and 18 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Dan Creek, Big; Mendocino County; rises in the northwestern part of T. 23 N., R. 16 W., Mount Diablo base and meridian; flows northwestward 1½ miles, then southwestward 1½ miles into South Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Darwin Creek; Inyo County; Inyo National Forest; rises on the southeastern slope of Mount Darwin at altitude 12,500 feet above sea level; flows north of east 2 miles into Middle Fork of Bishop Creek (tributary through Bishop Creek to Owens River, which discharges to Owens Lake); fall, 1,500 feet. Mount Goddard sheet.

Davenport Creek; San Luis Obispo County; rises in San Luis Valley southeast of Islay Hill, in the northwestern part of Corral de Piedra Rancho, at altitude 350 feet above sea level; flows irregularly westward into San Luis Obispo Creek (which discharges to the Pacific) 3½ miles southwest of the city of San Luis Obispo; length, about 5 miles; fall, about 300 feet. Arroyo Grande sheet.

Davis Canyon Creek; San Luis Obispo Creek basin; San Luis Obispo County; rises in the San Luis Range, in T. 31 S., R. 11 E., Mount Diablo base and meridian, at altitude 850 feet above sea level; flows southeastward 3 miles into See Canyon, through which it is tributary to San Luis Obispo Creek, which discharges to the Pacific; fall, about 600 feet. Port Harford and San Luis Obispo sheets.

Davis Creek; Humboldt County; rises in the northern part of T. 1 S., R. 2 W., Humboldt base and meridian; flows south of west to the point at which it enters the Pacific, about 4 miles southeast of Cape Mendocino. Punnett's map of Mendocino County.

Davy Brown Canyon Creek; Santa Barbara County; an intermittent stream, 4 miles long, rising in the Santa Barbara National Forest 3 miles west of Cachuma Mountain and flowing northerly to Manzana Creek (tributary through Sisquoc River to Santa Maria River, which discharges to the Pacific). Santa Ynez sheet.

Dawson Canyon Creek; Riverside County; an intermittent stream, 4 miles long, flowing westward into Temescal Wash (tributary to Santa Ana River, which discharges to the Pacific) 1½ miles northeast of Temescal. Elsinore sheet.

Day Canyon Creek; Santa Ana River basin; San Bernardino County; an intermittent stream, 2½ miles long, rising in southwestern part of T. 2 N., R. 6 W., San Bernardino base and meridian, and flowing west of south into San Bernardino Valley. Cucamonga sheet.

Deadhorse Creek; Ventura County; rises in the southern part of T. 7 N., R. 19 W., San Bernardino base and meridian, on the eastern slope of Snowy Peak, at altitude 5,300 feet above sea level; flows northward into Snowy Creek (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Dead Indian Creek; Riverside County; a drainage way opening into the Colorado Desert in the southwestern part of T. 5 S., R. 6 E., San Bernardino base and meridian; this channel receives the flood waters from Ramon, Cat, Ebbens, Grapevine, and Carrizo creeks. Indio special sheet.

Deadman Canyon Creek; Santa Clara River basin; Los Angeles County; carries the drainage from the southern part of T. 5 N., R. 15 W., and the northwestern part of T. 4 N., R. 15 W., southwestward into Santa Clara River (tributary to the Pacific), to which it delivers water only in times of flood; Texas, Plum, Haskell Canyon, and Dry Canyon creeks are the principal tributaries. Fernando and Santa Susana sheets.

Deadman Canyon Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 4 miles long, rising in the central part of T. 10 N., R. 28 W., San Bernardino base and meridian, and flowing east of north into Schoolhouse Canyon Creek (tributary to Cuyama River—Santa Maria River—which discharges to the Pacific). Santa Ynez sheet.

Deadman Canyon Creek. *See* San Jose Creek.

Deadman Creek; Antelope Valley basin; Los Angeles County; rises in the southwestern part of T. 5 N., R. 8 W., San Bernardino base and meridian; flows northward to Antelope Valley; length, about 10 miles. Land Office map of California, 1907.

Deadman Creek; Owens River basin; Mono County; rises in northern part of T. 3 S., R. 26 E., Mount Diablo base and meridian, on the east slope of San Joaquin Mountain (altitude 11,584 feet); flows southeastward 3 miles, then northeastward to its junction with Owens River. Mount Lyell sheet; shown but not named on Land Office map of California. 1907.

Deadwood Creek; Klamath River basin; Siskiyou County; rises in the western part of T. 45 N., R. 8 W., Mount Diablo base and meridian, on the east slope of Old Baldy Mountain; flows in general south of east 3 miles to its junction with Cherry Creek (tributary through Moffitt Creek to Scott River and thus through Klamath River to the Pacific). Punnett's map of Siskiyou County.

Deadwood Creek; Klamath River basin; Trinity County; rises in the northeastern part of T. 33 N., R. 8 W., Mount Diablo base and meridian, on the west slope of Trinity Mountains, at altitude 4,000 feet above sea level; flows somewhat south of west to its junction with Trinity River (tributary through Klamath River to the Pacific); length, 4 miles; fall, 2,200 feet. Red Bluff sheet.

Dean Canyon Creek; Humboldt County; rises in the east-central part of T. 4 S., R. 4 E., Humboldt base and meridian; flows northwestward 6 miles into South Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Death Valley Sink. *See* Amargosa River.

Decker Canyon Creek; Riverside County; an intermittent stream, about 3 miles long, rising on the western slope of Elsinore Mountains in T. 6 S., R. 5 W., San Bernardino base and meridian, and flowing southwesterly into San Juan Creek. Elsinore sheet.

Deep Canyon Creek; Riverside County; Cleveland National Forest; an intermittent stream rising on the north slope of the Santa Rosa Mountains, at Virgin Springs, and flowing east of north to the Colorado Desert; length above mouth of canyon, about 10 miles, in which distance the fall is 6,200 feet. Indio special sheet.

Deep Creek; Eel River basin; Mendocino County; rises in the east-central part of T. 17 N., R. 13 W., Mount Diablo base and meridian; flows northwestward about 19 miles, then northeastward 7 miles to its junction with Eel River (tributary to the Pacific); principal tributaries, Willits, Outlet, Curly Cow, and Long Valley creeks. Punnett's map of Mendocino County.

Deep Creek; Klamath River basin; Siskiyou County; rises in the southern part of T. 17 N., R. 5 E., Humboldt base and meridian; flows southward 6

miles to its junction with Clear Creek (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Deep Creek; Klamath River basin; Trinity County; rises in the northeastern part of T. 35 N., R. 9 W., Mount Diablo base and meridian, on the west slope of Granite Peak; flows north of west 2½ miles, then west and south 3 miles to its junction with Stewart Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Deep Creek; Mohave River basin; San Bernardino County; formed in the southern part of T. 2 N., R. 2 W., San Bernardino base and meridian, at altitude 6,150 feet above sea level, by the union of its North and South forks. The North Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises in the southwestern part of T. 2 N., R. 1 W., and flows south of west. Below these forks the creek flows in general northwestward to its junction with Mohave River near the entrance of the West Fork; length to the head of the North Fork, including major windings, about 22 miles; principal tributaries, Green Valley, Little Bear, and Holcomb creeks. Redlands and Deep Creek sheets.

Deep Creek; Santa Ana River basin; San Bernardino County; rises in the northern part of T. 1 S., R. 2 W., San Bernardino base and meridian, at altitude 3,250 feet above sea level; flows southwestward into Santa Ana River, which discharges to the Pacific; length, 1½ miles; fall, 1,350 feet; intermittent. Redlands sheet.

Deep Creek; Truckee River basin; Placer County; rises in the northeastern part of T. 16 N., R. 15 E., Mount Diablo base and meridian, at altitude 8,300 feet above sea level; flows north of east 4 miles to its junction with Truckee River (tributary to Pyramid and Winnemucca lakes); fall, 2,300 feet. Truckee sheet.

Deep Creek; Walker Lake basin; Mono County; rises in the southern part of T. 7 N., R. 24 E., Mount Diablo base and meridian, on the west slope of the Sweetwater Mountains, at altitude 10,700 feet above sea level; flows northwestward 8 miles to its junction with West Walker River (tributary to Walker River, which discharges to Walker Lake); fall, 4,700 feet; principal tributary, Cottonwood Creek. Water is diverted from this creek at a point about 3 miles above the head to Lobdel Lake in Swamp Meadows at the head of Desert Creek. Bridgeport sheet.

Deep Creek, South Fork; San Bernardino County; rises in the northeastern part of T. 1 N., R. 2 W., San Bernardino base and meridian, between Keller and Slide peaks, at altitude 7,600 feet above sea level; flows northwestward to its junction with the North Fork with which it forms Deep Creek (tributary to Mohave River); length, 2 miles; fall, 1,450 feet. Redlands sheet.

Deer Canyon; Arroyo Grande Creek basin; San Luis Obispo County; southern part of Corral de Piedra Rancho; opens southeastward to Corbett Canyon. Arroyo Grande sheet.

Deer Canyon Creek; Santa Ana River basin; San Bernardino County; rises in the southeastern part of T. 2 N., R. 7 W., San Bernardino base and meridian, on the south slope of Cucamonga Peak, at altitude 8,100 feet above sea level; flows east of south about 3½ miles into San Bernardino Valley; intermittent; the most important of the smaller group of canyons lying between Lytle and San Antonio canyons. Cucamonga sheet.

Deer Canyon Creek; Ventura County; an intermittent stream, 2 miles long, rising in the central part of T. 1 S., R. 20 W., San Bernardino base and meridian, and flowing southwestward into the Pacific. Camulos sheet.

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Deer Creek; Klamath River basin; Trinity County; formed in the western part of T. 36 N., R. 9 W., Mount Diablo base and meridian, by two forks, one a stream about 4 miles long coming from the northwest, and the other a stream 3 miles long entering from the southeast; below the forks Deer Creek flows southwestward 2 miles to its junction with Stewart Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Deer Creek; Mad River basin; Humboldt County; rises in the northeastern part of T. 3 N., R. 4 E., Humboldt base and meridian; flows east of south 2 miles, then southwestward 2 miles into Mad River (tributary to the Pacific). Punnett's map of Humboldt County.

Deer Creek; San Lorenzo River basin; Santa Cruz County; rises in the south-central part of T. 8 S., R. 2 W., Mount Diablo base and meridian, on the west slope of Castle Rock Ridge, at altitude 2,700 feet above sea level; flows southwestward into Bear Creek (tributary to San Lorenzo River, which discharges to the Pacific); length, about 4 miles; fall, 1,900 feet. Santa Cruz sheet.

Deer Creek; Santa Ana River basin; San Bernardino County; rises in the northern part of T. 1 N., R. 1 W., San Bernardino base and meridian, one-half mile south of Lookout Point, at altitude 6,200 feet above sea level; flows southwestward into Santa Ana River (tributary to the Pacific); length, about 3 miles; fall, 2,450 feet. San Gorgonio and Redlands sheets.

Deer Creek; Truckee River basin; Placer County; rises in the eastern part of T. 16 N., R. 16 E., Mount Diablo base and meridian, on the south slope of Mount Pluto, at altitude 8,000 feet above sea level; flows south of west 3½ miles into Truckee River (tributary to Pyramid and Winnemucca lakes); fall, about 1,900 feet. Truckee sheet.

Dehr Creek; San Diego County; rises in eastern part of T. 13 S., R. 3 E., San Bernardino base and meridian, at altitude 3,900 feet above sea level; flows southwestward 2 miles into Cedar Creek (tributary to San Diego River, which discharges to the Pacific through False Bay); intermittent; fall, 700 feet. Ramona sheet.

Delta Canyon Creek; Los Angeles County; an intermittent stream, about 2 miles long, flowing northwestward into Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific) opposite and below the mouth of Trail Canyon Creek. Fernando sheet.

Deluz Creek; Riverside and San Diego counties; rises in Santa Rosa Mountains; flows southwestward into Santa Margarita River (tributary to the Pacific) at Deluz Station; about 13 miles long; perennial for some miles of its course. Elsinore and San Luis Rey sheets.

Deming Creek; Klamath County, Oreg.; rises in the eastern part of the county; flows southwestward into South Fork of Sprague River (tributary through Sprague River to Williamson River and thus through Upper Klamath Lake to Klamath River, which discharges to the Pacific). Klamath sheet.

Denniston Creek; San Mateo County; rises in the southwestern part of T. 4 S., R. 5 W., Mount Diablo base and meridian, on the west slope of the Montara Mountains, at altitude 1,400 feet above sea level; flows southwestward and southward and enters the Pacific at Halfmoon Bay; length, about 4 miles. San Mateo sheet.

Denverton Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends southward from Denverton to Nurse Slough. Antioch sheet.

Desert Creek; California-Nevada; rises in Mono County, Cal., in the western part of T. 7 N., R. 24 E., Mount Diablo base and meridian, in Lobdel Lake, at

altitude 9,250 feet above sea level; flows in a general northerly direction to the lower end of Smith Valley, on West Walker River, where its waters sink; length, about 24 miles; fall, 4,250 feet; water is diverted to Desert Creek from Deep Creek through a ditch to Lobdel Lake. Bridgeport and Wellington sheets.

Deshecha Canada, Prima; Orange County; an intermittent stream, 5 miles long, flowing southwesterly and entering the Pacific 1 mile northwest of the mouth of Segunda Deshecha Canada. Capistrano sheet.

Deshecha Canada, Segunda; Orange County; an intermittent stream about 5 miles long, flowing southwesterly into the Pacific. Capistrano sheet.

Devil Canyon Creek; Klamath River basin; Trinity County; rises in the southern part of T. 36 N., R. 12 W., Mount Diablo base and meridian; flows westward 7 miles into New River (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Devil Canyon Creek; Riverside County; an intermittent stream, 3 miles long, flowing eastward into the Colorado Desert. Indio special sheet.

Devil Canyon Creek; San Mateo Creek basin; San Diego County; rises on the eastern slope of the Santa Margarita Mountains, at altitude 2,300 feet above sea level; flows northward 2 miles and then turns abruptly and flows westerly through the mountains to its junction with San Mateo Creek (tributary to the Pacific); length, about 8 miles; fall, 1,800 feet; principal tributary, Cold Spring Canyon Creek; intermittent. San Luis Rey sheet.

Devil Canyon Creek; Santa Ana River basin; San Bernardino County; rises in the western part of T. 2 N., R. 4 W., San Bernardino base and meridian, at altitude 4,250 feet above sea level: flows southward to San Bernardino Valley; its mountain basin comprises about 8 square miles. Gaging station near San Bernardino (1911–12). San Bernardino sheet.

Devil Canyon Creek; Santa Clara River basin; Los Angeles and Ventura counties; rises in the northwestern part of T. 5 N., R. 17 W., San Bernardino base and meridian, at altitude 2,500 feet above sea level; flows southwestward into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); length, about 6 miles; fall, 1,500 feet. Tejon and Camulos sheets.

Devil Creek; Los Angeles River basin; Los Angeles County; an intermittent stream, rising in the eastern part of T. 3 N., R. 17 W., San Bernardino base and meridian, on the southern slope of Santa Susana Mountains, and flowing southeasterly to San Fernando Valley. The upper course of this creek lies through Aliso Canyon. Santa Susana sheet.

Devils Basin lakes; Eldorado County; southwestern part of T. 12 N., R. 17 E., Mount Diablo base and meridian, 1 mile northeast of Pyramid Peak; a group of glacial lakelets without outlet; the largest of the group is nearly 1 mile long and about half a mile wide; the others, about 24 in number, are all very small; altitude of all, about 8,100 feet above sea level. Pyramid Peak sheet.

Devils Canyon Creek; San Gabriel River basin; Los Angeles County; rises in the central part of T. 3 N., R. 10 W., San Bernardino base and meridian, on the north slope of Waterman Peak, at altitude 6,400 feet above sea level; flows south of west 3 miles, then in general southward 6 miles to its junction with the West Fork of San Gabriel River (tributary to San Gabriel River, which discharges to the Pacific); fall, 4,200 feet. Rock Creek and Pomona sheets.

Devils Canyon Creek; San Gabriel River basin; Los Angeles County; rises in the southeastern part of T. 3 N., R. 9 W., San Bernardino base and meridian, at altitude 6,250 feet above sea level; flows in general southeastward to its junction with San Gabriel River (tributary to the Pacific), half a mile below The Narrows; length, about 3½ miles; fall, 3,600 feet. Rock Creek sheet.

Devils Slough; Santa Clara County; in the tidal marsh at the southern end of San Francisco Bay. Palo Alto sheet.

Dewitt Canyon Creek; Los Angeles County; an intermittent stream, 1½ miles long, rising on the north slope of the Santa Susana Mountains and flowing northeastward to Pico Canyon Creek (tributary to Santa Clara River, which discharges to the Pacific); fall, about 1,000 feet. Santa Susana sheet.

Diablo Canyon Creek; San Luis Obispo County; rises in the San Luis Mountains, 1 mile northeast of Saddle Peak, at altitude 1,300 feet above sea level; flows south of west 5 miles to the point at which it enters the Pacific. Port Harford sheet.

Diablo Canyon Creek; San Roque Creek basin; Santa Barbara County; an intermittent stream, about 2 miles long, flowing west of south toward the valley drained by San Roque Canyon Creek, which discharges to the Pacific; sinks before reaching the creek. Santa Barbara special sheet.

Diamond Creek; Alameda County; rises in San Antonio Rancho, 2 miles northeast of East Oakland; flows northwestward about 2 miles, then west of south 4 miles to Alameda, to the tidal marsh through which it enters San Leandro Bay, a branch of San Francisco Bay; principal tributary, Shepard Creek. Concord sheet.

Diez Creek; Inyo County; Sequoia National Forest; rises on the east slope of the Sierra about 1½ miles east of Mount Langley at altitude 11,600 feet above sea level; flows northeastward to its junction with Tuttle Creek which discharges to Owens Valley; length, 8 miles; fall, 7,000 feet, of which 5,500 feet is made in the first 4 miles. Mount Whitney sheet.

Digger Creek; Klamath River basin; Trinity County; rises in the western part of T. 35 N., R. 8 W., Mount Diablo base and meridian, at altitude 3,500 feet above sea level; flows southeastward into East Fork of Stewart Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, 2 miles; fall, 1,400 feet. Red Bluff sheet.

Digger Creek; Mendocino County; rises in the southwestern part of T. 18 N., R. 17 W., Mount Diablo base and meridian; flows in general northwestward; enters the Pacific near Beaver Point; length, 3 miles. Punnett's map of Mendocino County.

Dike Creek; San Bernardino County; rises in the southwestern part of T. 2 N., R. 2 W., San Bernardino base and meridian, at altitude 6,250 feet above sea level; flows southwestward into Plunge Creek (tributary to Santa Ana River, which discharges to the Pacific); length, about 2 miles; fall, 1,500 feet. Redlands sheet.

Dinsmore Canyon Creek; Santa Barbara County; rises on the south slope of the Santa Ynez Mountains, in the Santa Barbara National Forest, at altitude 2,600 feet above sea level; flows southward, and enters the Pacific Ocean near Miramar; length, 4½ miles; intermittent below mouth of canyon. Santa Barbara special map.

Ditton Creek; Siskiyou County; rises in the northwestern part of T. 15 N., R. 5 E., Humboldt base and meridian; takes a very irregular but in general southeasterly course to its junction with Klamath River (tributary to the Pacific); length, including major windings, about 14 miles; many small unnamed tributaries draining the eastern slopes of Siskiyou Mountains. Punnett's map of Siskiyou County.

Division Creek; Inyo County; Inyo National Forest; rises on the south slope of Coliseum Mountain at altitude 10,500 feet above sea level; flows northeastward 7 miles into Owens Valley, where its water sinks; fall, 6,650 feet. Gaging station near Independence (1906–1911). Mount Whitney sheet.

Doane Creek; San Diego County; rises in the northern part of T. 10 S., R. 1 E., San Bernardino base and meridian, at altitude 5,000 feet above sea level; flows northwestward about 2 miles into Pauma Creek (tributary to San

Luis Rey River, which discharges to the Pacific); fall, 500 feet; intermittent. Ramona sheet.

Dobbin Creek; Trinity and Humboldt counties; rises in the eastern part of T. 3 S., R. 6 E., Humboldt base and meridian; flows in general northwestward to its junction with Eel River (tributary to the Pacific); length, 11 miles; principal tributary, Conly Creek. Punnett's maps of Trinity and Humboldt counties.

Dog Creek; Truckee River basin; Sierra County; rises in the southeastern part of T. 20 N., R. 17 E., Mount Diablo base and meridian, at altitude 6,900 feet above sea level; flows northeastward 3 miles, then southeastward 3½ miles into Truckee River (tributary to Pyramid and Winnemucca lakes) near Verdi, Nev.; fall, about 2,000 feet. Sierraville and Reno sheets.

Dog Creek; Walker River basin; Mono County; rises in the southwestern part of T. 3 N., R. 25 E., Mount Diablo base and meridian, at altitude 9,700 feet above sea level; flows northeastward to its junction with Virginia Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake); length, about 8 miles; fall, 2,800 feet. Bridgeport sheet.

Dollar Lake; San Bernardino County; southeastern part of T. 1 N., R. 1 E., San Bernardino base and meridian; a very small lake at the head of the South Fork of Santa Ana River (tributary through Santa Ana River to the Pacific); altitude, 9,250 feet. San Gorgonio sheet.

Donahue Creek; Mendocino County. *See* Greenwood Creek.

Don Juan Creek; Trinity County; rises in the northwestern part of T. 5 N., R. 7 E., Humboldt base and meridian; flows east of south 3 miles into Trinity River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Donner Creek; Nevada County; rises in the western part of T. 17 N., R. 16 E., Mount Diablo base and meridian, in Donner Lake, at altitude 5,939 feet above sea level; flows eastward to its junction with Truckee River (tributary to Pyramid and Winnemucca lakes); length, about 2 miles; fall, about 400 feet. Gaging station near Truckee (1902–1912). Truckee sheet.

Donner Lake; Nevada County; T. 17 N., Rs. 15 and 16 E., Mount Diablo base and meridian; inlets, a number of small streams draining eastern Sierra slopes; outlet, Donner Creek to Truckee River (tributary to Pyramid and Winnemucca lakes); the lake is about 3 miles long, has a nearly uniform width of a little more than one-half mile, and lies immediately north of and below the line of the Southern Pacific Railroad where the ascent of the Sierra is made from the east. Truckee sheet.

Doolan Canyon Creek. *See* Cottonwood Creek, Alameda Creek basin.

Doolittle Creek; Siskiyou County; rises in the eastern part of T. 17 N., R. 6 E., Humboldt base and meridian; flows southeastward 6 miles to its junction with Indian Creek (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Dos Pueblos Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, 2 miles south of east from Santa Ynez Peak, at altitude 2,150 feet above sea level; flows somewhat west of south 6 miles to the point at which it enters the Pacific Ocean near Naples. Goleta special sheet.

Dougherty Creek; Mendocino County; rises in the northwestern part of T. 15 N., R. 13 W., Mount Diablo base and meridian; flows northwestward to its junction with the South Fork of Big River (tributary through Big River to the Pacific) in the western part of T. 16 N., R. 14 W.; length, 8 miles. Punnett's map of Mendocino County.

Dry Canyon Creek; Ballona Creek basin; Los Angeles County; an intermittent stream, about 3½ miles long, draining a small area in the Santa Monica Mountains and flowing southeastward to San Jose de Buenos Ayres Rancho. Santa Monica sheet.

Dry Canyon Creek; Los Angeles County; an intermittent stream, 1½ miles long, rising on the southern slope of Santa Monica Mountains in the southeastern part of T. 1 S., R. 18 W., San Bernardino base and meridian, and flowing southerly to Solstice Canyon Creek, which discharges to the Pacific Ocean. Camulos sheet.

Dry Canyon Creek; Los Angeles River basin; Los Angeles County; an intermittent stream, 3 miles long, rising in the southwestern part of T. 1 N., R. 17 W., San Bernardino base and meridian, and flowing east of north into Arroyo Calabasas, which discharges into San Fernando Valley. Calabasas sheet.

Dry Canyon Creek; Santa Clara River basin; Los Angeles County; rises in the northwestern part of T. 5 N., R. 15 W., San Bernardino base and meridian; flows southward into Deadman Canyon through which it is tributary to Santa Clara River, which discharges to the Pacific; length, about 10 miles. Tejon and Santa Susana sheets.

Dry Canyon Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 4 miles long, rising in the Santa Barbara National Forest and flowing northwestward into Santa Barbara Canyon Creek (tributary to Cuyama River—Santa Maria River—which discharges to the Pacific). Santa Ynez sheet.

Dry Canyon Creek; Santa Maria River basin; Ventura County; rises in the eastern part of T. 8 N., R. 22 W., San Bernardino base and meridian, at altitude 6,500 feet above sea level; flows northwestward 2 miles, then southwestward 8 miles to Cuyama River (Santa Maria River, which discharges to the Pacific); intermittent. Mount Pinos sheet.

Dry Creek; Alameda Creek basin; Alameda County; an intermittent stream, 4½ miles long, rising in the southwestern part of T. 3 S., R. 3 E., Mount Diablo base and meridian, on the north slope of Crane Ridge, and flowing northwestward to Arroyo Mocho (tributary through Arroyo las Positas to Arroyo de la Laguna, and thus to Alameda Creek, which discharges to San Francisco Bay). Tesla sheet.

Dry Creek; Alkali Lake basin; Modoc County; rises on the east slope of Warner Mountains, at altitude 5,800 feet above sea level; flows northeastward into Middle Alkali Lake; length, 4 miles; fall, 1,100 feet. Alturas sheet.

Dry Creek; Cameros Valley Creek basin; Santa Barbara County; an intermittent stream, three-fourths mile long, flowing southeastward into Cameros Valley Creek, which discharges to the Pacific. Goleta special sheet.

Dry Creek; Coyote River basin; Santa Clara County; rises in the southeastern part of Yerba Buena Rancho, at altitude 1,250 feet above sea level; flows northeastward to a marshy area in the valley of Coyote River (tributary to San Francisco Bay) east of the city of San Jose. Mount Hamilton and San Jose sheets.

Dry Creek; Klamath River basin; Siskiyou County; rises in the southern part of T. 48 N., R. 6 W., Mount Diablo base and meridian, at altitude 3,800 feet above sea level; flows southeastward 7 miles into Klamath River (tributary to the Pacific) opposite and just below the mouth of Little Bogus Creek; fall, about 1,700 feet; intermittent. Shasta sheet.

Dry Creek; Mohave River basin; San Bernardino County; rises in the northeastern part of T. 1 N., R. 2 W., San Bernardino base and meridian, on the northwest slope of Keller Peak, at altitude 6,750 feet above sea level; flows

northwestward 2 miles into Deep Creek (tributary to Mohave River); fall, 850 feet. Redlands sheet.

Dry Creek; Russian River basin; Mendocino and Sonoma counties; rises in the northwestern part of T. 12 N., R. 12 W., Mount Diablo base and meridian; flows very irregularly southeastward to its junction with Russian River (tributary to the Pacific) 2 miles south of Healdsburg; length, including major windings, 38 miles; many small branching tributaries, of which Soda Spring, Galloway, Warm Spring, and Pena are named on the map. Punnett's maps of Mendocino and Sonoma counties.

Dry Creek; Santa Clara River basin; Ventura County; rises in the southeastern part of T. 8 N., R. 20 W., San Bernardino base and meridian, at altitude 6,000 feet above sea level; flows southeastward to its junction with Piru Creek (tributary to Santa Clara River, which discharges to the Pacific) 1 mile southeast of Bear Mountain; lower course lies through Bear Gulch; length, about 7 miles; fall, 1,900 feet. Tejon sheet.

Dry Creek; Trinitas Creek basin; San Mateo County; a stream, about 2 miles long, draining a small area in the northwestern part of San Gregorio Rancho and flowing south of west to Trinitas Creek, which discharges to the Pacific; fall, about 500 feet. Santa Cruz sheet.

Dry Creek; Truckee River basin; Nevada County; rises in the northeastern part of T. 18 N., R. 16 E., Mount Diablo base and meridian, at altitude 6,000 feet above sea level; flows southeastward to its junction with Little Truckee River (tributary through Truckee River to Pyramid and Winnemucca lakes); length, 5 miles; fall, about 450 feet. Truckee sheet.

Dry Gulch Creek; Los Angeles County; rises in the northern part of T. 2 N., R. 8 W., San Bernardino base and meridian, on the east slope of Iron Mountain, at altitude 7,250 feet above sea level; flows southwestward into Coldwater Canyon Creek (tributary through Cattle Creek to San Gabriel River, which discharges to the Pacific); length, 1½ miles; fall, 3,350 feet; intermittent. San Antonio sheet.

Dry Lake; Santa Ana River basin; Riverside County; a small water body, marked as permanent on the Riverside sheet, lying 4 miles north of Santa Ana River, about 7 miles north of west of Riverside; altitude, about 700 feet; neither inlet nor outlet shown on the map. Riverside sheet.

Dry Lake; Santa Ana River basin; San Bernardino County; southeastern part of T. 1 N., R. 1 E., San Bernardino base and meridian; outlet, a stream 1 mile long, flowing northwestward to the South Fork of Santa Ana River (tributary to Santa Ana River, which discharges to the Pacific); altitude, 9,050 feet; fall of outlet, 750 feet. San Gorgonio sheet.

Duck Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends southeastward from Suisun to Hill Slough. Napa sheet.

Dulzura Creek; Otay River basin; San Diego County; rises in the southeastern part of T. 17 S., R. 2 E., San Bernardino base and meridian, at altitude 2,600 feet above sea level; flows very irregularly westward to its junction with Jamul Creek (tributary to lower Otay reservoir); fall, about 2,000 feet; intermittent. The water is diverted from Cottonwood and Pine Valley creeks by way of Dulzura canal to Dulzura Creek. Cuyamaca sheet.

Dume Canyon Creek; Los Angeles County; rises on the southern slope of the Santa Monica Mountains, in T. 1 S., R. 19 W., San Bernardino base and meridian; flows east of south about 6 miles into the Pacific Ocean. Camulos sheet.

Dutch Creek; Illinois River basin; Siskiyou County; rises in the northwestern part of T. 47 N., R. 10 W., Mount Diablo base and meridian; flows northwestward about 3 miles, then northward 1½ miles into Elliott Creek (tributary

to Applegate Creek and thus through Rogue River to Illinois River, which discharges to the Pacific). Punnett's map of Siskiyou County.

Dutch Creek; Klamath River basin; Siskiyou County; rises in the northern part of T. 47 N., R. 7 W., Mount Diablo base and meridian, on the north slope of Ash Peak; flows southwestward 6 miles into Klamath River (tributary to the Pacific) near Gottville. Punnett's map of Siskiyou County.

Dutch Charles Creek; Mendocino County; rises in the northeastern part of T. 21 N., R. 17 W., Mount Diablo base and meridian; flows eastward 4 miles into South Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Dutch Henry Creek; Mendocino County; rises in the western part of T. 16 N., R. 15 W., Mount Diablo base and meridian, 1 mile east of Keenes Summit; flows in general southeastward into the North Fork of the North Fork of Navarro River (tributary through Navarro River to the Pacific); length, 3 miles. Punnett's map of Mendocino County.

Eagle Canyon Creek; Santa Ana River basin; Riverside County; an intermittent stream, about 3 miles long, flowing northeastward to Temescal Wash (tributary to Santa Ana River, which discharges to the Pacific) 1 mile south of Corona; it is joined by Gypsum Canyon Creek just below its canyon. Corona sheet.

Eagle Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest on the south slope of the Santa Ynez Mountains, at altitude about 1,100 feet above sea level; flows almost due south to the point at which it enters the Pacific; length, 4½ miles. Goleta special sheet.

Eagle Creek; Alkali Lake basin; Modoc County; rises on the east slope of Warner Mountains, east of Eagle Peak, at altitude 8,000 feet above sea level; flows northeastward about 6 miles; sinks in Surprise Valley, in the flat between Middle and Lower Alkali lakes, to which the basin is topographically tributary; fall, 3,300 feet. Alturas sheet.

Eagle Creek; Klamath River basin; Trinity County; rises in the northeastern part of T. 38 N., R. 8 W., Mount Diablo base and meridian, on the east slope of Scott Mountains; flows in general south of east to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific); length, 5 miles. Punnett's map of Trinity County.

Eagle Creek; Walker River basin; Mono County; rises in the southwestern part of T. 4 N., R. 24 E., Mount Diablo base and meridian, 1 mile southeast of Eagle Peak, at altitude 10,100 feet above sea level; flows northeastward about 5½ miles to its junction with Buckeye Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake); fall, 3,100 feet. Bridgeport sheet.

Eagle Lake; Lassen County, Cal.; no outlet; principal inlet, Pine Creek; length (northeast-southwest), about 15 miles; maximum width, 6 miles; altitude, 5,115 feet; water, fresh, "in this respect forming an exception to the usual saline condition of inclosed lakes, but in this instance the waters are supposed, with good reason, to escape through the gravels underlying the lava overflow which has checked the drainage of the valley."[1]

The lake covers 27,800 acres, is very deep, and is said to have been sounded to a depth of 1,900 feet. "It is popularly supposed to be a great source of water supply, if it could be 'tapped,' and some money has been spent for this purpose, but as the lake is a sink and has adjusted its surficial area to evaporation and inflow, it is not possible to obtain any great water supply therefrom except by

[1] Russell, I. C., A geological reconnaissance in southern Oregon; Fourth Ann. Rept. U. S. Geol. Survey, 1884, p. 454.

drawing it down to such an elevation that the area exposed to evaporation will be materially reduced."[1] Honey Lake sheet.

Eagle Lake; Truckee River basin; Eldorado County; southern part of T. 13 N., R. 17 E., Mount Diablo base and meridian, on the west slope of Maggie's Peak; inflowing streams drains a group of small lakes; outlet, a stream, 1 mile long, flowing northeastward to Emerald Bay, Lake Tahoe (outlet, Truckee River to Pyramid and Winnemucca lakes); altitude, 7,250 feet; fall of outlet, 1,025 feet. Pyramid Peak sheet.

Earl Lake; Del Norte County; Tps. 16 and 17 N., R. 1 W., Humboldt base and meridian; inlet, Talowa Creek; no outlet shown on maps; ridge between the coast and Lake Talowa, the western arm of Lake Earl, about one-eighth mile wide. Punnett's map of Del Norte County; Land Office map of California, 1907.

East branch or fork. *See* name of main stream.

East Canyon Creek; Santa Clara River basin; Los Angeles County; an intermittent stream rising in the east-central part of T. 3 N., R. 16 W., San Bernardino base and meridian, and flowing northwestward to Gavin Canyon, which discharges through Wiley Canyon Creek toward Santa Clara River (tributary to the Pacific) between Placerita and Pico Canyon creeks; tributary, Rice Canyon Creek. Santa Susana sheet.

East Creek; Alameda County; rises in San Antonio Rancho, about 3 miles east of East Oakland; flows west of south to the tidal marsh through which it enters San Leandro Bay, a branch of San Francisco Bay. Concord sheet.

East Lake; Mono County; southeastern part of T. 3 N., R. 24 E., Mount Diablo base and meridian; outlet, a stream 1 mile long, flowing northward to the West Fork of Green Creek (tributary through Green Creek to Virginia Creek and thus through East Walker River to Walker River, which discharges to Walker Lake); altitude, 9,464 feet; fall of outlet, 664 feet. Bridgeport sheet.

Eastman Gulch Creek; Trinity County; rises in the southwestern part of T. 34 N., R. 7 W., Mount Diablo base and meridian; flows south of west 5 miles to its junction with Trinity River (tributary to Klamath River which flows to the Pacific). Punnett's map of Trinity County.

East Walker River. *See* Walker River.

Eaton Canyon Creek; San Gabriel River basin; Los Angeles County; rises in the eastern part of T. 2 N., R. 12 W., San Bernardino base and meridian, on the south slope of San Gabriel Peak, at altitude 4,500 feet above sea level; flows southeastward 2 miles, then southwestward about 2 miles to the edge of the valley northeast of Pasadena. The wash extends southeastward with a width of about half a mile and appears to be lost in the plain 5 or 6 miles below the mouth of the canyon; only at times of very high and prolonged floods do the waters of Eaton Creek reach the San Gabriel (tributary to the Pacific) 8 or 10 miles away. Pasadena sheet; Hall, Wm. Ham., Irrigation in California, Sacramento, 1888, p. 379.

Ebbens Creek; Riverside County; an intermittent stream draining southeastward to Dead Indian Creek, which discharges to the Colorado Desert. Indio special sheet.

Echo Falls Canyon Creek; Ventura County; an intermittent stream, about 2 miles long, rising in the southwestern part of T. 5 N., R. 21 W., San Bernardino base and meridian, in the Santa Barbara National Forest, and flowing east of south into Santa Paula Creek (tributary to Santa Clara River, which discharges to the Pacific). Santa Paula sheet.

Eckart Canyon Creek; Santa Barbara County; an intermittent stream, 3½ miles long, rising in the eastern part of T. 10 N., R. 29 W., San Bernardino base and meridian, and flowing northeastward to Powell Canyon Creek (tributary

[1] Second Ann. Rept. U. S. Reclamation Service, 1902–3, pp. 118–119.

to Cuyama River, Santa Maria River, which discharges to the Pacific) below the mouth of Kelsey Canyon. Santa Ynez sheet.

Eddys Creek; Siskiyou County; rises in the northwestern part of T. 39 N., R. 11 W., Mount Diablo base and meridian; flows northeastward into North Fork of Salmon River (tributary through Salmon River to Klamath River, which discharges to the Pacific); length, 3 miles; tributary, a stream 4 miles long, rising in the eastern part of T. 39 N., R. 11 E., and flowing northwestward. Punnett's map of Siskiyou County.

Eden Creek; Eel River basin; Mendocino County; rises in the west-central part of T. 20 N., R. 12 W., Mount Diablo base and meridian; flows east of north 5 miles, then in a general easterly course 4 miles to its junction with Elk Creek (tributary through Middle Fork of Eel River to Eel River, which discharges to the Pacific); passes through Eden Valley. Punnett's map of Mendocino County.

Eden Creek; San Lorenzo Creek basin; Alameda County; rises on the west slope of Divide Ridge, in the southwestern part of T. 2 S., R. 1. W., Mount Diablo base and meridian, at altitude 1,250 feet above sea level; flows southwestward 3 miles to Palomeras Creek (tributary through San Lorenzo Creek to San Francisco Bay); principal tributary, Hollis Creek. Pleasanton and Haywards sheets.

Edwards Creek; Mendocino County; rises in the southwestern part of T. 12 N., R. 11 W., Mount Diablo base and meridian; flows somewhat north of east to its junction with Russian River (tributary to the Pacific) near Echo; length, 5 miles. Punnett's map of Mendocino County.

Eel River; Glenn, Lake, Mendocino, Trinity, and Humboldt counties; rises in Glenn County, in the northern part of T. 20 N., R. 8 W., Mount Diablo base and meridian; flows southeastward 3 miles, then takes a general southwesterly course, crosses the northern part of Lake County, enters Mendocino County in the southern part of T. 18 N., R. 11 W., whence its general course is northwestward to the western part of T. 3 N., R. 2 W., Humboldt base and meridian, where it enters the Pacific; length, including major windings, which are many, about 175 miles; principal tributaries, Middle, North, and South forks, and Van Duzen River; above the mouth of the Middle Fork the main stream is called South Eel River.

The lower portion of the drainage area below the mouth of the South Fork is in the redwood belt; the remainder of the area is semi-open and contains very little merchantable timber except on a small tract near Grizzly Mountain.

The low lands are fertile and well cultivated; the rolling and hill lands are covered with grass and are used only for grazing. Precipitation throughout the entire drainage area is very heavy during the winter months.

Water is diverted from the South Eel to the basin of the East Fork of Russian River where it is used by the Snow Mountain Power Company for power development.

Gaging stations at Hearst (South Eel) (1910–1912); near Laytonville (1911–12); and at Scotia (1910–1912).

Authorities: Punnett's maps of Glenn, Lake, Mendocino, Trinity, and Humboldt counties; Water-Supply Paper U. S. Geol. Survey No. 291, 1912, p. 175.

Eel River, Middle Fork; Glenn, Trinity, and Mendocino counties; formed in Mendocino County in the southern part of T. 23 N., R. 11 W., Mount Diablo base and meridian, by the union of its North and South forks. The North Fork, which drains the larger area and is therefore considered the continuation of the Middle Fork, rises in Trinity County in the northeastern part of T. 26 N., R. 11 W.; flows westward 3 miles, then takes a general southerly course to the point at which it receives the South Fork; below these forks the Middle Fork winds very irregularly southward to the eastern part of T. 21 N., R. 12 W.,

whence its general course is north of west to its point of junction with the Eel in the southwestern part of T. 22 N., R. 13 W.; length of the Middle Fork from Eel River to the head of its North Fork, including major windings, about 55 miles; principal tributaries below the mouth of the South Fork, Round Valley, Hayshed, Thatcher, and Elk creeks. Gaging station near Covelo (1911–12). Punnett's maps of Glenn, Trinity, and Mendocino counties.

Eel River, Middle Fork, North Fork of. *See* Eel River, Middle Fork.

Eel River, Middle Fork, South Fork of; Glenn and Mendocino counties; rises in Glenn County in the eastern part of T. 20 N., R. 9 W., Mount Diablo base and meridian; flows northwestward about 24 miles to the south-central part of T. 23 N., R. 11 W., where it unites with the North Fork of Middle Fork to form the Middle Fork of Eel River (tributary to Eel River, which discharges to the Pacific); only tributary named on the map, Cold Creek. Punnett's map, of Mendocino County.

Eel River, North Fork; Trinity, Mendocino, and Humboldt counties; rises in Trinity County in the southeastern part of T. 2 S., R. 6 E., Humboldt base and meridian; flows southeastward 22 miles to the central part of T. 5 S., R. 8 E., whence its course is westward, southward, and north of west to the point at which it unites with the Eel (tributary to the Pacific); length, about 35 miles; principal tributaries, Salt and Hull creeks. Punnett's maps of Trinity, Mendocino, and Humboldt counties.

Eel River, Rice Fork; Lake County; rises in the northern part of T. 16 N., R. 8 W., Mount Diablo base and meridian; flows northwestward to its junction with Eel River (tributary to the Pacific); length, 16 miles; principal tributaries, Bear and Rice creeks. Land Office map of California, 1907; Punnett's map of Lake and Mendocino counties.

Eel River, South. *See* Eel River.

Eel River, South Fork; Mendocino and Humboldt counties; rises in the northeastern part of T. 20 N., R. 15 W., Mount Diablo base and meridian; takes a general northwesterly course to Dyerville in the southeastern part of T. 1 S., R. 2 E., Humboldt base and meridian, where it unites with Eel River (tributary to the Pacific); length, including major windings, about 75 miles; principal tributaries, Dutch Charles, Rock, Elder, Rattlesnake, Big Dan, Cedar, Hollow Tree, Red Mountain, Indian, Milk Ranch, Fish, Sproul, Redwood, Dean Canyon, Rocky Glen, Salmon, Elk, Canoe, and Ball creeks, and East Branch of South Fork. Gaging station at Garberville (1911–12). Punnett's map of Mendocino and Humboldt counties.

Eel River, South Fork, East Branch of; Mendocino and Humboldt counties; rises in the southwestern part of T. 5 S., R. 5 E., Humboldt base and meridian; flows south of west 3 miles, then in general northwesterly to its junction with South Fork of Eel River (tributary to Eel River, which discharges to the Pacific); principal tributaries Elkhorn, Squaw, and Buck Mountain creeks; length, about 14 miles. Punnett's maps of Mendocino and Humboldt counties.

Eightmile Creek; Modoc County; rises in the northeastern part of Lake County on the northern slope of Bidwell Peak; flows eastward 2 miles, then southeastward 3 miles into Cow Head Lake; fall, about 500 feet. Alturas sheet.

El Corte de Madera Creek; San Gregorio Creek basin; San Mateo County; rises in the western part of T. 6 S., R. 4 W., Mount Diablo base and meridian, near Sierra Morena, at altitude 2,000 feet above sea level; flows westward 1 mile, then southerly 7 miles to its junction with San Gregorio Creek, which discharges to the Pacific; fall, about 1,900 feet. Santa Cruz sheet.

Elder Canyon Creek; San Diego County; rises in the west-central part of T. 9 S., R. 4 E., San Bernardino base and meridian, at altitude 5,100 feet above

sea level; flows in general northeastward to Coyote Canyon, which discharges to Borego Valley; length, about 7 miles. Ramona sheet.

Elder Creek; Mendocino County; rises in the southwestern part of T. 22 N., R. 15 W.; flows north of west 3 miles into South Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Eldorado Creek; Santa Barbara County; rises on the south slope of the Santa Ynez Mountains, in T. 4 N., R. 25 W., San Bernardino base and meridian, at altitude 3,000 feet above sea level; flows southeastward 3 miles to its junction with Steer Creek with which it forms Gobernador Creek (tributary to Carpinteria Creek, which discharges to the Pacific); fall, 2,150 feet. Ventura sheet.

El Callejon Creek. *See* El Jaro Creek.

Elizabeth Lake; Los Angeles County; the southwestern part of T. 7 N., R. 14 W., San Bernardino base and meridian; occupies a depression in an alluvial trough coinciding with the San Andreas fault zone; receives the drainage of a small area in the surrounding hills and may be fed by springs. Its waters are fairly fresh, for at the northwest end it overflows occasionally into the smaller Hughes Lake, which in turn feeds the headwaters of a southward flowing stream that is part of the Santa Clara drainage basin. Water-Supply Paper U. S. Geol. Survey No. 278, 1911, p. 14 and Pl. VI.

Elizabeth Lake Canyon Creek; Los Angeles County; rises in the southern part of T. 7 N., R. 15 W., San Bernardino base and meridian; flows southwestward into Castac Creek (tributary to Santa Clara River, which discharges to the Pacific). See Hughes and Elizabeth lakes. The creek drains a mountainous country in which altitudes range from 1,200 to 3,200 feet above sea level; principal tributaries, Fish and Ruby Canyon creeks. Tejon sheet.

El Jaro Creek; Santa Ynez River basin; Santa Barbara County; rises on the north slope of the Santa Ynez Mountains in San Julian Rancho, at altitude about 1,300 feet above sea level; flows southwestward 5 miles, then northwestward 7 miles into Salsipuedes Creek, through which it is tributary to Santa Ynez River (tributary to the Pacific Ocean); called El Callejon Creek at its head; principal tributaries below El Callejon, Llanito Creek, Yridisis, Ytias, and Los Amoles creeks. Lompoc sheet.

Elk Creek; Eel River basin; Humboldt County; rises in the western part of T. 2 S., R. 4 E., Humboldt base and meridian; flows northwestward 4 miles into South Fork of Eel River (tributary to Eel River, which flows to the Pacific). Punnett's map of Humboldt County.

Elk Creek; Eel River basin; Mendocino County; rises in the northern part of T. 19 N., R. 10 W., Mount Diablo base and meridian, on the west slope of Mount Hull; flows northwestward to its junction with Middle Fork of Eel River (tributary to Eel River, which flows to the Pacific); length, 15 miles; principal tributary, Eden Creek. Punnett's map of Mendocino County.

Elk Creek; Klamath River basin; Siskiyou County; rises in the western part of T. 43 N., R. 12 W., Mount Diablo base and meridian, in a small lake on the east slope of Marble Mountain; flows in general northwestward to its junction with Klamath River (tributary to the Pacific) 1 mile southwest of Happy Camp in T. 16 N., R. 7 E., Humboldt base and meridian; length, about 18 miles. Punnett's map of Siskiyou County.

Elk Creek; Mendocino County; rises in the northern part of T. 13 N., R. 15 W., Mount Diablo base and meridian; flows northwestward and enters the Pacific at Greenwood Landing; length, 12 miles. Punnett's map of Mendocino County.

Elkhart Creek; Monterey County; rises in the central part of T. 12 S., R. 3 E., Mount Diablo base and meridian; flows southwestward to Moss, where it enters the Pacific in Monterey Bay; length, about 8 miles. Land Office map of California, 1907.

Elkhorn Creek; Mendocino County; rises in the western part of T. 24 N., R. 16 W., Mount Diablo base and meridian, on the east slope of Red Mountain; flows northeastward 1½ miles, then northwestward about 4 miles into the East Branch of the South Fork of Eel River (tributary through South Fork of Eel River to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Elk River; Humboldt County; rises in the central part of T. 3 N., R. 1 E., Humboldt base and meridian; flows northwestward and discharges into Humboldt Bay near the town of Elk River; length, about 12 miles; principal tributaries, North and South forks. Punnett's map of Humboldt County.

Elk River, North Fork; Humboldt County; rises in the northwestern part of T. 3 N., R. 2 E., Humboldt base and meridian; flows in general north of west to its junction with Elk River (tributary to Humboldt Bay); length, about 10 miles; principal tributary, Bridge Creek. Punnett's map of Humboldt County.

Elk River, South Fork; Humboldt County; rises in the eastern part of T. 3 N., R. 1 E., Humboldt base and meridian; flows northwestward to its junction with Elk River (tributary to Humboldt Bay); length, about 5 miles. Punnett's map of Humboldt County.

Ellery Lake; Mono County; Mono National Forest; central part of T. 1 N., R. 25 E., Mount Diablo base and meridian; inlet, Leevining Creek, which flows through the lake into Mono Lake; altitude, about 9,500 feet. Mount Lyell sheet.

Elliott Creek; Jackson County, Oreg., and Siskiyou County, Cal.; rises in the southern part of Jackson County; flows southwestward into Siskiyou County, Cal., in the central part of T. 48 N., R. 9 W., Mount Diablo base and meridian, then takes a general westerly course to its junction with Applegate Creek (tributary through Rogue River to Illinois River, which flows to the Pacific) in the western part of T. 48 N., R. 11 W.; principal tributary, Dutch Creek. Punnett's map of Siskiyou County.

Ellysly Creek; San Luis Obispo County; rises in T. 28 S., R. 9 E., Mount Diablo base and meridian; flows southeastward into Villa Creek, which discharges to the Pacific; about 2 miles long. Cayucos sheet.

Elm Creek; Ventura County; an intermittent stream, half a mile long, flowing southwestward into Tar Creek (tributary through Sespe Creek to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Elsinore Lake; Riverside County; Tps. 5 and 6 S., Rs. 4 and 5 W., San Bernardino base and meridian; a body of brackish water which occasionally receives the flood waters of San Jacinto River and at long intervals may discharge through Temescal Wash to Santa Ana River (tributary to the Pacific); the lake is nearly 5 miles long (northwest-southeast) and about 2 miles wide; altitude, 1,220 feet above sea level. See San Jacinto River. Elsinore sheet.

Elwood Canyon Creek. *See* Bell Canyon Creek.

Emigrant Gulch Creek; Trinity County; rises in the northeastern part of T. 8 N., R. 6 E., Humboldt base and meridian; flows southeastward into New River (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, 10 miles. Punnett's map of Trinity County.

Empire Creek; Siskiyou County; rises in the northwestern part of T. 47 N., R. 7 W., Mount Diablo base and meridian; flows southwestward 6 miles into

Klamath River (tributary to the Pacific) at Gottville (Empire Mill). Shasta sheet; Punnett's map of Siskiyou County, on which it is not named.

Encinitas Creek; San Diego County; rises in the southwestern part of T. 12 S., R. 3 W., San Bernardino base and meridian, at altitude 900 feet above sea level; flows southwestward and southward into San Elijo Lagoon, a brackish-water marsh, 2 miles southeast of Encinitas. The lagoon is separated from the ocean by a narrow sand ridge which may at times be cut through by flood waters of the creek; intermittent. Escondido and Oceanside sheets.

Escondido Creek; Jalama Creek basin; Santa Barbara County; an intermittent stream, about 2¼ miles long, flowing southward into Jalama Creek (tributary to the Pacific) in the western part of San Julian Rancho. Lompoc sheet.

Escondido Canyon Creek; Santa Clara River basin; Los Angeles County; rises in the west-central part of T. 5 N., R. 13 W., San Bernardino base and meridian, at altitude about 3,200 feet above sea level; flows southwestward into Agua Dulce Canyon through which it is tributary to Santa Clara River (tributary to the Pacific Ocean); length, 5 miles; fall, 1,100 feet; intermittent. Fernando sheet.

Escondido Creek; Jalama Creek basin; Santa Barbara County; an intermittent stream, about 2¼ miles long, flowing southward into Jalama Creek (tributary to the Pacific) in the western part of San Julian Rancho. Lompoc sheet.

Escondido Creek; San Diego County; rises in the western part of T. 11 S., R., 1 W., San Bernardino base and meridian, at altitude about 1,800 feet above sea level; flows southwestward, and discharges into the San Elijo Lagoon, a brackish-water marsh 2 miles southeast of Encinitas. The creek is about 25 miles long and the lagoon into which it discharges is separated from the ocean by a narrow sand ridge, which may at times be cut through by flood waters of the creek. Escondido and Oceanside sheets.

Espada Creek; Jalama Creek basin; Santa Barbara County; an intermittent stream, 4 miles long, rising on the south slope of the Lompoc Hills and flowing west of south into Jalama Creek (tributary to the Pacific). Lompoc sheet.

Espinosa Lake; Monterey County; about 5 miles northwest of the city of Salinas; altitude, 13 feet; overflow from the lake passes westward to Alisol Slough, one of the channels through which the flood waters of Salinas River reach Monterey Bay. Salinas Valley map, sheet I.

Estero Americano Creek, Sonoma County; rises in Blucher Rancho 3 miles east of Bloomfield; flows westward into the Pacific, which it enters through a tidal estuary. The southern shore of the estuary forms a part of the northern boundary of Marin County. Punnett's map of Sonoma County.

Estrella Creek; San Luis Obispo County; formed in the central part of T. 26 S., R. 15 E., Mount Diablo base and meridian, by the junction of Cholame and San Juan creeks (q. v.); flows northwestward to its junction with Salinas River (tributary to the Pacific Ocean) south of San Miguel; length below Shandon, about 10 miles; principal tributaries below the two upper forks, Indian, Keyes, Hog Valley, Ranchial, and San Jacinto creeks. Land Office map of California, 1907.

Etiwanda Canyon Creek, East; Santa Ana River basin; San Bernardino County; an intermittent stream, about 3 miles long, rising in T. 2 N., R. 6 W., San Bernardino base and meridian; flows southward into San Bernardino Valley. Cucamonga sheet.

Etna Creek; Siskiyou County; rises in the southeastern part of T. 42 N., R. 11 W., Mount Diablo base and meridian; flows eastward 7 miles, then northeastward 4 miles to its junction with Scott River, through which it is tributary to Klamath River (tributary to the Pacific) in the eastern part of T. 42 N., R.

9 W. Punnett's map of Siskiyou County. Called Mill Creek on Land Office map, 1907.

Eureka Canyon Creek; Ventura County; an intermittent stream rising on the north slope of Oak Ridge and flowing northwestward to Santa Clara River (tributary to the Pacific); length, about 3 miles. Camulos sheet.

Evans Creek; Klamath River basin; Siskiyou County; rises in the southwestern part of T. 43 N., R. 11 W., Mount Diablo base and meridian; flows west of south 2 miles, south of east 6 miles, northeastward 6 miles, then northward 5 miles to its junction with Scott River (tributary to Klamath River, which flows to the Pacific); principal tributary, Shackelford Creek. Punnett's map of Siskiyou County. Spelled *Evens* on Land Office map of California, 1907.

Evans Creek; Pescadero Creek basin; San Mateo County; a stream about 3 miles long, rising in the southern part of T. 7 S., R 3 W., Mount Diablo base and meridian, and flowing southward to Peters Creek, through which it is tributary to Pescadero Creek, which discharges to the Pacific. Santa Cruz sheet.

Evey Canyon Creek; Los Angeles County; rises in the north-central part of T. 1 N., R. 8 W., San Bernardino base and meridian, at altitude 4,500 feet above sea level; flows southeastward 2 miles into San Antonio Canyon, through which it is tributary to Santa Ana River, which discharges to the Pacific; intermittent. Cucamonga sheet.

Ewauna Lake. *See* Klamath River.

Fagan Canyon Creek; Ventura County; an intermittent stream, 2½ miles long, draining a small area in the eastern part of Ex Mission San Buenaventura Rancho and flowing southward toward Santa Clara River (tributary to the Pacific) near Santa Paula. Santa Paula sheet.

Fairview Canyon; Ventura County; a drainage way opening southward to Santa Clara River (tributary to the Pacific) 2½ miles west of Buckhorn. Camulos sheet.

Fall Creek; Los Angeles River basin; Los Angeles County; rises in the San Gabriel Timber Land Reserve, 3 miles southeast of Gleason Mountain, at altitude 4,000 feet above sea level; flows somewhat west of south into Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific Ocean); length, 2½ miles; fall, 1,600 feet. Tujunga sheet.

Fall Creek; San Lorenzo River basin; Santa Cruz County; rises in the northwestern part of T. 10 S., R. 2 W., Mount Diablo base and meridian, at altitude 1,600 feet above sea level; flows southeasterly 4 miles into San Lorenzo River (tributary to the Pacific) near Felton; fall, about 1,200 feet. Santa Cruz sheet.

Fall Creek; Siskiyou County. *See* Jennie Creek.

Fallen Leaf Lake; Eldorado County; northeastern part of T. 12 N., R. 17 E., Mount Diablo base and meridian, north of Angora Peak; 1 inlet, draining several small lakes; outlet, a stream about 1 mile long, flowing northward into Lake Tahoe (outlet, Truckee River to Pyramid and Winnemucca lakes); altitude about 6,350 feet; fall of outlet, 125 feet. Pyramid Peak sheet.

Falls Creek; Owens River basin; Inyo County; Kern National Forest; rises on the east slope of the Sierra, 1½ miles southeast of Olancha Peak, at altitude 8,000 feet above sea level; flows south of east 3 miles into Walker Creek, which discharges to Owens Valley; fall, 3,000 feet. Olancha sheet.

Falls Creek; Santa Ana River basin; San Bernardino County; rises in the southern part of T. 1 N., R. 1 E., San Bernardino base and meridian, at altitude 10,000 feet above sea level; flows southwestward into Mill Creek (tributary to Santa Ana River, which discharges to the Pacific); length, about 4 miles; fall, 4,100 feet. San Gorgonio sheet.

Fay Creek; Sonoma County; rises in the eastern part of Bodega Rancho; flows west of south 3 miles into Salmon Creek (tributary to the Pacific). Punnett's map of Sonoma County.

Feather Lake; Lassen County; 8 miles northeast of Caribou Lake; between Pine Creek and Susan River; neither inlet nor outlet mapped; altitude, about 5,500 feet above sea level; very small. Lassen Peak sheet.

Featherstone Canyon Creek; San Diego County; rises in the western part of T. 14 S., R. 2 E., San Bernardino base and meridian, at altitude 2,200 feet above sea level; flows southwestward 3 miles, then northwestward 1 mile into Padre Barona Creek (tributary through San Vicente Creek to San Diego River, which discharges to the Pacific through False Bay); intermittent; fall, 850 feet. Cuyamaca sheet.

Felipe Creek; Santa Clara County; rises in the western part of T. 11 S., R. 7 E., Mount Diablo base and meridian, west of Cathedral Peak; flows west of north into Pacheco Creek (tributary to Pajaro River, which discharges to the Pacific in Monterey Bay); length, about 8 miles. Land Office map of California, 1907.

Feliz Creek; Mendocino County; rises in the southeastern part of T. 14 N., R. 13 W., Mount Diablo base and meridian; flows in general southeastward to its junction with Russian River (tributary to the Pacific) near Sanel; principal tributary, Middle Fork. Punnett's map of Mendocino County.

Feliz Creek, Middle Fork; Mendocino County; rises in the east-central part of T. 13 N., R. 13 W., Mount Diablo base and meridian; flows northwestward 1 mile, then eastward 3 miles to its junction with Feliz Creek, through which it is tributary to Russian River (tributary to the Pacific). Punnett's map of Mendocino County.

Ferris Canyon Creek; California-Nevada; rises in Mono County, Cal., in the eastern part of T. 7 N., R. 24 E., Mount Diablo base and meridian, on the east slope of the Sweetwater Mountains, at altitude 11,300 feet above sea level; flows, in general, north of east to its junction with Sweetwater Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake) in Mineral County, Nev.; length, 7 miles; fall, 5,000 feet, of which 3,300 feet occurs in the 3 miles in the canyon; principal tributary, Silverado Canyon Creek. Bridgeport sheet.

Ficay Creek; an intermittent stream rising on the southern slope of the Santa Ynez Mountains and flowing southward and westward to Arroyo de las Ortegas (tributary to the Pacific); length, 2½ miles. Santa Barbara special map.

Fife Creek; Sonoma County; rises in the northwestern part of T. 8 N., R. 10 W., Mount Diablo base and meridian; flows southward 5 miles to its junction with Russian River (tributary to the Pacific) near Guerneville. Punnett's map of Sonoma County.

Figueroa Creek; Santa Barbara County; an intermittent stream, 3 miles long, rising on the south slope of the San Rafael Mountains and flowing southward to Santa Agueda Creek, which discharges to Santa Ynez River (tributary to the Pacific Ocean). Lompoc sheet.

Finny Creek; Santa Cruz County; a stream about 2 miles long flowing southwestward into the Pacific in Año Nuevo Bay. Santa Cruz sheet.

Fish Canyon Creek; Santa Clara River basin; Los Angeles County; an intermittent stream rising on the southern slopes of Sawmill Mountain, in T. 7 N., R. 16 W., and flowing southwestward into Castac Creek (tributary to Santa Clara River, which discharges to the Pacific); length to head of longest fork, about 10 miles; fall, about 3,400 feet. Tejon sheet.

Fish Canyon Creek; Los Angeles County; rises in the southwestern part of T. 2 N., R. 10 W., San Bernardino base and meridian, at altitude 3,500 feet above sea level; flows southeastward 5 miles to San Gabriel River (tributary to the Pacific); fall, 2,750 feet; intermittent. Pomona sheet.

Fish Creek; Eel River basin; Humboldt County; rises in the northern part of T. 5 S., R. 4 E., Humboldt base and meridian; flows northwestward 3 miles to the South Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Fish Creek; Santa Ana River basin; San Bernardino County; rises about 3 miles east of San Gorgonio Mountain, at altitude 9,700 feet above sea level; flows northwestward 5½ miles to its junction with Santa Ana River (tributary to the Pacific); fall, 3,400 feet. San Gorgonio sheet.

Fish Creek; Santa Clara River basin; Los Angeles County; an intermittent stream rising in the western part of T. 7 N., R. 15 W., San Bernardino base and meridian, and flowing southwestward into Elizabeth Lake Canyon Creek (tributary through Castac Creek to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Fish Creek; Santa Clara River basin; Ventura County; rises in the eastern part of T. 6 N., R. 19 W., San Bernardino base and meridian, between White and Cobblestone mountains, at altitude 5,300 feet above sea level; flows southeastward 2 miles, then north of east 2 miles to its junction with Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); fall, 3,600 feet; tributary, North Fork. Tejon sheet.

Fish Creek, North Fork; Santa Clara River basin; Ventura County; rises in the northwestern part of T. 6 N., R. 18 W., San Bernardino base and meridian, on the eastern slope of White Mountain, at altitude 4,900 feet above sea level; flows southeastward 2 miles to Fish Creek (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific); fall, 2,900 feet. Tejon sheet.

Fish Fork. *See* San Gabriel River, Fish Fork.

Fish Hole Creek; Klamath County, Oreg.; rises in the eastern part of Klamath County; flows northwestward into South Fork of Sprague River (tributary through Sprague River to Williamson River, and thus through Upper Klamath Lake to Klamath River, which discharges to the Pacific). Klamath sheet.

Fivemile Creek; Klamath County, Oreg.; rises on the east slope of the Black Hills and flows in general southeastward into the North Fork of Sprague River (tributary through Sprague River to Williamson River, and thus through Upper Klamath Lake to Klamath River, which discharges to the Pacific); length, about 10 miles; intermittent. Klamath sheet.

Fleming Creek; San Bernardino County; rises in the south-central part of T. 2 N., R. 3 W., San Bernardino base and meridian, at altitude 5,600 feet above sea level; flows northward into Little Bear Creek (tributary to Deep Creek, which flows into Mohave River); length, about 1 mile; fall, 600 feet. Redlands and Deep Creek sheets.

Fletcher Creek; Modoc County; rises in the northern part of the county, about 4 miles west of Goose Lake; flows southwestward into the South Fork of Willow Creek (tributary to Lost River, which discharges to Rhett Lake); length, about 8 miles. Alturas sheet.

Forsythe Creek; Mendocino County; rises in the northeastern part of T. 17 N., R. 14 W., Mount Diablo base and meridian; flows southeastward 13 miles to its junction with Russian River (tributary to the Pacific) in Yokayo Rancho;

principal tributaries, Mill and Seward creeks; called Walker Valley Creek for 3 miles at head. Punnett's map of Mendocino County.

Fort Creek; Klamath County, Oreg.; rises near Fort Klamath; flows southwestward into Anna River [Wood River]; length, 2 miles. Klamath sheet.

Fort Goff Creek; Siskiyou County; rises in the central part of T. 18 N., R. 8 E., Humboldt base and meridian; flows east of south 4 miles to its junction with Klamath River (tributary to the Pacific) in the southwestern part of T. 47 N., R. 12 W. Punnett's map of Siskiyou County.

Fort Ross Creek; Sonoma County; rises in the northeastern part of Muniz Rancho; flows southwestward and enters the Pacific at North West Cape Harbor; length, 2½ miles. Punnett's map of Sonoma County.

Foster Creek; Mendocino County; rises in the southwestern part of T. 24 N., R. 15 W., Mount Diablo base and meridian; flows southwest and south to its junction with Rattlesnake Creek (tributary through South Fork of Eel River to Eel River, which discharges to the Pacific); length, 4 miles. Punnett's map of Mendocino County.

Fourfork Creek; Santa Clara River basin; Ventura County; an intermittent stream, 2 miles long, rising in the southern part of T. 5 N., R. 19 W., San Bernardino base and meridian, and flowing southwestward into Little Sespe Creek (tributary through Sespe Creek to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Fourmile Creek; Klamath County, Oreg.; rises in Fourmile Lake in the western part of the county; flows southeastward 5 miles, then northeastward 4 miles into Pelican Bay, the western arm of Upper Klamath Lake (outlet, Klamath River, which discharges to the Pacific). Ashland sheet.

Fourmile Lake; Klamath County, Oreg.; outlet, Fourmile Creek to Pelican Bay on Upper Klamath Lake (outlet, Klamath River, which discharges to the Pacific). Ashland sheet.

Fox Creek; Los Angeles County; rises on the south slope of Gleason Mountain in the San Gabriel Timber Land Reserve, at altitude 5,850 feet above sea level; takes an irregular but in general southerly course to its junction with Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific); length, about 7 miles; fall, 3,600 feet; intermittent. Tujunga sheet.

Foxen Canyon Creek; Santa Barbara County; rises in the southern part of Sisquoc Rancho, at altitude 1,400 feet above sea level; flows southwestward 2 miles and northwestward 5 miles toward Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific); fall, about 900 feet. Lompoc sheet.

Foxesse Creek; San Bernardino County; rises in the southern part of T. 1 N., R. 1 E., San Bernardino base and meridian, 2 miles east of San Bernardino Mountain, at altitude 10,400 feet above sea level; flows northwestward 5 miles to its junction with Santa Ana River (tributary to the Pacific); fall, 5,600 feet; intermittent. San Gorgonio sheet.

Frank Horan Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; connects with Cordelia Slough. Napa sheet.

Franklin Canyon Creek; Ballona Creek basin; Los Angeles County; an intermittent stream, about 3 miles long, draining a small area in the Santa Monica Mountains and flowing southward to its junction with Coldwater Canyon Creek (tributary to Ballona Creek, which discharges to the Pacific through Ballona Lagoon). Santa Monica sheet.

Franklin Canyon Creek; Santa Barbara County; an intermittent stream, 2 miles long, rising in T. 4 N., R. 25 W., San Bernardino base and meridian, and flowing southwestward to the Pacific through El Estero, a tidal marsh west of Carpinteria. Santa Barbara special sheet.

Franklin Creek; Arroyo del Hambre Creek basin; Contra Costa County; rises in the southeastern part of Canada del Hambre Rancho, at altitude 600 feet above sea level; flows southeastward along the north base of Franklin Ridge about 4 miles, then northeastward three-fourths mile to Arroyo del Hambre, which discharges to Suisun Bay. Concord and Carquinez sheets.

Franklin Creek; Salinas River basin; San Luis Obispo County; rises in the southeastern part of T. 26 S., R. 9 E., Mount Diablo base and meridian; flows northward to Sierra River (tributary to Salinas River, which discharges to the Pacific in Monterey Bay); length, about 8 miles; tributary, Cabin Creek. Land Office map of California, 1907.

Frazier Creek; Santa Clara River basin; Ventura County; an intermittent stream, about 2 miles long, rising in the southwestern part of T. 7 N., R. 19 W., San Bernardino base and meridian, and flowing northeastward into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); fall, 3,200 feet. Tejon sheet.

Freezeout Creek; Sonoma County; rises in the northern part of Bodega Rancho, 1 mile west of Tyrone; flows north of west 2 miles into Russian River (tributary to the Pacific). Punnett's map of Sonoma County.

French Creek; Klamath River basin; Siskiyou County; rises in the northeastern part of T. 40 N., R. 10 W., Mount Diablo base and meridian, on the northwest slope of Mount of the Cross; flows northeastward to its junction with Scott River (tributary to Klamath River, which discharges to the Pacific); length, 9 miles; principal tributary, Miners Creek. Punnett's map of Siskiyou County.

French Creek; Klamath River basin; Siskiyou County; rises in the southeastern part of T. 45 N., R. 9 W., Mount Diablo base and meridian; flows southwestward to its junction with Indian Creek (tributary to Scott River and thus through Klamath River to the Pacific); length, 2 miles. Punnett's map of Siskiyou County.

French Creek; Klamath River basin; Trinity County; rises in the extreme southwestern part of T. 36 N., R. 12 W., Mount Diablo base and meridian; flows west of south to the southwestern part of T. 5 N., R. 8 E., Humboldt base and meridian, where it enters Trinity River (tributary to Klamath River, which discharges to the Pacific); length, 10 miles. Punnett's map of Trinity County.

French Creek, Little; Trinity County; rises in the northern part of T. 34 N., R. 12 W., Mount Diablo base and meridian; flows southwestward 5 miles into Trinity River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

French Lake; San Diego County; an intermittent water body through which Alamo River passes to Salton Sea; altitude, somewhat more than 122 feet below sea level. Holtville sheet.

Frenchman Creek; San Mateo County; rises in the northwestern part of T. 5 S., R. 5 W., Mount Diablo base and meridian, on the west slope of the Montara Mountains, at altitude 1,800 feet above sea level; flows southwestward and enters the Pacific in Halfmoon Bay; length, about 4 miles; principal tributary, Lock Creek. San Mateo and Santa Cruz sheets.

Freshwater Gulch, Freshwater Slough. *See* Freshwater Creek.

Freshwater Creek; Humboldt County; rises in the north-central part of T. 4 N., R 2 E., Humboldt base and meridian; flows in general somewhat south of west 5 miles, then northwestward into Humboldt Bay; length, about 13 miles. Land Office map of California, 1907. Called Freshwater Gulch in upper portion and Freshwater Slough in lower portion on Punnett's map of Humboldt County.

Fresno Canyon Creek; Salinas River basin; Monterey County; rises in the northwestern part of T. 18 S., R. 5 E., Mount Diablo base and meridian; flows southeastward into Arroyo Seco (tributary to Salinas River, which discharges to the Pacific in Monterey Bay); length, about 10 miles. Land Office map of California, 1907.

Fresno Canyon Creek; Ventura River basin; Ventura County. an intermittent stream, 2½ miles long, rising on the south slope of Sulphur Mountain and flowing southwestward into Ventura River (tributary to the Pacific) near Casitas Station. Ventura sheet.

Fritz Creek; Klamath County, Oreg.; rises in the eastern part of the county and flows southwestward 3 miles into South Fork of Sprague River (tributary through Sprague River to Williamson River, and thus through Upper Klamath Lake to Klamath River, which discharges to the Pacific). Klamath sheet.

Frost Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends southward from Montezuma Creek across Grizzly Island to Grizzly Slough. Antioch sheet.

Fryingpan Canyon Creek; Mono County; rises in the southeastern part of T. 7 N., R. 24 E., Mount Diablo base and meridian, at altitude 10,900 feet above sea level; flows in general somewhat north of east to its junction with East Walker River (tributary to Walker River, which discharges to Walker Lake); length, about 7 miles; fall, 4,900 feet. Bridgeport sheet.

Fuller Creek; Gualala River basin; Sonoma County; rises in the northeastern part of T. 10 N., R. 13 W.; flows southwestward 5 miles, then southward 3 miles into Wheatfield Fork of Gualala River (tributary through Gualala River to the Pacific). Punnett's map of Sonoma County.

Fuller Creek; Owens River basin; Inyo County; Inyo National Forest; rises on the east slope of the Sierra, at altitude 8,800 feet above sea level; flows south of east 3½ miles to its junction with Tinemaha Creek (tributary to Owens River); fall, 3,500 feet. Bishop sheet.

Furnace Canyon Creek; San Bernardino County; T. 3 N., R. 1. E., San Bernardino base and meridian; an intermittent stream, 3 miles long, flowing northward into Mohave Desert. San Gorgonio sheet.

Fusier Canyon Creek; Los Angeles County; an intermittent stream, 1 mile long, flowing southward to Tujunga Canyon (tributary to Los Angeles River, which discharges to the Pacific) near Hoyt ranch. Tujunga sheet.

Gabilan Creek; Monterey County; rises in the eastern part of T. 14 S., R. 4 E., Mount Diablo base and meridian; flows northwestward about 7 miles, then west of south into the marshy area in Salinas Valley (drained by Salinas River, which discharges to the Pacific) northeast of the city of Salinas; length, about 15 miles. Map of Salinas Valley, sheet 1; Land Office map of California, 1907, on which it is shown but not named.

Gabino Canyon Creek; Orange County; rises in extreme southwestern part of Riverside County 1 mile north of the San Diego County line and 1½ miles east of the Orange County line, at altitude 1,700 feet above sea level; flows southwesterly 7 miles into Cristianitos Canyon Creek, which discharges into San Mateo Creek (tributary to the Pacific); fall, 1,450 feet. Elsinore and Capistrano sheets.

Gable Creek; Inyo County; Inyo National Forest; rises on the eastern slope of the Sierra, on north slope of Four Gables, at altitude about 12,000 feet above sea level; flows east and north 4 miles to its junction with Pine Creek (tributary to Rock Creek, which discharges through Owens River to Owens Lake); fall, 4,700 feet. Mount Goddard sheet.

Gacho Creek. *See* Glicko Creek.

Galloway Creek; Mendocino and Sonoma counties; rises in the northwestern part of T. 11 N., R. 13 W., Mount Diablo base and meridian; flows southeastward 2½ miles, then somewhat north of east 4 miles to its junction with Dry Creek (tributary through Russian River to the Pacific) at Hot Springs. Punnett's map of Mendocino County.

Garapito Creek; Los Angeles County; an intermittent stream, 4 miles long, draining a small area in the Santa Monica Mountains and flowing southwestward into Topanga Canyon Creek, which discharges to the Pacific Ocean. Calabasas sheet.

Garcia River; Mendocino County; rises in the central part of T. 12 N., R. 13 W., Mount Diablo base and meridian; flows northwestward 12 miles to the northeastern part of T. 12 N., R. 15 W., southwestward 8 miles, then northwestward and westward to the southern part of T. 13 N., R. 17 W., where it enters the Pacific just east of Point Arena; length, including major windings, 32 miles; receives many small tributaries but none are named on the map. Punnett's map of Mendocino County.

Garden Gulch Creek; Trinity County; rises in the eastern part of T. 34 N., R. 10 W., Mount Diablo base and meridian; flows somewhat east of south to its junction with West Weaver Creek (tributary through Weaver Creek to Trinity River and thus to Klamath River, which discharges to the Pacific); length, about 4 miles. Punnett's map of Trinity County.

Garlic Dry Lake; San Bernardino County; T. 14 N., R. 3 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I and p. 61, on which Garlic Spring is described.

Garrapatos Creek; Monterey County; a stream, about 5 miles long, rising in the south-central part of T. 17 S., R. 1 E., Mount Diablo base and meridian, and flowing southwestward into the Pacific about halfway between Point Carmelo and Point Sur. Land Office map of California, 1907.

Garzas Creek; Monterey County; rises in the eastern part of T. 17 S., R. 1 E., Mount Diablo base and meridian; flows northeastward into Carmelo River, which discharges to the Pacific in Carmelo Bay; length, about 6 miles. Land Office map of California, 1907.

Gasper Creek; Santa Barbara County; an intermittent stream, about 2¼ miles long, flowing west of south into Jalama Creek (tributary to the Pacific) in the western part of San Julian Rancho. Lompoc sheet.

Gato Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, 1 mile southeast of Santa Ynez Peak, at altitude 2,250 feet above sea level; flows west of south to the point at which it enters the Pacific, 1½ miles northwest of Naples; length, 5 miles. Goleta special sheet.

Gaviota Creek; Salinas River basin; Monterey County; rises in the western part of T. 22 S., R. 13 E., Mount Diablo base and meridian; flows northwestward 6 miles, then southwestward 15 miles to San Ardo, where it joins Salinas River (tributary to the Pacific in Monterey Bay). Land Office map of California, 1907.

Gaviota Creek; Santa Barbara County; an intermittent stream, 5 miles long, flowing southward, and entering the Pacific at Gaviota. Lompoc sheet.

Gavin Canyon Creek; Santa Clara River basin; Los Angeles County; an intermittent stream rising in the eastern part of T. 3 N., R. 16 W., San Bernardino base and meridian, and flowing northwestward to Wiley Canyon Creek, which discharges toward Santa Clara River (tributary to the Pacific) between Placerita and Pico Canyon creeks; principal tributary, East Canyon Creek. Santa Susana sheet.

Gazos Creek; San Mateo County; rises in the southeastern part of T. 8 S., R. 4 W., Mount Diablo base and meridian, just west of Hollow Tree Camp, at altitude 1,500 feet above sea level; flows southwestward into the Pacific 1 mile north of Franklin Point; length, about 9 miles; tributary, Old Womans Creek. Santa Cruz sheet.

Gem Lake; Mono County; Mono National Forest; southwestern part of T. 2 S., R. 26 E., Mount Diablo base and meridian; inlet, Rush Creek, which discharges to Mono Lake; altitude, 9,030 feet; affords good storage site. Mount Lyell sheet.

General Creek; Eldorado County; rises in the eastern part of T. 13 N., R. 16 E., Mount Diablo base and meridian, at altitude 8,700 feet above sea level; flows northwestward 3 miles, then northeastward 5½ miles to the point at which it enters Lake Tahoe (outlet, Truckee River to Pyramid and Winnemucca lakes); fall, 2,475 feet. Pyramid Peak and Truckee sheets.

George Creek; Inyo County; rises on the east slope of the Sierra, 1 mile northeast of Mount Barnard, at altitude 12,500 feet above sea level; flows northeastward about 12 miles to the edge of Owens Valley where its waters sink; fall, 8,600 feet, of which 6,500 feet is made in the first 5 miles. Gaging station near Thebe, 1906–1911. Mount Whitney sheet.

German Canyon Creek; Los Angeles County; an intermittent stream, 1 mile long, rising in the northeastern part of T. 3 N., R. 15 W., San Bernardino base and meridian, and flowing northeastward into Sand Canyon Creek (tributary to Santa Clara River, which discharges to the Pacific). Fernando sheet.

Gibbs Canyon Creek; Mono County; Mono National Forest; rises in the southern part of T. 1 N., R. 25 E., Mount Diablo base and meridian, on the north slope of Mount Gibbs, at altitude 11,500 feet above sea level; flows northeastward into Mono Lake; length, about 8 miles; fall, about 5,100 feet, of which 2,000 feet is made in the first mile; at the lower end of the canyon is a channel, about 1 mile long, leading northward to Leevining Creek; head of channel is marked as an intermittent watercourse. Mount Lyell sheet.

Gibson Creek; Mendocino County; rises in the central part of T. 15 N., R. 13 W., Mount Diablo base and meridian; flows eastward into Russian River; length, about 6 miles; passes through Ukiah. Punnett's map of Mendocino County.

Gilbert Creek; Del Norte County; rises in the northern part of T. 18 N., R. 1 W., Humboldt base and meridian; flows northwestward to the point at which it enters the Pacific, 2 miles north of the mouth of Smith River; length, about 2 miles. Punnett's map of Del Norte County.

Gilman Lake; Mono County; southeastern part of T. 3 N., R. 24 E., Mount Diablo base and meridian; inlet, East Fork of Green Creek; outlet, East Fork of Green to Green Creek (tributary to Virginia Creek and thus through East Walker River to Walker River, which discharges to Walker Lake); altitude, 9,450 feet. Bridgeport sheet.

Gilmore Lake; Eldorado County; north-central part of T. 12 N., R. 17 E., Mount Diablo base and meridian, 1 mile southwest of Mount Tallac; outlet, a stream, 1½ miles long, flowing southwestward to the stream connecting Suzy Lake with Fallen Leaf Lake (outlet through Lake Tahoe, Truckee River, and to Pyramid and Winnemucca lakes); altitude, 8,350 feet. Pyramid Peak sheet.

Glacier Canyon Creek; Mono County; Mono National Forest; rises in the southern part of T. 1 N., R. 25 E., Mount Diablo base and meridian, in a glacier on the north slope of Mount Dana (altitude, 13,050 feet); flows northwestward to Tioga Lake, then northward into Leevining Creek (tributary to Mono Lake); length, about 3 miles; fall, 2,500 feet. Mount Lyell sheet.

Glass Creek; Mono County; rises in the southern part of T. 2 S., R. 26 E., Mount Diablo base and meridian; flows northeastward to Owens River; shown on Mount Lyell sheet; shown but not named on the Land Office map of California, 1907.

Glen Anne Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 1,400 feet above sea level; flows west of south 2½ miles, then east of south 2 miles to Coromar, where its waters sink before reaching the marsh through which this part of Santa Barbara County is drained to the Pacific. Goleta special sheet.

Glicko Creek; Monterey County; rises in the northern part of T. 19 S., R. 4 E., Mount Diablo base and meridian; flows northwestward and joins Carmelo River (tributary to the Pacific in Carmelo Bay) near Carmel; length, about 18 miles; principal tributaries, Carmelocitos River and San Clemente Creek. Land Office map of California, 1907.

Gobernador Creek; Santa Barbara County; formed in T. 4 N., R. 25 W., by the union of Eldorado and Steer creeks. Steer Creek, which drains the larger area and is considered the continuation of the main stream, rises in the southeastern part of T. 5 N., R. 25 W., San Bernardino base and meridian, at altitude 3,750 feet above sea level, and flows west of south to the junction with Eldorado Creek; below this junction Gobernador Creek flows southeastward 1½ miles, then southwestward 1½ miles to Carpinteria Creek (tributary to the Pacific); length to head of Steer Creek, 7 miles. Ventura sheet.

Gold Canyon Creek; Los Angeles County; Los Angeles River basin; rises in the Angeles National Forest, 2 miles north of the north line of T. 2 N., R. 13 W., San Bernardino base and meridian, at altitude 3,250 feet above sea level; flows southeastward 1½ miles, then southwestward half a mile into Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific); fall, 1,700 feet. Tujunga sheet.

Gold Creek; Los Angeles County; rises in the Angeles National Forest, at altitude 4,750 feet above sea level; flows southwestward 4 miles into Little Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific); fall, 3,150 feet. Fernando sheet.

Golden Canyon Creek; Alpine County; rises in the western part of T. 7 N., R. 21 E., Mount Diablo base and meridian, on the east slope of Disaster Peak, at altitude 9,100 feet above sea level; flows northeastward and discharges into East Fork Carson River (tributary through Carson River to Carson Sink); length, 4 miles; fall, 2,100 feet. Dardanelles sheet.

Gold Run Creek; Lassen County; rises in the southern part of T. 29 N., R. 11 E., Mount Diablo base and meridian, at altitude 5,000 feet above sea level; flows northeastward 7 miles into Susan River (tributary to Honey Lake); fall, 900 feet. Honey Lake sheet.

Goodale Creek; Inyo County, Inyo National Forest; rises in the triangular area between Mount Pinchot, Striped Mountain, and Goodale Mountain, in a small lake at altitude 11,100 feet above sea level; flows in general northeastward 7 miles, then southeastward to Owens Valley near Hines Spring, where its water sinks; fall, 7,250 feet; gaging station near Aberdeen (1906–1911). Mount Whitney sheet.

Goode Canyon Creek; Santa Barbara County; an intermittent stream, 3 miles long, rising in the western part of T. 9 N., R. 25 W., San Bernardino base and meridian, and flowing northward toward Cuyama River (Santa Maria River, tributary to the Pacific Ocean). Santa Ynez sheet.

Goodyear Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends southwestward from the junction of Cordelia Slough and Suisun Slough. Napa sheet.

Goose Creek; Del Norte County; rises in the eastern part of T. 13 N., R. 2 E., Humboldt base and meridian; flows west of north 6 miles, then east of north 7 miles to its junction with South Fork of Smith River (tributary to Smith River, which flows to the Pacific). Punnett's map of Del Norte County.

Goose Lake; Humboldt County; central part of T. 2 N., R. 1 E., Humboldt base and meridian; outlet, a stream 1½ miles long, flowing southward to Van Duzen River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Gopher Canyon Creek; San Diego County; rises in the central part of T. 11 S., R. 3 W., San Bernardino base and meridian, at altitude 900 feet above sea level; flows northwestward 5 miles into San Luis Rey River (tributary to the Pacific); fall, about 750 feet; intermittent. San Luis Rey sheet.

Gorton Creek; Del Norte County; rises in the eastern part of T. 16 N., R. 2 E., Humboldt base and meridian; flows southwestward into South Fork of Smith River (tributary to Smith River, which flows to the Pacific); length, about 5 miles. Punnett's map of Del Norte County.

Graciosa Canyon; Santa Barbara County; extends northward from Graciosa Ridge toward Santa Maria Valley. Lompoc sheet.

Graham Creek; Sonoma County; rises in the western part of T. 6 N., R. 6 W., Mount Diablo base and meridian; flows northeastward 3 miles to Glen Ellen, then southeastward 1 mile into Sonoma Creek (tributary to Napa River, which discharges to San Pablo Bay). Punnett's map of Sonoma County.

Graham Gulch Creek; Siskiyou County; in the central part of T. 39 N., R. 12 W., Mount Diablo base and meridian; flows southwestward 3 miles into Salmon River (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Grant Lake; Mono County; T. 1 S., R. 26 E., Mount Diablo base and meridian; inlet, Rush Creek; outlet, Rush Creek in Mono Lake; altitude, 7,060 feet; fall of Rush Creek in the 6 miles below Grant Lake, 660 feet. Mount Lyell sheet.

Grapevine Canyon Creek; Los Angeles River basin; Los Angeles County; an intermittent stream rising in the western part of T. 3 N., R. 15 W., San Bernardino base and meridian, and flowing southward into San Fernando Valley. Fernando and Santa Monica sheets.

Grapevine Canyon Creek; San Bernardino County; Tps. 3 and 4 N., R. 2 W.; an intermittent stream, 4 miles long, flowing northward to the Mohave Desert. Deep Creek sheet.

Grapevine Creek; Eel River basin; Mendocino County; rises in the southeastern part of T. 23 N., R. 15 W., Mount Diablo base and meridian; flows southwestward 2½ miles into Rattlesnake Creek (tributary through South Fork of Eel River to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Grapevine Creek; Mohave Desert; San Bernardino County; T. 3 N., R 2 E., San Bernardino base and meridian; an intermittent stream rising in Cactus Flat and flowing northeastward toward the Mohave Desert. San Gorgonio sheet.

Grapevine Creek; Riverside County; an intermittent stream rising on the north slope of Asbestos Mountain and flowing northeastward to Dead Indian Creek, which discharges to Coachella Valley. Indio special sheet.

Grapevine Creek; Tia Juana River basin; San Diego County; rises in the northeastern part of T. 18 S., R. 3 E., San Bernardino base and meridian, at altitude 2,600 feet above sea level; flows west of south 3 miles into Potrero Creek (tributary through Cottonwood Creek to Tia Juana River, which discharges to the Pacific); fall 1,100 feet; intermittent. Cuyamaca sheet.

Grass Creek; Alameda County; rises on the western slope of San Leandro Hills, at altitude 1,000 feet above sea level; flows in general southeastward into Lake Chabot, which discharges through San Leandro Creek to San Leandro and San Francisco bays; fall, 765 feet. Concord and Haywards sheets.

Grasshopper Creek; Sonoma County; rises in the northern part of T. 10 N., R. 13 W., Mount Diablo base and meridian; flows south of west 4 miles, then northward 1 mile into Buckeye Creek, through which it is tributary to Gualala River (tributary to the Pacific). Punnett's map of Sonoma County.

Grass Valley Creek; Klamath River basin; Trinity County; rises in the southern part of T. 32 N., R. 8 W., Mount Diablo base and meridian; flows northwestward to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific); length, 10 miles; principal tributary, Little Grass Valley Creek. Punnett's map of Trinity County.

Grass Valley Creek; Mohave River basin; San Bernardino County; rises in the western part of T. 2 N., R. 3 W., San Bernardino base and meridian, on the north slope of Strawberry Peak, at altitude 5,750 feet above sea level; flows eastward, northward, and northwestward to the central part of T. 3 N., R. 4 W., where it spreads into several channels and joins the West Fork of Mohave River; length, about 9 miles; fall, 2,650 feet. Redlands, Deep Creek, and Hesperia sheets.

Grass Valley Creek, Little; Trinity County; rises in the eastern part of T. 32 N., R. 8 W., Mount Diablo base and meridian, on the west slope of Mount Bally; flows northwestward 6 miles to its junction with Grass Valley Creek (tributary to Trinity River and thus to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Graves Creek; San Luis Obispo County; rises in the southwestern part of T. 28 S., R. 12 W., Mount Diablo base and meridian; flows northward into Salinas River (tributary to the Pacific Ocean) near Templeton; about 5 miles long. Land Office map of California, 1907.

Graveyard Canyon Creek; Los Angeles County; rises in the northeastern part of T. 2 N., R. 9 W., San Bernardino base and meridian, on the west slope of Rattlesnake Peak, at altitude 4,850 feet above sea level; flows southwestward 3½ miles into San Gabriel River (tributary to the Pacific); fall, 3,350 feet; intermittent. Rock Creek and Pomona sheets.

Grayson Creek; Walnut Creek basin; Contra Costa County; rises in Canada del Hambre Rancho, in the Briones Hills, at altitude 800 feet above sea level; flows northeastward 3½ miles, then almost due north 2 miles to a point near Pacheco, where it joins Walnut Creek (tributary to Suisun Bay); fall, 775 feet. Concord sheet.

Green Canyon Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 6 miles long, rising in the southwestern part of T. 10 N., R. 27 W., San Bernardino base and meridian, and flowing northward to Cuyama River (Santa Maria River, tributary to the Pacific). Santa Ynez sheet.

Green Creek; Mono County; formed in the eastern part of T. 3 N., R. 24 E., Mount Diablo base and meridian, by the junction of its East and West forks. The West Fork, which drains the larger area and is therefore considered the continuation of the main stream, heads in a number of small lakes in the southern part of T. 3 N., R. 24 E.; flows northeastward; below the forks Green Creek flows northeastward 5 miles, then west of north 5 miles to the northwestern part of T. 4 N., R. 25 E., where it unites with Virginia Creek to form East Walker River (tributary to Walker River, which discharges to Walker Lake); length to head of West Fork, about 15 miles; fall, 4,500 feet, of which 2,000 feet is made in the 2 miles above Green Lake. Bridgeport sheet.

Green Creek, East Fork; Mono County; rises in the northern part of T. 2 N., R. 24 E., Mount Diablo base and meridian, in Summit Lake, at altitude 10,203 feet; flows northeastward 1½ miles, then northward 2½ miles to Green Creek (tributary through Virginia Creek to East Walker River, and thus to Walker River, which discharges to Walker Lake); fall above junction with West Fork, 1,900 feet; passes through Hoover, Gilman, and Red Lakes. Bridgeport sheet.

Greenhorn Creek; Siskiyou County; rises in the southeastern part of T. 45 N., R. 8 W., Mount Diablo base and meridian; flows in general eastward 5 miles into Yreka Creek (tributary through Shasta River to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Green Lake; Owens River basin; Inyo County; Inyo National Forest; eastern part of T. 9 S., R. 31 E., Mount Diablo base and meridian; one inlet; outlet, a stream, 1½ miles long, flowing northwestward into South Fork of Bishop Creek (tributary through Bishop Creek to Owens River, which discharges to Owens Lake); altitude, 11,100 feet; fall of outlet, about 1,700 feet. Mount Goddard sheet.

Green Lake; Walker River basin; Mono County; southeastern part of T. 3 N., R. 24 E., Mount Diablo base and meridian; inlets from Par Value and West lakes; outlet, West Fork of Green Creek (tributary to Virginia Creek, and thus through East Walker River to Walker River, which discharges to Walker Lake); altitude, 8,950 feet. Bridgeport sheet.

Greenlead Creek; San Bernardino County; rises in the southeastern part of T. 3 N., R. 1 W., San Bernardino base and meridian, at altitude 7,500 feet above sea level; flows southwestward 2 miles into Holcomb Creek (tributary to Deep Creek, which discharges to Mohave River); fall, 900 feet. San Gorgonio sheet.

Greenoaks Creek; Santa Cruz and San Mateo counties; an intermittent stream, 2 miles long, flowing toward the coast in Punto del Año Nuevo Rancho; sinks in the sands northeast of Año Nuevo Point. Santa Cruz sheet.

Green Valley Creek; Mohave River basin; San Bernardino County; rises in the eastern part of T. 2 N., R. 2 W., San Bernardino base and meridian, in Green Valley, at altitude about 7,400 feet above sea level; flows southwestward 3 miles into Deep Creek (tributary to Mohave River); fall, 1,950 feet. Redlands sheet.

Green Valley Creek; Russian River basin; Sonoma County; rises in the northeastern part of T. 6 N., R. 9 W., Mount Diablo base and meridian; flows east of north 3 miles, then west of north 8 miles to its junction with Russian River (tributary to the Pacific). Punnett's map of Sonoma County.

Green Valley Creek; Solano County; rises in the northwestern part of T. 5 N., R. 3 W., Mount Diablo base and meridian, at altitude 1,500 feet above sea level; flows east of south 7 miles into Cordelia Slough, through which it enters Suisun Creek and Bay. Napa sheet.

Green Valley Creek; Walnut Creek basin; Contra Costa County; rises in the eastern part of T. 1 S., R. 1 W., Mount Diablo base and meridian, on the south slope of the Black Hills, at altitude about 850 feet above sea level; flows irregularly westward into San Ramon Creek (Walnut Creek, tributary through Pacheco Creek to San Francisco Bay) at Danville; length, about 5 miles. Mount Diablo sheet.

Greenwood Creek; Mendocino County; rises in the southern part of T. 14 N., R. 15 W., Mount Diablo base and meridian, flows northwestward, and enters the Pacific near the town of Elk; length, 14 miles; called also Donahue Creek. Punnett's map of Mendocino County.

Griders Creek; Siskiyou County; rises in the central part of T. 44 N., R. 12 W., Mount Diablo base and meridian, on the west slope of Marble Mountains;

flows in general somewhat east of north about 14 miles to its junction with Klamath River (tributary to the Pacific) at Griders. Punnett's map of Siskiyou County.

Gridley Canyon Creek; Ventura County; rises in the western part of T. 5 N., R. 22 W., San Bernardino base and meridian, on east slope of Nordhoff Peak, at altitude 2,750 feet above sea level; flows southeastward into San Antonio Creek (tributary to Ventura River, which discharges to the Pacific) at mouth of Senor Canyon; length, about 3 miles; fall, 1,700 feet. Santa Paula sheet.

Grimes Canyon Creek; Ventura County; an intermittent stream rising on the north slope of Oak Ridge, in T. 3 N., R. 19 W., San Bernardino base and meridian, and flowing northwestward toward Santa Clara River (tributary to the Pacific) at Bardsdale. Camulos sheet.

Grizzly Creek; Coyote River basin; Santa Clara County; an intermittent stream draining a small area in the eastern part of T. 8 S., R. 4 E., Mount Diablo base and meridian; tributary to Coyote River (tributary to San Francisco Bay) near its head. Mount Hamilton sheet.

Grizzly Creek; Klamath River basin; Trinity County; rises in the northeastern part of T. 36 N., R. 11 W., Mount Diablo base and meridian; flows westward into the northeastern part of T. 36 N., R. 12 W., where it enters the North Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, about 6 miles. Punnett's map of Trinity County.

Grizzly Creek; Walnut Creek basin; Contra Costa County; rises in the southern part of T. 1 S., R. 2 W., Mount Diablo base and meridian, north of Las Trampas Peak, at altitude 1,500 feet above sea level; flows northwestward 3 miles into Lafayette Branch of Walnut Creek (tributary through Walnut Creek to Suisun Bay); fall, 1,125 feet. Concord sheet.

Grizzly Gulch Creek; Humboldt County; rises in the central part of T. 2 N., R. 3 E., Humboldt base and meridian, 1 mile south of Yagerville; flows southwestward into Van Duzen River (tributary to Eel River, which flows into the Pacific); length, 6 miles. Punnett's map of Humboldt County.

Grizzly Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends northwestward from Montezuma Slough between Grizzly and Hammond Islands. Antioch sheet.

Grouse Creek; Klamath River basin; Humboldt County; rises in the central part of T. 4 N., R. 5 E., Humboldt base and meridian; flows north of east 5 miles into South Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Humboldt County.

Grouse Creek; Klamath River basin; Siskiyou County; rises in the central part of T. 48 N., R. 8 W.; flows southwestward 2 miles into Beaver Creek (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Grout Creek; San Bernardino County; rises in the central part of T. 2 N., R. 1 W., San Bernardino base and meridian, at altitude 7,800 feet above sea level; flows northeastward 2 miles, then eastward about 1 mile toward Bear Lake (outlet through Bear Creek to Santa Ana River, which discharges to the Pacific); fall, 1,000 feet. San Gorgonio sheet.

Guadalupe Creek; Riverside County; an intermittent stream, 3 miles long, flowing northeastward to Devil Canyon, which discharges to the Colorado Desert. Indio special sheet.

Guadalupe River; Santa Clara County; rises in T. 9 S., R. 1 E., Mount Diablo base and meridian; flows in general west of north to Alviso, where it passes through Guadalupe Slough to San Francisco Bay; passes through the

city of San Jose; principal tributaries, Cincas and Los Gatos creeks. San Jose sheet; Land Office map of California, 1907.

Guadalupe Slough; Santa Clara County; in the tidal marsh in the southern end of San Francisco Bay; the channel through which Guadalupe River enters the bay. Palo Alto and San Jose sheets.

Guadalupe Valley Creek; San Mateo County; rises on the northeastern slope of San Bruno Mountain in Canada de Guadalupe de Visitacion Rancho, at altitude 600 feet above sea level; flows southeastward into San Francisco Bay north of Visitation Point; length, about 2 miles; intermittent. San Mateo sheet.

Gualala River; Sonoma and Mendocino counties; formed in Sonoma County in the central part of T. 10 N., R. 14 W., Mount Diablo base and meridian, by the junction of South Fork and Wheatfield Fork. The Wheatfield Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises in the eastern part of T. 9 N., R. 13 W., and takes a general northwesterly course to the point at which it receives the South Fork. Below these forks the Gualala continues to flow northwestward to the southeastern part of T. 11 N., R. 15 W., where it receives the North Fork, turns abruptly to the southwest, and enters the Pacific near the town of Gualala. Above its junction with the South Fork the Wheatfield Fork receives as its principal tributary the Middle Fork of the Gualala, a stream draining a much larger area than Wheatfield Fork proper. Below the mouth of Wheatfield Fork the principal tributaries of the Gualala are Buckeye and Rock Pile creeks and North Fork of Gualala. Punnett's maps of Sonoma and Mendocino counties.

Gualala River, Middle Fork; Sonoma County; rises in the eastern part of T. 10 N., R. 12 W., Mount Diablo base and meridian; flows westward 5 miles, very irregularly southward 4 miles, then winds to the west, northwest, and southwest, and unites with the Wheatfield Fork of Gualala River (through which it is tributary to Gualala and to the Pacific) in the southern part of T. 10 N., R. 13 W.; length, including major windings, 17 miles; principal tributaries, North Fork of Gualala and Wolf Creek, and South Middle Fork of Gualala. Punnett's map of Sonoma County.

Gualala River, Middle Fork, South; Sonoma County; rises in the eastern part of T. 9 N., R. 12 W., Mount Diablo base and meridian; flows very irregularly westward and northward to its junction with Middle Fork of Gualala River (tributary through Wheatfield Fork to Gualala River, and thus to the Pacific); length, including major windings, 10 miles; tributaries unnamed. Punnett's map of Sonoma County.

Gualala River, North Fork [of Middle Fork]; Sonoma County; rises in the southern part of T. 11 N., R. 12 W., Mount Diablo base and meridian; flows westward 3 miles, southeastward 1 mile, then west, southwest, and south to its junction with Middle Fork Gualala (tributary through Wheatfield Fork to Gualala River and thus to the Pacific) in the western part of T. 10 N., R. 12 W.; length, including major windings, 10 miles; tributaries unnamed. Punnett's map of Sonoma County.

Gualala River, North Fork; Mendocino County; rises in the southwestern part of T. 12 N., R. 13 W., Mount Diablo base and meridian; flows very irregularly southwestward to the southeastern part of T. 11 N., R. 15 W., where it turns sharply and flows southeastward to its junction with Gualala River (tributary to the Pacific); length, including major windings, 14 miles; principal tributaries, Spring Branch and Billings Creek. Punnett's map of Mendocino County.

Gualala River, South Fork; Sonoma County; rises in the northeastern part of T. 8 N., R. 12 W., Mount Diablo base and meridian; flows southward 2 miles,

then northwestward 18 miles to the central part of T. 10 N., R. 14 W., where it unites with Wheatfield Fork to form Gualala River (tributary to the Pacific). In the southeastern part of T. 9 N., R. 13 W., this fork of the Gualala receives an unnamed fork formed by many short branching tributaries. Punnett's map of Sonoma County.

Gualala River, Wheatfield Fork. *See* Gualala River.

Guatay Creek; San Diego County; rises in the southeastern part of the Cuyamaca grant, at altitude 4,800 feet above sea level; flows southward and southwestward to its junction with Sweetwater River (tributary to the Pacific through San Diego Bay) in Descanso Valley, about 2 miles above the gaging station at Descanso; length, about 6 miles; fall, 1,400 feet; intermittent. Shown but not named on the Cuyamaca sheet.

Guaya Canyon Creek; San Luis Obispo County; an intermittent stream, about 2 miles long, rising in T. 32 S., R. 14 E., Mount Diablo base and meridian, and flowing westward to Newsom Canyon, which discharges to Arroyo Grande Valley (drained by Arroyo Grande Creek, which discharges to the Pacific). Arroyo Grande sheet.

Guiberson Canyon Creek; Ventura County; an intermittent stream, 2 miles long, rising on the north slope of Oak Ridge and flowing northwestward to Santa Clara River (tributary to the Pacific). Camulos sheet.

Gull Lake; Mono County, Mono National Forest; east-central part of T. 2 S., R. 26 E., Mount Diablo base and meridian; inlet, Reversed Creek, which enters from June Lake; outlet, Reversed Creek to Rush Creek, which discharges to Mono Lake; altitude, about 7,625 feet. Mount Lyell sheet.

Guthrie Creek; Humboldt County; rises in the southeastern part of T. 2 N., R. 2 W., Humboldt base and meridian; flows northwestward, and enters the Pacific 7 miles southwest of the mouth of Eel River (tributary to the Pacific); length, 6 miles. Punnett's map of Humboldt County.

Gwin Gulch Creek; Trinity County; rises in the west-central part of T. 34 N., R. 10 W., Mount Diablo base and meridian; flows northwestward 1 mile and south of west 2 miles into Canon Creek (tributary to Trinity River and thus to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Gypsum Canyon Creek; Riverside County; an intermittent stream, 3 miles long, flowing northeastward to Eagle Canyon Creek and then northward into Temescal Wash (tributary to Santa Ana River, which discharges to the Pacific) south of Corona. Corona sheet.

Hagador Canyon Creek; Riverside County, an intermittent stream, 4 miles long, flowing northward to Temescal Wash (tributary to Santa Ana River, which discharges to the Pacific) southwest of Corona; tributary, Tin Mine Canyon Creek. Corona sheet.

Haines Canyon; Ventura County; a drainage way opening southward to Santa Clara River (tributary to the Pacific) in the northern part of T. 4 N., R. 19 W., San Bernardino base and meridian. Camulos sheet.

Haiwee Creek; Inyo County; rises on the east slope of the Sierra, in the eastern part of T. 21 S., R. 36 E., Mount Diablo base and meridian, at altitude 8,300 feet above sea level; flows north and east of north to the region south of Owens Lake, where its waters sink; length, about 5 miles; fall, 3,500 feet. Olancha sheet.

Half Moon Lake; Eldorado County; northwestern part of T. 12 N., R. 17 E., Mount Diablo base and meridian, half a mile southeast of Dicks Peak; 2 small, inflowing streams; outlet, a stream, 1 mile long, flowing southeastward to Suzy

Lake (outlet to Fallen Leaf Lake, which discharges to Lake Tahoe); altitude, 8,150 feet; above Suzy Lake, 400 feet. Pyramid Peak sheet.

Hall Canyon Creek; Ventura County; an intermittent stream, 5 miles long, rising in the western part of T. 3 N., R. 22 W., and flowing southwestward to the Pacific Ocean, just south of the city of Ventura; fall, 1,000 feet. Santa Paula and Ventura sheets.

Halloran Wash; San Bernardino County; Tps. 14 and 15 N., Rs. 9 and 10 E., San Bernardino base and meridian; a desert drainage way extending southwestward from a point near Halloran Springs. Ivanpah sheet.

Halls Creek; Trinity County; rises in the southwestern part of T. 37 N., R. 6 W., Mount Diablo base and meridian, at altitude 5,400 feet above sea level; flows south of west to its junction with East Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, 2½ miles; fall, 3,100 feet. Shasta sheet.

Hammond Canyon Creek; Ventura County; rises on the southern slope of Sulphur Mountain at altitude 1,500 feet above sea level; flows southwestward into Canada Larga (tributary to Ventura River, which discharges to the Pacific); length, about 4 miles; fall, 950 feet; tributary, Sulphur Canyon Creek. Santa Paula sheet.

Hampton Canyon Creek; Ventura County; an intermittent stream, 2 miles long, flowing east of south into Wheeler Canyon Creek (tributary to Santa Clara River, which discharges to the Pacific) in Ex Mission San Buenaventura Rancho. Santa Paula sheet.

Happy Camp Canyon Creek; Ventura County; rises on the south slope of Oak Ridge, about 4 miles south of Camulos, at altitude 2,150 feet above sea level; flows south of west 6 miles, then east of south 4 miles to a point near Moorpark at the east end of Little Simi Valley, where it joins Arroyo Las Posas (Calleguas Creek, which discharges to the Pacific); fall, 1,550 feet; intermittent. Camulos sheet.

Harbison Canyon Creek; San Diego County; rises in the southwestern part of T. 15 S., R. 2 E., San Bernardino base and meridian, at altitude 1,300 feet above sea level; flows southwestward 5 miles into Sweetwater River (tributary to the Pacific through San Diego Bay); fall, 750 feet; intermittent. Cuyamaca sheet.

Harding Canyon Creek; Orange County; rises in the eastern part of T. 5 S., R. 7 W., San Bernardino base and meridian, at altitude 3,000 feet above sea level; flows south of west about 4 miles into Santiago Creek (tributary to Santa Ana River, which discharges to the Pacific); fall, 1,600 feet; intermittent. Corona sheet.

Hardscrabble Creek; Mendocino County; rises in the northwestern part of T. 11 N., R. 15 W., Mount Diablo base and meridian; flows southwestward, and enters the Pacific at Signal Port; length, 2½ miles. Punnett's map of Mendocino County.

Hardy Creek; Mendocino County; rises in the central part of T. 22 N., R. 17 W., Mount Diablo base and meridian; flows southwestward and enters the Pacific at Hardy; length, about 3½ miles; several short unnamed tributaries. Punnett's map of Mendocino County.

Hare Creek; Mendocino County; rises in the southeastern part of T. 18 N., R. 17 W., Mount Diablo base and meridian; flows northwestward, and enters the Pacific half a mile south of the mouth of Noyo River; length, 6 miles. Punnett's map of Mendocino County.

Harford Canyon Creek; San Luis Obispo County; an intermittent stream, 2 miles long, draining a small area in San Miguelito Rancho and flowing southward into San Luis Obispo Creek near its entrance to San Luis Obispo Bay. Arroyo Grande sheet.

Harmon Canyon Creek; Ventura County; rises in the western part of T. 3 N., R. 22 W., San Bernardino base and meridian, at altitude 1,150 feet above sea level; flows southward to Santa Clara River (tributary to the Pacific Ocean); length above the edge of the valley, 3½ miles, in which distance the fall is 750 feet. Santa Paula sheet.

Harrington Creek; San Mateo County; rises in T. 6 S., R. 4 W., Mount Diablo base and meridian, at altitude 1,800 feet above sea level; flows west of south 5 miles into San Gregorio Creek, which discharges to the Pacific; fall, 1,500 feet. Santa Cruz sheet.

Harris Canyon; Santa Barbara County; western part of Los Alamos Rancho; opens southeastward to the upper end of San Antonio Valley (drained by San Antonio Creek, which discharges to the Pacific). Lompoc sheet.

Harrow Canyon; Los Angeles County; a drainage way in the western part of T. 1 N., R. 9 W., San Bernardino base and meridian; carries an intermittent stream, about 1 mile long, toward Big Dalton Canyon (tributary to San Gabriel River, which discharges to the Pacific). Pomona sheet.

Haskell Canyon Creek; Los Angeles County; rises in the Santa Barbara National Forest; flows southward into Deadman Canyon Creek (tributary to Santa Clara River, which discharges to the Pacific), to which it delivers water only in times of flood; intermittent. Santa Susana sheet.

Hasley Canyon Creek; Los Angeles County; rises in the southwestern part of T. 5 N., R. 17 W., in the Santa Barbara National Forest, at altitude about 2,100 feet above sea level; flows southeastward into Castac Creek (tributary to Santa Clara River, which discharges to the Pacific); length, about 5 miles; fall, about 1,100 feet. Santa Susana sheet.

Hastings Creek; Contra Costa County; a channel in the tidal marsh south of Suisun Bay. Carquinez sheet.

Hatchet Creek; Trinity County; rises in the southeastern part of T. 37 N., R. 8 W., Mount Diablo base and meridian, at altitude 7,000 feet above sea level; flows southeastward to its junction with Trinity River (tributary through Klamath River, which discharges to the Pacific); length, 5 miles; fall, 4,700 feet, of which 4,000 feet is made in the first 3 miles. Called Natchett Creek on Punnett's map. Shasta sheet.

Hatfield Creek; San Diego County; rises in the northeastern part of T. 13 S., R. 2 E., San Bernardino base and meridian, at altitude 2,900 feet above sea level; flows southwestward through Ballena Valley to the eastern part of T. 13 S., R. 1 E., where it turns and flows northwestward to its junction with Santa Maria Creek (tributary to San Dieguito River); intermittent; length, about 8 miles; fall, 1,400 feet; described by Wm. Ham. Hall[1] as the head of Santa Maria Creek. Ramona sheet.

Hathaway Creek; Riverside County; rises in the northern part of T. 2 S., R. 1 E., San Bernardino base and meridian, at altitude 6,500 feet above sea level; flows southward about 5 miles into the western end of San Gorgonio Pass, which slopes eastward from Beaumont toward the Colorado Desert. San Jacinto sheet.

Hathaway Creek; Santa Ana River basin; San Bernardino County; rises in the southern part of T. 1 N., R. 1 E., San Bernardino base and meridian, 2 miles east of San Bernardino Mountain, at altitude 10,000 feet above sea level; flows in general northwestward to its junction with Santa Ana River (tributary to the Pacific) near Seven Oaks; length, about 5 miles; fall, 4,900 feet; intermittent. San Gorgonio sheet.

[1] Irrigation in [southern] California, Sacramento, 1888, pp. 43, 44.

Hauser Creek; San Diego County; rises in the southeastern part of T. 17 S., R. 4 E., San Bernardino base and meridian, at altitude about 3,000 feet above sea level; flows northwestward 3 miles into Cottonwood Creek (tributary to Tia Juana River, which discharges to the Pacific) 2 miles southwest of the Morena Dam; fall, 1,000 feet; intermittent. Cuyamaca sheet.

Hayden Gulch Creek; Siskiyou County; rises in the central part of T. 42 N., R. 7 W., Mount Diablo base and meridian; flows southwestward to its junction with East Fork of Scott River (tributary through Scott River to Klamath River, which discharges to the Pacific); length, about 10 miles. Punnett's map of Siskiyou County.

Hayes Creek; Alameda County; an intermittent stream rising in San Antonio Rancho and flowing westward and southward to Oakland, where it enters Lake Merritt. Concord and San Francisco sheets.

Hayfork River; Trinity County; rises in the northeastern part of T. 28 N., R. 11 W., Mount Diablo base and meridian; flows irregularly northward to the southeastern part of T. 31 N., R. 11 W., where it receives its East Fork, and then takes a general northwesterly course to the southeastern part of T. 3 N., R. 6 E., Humboldt base and meridian, where it enters South Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, including major windings, about 42 miles; principal tributaries, East Fork, Salt Creek, and Tule Creek; many tributaries unnamed on the map. Punnett's map of Trinity County.

Hayfork River, East Fork; Trinity County; rises in the southern part of T. 31 N., R. 10 W., Mount Diablo base and meridian, on the north slope of Chanchelulla Peak; flows south of west to its junction with Hayfork River (tributary through South Fork of Trinity River to Trinity River and thus to Klamath River, which discharges to the Pacific); length, 5 miles. Punnett's map of Trinity County.

Hayshed Creek; Mendocino County; rises in the central part of T. 22 N., R. 11 W., Mount Diablo base and meridian; takes a general southwesterly course to its junction with Middle Fork of Eel River (tributary to Eel River, which flows to the Pacific); length, 6 miles. Punnett's map of Mendocino County.

Hayworth Creek; Mendocino County; rises in the western part of T. 19 N., R. 14 W., Mount Diablo base and meridian; flows southwestward to the western part of T. 18, N., R. 15 W., where it unites with the Upper South Fork of Noyo River to form the North Fork of Noyo River, the continuation of Noyo River (tributary to the Pacific); length, about 8 miles; receives a number of tributaries unnamed on the map. Punnett's map of Mendocino County.

Hawkins Creek; Trinity County; rises in the southeastern part of T. 7 N., R. 6 E.. Humboldt base and meridian; flows west of south into Trinity River (tributary to Klamath River, which discharges to the Pacific); length, about 6 miles. Punnett's map of Trinity County.

Hazard Canyon Creek; San Luis Obispo County; an intermittent stream, about 3 miles long, rising in Canada de los Osos Rancho and flowing westward to the Pacific 1 mile northeast of the mouth of Islay Creek. Cayucos sheet.

Heart Lake; Inyo County; Inyo National Forest, southeast of Kearsarge Pass; outlet, a stream, 2 miles long, flowing north of east through 2 small lakes to its junction with Little Pine Creek (tributary to Owens Valley) in Onion Valley; altitude, 10,850 feet; very small. Mount Whitney sheet.

Heather Lake; Eldorado County; western part of T. 12 N., R. 17 E., Mount Diablo base and meridian; outlet, a stream, 1 mile long, flowing eastward to the stream connecting Suzy Lake with Fallen Leaf Lake (outlet through Lake

Tahoe to Truckee River, which discharges to Pyramid and Winnemucca Lakes); altitude, 7,850 feet. Pyramid Peak sheet.

Heenan Lake; Alpine County, eastern part; mapped as a marsh; drained by an intermittent stream flowing westward to the East Fork of Carson River (tributary through Carson River to Carson Sink); altitude, about 7,100 feet. Markleeville sheet.

Heins Lake; Salinas River basin; Monterey County; 2½ miles southeast of the city of Salinas; the lake is about 1 mile long and nearly half a mile wide; altitude, 50 feet. Salinas Valley map, sheet 1.

Hemet Reservoir; Riverside County; northwestern part of T. 6 S., R. 3 E., San Bernardino base and meridian, at west end of Hemet Valley on South Fork of San Jacinto River; reservoir is about 1½ miles long and one-fourth mile in maximum width. San Jacinto sheet.

Hemlock Creek; San Bernardino County; rises in the northeastern part of T. 1 N., R. 2 W., San Bernardino base and meridian, on the west slope of Keller Peak, at altitude 7,500 feet above sea level; flows southwestward 1 mile, then somewhat west of south 3 miles to its junction with Santa Ana River (tributary to the Pacific); fall, 5,000 feet, of which 2,600 feet is made in the first mile; principal tributary, Alder Creek. Redlands sheet.

Henry Creek; Santa Cruz County; a stream about 1 mile long, rising in the northeastern part of T. 9 S. R. 4 W. and flowing southeastward to West Waddell Creek (tributary to Waddell Creek, which discharges to the Pacific). Santa Cruz sheet.

Higgins Canyon Creek; Los Angeles County; an intermittent stream, about 2 miles long, draining a small area in the Santa Monica Mountains and flowing southward to its junction with Coldwater Canyon Creek (tributary to Ballona Creek). Santa Monica sheet.

High Creek; San Bernardino County; rises in the northeastern part of T. 1 S., R. 1 E., San Bernardino base and meridian, at altitude 10,500 feet above sea level; flows west of south into Mill Creek (tributary to Santa Ana River, which discharges to the Pacific); length, about 2 miles; fall, 3,400 feet. San Gorgonio sheet.

Hill Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends eastward from Suisun Creek. Napa sheet.

Hilton Creek; Inyo and Mono counties; rises in the extreme northwestern part of Inyo County half a mile southeast of Mount Huntington; flows northward through several small lakes. The area to the north of the Mount Goddard quadrangle, on which the head of this creek is shown, has not yet been mapped by the United States Geological Survey and the creek is not shown on the Land Office map of California; it is therefore not known to the compiler whether it is tributary to Owens River through Rock Creek or whether it enters the river direct.

Hobson Creek; Sonoma County; rises in the central part of T. 8 N., R. 10 W., Mount Diablo base and meridian; flows southeastward 2 miles into Russian River (tributary to the Pacific). Punnett's map of Sonoma County.

Hogback Creek; Owens River basin; Inyo County; rises on the east slope of the Sierra 2 miles southeast of Round Mountain, at altitude 8,200 feet above sea level; flows northeastward 2 miles, then north of east 2 miles to the edge of Owens Valley, where its waters sink; fall, 4,200 feet. Olancha sheet.

Hogback Creek; Owens River basin; Inyo County; rises on the east slope of the Sierra half a mile east of Tunnabora Peak, at altitude 12,000 feet above sea level; flows northeastward about 9 miles to the edge of Owens Valley in the southern part of T. 14 S., R. 35 E., Mount Diablo base and meridian,

where its waters sink; fall, 7,700 feet of which 5,500 is made in the first 3 miles. Mount Whitney sheet.

Hog Lake; Riverside County; southwestern part of T. 6 S., R. 3 E., San Bernardino base and meridian; outlet, Bautiste Creek to San Jacinto Valley; altitude, about 4,700 feet. San Jacinto sheet.

Hog Valley Creek; Monterey and San Luis Obispo counties; rises in the northwestern part of T. 24 S., R. 14 E., Mount Diablo base and meridian; flows southwestward to Estrella, where it joins Estrella Creek (tributary to Salinas River, which discharges to the Pacific in Monterey Bay); length, about 14 miles. Land Office map of California, 1907.

Holcomb Creek; Mohave River basin; San Bernardino County; rises in the southeastern part of T. 3 N., R. 1 W., San Bernardino base and meridian, in Holcomb Valley, at altitude 7,200 feet above sea level; flows westerly 12 miles to its junction with Deep Creek (tributary to Mohave River); fall, 2,700 feet; tributaries short and unimportant. San Gorgonio and Deep Creek sheets.

Holcomb Creek; Santa Ana River basin; San Bernardino County; rises in the northern part of T. 1 N., R. 2 E., San Bernardino base and meridian, 3 miles east of Sugarloaf Mountain, at altitude 8,750 feet above sea level; flows southwestward 4 miles to its junction with Santa Ana River, which discharges to the Pacific; fall, 2, 250 feet. San Gorgonio sheet.

Hollenbeck Canyon Creek; San Diego County; rises in the north-central part of T. 17 S., R. 2 E., San Bernardino base and meridian, at altitude 2,000 feet above sea level; flows southwestward into Dulzura Creek (tributary to Jamul Creek, which discharges to lower Otay reservoir); length, about 4 miles; fall, about 1,300 feet; intermittent. Cuyamaca sheet.

Hollis Creek; Alameda County; rises on the western slope of Divide Ridge, at altitude 1,000 feet above sea level; flows southwestward and westward about 3 miles to its junction with Eden Creek (tributary through Palo Creek to San Lorenzo Creek, which discharges to San Francisco Bay); fall, 500 feet. Pleasanton and Haywards sheets.

Hollow Tree Creek; Mendocino County; rises in the southeastern part of T. 22 N., R. 17 W., Mount Diablo base and meridian; flows very irregularly northwestward 8 miles, then northeastward to its junction with South Fork of Eel River (tributary to Eel River, which discharges to the Pacific); length, including major windings, 14 miles. Punnett's map of Mendocino County.

Holser Canyon Creek; Los Angeles and Ventura counties; an intermittent stream, about 3 miles long, flowing westward into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific) in Temescal Rancho, 2 miles north of Camulos. Camulos sheet.

Honeydew Creek; Humboldt County; rises in the southern part of T. 3 S., R. 1 E., Humboldt base and meridian; flows northwestward 3 miles, then east of north 3 miles into Mattole River (tributary to the Pacific). Punnett's map of Humboldt County.

Honey Lake; Lassen County, Cal., east of the Sierra and just west of the California-Nevada State line. The lake occupies a shallow depression and may be classed as a playa lake as it is completely desiccated during seasons of unusual aridity; it is supplied principally by Susan River, which enters from the northwest, but it receives also some tribute during the rainy season from Long Valley. The hot springs along its northern border also furnish considerable quantities of water. The area of the lake varies with the seasons as well as from year to year. It was surveyed in 1864 prior to any irrigation development and was found, according to Land Office records, to cover 64,000 acres. The outline of the lake is indefinite, as its shores are usually low and marshy and in places form broad tule swamps. Its waters are strongly alkaline, are unfit

for human use, and always of a greenish-yellow color caused by impalpable mud held in suspension.

As mapped by the Survey in charge of Captain Wheeler, in 1867, the lake covered an area of approximately 90 square miles. In the summers of 1859 and 1863 it completely dried up, leaving a broad, smooth plain of cream-colored mud. Its average depth in the summer of 1877 is reported by Lieut. Symonds[1] to have been about 18 inches. In 1882 its greatest depth was 4 feet but the average, as nearly as could be judged, did not differ greatly from the depth given for 1877.

In 1882, when the lake was surveyed by the topographers of the United States Geological Survey, the altitude of the water surface was 3,949 feet above sea level; the maximum length east-west was about 14 miles and the width in the narrowest, central portion, about 4 miles.

In 1902–3 the Reclamation Service reported the lake bed dry "for the third time within the memory of white settlers. Evaporation as measured at Lake Tahoe, is approximately 30 inches. At Pyramid Lake to the east of Honey Lake it is believed to be 50 inches. Honey Lake, lying somewhat intermediate between these two is believed to have an annual evaporation from its surface of 42 inches. From this it is fair to assume that when the lake covers its normal area fully 200,000 acre-feet of water passes from its surface by evaporation. All the streams of the Honey Lake basin drain into the lake as a sink, and this evaporation of 200,000 acre-feet represents the mean annual discharge of the basin."

Authorities: Lassen Peak and Honey Lake sheets; Mon. U. S. Geol. Survey, vol. 11, 1885, pp. 55–56; Second Ann. Rept. U. S. Reclamation Service, 1902–3, pp. 114–115.

Hooker Creek; Sonoma County; rises in the western part of T. 6 N., R. 5 W., Mount Diablo base and meridian, at altitude 2,000 feet above sea level; flows southward and southwestward; connected with Sonoma Creek (tributary to San Pablo Bay) only in times of flood. Napa sheet.

Hooks Creek; San Bernardino County; rises in the southeastern part of T. 2 N., R. 3 W., San Bernardino base and meridian, at altitude 5,700 feet above sea level; flows northeastward 3 miles to its junction with Little Bear Creek (tributary to Deep Creek, which discharges to Mohave River); fall, 900 feet. Redlands and Deep Creek sheets.

Hoover Lake; Mono County; northeastern part of T. 2 N., R. 24 E., Mount Diablo base and meridian; inlet, East Fork of Green Creek; outlet, East Fork of Green Creek to Green Creek (tributary through Virginia Creek to East Walker River and thus to Walker River, which discharges to Walker Lake); altitude, 9,850 feet; above Gilman Lake, 400 feet. Bridgeport sheet.

Hopkins Ravine Creek; Solano County; an intermittent stream, 3 miles long, rising in the Montezuma Hills and flowing southwestward into the tidal marsh on the north side of Suisun Bay. Antioch sheet.

Hopper Canyon Creek; Ventura County; rises in the northeastern part of T. 5 N., R. 19 W., San Bernardino base and meridian, at altitude 4,300 feet above sea level; flows southward to Santa Clara River (tributary to the Pacific Ocean) just west of Buckhorn; length, about 10 miles; fall, 3,700 feet. Tejon and Camulos sheets.

Hoppow Creek; Del Norte County; rises in the northeastern part of T. 13 N., R. 1 E., Humboldt base and meridian; flows southwestward 3 miles, then northwestward three-fourths mile into Klamath River (tributary to the Pacific). Punnett's map of Del Norte County.

[1] Ann. Rept. U. S. Geol. Surveys W. 100th Mer. for 1878, p. 115.

Horn Canyon Creek; Ventura County; an intermittent stream, 2 miles long, rising in the southern part of T. 5 N., R. 22 W., San Bernardino base and meridian, and flowing southwestward to east end of Ojai Valley; the drainage of this part of the valley passes eastward to San Antonio Creek, which discharges to Ventura River (tributary to the Pacific). Santa Paula sheet.

Horno Canyon Creek; San Diego County; rises 2 miles east of San Onofre Mountain, at altitude 850 feet above sea level; flows southwestward about 4 miles to the Pacific. San Luis Rey sheet.

Horns Creek; Siskiyou County; rises in the west-central part of T. 10 N., R. 7 E., Humboldt base and meridian; flows in general northeastward to its junction with Salmon River (tributary through Klamath River to the Pacific) 1 mile below Forks of Salmon; length, about 3½ miles. Punnett's map of Siskiyou County.

Horse Canyon Creek; Riverside County; rises about 2 miles southwest of Santa Rosa Mountain, at altitude 5,200 feet above sea level; flows northwestward 2 miles, westward 2 miles, then somewhat east of south 5 miles into Coyote Creek, which discharges into Borego Valley; intermittent in part of course; fall, 2,500 feet. San Jacinto and Ramona sheets.

Horse Canyon Creek; San Gabriel River basin; Los Angeles County; rises in the southern part of T. 2 N., R. 9 W., San Bernardino base and meridian, at altitude 3,000 feet above sea level; flows northeastward into San Gabriel River (tributary to the Pacific); length, 2 miles; fall, 1,300 feet; tributary, East Fork; intermittent. Pomona sheet.

Horse Canyon Creek; Santa Maria River basin; Santa Barbara county; an intermittent stream, 8 miles long, rising in the western part of T. 10 N., R. 29 W., and flowing southwestward into Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Santa Ynez and Lompoc sheets.

Horse Canyon Creek, East Fork; Los Angeles County; rises in the southeastern part of T. 2 N., R. 9 W., San Bernardino base and meridian, at altitude 2,600 feet above seal level; flows northward into Horse Canyon Creek (tributary to San Gabriel River, which discharges to the Pacific); length, 1 mile; fall, 750 feet; intermittent. Pomona sheet.

Horse Creek; Humboldt County; rises in the south-central part of T. 4 S., R. 1 E., Humboldt base and meridian, on the east slope of Horse Mountain; flows southwestward into the Pacific; length, 2 miles. Punnett's map of Humboldt County.

Horse Creek; Klamath River basin; Siskiyou County; rises in the northern part of T. 47 N., R. 11 W., Mount Diablo base and meridian; flows in general southeastward to its junction with Klamath River (tributary to the Pacific) in the central part of T. 46 N., R. 10 W.; length, about 10 miles; principal tributaries, Middle and Buckhorn creeks; drains eastern slope of Horse Creek Mountains. Punnett's map of Siskiyou County.

Horse Creek; San Jacinto River basin; Riverside County; rises in the eastern part of T. 6 S., R. 2 E., San Bernardino base and meridian, at altitude 4,500 feet above sea level; flows westward 4 miles to Bautiste Creek (tributary to San Jacinto River); fall, about 1,600 feet; intermittent. San Jacinto sheet.

Horse Creek; Walker River basin; Mono County; rises in the central part of T. 3 N., R. 24 E., Mount Diablo base and meridian, on the north slope of Twin Peaks, at altitude 11,000 feet above sea level; flows west of north 3½ miles into Robinson Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake); fall, about 3,900 feet. Bridgeport sheet.

Horse Lake; Lassen County; a small playa lake between Honey Lake Valley and the Madeline Plains. "Its ancient channel of overflow is carved

through a volcanic mesa and joins Snowstorm Canyon [not named on the map]. In 1868 the lake rose sufficiently to overflow and send some tribute to Honey Lake through its long-abandoned channel. The bottom of the outlet is about 10 feet above the usual level of the lake, showing that the high water of 1868 was considerably more than the ordinary winter's rise. The lake became dry in the summer of 1878 and 79, its bottom forming a hard, smooth, mud plain".[1]

On the Honey Lake sheet (surveyed in 1882) the lake is shown as a permanent water body, about 3 miles in maximum length and 2 miles wide, lying at altitude about 5,000 feet above sea level.

Horse Minto Creek; Humboldt County; rises in the southwestern part of T. 8 N., R. 7 E., Humboldt base and meridian, on the west slope of Trinity Mountains; flows southward 3 miles, then in general north of west 10 miles to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Horseshoe Lake; Riverside County; an intermittent water body lying half a mile north of Santa Ana River (tributary to the Pacific) 5 miles west of Riverside. Riverside sheet.

Horsethief Canyon Creek; Mohave River basin; San Bernardino County; rises near Cajon Pass, at altitude 3,950 feet above sea level; flows south of east toward the West Fork of Mohave River to which it delivers its flood waters. An intermittent stream is indicated in the upper 2 miles of the canyon; the lower part is shown as a sandy wash. Hesperia sheet.

Horsethief Canyon Creek; Santa Ana River basin; Riverside County; an intermittent stream, about 3 miles long, flowing into the valley of Temescal Creek (tributary to Santa Ana River, which discharges to the Pacific). Elsinore sheet.

Horsethief Canyon Creek; Tia Juana River basin; San Diego County; rises in the northeastern part of T. 16 S., R. 3 E., San Bernardino base and meridian, at altitude 3,500 feet above sea level; flows southwestward 5 miles, then south of east 1 mile into Pine Valley Creek (tributary through Cottonwood Creek to Tia Juana River, which discharges to the Pacific); fall, 1,500 feet; intermittent. Cuyamaca sheet.

Horsethief Creek; Riverside County; an intermittent stream rising on the north slope of Santa Rosa Mountains and flowing northwestward to Deep Canyon Creek, which discharges northward to the Colorado Desert; about 5 miles long. Indio special sheet.

Horton Creek; Inyo County; Inyo National Forest; rises on the east slope of the Sierra, 1½ miles northwest of Mount Humphreys, at altitude 12,350 feet above sea level; flows northeastward into Round Valley, then southeastward to its junction with Owens River, which discharges to Owens Lake; length, about 18 miles; fall, about 8,000 feet of which 2,600 feet is made in about 2 miles at the head, above Horton Lake. Mount Goddard sheet.

Horton Lake; Inyo County; Inyo National Forest; inlet and outlet, Horton Creek, which flows through the lake to its junction with Owens River (tributary to Owens Lake); altitude, 9,750 feet. Mount Goddard sheet.

Hot Spring Canyon Creek; Cold Spring Canyon drainage basin; Santa Barbara County; an intermittent stream, 2 miles long, rising on the south slope of Montecito Peak and flowing southwestward into Cold Spring Canyon (which discharges to the Pacific) 1 mile northwest of Montecito. Santa Barbara sheet.

Hot Spring Canyon Creek; Santa Ynez River basin; Santa Barbara County; an intermittent stream, 2 miles long, rising on the north slope of Santa Ynez

[1] Russell, I. C., A geological reconnaissance in southern Oregon: Fourth Ann. Rept. U. S. Geol. Survey, 1884, p. 457.

Mountains, in T. 5 N., R. 29 W., San Bernardino base and meridian, and flowing east of north to Santa Ynez River, which discharges to the Pacific. Santa Ynez sheet.

Hot Springs Creek; Ventura County; rises in the western part of T. 6 N., R. 20 W., San Bernardino base and meridian, west of San Rafael Peak; flows southeastward into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); length, about 5 miles; fall, 2,200 feet; principal tributary, Coldwater Fork. Mount Pinos and Tejon sheets.

Hot Springs Canyon Creek; Orange County; an intermittent stream rising on the east slope of Los Pinos Peak, at altitude 4,000 feet above sea level, and flowing southwesterly about 8 miles into San Juan Canyon Creek at San Juan Hot Springs; fall, 3,300 feet. Elsinore and Corona sheets.

Hot Springs Creek; Alpine County. *See* Markleeville Creek.

Howard Canyon; Santa Barbara County; eastern part of Los Alamos Rancho; opens southwestward to Los Alamos Valley (drained by San Antonio Creek, which discharges to the Pacific). Lompoc sheet.

Howard Creek; Mendocino County; rises in the northern part of T. 21 N., R. 17 W., Mount Diablo base and meridian; flows southwestward and enters the Pacific 1 mile north of De Haven; length, 3½ miles. Punnett's map of Mendocino County.

Howard Creek; Santa Clara River basin; Ventura County; rises in the western part of T. 5 N., R. 22 W., San Bernardino base and meridian; flows northward to its junction with Rose Valley Creek (tributary through Sespe Creek to Santa Clara River, which discharges to the Pacific); length, 2½ miles; intermittent. Mount Pinos sheet.

How Creek; Humboldt County; rises in the western part of T. 1 N., R. 1 W., Humboldt base and meridian; flows northeastward 5 miles into Eel River (tributary to the Pacific). Punnett's map of Humboldt County.

Huckleberry Canyon Creek; Inyo County; Inyo National Forest; rises 1 mile northeast of Mount Tom, at altitude 11,100 feet above sea level; flows northeastward; sinks before reaching Pine Creek (tributary through Rock Creek to Owens River, which discharges to Owens Lake); length, about 3 miles. Mount Goddard sheet.

Hudeman Slough; Sonoma and Napa counties; extends southeastward from the junction of Third and Second Napa sloughs to Napa Slough. Napa sheet.

Hudson Creek; Siskiyou County; rises in the western part of T. 48 N., R. 6 W., Mount Diablo base and meridian, at altitude 3,300 feet above sea level; flows in general southward 3 miles into Cottonwood Creek (tributary to Klamath River, which flows into the Pacific); fall, 800 feet. Shasta sheet.

Huer Huerfo Creek; San Luis Obispo County; rises in the northeastern part of T. 29 S., R. 14 E., Mount Diablo base and meridian; flows northwestward into Salinas River (tributary to the Pacific) north of Paso Robles; length, about 25 miles. Land Office map of California, 1907.

Hughes Lake; Los Angeles County; southeastern part of T. 7 N., R. 15 W., San Bernardino base and meridian; occupies a depression in an alluvial trough coinciding with the San Andreas fault zone; receives the drainage of a small area in the surrounding hills and occasionally waters overflowing from Elizabeth Lake; outlet, a southward-flowing stream tributary to Santa Clara River, Water-Supply Paper U. S. Geol. Survey No. 278, 1911, p. 14 and Pl. VI.

Huichica Creek; Napa County; rises about 5 miles west of Napa, at altitude 300 feet above sea level; flows southward into Hudeman Slough, one of the many sloughs in the tidal marsh between Sonoma Creek and Napa River; length above the slough, about 5 miles; intermittent. Napa sheet.

Hull Creek; Mendocino County; rises in the eastern part of T. 24 N., R. 12 W., Mount Diablo base and meridian; flows southwestward 6 miles, then somewhat west of north 8 miles to its junction with North Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Hunter Creek; Del Norte County; rises in the southeastern part of T. 15 N., R. 1 E., Humboldt base and meridian; flows southwestward 8 miles to its junction with Klamath River (tributary to the Pacific) near Requa. Punnett's map of Del Norte County.

Humbug Creek; Siskiyou County; rises in the northwestern part of T. 45 N. R. 8 W., Mount Diablo base and meridian, at altitude 4,000 feet above sea level; flows eastward 4 miles, then northeastward 4 miles into Klamath River (tributary to the Pacific); fall, 2,000 feet. Shasta sheet.

Humbug Creek, Little; Siskiyou County; rises in the southwestern part of T. 46 N., R. 8 W., Mount Diablo base and meridian; flows northwestward 4 miles into Klamath River (tributary to the Pacific). Punnett's map of Siskiyou County.

Hungry Creek; Siskiyou County; rises in the southwestern part of T. 48 N. R. 7 W., Mount Diablo base and meridian; flows westward 4 miles into Beaver Creek. Punnett's map of Siskiyou County.

Hurdy Gurdy Creek; Del Norte County; rises in the southern part of T. 17 N., R. 3 E., Humboldt base and meridian; flows southwestward to its junction with South Fork of Smith River (tributary to Smith River, which flows to the Pacific); length, 13 miles. Punnett's map of Del Norte County.

Icehouse Canyon Creek; San Bernardino County; rises in central part of T. 2 N., R. 7 W., San Bernardino base and meridian, on the north slope of the San Antonio Mountains, at altitude 7,750 feet above sea level: flows north of west about 3 miles into San Antonio Canyon Creek, through which it is tributary to Santa Anà River, which discharges to the Pacific; fall, 2,900 feet. Cucamonga sheet.

Illinois River; Siskiyou County, Cal., Josephine and Curry counties, Oreg.; formed in the southern part of T. 19 N., R. 5 E., Humboldt base and meridian, by the union of its East and West branches. The East Branch, which drains the larger area and is therefore considered the continuation of the main stream, rises in the western part of T. 18 N., R. 6 E., Humboldt base and meridian, and flows northwestward to the point at which it receives the West Branch; from this junction the general course of the Illinois is northwestward to Agness in Curry County, Oreg., where it turns abruptly and flows westward and southwestward to Gold Beach, where it enters the Pacific. Only a very small portion of the drainage basin of the Illinois lies in California, the named streams which thus find outlet to the Pacific comprising Applegate and Elliott creeks, which discharge to the Illinois through Rogue River, and the East and West branches of the Illinois itself. Punnett's map of Siskiyou County.

Illinois River, East Branch. *See* Illinois River.

Illinois River, West Branch; Siskiyou County; rises in the southern part of T. 18 N., R. 5 E., Humboldt base and meridian, on the east slope of the Siskiyou Mountains; flows in general northward to the southern part of T. 19 N., R. 5 E., where it unites with the East Branch to form Illinois River (tributary to the Pacific); length, about 7 miles. Punnett's map of Siskiyou County.

Independence Creek; Klamath River basin; Siskiyou County; rises in the southern part of T. 14 N., R. 8 E., Humboldt base and meridian, on the west slope of Marble Mountain; flows northward and northwestward 9 miles, then southwestward and westward 4 miles to its junction with Klamath River (tributary to the Pacific). Punnett's map of Siskiyou County.

Independence Creek; Truckee River basin; Sierra County; rises in Independence Lake in the southern part of T. 19 N., R. 15 E., Mount Diablo base and meridian, at altitude 6,950 feet above sea level; flows east of north 3½ miles, then eastward half a mile into Little Truckee River (tributary to Truckee River, which discharges to Pyramid and Winnemucca lakes); fall, about 600 feet. Gaging station below Independence (1902–1907). Truckee sheet.

Independence Lake; Nevada and Sierra counties; northern part of T. 18 N., R. 15 E., and southern part of T. 19 N., R. 15 E., Mount Diablo base and meridian; three inflowing streams mapped; outlet, Independence Creek to Little Truckee River (tributary through Truckee River to Pyramid and Winnemucca lakes); altitude, 6,950 feet. Nearly all of the lake is in Nevada County but the outlet is in Sierra County. Truckee sheet.

Indian Creek; Alameda Creek basin; Alameda County; rises in the northeastern part of T. 5 S., R. 2 E., Mount Diablo base and meridian, on the northern slope of Valpe Ridge and the southwestern slope of Wauhab Ridge, at altitude 3,150 feet above sea level; flows northwestward between the Wauhab and Valpe ridges to La Costa Valley, where it joins San Antonio Creek (tributary through Alameda Creek to San Francisco Bay); length, 8½ miles; fall, 2,650 feet. Tesla and Pleasanton sheets.

Indian Creek; Eel River basin; Mendocino County; rises in the northeastern part of T. 20 N., R. 13 W., Mount Diablo base and meridian; flows westward into Eel River (tributary to the Pacific); length, 3½ miles. Punnett's map of Mendocino County.

Indian Creek; Eel River basin; Mendocino County; rises in the eastern part of T. 24 N., R. 19 W., Mount Diablo base and meridian; flows northeastward to the southern part of T. 5 S., R. 3 E., Humboldt base and meridian, then southeastward 2 miles to its junction with South Fork of Eel River (tributary to the Pacific); length, about 10 miles. Punnett's map of Mendocino County.

Indian Creek; Klamath River basin; Siskiyou County; rises in the southern part of T. 19 N., R. 6 E., Humboldt base and meridian; flows southeastward to its junction with Klamath River (tributary to the Pacific) at Happy Camp; length, about 18 miles; principal tributaries, Mill Creek, South and East forks of Indian, and Doolittle Creek. Gaging station near Happy Camp (1911–12.) Punnett's map of Siskiyou County.

Indian Creek; Klamath River basin; Siskiyou County; rises in the northeastern part of T. 45 N., R. 9 W., Mount Diablo base and meridian; flows west of south about 12 miles to its junction with Scott River (tributary to Klamath River, which flows to the Pacific); tributary, French Creek; other tributaries unnamed. Punnett's map of Siskiyou County.

Indian Creek; Klamath River basin; Trinity County; rises in the northwestern part of T. 5 N., R. 7 E., Mount Diablo base and meridian; flows southeast and south 3 miles into Trinity River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Indian Creek; Klamath River basin; Trinity County; rises in the westcentral part of T. 31 N., R. 8 W., Mount Diablo base and meridian; flows northwestward to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific); length, about 11 miles. Punnett's map of Trinity County.

Indian Creek; Navarro River basin; Mendocino County; rises in the southcentral part of T. 14 N., R. 13 W., Mount Diablo base and meridian; flows northwestward to the northern part of T. 14 N., R. 14 W., then in general southwestward to its junction with Anderson and Rancheria creeks, with which it forms Navarro River (tributary to the Pacific); length, about 11 miles; a north fork

of this stream, unnamed on the map, drains small areas in the southern part of T. 15 N., Rs. 13 and 14 W., and the northeastern corner of T. 14 N., R 14 W. Punnett's map of Mendocino County.

Indian Creek; Salinas River basin; San Luis Obispo County; rises in the San Luis Obispo National Forest, in the southwestern part of T. 28 S., R. 15 E., Mount Diablo base and meridian; flows west of north about 14 miles to its junction with Estrella Creek (tributary to Salinas River, which discharges to the Pacific in Monterey Bay). Land Office map of California, 1907.

Indian Creek; San Bernardino County; T. 13 N., R. 11 E., San Bernardino base and meridian; a desert drainage way. Ivanpah sheet.

Indian Creek; San Jacinto River basin; Riverside County; rises in the southeastern part of T. 4 S., R. 1 E., San Bernardino base and meridian, at altitude 3,000 feet above sea level; flows southwestward 4 miles, north of west 2 miles to its junction with San Jacinto River; fall, 1,200 feet. San Jacinto sheet.

Indian Creek; Santa Ynez River basin; Santa Barbara County; rises in the Santa Barbara National Forest, on the southeast slope of Big Pine Mountain, at altitude 6,000 feet above sea level; flows irregularly southward to its junction with Mono Creek, through which it is tributary to Santa Ynez River (tributary to the Pacific); length, about 15 miles; fall, 3,500 feet; principal tributary, Buckhorn Creek. Santa Ynez sheet.

Indian Creek, East Fork; Klamath River basin; Siskiyou County; rises in the southwestern part of T. 19 N., R. 7 E., Humboldt base and meridian; flows southeastward 5 miles, then southward and southwestward 4 miles to its junction with Indian Creek (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Indian Creek, South Fork; Klamath River basin; Siskiyou County; rises in the northern part of T. 17 N., R. 5 E., Humboldt base and meridian, on the east slope of Siskiyou Mountains; flows in general eastward to its junction with Indian Creek (tributary to Klamath River, which flows to the Pacific); length, 12 miles. Punnett's map of Siskiyou County.

Indian Gulch Creek; Alameda County; an intermittent stream flowing into Lake Merritt just north of East Oakland. Concord sheet.

Indian Gulch Creek; Trinity County; rises in the east-central part of T. 35 N., R. 11 W., Mount Diablo base and meridian; flows south of west 3 miles into East Fork of North Fork Trinity River (tributary through North Fork Trinity to Trinity and thus to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Indian Valley Creek; Klamath River basin; Trinity County; rises in the southern part of T. 2 N., R. 8 E., Humboldt base and meridian; flows northwestward to its junction with South Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, 10 miles; principal tributary, Bitter Creek. Punnett's map of Trinity County.

Indian Valley Creek; Salinas River basin; Monterey County; rises in the southern part of T. 21 S., R. 12 E., Mount Diablo base and meridian; flows southwestward into Salinas River, which discharges to the Pacific in Monterey Bay; length, about 18 miles; tributary, Nelson Creek. Land Office map of California, 1907.

Irish Creek; Mendocino County; rises in the northern part of T. 13 N., R. 16 W., Mount Diablo base and meridian; flows westward 3 miles, and enters the Pacific 1 mile south of the mouth of Mallo Pass Creek. Punnett's map of Mendocino County.

Iron Canyon Creek; Los Angeles County; rises in the southern part of T. 4 N., R. 14 W., San Bernardino base and meridian, 1½ miles west of Iron Mountain, at altitude 3,250 feet above sea level; flows southwestward 1 mile, north

of west 2 miles toward Sand Canyon (tributary to Santa Clara River, which discharges to the Pacific); delivers water below mouth of canyon only in times of flood; fall above mouth of canyon, 1,250 feet. Fernando sheet.

Iron Fork. *See* San Gabriel River, Iron Fork.

Iron Point Creek; Mendocino County; rises in the southwestern part of T. 23 N., R. 14 W., Mount Diablo base and meridian, on the east slope of Iron Peak; flows eastward into Eel River (tributary to the Pacific); length, 2 miles. Punnett's map of Mendocino County.

Irving Creek; Siskiyou County; rises in the western part of T. 13 N., R. 7 E., Humboldt base and meridian; flows southwestward 5 miles and north of west 2 miles to its junction with Klamath River (tributary to the Pacific) near Halverson. Punnett's map of Siskiyou County.

Isabel Creek; Santa Clara County; rises in Isabel Valley, in Los Huecos Rancho, at altitude about 2,500 feet above sea level; takes a very irregular but in general northwesterly course to the southwestern part of T. 6 S., R. 3 W., Mount Diablo base and meridian, where it unites with Smith Creek to form Arroyo Hondo (tributary to Calaveras Creek, which discharges through Alameda Creek to San Francisco Bay); length, including major windings, about 15 miles; receives the drainage from the northern slope of Mount Hamilton; only two tributaries, Bonito and Long Branch creeks, named on the map. Mount Hamilton sheet.

Isham Creek; San Diego County; rises in southeastern part of T. 14 S., R. 2 E., San Bernardino base and meridian, at altitude 2,100 feet above sea level; flows north of west into San Diego River, which discharges to the Pacific through False Bay; intermittent; length, 2 miles; fall, 1,200 feet. Cuyamaca sheet.

Islais Creek; San Francisco County; rises near Ocean View, at altitude 225 feet; flows northeastward to San Francisco Bay; length, about 4 miles. San Mateo sheet.

Islay Creek; San Luis Obispo County; rises in T. 31 S., R. 11 E., Mount Diablo base and meridian, in the San Luis Range, at altitude 1,200 feet above sea level; flows in general north of west to the point at which it enters the Pacific; length, about 7 miles. Cayucos sheet.

Islip Canyon Creek; Los Angeles County; rises in northeastern part of T. 1 N., R. 10 W., San Bernardino base and meridian, at altitude 2,250 feet above sea level; flows southeastward 1½ miles into San Gabriel River (tributary to the Pacific); fall, 1,150 feet; intermittent. Pomona sheet.

Italian Creek; Trinity County; rises in the southern part of T. 6 N., R. 7 E., Humboldt base and meridian; flows east of south 4 miles into Trinity River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Ivanpah Dry Lake; San Bernardino County; in Ivanpah Valley, in Tps. 16 and 17 N., R. 15 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I; Ivanpah sheet, on which the lake is outlined.

Jackson Lake; Siskiyou County; northwestern part of T. 39 N., R. 9 W., Mount Diablo base and meridian; outlet, South Fork of Scott River (tributary through Scott River to Klamath River, which discharges to the Pacific). Punnett's map of Siskiyou County.

Jackass Creek; Mendocino County; rises in the western part of T. 24 N., R. 18 W., Mount Diablo base and meridian; flows southeast 1½ miles, south 1 mile, and southwestward 2 miles; enters the Pacific at Bear Harbor. Punnett's map of Mendocino County.

Jackass Creek; Siskiyou County; rises in the west-central part of T. 40 N., R. 11 W., Mount Diablo base and meridian; flows southwestward into North

Fork of Salmon River (tributary through Salmon River to Klamath River, which discharges to the Pacific); length, 2 miles. Punnett's map of Siskiyou County.

Jacobi Creek; Humboldt County; rises in the northern part of T. 4 N., R. 2 E., Humboldt base and meridian; flows northwestward to the northern part of T. 5 N., R. 1 E., where it enters Humboldt Bay; length, about 8 miles. Punnett's map of Humboldt County.

Jagel Slough; Santa Clara County; in the tidal marsh in the southern part of San Francisco Bay. Palo Alto sheet.

Jalama Creek; Santa Barbara County; rises in the southern part of San Julian Rancho; flows westward to the Pacific near Jalama station; length, 8 miles; fall, 700 feet; principal tributaries, Escondido, Gasper, and Espada creeks. Lompoc sheet.

James Creek; San Benito County; rises in northwestern part of T. 17 S., R. 10 E., Mount Diablo base and meridian; flows west of south into San Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay); length, 5 miles. Land Office Map of California, 1907.

Jamul Creek; Otay River basin; San Diego County; rises in the northwestern part of T. 17 S., R. 2 E., San Bernardino base and meridian, at altitude about 1,700 feet above sea level; flows southwestward and discharges into lower Otay reservoir; length, 10 miles; fall, 1,200 feet; intermittent; principal tributary, Dulzura Creek. Cuyamaca sheet.

Javon Canyon Creek; Ventura County; an intermittent stream, about 2 miles long, flowing southwestward to the Pacific 1 mile southeast of Seacliff. Ventura sheet.

Jennie Creek; Jackson County, Oreg., and Siskiyou County, Cal.; rises in the northeastern part of T. 39 S., R. 5 E., Willamette meridian; takes a general southerly course to its junction with Klamath River in Siskiyou County, Cal., in the southern part of T. 48 N., R. 5 W., Mount Diablo base and meridian; length, 20 miles; fall, 1,300 feet; principal tributaries, Beaver and Kern creeks, both draining small areas in Jackson County, Oregon. Called Fall Creek on the Shasta sheet; Jenny Creek on Land Office maps of California and Oregon, and on the Ashland sheet; and Jennie Creek on Punnett's map of Siskiyou County.

Jewett Creek; Humboldt County; rises in the southwestern part of T. 4 S., R. 5 E., Humboldt base and meridian; flows northeastward 6 miles to its junction with Eel River (tributary to the Pacific). Punnett's map of Humboldt County.

Johnson Canyon Creek; San Diego County; rises in the southwestern part of T. 18 S., R. 1 E., San Bernardino base and meridian, at the west end of San Ysidro Mountains, at altitude 700 feet above sea level; flows northwestward into Otay River (tributary to the Pacific); length, 3 miles; fall, 400 feet; intermittent. Cuyamaca sheet.

Johnson Creek; San Benito County; rises in the northern part of T. 16 S., R. 6 E., Mount Diablo base and meridian; flows northeastward into San Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay); length, about 8 miles; tributary, Willow Creek. Land Office Map of California, 1907.

Jones Creek; Del Norte County; rises in the southwestern part of T. 17 N., R. 4 E., Humboldt base and meridian; flows southwestward to its junction with South Fork of Smith River (tributary to Smith River, which flows to the Pacific); length, 13 miles. Punnett's map of Del Norte County.

Jones Gulch Creek; San Mateo County; a stream, about 1½ miles long, rising in the southeastern part of T. 7 S., R. 4 W., and flowing southward to Pescadero Creek, which discharges to the Pacific. Santa Cruz sheet.

Jughandle Creek; Mendocino County; rises in the northern part of T. 17 N., R. 17 W., Mount Diablo base and meridian; flows northwestward; enters the Pacific 1 mile northwest of Caspar; length, 4 miles. Punnett's map of Mendocino County.

June Lake; Mono County, Mono National Forest; northeastern part of T. 2 S., R. 26 E., Mount Diablo base and meridian, 2 miles southeast of Reversed Peak; outlet, Reversed Creek to Rush Creek, which discharges to Mono Lake; altitude, 7,631 feet. Mount Lyell sheet.

Juniper Creek; Placer and Nevada counties; rises in Placer County in the southwestern part of T. 17 N., R. 18 E., Mount Diablo base and meridian, at altitude 8,300 feet above sea level; flows northwestward 7 miles to its junction with Truckee River (tributary to Pyramid and Winnemucca lakes) in the southern part of T. 18 N., R. 17 E.; fall, 2,800 feet. Truckee sheet.

Juniper Lake; Lassen County; central part of T. 30 N., R. 6 E.. Mount Diablo base and meridian; neither inlet nor outlet shown on map; altitude, about 7,300 feet above sea level. Lassen Peak sheet.

Kagel Canyon Creek; Los Angeles River basin; Los Angeles County; an intermittent stream, 3 miles long, flowing southward and joining Little Tujunga Wash just west of the mouth of the canyon of the Little Tujunga. Fernando sheet.

Kaiser Creek; Contra Costa and Alameda counties; rises in the south-central part of T. 1 S., R. 2 W., Mount Diablo base and meridian, on the west slope of Rocky Ridge, at altitude about 1,100 feet above sea level; takes an irregular but in general southwesterly course to its junction with San Leandro Creek (tributary through San Leandro Bay to San Francisco Bay); fall, about 700 feet. Concord sheet.

Kalmer Gulch Creek; Sonoma County; rises in the northeastern part of T. 8 N., R. 13 W., Mount Diablo base and meridian; flows southwestward into the Pacific 2 miles northwest of Fort Ross; length, 2½ miles. Punnett's map of Sonoma County.

Kane Dry Lake; Kern County; T. 30 S., R. 38 E., Mount Diablo base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, Pl. I and p. 50.

Kekawaka Creek; Trinity County; rises in the northern part of T. 5 S., R. 7 E., Humboldt base and meridian; flows northwestward 6 miles, then southwestward 4 miles to its junction with Eel River (tributary to the Pacific). Punnett's map of Trinity County.

Kellar Creek; San Bernardino County; rises in northeastern part of T. 1 N., R. 2 W., San Bernardino base and meridian, between Keller and Slide peaks, at altitude 7,500 feet above sea level; flows southwestward 4½ miles into Santa Ana River (tributary to the Pacific); fall, 4,900 feet; tributary, Monroe Canyon Creek. Redlands sheet.

Kelly Canyon Creek; Santa Barbara County; an intermittent stream rising in the southeastern part of T. 11 N., R. 30 W., San Bernardino base and meridian, and flowing northeastward into Cuyama River (Santa Maria River, which discharges to the Pacific); length, about 6 miles. Santa Ynez and McKittrick sheets.

Kelsey Canyon Creek. *See* Powell Canyon.

Kelsey Creek; Siskiyou County; rises in the central part of T. 44 N., R. 12 W., Mount Diablo base and meridian, in a small lake on the east slope of Marble Mountains; flows in general somewhat south of east to its junction with Scott River (tributary to Klamath River, which flows to the Pacific); length, 6 miles. Punnett's map of Siskiyou County.

Kennedy Canyon Creek; Ventura County; an intermittent stream, about 3 miles long, rising near the east end of Santa Ynez Mountains, in T. 5 N., R. 23 W., San Bernardino base and meridian, and flowing southeastward and northeastward into Matilija Creek (tributary to Ventura River, which discharges to the Pacific) 1 mile southeast of Matilija. Ventura sheet.

Kentucky Creek; Santa Clara River basin; Los Angeles County; rises in the northwestern part of T. 4 N., R. 11 W., San Bernardino base and meridian; flows northwestward into Santa Clara River (tributary to the Pacific); length, about 6 miles. Land Office map of California, 1907.

Kewen Lake; Los Angeles County; south of Pasadena, in the northern part of T. 1 S., R. 12 W., overflow may pass southeastward to Rio Hondo (q. v.). Pasadena sheet.

Keyes Creek; Monterey and San Luis Obispo counties; rises in the northern part of T. 24 S., R. 14 E., Mount Diablo base and meridian; flows southwestward to Estrella Creek, through which it is tributary to Salinas River, which discharges to the Pacific through Monterey Bay; length, about 12 miles. Land Office map of California, 1907.

Keys Canyon Creek; San Diego County; rises in the southern part of T. 10 S., R. 1 W., San Bernardino base and meridian, at altitude 1,700 feet above sea level; flows northwestward to its junction with San Luis Rey River (tributary to the Pacific); length, about 11 miles; fall, about 1,500 feet; intermittent. San Luis Rey sheet.

Kidd Creek; Sonoma County; rises in the southwestern part of T. 8 N., R. 11 W., Mount Diablo base and meridian; flows southeastward 3 miles into Austin Creek (tributary to Russian River, which flows to the Pacific). Punnett's map of Sonoma County.

King Creek; San Diego County; rises in the western part of T. 14 S., R. 4 E., San Bernardino base and meridian, on the southern slope of Cuyamaca Peak, at altitude 5,500 feet above sea level; flows southwestward 6 miles, then westward and northwestward 4 miles to its junction with South Fork of San Diego River (tributary to San Diego River, which discharges to the Pacific through False Bay); intermittent; fall, 4,000 feet; flows through Poverty Gulch. Cuyamaca sheet.

Kings Creek; Santa Cruz County; rises in the western part of T. 8 S., R. 2 W., Mount Diablo base and meridian, at altitude 2,500 feet above sea level; flows west of south 6 miles into San Lorenzo River, which discharges into the Pacific; fall, about 2,000 feet. Santa Cruz sheet.

Kirker Creek; Contra Costa County; rises in the northeastern part of T. 1 N., R. 1 W., Mount Diablo base and meridian, in Kirker Pass; flows northeastward through New York Slough to Suisun Bay; intermittent. Mount Diablo and Antioch sheets.

Klamath Lake, Lower; Klamath County, Oreg., and Siskiyou County, Cal., about two-thirds of the lake being in California. At high stages Lower Klamath Lake receives water from Klamath River; at low stages the direction of flow is reversed. The lower lake covers 29,400 acres with water; including water and marginal swamp the total area is 88,300 acres; altitude (Modoc Lava Bed sheet), 4,175 feet. Klamath and Modoc Lava Bed sheets; Water-Supply Paper U. S. Geol. Survey No. 291, 1912, p. 178. See also Klamath project in annual reports of United States Reclamation Service.

Klamath Lake, Upper; Klamath County, Oreg.; principal inlets, Anna River, which rises in large springs supposed to be fed from Crater Lake; Williamson River, which drains the country to the northeast of Upper Klamath Lake, and the principal tributary of which is Sprague River; and small creeks draining the region to the northwest of the lake and discharging into Pelican Bay;

outlet, Klamath River (called Link River in the stretch between Upper Klamath Lake and Lake Ewauna). The lake covers 67,220 acres and, including the marginal swamp lands, 94,000 acres; its altitude is about 4,141 feet. Ashland and Klamath sheets. See also reports on the Klamath project in the annual reports of the Reclamation Service.

Klamath River; Oregon-California; rises in Upper Klamath Lake, in Klamath County, Oreg.; takes a general southwesterly course to the northeastern part of Humboldt County, Cal., where it turns abruptly and flows northwestward to the point at which it enters the Pacific near Requa in Del Norte County, Cal.; length, including major windings, 180 miles.[1]

The drainage area lies east of the Cascade Range in south-central Oregon, and south of the Siskiyou Mountains, California. From Upper Klamath Lake, which stands 4,141 feet above sea level, flows Link River, a stream 1¼ miles long, discharging into Lake Ewauna at an elevation of 4,080 feet. Klamath Falls, the principal city of this part of Oregon, is on Link River. From Lake Ewauna to the town of Keno, a distance of 20 miles, Klamath River flows through a flat, marshy country. About 5 miles above Keno the river is connected with Lower Klamath Lake by a channel known as Klamath Straits. During high stages water flows from Klamath River to Lower Klamath Lake; during low stages the direction of flow is reversed. About half a mile below Keno the river breaks over a rocky ledge and here begins its precipitous fall of 100 to 200 feet per mile to its mouth. The drainage area above Keno, exclusive of Lower Klamath Lake, is 3,150 square miles; the total drainage area, measured at the mouth, is 11,850 square miles. The streams draining into Upper Klamath Lake head about 6,000 feet above sea level. Klamath Falls is 4,100 feet above sea level.

The drainage from the portion of the area lying in Oregon—the only portion that has been studied in detail—is collected in large lakes whose margins are wide, shallow, marsh lands. The principal stream flowing into upper Klamath Lake is Williamson River. The principal streams tributary to the Klamath below the lakes are Shasta, Scott, Salmon, and Trinity rivers. Lost River, Oreg., though not a tributary of the Klamath, is usually considered with it, as a slough connects the two. Water formerly flowed in either direction, depending on which stream was higher, but the flow is now stopped by an artificial dike.

Gaging stations near Happy Camp (1911–12) and Requa (1910–1912).

Authorities: Land Office map of California, 1907; Klamath, Ashland, Shasta, Modoc Lava Bed, and Red Bluff sheets, U. S. Geol. Survey; and Punnett's maps of Siskiyou, Trinity, Humboldt, and Del Norte counties; Water-Supply Paper U. S. Geol. Survey No. 291, p. 178.

Klondike Lake; Inyo County; southeastern part of T. 8 S., R. 33 E., Mount Diablo base and meridian, half a mile west of Owens River. Bishop sheet.

Knownothing Creek; Siskiyou County; rises in the central part of T. 9 N., R. 7 E., Humboldt base and meridian; flows northeastward into Salmon River (tributary to Klamath River, which flows to the Pacific); length, 7 miles. Punnett's map of Siskiyou County.

Kohler Creek; Alameda County; an intermittent stream, 1½ miles long, flowing southwestward into an unnamed stream which flows northwestward into Temescal Lake southeast of Berkeley. Concord sheet.

Laborda Canyon Creek; San Jacinto River basin; Riverside County; rises in the northwestern part of T. 3 S., R. 1 W., San Bernardino base and meridian, at altitude 2,200 feet above sea level; flows southward to the edge of San Jacinto Valley; fall, 700 feet. Elsinore sheet.

[1] Measured with wheel on post route map and Punnett's maps of Siskiyou, Humboldt, and Del Norte counties.

Labrea Creek; Santa Barbara County; formed in the northern part of T. 9 N., R. 31 W., San Bernardino base and meridian, by the junction of its North and South forks. The North Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises in the southern part of T. 11 N., R. 30 W., at altitude 3,500 feet above sea level, and flows southwestward 10 miles, then southeastward 2 miles to its junction with the South Fork; below the forks Labrea Creek flows southwesterly about 5 miles into Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific); total fall to head of North Fork, 2,800 feet; as shown on map the creek is intermittent from source to mouth. Lompoc sheet.

Labrea Creek, North Fork. *See* Labrea Creek.

Labrea Creek, South Fork; Santa Barbara County; rises in the western part of T. 10 N., R. 29 W.. San Bernardino base and meridian, at altitude 4,500 feet above sea level; flows southwestward to its junction with the North Fork with which it forms Labrea Creek (tributary to Santa Maria River, which discharges to the Pacific); length, about 12 miles; fall, 3,500 feet; intermittent. Santa Ynez and Lompoc sheets.

La Broche Creek; Santa Clara River basin; Ventura County; an intermittent stream, 1½ miles long, rising in the northwestern part of T. 4 N., R. 21 W., San Bernardino base and meridian, and flowing southeastward into Santa Paula Creek (tributary to Santa Clara River, which discharges to the Pacific). Santa Paula sheet.

La Costa Creek; Alameda County; rises in the northeastern part of T. 5 S.. R. 2 E., Mount Diablo base and meridian, on the eastern slope of Wauhab Ridge, at altitude 3,400 feet above sea level; flows northwestward 5½ miles, then northeastward 1½ miles into San Antonio Creek (tributary through Alameda Creek to San Francisco Bay) at the eastern end of La Costa Valley; fall, 2,850 feet. Tesla and Pleasanton sheets.

Ladd Canyon Creek; Orange County; rises 1 mile southeast of Sugarloaf Peak, at altitude 2,400 feet; flows southwestward 4 miles into Silverado Canyon Creek (tributary through Santiago Creek to Santa Ana River, which discharges to the Pacific); the canyon forks twice, the East and West forks carrying short, intermittent streams; fall in the main canyon, 1,300 feet. Corona sheet.

Lafayette Branch; Contra Costa County; rises in the southeastern part of Sobrante Rancho, at altitude 700 feet above sea level; flows easterly about 7 miles to the town of Walnut Creek, where it unites with San Ramon Creek to form Walnut Creek; fall, 550 feet; principal tributaries, Pleasant Valley, Las Trampas, Reesley Valley, and Tice Valley creeks. Concord sheet.

Lagoon, The; Alameda County; a pond lying in a depression in Ex Mission San Jose Rancho, 1 mile north of Irvington; a marsh surrounding it is fed by Mission Creek, an intermittent stream, draining a small area to the east; overflow from The Lagoon passes southward through Arroyo de la Laguna toward the tidal marsh north of Coyote River (tributary to San Francisco Bay). Pleasanton sheet.

Laguna Creek; Humboldt County; rises in the northern part of T. 9 N., R. 1 E., Humboldt base and meridian; flows west of north into Stone Lagoon; length, 4 miles. Punnett's map of Humboldt County.

Laguna Creek; Rincon Creek basin; Ventura County; an intermittent stream, 1¼ miles long, rising in the western part of T. 4 N., R. 24 W., San Bernardino base and meridian, and flowing westward into Rincon Creek, which discharges to the Pacific. Ventura sheet.

Laguna Creek; Santa Cruz County; an intermittent stream, 3 miles long, rising in the northwestern part of Arroyo de la Laguna Rancho and flowing southwestward into the Pacific near Sand Hill Bluff. Santa Cruz sheet.

Laguna de Santa Rosa; Sonoma County; heads in T. 6 N., R. 8 W., Mount Diablo base and meridian, where it receives Robert Crane and Copeland creeks and several unnamed streams; winds northwestward to the point at which it joins Santa Rosa Creek (tributary to Russian River, which flows to the Pacific) in T. 7 N., R. 9 W. Punnett's map of Sonoma County.

Laguna Puerco; San Francisco County; half a mile north of Merced Lake, in the Pueblo Lands of San Francisco; inlet, an intermittent stream entering the eastern end; no outlet shown on the map. San Mateo sheet.

Laguna Salada; San Mateo County; a brackish-water lagoon about half a mile long, separated from the Pacific by a narrow sand bar. San Mateo sheet.

Lagunitas Creek; Marin County; rises on the north slope of Mount Tamalpais (altitude, East Peak, 2,586 feet; West Peak, 2,604 feet), at altitude about 2,300 feet above sea level; flows northwestward to a point about a mile northwest of Lake Lagunitas where it bends to the west and southwest and again to the northwest, in which direction it continues to its junction with Paper Mill Creek in the northern part of Tomales y Bolinas Rancho; length, 10 miles; total fall, about 2,075 feet, of which 1,480 feet is made in the mile and a half above Lake Lagunitas, and 595 feet in the 8½ miles below. This creek flows along the base of Bolinas Ridge. Tamalpais sheet.

Lagunitas Lake; Marin County; southwestern part of Punta de Quentin Rancho; inlet, Lagunitas Creek; outlet, Lagunitas Creek to Paper Mill Creek (tributary to the Pacific through Tomales Bay); altitude, 820 feet; fall of outlet, about 595 feet. Tamalpais sheet.

La Honda Creek; San Gregorio Creek basin; San Mateo County; rises in the central part of T. 6 S., R. 4 W., Mount Diablo base and meridian, at altitude 2,000 feet above sea level; flows southeastward 2 miles, then somewhat west of south 5 miles to its junction with San Gregorio Creek (which discharges to the Pacific) near La Honda; fall, 1,600 feet. Santa Cruz sheet.

La Hoya Creek; Santa Barbara County; an intermittent stream, 3 miles long, rising in the Lompoc Hills, in San Julian Rancho and flowing eastward toward Salsipuedes Creek (tributary to Santa Ynez River, which discharges to the Pacific). Lompoc sheet.

Lake Canyon Creek; Mono Lake basin; Mono County; rises in the southwestern part of T. 2 N., R. 25 E., Mount Diablo base and meridian, at altitude 10,000 feet above sea level; flows east of north into Mill Creek (tributary to Mono Lake) near Lundy; length, about 3 miles; fall, about 2,200 feet; passes through Oneida, Crystal, and Blue lakes. The canyon is about 3 miles long and has a low grade except near its point of junction with Lundy Canyon, but the bottom of the main gorge is 1,000 feet lower than the bottom of its tributary and the waters of Lake Canyon flow in cascades over solid rock to join the stream below.[1] Mount Lyell and Bridgeport sheets.

Lake Canyon Creek; Santa Clara River basin; Ventura County; an intermittent stream, 2 miles long, flowing southwestward into Sexton Canyon Creek (tributary to Santa Clara River, which discharges to the Pacific) in the southwestern part of Ex Mission San Buenaventura Rancho. Santa Paula sheet.

Lake Creek; San Bernardino County; rises in southeastern part of T. 2 N., R. 1 W., San Bernardino base and meridian, in Bluff Lake, at altitude 7,450 feet above sea level; flows southwestward about 3 miles into Bear Creek (tributary to Santa Ana River, which discharges to the Pacific); fall, 2,700 feet. San Gorgonio and Redlands sheets.

[1] Russell, I. C., Quaternary history of Mono Valley, Cal.: Eighth Ann. Rept. U. S. Geol. Survey, 1889, p. 332.

Lake of the Woods; Klamath County, Oreg., western part; 2 small inflowing streams; outlet, an intermittent stream passing northeastward through Four-mile Creek to Pelican Bay on Upper Klamath Lake (outlet Klamath River, which discharges to the Pacific); this lake is 3 miles long and about 1 mile wide. Klamath sheet.

La Laguna Lake; San Diego County; northwestern part of Pueblo Lands of San Diego; outlet, a stream 1½ miles long, flowing southward into Rose Canyon Creek, which discharges to the Pacific through False Bay; altitude, 250 feet. La Jolla sheet.

Lamarck Creek; Inyo County, Inyo National Forest; rises on the east slope of the Sierra, 1 mile northwest of Mount Lamarck, at altitude 13,000 feet above sea level; flows northeastward 4 miles into North Fork of Bishop Creek (tributary through Middle Fork of Bishop Creek to Bishop Creek and thus to Owens River, which discharges to Owens Lake); fall, 3,600 feet; passes through several small lakes. Mount Goddard sheet.

Lamb Canyon Creek; Riverside County; rises in the north-central part of T. 3 S., R. 1 W., San Bernardino base and meridian, on Mount Davis, at altitude 2,500 feet above sea level; flows southwestward 4 miles to the edge of San Jacinto Valley; fall, about 1,000 feet. San Jacinto and Elsinore sheets.

Land Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends southwestward from Montezuma Slough. Antioch and Carquinez sheets.

Lang Canyon Creek; Alameda County; rises in the southern part of T. 4 S., R. 3 E., Mount Diablo base and meridian, on the south slope of Cedar Mountain Ridge, at altitude 2,850 feet above sea level; flows northwestward 1¼ miles and southwestward 1¼ miles to Arroyo del Valle (tributary through Arroyo de la Laguna to Alameda Creek, which discharges to San Francisco Bay). Tesla sheet.

Langford Dry Lake; San Bernardino County; T. 13 N., R. 3 E., San Bernardino base and meridian, south of Garlic Dry Lake; at the southeast corner of this lake is a well about 40 feet deep. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I and p. 61.

Langs Creek; Trinity County; rises in the northwestern part of T. 4 N., R. 8 E., Humboldt base and meridian; flows east of north into Trinity River (tributary to Klamath River, which discharges to the Pacific); length, 2 miles. Punnett's map of Trinity County.

La Paleta Valley Creek; San Diego County; rises in northern part of La Nacion Rancho, at altitude 200 feet above sea level; flows westerly and enters the Pacific through San Diego Bay just north of National City; intermittent; length, about 3 miles. San Diego sheet.

Laquina Creek; San Benito County; rises in the southeastern part of T. 18 S., R. 10 E., Mount Diablo base and meridian; flows northward into San Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay); length, about 5 miles. Land Office map of California, 1907.

Larribee Creek; Humboldt County; rises in the southwestern part of T. 2 S., R. 5 E., Humboldt base and meridian; flows northwestward to its junction with Eel River (tributary to the Pacific); length, 20 miles; principal tributary, Burr Creek. Punnett's map of Humbolt County. Spelled also Laribee, Larabee, Larrabee.

Larribee Creek, Little; Humboldt County; rises in the northern part of T. 1 N., R. 4 E., Humboldt base and meridian, on the north slope of Larribee Buttes; flows north of west 4 miles to its junction with Van Duzen River (trib-

utary to Eel River, which discharges to the Pacific) near Bridgeville. Punnett's map of Humboldt County.

Las Choyas Valley Creek; San Diego County; rises near La Mesa. in the eastern part of Ex Mission San Diego Rancho, at altitude 475 feet; flows southwestward 8½ miles, and enters the Pacific through San Diego Bay 1 mile north of mouth of La Paleta Valley Creek; intermittent. La Jolla and San Diego sheets.

Las Choyas Valley Creek, South; San Diego County; rises at Lemongrove, in Ex Mission San Diego Rancho, at altitude 425 feet; flows southwestward and enters Las Choyas Valley Creek (which discharges to the Pacific through San Diego Bay) 1 mile northwest of the mouth of La Paleta Valley Creek; intermittent; length, about 6 miles; San Diego sheet.

Las Flores Canyon Creek; Los Angeles County; an intermittent stream, 3 miles long, rising in the east-central part of T. 1 S., R. 17 W., San Bernardino base and meridian, and flowing southward into Pacific Ocean. Calabasas sheet.

Las Pulgas Canyon Creek; San Diego County; rises in the northeastern part of Santa Margarita y las Flores; at altitude about 1,000 feet above sea level; flows southwestward about 11 miles and enters the Pacific 1 mile northwest of Las Flores station. San Luis Rey sheet.

Las Trampas Creek; Walnut Creek basin; Contra Costa County; rises in the central part of T. 1 S., R. 2 W., Mount Diablo base and meridian, on the west slope of Las Trampas Ridge, at altitude 1,200 feet above sea level; flows northwestward 3 miles, then in general northerly to the town of Lafayette, where it joins the Lafayette Branch of Walnut Creek (tributary through Walnut Creek to Suisun Bay); length, about 7 miles; fall, 825 feet; principal tributary, Grizzly Creek. Concord sheet.

Las Varas Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 750 feet above sea level; flows west of south 3½ miles to the point at which it enters the Pacific, one-half mile northwest of Naples. Goleta special sheet.

Las Vegas Creek; Santa Barbara County; an intermittent stream, 3 miles long, draining an area in the eastern part of Los Dos Pueblos Rancho, flowing southward, and sinking near La Patera before reaching the tidal marsh through which this part of Santa Barbara County is drained to the Pacific. Goleta special sheet.

Las Virgenes Creek; Ventura and Los Angeles counties; rises in the Simi Hills, in Ventura County at altitude 2,400 feet above sea level; flows southeastward 3 miles, then in general southerly and southwesterly 8 miles to its junction with Triunfo Creek, with which it forms Malibu Creek (tributary to the Pacific); principal tributaries, East Fork, Liberty Canyon, and Stokes Canyon creeks. Camulos sheet.

Las Virgenes Creek, East Fork; Malibu Creek basin; Ventura County; an intermittent stream, 2 miles long, flowing southwestward into Las Virgenes Creek (tributary to Malibu Creek, which discharges to the Pacific). Camulos sheet.

Las Yeguas Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, 2 miles west of south of Santa Ynez Peak, at altitude 1,000 feet above sea level; flows west of south to the point at which it enters the Pacific; length, about 3 miles. Goleta special sheet.

Latigo Canyon Creek; Los Angeles County; an intermittent stream, 2½ miles long, rising on the southern slope of the Santa Monica Mountains, in the

southern part of T. 1. S., R. 18 W., and flowing southward and southeastward into the Pacific Ocean. Camulos sheet.

La Tuna Canyon Creek; Los Angeles County; rises in Verdugo Mountains, 3 miles northeast of Burbank, at altitude 2,500 feet above sea level; flows northward 1 mile, then westerly 5 miles toward Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific) in San Fernando Valley; fall above the edge of the valley, about 1,600 feet. Santa Monica sheet.

Laurel Canyon Creek; Los Angeles County; an intermittent stream, about 1½ miles long, draining a small area in the Santa Monica Mountains and flowing southward into Ballona Creek in La Brea Rancho. Santa Monica sheet.

Laurel Creek; San Mateo County; rises near the San Mateo County almshouse, at altitude about 600 feet above sea level; flows northeastward toward the tidal marsh at the south end of San Francisco Bay. San Mateo sheet.

Laurel Creek; Solano County; rises in Tolenas Rancho, near the south end of the Vaca Mountains, at altitude 800 feet above sea level; flows southward 7 miles into Hill Slough, in the tidal marsh on the north side of Suisun Bay. Napa sheet.

Laurel Gulch Creek; Los Angeles County; rises in the west-central part of T. 2 N., R. 8 W., San Bernardino base and meridian, at altitude 4,500 feet above sea level; flows westerly into San Gabriel River (tributary to the Pacific); length, 1½ miles; fall, 2,100 feet. San Antonio sheet.

Lauterwasser Creek; Contra Costa County; rises in the eastern part of T. 1 N., R. 3 W., Mount Diablo base and meridian; flows southwestward 2½ miles to its junction with San Pablo Creek (tributary to San Pablo Bay) near De Laveaga station. Concord sheet.

Lavic Dry Lake; San Bernardino County; T. 7 N., R. 6 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Lawlor Ravine Creek; Contra Costa County; an intermittent stream rising in the southeastern part of T. 2 N., R 1 W., Mount Diablo base and meridian, and flowing east of north toward the tidal marsh at the east end of Suisun Bay. Mount Diablo and Antioch sheets.

Lawrence Creek; Humboldt County; rises in the southwestern part of T. 4 N., R. 3 E., Humboldt base and meridian, on Iaqua Buttes; flows northwestward and westward 3 miles, then, in general, southwestward about 10 miles to its junction with Yager Creek (tributary to Van Duzen River and thus to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Lawson Creek; San Diego County; rises in the southern part of T. 16 S., R. 2 E., San Bernardino base and meridian, at altitude 2,500 feet above sea level; flows northwestward to its junction with Sweetwater River (tributary to the Pacific through San Diego Bay); length, 4 miles; fall, 1,500 feet; intermittent. Cuyamaca sheet.

La Zaca Creek; Santa Barbara County; rises on the north slope of Lookout Mountain, 1 mile northwest of Zaca Lake, at altitude 2,000 feet; flows northwest 1 mile, then southwestward about 16 miles to Santa Ynez River (tributary to the Pacific); fall, 1,650 feet. See Zaca Lake. Lompoc sheet.

La Zanja Canyon Creek; San Diego County; rises in the northwestern part of T. 14 S., R. 2 W., San Bernardino base and meridian, on the northwestern slope of Black Mountain, at altitude 800 feet above sea level; flows somewhat south of west to the southern part of the tidal marsh through which San Dieguito River enters the Pacific, through which its course is northwesterly; intermittent; length, about 9 miles. La Jolla sheet.

Leach Dry Lake; San Bernardino County; in T. 17 N., R. 3 E., San Bernardino base and meridian, north of Leach Mountain. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Leavitt Creek; Mono County; rises in the eastern part of T. 5 N., R. 21 E., Mount Diablo base and meridian, on the east slope of Leavitt Peak, at altitude 10,200 feet above sea level; flows northeastward to its junction with West Walker River (tributary to Walker River, which discharges to Walker Lake) in Leavitt Meadow; length, about 6 miles; fall, 3,100 feet. Dardanelles sheet.

Lechuza Canyon Creek; Los Angeles County; rises in the central part of T. 1 S., R. 19 W., San Bernardino base and meridian; flows west of south 3 miles into the Pacific Ocean. Camulos sheet.

Leckler Canyon Creek; Los Angeles and Ventura counties; an intermittent stream, 2 miles long, rising in the northwestern part of T. 5 N., R. 17 W., San Bernardino base and meridian, and flowing northwestward into Santa Felicia Canyon Creek (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Ledgewood Creek; Napa and Solano counties; rises in the southern part of T. 6 N., R. 2 W., Mount Diablo base and meridian, on the west slope of the Vaca Mountains, at altitude 1,000 feet above sea level; flows west of south to a point near Manka, then southeastward into the tidal marsh on the north side of Suisun Bay; length, about 10 miles. Napa sheet.

Lee Lake; Riverside County; formed by a dam across Temescal Creek (tributary to Santa Ana River, which discharges to the Pacific); altitude, about 1,150 feet. Elsinore sheet.

Leevining Creek; Mono County; rises in the northeastern part of T. 1 N., R. 24 E., Mount Diablo base and meridian, in a glacier on the northeast slope of Conness Mountain; flows northeastward to the head of Saddlebag Lake through which it flows southeastward to Ellery Lake, then irregularly eastward and northeastward to the point at which it enters Mono Lake; length, about 16 miles; total fall, about 5,000 feet; principal tributaries, Glacier Canyon Creek and Warren Fork. Gaging station near Mono Lake (1910–1912). Mount Lyell sheet.

Le Montaine Creek; Los Angeles County; rises in the southeastern part of T. 4 N., R. 8 W., San Bernardino base and meridian; flows northward to the Mohave Desert into which it sinks; intermittent. San Antonio sheet.

Leon Canyon Creek; Ventura County; an intermittent stream, 2 miles long, flowing northwestward into Canada Larga (tributary to Ventura River, which discharges to the Pacific). Santa Paula sheet.

Leonard Lake; Mendocino County; northeastern part of T. 16 N., R. 14 W., Mount Diablo base and meridian; outlet, Mill Creek to Forsythe Creek (tributary to Russian River, which discharges to the Pacific). Punnett's map of Mendocino County.

Leviathan Creek; Alpine County; rises about 2 miles southwest of Leviathan Peak, at altitude 8,050 feet; flows west of north 3 miles, then northeastward 2 miles to its junction with Mountaineer Creek to form Bryant Creek (tributary through East Fork of Carson River to Carson River, which discharges to Carson Sink); fall, about 1,800 feet. Markleeville sheet.

Lewis Canyon Creek; Santa Barbara County; an intermittent stream, 1½ miles long, rising on the northern slope of the Santa Ynez Mountains, in T. 5 N., R. 28 W., San Bernardino base and meridian, and flowing northward to Santa Ynez River, which discharges to the Pacific. Santa Ynez sheet.

Lewis Creek; San Benito County; rises in the northern part of T. 19 S., R. 11 E., Mount Diablo base and meridian, 3 miles southeast of Lookout Mountain; flows southward 8 miles, then turns abruptly and flows northwestward

14 miles to its junction with Bitterwater Creek (tributary through San Lorenzo Creek to Salinas River, which discharges to the Pacific through Monterey Bay); principal tributaries, Priest Valley and Oat Canyon creeks. Land Office map of California, 1907.

Lewis Paul Canyon Creek; Los Angeles County; an intermittent stream, 1½ miles long, rising in the north-central part of T. 1 N., R. 9 W., San Bernardino base and meridian, and flowing east of south into Big Dalton Canyon (tributary to San Gabriel River, which discharges to the Pacific). Pomona sheet.

Lewis Valley Creek; Riverside County; Santa Margarita River basin; a southwestward flowing stream draining the western part of T. 7 S., and the northwest corner of T. 8 S., R. 1 E., San Bernardino base and meridian. The stream is about 6 miles long and is indicated on the San Jacinto sheet as permanent in a part of its course.

Lexington Wash; Los Angeles County; San Gabriel River basin; the Pasadena sheet shows a stream in this wash flowing southwestward to Rio Hondo.

Liberty Canyon Creek; Los Angeles County; an intermittent stream, 2 miles long, flowing southeastward into Las Virgenes Creek (tributary to Malibu Creek, which discharges to the Pacific). Camulos sheet.

Liddell Creek; Santa Cruz County; a stream, about 3 miles long, rising in the southeastern part of T. 10 S., R. 3 W., Mount Diablo base and meridian, and flowing southwestward into the Pacific 2 miles southeast of Davenport; tributary, East Branch. Santa Cruz sheet.

Liddell Creek, East Branch; Santa Cruz County; rises in the southeastern part of T. 10 S., R. 3 W., Mount Diablo base and meridian; flows southwestward into Liddell Creek, which discharges to the Pacific. Santa Cruz sheet.

Liebre Gulch Creek; Los Angeles County; rises in the southwestern part of T. 8 N., R. 17 W., San Bernardino base and meridian, on the northwestern slope of Liebre Mountain, at altitude 4,500 feet above sea level; flows southwestward 7 miles to its junction with Piru Creek (tributary to Santa Clara River, which discharges to the Pacific) fall, 2,200 feet; principal tributary, West Fork; intermittent. Tejon sheet.

Liebre Gulch, West Fork; Los Angeles County; rises in the southeastern part of T. 8 N., R. 18 W., San Bernardino base and meridian, at altitude 3,700 feet above sea level; flows southward into Liebre Gulch (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific); length, about 6 miles; fall, 1,400 feet; intermittent. Tejon sheet.

Lime Canyon Creek; Ventura County; an intermittent stream, 1½ miles long, rising in the southwestern part of T. 5 N., R. 18 W., San Bernardino base and meridian, and flowing southeastward to Piru Creek (tributary to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Limekiln Canyon Creek; Los Angeles River basin; Los Angeles County; an intermittent stream rising in the Santa Susana Mountains, in T. 3 N., R. 16 W., San Bernardino base and meridian, and flowing southward to San Fernando Valley. Santa Susana sheet.

Limekiln Creek; Monterey County; an intermittent stream flowing northeastward into Salinas River (which discharges to the Pacific through Monterey Bay) 4½ miles northwest of Gonzales. Map of Salinas Valley, sheet 1.

Lindero Canyon Creek; Ventura and Los Angeles counties; an intermittent stream, about 6 miles long, flowing southward and southeastward into Medea Creek (tributary through Triunfo to Malibu Creek, which discharges into the Pacific Ocean). Camulos sheet.

Lindo Lake; San Diego County; at Lakeside, one-half mile west of San Diego River (tributary to the Pacific through False Bay); neither inlet nor outlet shown on map. Cuyamaca sheet.

Lindsey Creek; Humboldt County; rises in the central part of T. 7 N., R. 1 E., Humboldt base and meridian; flows east of south about 6 miles to its junction with Mad River (tributary to the Pacific) near Vance. Punnett's map of Humboldt County.

Link River; Klamath County, Oreg.; the stretch of Klamath River lying between Upper Klamath Lake and Lake Ewauna. The fall of this river between the lake and Lake Ewauna is about 56 feet. Klamath sheet.

Lion Canyon Creek; San Juan Creek basin; Orange and Riverside counties; an intermittent stream, 4 miles long, rising in the western part of T. 6 S., R. 5 W., San Bernardino base and meridian, and flowing west of south into San Juan Creek; fall, 1,900 feet. Elsinore sheet.

Lion Canyon Creek; Santa Clara River basin; Ventura County; rises in the western part of T. 5 N., R. 21 W., San Bernardino base and meridian, at altitude 5,000 feet above sea level; flows northwestward to its junction with Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); length, about 5 miles; fall, 2,000 feet. Mount Pinos sheet.

Lion Canyon Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 2 miles long, rising on the north slope of the San Rafael Mountains in the southern part of T. 9 N., R. 30 W., San Bernardino base and meridian, and flowing northeastward to Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Lion Canyon Creek; Ventura River basin; Ventura County; rises in the eastern end of Upper Ojai Valley, on the north slope of Sulphur Mountain, at altitude 1,450 feet above sea level; flows in general south of west to its junction with San Antonio Creek through which it is tributary to Ventura River (tributary to the Pacific); length, 8 miles; fall, 900 feet, of which 600 feet is made in about 4 miles in the canyon. Santa Paula sheet.

Lion Creek; San Diego County; southeastern part of T. 9 S., R. 1 W., San Bernardino base and meridian. The drainage line is not indicated on the map (Ramona sheet), but the contours indicate a stream, about a mile long, passing to the southwest and south into Pauma Creek (tributary to San Luis Rey River, which discharges to the Pacific); intermittent.

Lisque Creek; Santa Barbara County; an intermittent stream, 3 miles long, flowing southeastward to Santa Agueda Creek, which discharges to Santa Ynez River (tributary to the Pacific). Lompoc sheet.

Little Creek; Scott Creek basin; Santa Cruz County; rises in the western part of San Vicente Rancho, at altitude 1,500 feet above sea level; flows southwestward 3 miles into Scott Creek, which discharges to the Pacific; fall, about 1,400 feet. Santa Cruz sheet.

Little Gulch Creek; Siskiyou County; rises in the southern part of T. 47 N., R. 7 W., Mount Diablo base and meridian, on the southwest slope of Ash Peak; flows southwestward 3 miles into Klamath River (tributary to the Pacific). Punnett's map of Siskiyou County.

Little Lake; San Gabriel River basin; Los Angeles County; 1 mile east of San Gabriel River in Santa Gertrudis Rancho. Downey sheet.

Little River; Humboldt County; rises in the eastern part of T. 7 N., R. 2 E., Humboldt base and meridian, on Humboldt Mountain; flows northwestward about 6 miles, then in general south of west 8 miles to the northwestern part of T. 7 N., R. 1 E., where it enters the Pacific, 3 miles southeast of Trinidad Point. Punnett's map of Humboldt County.

Little River; Mendocino County; rises in the northeastern part of T. 16 N., R. 17 W., Mount Diablo base and meridian; flows westward and enters the Pacific at the town of Little River; length, 5 miles. Punnett's map of Mendocino County.

Little. *See also* significant name.

Liveoak Creek; Los Angeles County; rises in the central part of T. 1 N., R. 8 W., San Bernardino base and meridian, at altitude 3,250 feet above sea level; flows west of south about 4 miles; discharges into the valley of Santa Ana River (tributary to the Pacific) about 4 miles north of Pomona; fall above the mouth of the canyon, 2,000 feet; intermittent. Cucamonga sheet.

Llagas Creek; Santa Clara County; rises in the western part of T. 9 S., R. 1 E., Mount Diablo base and meridian; flows in general southeastward to its junction with Pachecho Creek (tributary to Pajaro River, which discharges to the Pacific in Monterey Bay) in the central part of T. 11 S., R. 4 E.; length, about 30 miles. Land Office Map of California, 1907.

Llanito Creek; Santa Barbara County; an intermittent stream, 1 mile long, flowing southward to El Callejon Creek, the head of El Jaro Creek, which is tributary to Santa Ynez River (tributary to the Pacific) through Salsipuedes Creek. Lompoc sheet.

Lobdel Lake; Mono County; western part of T. 7 N., R. 24 E., Mount Diablo base and meridian, in Swamp Meadows; fed by a ditch which takes water from Deep Creek; outlet, Desert Creek to Smith Valley on West Water River; altitude, 9,250 feet. Bridgeport sheet.

Lobe Canyon Creek; Los Angeles County; an intermittent stream, 3 miles long, flowing northeastward into Triunfo Creek (tributary to Malibu Creek, which discharges to the Pacific). Camulos sheet.

Lobitos Creek; San Mateo County; a stream about 5 miles long, draining a small area in Canada Verde y Arroyo de la Purisima Rancho, and flowing southwestward into the Pacific 2 miles southeast of the mouth of Purisima Creek. Santa Cruz sheet.

Lobos Creek; San Francisco County; a small creek flowing westward and northward from a point near the Marine Hospital to the Pacific through Golden Gate. San Francisco sheet.

Lock Creek; San Mateo County; rises in the southwestern part of T. 4 S., R. 5 W., Mount Diablo base and meridian, on the west slope of the Montara Mountains, at altitude 1,600 feet above sea level; flows southwestward 1 mile and southeastward 1 mile into Frenchman Creek, which discharges to the Pacific; fall, 1,300 feet. San Mateo and Santa Cruz sheets.

Lockwood Creek; Ventura County; rises in the western part of T. 7 N., R. 21 W., San Bernardino base and meridian, at altitude 6,000 feet above sea level; flows northeastward to Lockwood Valley, then eastward along the south side of the valley, and finally southeastward through its canyon to join Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); length, about 9 miles; fall, 1,600 feet; principal tributaries, North and Middle forks, Bitter, and Seymour creeks. Mount Pinos sheet.

Lockwood Creek, Middle Fork; Ventura County; rises in the extreme northeastern part of T. 8 N., R. 22 W., San Bernardino base and meridian, on the western slope of Mount Pinos, at altitude 8,000 feet above sea level; flows southeastward to Lockwood Valley, which is drained by Lockwood Creek to Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); fall in the 4 miles above the mouth of the canyon, 2,500 feet; intermittent. Mount Pinos sheet.

Lockwood Creek, North Fork; Ventura County; rises in the northeastern part of T. 8 N., R. 22 W., San Bernardino base and meridian, on the south slope of Sawmill Mountain, at altitude 8,000 feet above sea level; flows southeastward to the western edge of Lockwood Valley, where its waters sink; Lockwood Valley drains eastward through Lockwood Creek which flows into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); length, above

mouth of canyon, about 4 miles; fall, 2,400 feet; intermittent. Mount Pinos sheet.

Loftus Canyon Creek; Ventura County; opening northeastward to Santa Clara River (tributary to the Pacific) in the northwestern part of T. 3 N., R. 20 W., San Bernardino base and meridian. Santa Paula sheet.

Loma Alta Creek; San Diego County; rises in the eastern part of T. 11 S., R. 4 W., San Bernardino base and meridian, at altitude 400 feet above sea level; flows southwestward and discharges into the brackish-water marsh near South Oceanside; intermittent; length to head of marsh, about 5 miles. This marsh is separated from the Pacific by a narrow sand bar which may at times be cut through by the flood waters of the creek. Escondido and Oceanside sheets.

Lompico Creek; Santa Cruz County; rises in the eastern part of T. 9 S., R. 2 W., Mount Diablo base and meridian, at altitude 1,500 feet above sea level; flows somewhat west of south to its junction with Zayante Creek (tributary to San Lorenzo River, which discharges to the Pacific); fall, about 1,100 feet. Santa Cruz sheet.

Lone Willow Dry Lake; San Bernardino County; between the Slate Range and Brown Mountain. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I and p. 44, on which Lone Willow Spring is described.

Lonely Gulch Creek; Eldorado County; rises in the southwestern part of T. 14 N., R. 17 E., Mount Diablo base and meridian, at altitude 7,000 feet above sea level; flows northeastward 1½ miles into Rubicon Bay, Lake Tahoe (outlet, Truckee River to Pyramid and Winnemucca lakes); fall, about 775 feet. Truckee sheet.

Lone Pine Creek; Inyo County; rises on the east slope of the Sierra in the region just east of Mount Russell (altitude, 14,190 feet), Mount Whitney (altitude, 14,501 feet), and Mount Muir (altitude, 14,025 feet); flows somewhat north of east 12 miles to the edge of Owens Valley near Lone Pine, where its waters sink; the headwaters extend to nearly 13,000 feet above sea level and the total fall is more than 9,000 feet, of which 6,500 feet is made in the first 5 miles; upper basin contains a number of small lakes. Gaging station near Lone Pine (1906–1911). Mount Whitney sheet.

Long Branch Creek; Santa Clara County; an intermittent stream, 3 miles long, rising in the western part of T. 6 S., R. 3 E., Mount Diablo base and meridian, and flowing east of south into Isabel Creek (tributary through Arroyo Hondo to Calaveras Creek and thus through Alameda Creek to San Francisco Bay); fall, 1,250 feet. Mount Hamilton sheet.

Long Canyon Creek; Calleguas Creek basin; Ventura County; an intermittent stream, about 6 miles long, rising in the southeastern part of T. 3 N., R. 20 E., and flowing southwesterly into Arroyo Las Posas (Calleguas Creek, which discharges to the Pacific); intermittent. Camulos sheet.

Long Canyon Creek; San Juan Canyon Creek basin; Orange and Riverside counties; rises about 2 miles east of Los Pinos Peak near the Old Dominion mine, at altitude 2,900 feet above sea level; flows southeastward about 3 miles into San Juan Canyon Creek (tributary to the Pacific); intermittent. Elsinore sheet.

Long Canyon Creek; Santa Margarita River basin; San Diego and Riverside counties; T. 9 S., R. 1 E., San Bernardino base and meridian; rises on the western slope of Palomar Mountain (altitude, 6,126 feet); flows northwestward into Temecula Creek (Santa Margarita River, which discharges to the Pacific); length, about 7 miles; fall, 3,900 feet. Ramona sheet.

Long Canyon Creek; Sweetwater River basin; San Diego County; rises in the southern part of T. 17 S., R. 1 W., San Bernardino base and meridian, at altitude 500 feet above sea level; flows northwestward into Sweetwater

River (tributary to the Pacific through San Diego Bay); length, about 3 miles; fall, 400 feet; intermittent. Cuyamaca and San Diego sheets.

Long Creek; Klamath County, Oreg.; rises on Yam Say Peak; flows southeastward and eastward into Sycan Marsh, which is drained by Sycan River to Sprague River (tributary through Williamson River to Upper Klamath Lake and thus to Klamath River, which discharges to the Pacific); length above the marsh, about 12 miles. Klamath sheet.

Long Grade Canyon Creek; Ventura County; an intermittent stream, about 3 miles long, flowing north of west toward Calleguas Creek, which discharges to the Pacific. Hueneme sheet.

Long Lake; Inyo County; Inyo National Forest; on west slope of Inconsolable Range; outlet, South Fork of Bishop Creek (tributary through Bishop Creek to Owens River, which discharges into Owens Lake); altitude, 10,800 feet. Mount Goddard sheet.

Long Pine Canyon Creek; San Bernardino County; drains portions of T. 3 N., Rs. 6 and 7 W., San Bernardino base and meridian, and an area lying between the North Fork of Lytle Creek and Cajon Canyon, through which it is tributary to the Santa Ana (tributary to the Pacific). The canyon is about 9 miles long. Hesperia and San Antonio sheets.

Long Valley Creek; Eel River basin; Mendocino County; rises in the central part of T. 20 N., R. 15 W., Mount Diablo base and meridian; flows northward 1 mile, northeastward 1 mile, then southeastward 5 miles to its junction with Deep Creek (tributary to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Long Valley Creek; Honey Lake basin; rises in Sierra County in the northern part of T. 10 N., R. 18 E., Mount Diablo base and meridian, at altitude about 7,000 feet above sea level; takes a general northerly course and discharges into Honey Lake, which is without outlet; length, about 45 miles; fall, about 3,050 feet, of which 1,500 feet is made in the first 3 miles; intermittent; in times of flood discharges considerable water into Honey Lake (q. v.). Sierraville and Honey Lake sheets.

Long Valley Creek; Walker River basin; Mono County; rises in the northeastern part of T. 5 N., R. 23 E., Mount Diablo base and meridian, at altitude 8,500 feet; takes a general easterly course to its junction with Swager Creek (tributary through Buckeye Creek to East Walker River and thus to Walker River, which discharges to Walker Lake) at the lower end of Huntoon Valley; length, about 6 miles; fall, 1,700 feet. Bridgeport sheet.

Lopez Canyon Creek; Los Angeles County; Los Angeles River basin; an intermittent stream, about 2 miles long, flowing southwestward into San Fernando Valley 2 miles west of the mouth of Little Tujunga Canyon. Fernando sheet.

Los Alamos Canyon Creek; Riverside County; rises at the southeast end of Elsinore Mountains, at altitude 2,350 feet above sea level; flows southwestward 4 miles, then westward 3 miles to its junction with San Mateo Creek, which discharges to the Pacific; fall, 1,000 feet; principal tributary, Wildhorse Canyon Creek; intermittent. Elsinore sheet.

Los Alamos Creek; Sonoma County; rises in the northwestern part of T. 7 N., R. 6 W., Mount Diablo base and meridian; flows southwestward 4 miles and unites with Santa Rosa Creek (tributary to Russian River, which flows into the Pacific) near Melitta in Rancho Los Guilicos. Punnett's map of Sonoma County.

Los Amoles Creek; Santa Barbara County; an intermittent stream, 2½ miles long, rising in the southern part of San Julian Rancho and flowing

northward to El Jaro Creek (tributary through Salsipuedes Creek to Santa Ynez River, which discharges to the Pacific). Lompoc sheet.

Los Angeles River; Los Angeles County; formed by Tujunga, Pacoima, and other small creeks whose sources are in the Sierra Madre northeast of the city of Los Angeles. These streams leave the mountains at a point about 25 miles above the city and enter the comparatively flat country of the San Fernando Valley where, except at times of excessive floods, the waters disappear in the sand and gravel washes at the lower end; in this valley is a secondary range of hills, trending from east to west, where bed-rock obstruction forces the water to the surface to form what is known as Los Angeles River. Below this point the river flows through the flat country of the Los Angeles Valley and enters the Pacific near the town of Long Beach. At the city of Los Angeles it is joined by Arroyo Seco. During the summer months the entire flow of Los Angeles River is diverted at a point about 5 miles above Los Angeles for the supply of the city and, except during flood periods, only a small amount of water passes this point. Tujunga, Pasadena, Santa Monica, and Downey sheets; Water-Supply Paper U. S. Geol. Survey No. 291, 1912, p. 51.

Los Berros Creek; San Luis Obispo County; rises in T. 32 S., R. 14 E., Mount Diablo base and meridian; flows southward and southwestward to a point east of Los Berros, northwestward to Nopomo Hill, then southwestward, westward, and northwestward again to a point near Oceano where it joins Arroyo Grande Creek (tributary to the Pacific); length, about 11 miles; intermittent; from Los Berros to Nopomo Hill the valley of the creek is followed by the Pacific Coast Railway. Arroyo Grande sheet.

Los Coches Creek; San Diego County; rises in the eastern part of T. 15 S., R. 1 E., San Bernardino base and meridian, at altitude 1,100 feet above sea level; flows southwestward 4 miles, then northwestward about 3 miles to its junction with San Diego River, which discharges to the Pacific through False Bay; intermittent; fall, 700 feet. Cuyamaca sheet.

Los Gatos Creek; Carmelo River basin; Monterey County; rises in the northern part of T. 18 S., R. 3 E., Mount Diablo base and meridian; flows northward into Glicko Creek (tributary to Carmelo River, which discharges to the Pacific); length, about 8 miles. Post route map, 1911; Land Office map, 1907, on which it is shown but not named.

Los Gatos Creek; Guadalupe River basin; Santa Clara County; an intermittent stream, about 8 miles long, flowing northwestward and joining Guadalupe River (tributary to San Francisco Bay) in the city of San Jose. San Jose sheet.

Los Laureles Canyon Creek; Santa Barbara County; an intermittent stream, 4 miles long, rising on the north slope of the Santa Ynez Mountains in T. 5 N., R. 28 W., San Bernardino base and meridian, and flowing northwestward to Santa Ynez River, which discharges to the Pacific. Santa Ynez sheet.

Los Osos Creek; San Luis Obispo County; rises in the northern part of T. 31 S., R 11 E., Mount Diablo base and meridian, at altitude 900 feet above sea level; flows northwestward to the western part of Canada de los Osos Rancho, then turns sharply and flows northeastward to the tidal marsh through which it flows to Morro Bay and thus to the Pacific Ocean; upper course lies through Clark Valley; length, about 9 miles. Cayucos sheet.

Los Penasquitos Canyon Creek; San Diego County; rises in the northern part of T. 14 S.. R. 1 W., San Bernardino base and meridian, at altitude 2,100 feet above sea level; flows in general somewhat south of west to a point near Sorrento at upper end of Soledad Valley, where it turns and flows northwestward through the valley and enters the Pacific through a tidal marsh 1 mile southeast of Delmar; intermittent; length, about 22 miles; principal tributary,

Soledad Canyon Creek. McGonigle Canyon Creek enters the Pacific through the same tidal marsh. Elcajon and La Jolla sheets.

Los Pinetos Canyon; Los Angeles County; northern part of T. 3 N., R. 15 W., San Bernardino base and meridian; a drainage way opening northward into Placerita Canyon, which discharges through Placerita Creek to Santa Clara River (tributary to the Pacific). Fernando sheet.

Los Sauces Creek; Ventura County; an intermittent stream rising in the southern part of T. 4 N., R. 24 W., San Bernardino base and meridian, at altitude 1,500 feet above sea level, and flowing west of south to the Pacific Ocean half a mile northwest of Seacliff; tributary, Poverty Canyon Creek. Ventura sheet.

Lost Cannon Creek; Mono County. *See* Lost Canyon Creek.

Lost Canyon Creek; Mono County; rises in the southeastern part of T. 7 N., R. 22 E., Mount Diablo base and meridian, at altitude 8,700 feet above sea level; flows northwestward 3 miles, then northeastward 7 miles to its junction with West Walker River (tributary to Walker River, which discharges to Walker Lake) at the upper end of Antelope Valley; fall, 3,400 feet; principal tributary, Mill Creek; called Lost Cannon Creek on Dardanelles sheet. Dardanelles, Bridgeport, and Wellington sheets.

Lost Creek; San Bernardino County; rises in the southwestern part of T. 1 N., R. 2 E., San Bernardino base and meridian, 2 miles northeast of San Gorgonio Mountain, at altitude 9,500 feet above sea level; flows northerly to its junction with Santa Ana River (tributary to the Pacific); length, 4 miles; fall, 3,200 feet; intermittent. San Gorgonio sheet.

Los Trancos Creek; San Francisquito Creek basin; forms boundary between San Mateo and Santa Clara counties; rises in the southern part of El Corte de Madero Rancho, at altitude 1,000 feet above sea level; flows northerly into San Francisquito Creek, which discharges to San Francisco Bay; length, about 3 miles. Santa Cruz and Palo Alto sheets.

Lost River; Modoc County, Cal., and Klamath County, Oreg.; rises in the southeastern part of Klamath County, Oreg.; flows southwestward into Modoc County, Cal., then passing to the west and northwest reenters Oregon, and finally discharges into Rhett Lake; principal tributaries, Willow Creek and a stream from Clear Lake; formerly connected by a slough with Klamath River, but such discharge has been artificially prevented. Gaging station near Clear Lake (1904–1909). Alturas, Modoc Lava Bed, and Klamath sheets. *See also* Water-Supply Paper U. S. Geol. Survey No. 146, 1905, p. 98.

Love Creek; Santa Cruz County; rises in the central part of T. 9 S., R. 2 W., Mount Diablo base and meridian, at altitude 1,000 feet above sea level; flows southward 3 miles into San Lorenzo River at Ben Lomond (tributary to the Pacific); fall, about 700 feet. Santa Cruz sheet.

Lower Lake. *See* Alkali Lakes.

Lucas Canyon Creek; Riverside and Orange counties; an intermittent stream, about 6 miles long, rising 1 mile southwest of Sitton Peak, and flowing southwesterly into San Juan Canyon Creek; fall, 2,300 feet. Elsinore and Corona sheets.

Lucas Creek; Los Angeles County; rises on the east slope of Josephine Mountain, in the San Gabriel Timber Land Reserve, at altitude 4,400 feet above sea level; flows northwestward about 2 miles into Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific); fall, 1,950 feet. Tujunga sheet.

Lucky Creek; Humboldt County; rises in the western part of T. 7 N., R. 4 E., Humboldt base and meridian; flows northwestward 8 miles to its junction with

Redwood Creek (tributary to the Pacific) in the western part of T. 8 N., R. 3 E. Punnett's map of Humboldt County.

Lucol Hollow Creek; Solano County; an intermittent stream, 3 miles long, rising in the Montezuma Hills and flowing southwestward and westward into Hopkins Ravine Creek, which discharges into the tidal marsh on the north side of Suisun Bay. Antioch sheet.

Lumgrey Creek; Siskiyou County; rises in the northeastern part of T. 47 N., R. 8 W., Mount Diablo base and meridian, on the south slope of Mount Bullion; flows southwestward 8 miles into Klamath River (tributary to the Pacific), which it enters 2 miles east of the mouth of Beaver Creek. Punnett's map of Siskiyou County.

Lundy Canyon Creek. *See* Mill Creek.

Lundy Lake; Mono County; north-central part of T. 2 N., R. 25 E., Mount Diablo base and meridian; inlet, Mill Creek, which flows through the lake to Mono Lake; altitude, 7,766 feet; fall of Mill Creek in the 6 miles below the lake, 1,340 feet. Bridgeport sheet.

Lyons Creek; San Diego County; a small stream, unnamed on the map (Cuyamaca sheet), which enters Cottonwood Creek (tributary to Tia Juana River, which discharges to the Pacific) about half a mile above the Barrett dam.

Lytle Creek; San Bernardino County; formed in the central part of T. 2 N., R. 6 W., San Bernardino base and meridian, by the union of its North, Middle, and South forks. The North Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises on the southeastern slope of Pine Mountain, at altitude 8,250 feet above sea level; flows southeastward 11 miles, then west of south 1½ miles to the point at which it receives the Middle Fork. The South Fork enters one-half mile below the junction of the North and Middle forks; below the forks the creek flows southeasterly through Lytle Canyon to San Bernardino Valley, which is drained by Santa Ana River (tributary to the Pacific). The drainage basin comprises about 55 square miles. All of the ordinary summer flow of the stream is diverted at the mouth of its canyon into a masonry canal and passes over a weir, canal and weir being used in common by all the water companies interested in the supply. San Antonio, Hesperia, Cucamonga, and San Bernardino sheets; Twentieth Ann. Report U. S. Geol. Survey, pt. 4, 1900, p. 555.

Lytle Creek, Middle Fork; San Bernardino County; rises in northeastern part of T. 2 N., R. 7 W., San Bernardino base and meridian, at altitude 7,250 feet; flows southeastward to junction with Lytle Creek (tributary to Santa Ana River, which discharges to the Pacific); length, 7 miles; fall, 4,250 feet; principal tributary, a stream draining the north slope of Cucamonga Peak. San Antonio and Cucamonga sheets.

Lytle Creek, North Fork. *See* Lytle Creek.

Lytle Creek, South Fork; San Bernardino County; rises in the southeastern part of T. 2 N., R. 7 W., San Bernardino base and meridian, 1 mile east of Cucamonga Peak, at altitude 7,750 feet above sea level; flows southeastward 1½ miles, then north of east about 4 miles to its junction with Lytle Creek (tributary to Santa Ana River, which discharges to the Pacific); fall, 4,900 feet. Cucamonga sheet.

McAdams Creek, Siskiyou County. *See* Cherry Creek.

McDonald Canyon Creek; Ventura County; an intermittent stream, 3 miles long, rising in the southeastern part of T. 5 N., R. 23 W., San Bernardino base and meridian, and flowing southwestward to Ventura River (tributary to the Pacific) in Ojai Valley. Ventura sheet.

McCoy Creek; San Benito County; rises in the northern part of T. 17 S., R. 10 E., Mount Diablo base and meridian; flows east of south into San Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay); length, about 5 miles. Land Office map of California, 1907.

McDowell Creek; Mendocino County; rises on the west slope of the Coast Range in the northeastern part of T. 13 N., R. 11 W., Mount Diablo base and meridian; flows southwestward 6 miles to its junction with Russian River (tributary to the Pacific) in Rancho de Sanel. Punnett's map of Mendocino County.

McGarvey Creek; Del Norte County; rises in the southeastern part of T. 13 N., R. 1 E., Humboldt base and meridian; flows northward 2 miles into Klamath River (tributary to the Pacific). Punnett's map of Del Norte County.

McGee Creek; Inyo County; Inyo National Forest; rises on the north slope of Mount Humphreys, at altitude 12,000 feet above sea level; flows northeastward to its junction with Birch Creek (tributary to Owens River, which discharges to Owens Lake); fall, 7,600 feet. Mount Goddard and Bishop sheets.

McGee Creek; Mono County; Inyo National Forest; rises on the east slope of Red and White Mountain at altitude about 11,500 feet above sea level; flows northeastward. The area north of the Mount Goddard quadrangle, on which the head of this creek is shown, has not yet been mapped by the Geological Survey and the creek is not shown on the Land Office map of California; it is therefore not known to the compiler whether it is tributary to Owens River through Rock Creek or enters the river direct.

McGonigle Canyon Creek; San Diego County; rises in the northwestern part of T. 14 S., R. 2 W., San Bernardino base and meridian, on Black Mountain, at altitude 1,100 feet above sea level; flows southwestward to the tidal marsh through which Los Penasquitos Canyon Creek enters the Pacific; length, about 9 miles. La Jolla sheet.

Mack Canyon Creek; Mono County; rises in the northeastern part of T. 6 N., R. 24 E., Mount Diablo base and meridian, at altitude 9,400 feet above sea level; takes a general southerly course to its junction with Swager Creek (tributary through Buckeye Creek to East Walker River and thus to Walker River which discharges to Walker Lake); length, about 4 miles; fall, 2,500 feet. Bridgeport sheet.

McKinney Creek; Klamath River basin; Siskiyou County; rises in the northern part of T. 45 N., R. 9 W., Mount Diablo base and meridian; flows northward into Klamath River (tributary to the Pacific); length, 5 miles. Punnett's map of Siskiyou County.

McKinney Creek; Truckee River basin; Placer County; rises in the central part of T. 14 N., R. 16 E., Mount Diablo base and meridian, at altitude 8,000 feet above sea level; flows south of east 2 miles, then northeastward 2 miles and enters Lake Tahoe (outlet through Truckee River to Pyramid and Winnemucca lakes) at McKinney; fall, 1,775 feet. Truckee sheet.

McNab Creek; Mendocino County; rises in the southwestern part of T. 14 N., R. 12 W., Mount Diablo base and meridian; flows somewhat south of east 6 miles to its junction with Russian River (tributary to the Pacific) near Largo in Rancho de Sanel. Punnett's map of Mendocino County.

Mad River; Trinity and Humboldt counties; rises in Trinity County, in the east-central part of T. 26 N., R. 12 W., Mount Diablo base and meridian; flows northwestward to the northeastern part of T. 6 N., R. 1 W., Humboldt base and meridian, where it enters the Pacific; length, including major windings, about 90 miles. The basin is very narrow and tributaries are unimportant; those named on the map are Pilot, Deer, Shower, Bug, Boulder, Maple, Canon, and Lindsey creeks, and North Fork of Mad River. In the upper parts of its course the chan-

nel is practically dry during the summer months, the water standing in pools. Farther down flow continues throughout the year but is insufficient to irrigate all the land that is improved; during the rainy season the river is turbulent.

The lower course of the stream passes through the famous redwood belt. The remainder of the basin is covered with grass and scrubby timber.

Gaging station near Arcata (1910–1912).

Authorities: Punnett's maps of Trinity and Humboldt counties; Water-Supply Paper U. S. Geol. Survey No. 291, 1912, p. 177.

Mad River, North Fork; Humboldt County; rises in the west-central part of T. 7 N., R. 2 E., Humboldt base and meridian; flows east of south 6 miles, south and southwest 4 miles, then northwestward 1 mile to its junction with Mad River (tributary to the Pacific) 1 mile west of Korbel. Punnett's map of Humboldt County.

Madden Creek; Placer County; rises in the northeastern part of T. 14 N., R. 16 E., Mount Diablo base and meridian, at altitude 8,300 feet above sea level; flows northeastward 2½ miles into McKinley Bay, Lake Tahoe (outlet, Truckee River to Pyramid and Winnemucca lakes); fall, 2,075 feet. Truckee sheet.

Maddon Creek; Humboldt County; rises in the southeastern part of T. 6 N., R. 4 E., Humboldt base and meridian; flows northeastward 4½ miles into the South Fork of Trinity River just above the junction of the South Fork with Trinity River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Madera Creek; Santa Clara County; rises in La Purisima Concepcion Rancho; flows northeastward toward the tidal marsh at the southern end of San Francisco Bay; sinks near Mayfield. Palo Alto and Santa Cruz sheets.

Madranio Canyon Creek; an intermittent stream rising in the northern part of T. 3 N., R. 24 W., at altitude 1,250 feet above sea level; flows southwestward toward the Pacific Ocean. Ventura sheet.

Magnesia Spring Canyon; Riverside County; central part of T. 5 S., R. 5 E., San Bernardino base and meridian; an intermittent stream, 2 miles long, flowing northeastward to Magnesia Spring, on the edge of Coachella Valley, in the Colorado Desert. Indio special sheet.

Malibu Creek; Ventura and Los Angeles counties; an intermittent stream formed in the northeastern part of T. 1 S., R. 18 W., San Bernardino base and meridian, by the union of Triunfo and Las Virgenes creeks; Triunfo Creek, which drains the larger area and is therefore considered the continuation of Malibu Creek, rises in Ventura County, 1 mile north of Triunfo Pass, on Sandstone Peak (altitude 3,059 feet); takes a very irregular but in general southeasterly course to its point of junction with Las Virgenes Creek. Below this junction Malibu Creek flows southeastward into the Pacific Ocean. Length of Triunfo Creek above the point of junction, about 16 miles; of Malibu Creek below the junction, about 6 miles. The principal tributary of Malibu Creek below the mouth of Las Virgenes is Cold Creek. Gaging station on Triunfo Creek near Calabasas (1903–1906) and on Malibu Creek near Calabasas (1903–1906). Camulos and Calabasas sheets.

Mallard Slough; Contra Costa County; in the tidal marsh on the south side, east end of Suisun Bay. Antioch sheet.

Mallo Pass Creek; Mendocino County; rises in the northern part of T. 13 N., R. 16 W., Mount Diablo base and meridian; flows north of west, and enters the Pacific half a mile southwest of Newhaven; length, about 4½ miles. Punnett's map of Mendocino County.

Mammoth Lakes; Mono County; north of Mammoth Crest, in T. 4 S., R. 27 E., Mount Diablo base and meridian; a group of small lakes discharging by a stream flowing eastward into Owens River (tributary to Owens Lake) in Long

Valley. The highest of the lakes is about 9,550 feet above sea level; the lowest is about 8,550. Mount Lyell sheet; Land Office map of California, 1907.

Man Gulch Creek; Alameda County; rises in the west-central part of T. 5 S., R. 4 E., Mount Diablo base and meridian, just south of the boundary line between Santa Clara and Alameda counties, on the north slope of Eylar Mountain; flows northward to Man Ridge, then turns to the west and southwest and joins Arroyo del Valle (tributary through Arroyo de la Laguna to Alameda Creek, which discharges to San Francisco Bay) in the eastern part of T. 5 S., R. 3 E.; length, about 5 miles; fall, 2,300 feet. Tesla and Mount Hamilton sheets.

Mandiville Canyon Creek. *See* Santa Monica Canyon Creek.

Manuel Canyon Creek; Ventura County; an intermittent stream, 2 miles long, flowing westward into Canada Larga just above its entrance into Ventura River (tributary to the Pacific). Ventura sheet.

Manzana Creek; Santa Barbara County; an intermittent stream rising in the San Rafael Mountains, between San Rafael and McKinley mountains, at altitude about 5,800 feet above sea level, and flowing northwestward to Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific), which it enters in the southeastern part of T. 9 N., R. 30 W.; length, about 15 miles; fall, 4,700 feet; principal tributary, Davy Brown Canyon Creek. Santa Ynez sheet.

Manzanita Creek; Trinity County; rises in the central part of T. 34 N., R. 12 W., Mount Diablo base and meridian; flows west of south 3 miles into Trinity River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Maple Creek; Humboldt County; rises in the northwestern part of T. 8 N., R. 2 E., Humboldt base and meridian; flows northwestward into Big Lagoon; length, about 8 miles; principal tributaries, Pitcher Creek and an unnamed stream, about 9 miles long, which enters from the south in the southern part of T. 9 N., R. 1 E. Punnett's map of Humboldt County.

Maple Creek; Humboldt County; rises in the southeastern part of T. 5 N., R. 3 E., Humboldt base and meridian; flows northwestward 4 miles, then southwest and south 3 miles into Mad River (tributary to the Pacific); course circuitous. Punnett's map of Humboldt County.

Marble Canyon Creek; San Bernardino County; T. 3 N., R. 1 E., San Bernardino base and meridian; an intermittent stream, 3 miles long, flowing northward into Mohave Desert. San Gorgonio sheet.

Maria Ygnacio Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 3,000 feet above sea level; flows west of south 7 miles to its junction with Alascadero Creek (which discharges to the Pacific) half a mile south of Goleta; principal tributaries, East Fork and San Antonio creeks. Goleta special map.

Maria Ygnacio Creek, East Fork; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 650 feet above sea level; flows southwestward into Maria Ygnacio Creek (tributary to the Pacific through Alascadero Creek); length, 2 miles; fall, 500 feet. Goleta special map.

Marie Canyon Creek; Los Angeles County; an intermittent stream, 1½ miles long, rising on the southern slope of the Santa Monica Mountains and flowing southward into the Pacific Ocean. Camulos sheet.

Marie Lake; Mono County, Mono National Forest; 1½ miles east of Mount Lyell; outlet, Rush Creek, which discharges to Mono Lake; altitude, 10,750 feet. Mount Lyell sheet.

Markham Creek; Sonoma County; rises in the northern part of T. 7 N., R. 11 W., Mount Diablo base and meridian; flows west of south 3 miles and joins Russian River just above the point at which the latter enters the Pacific. Punnett's map of Sonoma County.

Markleeville Creek; Alpine County; rises on the east slope of the Sierra near the summit of the divide separating Carson River waters from waters flowing to the Mokelumne; takes a general northeasterly course to its junction with the East Fork of Carson River (tributary through Carson River to Carson Sink); length, about 12 miles; principal tributary, Pleasant Valley Creek. The main stream is locally called Hot Spring Creek above Markleeville, where it is joined by Pleasant Valley Creek. Gaging Station near Markleeville (1911–12) and at Markleeville (1910–1912). Markleeville sheet.

Mark West Creek; Sonoma County; rises on the western slope of the Coast Range in the southeastern part of T. 8 N., R. 7 W., Mount Diablo base and meridian; takes a circuitous but in general westerly course to its junction with Santa Rosa Creek (tributary to Russian River, which flows into the Pacific) near Mount Olivet in San Miguel Rancho; length, including major windings, about 18 miles. Punnett's map of Sonoma County.

Martin Creek; Mendocino County; rises in the northern part of T. 17 N., R. 14 W., Mount Diablo base and meridian; flows southwestward into Big River (tributary to the Pacific); length, 4 miles. Punnett's map of Mendocino County.

Martin Creek; San Mateo County; a short intermittent stream, flowing northeastward into Searsville Lake, which discharges through San Francisquito Creek to San Francisco Bay. Palo Alto and Santa Cruz sheets.

Martinez Canyon Creek; Riverside County; an intermittent stream rising on the southwest slope of Martinez Mountain, at altitude 4,400 feet above sea level, flowing southeastward and eastward to the Colorado Desert; length above mouth of canyon, about 8 miles, in which distance the fall is 3,300 feet. Indio special sheet.

Martis Creek; Placer and Nevada counties; rises in Placer County in the eastern part of T. 16 N., R. 16 E., Mount Diablo base and meridian, at altitude 7,500 feet above sea level; flows northwestward 2 miles, then northeastward 7 miles to its junction with Truckee River (tributary to Pyramid and Winnemucca lakes); length, about 9 miles; fall, 1,800 feet of which 1,200 feet is made in the first 2 miles; many small branching tributaries. Truckee sheet.

Matanzas Creek, Sonoma County. *See* Bennett Creek.

Mathilde Lake; San Mateo County; a small lake in the lower part of San Pedro Valley, a short distance east of the Pacific, from which it is separated by a sand bar. San Mateo sheet.

Matilija Creek; Santa Barbara and Ventura counties; rises in the eastern part of Santa Barbara County, in T. 6 N., R. 24 W., San Bernardino base and meridian, at altitude 5,500 feet above sea level; flows southeastward about 15 miles to the upper end of Ojai Valley, below which it is called Ventura River (tributary to the Pacific); fall in this portion of its course, 4,750 feet; principal tributaries above Ojai Valley, West Fork, Upper North Fork, and North Fork. Mount Pinos and Ventura sheets.

Matilija Creek, North Fork; Ventura County; rises in the northeastern part of T. 5 N., R. 23 W., San Bernardino base and meridian, at altitude 3,700 feet above sea level; flows, in general, southwestward to its junction with Matilija Creek (Ventura River, tributary to the Pacific), half a mile east of Matilija; length, about 5 miles. Mount Pinos and Ventura sheets.

Matilija Creek, Upper North Fork; Ventura County; rises in the southeastern part of T. 6 N., R. 24 W., San Bernardino base and meridian, at alti-

tude 5,000 feet above sea level; flows southward 4 miles, then southwesterly 3 miles into Matilija Creek (Ventura River, which discharges to the Pacific) near Matilija; length, about 7 miles; fall, 2,800 feet. Mount Pinos and Ventura sheets.

Matilija Creek, West Fork; Ventura County; rises on the north slope of the Santa Ynez Mountains, in the western part of T. 5 N., R. 24 W., San Bernardino base and meridian, at altitude 4,500 feet above sea level; flows northeastward to its junction with Matilija Creek (Ventura River, tributary to the Pacific); length, about 3 miles; intermittent. Ventura sheet.

Matthews' Creek; Siskiyou County; rises in the southwestern part of T. 39 N., R. 11 W., Mount Diablo base and meridian; flows southwestward and westward to its junction with Salmon River (tributary to Klamath River, which flows to the Pacific); length, 6 miles. Punnett's map of Siskiyou County.

Mattole River; Mendocino and Humboldt counties; rises in Humboldt County, in the northern part of T. 24 N., R. 19 W., Mount Diablo base and meridian; takes a general northwesterly course to the northern part of T. 2 S., R. 2 W., Humboldt base and meridian, where it turns and flows southwestward into the Pacific; length, including major windings, 44 miles; principal tributaries, West Fork, Honeydew Creek, Upper North Fork, Squaw Creek, and North Fork. Gaging station near Petrolia (1911). Punnett's maps of Mendocino and Humboldt counties.

Mattole River, North Fork; Humboldt County; rises in the southwestern part of T. 1 S., R. 1 E.; flows somewhat north of west 8 miles, then south of west and south 4 miles to its junction with Mattole River (tributary to the Pacific) near Petrolia. Many short tributaries draining the southern slopes of Rainbow and Taylors peaks. Punnett's map of Humboldt County.

Mattole River, Upper North Fork; Humboldt County; rises in the southern part of T. 1 S., R. 1 E., Humboldt base and meridian; flows in general southwestward to its junction with Mattole River (tributary to the Pacific) in the northeastern part of T. 3 S., R. 1 W.; length, about 8 miles. Punnett's map of Humboldt County.

Mattole River, West Fork; Humboldt County; rises in the western part of T. 5 S., R. 2 E., Humboldt base and meridian; flows west of north 7 miles, then northeastward 2½ miles into Mattole River (tributary to the Pacific) at Etterburg. Punnett's map of Humboldt County.

Maxy Canyon Creek; Ventura County; an intermittent stream. 4 miles long, rising in the southwestern part of T. 8 N., R. 19 W., San Bernardino base and meridian, and flowing southeastward into Canada de los Alamos Creek (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific). Tejon sheet.

May Canyon Creek; Los Angeles County; Los Angeles River basin; an intermittent stream, 3 miles long, draining a portion of the eastern part of T. 3 N., R. 15 W., San Bernardino base and meridian; flows southward toward Pacoima Creek (tributary to Los Angeles River, which discharges to the Pacific) in San Fernando Valley. Fernando sheet.

Means Dry Lake; San Bernardino County; T. 4 N., R. 4 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I, p. 73.

Medea Creek; Ventura and Los Angeles counties; an intermittent stream, about 7 miles long, flowing southeastward into Triunfo Creek (tributary to Malibu Creek, which discharges to the Pacific); principal tributaries, Lindero Canyon and Posita Canyon creeks. Camulos sheet.

Meder Creek; Santa Cruz County; a stream, about 3½ miles long, flowing southward into the Pacific 3 miles west of the Santa Cruz Point. Santa Cruz sheet.

Meeks Creek; Eldorado County; rises in the western part of T. 13 N., R. 17 E., Mount Diablo base and meridian, 1 mile northeast of Phipps Peak, at altitude 8,500 feet above sea level; flows northwestward 3 miles, then northeastward 3 miles into Meeks Bay, Lake Tahoe (outlet, Truckee River to Pyramid and Winnemucca lakes); fall, 2,275 feet; passes through several small lakes. Pyramid Peak and Truckee sheets.

Merced Lake; San Francisco County; lies in a depression separated from the ocean by a narrow ridge. The bottom of Lake Merced is 10 feet below sea level; the drowned valley which the lake occupies undoubtedly once had free access to the ocean at tide level, but sand dunes choked the channel and dammed back the waters until they stood 10 feet above tide. Since then the lake has been artificially raised another 10 feet. San Mateo sheet; Lawson, A. C., Geology of the San Francisco peninsula; Fifteenth Ann. Rept. U. S. Geol. Survey, Part II, 1893–4, pp. 474–75.

Merrill Creek; Siskiyou County; rises in the eastern part of T. 12 N., R. 6 E., Humboldt base and meridian; flows southwestward to its junction with Salmon River (tributary to Klamath River, which discharges to the Pacific) half a mile northeast of Somes Bar · length, 4 miles. Punnett's map of Siskiyou County.

Merritt Lake; Alameda County; between Oakland and East Oakland; inlets, Indian Gulch and Hayes creeks; outlet, San Antonio Creek to San Francisco Bay. San Francisco sheet.

Meryl Creek; Klamath County, Oreg.; rises in the eastern part of the county about 6 miles southeast of the south end of Sycan Marsh; flows southward 12 miles into North Fork of Sprague River (tributary through Sprague River to Williamson River and thus through Upper Klamath Lake to Klamath River, which discharges to the Pacific). Klamath sheet.

Mescal Creek; Los Angeles County; rises in the southern part of T. 3 N., R. 8 W., San Bernardino base and meridian; flows northward to the gravels at the edge of Antelope Valley. San Antonio sheet; Land Office map of California, 1907; Water-Supply Paper U. S. Geol. Survey No. 278, 1911, Pl. VI.

Mesquite Dry Lake; San Bernardino County; Tps. 2 and 3 N., R. 8 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Mesquite Dry Lake; San Bernardino County; in T. 19 N., R. 13 E., San Bernardino base and meridian, just west of the Nevada-California State line; Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I. Ivanpah sheet.

Messenger Canyon Creek; Santa Barbara County; an intermittent stream, 6 miles long, rising on the north slope of McPherson Peak and flowing east of north to Cuyama River (Santa Maria River, which discharges to the Pacific). Santa Ynez sheet.

Methodist Creek; Siskiyou County; rises in the southwestern part of T. 9 N., R. 8 E., Humboldt base and meridian; flows northeastward to its junction with Salmon River (tributary to Klamath River, which flows to the Pacific) near Yocumville; length, 5 miles. Punnett's map of Siskiyou County.

Mettah Creek; Humboldt County; rises in the central part of T. 10 N., R. 2 E., Humboldt base and meridian; flows northeastward into Klamath River (tributary to the Pacific); length, 5 miles. Punnett's map of Humboldt County.

Mexican Canyon Creek; San Diego County; rises in the southern part of T. 16 S., R 1 E., San Bernardino base and meridian, at altitude 1,000 feet above sea level; flows northwestward toward Sweetwater River (tributary to the

Pacific through San Diego Bay); length, about 3 miles; fall, 600 feet; intermittent. The map (Cuyamaca sheet) gives no indication of a drainage line in this canyon but shows a road leading from Jamacho to North Jamul.

Middle Alkali Lake. *See* Alkali Lakes.

Middle Creek; Klamath River basin; Siskiyou County; rises in the northeastern part of T. 44 N., R. 12 W., Mount Diablo base and meridian, on the eastern slope of Marble Mountains; flows southeastward 5 miles to its junction with Scott River (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Middle Creek; Klamath River basin; Siskiyou County; rises in the northern part of T. 47 N., R. 10 W., Mount Diablo base and meridian; flows in general somewhat west of south to its junction with Horse Creek (tributary to Klamath River, which flows to the Pacific); length, 7 miles. Punnett's map of Siskiyou County.

Middle Slough; Contra Costa County; between Winter and Browns islands. Antioch sheet.

Milk Creek; Klamath County, Oreg.; rises on the western slope of Black Hills; flows southwestward into Sycan River (tributary through Sprague River to Williamson River, and thus through Upper Klamath Lake to Klamath River, which discharges to the Pacific). Klamath sheet.

Milk Ranch Creek; Humboldt County; rises in the western part of T. 5 S., R. 4 E., Humboldt base and meridian; flows southwestward into South Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Millard Canyon Creek; Los Angeles River basin; Los Angeles County; rises on the southwest slope of Mount Lowe at Crystal Springs, at altitude 4,500 feet above sea level; flows southwestward to Arroyo Seco (tributary to Los Angeles River, which discharges to the Pacific), to which it is tributary, just at the canyon opening, but its waters seldom flow so far as this junction at their low stage. Pasadena sheet; Irrigation in California [southern], Sacramento, 1888, p. 389.

Millard Canyon Creek; Riverside County; T. 2 S., R. 2 E., San Bernardino base and meridian; an intermittent stream rising in the northern part of the township and flowing southward to San Gorgonio Pass, which slopes eastward from a point east of Beaumont to the Colorado desert. The canyon has three forks—the East and Middle uniting near the center of the township and the West coming in a mile below the junction of the other two. San Jacinto sheet.

Millard Canyon Creek; forks of. *See* Millard Canyon Creek.

Mill Creek; Eel River basin; Mendocino County; rises in the southern part of T. 19 N., R. 11 W., Mount Diablo base and meridian; flows west of south about 4 miles, then in general south of west 2½ miles into Eel River (tributary to the Pacific). Punnett's map of Mendocino County.

Mill Creek; Klamath River basin; Humboldt County; rises in the northeastern part of T. 8 N., R. 6 E., Humboldt base and meridian; flows northwestward about 7 miles to the eastern part of T. 9 N., R. 5 E., where it turns abruptly and flows southwestward across the Hoopa Valley Indian Reservation to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific); length, about 15 miles. Punnett's map of Trinity County.

Mill Creek; Klamath River basin; Siskiyou County; rises in the southeastern part of T. 19 N., R. 6 E., Humboldt base and meridian; flows southeastward 2 miles, southward 2 miles, and southwestward 2 miles to its junction with Indian Creek (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Mill Creek; Klamath River basin; Siskiyou County; rises in the north-central part of T. 45 N., R. 9 W., Mount Diablo base and meridian; flows south of west 7 miles to its junction with Scott River (tributary to Klamath River, which flows to the Pacific) at Scott Bar. Punnett's map of Siskiyou County.

Mill Creek; Los Angeles River basin; Los Angeles County; rises 1½ miles northwest of the north line of T. 3 N., R. 11 W., San Bernardino base and meridian, at altitude 4,500 feet above sea level; flows southwestward to its junction with Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific); length, about 6 miles; fall, 1,850 feet; principal tributary, North Fork. Tujunga sheet.

Mill Creek; Mohave River basin; San Bernardino County; rises in the western part of T. 3 N., R. 1 W., San Bernardino base and meridian, at altitude 7,000 feet above sea level; flows southwestward about 8 miles to its junction with Deep Creek (tributary to Mohave River); fall, about 3,000 feet. Deep Creek sheet.

Mill Creek; Mono Lake basin; Mono County; rises in the southeastern part of T. 2 N., R. 24 E., Mount Diablo base and meridian, on the north slope of North Peak, at altitude about 11,300 feet above sea level; flows north of east to the western part of T. 2 N., R. 26 E., where it turns and flows southeast and south into Mono Lake; fall, about 4,900 feet; passes through a number of lakes, of which Lundy Lake is the largest; greater part of course lies through Lundy Canyon, a broad-bottomed trench, which extends with a low grade into the heart of the mountains. On either side walls of granite and metamorphosed slates tower nearly perpendicularly to a height between 2,000 and 3,000 feet. The north wall of the canyon is unbroken, but on the south side is a deep, U-shaped notch where Lake Canyon joins the main gorge. Both Lundy and Lake canyons have low grade, especially near their place of union, but the bottom of the main gorge is 1,000 feet lower than the bottom of its tributary, and the waters of Lake Canyon flow in cascades over solid rock to join the stream below.[1] Bridgeport and Mount Lyell sheets.

Mill Creek; Monterey County; rises in the southeastern part of T. 21 S., R. 4 E., Mount Diablo base and meridian; flows westward into the Pacific 3 miles northwest of Lopez Point; length, about 5 miles. Land Office map of California, 1907, on which it is not named; post route map of California, 1911.

Mill Creek; Russian River basin; Mendocino County; rises in the northeastern part of T. 16 N., R. 14 W., Mount Diablo base and meridian, in Leonard Lake; flows northward 2 miles, then in general south of east 6 miles to its junction with Forsythe Creek through which it is tributary to Russian River (tributary to the Pacific). Punnett's map of Mendocino County.

Mill Creek; Russian River basin; Sonoma County; rises in the northern part of T. 8 N., R. 10 W., Mount Diablo base and meridian; flows eastward 4 miles, then northeastward 2 miles into Dry Creek (tributary to Russian River, which flows into the Pacific). Punnett's map of Sonoma County.

Mill Creek; Santa Ana River basin; San Bernardino County; rises in the eastern part of T. 1 S., R. 1 E., San Bernardino base and meridian, 2 miles southwest of San Gorgonio Mountain; flows westerly to the eastern end of San Bernardino Valley. "Coming out of the mountains about 2 miles south of the point of opening of the Santa Ana, into a broad, very steep sloping side valley, its flood escape way turns to the right and joins the main river bed about 3 miles below its canyon mouth." The branch carrying the name of the stream is indicated on the map as starting at altitude 8,400 feet, but High Creek, its first named tributary, reaches an altitude of 10,500 feet; fall in the 12 miles to

[1] Russell, I. C., Quaternary history of Mono Valley, Cal.: Eighth Ann. Rept. U. S. Geol. Survey, 1889, p. 332.

the mouth of the canyon, 5,200 feet; principal tributaries, High, Vivian, Falls, and Mountain Home creeks. San Gorgonio and Redlands sheets; Irrigation in California [southern], Sacramento, 1888, p. 120.

Mill Creek; Scott Creek basin; Santa Cruz County; rises on the southern slope of Ben Lomond Mountain, in T. 9 S., R. 3 W., Mount Diablo base and meridian, at altitude 2,000 feet above sea level; flows southwestward 5 miles into Scott Creek (tributary to the Pacific); fall, 1,900 feet. Santa Cruz sheet.

Mill Creek; Smith River basin; Del Norte County; rises in the eastern part of T. 15 N., R. 1 E., Humboldt base and meridian; flows somewhat south of west 3 miles, then in general northward 8 miles to its junction with Smith River (tributary to the Pacific) in the west-central part of T. 16 N., R. 1 E.; principal tributary, East Branch. Punnett's map of Del Norte County.

Mill Creek; Sonoma County. *See* Robert Crane Creek.

Mill Creek; Walker River basin; Mono County; rises in the southwestern part of T. 7 N., R. 23 E., Mount Diablo base and meridian, at altitude 8,500 feet above sea level; flows in general east of north to its junction with Lost Canyon Creek (tributary to West Walker River, and thus through Walker River to Walker Lake); fall, 2,500 feet. Bridgeport sheet.

Mill Creek, East Branch; Del Norte County; rises in the extreme southwestern part of T. 16 N., R. 2 E., Humboldt base and meridian; flows in general westward to its junction with Mill Creek (tributary to Smith River, which flows to the Pacific; length, 5 miles. Punnett's map of Del Norte County.

Mill Creek, North Fork; Los Angeles River basin; Los Angeles County; rises 1½ miles east of Gleason Mountain, at altitude 5,250 feet above sea level; flows southward 2½ miles, then southeastward 2½ miles into Mill Creek (tributary to Tujunga Creek and thus to Los Angeles River, which discharges to the Pacific); fall, 2,250 feet. Tujunga sheet.

Miller Canyon Creek; Santa Barbara County; an intermittent stream, 2 miles long, rising on the north slope of the San Rafael Mountains in Santa Barbara National Forest and flowing east of north into Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Santa Ynez sheet.

Miller Creek; Alameda County; rises in the north-central part of T. 2 S., R. 2 W., Mount Diablo base and meridian, at altitude 550 feet above sea level; flows southwestward 1½ miles into San Leandro Creek, which discharges through San Leandro Bay to San Francisco Bay; fall, 250 feet. Concord sheet.

Millers Creek; Paper Mill Creek basin; Marin County; rises near the southern border of Rancho de Nicasio; flows northwestward 3 miles into Nicasio Creek (tributary to Paper Mill Creek, which flows to the Pacific through Tomales Bay) near Nicasio. Punnett's map of Marin County.

Millers Creek; Rhett Lake basin; Klamath County, Oreg.; rises in the southeastern part of the county; flows westward and southwestward to Langells Valley, where it unites with Lost River (tributary to Rhett Lake); upper course of this creek lies through Horse Fly Valley. Klamath sheet; see also annual reports of United States Reclamation Service.

Milliken Creek; Napa County; rises in the southeastern part of T. 7 N., R. 4 W., Mount Diablo base and meridian, at altitude 1,900 feet above sea level; takes a general southerly course to its junction with Soda Creek (tributary to Napa River, which discharges to San Pablo Bay); length, about 10 miles; fall, 900 feet. Napa sheet.

Mindego Creek; San Gregorio Creek basin; San Mateo County; rises in the west-central part of T. 7 S., R. 3 W., at altitude 2,000 feet above sea level; flows north of west 2 miles, then west of south 2 miles to join Alpine Creek to form San Gregorio Creek, which discharges to the Pacific; fall, about 1,500 feet. Santa Cruz sheet.

Mine Canyon Creek; Santa Barbara County; an intermittent stream, 5 miles long, rising in the Santa Barbara National Forest, southeast of McPherson Peak, and flowing southwestward into Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Santa Ynez sheet.

Mine Canyon Creek; San Luis Obispo County; an intermittent stream, about 4 miles long, draining a small area in the San Luis Range and flowing southeastward to Harford Canyon, which discharges to San Louis Obispo Creek (tributary to the Pacific). Port Harford sheet.

Mine Gulch Creek; Los Angeles County; rises on the east slope of North Baldy, at altitude 7,750 feet above sea level; flows southeastward 2 miles into Prairie Fork of San Gabriel River (tributary to San Gabriel River, which flows to the Pacific); fall, 3,250 feet. Rock Creek and San Antonio sheets.

Miners Creek; Siskiyou County; rises in the northwestern part of T. 40 N., R. 9 W., Mount Diablo base and meridian, on the Mount of the Cross; flows northeastward 3 miles, then northward 2 miles to join French Creek (tributary to Scott River and thus through Klamath River to the Pacific). Punnett's map of Siskiyou County.

Minnehaha Creek; Trinity County; rises in the eastern part of T. 38 N., R. 8 W., Mount Diablo base and meridian; flows east and southeast into Trinity River (tributary to Klamath River, which flows to the Pacific); length, 3 miles. Punnett's map of Trinity County.

Minor Creek; Humboldt County; rises in the southwestern part of T. 7 N., R. 4 E., Humboldt base and meridian; flows northwestward 2 miles, then westward 2½ miles into Redwood Creek (tributary to the Pacific) near Bairds. Punnett's map of Humboldt County.

Mint Canyon Creek; Los Angeles County; rises in the west-central part of T. 5 N., R. 14 W., San Bernardino base and meridian, at altitude 2,400 feet above sea level; flows southwestward to Santa Clara River (tributary to the Pacific) to which it delivers water only in times of flood; fall in the 1½ miles at the head, 500 feet; in the lower 7 miles of its course the channel is a sandy wash. Fernando sheet.

Mirror Lake; Ventura River basin; Ventura County; near Ojai Station; intermittent. Ventura sheet.

Mission Canyon Creek; Santa Barbara County; an intermittent stream rising in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 3,250 feet above sea level, and flowing southward to Santa Barbara Mission, then irregularly southeastward through the City of Santa Barbara to a small marsh through which it discharges to the Pacific; length, about 8 miles; tributary, Rattlesnake Canyon Creek. Santa Barbara special sheet.

Mission Creek; Colorado desert; San Bernardino and Riverside counties; formed in the central part of T. 1 S., R. 3 E., San Bernardino base and meridian, by the union of its North and South forks. The North Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises in the southern part of T. 1 N., R. 2 E., at altitude 8,000 feet above sea level; flows eastward and southeastward 6 miles to the point at which it receives the South Fork; below the forks the general course of the creeks is southeastward to Colorado desert; intermittent; fall in the 13 miles from the head of the North Fork to Hog Ranch, 5,500 feet. San Gorgonio and San Jacinto sheets.

Mission Creek; Coyote River basin; Alameda County; an intermittent stream, about 5 miles long, rising 1 mile north of Mission Peak, at altitude 1,350 feet above sea level, and flowing in general northwestward to The Lagoon north of Irvington. Overflow from The Lagoon passes southward through Arroyo de la

Laguna to the tidal marsh north of Coyote River (tributary to San Francisco Bay). Pleasanton sheet.

Mission Creek, forks of. *See* Mission Creek.

Mission Creek; Salinas River basin; Monterey County; rises in the northern part of T. 21 S., R. 6 E., Mount Diablo base and meridian; flows east of south into San Antonio River (tributary to Salinas River, which enters the Pacific in Monterey Bay) at San Antonio Mission; length, about 8 miles. Land Office map of California, 1907.

Mitchell Creek; Mendocino County; rises in the southern part of T. 18 N., R. 17 W., Mount Diablo base and meridian; flows irregularly westward; enters the Pacific 1 mile south of Beaver Point; length, about 3 miles. Punnett's map of Mendocino County.

Mitchell Creek; Seal Creek basin; Contra Costa County; rises in the southeastern part of T. 1 N., R. 1 W., Mount Diablo base and meridian, 2 miles northwest of Mount Diablo, at altitude about 1,000 feet above sea level; flows northerly to Mount Diablo Creek (tributary through Seal Creek to Suisun Bay); length, about 3½ miles; fall, about 550 feet. Mount Diablo sheet.

Moat Lake; Mono County; northeastern part of T. 2 N., R. 24 E., Mount Diablo base and meridian; outlet, a stream half a mile long, flowing southeastward to one of the Virginia lakes (outlet Virginia Creek to East Walker River and thus through Walker River to Walker Lake); altitude, about 10,550 feet; fall of outlet, about 700 feet. Brideport sheet.

Modelo Canyon Creek; Ventura County; an intermittent stream, 2 miles long, flowing southeastward into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific) 1 mile northeast of Piru. Camulos sheet.

Moffitt Creek; Siskiyou County; rises in the eastern part of T. 42 N., R. 8 W., Mount Diablo base and meridian, on the west slope of Moffitt Creek Mountains; winds irregularly northward about 14 miles, then bends to the northwest, west, and southwest to its junction with Scott River (tributary through Klamath River to the Pacific) near Fort Jones, in the northeastern part of T. 43 N., R. 9 W.; length, including major windings, 22 miles; principal tributary, Cherry Creek. The map (Punnett's map of Siskiyou County) does not clearly indicate whether the name Moffitt or Cherry should be applied to the stretch of stream below the junction of the two creeks. Moffitt is here considered the main stream because its drainage basin is so much the larger of the two. Punnett's map of Siskiyou County.

Mohave River; rises in San Bernardino County on the north slope of the Sierra Madre, its headwaters flowing from elevations of 5,000 to 8,000 feet above sea level; takes a circuitous course, winding successively to the west, north, and east, decreasing in volume as it passes onto the plains, and finally disappears in its sandy bed a short distance below Barstow at an elevation of 1,900 feet above sea level. As measured by planimeter on the San Bernardino County map, the drainage basin comprises 1,470 square miles, of which 251 square miles may be classed as mountains, 219 square miles as foothills, and 1,000 square miles as plains and desert buttes.[1]

Most of the mountains to the west of the basin drain toward Mohave Desert, but the streams are few and small and the water disappears as soon as it reaches the hot sands. The general slope of the valley from the west is toward Mohave River at the rate of 2 feet to the mile, but the rainfall is so light—about 3 inches a year—and the summer heat is so great, that the run-off is not visible on the surface. In the mountains of the basin heavy rains are frequent, and, falling on slopes that are both rugged and steep, cause floods which pour

[1] Nineteenth Ann. Rept. U. S. Geol. Survey, pt. 4, 1898, pp. 614–616.

out of the hills far beyond the limit of the surface, flow into the desert, fill the porous sand and gravel of the river bed, and then disappear as rapidly as they came. South of Victorville, at a point known as the Narrows, the river has cut through a low range of hills. The gorge is narrow and its bounding walls are abrupt, granite cliffs; principal tributaries, West Fork and Deep Creek. Gaging station at Victorville (1899–1906). The sink of the Mohave is called Soda Sink.

Authorities: San Antonio, Hesperia, Deep Creek, and Redlands sheets; Land Office map of California, 1907; Water-Supply Paper U. S. Geol. Survey No. 300, 1912, pp. 25–26. *See* also Water-Supply Paper No. 224, pp. 10, 14–15.

Mohave River, West Fork; San Bernardino County; rises in the central part of T. 2 N., R. 5 W., San Bernardino base and meridian; at altitude 5,000 feet above sea level; flows in general northeastward to its junction with the main channel at the mouth of Deep Creek; the principal tributaries of the West Fork are its East Fork, and Grass Valley Creek. Hesperia and Deep Creek sheets.

Mohave River, West Fork, East Fork of; San Bernardino County; rises in the western part of T. 2 N., R. 3 W., San Bernardino base and meridian, at altitude 5,250 feet above sea level; flows north of west about 6 miles to its junction with the West Fork of Mohave; fall, 2,000 feet. Hesperia and Deep Creek sheets.

Molino Creek; Santa Cruz County; in the western part of San Vicente Rancho, at altitude 1,100 feet above sea level; flows southwestward 3 miles, then northwestward half a mile into Scott Creek (which discharges to the Pacific) near its mouth; intermittent. Santa Cruz sheet.

Mono Creek; Santa Ynez River basin; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the San Rafael Mountains 2 miles northeast of Strawberry Peak, at altitude 4,500 feet above sea level; flows southeastward 6 miles, then to the south and southwest 15 miles to its junction with Santa Ynez River (tributary to the Pacific); drainage area comprises 120 square miles on the south slope of the San Rafael Mountains; principal tributaries, Roble Canyon and Indian creeks. Gaging station at Mono dam site (1902–1904). Santa Ynez sheet.

Mono Lake; Mono County; within a few miles of the California-Nevada boundary; the 38th parallel and the 119th meridian intersect in the center of the lake; the western rim of the drainage area, formed by the crest line of the Sierra, coincides for 36 miles with the western margin of the Great Basin; the lowest pass in the serrate mountain crest along its western border is 3,000 feet above its surface; the highest peaks that overshadow it rise more than 6,000 feet above the level of the lake; the eastern part of the basin partakes of the character of the arid region of the interior basins, and includes valleys covered with sage brush, and rugged mountain slopes which are but scantily clothed with cedar and piñon. Over this portion no running water can be found during the greater part of the year, but, that it is not really a desert is shown by the fact that among the clumps of sage brush it produces nutritious bunch grass in sufficient abundance to afford pasturage for a few cattle and horses. The southwestern border of the basin includes magnificent mountains that support, in favored places, forests of pine. The highest peaks reach far above the timber line and bear a varied and beautiful alpine flora.

In outline the lake is rudely circular; its north-south axis measures 10 miles, and its east-west axis, 14 miles; including islands, its area is about 87 square miles.

The deepest part of the lake is near the southern border of the terrace surrounding Paoha Island, where sounding gave 152 feet of water; the average depth is about 61 feet.

The entire bottom is of soft black mud, except to the south of the larger islands, where a tenacious blue clay is found over a considerable area. About the shore a narrow band of volcanic sand and gravel, derived from the Mono Craters and from Black Point, records the transporting power of waves and currents.

The lake derives its principal water supply from the creeks that descend the eastern slope of the Sierra and empty into it from the south and west; supplementing the surface drainage are a number of springs, some of which are of considerable size.

The creeks tributary to Lake Mono are of clear water and flow through channels excavated for the most part in granite and metamorphosed sediment, but near their mouths they have eroded small gorges through materials deposited during previous high-water stages of the lake. Most of the springs of the basin are either in the bottom of the lake or near its shores, and they are most numerous near the base of the mountains that lie close to the western shore. None of the springs are highly charged with mineral matter and some of the more copious are remarkable for their purity.

Only three of the springs that rise on the land surface have a temperature noticeably above the normal. The character of those rising in the bottom of the lake is uncertain; some of them reveal their presence in cold weather by a vapor on the lake surface above them, and are thus known to be thermal. At the western end of the lake are a number of springs, some of which rise from the bottom of the lake. The positions of the springs rising in the lake near Black Point are indicated in calm weather by the eddies they produce on the lake surface; on rowing over these submerged springs it is found that some of them rise from the tops of tufa crags, which are covered by 10 or 12 feet of water. The upward rush of fresh water from the orifices of the summits of these towers through the denser waters of the lake is in places sufficiently strong to deflect a boat allowed to float over them. Other tufa domes rise above the surface of the lake near the shore; many of them are vase-shaped and the tops of several are hollowed so as to form basins. A few of these depressions are filled with clear, fresh water that rises through the porous and tubular tufa of which the submerged shaft is composed. The water of one of these natural fountains, rising in a lake whose water is utterly undrinkable, is of exceptional purity. These springs fill a bowl 3 or 4 feet in diameter in the top of a tufa dome that rises about 3 feet above the lake surface and overflow, fountainlike, into the surrounding alkaline waters.

Like all inclosed water bodies Mono Lake is subject to changes of level dependent on alternations of season and on secular climatic oscillations. In the summer of 1883 Russell determined the altitude of the surface as 6,380 feet above sea level; in 1898–99, when the Mount Lyell quadrangle was surveyed, the altitude was determined as 6,412 feet; in October, 1909, the water surface was 6,426 feet above sea level.

The lake is destitute of molluscan or fish life; it is inhabited only by a crustacean peculiar to alkaline and saline waters and by insects and their larvæ. The principal streams flowing into Lake Mono are Mill, Leevining, and Rush creeks.

Authorities.—Quaternary history of Mono Valley, Cal., by I. C. Russell (Eighth Ann. Rept. U. S. Geol. Survey, pt. 1, 1889, pp. 269–270, 287–291, 298, 319[1]; Bridgeport, Hawthorne, and Mount Lyell sheets.

Monroe Canyon Creek; San Gabriel River basin; Los Angeles County; an intermittent stream, about 2 miles long, rising in the northern part of T. 1 N., R. 9 E., San Bernardino base and meridian, and flowing southward into Big

[1] Copies of this report are still available for distribution.

Dalton Canyon (tributary to San Gabriel River, which discharges to the Pacific). Pomona sheet.

Monroe Canyon Creek; Santa Ana River basin; San Bernardino County; rises in eastern part of T. 1 N., R. 2 W., San Bernardino base and meridian, at altitude 4,300 feet above sea level; flows southwestward into Keller Creek (tributary to Santa Ana River, which discharges to the Pacific); length, 2 miles; fall, 1,500 feet. Redlands sheet.

Montezuma Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends from Chain Island, at the mouths of Sacramento and San Joaquin rivers, northwestward to the base of the Potrero Hills and then southwestward into the bay north of the mouth of Suisun Creek. Antioch and Napa sheets.

Monument Gulch Creek; Siskiyou County; rises in the western part of T. 46 N., R. 9 W., Mount Diablo base and meridian; flows northwestward 2 miles into Klamath River (tributary to the Pacific). Punnett's map of Siskiyou County.

Mooney Gulch Creek; Trinity County; rises in the southwestern part of T. 34 N., R. 7 W., Mount Diablo base and meridian; flows westward 5 miles to its junction with Trinity River (tributary to Klamath River, which flows to the Pacific). Punnett's map of Trinity County.

Moorehouse Creek; Siskiyou County; rises in the southwestern part of T. 41 N., R. 12 W., Mount Diablo base and meridian; flows southwestward to its junction with Salmon River (tributary to Klamath River, which discharges to the Pacific) near McNeals; length, 10 miles. Punnett's map of Siskiyou County.

Moosa Canyon Creek; San Diego County; rises in the eastern part of T. 11 S., R. 2 W., San Bernardino base and meridian, on the east slope of Burnt Mountain, at altitude 1,600 feet above sea level; flows northwestward to its junction with San Luis Rey River (tributary to the Pacific Ocean) near Bonsall; length, 12 miles; fall, 1,450 feet; intermittent; principal tributary, South Fork. San Luis Rey sheet.

Moosa Canyon Creek, South Fork; San Diego County; rises in the western part of T. 11 S., R. 2 W., San Bernardino base and meridian, at altitude 1,350 feet above sea level; flows westward 2 miles and northwestward 2½ miles into Moosa Canyon Creek, through which it is tributary to San Luis Rey River, which discharges to the Pacific Ocean; fall, 950 feet; intermittent. San Luis Rey sheet.

Morales Canyon Creek; San Luis Obispo County; an intermittent stream rising in the southern part of T. 32 S., R. 20 E., Mount Diablo base and meridian, and flowing southward toward Cuyama River (Santa Maria River, which discharges to the Pacific) in the southeastern part of T. 11 N., R. 28 W., San Bernardino base and meridian. McKittrick sheet.

Morano Creek; San Luis Obispo County; rises in the northwestern part of T. 29 S., R. 14 E., Mount Diablo base and meridian; flows westward into Salinas River (tributary to the Pacific in Monterey Bay) east of Santa Margarita. Land Office map of California, 1907.

Morey Canyon Creek; Santa Barbara County; an intermittent stream. 5 miles long, rising in the Santa Barbara National Forest, and flowing southwestward into Santa Agueda Creek, which discharges to Santa Ynez River (tributary to the Pacific). Santa Ynez and Lompoc sheets.

Morgan Canyon; Ventura County; a drainage way extending northwestward from the north slope of South Mountain toward Santa Clara River (tributary to the Pacific) in T. 3 N., R. 21 W., San Bernardino base and meridian. Santa Paula sheet.

Morgan Creek; Inyo County; Inyo National Forest; rises on the eastern slope of Mount Morgan, at altitude 12,800 feet above sea level; flows southwestward 3 miles, then southeastward 2 miles into Pine Creek (tributary through

Rock Creek to Owens River, which discharges to Owens Lake); fall, 5,300 feet. Mount Goddard sheet.

Morongo Creek, Big; San Bernardino and Riverside counties; rises in the south-central part of T. 1 N., R. 3 E., San Bernardino base and meridian, at altitude 7,500 feet above sea level; flows southeastward 8 miles to the northern edge of Morongo Valley, where its waters sink; they reappear at the southern edge of the valley and flow southward in a canyon to the Colorado Desert where, in times of flood, they unite with Mission Creek; the altitude at the mouth of the lower canyon is about 1,700 feet above sea level. San Gorgonio sheet.

Morongo Creek, Dry; San Bernardino County; eastern part of T. 1 S., R. 3 E.; an intermittent stream, 6 to 8 miles long, flowing southeastward toward Mission Creek Wash, in the Colorado Desert. San Gorgonio sheet.

Morongo Creek, Little; San Bernardino and Riverside counties; rises in the west-central part of T. 1 N., R. 3 E., San Bernardino base and meridian, at altitude 8,000 feet above sea level; flows southeastward about 12 miles to the northeastern end of Morongo Valley; sinks in passing the valley and reappears again in a canyon to the south and continues in its southerly course to the Colorado Desert, where its wash joins that of Mission Creek; altitude at the mouth of the canyon, 1,500 feet; total length, about 20 miles. San Gorgonio sheet.

Morrill Canyon Creek; Riverside County; an intermittent stream, about 2½ miles long, rising on the western slope of the Elsinore Mountains in T. 6 S., R. 5 W., San Bernardino base and meridian, and flowing southwesterly into San Juan Canyon Creek. Elsinore sheet.

Morrison Creek; Mendocino County; rises on the west slope of the Coast Range in the central part of T. 14 N., R. 11 W., Mount Diablo base and meridian; flows in general northwestward 6 miles, then southwestward 1 mile into Russian River (tributary to the Pacific). Punnett's map of Mendocino County.

Morro Creek; San Luis Obispo County; rises in the Santa Lucia Mountains in the southern part of Asuncion Rancho, at altitude 1,400 feet above sea level; flows westward 1½ miles, southward 2 miles, then southwestward about 8 miles to the north side of the channel leading from Morro to Estero Bay on the Pacific Ocean; principal tributary, East Fork. San Luis Obispo and Cayucos sheets.

Morro Creek, East Fork; San Luis Obispo County; an intermittent stream, 1½ miles long, rising in the Santa Lucia Mountains in T. 29 S., R. 12 E., Mount Diablo base and meridian, and flowing westward into Morro Creek, which discharges to the Pacific. San Luis Obispo sheet.

Morse Canyon Creek; San Bernardino County; an intermittent stream, about 2 miles long, rising in the northern part of T. 1 N., R. 6 W., San Bernardino base and meridian, and flowing southward toward Santa Ana River (tributary to the Pacific) into San Bernardino Valley. Cucamonga sheet.

Morton Canyon Creek; San Bernardino County; rises in the northern part of T. 1 S., R. 2 W., San Bernardino base and meridian, on the southwest slope of Morton Peak, at altitude 4,250 feet; flows northwestward 1½ miles, southwestward 1½ miles, then again northwestward 1½ miles into Santa Ana River (tributary to the Pacific); fall, 2,400 feet; intermittent. Redlands sheet.

Mountain Home Creek; San Bernardino County; rises in the central part of T. 1 N., R. 1 W., San Bernardino base and meridian, at altitude 7,500 feet above sea level; flows westward 2 miles through Martin Glen, then southward 3 miles into Mill Creek (tributary to Santa Ana River, which discharges to the Pacific); fall, 3,950 feet; principal tributary, East Fork. San Gorgonio sheet.

Mountain Home Creek, East Fork; San Bernardino County; rises in the southwestern part of T. 1 N., R. 1 E., San Bernardino base and meridian, at

altitude 10,000 feet above sea level; flows northwestward 2 miles, then southwestward 2 miles into Mountain Home Creek (tributary through Mill Creek to Santa Ana River, which discharges to the Pacific); fall, 5,700 feet. San Gorgonio sheet.

Mountain Lake; San Francisco County; a small lake near the U. S. Marine Hospital, San Francisco City. San Francisco sheet.

Mountaineer Creek; Alpine County; rises on the east slope of Leviathan Peak, at altitude 7,800 feet above sea level; flows east of north 2 miles, then northwestward 3 miles, and unites with Leviathan Creek to form Bryant Creek (tributary through East Fork of Carson River to Carson River, which discharges to Carson Sink); fall, about 1,600 feet. Markleeville sheet.

Mount Diablo Creek; Contra Costa County; rises in the western part of T. 1 N., R. 1 E., Mount Diablo base and meridian, at altitude 900 feet above sea level; flows northwestward into Seal Creek, which discharges to the tidal marsh south of Suisun Bay; principal tributaries, Peacock and Mitchell creeks. Mount Diablo sheet.

Mount Eden Creek; Alameda County; a sloughlike stream draining a small area about 3 miles northwest of Union City Salt Works and discharging into San Francisco Bay 1½ miles north of Alameda Creek. Haywards sheet.

Mowry Slough; Alameda County; in the tidal marsh at the southern end of San Francisco Bay, north of mouth of Coyote River. Palo Alto sheet.

Mud Creek; Ventura County; rises in the eastern part of T. 4 N., R. 21 W., San Bernardino base and meridian, on the south slope of Santa Paula ridge, at altitude 2,250 feet above sea level; flows southwestward 2½ miles into Santa Paula Creek (tributary to Santa Clara River, which discharges to the Pacific); fall, 1,500 feet. Santa Paula sheet.

Mud Slough; Alameda County; in the tidal marsh at the southern end of San Francisco Bay, extending northeastward from Coyote River. San Jose sheet.

Mud Slough; Solano County; in the tidal marsh on the north side of Suisun Bay, between Wheeler and Dutton and Simmons islands. Antioch sheet.

Mule Creek; Trinity County; rises in the eastern part of T. 35 N., R. 9 W., Mount Diablo base and meridian, at altitude 6,000 feet above sea level; flows southeastward to its junction with Stewart Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, 8 miles; fall, 3,500 feet. Red Bluff sheet.

Murietta Creek; Riverside County; rises on the northern slope of the Santa Rosa Mountains, 6 miles south of Lake Elsinore, at altitude about 2,200 feet above sea level; flows northwestward 1 mile, north of east 3 miles, then southeastward along the foot of the Santa Rosa Mountains to the head of Temecula Canyon, where it unites with Temecula River (Santa Margarita River, which discharges to the Pacific); length of this fork of the Santa Margarita, about 15 miles; intermittent. Elsinore and San Luis Rey sheets.

Murphy Canyon Creek; San Diego County; rises in northern part of Ex Mission San Diego Rancho, at altitude 800 feet above sea level; flows southwestward 4 miles, then southward 4 miles into San Diego River, which discharges to the Pacific through False Bay; intermittent; fall, 750 feet; principal tributary, Shepherd Canyon Creek. La Jolla sheet.

Murphy Creek; Mono County; rises in the northeastern part of T. 6 N., R. 24 E., Mount Diablo base and meridian, at altitude 10,600 feet above sea level; flows southeastward 4 miles and eastward 2 miles into East Walker River (tributary to Walker River, which discharges to Walker Lake); fall, 4,300 feet. Bridgeport sheet.

Murray Canyon Creek; Riverside County; rises in the eastern part of T. 5 S., R. 3 E., San Bernardino base and meridian, on the east slope of the San Jacinto Mountains, at altitude 8,000 feet above sea level; flows southeastward and eastward about 7 miles; sinks before reaching Palm Canyon Creek, which discharges to the Colorado Desert. San Jacinto sheet.

Murray Canyon Creek; San Diego County; rises in the western part of Ex Mission San Diego Rancho, at altitude 400 feet above sea level; flows southwestward above 3 miles; sinks before reaching San Diego River, which discharges to the Pacific through False Bay; fall, 350 feet. La Jolla sheet.

Mustang Canyon Creek; Santa Barbara County; an intermittent stream, 3 miles long, rising in the western part of T. 11 N., R. 29 W., San Bernardino base and meridian, and flowing east of north to Cuyama River (Santa Maria River, which discharges to the Pacific). McKittrick sheet.

Mutau Creek; Ventura County; rises in the central part of T. 6 N., R. 21 W., San Bernardino base and meridian, at altitude 5,500 feet above sea level; flows southeastward 2 miles, then northeastward 6 miles into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); fall, 1,100 feet; principal tributaries, Little Mutau and Alamo creeks. Mount Pinos sheet.

Mutau Creek, Little; Ventura County; rises in the northeastern part of T. 6 N., R. 20 W., San Bernardino base and meridian, at altitude 6,500 feet above sea level; flows northwestward into Mutau Creek (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific); length, 4 miles; fall, 1,800 feet. Tejon and Mount Pinos sheets.

Myrtle Creek; Del Norte County; rises in the north-central part of T. 17 N., R. 1 E., Humboldt base and meridian; flows southward about 6 miles to its junction with Smith River (tributary to the Pacific) opposite and just above the mouth of the South Fork. Punnett's map of Del Norte County.

Mystic Lake; Riverside County; San Jacinto Valley; receives the flood waters of San Jacinto River (q. v.). Elsinore sheet.

Nacimiento Creek; Monterey and San Luis Obispo counties; rises in the Monterey National Forest, in the northern part of T. 22 S., R. 5 E., Mount Diablo base and meridian; flows southeastward about 27 miles, in a course parallel to but directly opposite that of the Salinas River, then eastward and northeastward about 18 miles to the southeastern part of T. 24 N., R. 11 E., where it joins Salinas River (tributary to the Pacific in Monterey Bay); principal tributaries, North Fork and Franklin creeks. Gaging station near Bryson (1901). Land Office map of California, 1907, on which it is called Sierra River.

Nacimiento Creek, North Fork; Salinas River basin; Monterey County; rises in the eastern part of T. 22 S., R. 4 E., Mount Diablo base and meridian; flows southeastward to its junction with Sierra River [Nacimiento Creek] (tributary to Salinas River, which discharges to the Pacific in Monterey Bay); length, about 12 miles. Land Office map of California, 1907.

Napa River; Napa County; rises in the northern part of T. 9 N., R. 7 W., Mount Diablo base and meridian; flows southeastward and enters San Pablo Bay through Mare Island Strait and Carquinez Strait; in the lower 8 miles flows through a tidal marsh in which it is connected by sloughs with Sonoma Creek; principal tributaries, Conn, Soda, Dry, Napa, Tulucay, Suscol, and Carneros creeks. Napa sheet; Punnett's map of Napa County.

Napa Sloughs; Sonoma County; in the tidal marshes between Sonoma Creek and Napa River; the largest of the sloughs extends southwestward from Napa River to the mouth of Sonoma Creek. Two miles north of Napa Slough is Second Napa Slough, extending eastward and northeastward from Sonoma Creek to Hudeman Slough. Third Napa Slough extends eastward from Steamboat Slough to Second Napa Slough and Hudeman sloughs. Napa sheet.

Natchett Creek. *See* Hatchet Creek.

Natividad Creek; Monterey County; an intermittent stream flowing southwestward into the marshy area in the Salinas Valley (drained by Salinas River, which discharges to the Pacific) northeast of the city of Salinas. Salinas Valley map, sheet 1.

Navarro River; Mendocino County; formed in the western part of T. 14 N., R. 14 W., Mount Diablo base and meridian, by the junction of Rancheria, Anderson, and Indian creeks. Rancheria Creek, which drains the larger area and should therefore be considered the continuation of the main stream, rises in the northern part of T. 11 N., R. 12 W., and takes a general northwesterly course to the southeastern part of T. 14 N., R. 15 W., then turns abruptly and flows eastward and northward to its junction with Anderson and Indian creeks. Below these forks Navarro River flows northwestward to the point at which it enters the Pacific, between Navarro Head and Saddle Point; total length of the river from the head of Rancheria Creek to Navarro Head, including major windings, 50 miles; principal tributary below the forks, North Fork. Punnett's map of Mendocino County.

Navarro River, North Fork; Mendocino County; rises in the western part of T. 15 N., R. 13 W., Mount Diablo base and meridian; flows somewhat north of west, and unites with Navarro River (tributary to the Pacific) near the center of T. 15 N., R. 16 W.; length, including major windings, 20 miles; principal tributary, North Fork of North Fork Navarro. Punnett's map of Mendocino County.

Navarro River, North Fork of North Fork; Mendocino County; rises in the northwestern part of T. 15 N., R. 14 W., Mount Diablo base and meridian, flows north of west 6 miles, then south of west 3 miles to its junction with the North Fork of Navarro River (tributary through Navarro River to the Pacific) near North Fork station. Punnett's map of Mendocino County.

Negro Butte Dry Lake; San Bernardino County; T. 4 N., R. 2 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Nelson Creek; Monterey County; rises in the western part of T. 22 S., R. 14 E., Mount Diablo base and meridian; flows westward and southwestward into Indian Valley Creek (tributary to Salinas River, which discharges to the Pacific in Monterey Bay); length, about 12 miles. Land Office map of California, 1907.

Newark Creek; Alameda County; a channel in the tidal marsh at the southern end of San Francisco Bay, extending from a point near Jarvis Landing to Plummer Creek. Haywards sheet.

Newell Creek; Santa Cruz County; rises in the northeastern part of T. 9 S., R. 2 W., Mount Diablo base and meridian, at altitude 1,200 feet above sea level; flows west of south to its junction with San Lorenzo River (tributary to the Pacific) near Ben Lomond; length, about 6 miles; fall, 900 feet. Santa Cruz sheet.

Newhall Creek; Los Angeles County; rises north of Fernando Pass; flows northwestward about 4 miles into Placerita Creek (tributary to Santa Clara River, which discharges to the Pacific); intermittent. Santa Susana sheet.

New River; Klamath River basin; Trinity County; rises in the eastern part of T. 9 N., R. 7 E., Humboldt base and meridian; takes a general southwesterly course to the southeastern part of T. 6 N., R. 6 E., where it enters Trinity River (tributary to Klamath River, which discharges to the Pacific); length, 22 miles; principal tributaries, Slide, Virgin, East Fork of New, Devils Canyon, Emigrant Gulch, Big, and Bell creeks. Punnett's map of Trinity County.

New River; Salton Sink basin; Riverside County; a drainage channel passing northward through Imperial Valley to Salton Sea; carries excess and waste water for the irrigation system and for the power plant. The river was created in the summer of 1905 when the Colorado, overflowing its banks, flooded several hundred square miles about Calexico in the Imperial Valley, deepened and widened Alamo River, which had been one of the Colorado distributaries during the formation of its delta, and developed another drainage channel to the west through Imperial Valley in a second gorge. Gaging station near Brawley (1908–1910). Land Office map of California, 1907; Water-Supply Paper U. S. Geol. Survey No. 251, 1910, p. 42. See also Water-Supply Paper U. S. Geol. Survey No. 225.

New River, East Fork; Trinity County; rises in the southern part of T. 37 N., R. 12 W., Mount Diablo base and meridian; flows southwestward 2 miles, southward 1½ miles, then south of west 4 miles into New River (tributary through Trinity River to Klamath River, which discharges to the Pacific); principal tributary, Pony Creek. Punnett's map of Trinity County.

Newsom Canyon Creek; Arroyo Grande Creek basin; San Luis Obispo County; an intermittent stream draining a small area in the southeastern part of Santa Manuela Rancho and flowing westward to Arroyo Grande Valley. Arroyo Grande sheet.

New York Slough; Contra Costa County; north of Los Medanos and south of Browns Island. Antioch sheet.

Nicasio Creek; Marin County; rises near the eastern border of Rancho Nicasio; takes a general westerly course to its junction with Paper Mill Creek (tributary to Tomales Bay) near Garcia; length, about 10 miles; principal tributary, Millers Creek. Punnett's map of Sonoma and Marin counties.

Nicholas Canyon Creek; Los Angeles County; rises in the western part of T. 1 S., R. 19 W., San Bernardino base and meridian; flows west of south 2½ miles into the Pacific Ocean. Camulos sheet.

Nichols Canyon Creek; Los Angeles County; an intermittent stream, 1½ miles long, draining a small area in the eastern part of the Santa Monica Mountains and discharging southward into Ballona Creek, in La Brea Rancho. Santa Monica sheet.

Nigger Canyon Creek; San Luis Rey River basin; San Diego County; northeastern part of T. 10 S., R. 1 W., San Bernardino base and meridian; extends southwestward about 1½ miles toward San Luis Rey River (tributary to the Pacific); lies south of Pauma Creek; intermittent. Ramona sheet.

Nigger Canyon Creek; Santa Clara River basin; Ventura County; an intermittent stream, 1 mile long, flowing southward into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific) at Piru. Camulos sheet.

Nigger Slough; Los Angeles County; occupies a completely enclosed depression about 5 miles north of Wilmington; this slough is nearly 4 miles long and more than 1 mile in maximum width. Redondo sheet.

Niggerville Gulch Creek; Siskiyou County; rises in the central part of T. 39 N., R. 12 W., Mount Diablo base and meridian; flows southwestward into Salmon River (tributary to Klamath River, which discharges to the Pacific); length, 3 miles. Punnett's map of Siskiyou County.

Nip and Tuck Creek; Mendocino County; rises in the northwestern part of T. 11 N., R. 15 W., Mount Diablo base and meridian; flows south of west, and enters the Pacific one-fourth mile south of the mouth of Hardscrabble Creek; length, 2 miles. Punnett's map of Mendocino County.

Noble Creek; Riverside County; Santa Ana River basin; rises in the southwestern part of T. 1 S., R. 1 E., San Bernardino base and meridian, at altitude 8,500 feet above sea level; flows southwestward 10 miles into Little San Gor-

gonio Creek (tributary through San Timoteo Creek to Santa Ana River, which discharges to the Pacific); fall, 6,100 feet. San Gorgonio and San Jacinto sheets.

Nojoqui Creek; Santa Barbara County; an intermittent stream, rising in the Santa Barbara National Forest on the north slope of Santa Ynez Mountains, and flowing west and north into Santa Ynez River (tributary to the Pacific); length, about 7 miles. Lompoc sheet.

Nolan Creek; Sonoma County; rises in the northern part of Rancho Estero Americano; flows southward 3 miles to Salmon Creek (tributary to the Pacific). Punnett's map of Sonoma County.

Nordheumer Creek; Siskiyou County; rises in the eastern part of T. 10 N., R. 6 E., Humboldt base and meridian, on the eastern slope of Orleans Mountains; flows northward 2½ miles, then eastward 4 miles to its junction with Salmon River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Siskiyou County.

North Lake; Inyo County; Inyo National Forest; southwestern part of T. 8 S., R. 31 E., Mount Diablo base and meridian; inlet and outlet, North Fork of Bishop Creek, which flows through the lake to its junction with Middle Fork (tributary through Bishop Creek to Owens River, which discharges to Owens Lake); altitude, 9,350 feet above sea level; dammed at outlet. Mount Goddard sheet.

Noyce Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends northward from the bay into Simmons Island. Antioch sheet.

Noyo River; Mendocino County; formed in the eastern part of T. 18 N., R. 17 W., Mount Diablo base and meridian, by the union of its North and South forks. The North Fork, which drains the larger area and is therefore considered the continuation of the main stream, is formed by the union of Hayworth Creek with the Upper South Fork of the Noyo, the Upper South Fork being considered the continuation of the North Fork. The Upper South Fork rises in the southern part of T. 19 N., R. 14 W., and flows in general southwestward to the point at which it is joined by Hayworth Creek; from this junction the North Fork winds irregularly westward to the eastern part of T. 18 N., R. 17 W., where it receives the South Fork. Below these forks the Noyo flows northwestward 2 miles, then southwestward 2 miles to the point at which it enters the Pacific, half a mile west of the town of Noyo; length of the river from the head of the Upper South Fork to the Pacific, including major windings, about 25 miles. The basin is traversed from Duffey to Fort Bragg by the California & Western Railroad & Navigation Co.'s railway. Punnett's map of Mendocino County.

Noyo River, North Fork. *See* Noyo River.

Noyo River, South Fork; Mendocino County; rises in the southeastern part of T. 18 N., R. 16 W., Mount Diablo base and meridian; takes a general northwesterly course to the eastern part of T. 18 N., R. 17 W., where it unites with the North Fork to form Noyo River; length, including major windings, 12 miles; principal tributaries, North Fork of the South Fork and an unnamed stream, 4 miles long, entering from the left, in the northern part of T. 17 N., R. 16 W. Punnett's map of Mendocino County.

Noyo River, South Fork, North Fork of; Mendocino County; rises in the southeasten part of T. 18 N., R. 16 W., Mount Diablo base and meridian; flows north of west 5 miles, then southward 1½ miles to its junction with the South Fork of Noyo River, through which it is tributary to Noyo River, and thus to the Pacific. Punnett's map of Mendocino County.

Noyo River, Upper South Fork. *See* Noyo River.

Nuevo Canyon Creek; Ventura County; an intermittent stream, 1 mile long, flowing northward to Holser Canyon Creek (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Nurse Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends northward from Montezuma Slough to a point west of Denverton. Antioch sheet.

Nutter Lake; Mono County; southeastern part of T. 3 N., R. 24 E., Mount Diablo base and meridian; no outlet shown; nearby lakes drain to East Fork of Green Creek (tributary through Green Creek to Virginia Creek and thus through East Walker River to Walker River, which discharges to Walker Lake); altitude, 9,550 feet. Bridgeport sheet.

Oak Bottom Creek; Siskiyou County; rises in the central part of T. 12 N., R. 7 E., Humboldt base and meridian; flows southwestward into Salmon River (tributary to Klamath River, which discharges to the Pacific), length, 6 miles. Punnett's map of Siskiyou County.

Oak Canyon Creek; San Diego River basin; rises in northeastern part of T. 15 S., R. 2 W., San Bernardino base and meridian, at altitude 850 feet above sea level; flows southerly into San Diego River, which discharges to the Pacific through False Bay; intermittent; length, 3½ miles; fall, 550 feet. La Jolla sheet.

Oak Canyon Creek; Santa Clara River basin; Los Angeles County; an intermittent stream, about 1 mile long, rising in the southwestern part of T. 5 N., R. 17 W., San Bernardino base and meridian, and flowing northwestward into Santa Felicia Canyon Creek (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Oak Creek; Inyo County; Inyo National Forest; formed in the northeastern part of T. 13 S., R. 34 E., Mount Diablo base and meridian, about 2 miles west of Old Camp Independence, by the union of its North and South forks. The North Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises on the east slope of the Sierra on Diamond Peak and Black Mountain; flows northeastward 3 miles, eastward, 4 miles. then southeastward one-half mile to its point of junction with the South Fork. The combined waters flow eastward 1½ miles to the edge of Owens Valley, where they sink; total fall from the highest source of the North Fork to the valley, 8,700 feet. Gaging station near Independence (1905–1911). Mount Whitney sheet.

Oak Creek, South Fork; Inyo County; Inyo National Forest; rises on the southeastern slope of Black Mountain, at altitude 11,500 feet above sea level; flows in general northeasterly to the northeastern part of T. 13 S., R. 34 E., Mount Diablo base and meridian; where it unites with the North Fork to form Oak Creek, which discharges into Owens Valley; length, about 8 miles; fall, 7,100 feet. Mount Whitney sheet.

Oak Spring Canyon Creek; Los Angeles County; rises in the southern part of T. 4 N., R. 14 W., San Bernardino base and meridian, at altitude 3,250 feet above sea level; flows northwestward to Santa Clara River (tributary to the Pacific); fall in the 2½ miles above the mouth of the canyon, 1,250 feet; intermittent. Fernando sheet.

Oat Canyon Creek; San Benito County; rises in the northern part of T. 19 S., R. 11 E., Mount Diablo base and meridian; flows southward into Lewis Creek (tributary through Bitterwater Creek to San Lorenzo Creek and thus to Salinas River, which discharges to Monterey Bay). Land Office map of California. 1907.

Oat Creek; San Luis Obispo County. *See* Old Creek.

O'Hare Canyon Creek; Santa Clara River basin; Ventura County; an intermittent stream, 3 miles long, rising in the east-central part of Ex Mission San Buenaventura Rancho, at altitude 750 feet above sea level, and flowing southeastward to the edge of the valley of the Santa Clara (tributary to the Pacific) in Santa Paula y Saticoy Rancho; fall, 450 feet. Santa Paula sheet.

Oil Canyon Creek; Santa Barbara County; rises on the south slope of the Santa Ynez Mountains, in T. 4 N., R. 25 W.; flows southward into Arroyo Parida (tributary to the Pacific); length, 2 miles; fall, about 1,300 feet. Santa Barbara special map.

Oil Creek; Santa Cruz and San Mateo counties; rises in the northwestern part of T. 8 S., R. 2 W., Mount Diablo base and meridian, at altitude 2,500 feet above sea level; flows westward 2 miles, then southwestward 3 miles into Pescadero Creek, which discharges to the Pacific; fall, 2,000 feet. Santa Cruz sheet.

Olancha Creek; Inyo County; Kern National Forest; rises on the south slope of Olancha Peak, at altitude 10,000 feet above sea level; flows north of east 7 miles to the edge of Owens Valley at Olancha, where its waters sink; fall, 6,350 feet, of which 5,000 feet is made in the first 3 miles. Olancha sheet.

Old Creek; San Luis Obispo County; rises in the Santa Lucia Mountains, in T. 28 S., R. 11 E., Mount Diablo base and meridian; flows southwestward, and enters the Pacific 1½ miles southeast of Cayucos; principal tributary, Cottontail Creek; called Oat Creek on the Land Office map. Cayucos sheet.

Old Man Canyon Creek; Santa Barbara and Ventura Counties; rises in the northeastern part of T. 5 N., R. 23 W., San Bernardino base and meridian, on Old Man Mountain; flows south of east into Matilija Creek (Ventura River, which discharges to the Pacific); length, about 3 miles. Mount Pinos sheet.

Old Nicholas Canyon Creek; Riverside County; an intermittent stream, about 2 miles long, discharging southeastward toward Rockhouse Canyon Creek (tributary to Clark Lake, Colorado Desert). Indio special sheet.

Oldwomans Creek; San Mateo County; an intermittent stream, 2 miles long, rising in the southeastern part of T. 8 S., R. 4 W., Mount Diablo base and meridian, and flowing westward into Gazos Creek (tributary to the Pacific). Santa Cruz sheet.

Olema Creek; Marin County; rises on the west slope of Bolinas Ridge, in Tomales y Bolinas Rancho, at altitude 1,300 feet above sea level; flows southwestward 1½ miles, and northwestward 8 miles to Point Reyes, where it enters Tomales Bay; 850 feet of the total fall occurs in the first mile and a half of its course. Tamalpais sheet; Punnett's map of Marin County.

Olivera Canyon; Santa Barbara County; in T. 9 N., R. 32 W., San Bernardino base and meridian; opens northward toward Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Omstott Creek; Riverside County; an intermittent stream, about 8 miles long, flowing northwestward to Palm Canyon Creek (which discharges to the Colorado Desert). Indio special sheet.

Oneida Lake; Mono County; southwestern part of T. 2 N., R. 25 E., Mount Diablo base and meridian; inlet, Lake Canyon Creek; outlet, Lake Canyon Creek through Crystal and Blue lakes to Mill Creek (tributary to Lake Mono); altitude, 9,550 feet; above Crystal Lake, about 50 feet. Mount Lyell sheet.

Oneill Creek; a channel in the tidal marsh in the southern end of San Francisco Bay. San Mateo sheet.

Onlauf Canyon Creek; Santa Clara River basin; Ventura County; an intermittent stream, 2 miles long, rising on the south slope of Santa Paula ridge in T. 4 N., R. 21 W., San Bernardino base and meridian, and flowing south of

west into Santa Paula Creek (tributary to Santa Clara River, which discharges to the Pacific). Santa Paula sheet.

Oriflamme Creek; San Diego County; northwestern part of T. 14 S., R. 5 E., San Bernardino base and meridian; an intermittent stream flowing northeastward toward the desert in the northwestern part of T. 14 and the southwestern part of T. 13 S., R. 5 E. Ramona and Cuyamaca sheets.

Oro Fino Creek; Siskiyou County; rises in the western part of T. 43 N., R. 9 W., Mount Diablo base and meridian; flows east of north 3 miles to its junction with Scott River (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County (on which it is not named) and Land Office map of California, 1907.

Oro Grande Wash; San Bernardino County; a Mohave Desert drainage way. Hesperia sheet.

Orr Creek; Mendocino County; rises in the west-central part of T. 15 N., R. 13 W., Mount Diablo base and meridian; flows northeastward 2 miles, then eastward 5 miles into Russian River (tributary to the Pacific) near Ukiah. Punnett's map of Mendocino County.

Oso Creek; Orange County; an intermittent stream rising in the northern part of Trabuco Rancho and flowing west of south about 6 miles; the drainage line is broken, but is apparently continued southwesterly through Canada Salada and joins the Pacific 1½ mile northwest of San Juan Capistrano Point. Corona and Capistrano sheets.

Oso Flaco; San Luis Obispo County, a marshy creek in Guadalupe Bolsa de Chamisal Rancho; flows northwestward to Oso Flaco Lake, a brackish-water body lying just east of the coast. Arroyo Grande sheet.

Oso Flaco Lake; San Luis Obispo County; a brackish-water body in the northwestern part of Guadalupe Rancho one-quarter mile east of the coast; receives the drainage of Oso Flaco. Arroyo Grande sheet.

Otay Reservoir; San Diego County; on Otay Creek, 22 miles southeast of San Diego, 10 miles back from the coast and about 5 miles north of the Mexican boundary. The lower reservoir forms one of a series of four projected by the Southern California Mountain Water Co. to impound water for the cities of San Diego and Coronado and for irrigation of extensive areas of frostless mesa lands adapted to citrus fruit culture. Lower Otay reservoir was completed in August, 1897. Outlet from the reservoir is provided by a circular tunnel through a narrow part of the enclosing ridge 1,000 feet west of the dam. The reservoir is supplied in part by water from the Cottonwood Creek basin diverted at the Barrett dam by a canal about 13 miles long, which carries it to Dulzura Creek and thence down Jamul Creek to the reservoir. Cuyamaca sheet; Schuyler, James D., Reservoirs for irrigation, water power, and domestic water supply, 2d ed., 1908, pp. 12–28.

Otay River; San Diego County; an intermittent stream draining the area north of Tia Juana River and south of Sweetwater River; fed by intermittent streams draining canyons extending northward from Otay Mesa; carries water to San Diego Bay only during flood stages. Cuyamaca and San Diego sheets.

Outlet Creek; Mendocino County; rises in the southwestern part of T. 19 N., R. 13 W., Mount Diablo base and meridian; flows southwestward 1½ miles then northwestward 1 mile into Deep Creek (tributary to Eel River which discharges to the Pacific.) Punnett's map of Mendocino County.

Owens Creek; Trinity County; rises in the central part of T. 35 N., R. 10 W., Mount Diablo base and meridian; flows northeastward 3 miles to its junction with Stewart Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Owens Lake; Inyo County; a body of saline water about 75 square miles in area; principal inlet, Owens River (q. v.); no outlet; like Mono Lake, which lies 125 miles farther north and about 3,000 feet higher, it derives its water from the vicinity of Mount Lyell; altitude of the lake (determined by survey in 1905) 3,569 feet. Evaporation from the surface of the lake is estimated at considerably more than 46 inches annually.

The lake was originally described[1] as having an area of about 110 square miles, an average depth of 9 feet 10 inches, and a density of 1.051. The only known forms of animal life inhabiting the water were Infusoria, alkali shrimps (*Artemia salina*) and the larvæ of the alkali flies (Ephyara), which developed in great numbers; some of the conditions have materially changed within recent years. Mr. N. Wrinkle, superintendent of the soda works of the Inyo Development Company, in a personal communication to Willis T. Lee, one of the geologists of the United States Geological Survey, has furnished the following information:

"The density of the water has increased to a point where bicarbonate of soda precipitates during the winter months without concentration by evaporation. During the past three years—1902 to 1904—the surface of the lake has lowered at the rate of 2.5 feet per year, and it has lowered 16 feet since 1894. Throughout the ten years previous to this date the lake surface remained practically stationary. Formerly alkali flies developed in myriads, as described by various writers, but during the present season (1904), although the larvæ are as numerous as usual, the flies have failed to appear."

Gaging station near Olancha (1908–1912).

Authorities: Mount Whitney and Olancha sheets; Lee, W. T., Geology and water resources of Owens Valley, California: Water-Supply Paper U. S. Geol. Survey No. 181, 1906, pp. 6, 19–21.

Owens River; Mono and Inyo counties; rises among the high peaks of the Sierra, east of Mount Lyell and directly opposite the headwaters of San Joaquin River, at altitude nearly 12,000 feet above sea level; flows in general southeastward through the trough of the valley to Owens Lake, about 20 miles southeast of Mount Whitney and directly opposite the northern part of the Kern River basin. The total length of the river is about 125 miles—45 miles above the lower end of the canyon and 80 miles in Owens Valley.

The area drained by Owens River is south of Mono Lake basin and north of the arid region separating it from the Mohave Desert at the south. On the west it is bordered, for a distance of about 140 miles, by the main crest of the Sierra, which forms the divide between it and the basin of San Joaquin, Kings, and Kern rivers. Its eastern limit is determined by the White Mountains at the north and the Inyo Mountains at the south. The lengh of the basin is about 120 miles; its width is about 20 miles at the south and 30 miles at the north, and its total area, including Owens Lake, comprises approximately 2,800 square miles, of which about 1,100 square miles is east of the river.

The basin comprises a rough east-side mountain slope 5 or 6 miles wide, a valley floor about 6 miles wide, and a west-side slope ranging from 6 to 10 miles or more in width. The west-side area is made up of a very rugged and precipitous mountain slope, 4 or 5 miles wide, and a sloping alluvial plain composed of delta-fan surfaces ranging from 1 to 5 miles in width and lying at the foot of the mountains and west of the western margin of the valley. Owens Valley is smooth and ranges in altitude from 3,600 feet at the south end to about 4,100 feet at the north end. The crest of the east-side range of mountains averages about 6.000 feet higher than the valley floor. The west-side plain

[1] Loew, Oscar, Ann. Rept. U. S. Geog. Surveys W. 100th Mer., 1876, p. 189.

consists of a porous granitic alluvium of considerable depth, and ranges in altitude from about 4,000 feet at the western valley margin to about 6,000 feet at the foot of the mountains. It has a fairly uniform slope of 400 to 600 feet to the mile. The eastern slope of the Sierra is very steep and rugged, and ranges in altitude from about 6,000 feet at the foot to 13,000 or 14,000 feet at the crest.

The eastern slope of the basin is practically barren of vegetation, except for scanty desert growth. The western slope has a very slight soil covering and only sparse timber growth, found chiefly along the water courses. All the western slope, a large part of the eastern slope, and the central part of Owens Valley, are included in national forests.

The mean annual precipitation in Owens River basin is very light, especially on the valley floor and the eastern slope. The only records available are for the valley and indicate that the mean annual precipitation there is about 5 inches. On the Sierra slope the precipitation probably increases with increase of latitude and certainly increases with increase of altitude. On the higher parts of the slope it is probably 30 to 40 inches and possibly more; and it occurs almost entirely as snow, whose melting feeds the numerous streams that issue from this slope. These streams usually have their minimum flow in February and their maximum in July. Their combined maximum is about ten times their combined minimum. There is about the same ratio of disparity in the monthly extremes of precipitation, but the seasons are reversed.

More than forty lateral streams, many of them, however, comparatively small, drain a part of the eastern slope of the Sierra and enter Owens River from the west. The principal tributaries, from north to south, are Rock, Pine, Horton, McGee, Birch, and Bishop creeks, heading opposite the San Joaquin basin; Coyote, Baker, Big Pine, Birch, Tinemaha, Taboose, Goodale, Division, Sawmill (Eightmile), Thibaut, Oak, Pine, and Symmes creeks, heading opposite Kings River basin; and Shepard, Bairs (Moffett), George, Hogbeck, Lone Pine, Tuttle, Richter, Cottonwood, and Ash creeks, heading opposite Kern River basin. No water enters Owens River from the east except during exceptionally heavy rainstorms, which are rare.

Nearly all the tributary streams rise in glacial lakelets and marshes which lie near the crest of the Sierra and serve to a certain extent as storage reservoirs in regulating the flow. The streams emerge from the mouths of their canyons at the base of the Sierra upon the porous alluvial plain, across which they flow to the Owens River channel in the trough of the valley. In this belt of débris the streams lose a large amount of water, part of which appears in numerous springs throughout the valley. Perhaps stronger evidence of the great loss by seepage is afforded by the broad belt of wet and somewhat boggy land which extends over a large part of the trough of the basin. Several artesian wells which have been sunk in the vicinity of Independence yield a strong flow and give convincing evidence of an artesian belt in the valley.

The fall of the streams is so great and their minimum flow is so large and reliably constant that many thousands of horsepower could be developed.

Owens Valley is extensively cultivated and particularly adapted to stock raising. Numerous diversions are made for irrigation at different points on Owens River and tributaries, particularly in the upper part of the valley. Considerable water is also used for irrigating meadow lands in Long Valley north of Owens River canyon, but it is returned to the river above the head of Owens Valley.

Gaging stations near Round Valley (1903–1912), near Tinemaha (1906–1912); near Lone Pine (1908–1912); near Citrus (1903–1906). For complete list of gaging stations in Owens River basin, see pages 241–242.

Authorities: Mount Lyell, Mount Goddard, Bishop, Mount Whitney, and Olancha sheets; Water-Supply Paper U. S. Geol. Survey No. 300, pp. 23–25; see also Water-Supply Paper U. S. Geol. Survey No. 294, An intensive study of the water resources of a part of Owens Valley, California.

Owl Creek; Modoc County; rises on the east slope of Warner Mountains, 2 miles southeast of Warren Peak, at altitude 6,600 feet above sea level; flows north of east 6 miles and discharges into Middle Alkali Lake; fall, 1,900 feet. Alturas sheet.

Owl Dry Lake; San Bernardino County; in the Owl Mountains. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I, pp. 45–46, on which Owl Springs are described.

Pacheco Creek; Contra Costa County; the channel through which Walnut Creek enters Suisun Bay. Carquinez sheet.

Pacheco Creek; Pajaro River basin; Santa Clara and San Benito counties; rises in the northern part of T. 9 S., R. 5 E., Mount Diablo base and meridian; flows southeastward 12 miles, southward about 5 miles, then in general southwestward 20 miles to the western part of T. 12 S., R. 4 E., where it unites with San Benito River to form Pajaro River, which discharges to the Pacific in Monterey Bay; principal tributaries, Canada del Dorindo, Felipe, and Vibonas creeks, Tequisquito Slough, and Llagas and Uvas creeks. Land Office map of California, 1907.

Packard Creek; Mendocino County; rises in the eastern part of T. 21 N., R. 17 W., Mount Diablo base and meridian; flows southwestward 2 miles, then somewhat north of west 3½ miles to De Haven, where it enters the Pacific. Punnett's map of Mendocino County.

Pacoima Creek; Los Angeles County; Los Angeles River basin; rises on the northwest slope of Gleason Mountain, in the San Gabriel Timber Land Reserve, at altitude 5,850 feet above sea level; flows westerly and southwesterly to the edge of San Fernando Valley; its mountain drainage area is 9½ miles long and 2 miles in maximum width, and the creek occupies a narrow gorge between 2 parallel ridges; its waters come to the valley near its extreme northern quarter about 4 miles northwest of the opening of Little Tujunga Creek, and flow in a broad wash far around into the middle of the plain; only in times of flood do the waters reach the main river above ground; length to the opening of the canyon, including major windings, about 15 miles, in which distance the fall is 4,600 feet. Tujunga and Fernando sheets; Irrigation in California [southern], by Wm. Ham. Hall, Sacramento, 1888, p. 384.

Pacoima Creek, North Fork; Los Angeles County; rises in the southwestern part of T. 4 N., R. 13 W., San Bernardino base and meridian, at altitude 4,750 feet above sea level; takes a circuitous but in general southwesterly course to its junction with Pacoima Creek (tributary to Los Angeles River, which discharges to the Pacific); length, 2 miles; fall, 1,350 feet. Fernando sheet.

Pacoima Creek, South Fork; Los Angeles County; rises about 1 mile west of Iron Mountain, at altitude 4,750 feet above sea level; flows north of west 2 miles into Pacoima creek (tributary to Los Angeles River, which discharges to the Pacific); fall, 1,650 feet. Fernando sheet.

Padre Barona Creek; San Diego County; rises in northwestern part of T. 14 S., R. 2 E., San Bernardino base and meridian, at altitude 2,500 feet above sea level; flows southwestward into San Vicente Creek (tributary to San Diego River, which discharges to the Pacific through False Bay); intermittent; length, 7 miles; fall, about 1,900 feet. Cuyamaca sheet.

Padre Juan Canyon Creek; Ventura County; rises in the eastern part of T. 3 N., R. 24 W., at altitude 1,000 feet above sea level; flows southwestward to the Pacific at Pitas Point. Ventura sheet.

Pajaro River; formed in the western part of T. 12 S., R. 4 E., Mount Diablo base and meridian, by the union of Pacheco Creek and San Benito River. San Benito River, which drains the larger area and is therefore considered the continuation of the Pajaro, rises in the central part of T. 19 S., R. 12 E., and flows northwestward to the point at which it receives Pacheco Creek; below this junction the course of the Pajaro is westward and southwestward to Monterey Bay, where it enters the Pacific; length from the bay to the head of San Benito River, about 100 miles; principal tributaries, Clear, McCoy, James, Rock Spring, Johnson, Stone, Pescadero, Rosario, and Cienaga creeks. San Benito River forms part of the boundary between San Benito and Santa Clara counties, and Pajaro River lies between Monterey and Santa Cruz counties. Gaging station at Watsonville (1911–12). Land Office map of California, 1907.

Palen Dry Lake; Riverside County; Tps. 4 and 5 S., Rs. 16 and 17 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I, p. 79.

Palm Canyon Creek; Riverside County; rises in Vandeventer Flat, in T. 7 S., R. 4 E., San Bernardino base and meridian; flows northward to the Colorado Desert. The stream is perennial in part of its course and is fed by streams rising on the east slope of the San Jacinto Mountains. San Jacinto sheet; Water-Supply Paper U. S. Geol. Survey No. 225, 1909, p. 30.

Palm Canyon Creek; San Diego County; an intermittent stream, about 7 miles long, flowing eastward and southeastward to the western edge of Borego Valley, in the Colorado Desert. Ramona and Indio special sheets.

Palm Canyon Creek, West Fork; Riverside County; rises in the northwestern part of T. 6 S., R. 4 E., San Bernardino base and meridian, at altitude 6,500 feet above sea level; flows northeastward into Palm Canyon Creek, which discharges to the Colorado Desert; length, 6 miles; fall, 5,700 feet. San Jacinto sheet.

Palmdale Reservoir; Los Angeles County; northeastern part of T. 5 N., R. 12 W., San Bernardino base and meridian; occupies an enclosed depression due to an uplift of low hills along the north side of the San Andreas fault zone in such a way as to block the channels formerly draining into Antelope Valley. Except for the building of a levee to prevent overflow of the railroad right of way, practically no construction was necessary to convert this depression into a reservoir said to be 5,500 acre-feet in capacity. "Three years ago [1908?] a cloudburst carried away the headgates of the canal, and both the Palmdale Reservoir and its inlet have been dry except for such water as has accumulated in the reservoir during the winter as rainfall from the adjacent slopes." Water-Supply Paper U. S. Geol. Survey No. 278, 1911, pp. 14, 33–34.

Palmer Creek; Monterey County; a stream about 5 miles long, rising in the southern part of T. 19 S., R. 12 E., Mount Diablo base and meridian, and flowing southwestward to Priest Valley Creek (tributary through Lewis Creek to Bitterwater Creek and thus through San Lorenzo Creek to Salinas River, which discharges to the Pacific in Monterey Bay). Land Office map of California, 1907.

Palomas Canyon Creek; Los Angeles County; an intermittent stream rising in the northwestern part of T. 5 N., R. 17 W., and flowing southeastward into Castac Valley, where its flood waters join those of Castac Creek (tributary to Santa Clara River, which discharges to the Pacific). Tejon and Santa Susana sheets.

Palomeras Creek; San Lorenzo Creek basin; Alameda County; rises in the southwestern part of T. 3 S., R. 1 W., Mount Diablo base and meridian, on the northern slope of Walpert Ridge, at altitude 1,500 feet above sea level; flows northwestward 5½ miles, then southwestward 1½ miles to Castro Valley, where

it unites with Cull Creek to form San Lorenzo Creek (discharging into San Francisco Bay); fall, 1,300 feet; principal tributary, Eden Creek. Pleasanton and Haywards sheets.

Pamo Canyon Creek; San Diego County; rises in the eastern part of Guejito Rancho, at altitude 2,700 feet above sea level; flows southeastward into Bear Creek (tributary through Temescal Creek to Santa Ysabel Creek—San Dieguito River—which discharges to the Pacific); intermittent; length, 1½ miles; fall, about 1,000 feet. Ramona sheet.

Pamo Creek. *See* Temescal Creek.

Panamint Dry Lake; Inyo County; south end of Panamint Valley; between the Panamint Range and the Slate Range; dry except after heavy rain. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Panamint Dry Lake, Little; Inyo County; at the north end of Panamint Valley, between the Panamint Range and the Darwin Mountains; dry except after heavy rain. Water-Supply Paper U. S. Geol. Survey 224, 1909, Pl. I.

Paper Mill Creek; Marin County; rises in San Geronimo Rancho, at altitude 1,500 feet above sea level; flows northwestward 1 mile, westward 2¼ miles to the point at which it receives Lagunitas Creek, northwestward 7 miles, then irregularly westward 2 miles to the head of Tomales Bay, through which it enters the Pacific; 1,000 feet of the total fall is made in 1½ miles at the head; intermittent in this stretch; principal tributaries, Lagunitas and Nicasio creeks. Tamalpais sheet (on which this branch is unnamed), and Punnett's map of Sonoma and Marin counties.

Papoose Creek; Trinity County; rises in the western part of T. 34 N., R. 7 W., Mount Diablo base and meridian; flows westward 4 miles into Trinity River (tributary through Klamath River to the Pacific). Punnett's map of Trinity County.

Paradise Canyon Creek; Santa Barbara County; an intermittent stream, 2 miles long, rising on the northern slope of the Santa Ynez Mountains, in T. 5 N., R. 28 W., San Bernardino base and meridian, and flowing northward to Santa Ynez River (tributary to the Pacific). Santa Ynez sheet.

Paradise Creek; San Diego County; rises in the northern part of T. 11 S., R. 1 W., San Bernardino base and meridian, at altitude 1,100 feet above sea level; flows northward about 2 miles; sinks before reaching San Luis Rey River (tributary to the Pacific); fall, about 200 feet; intermittent. Ramona sheet.

Paradise Valley Creek; San Diego County; rises in the northeastern part of La Nacion Rancho, at altitude 400 feet above sea level; flows southwestward and enters the Pacific in San Diego Bay just south of National City; intermittent; length, about 6 miles. San Diego sheet.

Park Creek; Ventura County; rises on the north slope of Topatopa Mountains, in the northwestern part of T. 5 N., R. 20 W., San Bernardino base and meridian; flows northward and northwestward into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); length, about 2 miles; fall, 1,500 feet. Mount Pinos sheet.

Parker Creek; Mono County; Mono National Forest; rises on the east slope of the Sierra, in the glaciers on Kuna and Parker Peaks, at altitude about 12,000 feet above sea level; flows northeastward about 10 miles to its junction with Rush Creek (tributary to Mono Lake); fall, about 5,300 feet, of which 3,500 feet is made in about 3 miles at the head, above Parker Lake. Mount Lyell sheet.

Parker Lake; Mono County; Mono National Forest; eastern part of T. 1 S., R. 25 E., Mount Diablo base and meridian; outlet, Parker Creek, which flows through the lake to its junction with Rush Creek (tributary to Mono Lake); altitude, 8,375 feet. Mount Lyell sheet.

Parks Creek; Siskiyou County; rises near the northwestern part of T. 41 N., R. 6 W., Mount Diablo base and meridian, on the north slope of China Mountain; flows northeastward to the southwestern part of T. 42 N., R. 5 W., then irregularly northward to its junction with Shasta River (tributary to Klamath River, which flows to the Pacific); length, 18 miles; swampy in middle course. Shasta sheet; Punnett's map of Siskiyou County.

Par Value Lake; Mono County; south-central part of T. 3 N., R. 24 E., Mount Diablo base and meridian; 1 inlet; outlet, a stream, 1¾ miles long, flowing southeast and northeast to Green Lake (outlet through West Fork of Green to Green Creek, which is tributary through Virginia Creek to East Walker River, and thus to Walker River, which discharges to Walker Lake); altitude, 10,350 feet; very small. Bridgeport sheet.

Paterson Creek; Siskiyou County; rises in the southwestern part of T. 42 N., R. 10 W., Mount Diablo base and meridian; flows northeastward 11 miles, then northward 5 miles to its junction with Scott River, through which it is tributary to Klamath River, which discharges to the Pacific. Punnett's map of Siskiyou County.

Pato Canyon Creek; Santa Barbara County; an intermittent stream, 4 miles long, rising 1 mile northwest of Cuyama Peak and flowing northward to Cuyama River (Santa Maria River, which discharges to the Pacific) in Cuyama Valley. Mount Pinos sheet.

Patrick Creek; Del Norte County; rises in the southwestern part of T. 19 N., R. 4 E., Humboldt base and meridian; flows west of south 10 miles to its junction with Middle Fork of Smith River (tributary through Smith River to the Pacific) in the central part of T. 17 N., R. 3 E. Punnett's map of Del Norte County.

Patterson Canyon Creek; Mono County; rises in the western part of T. 5 N., R. 24 E., Mount Diablo base and meridian, at altitude 8,400 feet above sea level; flows north of east 2½ miles into Swager Creek (tributary through Buckeye Creek to East Walker River and thus to Walker River, which discharges to Walker Lake); fall, about 1,600 feet; intermittent. Bridgeport sheet.

Patterson Creek; Alameda County; a channel in the tidal marsh at the southern end of San Francisco Bay, extending westward from Patterson Landing to Coyote Hill Creek. Haywards sheet.

Patterson Creek; Klamath River basin; Siskiyou County; rises in the northeastern part of T. 44 N., R. 10 W., Mount Diablo base and meridian, on the south slope of Scott Bar Mountain; flows southeastward 2 miles, then west of south 3 miles to its junction with Scott River (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Patterson Creek; Klamath River basin; Trinity County; rises in the central part of T. 34 N., R. 12 W., Mount Diablo base and meridian; flows west of south 3 miles into Trinity River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Pauma Creek; San Diego County; rises in the southern part of T. 9 S., R. 1 E., San Bernardino base and meridian, at altitude 5,400 feet above sea level; flows north of west about 2½ miles through French Valley, then irregularly southwestward 5 miles to the Pauma Indian Reservation, where its waters sink before reaching San Luis Rey River (tributary to the Pacific Ocean). According to Hall,[1] this is "one of the few never-failing streams of the county." Ramona sheet.

Peacock Creek; Contra Costa County; rises in the northwestern part of T. 1 N., R. 1 E., Mount Diablo base and meridian; flows south of west into Mount

[1] Irrigation in California [southern]: The second part of the report of the State Engineer of California on irrigation and the irrigation question, Sacramento, 1888, p. 46.

Diablo Creek (tributary through Seal Creek to Suisun Bay). Mount Diablo sheet.

Peavine Canyon Creek; Los Angeles County; an intermittent stream, about 1½ miles long, draining a small area in the Santa Monica Mountains and flowing southward to the mouth of its canyon in Rodeo de las Aguas Rancho (drained by Ballona Creek). Santa Monica sheet.

Pecho Creek; San Luis Obispo County; an intermittent stream, 3 miles long, rising in the San Luis Range, 1 mile east of Saddle Peak, and flowing southwestward to the point at which it enters the Pacific; fall, about 1,250 feet. Port Harford sheet.

Pecwan Creek; Humboldt County; formed in the central part of T. 11 N., R. 3 E., Humboldt base and meridian, by the union of North and South forks. The North Fork rises in the eastern part of T. 12 N., R. 3 E., Humboldt base and meridian, and flows southwestward; the South Fork rises in the southwestern part of T. 12 N., R. 4 E., Humboldt base and meridian, and flows southwestward and westward; each of the forks is about 7 miles long. The creek below the junction is less than a mile long. Punnett's map of Humboldt County.

Pecwan Creek, North and South forks. *See* Pecwan Creek.

Peeler Lake; Mono County; northwestern part of T. 3 N., R. 23 E., Mount Diablo base and meridian; outlet, a stream, 1½ miles long, flowing eastward to Robinson Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake); altitude, 9,531 feet; fall of outlet, 1,031 feet. Bridgeport sheet.

Pena Creek; Sonoma County; rises in the western part of T. 9 N., R. 10 W., Mount Diablo base and meridian, takes a circuitous but in general northeasterly course to its junction with Dry Creek (tributary to Russian River, which flows into the Pacific); length, including major windings, 10 miles; tributaries unnamed on the map. Punnett's map of Sonoma County.

Penitencia Creek; Coyote River basin; Santa Clara County; rises on the west slope of Poverty Ridge, at altitude 3,000 feet above sea level; flows south of west to the valley of Coyote River (tributary to San Francisco Bay) north of San Jose, then northwestward to its junction with the river in the tidal marsh at the southeastern end of San Francisco Bay; length, including major windings, about 18 miles; principal tributaries, Arroyo Aguague, Arroyo de los Coches, Calera, Scott, and Toroges creeks; part of this course lies through Alum Rock Canyon. Mount Hamilton and San Jose sheets.

Pennington Creek; San Luis Obispo County; rises on the west slope of the Santa Lucia Mountains, in T. 29 S., R 12 E., Mount Diablo base and meridian, at altitude 1,500 feet above sea level; flows southwestward 4 miles into Chorro Creek, which discharges to the Pacific through Morro Bay; fall, 1,350 feet. San Luis Obispo sheet.

Peppertree Canyon Creek; Ventura County; an intermittent stream, 3 miles long, flowing southeastward into the valley of Santa Clara River (tributary to the Pacific) 1½ miles north of Saticoy; fall above the edge of the valley, 650 feet. Santa Paula sheet.

Permanente Creek; Santa Clara County; rises in the eastern part of T. 7 S., R. 3 W., Mount Diablo base and meridian, on the northern slope of the Monte Bello Ridge, at altitude 1,800 feet above sea level; flows south of east 2½ miles, then northeastward toward the tidal marsh at southern end of San Francisco Bay; sinks near Mountain View. Palo Alto and Santa Cruz sheets.

Pescadero Creek; Pajaro River basin; San Benito County; rises in the southern part of T. 14 S., R. 5 E., Mount Diablo base and meridian; flows northwestward 2 miles, northeastward 5 miles, then southeastward 5 miles into San

Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay); tributary, Thompson Creek. Land Office map of California, 1907.

Pescadero Creek; San Mateo County; rises in the eastern part of T. 8 S., R. 3 W., Mount Diablo base and meridian, at altitude 1,700 feet above sea level; flows southwestward about 2 miles, then turns sharply and flows northwestward along the north base of Butano Ridge 8 miles, then very irregularly westward to the point at which it enters the Pacific 2 miles north of Pescadero Point; length, about 20 miles; principal tributaries, Oil, Slate, Peters, and Butano creeks; drains also a small area in Santa Cruz County; drainage area 60 square miles. Santa Cruz sheet; Santa Cruz folio (No. 163), Geol. Atlas U. S., p. 1.

Petaluma Creek; Sonoma County; rises in the southern part of T. 6 N., R. 7 W., Mount Diablo base and meridian; flows south of west 5 miles, then in general southeastward 18 miles to the point at which it enters San Pablo Bay; passes through the city of Petaluma. Punnett's map of Sonoma County.

Peter Creek; Sonoma County; rises in the eastern part of T. 11 N., R. 12 W., Mount Diablo base and meridian; flows southwestward 2 miles into Dry Creek (tributary through Russian River to the Pacific). Punnett's map of Sonoma County.

Peters Creek; Pescadero Creek basin; San Mateo County; rises in the central part of T. 7 S., R. 3 W., at altitude 2,000 feet above sea level; flows southwestward 5 miles into Pescadero Creek, which discharges to the Pacific; fall, 1,550 feet; tributary, Evans Creek. Santa Cruz sheet.

Peterson Canyon Creek; San Diego County; rises in the northeastern part of T 16 S., R. 3 E., San Bernardino base and meridian, at altitude 3,400 feet above sea level; flows somewhat south of west to its junction with Sweetwater River (tributary to the Pacific through San Diego Bay) in the northeastern part of T. 16 S., R. 2 E.; length, about 7 miles; fall, 1,900 feet; intermittent. Cuyamaca sheet.

Petes Creek; Lassen County; rises in the eastern part of T. 32 N., R. 13 E., Mount Diablo base and meridian, 8 miles east of Horse Lake, at altitude 5,500 feet above sea level; takes a general southerly course to its junction with Susan River (tributary to Honey Lake); length, about 24 miles; fall, 1,400 feet. The map (Honey Lake sheet) shows a discharge channel from Horse Lake to Petes Creek, but as the bottom of the outlet is about 10 feet above the usual level of the lake it is probably used only in years of exceptionally high rainfall. *See* Horse Lake. Honey Lake sheet.

Peytonia Slough; Solano County; in the tidal marsh on the north side of Suisun Bay; extends westward from Suisun Creek. Napa sheet.

Picayune Creek; Trinity County; rises in the eastern part of T. 39 N., R. 6 W., Mount Diablo base and meridian, on the west slope of Trinity Mountains, at altitude 6,200 feet above sea level; flows northwestward to its junction with Trinity River (tributary to Klamath River, which flows to the Pacific); length, 6 miles; fall, 3,200 feet. Shasta sheet.

Pico Canyon Creek; Los Angeles County; rises in the eastern part of T. 3 N., R. 17 W., San Bernardino base and meridian, on the north slope of Santa Susana Mountains, at altitude 3,000 feet above sea level; flows northwestward 1½ miles, northeastward 5 miles, then west of north 1½ miles to its junction with Santa Clara River (tributary to the Pacific) near the mouth of Placerita Creek; intermittent; delivers water to the river only in times of flood; fall in the 4 miles above the mouth of the canyon, 1,550 feet. Santa Susana sheet.

Piedra Blanca Creek; Ventura County; rises in the north-central part of T. 6 N., R. 22 W., San Bernardino base and meridian, on the east slope of Pine Mountain, at altitude 6,100 feet above sea level; flows southeastward 7 miles

into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); fall, 3,100 feet; principal tributary, North Fork. Mount Pinos sheet.

Piedra Blanca Creek, North Fork; Santa Clara River basin; Ventura County; rises in the eastern part of T. 6 N., R. 22 W., San Bernardino base and meridian, near Pine Mountain Lodge; flows southerly into Piedra Blanca Creek (tributary through Sespe Creek to Santa Clara River, which discharges to the Pacific); length, about 2 miles. Mount Pinos sheet.

Piedra de Lumbre Canyon Creek; San Diego County; rises in Santa Margarita y las Flores Rancho, at altitude about 600 feet above sea level; flows west of south 6 miles; unites with Las Pulgas Canyon Creek (tributary to the Pacific). San Luis Rey sheet.

Pieta Creek; Mendocino County; rises on the west slope of the Coast Range in the western part of T. 13 N., R. 10 W., Mount Diablo base and meridian; flows east of south 3 miles, then to the southwest, west, and northwest to its junction with Russian River (tributary to the Pacific) near Pieta; length, 9 miles; course circuitous. Punnett's map of Mendocino County.

Pilarcitos Canyon Creek; Monterey County; an intermittent stream draining a canyon opening northward toward Salinas Valley (drained by Salinas River, which enters the Pacific through Monterey Bay) 3½ miles southwest of Salinas. Salinas Valley map, sheet 1.

Pilarcitos Creek; San Mateo County; rises in T. 4 S., R. 6 W., Mount Diablo base and meridian, on the east slope of the Montara Mountains, 1 mile east of North Peak Mountain, at altitude 1,100 feet above sea level; flows north of east 1 mile; southeasterly 5½ miles passing through Pilarcitos Lake, then to the south and southwest 6 miles and enters the Pacific 1 mile northwest of the town of Halfmoon Bay. San Mateo and Santa Cruz sheets.

Pilarcitos Lake; San Mateo County; in T. 4 S., R. 5 W., east of the Montara Mountains; principal inlet, Pilarcitos Creek, which flows through the lake and discharges to the Pacific Ocean; receives many small, unnamed streams; altitude, 692 feet. San Mateo and Santa Cruz sheets.

Pilitas Creek; San Luis Obispo County; rises in the southeastern part of T. 29 S., R. 14 E., Mount Diablo base and meridian; flows southwestward into Salinas River, which discharges to the Pacific in Monterey Bay; length, about 6 miles. Land Office map of California, 1907.

Pilot Creek; Humboldt County; rises in the northeastern part of T. 4 N., R. 4 E. Humboldt base and meridian; flows in general east of south 18 miles, then westward 2 miles to its junction with Mad River (tributary to the Pacific). Punnett's map of Humboldt County.

Pine Canyon; Santa Maria River basin; extends northward from Graciosa Ridge toward Santa Maria Valley. Lompoc sheet.

Pine Canyon; Santa Ynez River basin; Santa Barbara County; a drainage way in the southern part of Jesus Maria Rancho, opening southward toward the valley of Santa Ynez River (tributary to the Pacific). Guadalupe sheet.

Pine Canyon Creek; Salinas River basin; Monterey County; a short, intermittent stream, flowing northeastward toward Salinas Valley (drained by Salinas River, which enters the Pacific in Monterey Bay) near Buena Vista School. Salinas Valley map, sheet 1.

Pine Canyon Creek; San Gabriel River basin; Los Angeles County; an intermittent stream, 1 mile long, rising in the southeastern part of T. 1 N., R. 9 W., San Bernardino base and meridian, and flowing westward into Big Dalton Canyon (tributary to San Gabriel River, which discharges to the Pacific). Pomona sheet.

Pine Canyon Creek; San Gabriel River basin; Los Angeles County; rises in the western part of T. 1 N., R. 9 W., San Bernardino base and meridian, at

altitude 2,000 feet above sea level; flows northwestward into San Gabriel River (tributary to the Pacific); length, about 1 mile; fall, 950 feet; intermittent. Pomona sheet.

Pine Canyon Creek; Santa Clara River basin; Los Angeles County; an intermittent stream, 2 miles long, flowing southward and westward into Bear Canyon Creek (tributary through Castac Creek to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Pine Canyon Creek; Santa Clara River basin; Ventura County; an intermittent stream, 2 miles long, rising in the northern part of T. 4 N., R. 20 W., San Bernardino base and meridian, and flowing northeastward into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Pine Creek; Eagle Lake basin; Lassen County; rises in the southeastern part of T. 31 N., R. 7 E., Mount Diablo base and meridian, at altitude 6,500 feet above sea level; flows northeastward to the eastern part of T. 33 N., R. 9 E., then takes a general southeasterly course to Gallatin where it enters Eagle Lake (no outlet); length, about 32 miles; fall, 1,385 feet. Lassen Peak and Honey Lake sheets.

Pine Creek; Klamath River basin; Humboldt County; rises in the southwestern part of Hoopa Valley Indian Reservation; flows irregularly northward to its junction with Klamath River (tributary to the Pacific) near Martins Ferry; length, about 12 miles. Punnett's map of Humboldt County.

Pine Creek; Owens River basin; Inyo County; Inyo National Forest; rises on the eastern slope of the Sierra in a small lake in Granite Park, at altitude 11,800 feet above sea level; takes a general northeasterly course to its junction with Rock Creek (tributary to Owens River, which discharges to Owens Lake); length, 16 miles; fall, 7,300 feet, of which 6,800 feet is made above Round Valley; principal tributaries, Morgan and Gable creeks. Gaging station near Round Valley (1903–1912). Mount Goddard sheet.

Pine Creek; Walnut Creek basin; Contra Costa County; rises in the northwestern part of T. 1 S., R. 1 W., Mount Diablo base and meridian, at altitude 900 feet above sea level; flows northwestward 7½ miles to Ygnacio Valley (drained by Walnut Creek to Suisun Bay) where its waters sink; fall, about 825 feet. Mount Diablo and Concord sheets.

Pine Creek, Big; Owens River basin; Inyo County; rises in the southeastern part of T. 9 S., R. 31 E., Mount Diablo base and meridian, on the east slope of Inconsolable Range, at altitude 12,500 feet above sea level; flows southeastward 5 miles, then in general somewhat north of east to Owens Valley near Big Pine; length, about 15 miles; fall, about 8,500 feet; principal tributaries, South Fork and Little Pine Creek. Gaging station near Big Pine (1903–1911). Bishop and Mount Goddard sheets.

Pine Creek, Big, South Fork; Inyo County; formed by a number of branching tributaries that head on the east slope of the Sierra at altitude about 12,500 feet above sea level; flows northeastward to its junction with Big Pine Creek (tributary to Owens Valley) in the southeastern part of T. 9 S., R. 32 E., Mount Diablo base and meridian; length to head of longest tributary, about 4 miles; fall, about 4,700 feet. Bishop sheet.

Pine Creek, Little; Owens River basin; Inyo County; rises on the east slope of the Sierra, 1½ miles west of south of the southeast end of T. 9 S., R. 32 E., Mount Diablo base and meridian, at altitude 12,000 feet above sea level; flows northeastward 7 miles to its junction with Big Pine Creek (tributary to Owens Valley); fall, 7,500 feet. Bishop sheet.

Pine Creek, Little; Owens River basin; Inyo County; Inyo National Forest; rises on the east slope of the Sierra 1 mile north of Kearsarge Pass, at

altitude 12,000 feet above sea level; flows southeastward into Onion Valley, then in general somewhat north of east to Owens Valley near Independence, where its waters sink; length, 10 miles; fall, 8,000 feet; principal tributary, Pinyon Creek. Gaging station near Independence (1905–1911). Mount Whitney sheet.

Pine Gulch Creek; Marin County; rises in the northern part of Punta de los Reyes Rancho, at altitude 600 feet above sea level; flows southeastward 6 miles to the lower end of Paradise Valley, then turns abruptly and flows northeastward half a mile to Bolinas Lagoon, through which it is tributary to Bolinas Bay on the Pacific. Tamalpais sheet.

Pine Lake; Inyo County; Inyo National Forest; inlet and outlet, Pine Creek, which flows through the lake to join Rock Creek (tributary to Owens River, which discharges to Owens Lake); altitude, 9,600 feet. Mount Goddard sheet.

Pine Lakes; Inyo County; southwestern part of T. 9 S., R. 32 E., Mount Diablo base and meridian; a group of small lakes discharging through Big Pine Creek to Owens Valley; altitude, somewhat more than 10,000 feet above sea level. Mount Goddard and Bishop sheets.

Pine Valley Creek; San Diego County; rises in the southwestern part of T. 15 S., R. 5 E., San Bernardino base and meridian, at altitude about 4,200 feet above sea level; flows southwestward about 17 miles to the central part of T. 17 S., R. 3 E., where it unites with Cottonwood Creek (tributary to Tia Juana River, which discharges to the Pacific); fall, 2,600 feet; intermittent; drains a rough, rugged country. Gaging station near Jamul (1906–1908). Cuyamaca sheet.

Pinole Creek; Contra Costa County; rises in Boca de la Canada del Pinole Rancho, on the north slope of Briones Hills, at altitude 900 feet above sea level; flows northwestward to the point at which it enters San Pablo Bay; length, about 10 miles. Concord, San Francisco, and Napa sheets.

Pinos Creek; Pajaro River basin; San Benito County; rises in the southern part of T. 14 S., R. 9 E., Mount Diablo base and meridian; flows westward into Rosario Creek through which it is tributary to San Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay); length, about 6 miles; a northern tributary, unnamed on the map, is longer than the stream itself. Land Office map of California, 1907.

Pinos Creek; Salinas River basin; Monterey County; rises in the northern part of T. 21 S., R. 7 E., Mount Diablo base and meridian; flows northeastward 6 miles to King City, where it joins Salinas River (tributary to the Pacific in Monterey Bay). Land Office map of California, 1907.

Pinyon Creek; Inyo County; Inyo National Forest; rises on the east slope of the Sierra, half a mile north of Mount Bradley, at altitude 11,400 feet above sea level; flows northeastward 5 miles to its junction with Little Pine Creek, which discharges to Owens Valley; fall, 6,100 feet. Mount Whitney sheet.

Pipe Creek; Eel River basin; Humboldt County; rises in the north-central part of T. 5 S., R. 5 E., Humboldt base and meridian; flows northeastward to its junction with Eel River (tributary to the Pacific); length, 6 miles. Punnett's map of Humboldt County.

Pipe Creek; San Jacinto River basin; Riverside County; rises in the northwestern part of T. 6 S., R. 4 E., San Bernardino base and meridian, at altitude 6,600 feet above sea level; flows southwestward about 4 miles to the South Fork of San Jacinto River; fall, 2,000 feet. San Jacinto sheet.

Pipes Creek; San Bernardino County; rises in the northwestern part of T. 1 N., R. 3 E., San Bernardino base and meridian, at altitude 7,500 feet above sea

level; flows easterly into Antelope Creek, which discharges to the Colorado Desert; length, about 12 miles; intermittent. San Gorgonio sheet.

Pirate Creek; Alameda Creek basin; Alameda County; an intermittent stream, about 2 miles long, rising in the northern part of T. 5 S., R 1 E., Mount Diablo base and meridian, at altitude 1,350 feet above sea level, and flowing northward and northeastward into Alameda Creek (which discharges to San Francisco Bay) near the southern end of Sunol Valley; length, about 2½ miles; fall, about 1,050 feet. Pleasanton sheet.

Piru Creek; Santa Clara River basin; Ventura and Los Angeles counties; rises in Ventura County, in the northern part of T. 6 N., R. 22 W., San Bernardino base and meridian, on the north slope of Pine Mountain, at altitude 6,500 feet above sea level; takes a very irregular but in general easterly course to the southern part of T. 7 N., R. 18 W., then with many sharp bends and turns flows southward to its junction with Santa Clara River (tributary to the Pacific) near the town of Piru; including its major windings the creek is about 50 miles long; the drainage basin is mountainous and lies entirely within the Santa Barbara National Forest reserve; principal tributaries, Mutau, Lockwood, Canada de los Alamos, Fish, and Agua Blanca creeks. Gaging station near Piru (1911–12.) Mount Pinos, Tejon, and Camulos sheets.

Piru Creek, South Fork; Ventura County; rises in the northeastern part of T. 6 N., R. 22 W., San Bernardino base and meridian, at altitude 6,000 feet above sea level; flows northeastward 3 miles into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); falls, 1,200 feet. Mount Pinos sheet.

Pismo Creek; San Luis Obispo County; rises on the western slope of the Santa Lucia Mountains in Corral de Piedra Rancho; flows southwestward to Pismo, then east of south through a tidal marsh to the Pacific; principal tributary, Corral de Piedra Creek. Arroyo Grande sheet.

Pismo Lake; a brackish-water body at the north end of the tidal marsh through which Pismo Creek discharges to the ocean. Arroyo Grande sheet.

Pitcher Creek; Humboldt County; rises in the eastern part of T. 9 N., R. 1 E., Humboldt base and meridian, on the west slope of Trinity Mountain; flows westward into Maple Creek just above the head of Big Lagoon; length, 3 miles. Punnett's map of Humboldt County.

Piute Creek; Lassen County; rises in the southern part of T. 31 N., R. 11 E., Mount Diablo base and meridian, at altitude 6,000 feet above sea level; flows southward 4 miles, then southeastward 5 miles into Susan River (tributary to Honey Lake) near Susanville; fall, about 1,900 feet. Honey Lake sheet.

Placerita Creek; Los Angeles County; rises in the northeastern part of T. 3 N., R. 15 W., San Bernardino base and meridian; flows westward through Placerita Canyon, then northwestward to Santa Clara River (tributary to the Pacific) to which it delivers water only in times of flood; intermittent; fall from the head of Placerita Canyon to the river, 850 feet; principal tributary, Newhall Creek. Fernando and Santa Susana sheets.

Pleasant Valley Creek; Carson River basin; Alpine County; rises on the east slope of the Sierra near the summit of the divide separating Carson River waters from those flowing to Mokelumne River; takes a general northeasterly course to its junction with Markleeville Creek [Hot Springs Creek] (tributary through East Fork of Carson River to Carson River, which discharges to Carson Sink) near Markleeville; length, about 10 miles; fall, about 2,800 feet. Gaging station at Markleeville (1910–1912). Markleeville sheet.

Pleasant Valley Creek; Walnut Creek basin; Contra Costa County; rises in the northwestern part of Acalanes Rancho, at altitude 700 feet above sea level;

flows southeastward 3 miles into Lafayette Branch of Walnut Creek (tributary through Walnut Creek to Suisun Bay); fall, 400 feet. Concord sheet.

Plum Canyon Creek; Los Angeles County; rises in the northern part of T. 4 N., R. 15 W., San Bernardino base and meridian, at altitude 2,250 feet above sea level; flows southwesterly and westerly into Deadman Canyon (tributary to Santa Clara River, which discharges to the Pacific); length to junction with Deadman Canyon, about 5 miles; fall in the upper 1½ miles, 500 feet; delivers water to Deadman Canyon only in times of flood. Fernando and Santa Susana sheets.

Plummer Creek; Alameda County; a channel in the tidal marsh at the southern end of San Francisco Bay. Haywards sheet.

Plummer Creek; Siskiyou County; rises in the eastern part of T. 37 N., R. 12 W., Mount Diablo base and meridian, on the north slope of New River Mountains; takes a general northerly course to its junction with Salmon River (tributary to Klamath River, which flows to the Pacific); length, about 4 miles. Punnett's map of Siskiyou County.

Plunge Creek; San Bernardino County; rises in the northeastern part of T. 1 N., R. 3 W., San Bernardino base and meridian, at altitude 5,400 feet above sea level; flows very irregularly southward to the wash of Santa Ana River (tributary to the Pacific), where its waters sink; length, about 7 miles; fall, 3,750 feet. Redlands sheet.

Poggi Canyon Creek; San Diego County; rises in the northern part of T. 18 S., R. 1 W., San Bernardino base and meridian, at altitude 600 feet above sea level; flows southwestward to Otay River (tributary to the Pacific through San Diego Bay); length, about 5½ miles; fall, 500 feet; intermittent. Cuyamaca and San Diego sheets.

Point Arena Creek; Mendocino County; rises in the western part of T. 12 N., R. 16 W., Mount Diablo base and meridian; flows westward, and enters the Pacific in Arena Cove; length, 3 miles. Punnett's map of Mendocino County.

Poison Lake; Lassen County; eastern part of T. 32 N., R. 7 E., Mount Diablo base and meridian; neither inlet nor outlet shown on the map; altitude, about 5,300 feet. Lassen Peak sheet.

Pole Canyon Creek; Ventura County; an intermittent stream, 5 miles long, rising on the south slope of Hopper Mountain and flowing southwesterly toward Santa Clara River (tributary to the Pacific) near Fillmore. Camulos sheet.

Pole Creek; Placer County; rises in the eastern part of T. 16 N., R. 15 E., Mount Diablo base and meridian, at altitude 8,400 feet above sea level; takes a general easterly course to its junction with Truckee River (tributary to Pyramid and Winnemucca lakes); length, 4 miles; fall, 2,350 feet. Truckee sheet.

Polhemus Lake; Lassen County; central part of T. 30 N., R. 7 E., Mount Diablo base and meridian; neither inlet nor outlet shown on map; altitude, 6,200 feet. Lassen Peak sheet.

Poligue Canyon Creek; San Bernardino County; rises in the northeastern part of T. 2 N., R. 1 W., San Bernardino base and meridian, on southern slope of Delamar Mountain, at altitude 7,500 feet above sea level; flows southwestward 1½ miles toward Bear Lake (outlet, Bear Creek to Santa Ana River, which discharges to the Pacific); fall, 600 feet. San Gorgonio sheet.

Pomponio Creek; San Mateo County; rises in the southwestern part of T. 7 S., R. 4 W., Mount Diablo base and meridian, at altitude 800 feet above sea level; flows northwestward and westward 6 miles and enters the Pacific in Pescadero Rancho, 1½ miles south of San Gregorio. Santa Cruz sheet.

Pony Creek; Trinity County; rises in the central part of T. 37 N., R. 12 W., Mount Diablo base and meridian; flows southwestward 4 miles, then south-

eastward 1½ miles into East Fork of New River (tributary through New River to Trinity River and thus to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Poorman Canyon; San Luis Obispo County; southern part of Corral de Piedra Rancho; opens southeastward to Corbett Canyon in the Arroyo Grande Creek basin. Arroyo Grande sheet.

Poplin Creek; Ventura County; an intermittent stream, rising in the northeastern part of T. 4 N., R. 24 W., San Bernardino base and meridian, and flowing in general southerly into Coyote Creek (tributary to Ventura River, which discharges to the Pacific); about 3 miles long. Ventura sheet.

Poppet Creek; Riverside County; rises in the northern part of T. 4 S., R. 1 E., San Bernardino base and meridian, near the southern edge of Poppet Flat, at altitude 3,700 feet above sea level; flows in general southwesterly to its junction with San Jacinto River at San Jacinto; length, 6 miles; fall, 2,000 feet. San Jacinto sheet.

Porter Creek; Sonoma County; rises in the north-central part of T. 8 N., R. 10 W., Mount Diablo base and meridian; flows southeastward 6 miles to its junction with Russian River (tributary to the Pacific) in the southwestern part of T. 8 N., R. 9 W. Punnett's map of Sonoma County.

Portero Canyon Creek; Monterey County; rises in the southern part of T. 20 S., R. 5 E., Mount Diablo base and meridian; flows eastward and northward to its junction with Arroyo Seco (tributary to Salinas River, which discharges to the Pacific in Monterey Bay); length, about 10 miles. Land Office map of California, 1907.

Posita Canyon Creek; Malibu Creek basin; Ventura and Los Angeles counties: an intermittent stream, about 6 miles long, rising in the Simi Hills, and flowing in general southerly into Medea Creek (tributary through Triunfo Creek to Malibu Creek, which discharges to the Pacific); principal tributary of Posita Canyon Creek, Cheeseboro Canyon Creek. Camulos sheet.

Post Creek; Trinity County; rises in the western part of T. 30 N., R. 12 W., Mount Diablo base and meridian, 1 mile southeast of Post Creek Mountain; flows southeastward 3½ miles, then southwestward 5 miles into Rattlesnake Creek (tributary through South Fork of Trinity River to Trinity and thus through Klamath River to the Pacific). Punnett's map of Trinity County.

Pothole Lake; Inyo County; Inyo National Forest; one-fourth mile southeast of Kearsarge Pass; neither inlet nor outlet shown on the map; the near-by areas drain eastward through Little Pine Creek to Owens Valley; altitude, 11,200 feet; very small. Mount Whitney sheet.

Potrero Creek; Colorado Desert; Riverside County; T. 2 S., R. 1 E., San Bernardino base and meridian; a stream, about 3 miles long, flowing southward into San Gorgonio Pass, which slopes eastward from a point east of Beaumont to the Colorado desert. San Jacinto sheet.

Potrero Creek; San Jacinto River basin; Riverside County; rises in the southeastern part of T. 3 S., R. 1 W., San Bernardino base and meridian, at altitude 2,300 feet above sea level; flows southeastward 2 miles, then southwestward 3 miles to the edge of San Jacinto Valley; fall, 800 feet. San Jacinto sheet.

Potrero Creek; Tia Juana River basin; San Diego County; rises in the northwestern part of T. 18 S., R. 4 E., San Bernardino base and meridian, on the east slope of Potrero Peak, at altitude 2,300 feet above sea level; flows southwestward 3 miles, then northwestward 2 miles into Cottonwood Creek (tributary to Tia Juana River, which discharges to the Pacific); fall, 1,450 feet; intermittent. Cuyamaca sheet.

Poverty Canyon Creek; Ventura County; an intermittent stream, 1½ miles long, rising in the southern part of T. 4 N., R. 24 W., San Bernardino base and meridian, and flowing southwestward into Los Sauces Creek (tributary to the Pacific) in Casitas Valley. Ventura sheet.

Powell Canyon Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, rising in the southeastern part of T. 10 N., R. 29 W., San Bernardino base and meridian, and flowing northward through Kelsey and Powell canyons to Cuyama River (Santa Maria River, which discharges to the Pacific); length to head of Kelsey Canyon, 8 miles. Santa Ynez and McKittrick sheets.

Powell Creek; Monterey County; rises in the central part of T. 22 S., R. 12 E., Mount Diablo base and meridian; flows southwestward 6 miles, then north of west 6 miles to Bitterwater Creek, which discharges to the valley of Salinas River (tributary to the Pacific in Monterey Bay). Land Office map of California, 1907.

Prairie Creek; Humboldt County; rises in the northern part of T. 12 N., R. 1 E., Humboldt base and meridian; flows southward about 12 miles to its junction with Redwood Creek (tributary to the Pacific) in the southern part of T. 11 N., R. 1 E. Land Office map of California, 1907. Called West Fork of Prairie Creek on Punnett's map of Humboldt County.

Prairie Fork. *See* San Gabriel River.

Preston Creek; Del Norte County; rises on the northwestern slope of Preston Peak, in T. 17 N., R. 5 E., Humboldt base and meridian; flows north of west 8 miles to its junction with Middle Fork of Smith River (tributary through Smith River to the Pacific) in the western part of T. 17 N., R. 4 E. Punnett's map of Del Norte County.

Price Creek; Humboldt County; rises in the southern part of T. 2 N., R. 2 W., Humboldt base and meridian; flows in general northeastward to its junction with Eel River (tributary to the Pacific); length, 8 miles. Punnett's map of Humboldt County.

Priest Valley Creek; Monterey County; rises in the northeastern part of T. 20 S., R. 12 E., Mount Diablo base and meridian; flows southwestward 2 miles, then northwestward 2 miles to Lewis Creek (tributary through Bitterwater Creek to San Lorenzo Creek and thus to Salinas River, which discharges to Monterey Bay) at the town of Priest Valley; principal tributary, Palmer Creek. Land Office map of California, 1907.

Pringle Canyon Creek; San Diego County; rises in the south-central part of T. 17 N., R. 2 E., San Bernardino base and meridian, at altitude 1,500 feet above sea level; flows southwestward into Dulzura Creek (tributary to Jamul Creek, which discharges to Lower Otay reservoir); length, about 2 miles; fall, 500 feet; intermittent. Cuyamaca sheet.

Prospect Creek; Trinity County; rises in the northern part of T. 28 N., R. 11 W., Mount Diablo base and meridian; flows very irregularly southward to its junction with South Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, about 5 miles. Punnett's map of Trinity County.

Prosser Creek; Gualala River basin; Sonoma County; rises in the southeastern part of T. 11 N., R. 13 W., Mount Diablo base and meridian; flows irregularly westward 4 miles, then south of west about 3 miles to its junction with Buckeye Creek, through which it is tributary to Gualala River (tributary to the Pacific). Punnett's map of Sonoma County.

Prosser Creek; Truckee River basin; Nevada County; formed in the western part of T. 18 N., R. 16 E., Mount Diablo base and meridian, by the union of its North and South forks. The North Fork, which drains the larger area and

is therefore considered the continuation of the main stream, rises in a small lake, at altitude 7,400 feet above sea level, in the southeastern part of T. 18 N., R. 14 E., and flows in general east and southeast to the point of junction with South Fork; below the forks Prosser Creek flows northeastward about 2 miles, then southeastward 6 miles to its junction with Truckee River (tributary to Pyramid and Winnemucca lakes) near Prosser; length to head of North Fork, about 14 miles; fall from head of North Fork to Truckee River, 1,800 feet, of which 900 feet is made in the first 2 miles at the head; principal tributary below the forks, Alder Creek. Gaging stations near Truckee (1903–1904, 1907–1912) and near Boca (1902–1903). Truckee sheet.

Prosser Creek, South Fork; Nevada County; rises in the northeastern part of T. 17 N., R. 14 E., Mount Diablo base and meridian, at altitude 8,300 feet above sea level; flows southeastward 1 mile, then northeastward 4 miles to its junction with the North Fork with which it forms Prosser Creek (tributary to Truckee River, which discharges to Pyramid and Winnemucca lakes); fall, 2,200 feet. Truckee sheet.

Pudding River; Mendocino County; rises in the southeastern part of T. 19 N., R. 16 W.; Mount Diablo base and meridian; flows northwestward 4 miles, then in turn southwestward, southward, westward, and northwestward to the point at which it enters the Pacific in the extreme northeastern part of T. 18 N., R. 18 W.; length, about 12 miles. Punnett's map of Mendocino County.

Puerco Canyon Creek; Los Angeles County; an intermittent stream, 1½ miles long, rising on the southern slope of the Santa Monica Mountains, in the southeastern part of T. 1 S., R. 18 W., San Bernardino base and meridian, and flowing east of south into the Pacific Ocean. Camulos sheet.

Pulga Canyon Creek; Los Angeles County; an intermittent stream, 2½ miles long, draining a small area in the Santa Monica Mountains and flowing southward to the Pacific through Santa Monica Bay. Calabasas sheet.

Pulgas Creek; San Mateo County; rises in Pulgas Rancho, 2 miles east of Crystal Springs Lake, and flows northeastward toward the tidal marsh at the southern end of San Francisco Bay. Santa Cruz and San Mateo sheets.

Purisima Canyon; Santa Barbara County; a drainage way in Mission la Purisima, opening southeastward toward the valley of Santa Ynez River (tributary to the Pacific) north of Lompoc. Lompoc sheet.

Purisima Creek; San Mateo County; rises in the northwestern part of T. 6 S., R. 4 W., San Bernardino base and meridian, at altitude 1,500 feet above sea level; flows north of west 3 miles, then southwestward 4 miles and enters the Pacific near Purisima. Santa Cruz sheet.

Pyramid and Winnemucca lakes;[1] Washoe and Humboldt counties, Nev.; occupy two long, narrow basins and receive the waters of Truckee River, which sends a stream to each lake.

The first published account of the bifurcation of Truckee River so as to supply two lakes is given by King,[2] who says:

"At the time of our first visit to this region, in 1867, the river bifurcated; one half flowed into Pyramid Lake, and the other through a river 4 or 5 miles long into Winnemucca Lake. At that time the level of Pyramid Lake was 3,890 feet above the sea, and of Winnemucca about 80 feet lower. Later, owing to the disturbance of the balance between influx and evaporation already alluded to as expressing itself in Utah by the rise and expansion of Great Salt Lake, the basin of Pyramid Lake was filled up, and a backwater overflowed

[1] Abstracted from Russell, I. C., Geological history of Lake Lahontan, a Quaternary lake of northwestern Nevada: Mon. U. S. Geol. Survey, vol. 11, 1885, pp. 56–66.

[2] U. S. Geol. Expl. 40th Par., vol. 1, 1878, pp. 505–506.

the former region of bifurcation, so that now the surplus waters all go down the channel into Winnemucca Lake, and that basin is rapidly filling.

"Between 1867, the time of my first visit, and 1871, the time of my last visit, the area of Winnemucca Lake had nearly doubled, and it has risen from its old altitude about 22 feet, Pyramid Lake in the same time having been raised about 9 feet. The outlines as given upon our topographical maps are according to the survey of 1867, and form interesting data for future comparison."

The differences in elevation between Pyramid and Winnemucca lakes as reported by King and determined by Russell in 1882 are as follows:

In 1867 Pyramid was 80 feet higher than Winnemucca; in 1872 Pyramid was 67 feet higher than Winnemucca; in 1882 Pyramid was 12 feet higher than Winnemucca, as determined by engineer's level; in 1890, when the region was surveyed by the topographers of the United States Geological Survey, Pyramid was but 5 feet higher than Winnemucca. The waters of both lakes are alkaline and brackish. Their shores, like those of all the lakes in the lower portion of the Great Basin, are clothed only with scanty growths of desert vegetation.

In the southern part of Pyramid Lake the water is slightly discolored by multitudes of shining particles that are rendered visible when a ray of light is passed through it. The lack of transparency is apparently due to the suspended silt brought down by Truckee River. In the northern part of the lake the water is wonderfully clear, and at some distance from the land is deep blue in color.

The largest islands in Pyramid Lake are Pyramid and Anaho, which rise in its southern part near the eastern shore. Anaho Island rises 480 feet above the water level of 1890, and is surrounded by water 150 to 300 feet deep. Pyramid Island rises 320 feet above the water level of 1890 and the water near its base is 150 to 175 feet deep.

Authorities: Reno, Wadsworth, and Granite Range sheets; Water-Supply Paper U. S. Geol. Survey No. 290, 1912, pp. 179–180.

Quail Canyon Creek; San Diego County; rises in the northwestern part of T. 15 S., R. 1 W., San Bernardino base and meridian, at altitude 700 feet above sea level; flows southeastward into Sycamore Canyon Creek (tributary to San Diego River, which discharges to the Pacific through False Bay); intermittent; length, 1½ miles; fall, 325 feet. La Jolla sheet.

Quail Lake; Los Angeles County; in the eastern part of T. 8 N., R. 18 W., San Bernardino base and meridian; usually dry part of year; lies in a completely closed depression. Water-Supply Paper U. S. Geol. Survey No. 278, 1911, p. 14 and Pl. VI; Tejon sheet.

Quartz Creek; Del Norte County; rises in the northwestern part of T. 16 N., R. 4 E., Humboldt base and meridian, flows southwestward into the South Fork of Smith River (tributary to Smith River, which flows to the Pacific); length, 10 miles. Punnett's map of Del Norte County.

Quatal Canyon; Santa Maria River basin; Ventura and Santa Barbara counties; southern part of T. 9 N., Rs. 23 and 24 W., San Bernardino base and meridian; opens westward to Cuyama River (Santa Maria River, tributary to the Pacific Ocean). Mount Pinos sheet.

Rabbit Canyon Creek; Orange County; rises in the southeastern part of Lomas de Santiago, at altitude 1,400 feet above sea level; flows northwestward into Santiago Creek (tributary to Santa Ana River, which discharges to the Pacific); length, about 6 miles; fall, about 700 feet. Corona sheet.

Rabbitt Dry Lake; San Bernardino County; T. 4 N., R. 1 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Raider Creek; Modoc County; rises on the east slope of Warner Mountains, at altitude 6,000 feet above sea level; flows eastward 4 miles into the south end of Middle Alkali Lake; fall, 1,300 feet. Alturas sheet.

Ramera Canyon Creek; Los Angeles County; an intermittent stream, about 4 miles long, rising on the south slope of the Santa Monica Mountains, in the western part of T. 1 S., R. 18 W., and flowing southeastward into the Pacific Ocean. Camulos sheet.

Ramona Canyon Creek; Ventura County; an intermittent stream, 1 mile long, flowing northward to Holser Canyon Creek (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Ramon Creek; Riverside County; T. 5 S., R. 5 E.; an intermittent stream, 1 mile long, flowing southeastward toward Dead Indian Creek, which discharges to the Colorado Desert. Indio special sheet.

Ranchero Creek; Sonoma County; rises in the northern part of T. 10 N., R. 12 W., Mount Diablo base and meridian; flows in general southeastward 6 miles to its junction with Warm Springs Creek (tributary through Dry Creek to Russian River, which flows into the Pacific). Punnett's map of Sonoma County.

Rancheria Creek; Mendocino County; rises in the northern part of T. 11 N., R. 12 W., Mount Diablo base and meridian; flows northwestward to the southeastern part of T. 14 N., R. 15 W., where it turns abruptly and flows east and north to the western part of T. 14 N., R. 14 W., where it unites with Anderson and Indian Creeks to form Navarro River (tributary to the Pacific); length, about 25 miles; none of the numerous small tributaries are named on the map. Punnett's map of Mendocino County.

Ranchial Creek; Monterey and San Luis Obispo counties; rises in the eastern part of T. 23 S., R. 13 E., Mount Diablo base and meridian; flows southwestward into Estrella Creek (tributary to Salinas River, which discharges to the Pacific in Monterey Bay); length, about 15 miles. Land Office map of California, 1907.

Rancho Nuevo Creek; Santa Barbara and Ventura counties; rises in the Santa Barbara National Forest, 4 miles southwest of Cuyama Peak, at altitude 5,000 feet above sea level; flows southeastward about 5 miles, then north of east 6 miles into Cuyama River (Santa Maria River, which discharges to the Pacific); fall, 1,500 feet; principal tributaries, Bear and Tinta creeks. Santa Ynez and Mount Pinos sheets.

Rathbone Creek; San Bernardino County; rises in the southeastern part of T. 2 N., R. 1 E., San Bernardino base and meridian, 1 mile northwest of Sugarloaf Mountain, at altitude 8,500 feet above sea level; flows northwestward 5 miles into Bear Lake (outlet, Bear Creek to Santa Ana River, which discharges to the Pacific); fall, 1,700 feet. San Gorgonio sheet.

Rattlesnake Canyon Creek; Mission Canyon basin; Santa Barbara County; an intermittent stream, 3 miles long, rising in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 2,750 feet above sea level, and flowing southwestward into Mission Canyon Creek (which discharges to the Pacific) near Santa Barbara Mission. Santa Barbara special sheet.

Rattlesnake Canyon Creek; Mohave Desert; San Bernardino County; rises in the western part of T. 2 N., R. 3 E., San Bernardino base and meridian, in Round Valley, at altitude 6,800 feet above sea level; flows southeastward 2½ miles, then northerly to the edge of Mohave Desert; principal tributaries, intermittent streams draining the south slopes of Granite Peak and the north slopes of Tiptop Mountain; the waters sink above Mound Spring but reappear in the spring. San Gorgonio sheet.

Rattlesnake Canyon Creek; San Gabriel River basin; Los Angeles County; rises in the northeastern part of T. 2 N., R. 9 W., San Bernardino base and meridian, on the east slope of Rattlesnake Peak, at altitude 5,500 feet above sea level; flows southeastward into San Gabriel River (tributary to the Pacific); length, 1½ miles; fall, 3,300 feet. Rock Creek sheet.

Rattlesnake Canyon Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 2 miles long, rising in the eastern part of T. 9 N., R. 31 W., San Bernardino base and meridian, and flowing west of south into Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Rattlesnake Canyon Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 2 miles long, rising in the northwestern part of Sisquoc Rancho and flowing southeastward to Labrea Creek (tributary through Sisquoc River to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Rattlesnake Creek; Eel River basin; Lake County; rises in the northern part of T. 19 N., R. 10 W., Mount Diablo base and meridian, on the south slope of Mount Hull; flows southeastward 6 miles into Eel River (tributary to the Pacific). Punnett's map of Lake and Mendocino counties.

Rattlesnake Creek; Eel River basin; Mendocino County; rises in the southeastern part of T. 23 N., R. 15 W., Mount Diablo base and meridian, on the northwest slope of Iron Peak; flows southwestward 2 miles, then northwestward and westward 9 miles to its junction with South Fork of Eel River (tributary to Eel River, which flows to the Pacific); principal tributaries, Grapevine, Brush, and Foster creeks. Punnett's map of Mendocino County.

Rattlesnake Creek; Klamath River basin; Trinity County; rises in the western part of T. 29 N., R. 11 W., Mount Diablo base and meridian; flows north of west 4½ miles, then to the west and southwest 7 miles to its junction with the South Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); principal tributary, Post Creek. Punnett's map of Trinity County.

Rattlesnake Creek; Klamath River basin; Trinity County; rises in the northern part of T. 35 N., R. 11 W., Mount Diablo base and meridian; flows in general northeastward 3 miles, northwestward 4 miles, and southwestward 3 miles to the eastern part of T. 36 N., R. 12 W., where it enters North Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); distance between source and mouth in a straight line, only 4 miles. Punnett's map of Trinity County.

Rattlesnake Creek; Santa Margarita basin; San Diego County; western part of T. 9 S., R. 2 E., San Bernardino base and meridian; an eastward-flowing stream, about 2 miles long, discharging into the west side of Dodge Valley. Ramona sheet.

Ravenswood Slough; San Mateo County; in the tidal marsh at the southern end of San Francisco Bay. Palo Alto sheet.

Rawson Canyon Creek; Riverside County; an intermittent stream rising in the western part of T. 6 S., R. 1 W., San Bernardino base and meridian, and flowing southwestward; the drainage channel is continued below Rawson Canyon across Los Alamos Valley to Santa Gertrudis Creek (tributary to Santa Margarita River, which discharges to the Pacific). Elsinore sheet.

Rawson Creek; Inyo County; rises in the central part of T. 8 S., R. 32 E., Mount Diablo base and meridian, at altitude 9,500 feet above sea level; flows northeastward 7 miles to the edge of Owens Valley; fall, 5,500 feet. Bishop sheet.

Reading Creek; Trinity County; rises in the western part of T. 31 N., R. 8 W., Mount Diablo base and meridian, on the southwest slope of Bully Choop Mountain; flows southwestward 2½ miles, then northwestward 12 miles to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific) near Douglas City. Punnett's map of Trinity County.

Reasoner Canyon Creek; Ventura County; an intermittent stream, 3 miles long, rising in the southwestern part of T. 5 N., R. 18 W., San Bernardino base and meridian, and flowing eastward to Piru Creek (tributary to Santa Clara River, which discharges to the Pacific). Camulos sheet.

Rector Canyon Creek; Napa County; rises in the eastern part of T. 7 N., R. 4 W., Mount Diablo base and meridian, on the south slope of Atlas Peak, at altitude 2,000 feet above sea level; flows irregularly westward to its junction with Conn Creek (tributary to Napa River, which discharges to San Pablo Bay) 2 miles east of Oakville; intermittent. Napa sheet.

Red Cap Creek; Humboldt County; rises in the northeastern part of T. 8 N., R. 6 E., Humboldt base and meridian, on the west slope of Trinity Mountains; flows northwestward to its junction with Klamath River (tributary to the Pacific) in the central part of T. 10 N., R. 5 E.; length, about 14 miles. Punnett's map of Humboldt County.

Red Lake; Carson River basin; Alpine County; 1 mile southeast of Red Lake Peak; 1 inlet; outlet, a stream 3 miles long, flowing northeastward to West Fork of Carson River (tributary through Carson River to Carson Sink); altitude, 7,850 feet; fall of outlet, about 750 feet. Markleeville sheet.

Red Lake; Walker River basin; Mono County; southeastern part of T. 3 N., R. 24 E., Mount Diablo base and meridian; inlet, East Fork of Green Creek; outlet, East Fork Green Creek to Green Creek (tributary through Virginia Creek to East Walker River and thus to Walker River, which discharges to Walker Lake); altitude, about 8,700 feet above sea level; fall of outlet in the 1 mile above junction with West Fork, 400 feet; very small. Bridgeport sheet.

Red Mountain Creek; Eel River basin; Mendocino County; rises in the western part of T. 24 N., R. 16 W., Mount Diablo base and meridian, on the north slope of Red Mountain; flows northwestward 3 miles, then southwestward 3 miles into South Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Red Mountain Creek; Klamath River basin; Trinity County; rises in the northwestern part of T. 28 N., R. 11 W., Mount Diablo base and meridian; flows southwestward 3 miles into South Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Red Mountain Creek; Owens River basin; Inyo County; Inyo National Forest; rises on the east slope of the Sierra north of Cardinal Mountain, at altitude 12,500 feet above sea level; flows northeastward to its junction with Tinemaha Creek (tributary to Owens Valley); length, about 7 miles; fall, about 7,500 feet. Bishop sheet.

Red Reef Canyon Creek; Ventura County; rises in the northeastern part of T. 5 N., R. 21 W., San Bernardino base and meridian, on the north slope of Topatopa Mountains, at altitude 5,500 feet above sea level; flows northward into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific) at Ten Sycamore Flat; length, 2½ miles; fall, 2,900 feet. Mount Pinos sheet.

Redrock Canyon Creek; Santa Maria River basin; San Luis Obispo County; an intermittent stream, 2 miles long, rising in the southern part of T. 32 S., R. 19 E., Mount Diablo base and meridian, and flowing southward into Taylor

Canyon Creek (tributary to Cuyama River—Santa Maria River). McKittrick sheet.

Redrock Canyon Creek; Santa Ynez River basin; Santa Barbara County; an intermittent stream, 5 miles long, rising 2 miles west of Little Pine Mountain and flowing southwestward into Santa Ynez River (tributary to the Pacific). Santa Ynez sheet.

Red Rock Creek; Lassen County; rises in the northeastern part of the county; flows southeastward, southward, and southwestward; sinks at the eastern edge of the Madeline Plains; length, about 16 miles. Honey Lake sheet.

Red Rock Creek; Santa Clara River basin; Ventura County; an intermittent stream, 4 miles long, rising in the northwestern part of T. 5 N., R. 19 W., San Bernardino base and meridian, and flowing east of south into Tar Creek (tributary through Sespe Creek to Santa Clara River, which discharges to the Pacific). Tejon and Camulos sheets.

Redwood Creek; Eel River basin; Humboldt County; rises in the eastern part of T. 4 S., R. 2 E., Humboldt base and meridian; flows northeastward into South Fork of Eel River (tributary to Eel River, which discharges to the Pacific); length, 6 miles. Punnett's map of Humboldt County.

Redwood Creek; Humboldt County; rises in the southeastern part of T. 4 N., R. 4 E., Humboldt base and meridian; flows northwestward to the northwestern part of T. 10 N., R. 1 E., where it enters the Pacific; length, including major windings, about 50 miles. The basin is very narrow and only three tributaries—Minor, Lucky, and Prairie creeks—are named on the map. Gaging stations near Korbel (1911–12) and at Orick (1911–12). Punnett's map of Humboldt County.

Redwood Creek; San Leandro Creek basin; Alameda County; rises on the northern slope of Redwood Peak, in San Antonio Rancho, at altitude 1,150 feet above sea level; flows southeastward 5½ miles to its junction with San Leandro Creek, which discharges through San Leandro Bay into San Francisco Bay; fall, 800 feet. Concord sheet.

Redwood Creek; San Mateo County; a channel in the southern end of San Francisco Bay, extending northeastward from a point near Redwood. Haywards sheet.

Redwood Creek; Tenmile River basin; Mendocino County; rises in the northeastern part of T. 19 N., R. 16 W., Mount Diablo base and meridian; flows in general southwestward into the South Fork of Tenmile River (tributary through Tenmile River to the Pacific); length, 4 miles. Punnett's map of Mendocino County.

Reesley Valley Creek; Walnut Creek basin; Contra Costa County; rises in the southern part of Canada del Hambre Rancho, at altitude 1,000 feet above sea level; flows southeastward 3½ miles to its junction with the Lafayette Branch of Walnut Creek (tributary through Walnut Creek to Suisun Bay); fall, 775 feet. Concord sheet.

Release Canyon Creek; Monterey County; rises in the southern part of T. 20 S., R. 6 E., Mount Diablo base and meridian; flows northward to its junction with Arroyo Seco (tributary to Salinas River, which discharges to Monterey Bay); length, about 12 miles. Land Office map of California, 1907.

Reservoir Canyon Creek; San Luis Obispo County; rises on the western slope of the Santa Lucia Mountains 2 miles south of west of Piney Ridge; flows northwestward to San Luis Obispo Creek (tributary to the Pacific). San Luis Obispo sheet.

Respini Creek; Santa Cruz County; a stream about 2¼ miles long, rising in Arroyo de la Laguna Rancho and flowing southwestward into the Pacific. Santa Cruz sheet.

Resting Springs Dry Lake; Inyo County; near south base of Resting Springs Mountains; receives occasional flood waters from Amargosa River (q. v.). Water-Supply Paper U. S. Geol. Survey No. 224, 1909, pp. 14, 39–40, 41, and Pl. I.

Reversed Creek; Mono County; Mono National Forest; rises in the northeastern part of T. 2 S., R. 26 E., Mount Diablo base and meridian, in June Lake, at altitude 7,631 feet above sea level; flows irregularly southwestward 2½ miles, then northwestward half a mile into Rush Creek (tributary to Mono Lake) half a mile above the head of Silver Lake; fall, about 400 feet. Mount Lyell sheet.

Reyes Creek; Ventura County; rises in the northeastern part of T. 6 N., R. 23 W., San Bernardino base and meridian, on the northeast slope of Reyes Peak, Pine Mountain, at altitude 6,500 feet above sea level; flows northwestward to Cuyama River (Santa Maria River, which discharges to the Pacific); length, about 6 miles; fall, 2,800 feet. Mount Pinos sheet.

Rhett Lake; Modoc and Siskiyou counties, Cal., and Klamath County, Oreg.; no outlet; principal inflowing stream, Lost River; water fresh; lake navigable, but used for navigation only to slight extent; altitude, about 4,000 feet above sea level (4,143 feet in 1884–85); marshy at upper end; Lost River, which supplies Rhett Lake, was formerly connected by slough with Klamath River. The lake is about 12 miles long and 12 miles wide and maintains an area of 90,000 acres.

Authorities: Klamath and Modoc Lava Bed sheets; Water-Supply Paper U. S. Geol. Survey No. 146, 1905, pp. 98–99. See also annual reports of United States Reclamation Service.

Rice Canyon Creek; Santa Clara River basin; Los Angeles County; an intermittent stream rising in the central part of T. 3 N., R. 16 W., San Bernardino base and meridian, and flowing northeastward to East Canyon Creek, which discharges through Gavin Canyon Creek to Wiley Canyon Creek (tributary to the valley between Placerita and Pico Canyon creeks). Santa Susana sheet.

Rice Canyon Creek; Ventura River basin; Ventura County; an intermittent stream, 1½ miles long, rising in the southwestern part of T. 5 N., R. 23 W., San Bernardino base and meridian, and flowing southeastward to Ventura River (tributary to the Pacific) in Ojai Valley. Ventura sheet.

Rice Creek; Lake County; rises in the southwestern part of T. 18 N., R. 8 W., Mount Diablo base and meridian; takes a general southwesterly course to its junction with Rice Fork of Eel River (tributary to Eel River, which discharges to the Pacific); length, about 8 miles. Punnett's map of Lake and Mendocino counties.

Rice Fork of Eel River; Lake County; rises in the northern part of T. 16 N., R. 8 W., Mount Diablo base and meridian; flows northwestward to its junction with Eel River (tributary to the Pacific); length, 16 miles; principal tributaries, Bear and Rice creeks. Punnett's map of Lake and Mendocino counties.

Richter Creek; Inyo County; Sequoia National Forest; rises on the east slope of the Sierra 3 miles southeast of Mount Langley at altitude 11,000 feet above sea level; flows northeastward to the edge of Owens Valley about 2 miles northwest of Owens Lake, where its waters sink; length, about 9 miles; fall, about 7,200 feet. Mount Whitney sheet.

Riggs Wash; San Bernardino County; T. 16 N., Rs. 9 and 10 E., San Bernardino base and meridian; a desert drainage way. Ivanpah sheet.

Rincon Creek; Ventura and Santa Barbara counties; rises in Ventura County, in the southwestern part of T. 5 N., R. 24 W., on the south slope of Santa Ynez Mountains, at altitude 4,500 feet above sea level; flows west of south to Rincon

Point, where it enters the Pacific; length, about 9 miles; principal tributaries. East Fork, Sulphur, Laguna, and Casitas creeks. Ventura sheet.

Rincon Creek, East Fork; Ventura County; an intermittent stream, 1½ miles long, rising in the western part of T. 4 N., R. 24 W., San Bernardino base and meridian, and flowing north of west into Rincon Creek (tributary to the Pacific). Ventura sheet.

Rio Hondo; Los Angeles County; rises southeast of Pasadena; flows southeastward to Paso de Bartolo, then southwestward into Los Angeles River (tributary to the Pacific) 3 miles southwest of Downey. Downey sheet; described by Wm. Ham. Hall in Irrigation in California [southern], p. 375, as belonging to the San Gabriel system and evidently receiving the percolation drainage from the western portion of the San Gabriel interior valley.

Ritchie Creek; San Diego County; rises in the central part of T. 13 S., R. 3 E., San Bernardino base and meridian, at altitude of 3,700 feet above sea level; flows southwestward 5 miles into San Diego River (tributary to the Pacific through False Bay); intermittent; fall, 2,450 feet. Ramona sheet.

Roach Creek; Humboldt County; rises in the northern part of T. 9 N., R. 2 E., Humboldt base and meridian; flows southeastward 1 mile, then northeastward 8 miles to its junction with Klamath River (tributary to the Pacific) Punnett's map of Trinity County.

Roaring River Slough; Solano County; in the tidal marsh on the north side of Suisun Bay, between Hammond and Wheeler islands. Antioch sheet.

Robber Creek; San Diego County; rises in the southeastern part of T. 8 S., R. 5 W., San Bernardino base and meridian, at altitude 2,300 feet above sea level; flows southeastward about 6½ miles into Deluz Creek, (tributary to Santa Margarita River, which discharges to the Pacific). San Luis Rey sheet.

Robert Crane Creek; Sonoma County; rises in the eastern part of T. 6 N., R. 7 W., Mount Diablo base and meridian; flows westward 8 miles to the head of Laguna de Santa Rosa through which it flows to Santa Rosa Creek, Russian River and the Pacific. Punnett's map of Sonoma County. Called Mill Creek on Land Office map of California, 1907.

Roberts Canyon Creek; Los Angeles County; rises in the eastern part of T. 2 N., R. 9 W., San Bernardino base and meridian, at altitude 2,750 feet above sea level; flows west of south into San Gabriel River (tributary to the Pacific); length, 1 mile; fall, 1,050 feet; intermittent. Pomona sheet.

Robinson Creek; Russian River basin; Mendocino County; rises in the southwestern part of T. 15 N., R. 13 W., Mount Diablo base and meridian; flows southeastward 5 miles, then in general somewhat north of east 5 miles to its junction with Russian River (tributary to the Pacific) near El Roble. Punnett's map of Mendocino County.

Robinson Creek; Walker River basin; Mono County; rises in the central part of T. 3 N., R. 23 E., Mount Diablo base and meridian, in Snow Lake, at altitude 10,150 feet above sea level; takes a general northeasterly course to its junction with East Walker River (tributary through Walker River to Walker Lake) near Bridgeport; length, about 22 miles; fall, 3,680 feet, of which 3,050 feet is made above Twin Lakes, through which the creek passes. Gaging station near Bridgeport (1910–1912). Bridgeport sheet.

Roble Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest, 2 miles northwest of Strawberry Peak, at altitude 5,300 feet above sea level; flows east of south 7 miles into Mono Creek (tributary to Santa Ynez River, which discharges to the Pacific); fall, 2,800 feet; Santa Ynez sheet.

Rock Canyon Creek; Riverside County; an intermittent stream, about 2 miles long, flowing northwestward toward the valley of Palm Canyon Creek, which discharges to the Colorado desert. Indio special sheet.

Rock Creek; Eel River basin; Mendocino County; rises in the northwestern part of T. 21 N., R. 15 W., Mount Diablo base and meridian; flows south of west about 3½ miles into South Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Rock Creek; Klamath River basin; Klamath County, Oreg.; rises in the western part of the county; flows south of east into the western channel connecting Cherry Creek with Sevenmile Creek (tributary to Upper Klamath Lake and thus to Klamath River, which discharges to the Pacific); length, 7 miles. Ashland sheet.

Rock Creek; Klamath River basin; Siskiyou County; rises in the northern part of T. 13 N., R. 4 E., Humboldt base and meridian; flows eastward 8 miles, then in general southeastward 4 miles to its junction with Klamath River (tributary to the Pacific) near Healds. Punnett's map of Siskiyou County.

Rock Creek; Owens River basin; Inyo County; Inyo National Forest; rises on the east slope of the Sierra north of the Bear Spine, at altitude 12,200 feet above sea level; flows east of north into the southern part of Mono County, then turns and flows east and southeast to its junction with Owens River in the north-central part of T. 6 S., R. 31 E., Mount Diablo base and meridian; more than 20 miles long; fall, about 7,700 feet; principal tributary, East Fork; upper part of basin contains many small lakes. Gaging station near Round Valley (1903–1912). Mount Goddard sheet.

Rock Creek; Rhett Lake basin; Modoc County; rises in the extreme northern part of the county; takes a general westerly course; sinks before reaching Lost River (tributary to Rhett Lake); length, about 8 miles; intermittent. Alturas and Modoc Lava Bed sheets.

Rock Creek; Walker River basin; Mono County; rises in the northwestern part of T. 7 N., R. 24 E., Mount Diablo base and meridian, at altitude 9,000 feet above sea level; flows west of north 2½ miles, then westward 4½ miles to its junction with West Walker River (tributary to Walker River, which discharges to Walker Lake); fall, 3,500 feet; principal tributary, South Fork; middle course lies through Ross Canyon. Bridgeport and Wellington sheets.

Rock Creek; Smith River basin; Del Norte County; rises in the central part of T. 17 N., R. 1 E., Humboldt base and meridian, flows southward 3 miles into Smith River (tributary to the Pacific). Punnett's map of Del Norte County.

Rock Creek; Smith River basin; Del Norte County; rises in the southeastern part of T. 15 N., R. 1 E.; Humboldt base and meridian; flows somewhat east of north 7 miles into South Fork of Smith River (tributary to Smith River, which flows to the Pacific). Punnett's map of Del Norte County.

Rock Creek; Antelope Valley; Los Angeles County; rises in the rugged region north of North Baldy, at altitude 6,500 feet above sea level; flows northwestward past Shoemaker's ranch to the northwest corner of T. 4 N., R. 9 W., San Bernardino base and meridian, where it turns northward to the gravelly margin of Antelope Valley; breaks into several distributaries, which diverge from the apex of the alluvial fan built up by the stream itself; drainage area, 52 square miles. The more or less constant flow of Rock Creek is utilized by irrigation canals that extend for some distance east and west from the mouth of the canyon. Rock Creek sheet; Water-Supply Paper U. S. Geol. Survey No. 278, 1911, pp. 12, 33, and Pl. VI.

Rock Creek, East Fork; Owens River basin; Inyo County; Inyo National Forest; rises 1 mile east of Mount Morgan at altitude 12,200 feet above sea

level; flows northeastward 2 miles, then northwestward 3 miles into Rock Creek (tributary to Owens River); fall, 2,900 feet; the basin contains many small lakes. Mount Goddard sheet.

Rock Creek Lake; Inyo County; Inyo National Forest; at lower end of Little Lakes Valley; inlet and outlet, Rock Creek, which flows through the lake to its junction with Owens River; altitude, 9,727 feet. Mount Goddard sheet.

Rock Creek, Little; Antelope Valley; Los Angeles County; rises in the mountainous country in T. 3 N., R. 10 W., San Bernardino base and meridian; flows northwestward and enters Antelope Valley near Little Rock in the northeast quarter of T. 5 N., R. 11 W.; drainage area, 78 square miles. The channel of this creek in Antelope Valley is better preserved than that of any of the other streams and is traceable to a point nearly 7 miles east of Lancaster. Here, however, it begins to lose its character and is not easily followed farther toward Rosamond dry lake. The waters of this stream are used to irrigate lands near the settlement of Little Rock. Gaging station near Palmdale (1896–1899). Rock Creek and Tujunga sheets; Water-Supply Paper U. S. Geol. Survey No. 278, 1911, pp. 12, 33–35, and Pl. VI.

Rock Creek, South Fork; Antelope Valley; Los Angeles County; heads in the region immediately north of Mount Islip, at altitude fully 8,000 feet above sea level; flows northward to its junction with Rock Creek. Rock Creek sheet; Water-Supply Paper U. S. Geol. Survey No. 278, 1911, p. 12; Land Office map of California, 1907.

Rock Creek, South Fork; Walker River basin; Mono County; rises in the northwestern part of T. 7 N., R 24 E., Mount Diablo base and meridian, 1 mile west of the head of the main fork, at altitude 8,500 feet above sea level; flows northwestward into Rock Creek (tributary through West Walker River to Walker River, which discharges to Walker Lake) at the lower end of Ross Canyon; length, about 4 miles; fall, 2,500 feet. Bridgeport and Wellington sheets.

Rockhouse Canyon Creek; Riverside and San Diego counties; an intermittent stream rising on the south slope of Santa Rosa Mountains and flowing southeastward toward Clark Lake; length above the mouth of the canyon, 10 miles. Indio special sheet.

Rock Pile Creek; Mendocino and Sonoma Counties; rises in the southeastern part of T. 12 N., R. 13 W., Mount Diablo base and meridian; flows very irregularly southwestward into Gualala River (tributary to the Pacific); length, including major windings, 16 miles. Punnett's map of Mendocino and Sonoma counties.

Rock Spring Canyon Creek; Mono County; rises in the southern part of T. 6 N., R. 26 E., Mount Diablo base and meridian, at altitude 8,500 feet above sea level; flows southwestward 3 miles, then north of west 3 miles; intermittent; sinks before reaching East Walker River (tributary to Walker River, which discharges to Walker Lake) to which its basin is tributary; fall, 2,000 feet. Bridgeport sheet.

Rock Spring Creek; San Benito County; rises in southwestern part of T. 16 S., R. 10 E., Mount Diablo base and meridian; flows southwestward into San Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay); length, about 6 miles. Land Office map of California, 1907.

Rocky Glen Creek; Humboldt County; rises in the east-central part of T. 3 S., R. 4 E., Humboldt base and meridian; flows westward into South Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Rocky Gulch Creek; Siskiyou County; rises in the southeastern part of T. 47 N., R. 7 W., Mount Diablo base and meridian; flows somewhat north of

east 3 miles to its junction with Cottonwood Creek (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Roden Canyon Creek; San Diego County; rises in the northern part of T. 12 S., R. 1 E., San Bernardino base and meridian, at altitude 1,800 feet above sea level; flows southward 5 miles into Santa Ysabel Creek (San Dieguito River, which discharges to the Pacific) 3 miles east of the head of San Pasqual Valley; intermittent; fall, 1,000 feet. Ramona sheet.

Rodeo Creek; Contra Costa County; rises in Pinole Rancho, on the west slope of Franklin Ridge, at altitude 800 feet above sea level; flows northwestward to Lost Tree Point, where it enters San Pablo Bay; length, about 7 miles. Concord, Carquinez, and Napa sheets.

Rodeo Lagoon; extreme southwestern part of Marin County on the Marin-Sausalito peninsula; connected with the ocean by a short channel; receives 2 unnamed tributaries. Tamalpais sheet.

Rodriguez Dry Lake; Kern County; Tps. 9 and 10 N., Rs. 9 and 10 W., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I, pp. 64–65.

Rogers Canyon Creek; Los Angeles County; rises in the southern part of T. 2 N., R. 10 W., San Bernardino base and meridian, at altitude 3,250 feet above sea level; flows in general somewhat east of south 5 miles to San Gabriel River (tributary to the Pacific) near the head of San Gabriel Wash; fall, 2,500 feet; intermittent. Pomona sheet.

Rogers Dry Lake; Kern County; Tps. 8, 9 and 10 N., Rs. 9 and 10 W., San Bernardino base and meridian; contains water only during or immediately after heavy storms. At other times its bed is a smooth hard surface extending for many miles. Water-Supply Paper U. S. Geol. Survey No. 278, 1911, p. 14 and Pl. VI.

Romero Canyon Creek; Santa Barbara County. *See* Arroyo de las Ortegas.

Rosario Creek; San Benito County; rises in the western part of T. 14 S., R. 8 E., Mount Diablo base and meridian, south of Cerro del Venado; flows southward 3 miles, then to the west and northwest about 18 miles to its junction with San Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay) 4 miles south of Hollister; principal tributaries, Pinos, Salt and Tosquin creeks. Land Office map of California, 1907.

Rose Canyon Creek; San Diego County; rises in the northern part of T. 15 S., R. 2 W., San Bernardino base and meridian, at altitude 700 feet above sea level; flows southwestward about 10 miles, then southeastward 3½ miles, and again southwestward 1½ miles to False Bay (through which it reaches the Pacific) 1 mile northeast of Bay Point; intermittent; length, about 15 miles; principal tributary, San Clemente Canyon Creek. La Jolla sheet.

Rose Valley Creek; Santa Clara River basin; Ventura County; rises in the central part of T. 5 N., R. 22 W., San Bernardino base and meridian; flows northwestward into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); length, about 3 miles; tributary, Howard Creek. Mount Pinos sheet.

Rosamond Dry Lake; Kern and Los Angeles counties; Tps. 8 and 9 N., Rs. 11 and 12 W.; contains water only during the hardest storms; at other times its bed forms a smooth, hard surface covering a number of square miles. Water-Supply Paper U. S. Geol. Survey No. 278, 1911, p. 14 and Pl. VI.

Rough Creek; California-Nevada; rises in Mono County, in the northeastern part of T. 4 N., R. 26 E., Mount Diablo base and meridian, on the east slope of Potato Peak, at altitude 9,400 feet above sea level; flows northeastward 14 miles, then northwestward 7 miles to its junction with East Walker River (tributary to Walker River, which discharges to Walker Lake) in Mineral

County, Nev.; fall, 3,800 feet; principal tributary, Bodie Creek. Bridgeport and Hawthorne sheets.

Round Corral Canyon Creek; Santa Barbara County; an intermittent stream, about 1 mile long, rising in the southern part of Sisquoc Rancho and flowing northward to Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Round Lake; Klamath County, Oreg.; 6 miles south of Upper Klamath Lake and 5 miles north of Keno; no outlet shown on the map, but the contours indicate a pass westward and southward to Klamath River (tributary to the Pacific). Klamath sheet.

Round Spring Canyon Creek; Santa Maria River basin; Ventura County; an intermittent stream, 7 miles long, rising in the Santa Barbara National Forest in the southeastern part of T. 8 N., R. 23 W., San Bernardino base and meridian, and flowing southwestward to Cuyama River (Santa Maria River, which discharges to the Pacific). Mount Pinos sheet.

Round Valley Creek; Mendocino County; rises in the southern part of T. 24 N., R. 13 W., Mount Diablo base and meridian, in the Round Valley Indian Reservation; flows southeastward 16 miles to its junction with Middle Fork of Eel River (tributary to Eel River, which discharges to the Pacific); principal tributary, Williams Creek. Punnett's map of Mendocino County.

Rowdy Creek; Del Norte County; rises in the southeastern part of T. 19 N., R. 1 E., Humboldt base and meridian; flows southwestward 11 miles to its junction with Smith River (tributary to the Pacific) in the southern part of T. 18 N., R. 1 W. Punnett's map of Del Norte County.

Ruby Canyon Creek; Santa Clara River basin; Los Angeles County; an intermittent stream rising in the western part of T. 6 N., R. 15 W., San Bernardino base and meridian, northeast of Red Mountain, and flowing westerly into Elizabeth Lake Canyon Creek (tributary through Castac Creek to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Rush Creek; Klamath River basin; Trinity County; rises in the southern part of T. 35 N., R. 10 W., Mount Diablo base and meridian, at altitude 5,200 feet above sea level; flows southeastward to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific); length, 12 miles; fall, about 3,500 feet. Red Bluff sheet.

Rush Creek; Mono Lake basin; Mono County; Mono National Forest; rises on the east slope of Mount Lyell (altitude. 13,090 feet); flows in general northeastward into Mono Lake; to the south, on the opposite side of the Sierra, are the headwaters of the North and Middle forks of the San Joaquin; west and north are the headwaters of Merced and Tuolumne rivers. The creek is fed by melting snow in hundreds of rock-inclosed tarns high up on the eastern slope of the Sierra between Mount Lyell and Mount Dana. Lakes are numerous in the basin, the most important being Marie, Gem, Silver, Gull, June, Alger, and Grant; principal tributaries, Reversed, Parker, and Walker creeks; the creek is about 22 miles long and its total fall is about 5,100 feet; in a distance of less than half a mile above the mouth of Reversed Creek there is a total fall of 1,100 feet; the drainage area above is small but storage could be developed in Gem Lake.

The rocks throughout the basin are chiefly granites and blue schist; the soil is composed of volcanic ash and sand and requires a large amount of water for irrigation. As the altitude of the tillable area is 6,500 to 7,000 feet above sea level the growing season is short and the crops are restricted to the hardier grains and hay. The forest is thin and contains only a small amount of merchantable timber, chiefly yellow pine. The uncultivated valley land is covered with sagebrush.

Gaging station near Mono Lake (1910–1912).

Authorities: Water-Supply Paper U. S. Geol. Survey No. 290, 1912, pp. 147–148; Mount Lyell sheet.

Rush Creek, North Fork; Mono Lake basin; Mono County; Mono National Forest; rises on the south slope of Koip Peak, at altitude 11,500 feet above sea level; flows southeastward about 5 miles and joins Rush Creek (tributary to Mono Lake) in Silver Lake; fall, about 4,300 feet. Mount Lyell sheet.

Russian Creek; Siskiyou County; rises in the southern part of T. 41 N., R. 10 W., Mount Diablo base and meridian, on the west slope of Salmon Mountains; flows northwestward 2 miles, then in general southwestward 6 miles to its junction with the North Fork of Salmon River (tributary through Salmon River to Klamath River, which flows to the Pacific); principal tributary, Taylor Creek. Punnett's map of Siskiyou County.

Russian Creek, South Fork; Siskiyou County; rises in the northeastern part of T. 39 N., R. 10 W., Mount Diablo base and meridian; flows west of north 4 miles, then westward 4 miles into North Fork of Salmon River (tributary through Salmon River to Klamath River, which discharges to the Pacific). Punnett's map of Siskiyou County.

Russian Gulch Creek; Mendocino County; rises in the eastern part of T. 17 N., R. 17 W., Mount Diablo base and meridian, on the southwestern slope of Great Caspar Mountain; flows westward into the Pacific; length, 4 miles. Punnett's map of Mendocino County.

Russian Gulch Creek; Sonoma County; rises in the eastern part of Muniz Rancho; flows southwestward 2½ miles; enters the Pacific 3 miles northwest of the mouth of Markham Creek. Punnett's map of Sonoma County.

Russian River; Mendocino and Sonoma counties; rises in Mendocino County on the west slope of the Coast Range in the southwestern part of T. 18 N., R. 12 W.; Mount Diablo base and meridian; flows in general somewhat east of south to its junction with Santa Rosa Creek in Molino Rancho, where it turns to the west and enters the canyon through which it flows to the Pacific Ocean; length of the main river, including major windings, about 100 miles; principal tributaries, East Fork, Big Sulphur, Dry, Santa Rosa, and Austin creeks, all very small except during the rainy season.

Russian River valley in Sonoma County is fertile and well cultivated. The climate is very equable throughout the year and fruit raising is the important industry. As climate and soil are especially favorable for growing grapes, the valley has become one of the most important wine producing districts in California.

Gaging stations at Ukiah (1911–12) and Geyserville (1910–1912).

Punnett's map of Mendocino and Sonoma counties; Water-Supply Paper U. S. Geol. Survey No. 291, 1912, p. 174.

Russian River, East Fork; Mendocino County; rises on the west slope of the Coast Range in the southern part of T. 18 N., R. 12 W.; flows in general southeastward 6 miles, southward 5 miles, then southwestward 9 miles to its junction with Russian River (tributary to the Pacific) in Yokayo Rancho; principal tributaries, Alder and Cold creeks. Gaging station near Ukiah (1911–12). Punnett's map of Mendocino County.

Rustic Canyon Creek; Los Angeles County; an intermittent stream, about 8 miles long, draining a small area in the Santa Monica Mountains, and flowing in general southerly to Santa Monica Canyon (which discharges to the Pacific in Santa Monica Bay) near Santa Monica. Calabasas sheet.

Ryans Creek; Humboldt County; rises in the west-central part of T. 4 N., R. 1 E., Humboldt base and meridian; flows northwestward about 3 miles, then

somewhat east of north 5 miles; discharges into Humboldt Bay through Freshwater Slough. Punnett's map of Humboldt County.

Sacate Canyon Creek; Santa Barbara County; an intermittent stream, 1½ miles long, flowing southward and entering the Pacific just west of Sacate. Lompoc sheet.

Saddlebag Lake; Mono County; Tps. 1 and 2 N., Rs. 24 and 25 E.; inlet, Leevining Creek, which flows through the lake and discharges into Mono Lake; altitude, 10,051 feet. The lake is about 1½ miles long and nearly half a mile wide. Mount Lyell sheet.

Sage Canyon Creek; Napa County; rises in the central part of T. 8 N., R. 4 W., Mount Diablo base and meridian; flows southeastward 2 miles, then south of west 6 miles into Conn Creek (tributary through Napa River to San Pablo Bay). Napa sheet; Punnett's map of Napa County.

Sage Hen Creek; Nevada County; rises in the north-central part of T. 18 N., R. 15 E., Mount Diablo base and meridian, at altitude 8,500 feet above sea level; takes a general northeasterly course to its junction with Little Truckee River (tributary through Truckee River to Pyramid and Winnemucca lakes) in Stampede Valley; length, 12 miles; fall, 2,700 feet. Truckee sheet.

Salinas River; San Luis Obispo and Monterey counties; rises on the east slope of the Santa Lucia Mountains in San Luis Obispo County; flows northwestward parallel to the coast and enters the Pacific in Monterey Bay, about 4 miles south of Castroville. The basin lies almost wholly in Monterey and San Luis Obispo counties, and its area comprises about 4,780 square miles, being 150 miles long (northwest-southeast), and about 45 miles in maximum width.

Topographically it is a long narrow valley, walled in by steep mountain slopes which have been greatly eroded and dissected by stream action. At the north end of the basin are the Gabilan Range and the Sierra de Salinas, separating it from the San Benito basin at the east and from the basin of Carmelo River on the west. For the rest of its length it is flanked on the west by parallel ridges and on the southeast by a broad mesa or elevated plain. The crests of the encircling mountains range in altitude from 2,500 to 4,000 feet above sea level.

The river has many tributaries, the most important of which are, from south to north, Estrella and San Lorenzo from the east, Nacimiento Creek, San Antonio River, and Arroyo Seco from the west. The tributaries from the west are peculiar in that they lie west of secondary ranges parallel to the main range and flow southeastward for the greater part of their length in a course parallel to but directly opposite the general course of the Salinas. The streams of the basin are torrential and erratic, particularly the Salinas itself, which has a very heavy discharge in winter and ordinarily no surface run-off in summer except below Soledad.

The mean annual precipitation is about 10 inches in the Salinas Valley, and increases with the increase in altitude on the slopes. It is undoubtedly greatest on the west slope of the basin, where it probably ranges from 30 to 50 inches on the higher elevations and occurs almost entirely as rain.

The higher parts of the western slopes support considerable timber, most of which is included in a national forest reserve. The eastern slopes are covered by grass, brush, and scrubby timber, and in the valley are a few scattered trees.

The basin contains several storage sites of more or less value, some of which have already been surveyed.

Gaging station near Salinas (1900–1901).

Authorities: Water-Supply Paper U. S. Geol. Survey No. 271, 1911, pp. 112–113; Land Office map of California, 1907; San Luis Obispo sheet.

Salisbury Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest, at altitude 4,700 feet above sea level; flows northward across T. 9 N., R. 26 W., San Bernardino base and meridian, to Cuyama Valley (drained by Cuyama River, which discharges to the Pacific); intermittent; length above the edge of the valley, about 7 miles, in which distance the fall is 2,200 feet; tributary, Sulphur Spring Canyon Creek. Santa Yuez sheet.

Salmon Creek; Eel River basin; Humboldt County; rises in the southwestern part of T. 2 S., R. 2 E., Humboldt base and meridian; flows southeastward 6 miles, then northeastward 3 miles into South Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Salmon Creek; Eel River basin; Lake County; rises in the central part of T. 19 N., R. 11 W., Mount Diablo base and meridian; flows northeastward 2 miles, then southeastward 8 miles to its junction with Eel River (tributary to the Pacific). Punnett's map of Lake and Mendocino counties.

Salmon Creek; Humboldt County; rises in the central part of T. 3. N., R. 1 E., Humboldt base and meridian; flows north of west 9 miles, then somewhat west of north about 4 miles to the western part of T. 4 N., R. 1 W., where it enters the south end of Humboldt Bay; marshy in lower course. Punnett's map of Humboldt County.

Salmon Creek; Mendocino County; rises in the southern part of T. 16 N., R. 16 W., Mount Diablo base and meridian; flows in general westward, and enters the Pacific at Whitesboro; length, about 8 miles. Punnett's map of Mendocino County.

Salmon Creek; Sonoma County; rises in the northwestern part of T. 6 N., R. 9 W., Mount Diablo base and meridian; takes a general westerly course to the point at which it enters the Pacific near Johnsons Port; length, about 10 miles; principal tributaries, Nolan, Fay, and Colemans creeks. Punnett's map of Sonoma County.

Salmon River; Siskiyou County; rises in the southern part of T. 39 N., R. 9 W., Mount Diablo base and meridian; flows northwestward, westward, and southwestward to the southern part of T. 38 N., R. 11 W., whence its general course is northwestward to its junction with Klamath River (tributary to the Pacific) near Somesbar; length, including major windings, 46 miles; principal tributary, North Fork; other tributaries, Cecil, Crawford, Plummer, Matthews, Black Bear, Graham Gulch, Methodist, Niggerville Gulch, Knownothing, Horns, Crapo, Nordheumer, Moorehouse, Butler, Wolley, Oak Bottom, and Merrill creeks. Punnett's map of Siskiyou County. Gaging station near Somesbar (1911–12).

Salmon River, Little North Fork; Siskiyou County; rises in the central part of T. 40 N., R. 11 W., Mount Diablo base and meridian, on Tanner Peak, about half a mile west of the head of the North Fork; flows west of north 3 miles, westward 2 miles, then southward 5 miles to its junction with North Fork of Salmon (tributary through Salmon River to Klamath River, which discharges to the Pacific); the distance between the source and mouth of this fork is but little more than 3 miles; following the windings of the stream the distance is about 11 miles. Punnett's map of Siskiyou County.

Salmon River, North Fork; Siskiyou County; rises in the northern part of T. 40 N., R. 11 W., Mount Diablo base and meridian, on Tanner Peak; flows in general somewhat west of north 9 miles, then turns abruptly to the east, southeast, and west of south to the southeastern part of T. 40 N., R. 11 W., where its

general course becomes northwestward for 7 miles. In the western part of T. 40 N., R. 12 W., it turns again to the southwest and continues to flow in this direction to Forks of Salmon where it unites with the Salmon (tributary to Klamath River, which flows to the Pacific); length, including major windings, about 40 miles, although the distance between the source of the river and its mouth, measured in a straight line, is only about 13 miles; the principal tributaries of this fork are Russian, White Gulch, Eddys and Jackson creeks, and Little North Fork of Salmon. Punnett's map of Siskiyou County.

Salmon River, South Fork. *See* Salmon River.

Salsipuedes Creek; Santa Barbara County; rises on the north slope of Santa Ynez Mountains, in San Julian Rancho, at altitude 500 feet above sea level; flows west of north 7 miles into Santa Ynez River (tributary to the Pacific); fall, about 400 feet; principal tributary, El Jaro Creek. Lompoc sheet.

Salt Canyon Creek; Los Angeles and Ventura counties; rises in Los Angeles County, in the northeastern part of T. 3 N., R. 17 W., San Bernardino base and meridian, on the north slope of the Santa Susana Mountains and flows northwestward into Santa Clara River (tributary to the Pacific); length, about 5½ miles; intermittent. Santa Susana sheet.

Salt Creek; Eel River basin; Trinity County; rises in the eastern part of T. 5 S., R. 7 E., Humboldt base and meridian; takes a general northerly course to its junction with North Fork Eel River (tributary to Eel River, which flows to the Pacific); length, 8 miles. Punnett's map of Trinity County.

Salt Creek; Klamath River basin; Trinity County; rises in the northern part of T. 29 N., R. 11 W., Mount Diablo base and meridian; takes a general northwesterly course to its junction with Hayfork River (tributary through South Fork of Trinity River to Trinity River and thus to Klamath River, which discharges to the Pacific); length, 14 miles. Punnett's map of Trinity County.

Salt Creek; Pajaro River basin; San Benito County; rises in the northern part of T. 16 S., R. 8 E., Mount Diablo base and meridian; flows west of north 6 miles into Rosario Creek, through which it is tributary to San Benito River (Pajaro River, tributary to the Pacific in Monterey Bay); length, about 7 miles. Land Office map of California, 1907.

Salt Creek; Santa Clara River basin; Los Angeles County; an intermittent stream, 5 miles long, rising in the northwestern part of T. 7 N., R. 17 W., San Bernardino base and meridian, and flowing east of south into Castac Creek (tributary to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Salt Marsh Canyon Creek; Ventura County; an intermittent stream, 2 miles long rising on the south slope of Sulphur Mountain, in Ex Mission San Buenaventura Rancho and flowing southeastward into Adams Canyon Creek (tributary to Santa Clara River, which discharges to the Pacific). Santa Paula sheet.

Salton Sea; Riverside and Imperial counties; about 160 miles southeast of Los Angeles, 90 miles northwest of Yuma, and 50 miles north of Calexico; longer diameter trends northwest and southeast.

During the high water of the summer of 1891 the Colorado River overflowed into Salton Sink to such an extent as to endanger the Southern Pacific Railroad tracks. In the summer of 1905, after a succession of winter and spring floods in Gila River, followed by an exceptionally heavy summer flow in the Colorado, the flood into the sink was repeated on a much larger scale. The old river channel occupied by Alamo River was transformed into a deep winding gorge and another channel, now called New River, was formed. Notwithstanding all attempts to control it, the Colorado continued to pour its waters through Alamo

and New Rivers into Salton Sea until the early fall of 1906, when it was finally shut off by the Southern Pacific Co. The river broke through again on December 7 of the same year but was closed about two months later. Since that time the area of the sea has been gradually decreasing by evaporation.

This closure proved not to be permanent, and the railroad and United States Government engineers have since been endeavoring to prevent further access of the Colorado to Salton Sink. Accounts of these operations have been published in the Transactions of the American Society of Civil Engineers, in the Engineering News, and in other engineering publications.

On December 31, 1908, the surface of the sea was 206 feet below mean sea level, its length was nearly 45 miles, its maximum width was 15 miles, minimum width, 9.5 miles, maximum depth, 67.5 feet, and superficial area about 443 square miles.

Practically all the water received by Salton Sea enters through Alamo and New rivers, but chiefly through the former. These rivers run through Imperial Valley and are the drainage channels for the excess and waste waters from irrigation systems.

Gaging station near Salton (1904–1912).

Authorities: Land Office map of California, 1907; Water-Supply Paper U. S. Geol. Survey No. 251, 1910, pp. 38–43. *See also* Mendenhall, W. C., Ground waters of the Indio region, California, with a sketch of the Colorado Desert: Water-Supply Paper No. 225, 1909.

Saltos Canyon Creek; San Luis Obispo County; an intermittent stream, 5 miles long, rising in the northeastern part of T. 32 S., R. 19 E., Mount Diablo base and meridian, and flowing southwestward to Carrizo Canyon, through which it is tributary to Cuyama River (Santa Maria River, which discharges to the Pacific). McKittrick sheet.

Salt Pond; Los Angeles County; just north of Redondo; separated from the Pacific by a sand bar. Redondo sheet.

Salt River; Humboldt County; one of the channels through which Eel River discharges to the Pacific; it leaves the main channel in the southern part of T. 3 N., R. 1 W., Humboldt base and meridian, winds westward, and rejoins the river at its mouth. Punnett's map of Humboldt County.

Salt Valley Creek; San Mateo County; an intermittent stream, about 1½ miles long, rising on the north slope of Sweeney Ridge in San Pedro Rancho and flowing westward toward Laguna Salada, a brackish-water lagoon separated from the Pacific by a narrow sand bar. San Mateo sheet.

Salt Well Dry Lake; San Bernardino County; just west of south end of Searles Lake, in T. 26 S., Rs. 41 and 42 E., Mount Diablo base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Samuel Creek; Santa Cruz County; rises in the northeastern part of T. 10 S., R. 1 E., Mount Diablo base and meridian; flows southwestward, and enters the Pacific in Monterey Bay, a short distance northeast of Samuel Point; length, about 15 miles. Land Office map of California, 1907.

San Andreas Lake; San Mateo County; a long, narrow lake, 2½ miles by one-quarter mile, lying in structural depression west of the Buriburi Ridge and east of Sweeney and Sawyer ridges; shown on the map (San Mateo sheet) without outlet, but a drainage channel extends southeastward from the lake to Crystal Springs Lake; altitude, 445 feet. San Mateo sheet.

San Antonio Creek; Alameda Creek basin; Alameda County; rises in the northwestern part of T. 5 S., R. 3 E., Mount Diablo base and meridian, at altitude 3,100 feet above sea level; flows northwestward 6 miles through Williams Gulch, then irregularly westward 7 miles through La Costa Valley to Sunol

Valley, where it joins Alameda Creek (tributary to San Francisco Bay); fall, 2,850 feet; principal tributaries, La Costa, Indian, and Apperson creeks. Tesla and Pleasanton sheets.

San Antonio Creek; Alameda Creek basin; Santa Clara County; rises in the southwestern part of T. 7 S., R. 5 E., Mount Diablo base and meridian; flows in general northwestward to the southwestern part of T. 6 S., R. 4 E., where it unites with Arroyo Bayo to form Arroyo del Valle; length, about 11 miles. Mount Hamilton sheet; on the Land Office map of California, 1907, the name San Antonio Creek is applied to a stream joining the North Fork of Bayo Creek in the southeast part of T. 5 S., R. 3 E.

San Antonio Creek; Alascadero Creek drainage basin; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 2,500 feet above sea level; flows southward and southwestward into Maria Ygnacio Creek, through which it is tributary to Alascadero Creek, which discharges to the Pacific; length, about 6 miles; fall, 2,450 feet; principal tributary, Arroyo Burro Creek. Goleta special map.

San Antonio Creek; Santa Ana River basin; San Bernardino and Los Angeles counties; rises in northwestern part of T. 2 N., R. 7 W., San Bernardino base and meridian, on the south slope of San Antonio Peak, at altitude 8,650 feet above sea level; takes a general southwesterly course to San Bernardino Valley. Except Lytle Creek, which lies back of the entire ridge, San Antonio is the most important of the drainage ways from the Cucamonga Mountains. Its basin comprises about 25 square miles and is surrounded on three sides by high mountain ridges. The upper portions of its canyons are of very steep grade, but the grades of the lower portions are moderate. This creek has built up a large débris mass at the mouth of its canyon. Its waters, except in years of considerable flood, seldom run more than 6 to 8 miles down its wash into the plains, but a continuous channel of considerable dimensions extends across the plain a distance of 15 miles and joins Santa Ana River (tributary to the Pacific) near the head of its lower canyon, and in years of high flood the creek occupies this channel in large volume.

Authorities: San Antonio and Cucamonga sheets; Hall, Wm. Ham: Irrigation in California [southern]: Report of State Engineer of California, pt. 2, Sacramento, 1888, p. 125.

San Antonio Creek; Santa Barbara County; drains the area lying north of the Santa Ynez basin and south of the Santa Maria basin, between the Purisima and Solomon Hills, including Los Alamos and San Antonio Valleys; enters the Pacific 3 miles northeast of Purisima Point; called Arroyo de los Alamos above Los Alamos Valley; the area is very narrow and the tributary canyons are all short. Lompoc and Guadalupe sheets.

San Antonio Creek; Santa Clara County; rises in the northeastern part of T. 7 S., R. 3 W., Mount Diablo base and meridian, at altitude 1,200 feet above sea level; flows in general north of west to the tidal marsh at the southern end of San Francisco Bay. Santa Cruz and Palo Alto sheets.

San Antonio Creek; Ventura River basin; Ventura County; rises in the central part of T. 5 N., R. 22 W., San Bernardino base and meridian, at altitude 3,000 feet above sea level; flows southwestward across Ojai Valley, and discharges into Ventura River (tributary to the Pacific) near La Crosse Station; length, about 12 miles; fall, 2,300 feet; principal tributaries, Gridley, Horn, and Lion Canyon creeks; upper course lies through Senor Canyon. Santa Paula and Ventura sheets.

San Antonio River; Salinas River basin; Monterey County; rises in the northwestern part of T. 21 S., R. 5 E., Mount Diablo base and meridian, in Monterey National Forest; flows southeastward about 40 miles in a course

parallel to but directly opposite that of Salinas River, then turns abruptly and flows northeastward 6 miles into the Salinas, which discharges to the Pacific in Monterey Bay; principal tributaries, Bear and Mission creeks. Gaging station near Jolon (1900–1901). Land Office map of California, 1907.

San Benito River. *See* Pajaro River.

San Bernardo Creek; Chorro Creek basin; San Luis Obispo County; rises on the western slope of the Santa Lucia Mountains in the western part of T. 29 S., R. 12 E., Mount Diablo base and meridian, at altitude 1,250 feet above sea level; flows southwestward 5½ miles into Chorro Creek, which discharges to the Pacific through Morro Bay; fall, about 1,200 feet. San Luis Obispo and Cayucos sheets.

San Bruno Creek; San Mateo County; rises on the eastern slope of Buriburi Ridge, at altitude 700 feet above sea level; flows easterly toward San Francisco Bay, south of San Bruno Point; intermittent. San Mateo sheet.

San Carvoforo Creek; Monterey and San Luis Obispo counties; rises in the central part of T. 24 S., R. 7 E., Mount Diablo base and meridian, in the southeastern part of Monterey National Forest; flows southwestward into the Pacific at Ragged Point; principal tributary, South Fork. Land Office map of California, 1907.

San Carvoforo Creek, South Fork; San Luis Obispo County; rises in the northeastern part of T. 25 S., R. 7 E., Mount Diablo base and meridian; flows westerly into San Carvoforo Creek, which discharges to the Pacific. Land Office map of California, 1907.

San Clemente Canyon Creek; San Diego County; rises in southeastern part of T. 15 S., R. 2 W., San Bernardino base and meridian, at altitude 900 feet above sea level; flows southwestward 7½ miles, then somewhat south of west 6 miles into Rose Canyon Creek, which discharges to the Pacific through False Bay; intermittent; fall, 800 feet. La Jolla sheet.

San Clemente Creek; Carmelo River basin; Monterey County; rises in the southeastern part of T. 17 S., R. 1 E., Mount Diablo base and meridian; flows north of east into Glicko Creek (tributary to Carmelo River, which discharges to the Pacific in Carmelo Bay); length, about 8 miles. Land Office map of California, 1907.

Sand Canyon Creek; Los Angeles County; rises in the central part of T. 3 N., R. 14 W., San Bernardino base and meridian; flows southwestward 2 miles, then northwestward to its junction with Santa Clara River (tributary to the Pacific); length, about 8 miles; fall in the 3½ miles above the mouth of the canyon, 1,250 feet; principal tributaries, Iron Canyon, Bear Canyon, Coyote Canyon, German Canyon, and Placerita Canyon creeks; Sand Canyon delivers water to the Santa Clara River and receives water from its tributary canyons only in times of flood. Fernando sheet.

Sand Creek; San Diego River basin; San Diego County; rises in west-central part of T. 14 S., R. 3 E., San Bernardino base and meridian, at altitude 2,800 feet above sea level; flows southwestward 3 miles, then northwestward 3 miles into San Diego River (which discharges to the Pacific through False Bay); intermittent; fall, 2,000 feet. Cuyamaca sheet.

Sand Creek; Santa Ana River basin; San Bernardino County; rises in the northwestern part of T. 1 N., R. 3 W., San Bernardino base and meridian, at altitude 3,750 feet above sea level; flows southwestward to San Bernardino Valley; flood waters pass to Santa Ana River (tributary to the Pacific) through Warm Creek; fall above the edge of the valley, 2,250 feet in about 3 miles. Redlands sheet.

Sand Creek, Little; Santa Ana River basin; San Bernardino County; rises in the northwestern part of T. 1 N., R. 3 W., San Bernardino base and meridian,

at altitude 3,500 feet above sea level; flows southwestward to San Bernardino Valley, about three-fourths mile northwest of the opening of the canyon of Sand Creek; flood waters may reach the Santa Ana (tributary to the Pacific) through Warm Creek; fall in the 2½ miles above the valley, 2,000 feet. Redlands sheet.

Sandia Canyon Creek; Riverside and San Diego counties; rises about 3 miles south of Murietta, at altitude 1,500 feet above sea level; flows southwestward and southward to its junction with Santa Margarita River (tributary to the Pacific) in the northeastern part of T. 9 S., R. 4 W., San Bernardino base and meridian; length, about 10 miles. Elsinore and San Luis Rey sheets.

Sandiego Creek; Salinas River basin; Kern County; an intermittent stream rising on the west slope of the Temblor Range in T. 30 S., R. 20 E., Mount Diablo base and meridian, and flowing southwestward to Carrizo Plain; this plain is drained northwestward by San Juan Creek to Estrella Creek, a branch of Salinas River, which discharges to the Pacific in Monterey Bay. McKittrick sheet.

San Diego River; San Diego County; rises in Cuyamaca Mountains, on the west slope of the Coast Range, at altitude about 5,000 feet above sea level; flows southwestward and discharges into the Pacific through False Bay at the north boundary of San Diego city; length, about 50 miles, half of which lies in the mountains above the town of Lakeside.

The basin lies directly south of the Santa Ysabel and north of Sweetwater River basin. It is fan-shaped as compared with the narrower basin of the Sweetwater, and includes a much greater area of high mountain territory. Its various tributaries plunge down rocky canyons and unite in one channel of much lower grade at an altitude of about 900 feet above sea level. Below El Cajon Valley the river is confined to a narrow rocky channel for about 2½ miles. For nearly 40 miles above its mouth the river occupies a broad sandy bed with low banks and with grades from 20 to 35 feet per mile. The most important tributaries are Coleman, Cedar, Boulder, South Fork, and Chocolate creeks, all of which enter from the east and south above Lakeside. San Vicente Creek, the only important tributary from the north, enters the river at Lakeside.

The upper part of the basin, above Lakeside, is extremely rough and rugged, but below Lakeside are numerous valleys and high mesa lands that extend to the coast. Elevations throughout the basin range from 50 to 600 feet in the foothills and from 600 to 6,000 feet in the mountains. Cuyamaca Peak, the highest point in the basin, is 6,515 feet above sea level.

The San Diego basin is very poorly forested. The timber is confined almost entirely to the valley along the streams and to the higher mountain areas. The mountain slopes are fairly well covered with brush, but the lower foothills are almost entirely bare, having only a scattering growth of low brush.

The mean annual rainfall ranges from 10 to 15 inches along the foothill belt, and from 20 to 40 inches in the mountains.

Irrigation is carried on extensively in the valleys and on the mesa lands between Lakeside and San Diego.

Gaging station near Lakeside (1905–1912).

Authorities.—Ramona, Cuyamaca, Elcajon, and La Jolla sheets; Water Supply Paper U. S. Geol. Survey No. 291, 1912, p. 31; Irrigation in California [southern]; by Wm. Ham. Hall, Sacramento, 1888, pp. 41–43.

San Diego River, South Fork; San Diego County; rises in the west-central part of T. 14 S., R. 3 E., San Bernardino base and meridian, at altitude 2,700 feet above sea level; flows southwestward into San Diego River, which discharges into the Pacific through False Bay; intermittent; length, about 8 miles;

fall, 2,100 feet; principal tributaries, Conejos and King creeks. Cuyamaca sheet.

San Dieguito River; San Diego County; rises in Volcan Mountains at altitudes exceeding 5,000 feet above sea level; flows westward and southwestward and enters the Pacific about 20 miles north of the mouth of San Diego River in False Bay. The stream is known as the San Dieguito at its mouth, is called the Bernardo upstream, the San Pasqual still farther up, and the Santa Ysabel near its source. "This custom of calling a stream by different names along succeeding portions of its route was derived from the Mexicans (who named the streets of their towns also after the same fashion), is a confusing one, and has led to misunderstanding regarding the identity of this river,"[1]

The San Dieguito is about 50 miles long and drains an area comprising approximately 340 square miles lying south of the basin of San Luis Rey River and north of the San Diego basin.

Between its source and San Pasqual Valley Santa Ysabel Creek receives many small tributaries, the most important being Black Canyon and Temescal creeks from the north and Santa Maria Creek from the south. Above San Pasqual Valley the creek maintains a light flow throughout the year, but below that point the channel is dry during the summer months.

The upper part of the basin is rough, the surface being cut by many canyons. The foothill region is more rolling and includes large areas of valley and high mesa land. The basin has very little timber, the principal cover being brush, grass, and a few scattered oaks.

The mean annual rainfall ranges from 10 to 15 inches along the foothills and 20 to 40 inches in the mountains.

A good storage reservoir site exists on the main stream at Pamo Valley below the junction of Temescal Creek with the Santa Ysabel. The dam site is about 4 miles above the gaging station which has been maintained on the Santa Ysabel near Escondido since December, 1905.

Gaging stations near Escondido (1905–1912), near Ramona (1912), and at Bernardo (1911–12).

Authorities.—Ramona, Escondido, and La Jolla sheets; Water-Supply Paper U. S. Geol. Survey No. 271, p. 95; No. 291, 1912, pp. 36–37.

Sandy Creek; San Diego County; rises in the southwestern part of T. 13 S., R. 4 E., San Bernardino base and meridian, at altitude 4,800 feet above sea level; flows westward 3 miles into Cedar Creek (tributary to San Diego River, which discharges to the Pacific through False Bay); intermittent; fall, 1,400 feet. Ramona sheet.

San Dimas Canyon Creek; Los Angeles County; rises in the southern part of T. 2 N., R. 8 W., San Bernardino base and meridian, at altitude 4,250 feet above sea level; flows in general southwestward to the valley of San Gabriel River (tributary to the Pacific). The basin is about 7½ miles long, opens out in fan shape to a width of about 5 miles at the head, but is reduced to a narrow neck for 2 miles along the lower course of the stream, so that its area comprises but 17½ square miles. Entering the extreme eastern end of the valley, the San Dimas Wash runs a little south of west through the cultivable lands for perhaps 10 miles as a distinct belt of gravel and sand nearly one-quarter of a mile wide, and then in a measure is lost in the sandy plain that borders the river on the east about midway down the valley. Cucamonga and Pomona sheets; Hall, Wm. Ham., Irrigation in [southern] California: Report of State

[1] Hall, W. H., Irrigation in California [southern]: Report of the State Engineer of California on irrigation and the irrigation question, pt. 2, Sacramento, 1888, p. 43.

Engineer of California on irrigation and the irrigation question, pt. 2, Sacramento, 1888, pp. 376–377.

San Dimas Canyon, East Fork; Los Angeles County; rises in the southern part of T. 2 N., R. 8 W., San Bernardino base and meridian, at altitude 5,400 feet above sea level; flows southwestward 3½ miles into San Dimas Canyon (tributary to San Gabriel River, which discharges to the Pacific); fall, 3,500 feet. Cucamonga and Pomona sheets.

San Dimas Canyon Creek, West Fork; Los Angeles County; San Gabriel River basin; rises in the southwestern part of T. 2 N., R. 8 W., San Bernardino base and meridian, at altitude 3,000 feet above sea level; flows southwestward about 3 miles, then southeastward 1½ miles into San Dimas Canyon (tributary to San Gabriel River, which discharges to the Pacific); fall, 1,600 feet. Pomona sheet.

San Elijo Creek. *See* Escondido Creek.

San Elijo Lagoon; San Diego County; 2 miles southeast of Encinitas; a brackish-water marsh into which Escondido Creek drains. The lagoon is separated from the ocean by a narrow sand ridge which at times may be cut through by flood waters of the creek. Escondido and Oceanside sheets.

San Felipe Creek; Coyote River basin; Santa Clara County; rises on the northwest slope of San Felipe Hills in Los Huecas Rancho, at altitude 2,700 feet above sea level; flows northwestward 3 miles, then turns abruptly and flows east of south to its junction with Coyote River (tributary to San Francisco Bay) in the northeastern part of T. 9 S., R. 3 E., Mount Diablo base and meridian. Mount Hamilton sheet; called Canada Verde Creek on the Land Office map of California, 1907.

San Felipe Creek; Salton Sink basin; San Diego and Imperial counties; an intermittent stream rising in the northern part of T. 12 S., R. 4 E., San Bernardino base and meridian, and flowing southeastward through San Felipe Valley into Salton Sink. Ramona sheet; Water-Supply Paper U. S. Geol. Survey No. 225, 1909, Pl. I.

San Francisquito Canyon Creek; Los Angeles County; rises in the southwestern part of T. 6 N., R. 15 W., San Bernardino base and meridian, on the southeast slope of Red Mountain, at altitude 3,050 feet above sea level; flows southwestward about 10 miles, then westerly to its junction with Santa Clara River (tributary to the Pacific) near Castac; length, about 12 miles; fall, 2,050 feet; intermittent. Tejon and Santa Susana sheets.

San Francisquito Creek; San Mateo County; rises in the southeastern part of Canada de Raymundo Rancho, 2 miles southeast of Sierra Morena; flows in general north of east into the tidal marsh at the south end of San Francisco Bay; passes through Searsville Lake; forms portion of boundary between San Mateo and Santa Clara counties; principal tributaries, Bear and Los Trancos creeks. Santa Cruz and Palo Alto sheets.

San Gabriel River; Los Angeles County; formed in the southwestern part of T. 3 N., R. 8 W., San Bernardino base and meridian, by the union of Prairie and Fish forks. Prairie Fork, which drains the larger area and may therefore be considered the continuation of the main stream, rises on the west slope of Pine Mountain, at altitude 8,750 feet above sea level; flows north of west 5 miles, then west of south 3 miles to its junction with Fish Fork (which drains the northern and western slopes of San Antonio Peak (Old Baldy); below these forks the general course of the river is southwestward to the Coastal Plain.

In past ages both the San Gabriel and the Los Angeles rivers wandered over the area now covered by the city of Los Angeles, as well as over the land

between Los Angeles and the sea, their waters reaching the Pacific now in one place, now in another. When the white man first came to the region, Los Angeles River, augmented by the San Gabriel, was occupying its present bed and discharging through the present mouth at Long Beach. In 1867 the San Gabriel changed its outlet to Alamitos Bay, a few miles to the east, but returned to Long Beach in 1910.[1]

Measured from the head of Prairie Fork to the coast, the length of the San Gabriel is about 65 miles; its total drainage area is approximately 700 square miles, about one-third of which consists of mountain slopes which contribute practically all the run-off except in heavy storms; the remaining two-thirds is embraced in the San Gabriel Valley at the base of the mountains and in the Coastal Plain southeast of the city of Los Angeles.

The principal tributaries below the mouth of Fish Fork are Iron Fork, Cattle Creek, West Fork (whose principal tributary is the North Fork) and San Jose Creek. Each of these forks receives many tributaries from the crests of the surrounding ranges.

After leaving the mountains the river traverses San Gabriel Valley in a wide wash of sand, gravel, and bowlders, then breaks through the range of foothills separating San Gabriel Valley from the Coastal Plain at a point called The Narrows, about 5 miles west of Whittier. Through the San Gabriel Valley the waters occupy at times of flood the various channels within the immense wash, in most places about half a mile wide but in one place fully 1½ miles wide; through the pass the channel loses the character of a steep, sloping wash and assumes that of a sandy, shifting, river-bed, several hundred feet wide, with low, alluvial banks, margined by bottom lands. On the Coastal Plain it retains this general character but without any bottom-land fringing until it approaches the ocean. After the subsidence of the spring freshets, sometimes in May but usually in June, the waters of the river sink into the gravels of its wash within 3 or 4 miles below the canyon's mouth, and thence for 6 miles during the irrigation season its bed is dry. Approaching the Coast Range the waters begin to rise again and for 3 miles farther, through the pass, they break forth in many places.

Gaging station near Azusa (1895–1912).

Authorities.—San Antonio, Rock Creek, Cucamonga, Pomona, Tujunga, Pasadena, and Downey sheets; Hall, W. H., Irrigation in southern California, Sacramento, 1888, pp. 373–376.

San Gabriel River, Fish Fork; Los Angeles County; rises on the north and west slopes of San Antonio Peak (altitude, 10,080 feet), at altitude 8,750 feet above sea level; flows north of west 4½ miles, then southwest 1 mile into San Gabriel River (tributary to the Pacific); fall, 5,450 feet. San Antonio sheet.

San Gabriel River, Iron Fork; Los Angeles County; rises in the northeastern part of T. 3 N., R. 9 W., San Bernardino base and meridian, on the west slope of North Baldy, at altitude 8,750 feet above sea level; flows in general southeasterly to its junction with San Gabriel River (tributary to the Pacific) 1 mile above The Narrows; fall, about 6,000 feet; principal tributary, South Fork. Rock Creek and San Antonio sheets.

San Gabriel River, Iron Fork, South Fork of; Los Angeles County; rises in the central part of T. 3 N., R. 9 W., San Bernardino base and meridian, in the mountainous region south of Mount Islip, at altitude 7,750 feet above sea

[1] Abstracted from Report on Los Angeles Harbor, by Capt. Amos A. Fries; reprint from Professional Memoirs Corps of Engineers, Jan.–Feb. 1912, p. 6.

level; flows southeastward 4 miles to its junction with Iron Fork (tributary to San Gabriel River, which discharges to the Pacific); fall, 4,000 feet. Rock Creek sheet.

San Gabriel River, North Fork; Los Angeles County; rises in the central part of T. 3 N., R. 9 W., San Bernardino base and meridian, 1½ miles southeast of Mount Islip, at altitude 7,000 feet above sea level; flows west of south to its junction with West Fork of San Gabriel River (tributary to San Gabriel River, which discharges to the Pacific); length, 8 miles; fall, 5,450 feet. Rock Creek and Pomona sheets.

San Gabriel River, Trail Fork; Los Angeles County; rises in the northwestern part of T. 2 N., R. 11 W., San Bernardino base and meridian, at altitude 4,250 feet above sea level; flows west of south 1½ miles into the West Fork of San Gabriel River (tributary to San Gabriel River, which discharges to the Pacific); fall, 1,100 feet. Tujunga and Pasadena sheets.

San Gabriel River, West Fork; Los Angeles County; rises in the eastern part of T. 2 N., R. 12 W., San Bernardino base and meridian, 1 mile northwest of San Gabriel Peak, at altitude 5,250 feet above sea level; flows eastward to its junction with San Gabriel River (tributary to the Pacific) in the southwestern part of T. 2 N., R. 9 W.; length, 16 miles; fall, 3,950 feet; principal tributaries, Devils Canyon, Chileno Canyon, and Bear creeks, and North Fork San Gabriel River, all of which enter from the north; receives within 3 miles of its head a short stream from the south draining the north slope of Mount Wilson. Tujunga, Pasadena, Rock Creek, and Pomona sheets.

San Gorgonio Creek, Little; San Bernardino and Riverside counties; Santa Ana River basin; rises in the southeastern part of T. 1 S., R. 1 W., San Bernardino base and meridian, at altitude 4,500 feet above sea level; flows southwestward into San Timoteo Creek; length, 10 miles; fall, 2,300 feet; principal tributary, Noble Creek. San Gorgonio, San Jacinto, and Elsinore sheets.

San Gorgonio River; San Bernardino and Riverside counties; rises in the mountainous region south of San Gorgonio Mountain, in T. 1 S., R. 1 E., San Bernardino base and meridian, at altitude about 9,000 feet above sea level; flows southwestward 6 miles, then turns to the south and southeast and discharges into the western end of San Gorgonio Pass, which slopes eastward from a point near Beaumont to the Colorado Desert. The fall in the 12 miles above the pass is 6,500 feet. San Gorgonio and San Jacinto sheets.

San Gregorio Creek; San Mateo County; formed in the southwestern part of T. 7 S., R. 4 W., Mount Diablo base and meridian, by the junction of Alpine and Mindego creeks; flows north of west about 8 miles and enters the Pacific in San Gregorio Rancho, 1 mile west of the town of San Gregorio; drainage area, 52 square miles; principal tributaries below the mouth of Alpine Creek, La Hondo, Harrington and El Corte de Madera creeks. Santa Cruz sheet; Santa Cruz folio No. 163, Geol. Atlas U. S., U. S. Geol. Survey, p. 1.

Sanhedrin Creek; Mendocino County; rises in the northeastern part of T. 19 N., R. 12 W., Mount Diablo base and meridian; flows southwestward into Eel River (tributary to the Pacific); length, 4 miles. Punnett's map of Mendocino County.

San Jacinto Creek; Monterey and San Luis Obispo counties; rises in the southeastern part of T. 23 S., R. 13 E., Mount Diablo base and meridian; flows southwestward into Estrella Creek (tributary to Salinas River, which discharges to the Pacific in Monterey Bay); length, about 14 miles. Land Office map of California, 1907.

San Jacinto River; Riverside County; formed in the western part of T. 5 S., R. 2 E., San Bernardino base and meridian, by the junction of its North and South forks. The South Fork, which drains the larger area and is therefore

considered the continuation of the main stream, rises in the central part of T. 6 S., R. 4 E., at altitude about 6,500 feet above sea level; flows southward about 3 miles through Bull Canyon, then northwestward 18 miles to its point of junction with the North Fork. Below the forks the river continues a northwesterly course about 20 miles, then turns abruptly and flows southwestward to Elsinore Lake, an inclosed body of brackish water. An old channel connects Elsinore Lake with the Temescal Wash, which discharges into Santa Ana River below Corona.

The river itself is a stream of peculiar regimen and irregular course. Its headwaters, rising on the slopes of the San Jacinto Mountains, plunge through deep canyons to their junction with the main stream on the plain 5 or 6 miles above San Jacinto. These upper tributaries are perennial streams, but so much of the water as is not diverted for irrigation at the mouth of the canyon sinks during dry seasons in the sands of the river channel above Florida Vallevista. During the winter period the stream as a rule contains flowing water as far as Mystic Lake, in the flats east of Lakeview.

The exceptional storms of winter, particularly the rainfall, fill this lake to overflowing, convert its banks into a marsh, and spill the waters out through the tortuous but slough-like channel west of Lakeview, across the Perris Plains, enter the head of Railroad Canyon, and continue through the gorge to Elsinore Lake. Once or twice since the valley has been occupied by white men floods in the San Jacinto River have raised the level of Elsinore Lake to such a point that it has overflowed into Temescal Wash, so that during these exceptional times the San Jacinto has been a continuous stream from its source to its junction with Santa Ana River through which it discharged to the sea; under all ordinary conditions, however, the stream is discontinuous and its waters never join those of the ocean.

The drainage basin comprises an irregular area about 65 miles in extreme length, east and west, and approximately 30 miles in greatest width in a northeast-southwest direction. From the mouth of San Jacinto Canyon to the base of the Box Springs Mountains the floor of the valley is a remarkably level lowland, standing 1,500 to 1,600 feet above sea level; in relation to the adjacent lowlands of Santa Ana Valley to the north and northwest, this valley has the characteristics of a plateau, for it stands 500 to 1,000 feet above them. Considered alone, however, it is distinctly a basin, for it is inclosed on all sides by an irregular mountain rim.[1]

Altitudes within the basin range from 1,220 feet at Lake Elsinore to 10,805 feet at the summit of San Jacinto Peak; Santiago Peak, west of Lake Elsinore is 5,680 feet; principal tributaries of the San Jacinto are Strawberry Creek, North Fork, and Bautista Creek. San Jacinto and Elsinore sheets.

San Jacinto River, North Fork; Riverside County; rises in the western part of T. 4 S., R. 3 E., San Bernardino base and meridian, on the west slope of San Jacinto Peak, at altitude 9,700 feet above sea level; flows in general southwestward to its junction with the South Fork of San Jacinto 5 miles southeast of Florida Vallevista; length, 10 miles; fall, 7,500 feet. San Jacinto sheet.

Sanjen de los Alisos; Alameda County; one of the channels through which Alameda Creek discharges to San Francisco Bay; Alameda Creek divides 1 mile north of Centervale, but part of its water flows northward and westward directly to the bay, the other part flows southwestward through Sanjen de los Alisos to Beard Creek, in the tidal marsh at the south end of the bay. Haywards sheet.

[1] The foregoing description has been abstracted from a manuscript report on the San Jacinto basin, by W. C. Mendenhall.

San Jose Creek; Monterey County; rises in the central part of T. 17 S., R. 1 E., Mount Diablo base and meridian; flows northwestward and enters the Pacific in Carmelo Bay, east of Point Carmelo; length, about 7 miles. Land Office map of California, 1907, on which it is shown but not named; Post Route map, 1911.

San Jose Creek; San Gabriel River basin; Los Angeles County; rises around the eastern end of San Jose Hills above Pomona, turns the point of the range, and flows south and west between it and the Coast Range foothills, enters San Gabriel Valley at its extreme southeastern corner, and joins San Gabriel River (tributary to the Pacific) in the Paso de Bartolo Rancho; the stream has no high mountain drainage area of its own; about 9 square miles of the San Jose Hills slope to its valley from the north, and about 25 square miles of the Coast Range, in a long, very narrow strip, slope to it from the south; its principal source of water seems to be the great gravel bed at its head which constitutes the artesian belt of Pomona. The waters of the stream rise at a number of points along its course. Pomona and Pasadena sheets; Hall, W. H., Irrigation in California [southern], Sacramento, 1888, p. 380.

San Jose Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains near Brush Peak; flows eastward through Deadman Canyon, then south of west to La Goleta Rancho where its waters sink before reaching the tidal marsh which carries the drainage of this area into the Pacific; length to head of Deadman Canyon, about 10 miles. Goleta special sheet.

San Juan Creek; Salinas River basin; San Luis Obispo County; rises in the northwestern part of T. 32 S., R. 19 E., Mount Diablo base and meridian, in the San Luis Obispo National Forest; flows northwestward along the west margin of the Carriso Plain to Shandon, where it unites with Cholame Creek to form Estrella Creek (tributary to Salinas River, which discharges to the Pacific in Monterey Bay); length, about 40 miles; tributaries are all short and none of them are named on the map. Land Office map of California, 1907.

San Juan Creek; Riverside and Orange counties; formed in the southwestern part of T. 6 S., R. 5 W., San Bernardino base and meridian, by the junction of streams rising on the western slope of Elsinore Mountains and flowing through Long, Decker, and Morrill canyons; flows in general southwesterly to the lagoon near San Juan, 3 miles southwest of Capistrano. The lagoon is separated from the Pacific by a narrow sand bar. Below the upper canyons the creek receives intermittent streams draining Hot Spring, Cold Spring, Lucas, Verdugo, Bell, Gubernadora, and Chiquito canyons and Arroyo Trabuco. Elsinore, Corona and Capistrano sheets.

San Leandro Creek; Contra Costa and Alameda counties; rises in the central part of T. 1 S., R. 3 W., Mount Diablo base and meridian, on the south slope of Round Top, at altitude 1,200 feet above sea level; flows southeastward 11 miles to the east end of Lake Chabot, then westward through the lake and discharges through San Leandro Bay to San Francisco Bay; length, about 20 miles; principal tributaries, West Branch, Redwood, Kaiser, and Miller creeks. Concord and Haywards sheets.

San Leandro Creek, West Branch; Contra Costa and Alameda counties; rises in Laguna de los Palos Colorados Rancho, on the southern slope of Mulholland Hill, at altitude 800 feet; takes a general southerly course to its junction with San Leandro Creek, which discharges through San Leandro Bay to San Francisco Bay; length, 3½ miles; fall, about 400 feet. Concord sheet.

San Lorenzo Creek; Alameda County; formed in Castro Valley, in San Lorenzo Rancho, by the union of Palomeras and Cull creeks (q. v.); flows in general westward to a point east of Roberts Landing, where its waters sink

before reaching the tidal marsh on the east side of San Francisco Bay; length, from the valley to the marsh, about 6 miles, in which distance the fall is 200 feet. Haywards sheet.

San Lorenzo Creek; Salinas River basin; Monterey County; rises in the northern part of T. 21 S., R. 12 E., Mount Diablo base and meridian; flows northwestward about 24 miles, then westward and southwestward to King City, where it joins Salinas River (tributary to the Pacific in Monterey Bay); principal tributary, Bitterwater Creek. Gaging station near King City (1900–1903, 1912). Land Office map of California, 1907.

San Lorenzo River; Santa Cruz County; rises in the western part of T. 8 S., R. 2 W., Mount Diablo base and meridian, on the west slope of Castle Rock Ridge, at altitude 1,400 feet above sea level; flows east of south to the city of Santa Cruz where it enters the Pacific; length, about 22 miles; principal tributaries, Kings, Bear, Boulder, Newell, Fall, and Zayante creeks. Santa Cruz sheet.

San Lucas Creek; Santa Ynez River basin; Santa Barbara County; an intermittent stream, 3 miles long, rising on the north slope of the Santa Ynez Mountains and flowing west of north to Santa Ynez River (tributary to the Pacific) 3 miles southeast of Santa Ynez. Lompoc sheet.

San Luis Rey River; San Diego County; rises in the southern part of T. 9 S., R. 3 E., San Bernardino base and meridian, at altitude about 3,700 feet above sea level; flows southwestward about 10 miles, northwestward 22 miles, then again to the southwestward for 22 miles to Oceanside, where it enters the Pacific. Its drainage area comprises about 575 square miles extending from the crest of the Coast Range to the Pacific, a distance of 65 miles with a maximum width of about 16 miles.

The river is formed by many small streams which rise in the higher parts of the Coast Range and come together at the lower—the west—end of what is known as Warners Valley. Below this point the river flows for a distance of 10 miles through a deep narrow canyon with heavy grade, then over a sandy, gravelly bed with light grade for some 40 miles.

For 23 miles above its mouth the river occupies an open valley in places over a mile wide. Above Pala it is bordered for several miles on the north and east by a high plateau which breaks off abruptly with steep banks 100 feet or more high. Through this plateau several living streams cut their way to the river. Altitudes in the basin range from 50 to 500 feet in the foothills in the vicinity of Oceanside, and from 500 to 6,000 feet in the mountains. The upper portion of the basin is more or less rolling and several of the valleys are under cultivation and are used for stock raising. The middle part, occupied by the river in its canyon, is rough. On the lower reaches the surface becomes less rugged, merging into the foothills which extend to the coast.

The basin is poorly forested. Some fairly good timber is found on the higher elevations, but the greater part of the cover is brush and grass with a scattered growth of oaks.

Mean annual precipitation probably ranges from 10 to 40 inches, gradually increasing with altitude. It appears almost entirely as rain, snow falling only occasionally on the higher parts of the basin.

Gaging stations at diversion flume (1894–1899), near Mesa Grande (1911–12), near Pala (1903–1912), and at Bonsall (1912).

Authorities.—Ramona and San Luis Rey sheets; Water Supply Paper U. S. Geol. Survey No. 291, 1910, p. 39.

San Luis Rey River, West Fork; San Diego County; rises in the southern part of T. 9 S., R. 1 E., San Bernardino base and meridian, at altitude 5,300 feet above sea level; flows southeastward 12 miles to its junction with San Luis

Rey River (tributary to the Pacific) in San Jose del Valle; fall, 2,600 feet; intermittent. Mendenhall, Barker, and Pine valleys are in the area drained by this branch of the San Luis Rey. Ramona sheet.

San Luisito Creek; Chorro Creek basin; San Luis Obispo County; rises on the western slope of the Santa Lucia Mountains in T. 29 S., R. 12 E., Mount Diablo base and meridian, at altitude 1,250 feet above sea level; flows southwestward into Chorro Creek, which discharges to the Pacific through Morro Bay; length, 4½ miles; fall, 1,150 feet. San Luis Obispo and Cayucos sheets.

San Luis Obispo Creek; San Luis Obispo County; rises on the western slope of the Santa Lucia Mountains, south of Cuesta Pass, at altitude 1,570 feet above sea level; takes a general southwesterly course to San Luis Obispo Bay, through which it enters the Pacific; passes through the city of San Luis Obispo; length, about 15 miles; tributaries, Reservoir Canyon, Davenport, and See Canyon creeks. San Luis Obispo and Arroyo Grande sheets.

San Marcos Creek; Salinas River basin; San Luis Obispo County; rises in the southeastern part of T. 26 S., R. 10 E., Mount Diablo base and meridian; flows northeastward into Salinas River (which discharges to the Pacific through Monterey Bay) south of San Miguel; length, about 12 miles. Land Office map of California, 1907.

San Marcos Creek; San Diego County; rises in the west central part of T. 11 S., R. 2 W., San Bernardino base and meridian, on the east slope of Merriam Mountains, at altitude, 1,800 feet above sea level; flows southwestward and discharges into Batiquitos Lagoon, a brackish-water marsh, 3 miles north of Encinitas. The marsh is separated from the Pacific by a narrow sand ridge which may at times be cut through by the flood waters of the creek; length to the head of the lagoon, about 15 miles; intermittent. Escondido and Oceanside sheets.

San Martinez Grande Canyon Creek; Ventura and Los Angeles counties; rises in Ventura County in the western part of T. 4 N., R. 17 W., flows eastward and southward to Santa Clara River (tributary to the Pacific); length, about 3 miles; intermittent. Santa Susana sheet.

San Martinez Chiquito Canyon Creek; Los Angeles County; rises in the northwestern part of T. 4 N., R. 17 W., in Santa Barbara National Forest; flows southeastward and southward into Santa Clara River (tributary to the Pacific) near Delvalle; intermittent. Santa Susana sheet.

San Mateo Creek; Riverside and San Diego counties; rises in the southeastern part of T. 6 S., R. 5 W., west of the Elsinore Mountains, at altitude 2,800 feet above sea level; flows southward and southwestward through San Mateo Canyon, and enters the Pacific at San Mateo Point; length, about 23 miles; principal tributaries, streams draining Wildhorse, Los Alamos, Tenaja, Devil, and Cristianitos canyons; intermittent. Elsinore, San Luis Rey, and Capistrano sheets.

San Mateo Creek; San Mateo County; rises in San Pedro Rancho, on the west slope of Sweeney Ridge, at altitude 1,100 feet above sea level; flows southeastward 5½ miles to Crystal Lake, from which it emerges on the east shore and winds northeastward to San Francisco Bay east of the city of San Mateo. San Mateo sheet.

San Miguelito Creek; Santa Barbara County; an intermittent stream, 5 miles long, rising on the north slope of the Lompoc Hills and flowing northeastward to Lompoc, where its waters sink before reaching the channel of Santa Ynez River (tributary to the Pacific). Lompoc sheet.

San Pablo Creek; Contra Costa County; rises in Laguna de los Palos Colorados Rancho, on the north slope of Mulholland Hill, at altitude 900 feet above sea level; flows in general northwestward to the tidal marsh through which

it passes to San Pablo and San Francisco bays; length, about 16 miles; principal tributaries, West Branch, Lauterwasser, Bear, and Wild Cat creeks. Concord and San Francisco sheets.

San Pablo Creek, West Branch; Contra Costa County; rises in the northwestern part of T. 1 S., R. 3 W., Mount Diablo base and meridian, at altitude 1,400 feet above sea level; flows northwestward 1½ miles, then northeastward 1½ miles to its junction with San Pablo Creek (tributary to San Pablo Bay) near Bryant Station; fall, about 950 feet. Concord sheet.

San Pedro Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest on the south slope of the Santa Ynez Mountains at altitude 1,250 feet above sea level; flows southwesterly and southerly to a point southwest of La Patera, where its waters sink before reaching the tidal marsh through which this part of Santa Barbara County is drained to the Pacific; length, about 5 miles. Goleta special sheet.

San Pedro Creek; San Mateo County; rises in the western part of T. 4 S., R. 5 W., Mount Diablo base and meridian, at altitude 1,300 feet above sea level; flows in general northwestward through San Pedro Valley, and enters the Pacific half a mile east of San Pedro Point; length, about 4 miles. San Mateo sheet.

San Rafael Creek; Marin County; rises in Santa Margarita y los Gallinas Rancho; flows southeastward through the city of San Rafael into San Francisco Bay. Tamalpais and San Francisco sheets.

San Ramon Creek. *See* Walnut Creek.

San Roque Creek; Santa Barbara County; rises in the Santa Barbara National Forest on the south slope of the Santa Ynez Mountains, at altitude 2,000 feet above sea level; flows irregularly southward to the point at which it enters the Pacific 3 miles west of Santa Barbara; tributary, Diablo Canyon Creek; intermittent. Santa Barbara and Goleta special sheets.

San Sevaine Canyon Creek; Santa Ana River basin; San Bernardino County; an intermittent stream, about 2 miles long, flowing southward into San Bernardino Valley, which it enters about 3 miles west of Lytle Creek. San Bernardino sheet.

San Simeon Creek; San Luis Obispo County; rises in the northern part of T. 27 N., R. 9 W.; flows south of west into the Pacific 3 miles above the mouth of Santa Rosa Creek; length, about 10 miles. Land Office map of California, 1907.

Santa Agueda Creek; Santa Barbara County; an intermittent stream, rising on the south slope of the San Rafael Mountains and flowing southward into Santa Ynez River. (tributary to the Pacific) 4 miles southeast of Santa Ynez. The creek collects the waters of Lisque, Figueroa, and Morey creeks and other intermittent streams. Santa Ynez and Lompoc sheets.

Santa Ana Creek; Ventura River basin; Ventura County; rises in the southern part of T. 5 N., R. 24 W., San Bernardino base and meridian, on the south slope of Santa Ynez Mountains, at altitude 4,350 feet above sea level; flows southeasterly 4½ miles, then nearly south 5 miles to its junction with Coyote Creek (tributary to Ventura River, which discharges to the Pacific); fall, 3,900 feet. Ventura sheet.

Santa Ana River; San Bernardino, Riverside, and Orange counties; rises in the southeastern part of T. 1 N., R. 2 E., San Bernardino base and meridian, about 6 miles northeast of San Gorgonio Mountain, at altitude 8,000 feet above sea level; flows westerly about 25 miles to mouth of its upper canyon, thence southwesterly across San Bernardino Valley, through the lower canyon in the Santa Ana Mountains, and across the Coastal Plain to the Pacific Ocean at Newport Beach. Although the course of the stream measures about 100 miles,

there is continuous surface flow from the mountains to the sea only during winter floods. Taken as a whole, the basin lies lengthwise the San Bernardino Valley within 2 to 6 miles of its southern edge and from 6 to 16 miles from the base of the mountains on the north.

"All other streams in the basin are its tributaries, either above or below ground, and the river itself has a subterranean as well as a surface existence. The visible Santa Ana River through this valley, with its perennial flowing over the greater portion of its course, is no more all of the Santa Ana River there is, than are the nearly always dry beds, or washes, in the plain of many of the north and south canyon streams all there is in each instance of these; and so, while this river loses and regains its waters, and acquires other waters on its course, the streams which come laterally into the valley and are so promptly lost along its edge (through some hidden channels, though much spread out perhaps and divided in the underground formation) pass on down the slopes and mingle with those of the subterranean flowings of the Santa Ana Canyon." [1]

The principal tributaries of the Santa Ana are Bear, Alder, Mill, Lytle, and Chino creeks. The river also at times may receive through Temescal Creek overflow from Lake Elsinore, which in turn may receive surplus waters from San Jacinto River. The area drained by the San Jacinto is therefore properly a part of the Santa Ana basin.

Gaging station near Mentone (1896–1912).

Authorities: San Gorgonio, San Jacinto, Redlands, Elsinore, San Bernardino, Cucamonga, Pomona, and Corona sheets; Water-Supply Paper U. S. Geol. Survey No. 291, 1912, pp. 41–42; Hall, Wm. Ham., Irrigation in California. (See footnote.)

Santa Ana River, South Fork; San Bernardino County; rises in the southeastern part of T. 1 N., R. 1 E., San Bernardino base and meridian, in Dollar Lake, at altitude 9,250 feet above sea level; flows in general somewhat east of north to its junction with Santa Ana River (tributary to the Pacific); length, about 5 miles; fall, 2,950 feet; intermittent. San Gorgonio sheet.

Santa Anita Canyon Creek; San Gabriel River basin; Los Angeles County; rises in the south-central part of T. 2 N., R. 11 W., San Bernardino base and meridian, half a mile northeast of Mount Wilson, at altitude 5,000 feet above sea level; flows southeastward 2½ miles, then in general southerly and southeasterly to San Gabriel Valley (drained by San Gabriel River, which discharges to the Pacific). Its drainage area comprises almost exactly 10 square miles, of which a large part lies in the high mountains and is well exposed to receive the storm clouds and their precipitation. Its low-water flow entirely disappears at the edge of the plain; its wash is about one-quarter mile wide and extends southerly, and, being joined by the Little Santa Anita, turns to the southeast, divides and spreads into several arms, so that the Santa Anita flood waters reach the San Gabriel 5 or 6 miles below the mouth of the canyon. Pasadena and Pomona sheets; Irrigation in southern California, Sacramento, 1888, pp. 378–379.

Santa Anita Canyon Creek, Little; San Gabriel River basin; Los Angeles County, rises in the northwestern part of T. 1 N., R. 11 W., San Bernardino base and meridian, at altitude 3,250 feet above sea level; flows southeastward, and comes to the plain about a mile west of the Santa Anita; its wash joins that of the Santa Anita about 1½ miles below the canyon mouth; its basin comprises about 4 square miles. Pasadena sheet; Irrigation in southern California, Sacramento, 1888, p. 379.

[1] Hall, Wm. Ham., Irrigation in California [southern]: Report of the State Engineer of California on irrigation and the irrigation question, pt. 2, Sacramento, 1888, pp. 119–120.

Santa Anita Canyon Creek, West Fork; San Gabriel River basin; Los Angeles County; rises in the southwestern part of T. 2 N., R. 11 W., San Bernardino base and meridian, on the south slope of Mount Wilson, at altitude 4,750 feet above sea level; flows southeastward 3 miles into Santa Anita Canyon; fall, 2,750 feet. Pasadena sheet.

Santa Barbara Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest, 1½ miles northwest of Strawberry Peak and 2 miles east of the head of Sisquoc River, at altitude 5,500 feet above sea level; flows in general east of north to its junction with Cuyama River (Santa Maria River, which discharges to the Pacific) in the northeastern part of T. 9 N., R. 25 W., San Bernardino base and meridian; length, about 14 miles; fall, 2,900 feet; tributaries, Chokecherry, Alamo, and Dry Canyon creeks; intermittent below mouth of canyon. Santa Ynez sheet.

Santa Clara River; Los Angeles and Ventura counties; rises at the northwestern end of the Sierra Madre, in the southwestern part of T. 6 N., R. 12 W., San Bernardino base and meridian; flows westward through what are known locally as Piru, Sespe, and Santa Clara Valleys, and discharges into the Pacific Ocean about 6 miles south of Ventura. The river is about 75 miles long and its principal tributaries are San Francisquito, Castac, Piru, Sespe, and Ojai creeks, all entering from the north. At most points on the drainage line the channel is dry during the summer months. Although the first gold discovered in California was found on San Francisquito Creek, mining has never been extensively developed in that basin. Small irrigation works, consisting mainly of pipe lines, cement ditches and flumes, are utilized in the valley. Gaging station at Fillmore (1911–12). Land Office map of California, 1907; Tujunga, Fernando, Tejon, Santa Susana, Camulos, Santa Paula, and Hueneme sheets; Water-Supply Paper U. S. Geol. Survey No. 300, 1912, p. 43.

Santa Cruz Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of San Rafael Mountain, at altitude 6,000 feet above sea level; flows southeastward 6 miles, then westward and southwestward 12 miles to its junction with Santa Ynez River (tributary to the Pacific); fall, 5,300 feet; principal tributary, East Fork; intermittent. Santa Ynez sheet.

Santa Cruz Creek, East Fork; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the San Rafael Mountains, at altitude 5.500 feet above sea level; flows southwestward 6 miles to its junction with Santa Cruz Creek (tributary to Santa Ynez River, which discharges to the Pacific); fall, 3,200 feet. Santa Ynez sheet.

Santa Felicia Canyon Creek; Los Angeles and Ventura counties; rises in the northeastern part of Temescal Rancho, at altitude 2,000 feet above sea level; flows southwestward 6 miles into Piru Creek which discharges into Santa Clara River (tributary to the Pacific); fall, 1,000 feet; tributaries, Oak Canyon and Leckler Canyon creeks; intermittent. Santa Susana and Camulos sheets.

Santa Gertrudis Creek; Riverside County; an intermittent stream flowing westward from the western part of T. 7 S., R. 1 W., San Bernardino base and meridian; length, about 12 miles; discharges into the valley of Murietta Creek (tributary to Santa Margarita River, which discharges to the Pacific) 2½ miles northwest of Temecula. Elsinore sheet.

Santa Lucia Canyon; Santa Barbara County; a drainage way extending southwestward from the west end of the Purisima Hills toward the valley of Santa Ynez River (tributary to the Pacific). Lompoc sheet.

Santa Margarita River [Temecula River]; Riverside and San Diego counties; rises on the western slope of the San Jacinto Mountains in the north-

western part of San Diego County just north of the head of San Luis Rey River; flows northwestward to Temecula in Riverside County, then southwestward through Temecula Canyon into San Diego County, and discharges into the Pacific 4 miles northwest of Oceanside. Called Temecula Creek or Temecula River above Temecula Valley. The basin lies north of the area drained by the San Luis Rey and south of the San Jacinto basin. The river is no exception to the rule of light summer flow and winter torrents which applies to all southern California streams. Its three main tributaries drain an elevated but sparsely watered region of large area back of the Coast Range, and unite at the head of Temecula Canyon, about 25 miles from the coast, at an elevation of 950 feet. The canyon is about 13 miles long and opens out into a flat, fertile valley at an elevation of about 300 feet. Near the mouth of the canyon it receives Deluz Creek, a stream from the Santa Rosa Mountains from the north.

Gaging station on Temecula Creek near Temecula (1905–6).

Authorities: San Jacinto, Elsinore, Ramona, and San Luis Rey sheets. Hall, Wm. Ham., Irrigation in California [southern]; Report of State Engineer of California on irrigation and the irrigation question, pt. 2, Sacramento, 1888, pp. 46–47; Water-Supply Paper U. S. Geol. Survey No. 300, p. 38

Santa Maria Canyon Creek; Santa Barbara County; an intermittent stream. 2 miles long, rising in the southern part of T. 10 N., R. 32 W., San Bernardino base and meridian, and flowing southwestward toward the valley of Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific) in Tepusquet Rancho. Lompoc sheet.

Santa Maria Creek; San Diego County; the main tributary of San Dieguito River (tributary to the Pacific) from the south; drains about one-third the entire basin, but is less constant in flow than either the Pamo, Santa Ysabel, or Guejito [Roden Canyon?] fork. The creek enters Santa Maria Valley from the Ballena Valley at an elevation of about 1,500 feet above sea level, by a narrow channel between high hills, in places rock bound and in other places open and bordered by strips of cultivable lands; it leaves it through a precipitous, rocky, canyon, about 4 miles long, with a total fall in that distance of 800 to 900 feet, from the lower end of Santa Maria Valley to San Pasqual Valley. Called Hatfield Creek above Santa Maria Valley on the Ramona sheet. Description abstracted from Irrigation in California [southern]; Report of State Engineer of California on irrigation and the irrigation question, by Wm. Ham. Hall, pt. 2, Sacramento, 1888, pp. 43, 44.

Santa Maria River; Ventura, San Luis Obispo, and Santa Barbara counties; rises in the Santa Barbara National Forest in the northwestern part of T. 7 N., R. 21 W., San Bernardino base and meridian, at altitude 6,000 feet above sea level; flows northwestward about 70 miles, then irregularly southwestward to the point at which it enters the Pacific Ocean at Guadalupe; forms the boundary between San Luis Obispo and Santa Barbara counties. Called Cuyama River above the mouth of the Sisquoc, its principal tributary. Practically from source to mouth the channel of the Santa Maria is shown on the maps as a broad sandy wash. Gaging station near Santa Maria (1903–1906). Mount Pinos, Santa Ynez, Lompoc, and Guadalupe sheets.

Santa Monica Canyon Creek; Los Angeles County; an intermittent stream, about 8 miles long, draining a small area in the Santa Monica Mountains and flowing in general somewhat west of south to Santa Monica Bay, where it enters the Pacific. Called Mandiville Canyon in upper stretch. Calabasas and Santa Monica sheets.

Santa Monica Canyon Creek; Santa Barbara County; rises on the south slope of the Santa Ynez Mountains, in T. 4 N., R. 25 W., San Bernardino base and meridian, at altitude 3,000 feet above sea level; flows southward, and dis-

charges to the Pacific through El Estero, a tidal marsh west of Carpinteria; length, 5 miles; intermittent. Santa Barbara special sheet.

Santa Paula Creek; Ventura County; rises in the central part of T. 5 N., R. 21 W., San Bernardino base and meridian, on the eastern slope of Topatopa Bluff, at altitude 6,000 feet above sea level; flows eastward and southeastward 2½ miles, southward and southwestward through Santa Paula Canyon 5 miles, then in general east of south into Santa Clara River (tributary to the Pacific); fall, 5,650 feet; flows along north base of Santa Paula ridge; principal tributary, Sisar Creek. Gaging station near Santa Paula (1911–12). Santa Paula sheet.

Santa Rosa Creek; Russian River basin; Sonoma County; rises in the eastern part of T. 7 N., R. 7 W., Mount Diablo base and meridian; flows very irregularly westward, passing through Santa Rosa, to T. 7 N., R. 9 W., then northward to Mount Olivet, where it turns again and flows northwestward to its junction with Russian River (tributary to the Pacific) 1 mile north of Forestville; length, about 20 miles; principal tributaries, Los Alamos, and Bennett creeks, Laguna de Santa Rosa, and Mark West Creek. Punnett's map of Sonoma County. On the Land Office map of California, 1907, Bennett Creek is called Matanzas Creek.

Santa Rosa Creek; San Luis Obispo County; rises in the western part of T. 27 S., R. 10 W., Mount Diablo base and meridian; flows westward into the Pacific 3 miles northwest of Whiterock; length, 10 miles. Land Office map of California, 1907.

Santa Rosa Creek; Santa Ynez River basin; Santa Barbara County; an intermittent stream rising on the south slope of the Purisima Hills and flowing southward to the Santa Ynez River (tributary to the Pacific). Lompoc sheet.

Santa Ynez Canyon Creek; Los Angeles County; an intermittent stream, 5½ miles long, draining a small area in the Santa Monica Mountains and flowing southward into the Pacific through Santa Monica Bay. Calabasas sheet.

Santa Ynez River; Santa Barbara County; rises near the boundary line between Santa Barbara and Ventura counties, where the San Rafael and Santa Ynez mountains merge; flows nearly due west, and enters the Pacific Ocean at Surf about 8 miles northeast of Point Arguello lighthouse, where the coast line makes a sharp turn to the north.

The basin extends for a distance of about 80 miles parallel to the coast line and north of the Santa Ynez Mountains and comprises approximately 900 square miles. Four-fifths of this area is mountainous, elevations ranging from 3,000 to 4,000 feet in the Santa Ynez Range, and from 4,000 to 6,000 feet in the San Rafael, a few peaks, such as Mount Pinos, exceeding 8,000 feet above sea level. The greater part of the basin is included in a national forest and is sparsely covered with brush and small trees.

The mean annual precipitation in the area ranges from 20 to 30 inches, the increase being gradual from the lower to the higher elevations. The precipitation is almost entirely in the form of rain, but the higher elevations receive a light fall of snow.

Water is diverted for irrigation above Lompoc, and the present water rights exceed the low-stage flow of the stream.

The basin affords good storage sites. Several reservoirs have already been surveyed whose combined capacity far exceeds the mean annual run-off of the basin.

The river receives many small tributaries but the only one of importance is Mono Creek, which drains 120 square miles of the southern slope of the San Rafael Mountains and joins the Santa Ynez about 13 miles below its source.

Gaging stations near Santa Barbara (1903–1912); near Lompoc (1906–1912). Santa Barbara, Santa Ynez, Ventura, Lompoc, and Guadalupe sheets. Water-Supply Paper U. S. Geol. Survey No. 271, 1912, p. 110.

Santa Ysabel Creek. *See* San Dieguito River.

Santiago Creek; Orange County; rises in the southwestern part of T. 5 S., R. 6 W., San Bernardino base and meridian, 1½ miles southeast of Santiago Peak, at altitude 3,000 feet above sea level; flows northwestward 17 miles, then southwestward 8 miles to its junction with Santa Ana River (tributary to the Pacific) near the city of Santa Ana; fall, 2,900 feet, of which 2,500 feet is made in the northwestward-flowing stretch; tributaries, streams draining Harding, Silverado, Baker, Black Star, and Sierra canyons; intermittent. Corona sheet.

San Timoteo Canyon Creek; Riverside and San Bernardino counties; rises in T. 3 S., R. 1 W., San Bernardino base and meridian; flows northwestward to its junction with Santa Ana River (tributary to the Pacific). The stream rarely runs in considerable volume at its entrance to San Bernardino Valley except for short periods after heavy rains; principal tributaries, Little San Gorgonio and Yucaipe creeks. San Jacinto, Elsinore, and Redlands sheets.

San Tomas Aquinas Creek; Santa Clara County; an intermittent stream flowing in general northward to Santa Clara Valley, west of the city of Santa Clara; sinks before reaching Campbell Creek (tributary to Guadalupe River, which discharges to San Francisco Bay). San Jose sheet.

San Vicente Creek; San Diego County; rises in the central part of T. 13 S., R. 2 E., San Bernardino base and meridian, at altitude 2,500 feet above sea level; flows southwestward into San Diego River (which discharges to the Pacific through False Bay) near Lakeside; intermittent; length, 20 miles; fall, 2,100 feet; chief tributary, Padre Barona Creek. Ramona and Cuyamaca sheets.

San Vicente Creek; San Mateo County; rises in T. 4 S., R. 6 W., Mount Diablo base and meridian, on the east slope of South Peak Mountain, at altitude 1,600 feet above sea level; flows in general southwestward and enters the Pacific 1 mile south of Montara Point; length, about 3½ miles. San Mateo sheet.

San Vicente Creek; Santa Cruz County; rises on the west slope of Ben Lomond Mountain, in the northeastern part of T. 10 S., R. 3 W., Mount Diablo base and meridian; flows southwestward about 7 miles to the point at which it enters the Pacific near Davenport in San Vicente Rancho. Santa Cruz sheet.

San Ysidro Creek; San Diego County; rises in the eastern part of T. 10 S., R. 4 E., San Bernardino base and meridian, at an altitude of 5,000 feet above sea level, flows southwestward 6 miles to the east end of Warner Valley, where its waters sink before reaching Buena Vista Creek (tributary through Carrizo Creek to San Luis Rey River, which discharges to the Pacific) to which the area naturally drains; fall, 1,700 feet. Ramona sheet.

Sarco Creek; Napa County; rises in the central part of T. 6 N., R. 3 W., Mount Diablo base and meridian, on the north and east slopes of George Mountain; flows southwestward into Soda Creek (tributary to Napa River, which discharges to San Pablo Bay); length, 5 miles. Napa sheet.

Sardine Lake; Mono County, Mono National Forest, 1 mile east of Mono Pass; inlet, Walker Creek, which passes through this lake and Walker Lake to its junction with Rush Creek (tributary to Mono Lake); altitude, 9,850 feet. Mount Lyell sheet.

Sausal Creek; San Mateo County; a stream, about 1 mile long, flowing northeastward into Corte de Madero Creek (tributary through Searsville Lake to San Francisquito Creek, which discharges into San Francisco Bay) near Portola. Santa Cruz and Palo Alto sheets.

Sawmill Creek; Klamath River basin; Trinity County; rises in the eastern part of T. 4 N., R. 8 E., Humboldt base and meridian; flows in general east of north into Trinity River (tributary to Klamath River, which discharges to the

Pacific) near Big Bar; length, about 4 miles. Punnett's map of Trinity County.

Sawmill Creek; Owens River basin; Inyo County; Inyo National Forest; rises on the north slope of Mount Baxter, at altitude 11,900 feet above sea level; flows northeastward into Owens Valley where its waters sink; length, about 7 miles; fall, 8,000 feet. Gaging station near Independence (1906–1910). Mount Whitney sheet.

Sawpit Canyon Creek; Los Angeles County; San Gabriel River basin; rises in the northwestern part of T. 1 N., R. 10 W., San Bernardino base and meridian, on the southern slope of Monrovia Hill, at altitude 4,000 feet above sea level; flows southeastward 1½ miles, then southwestward 2 miles to the mouth of its canyon near Monrovia; fall above mouth of canyon, about 3,000 feet. Pomona sheet.

Scholl Canyon; Los Angeles County; a drainage way in the southern part of San Rafael Hills, opening westward toward the valley of the Los Angeles (tributary to the Pacific) near Glendale. Pasadena sheet.

Schoolhouse Canyon Creek; Santa Barbara County; an intermittent stream, 7 miles long, rising in the southern part of T. 10 N., R. 28 W., San Bernardino base and meridian, and flowing east of north into Cuyama River (Santa Maria River, which discharges to the Pacific); tributary, Deadman Canyon Creek. Santa Ynez sheet.

Schooner Gulch Creek; Mendocino County; rises in the northwestern part of T. 11 N., R. 15 W., Mount Diablo base and meridian; flows northwestward; enters the Pacific 1½ miles northwest of Rough and Ready Landing; length, 4 miles. Punnett's map of Mendocino County.

Schumann Canyon Creek; Santa Barbara County; an intermittent stream, 4 miles long, rising in the northwest part of Casmalia Rancho and flowing northwestward to Pacific Ocean. Guadalupe sheet.

Sciad Creek; Siskiyou County; rises in the northern part of T. 47 N., R. 11 W., Mount Diablo base and meridian, on the south slope of Siskiyou Mountains; flows southward 4 miles, then southwestward 5 miles to its junction with Klamath River (tributary to the Pacific) near Lowders. Punnett's map of Siskiyou County.

Scorpion Creek; Trinity County; rises in the northern part of T. 37 N., R. 7 W., Mount Diablo base and meridian, at altitude 4,000 feet above sea level; flows westward to its junction with Trinity River (tributary to Klamath River, which flows to the Pacific); length, 3 miles; fall, 1,500 feet. Shasta sheet.

Scott Creek; Coyote River basin; Alameda County; a stream, about 5 miles long, rising on the north slope of Monument Peak; flows southwestward along the boundary between Alameda and Santa Clara counties to the channel of Penitencia Creek (tributary to Coyote River) in the tidal marsh through which the river enters San Francisco Bay. San Jose sheet.

Scott Creek; Santa Cruz County; rises in the northern part of T. 9 S., R. 3 W., Mount Diablo base and meridian, south of Blooms Mill; flows southwestward 5 miles, then in general southeastward about 5 miles to the point at which it enters the Pacific in Agua Puerca y las Trancas Rancho; tributaries, Mill, Big, Little, Archibald, and Molino creeks. Santa Cruz sheet.

Scott River; Siskiyou County; formed in the western part of T. 40 N., R. 8 W., Mount Diablo base and meridian, by the union of its South and East forks. The East Fork, which drains the larger area and is therefore considered the continuation of the main stream, is formed by a number of branching tributaries draining the north slopes of Scott Mountains, and its general course is southwestward to the junction with the South Fork. Punnett's map of Siskiyou County applies the name East Fork Scott River to a small tributary named on

the Shasta sheet Kangaroo Creek. On the Shasta sheet the name East Fork is applied to the most western of the head-water streams, that is, to the one heading immediately opposite the head of Willow Creek which flows to Shasta River. The stream here considered the head of the East Fork, using extent of drainage area as a criterion, is one which starts in the northwestern part of T. 40 N., R. 6 W., flows northwestward about 5 miles and then turns abruptly to the west and southwest. Below these forks the main river flows northward about 22 miles, then somewhat north of west 12 miles, makes a sharp bend to the north and east around the west end of Scott Bar Mountains, and enters Klamath River (tributary to the Pacific) in the extreme northwestern part of T. 45 N., R. 10 W.; total length below the forks, 50 miles; length of the East Fork above the junction, about 18 miles, making length of the river from the Klamath to the head of the longest branch of the East Fork, 68 miles; principal tributaries below the forks, Wildcat, French, Clarks, Etna, Paterson, Cherry, Evans, Kelsey, Middle, Thompson, and Mill creeks.

The crest of Scott Mountains is about 7,000 feet above sea level.

Gaging stations on East Fork near Callahan (1910–1912) and on main stream near Scott Bar (1911–12).

Shasta sheet and Punnett's map of Siskiyou County.

Scott River, East Fork. *See* Scott River.

Scott River, South Fork; Siskiyou County; rises in the northwestern part of T. 39 N., R. 9 W., Mount Diablo base and meridian, in Jackson Lake; flows southeastward 1 mile, northeastward 8 miles, and unites with the East Fork to form Scott River (tributary to Klamath River, which discharges to the Pacific); principal tributary, Bowlder Creek. Punnett's map of Siskiyou County.

Scotts Lake; Alpine County; 2 miles north of east of Stevens Peak; 2 small inlets; outlet, an intermittent stream flowing south of east to West Fork of Carson River (tributary through Carson River to Carson Sink); altitude, 8,050 feet; fall of outlet, about 1,000 feet. Markleeville sheet.

Scotty Creek; Sonoma County; rises in the north-central part of Bodega Rancho; flows in general southwestward about 3 miles to the point at which it enters the Pacific. Punnett's map of Sonoma County.

Seal Creek; Contra Costa County; rises in the northeastern part of T. 1 N., R. 1 W., Mount Diablo base and meridian, west of Kirker Pass, at altitude 750 feet above sea level; flows in general northwestward about 10 miles to Hastings Creek in the tidal marsh on the south shore of Suisun Bay; principal tributary, Mount Diablo Creek; intermittent in upper course. Mount Diablo, Antioch, and Carquinez sheets.

Seal Creek; San Mateo County; a channel in the marsh at the south end of San Francisco Bay, 2 miles east of San Mateo. San Mateo sheet.

Searles Dry Lake; San Bernardino County; between the Slate Range and Argus Mountains. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I and pp. 42–43, on which the springs near Searles Dry Lake are described.

Searsville Lake; San Mateo County; between Canada de Raymundo and Canada del Corte de Madera ranchos; inlets, Martin and Corte de Madera creeks and San Francisquito Creek, which flows through the lake into San Francisco Bay. Santa Cruz and Palo Alto sheets.

Sebrina Lake; Inyo County, Inyo National Forest; southwestern part of T. 8 S., R. 31 E., Mount Diablo base and meridian; inlet and outlet, Middle Fork of Bishop Creek, which flows through the lake to its junction with South Fork with which it forms Bishop Creek (tributary to Owens River, which discharges to Owens Lake); altitude, 9,170 feet. Mount Goddard sheet.

See Canyon Creek; San Luis Obispo County; rises in the San Luis Range in T. 31 S., R. 11 E., Mount Diablo base and meridian; flows southeastward 5½

miles into San Luis Obispo Creek (tributary to the Pacific) near Sycamore Springs; fall, 700 feet; principal tributary, Davis Canyon Creek. Port Harford and Arroyo Grande sheets.

Sempervirens Creek; Santa Cruz County; rises in the California Redwood Park, at altitude about 1,400 feet above sea level; flows southward to Blooms Creek (tributary to East Waddell Creek and thus to Waddell Creek, which discharges to the Pacific); length, about 2 miles; tributary, Union Creek. Santa Cruz sheet.

Senor Canyon Creek, Ventura River basin. *See* San Antonio Creek.

Sepulveda Canyon Creek; Los Angeles County; an intermittent stream, about 5 miles long, draining a small area in the Santa Monica Mountains and flowing southeastward toward Ballona Creek; sinks north of the Soldiers' Home. Santa Monica sheet.

Sespe Creek; Santa Barbara and Ventura counties; rises in Santa Barbara County in the eastern part of T. 6 N., R. 25 W., San Bernardino base and meridian; flows in general eastward to the southeastern part of T. 6 N.. R. 20 W., where it turns abruptly southward to join Santa Clara River (tributary to the Pacific) near Bardsville; including its major windings, the creek is about 45 miles long; most of its tributaries are short streams draining the southern slopes of Pine Mountain and the northern slope of the Topatopa Mountains; the entire basin is in the Santa Barbara National Forest. Gaging station near Sespe (1911–12). Mount Pinos, Tejon, and Camulos sheets.

Sespe Creek, Little; Ventura County; an intermittent stream, 2 miles long, rising in the northwestern part of T. 4 N., R. 19 W., San Bernardino base and meridian, and flowing southwestward into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); tributary, Fourfork Creek. Camulos sheet.

Sevenmile Creek; Klamath County, Oreg.; rises in the western part of the county; flows northeastward 5 miles, then southward to Upper Klamath Lake (outlet, Klamath River, which discharges to the Pacific); marshy throughout lower course; length, about 22 miles; principal tributaries, Cherry and Rock creeks. Ashland sheet.

Seward Creek; Mendocino County; rises in the northwestern part of T. 16 N., R. 13 W., Mount Diablo base and meridian, 1 mile east of Leonard Lake; flows irregularly eastward to its junction with Forsythe Creek (tributary through Russian River to the Pacific); length, 7 miles. Punnett's map of Mendocino County.

Sexton Canyon Creek; Ventura County; an intermittent stream draining a small area in the southwestern part of Ex Mission San Buenaventura Rancho and flowing southward toward Santa Clara River (tributary to the Pacific); tributary, Lake Canyon Creek; fall in 2 miles above edge of valley, 450 feet. Santa Paula sheet.

Seymour Creek; Ventura County; rises in the northern part of T. 8 N., R. 21 W., San Bernardino base and meridian, 2 miles east of Mount Pinos, at altitude 6,800 feet above sea level; flows southeastward 6 miles to its junction with Lockwood Creek (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific) at Griffin; fall, about 1,900 feet; intermittent. Mount Pinos sheet.

Shackelford Creek; Siskiyou County; rises in the east-central part of T. 43 N., R. 12 W., Mount Diablo base and meridian; flows southeastward 10 miles to its junction with Evans Creek, through which it is tributary to Scott River (tributary to Klamath River, which flows to the Pacific); heads in a lake unnamed on the map. Punnett's map of Siskiyou County. On the Land Office

map of California, 1907, the name Shackelford Creek is applied to the upper stretch of Evans Creek.

Shafer Creek; Alameda Creek basin; Alameda County; an intermittent stream, 1¼ miles long, rising in the northwestern part of T. 5 S., R. 3 E., Mount Diablo base and meridian, in Shafer Flat, at altitude 3,450 feet above sea level, and flowing southeastward to Trout Creek (tributary through Arroyo del Valle to Arroyo de la Laguna, and thus to Alameda Creek, which discharges to San Francisco Bay). Tesla sheet.

Shake Creek; San Bernardino County; rises in the eastern part of T. 2 N., R. 3 W., San Bernardino base and meridian, at altitude 6,150 feet above sea level; flows northward and northeastward 2½ miles into Deep Creek (tributary to Mohave River); fall, 1,250 feet; principal tributaries, Cedar and Sheep creeks. Redlands and Deep Creek sheets.

Shasta River; Siskiyou County; formed in the western part of T. 41 N., R. 5 W., Mount Diablo base and meridian, by the union of its North and Middle forks; the North Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises on the east slope of China Mountain, at altitude 6,000 feet above sea level; flows eastward 6 miles to the point at which it receives the Middle Fork, and from this junction the river winds northward and northwestward to the western part of T. 46 N., R. 6 W., where it unites with Klamath River (tributary to the Pacific); length, about 40 miles; total fall, 4,000 feet, of which 3,000 feet is made in the first 5 miles; fed by springs issuing from the lava beds at the north base of Mount Shasta; principal tributary, Little Shasta River. Gaging station near Montague (1911–12). Punnett's map of Siskiyou County; Shasta sheet (on which the North Fork is not named).

Shasta River, Little; rises in the eastern part of T. 45 N., R. 3 W., Mount Diablo base and meridian, at altitude 4,600 feet above sea level; flows somewhat south of west to its junction with Shasta River (tributary to Klamath River, which flows to the Pacific); length, about 20 miles; fall, 2,000 feet, of which 1,600 feet is made in the first 9 miles. Shasta sheet.

Shasta River, Middle Fork; Siskiyou County; rises on the north slope of Eddy Mountain in the northwestern part of T. 40 N., R. 5 W., at altitude 6,400 feet above sea level; flows northeastward 6 miles and unites with North Fork to form Shasta River (tributary to Klamath River, which flows to the Pacific); fall above junction with North Fork, 3,300 feet. Shasta sheet.

Sheep Creek; Los Angeles and San Bernardino counties; rises in the northeastern part of T. 3 N., R. 8 W.; flows southeastward 3½ miles through Swartout Valley, then turns and flows northward into Mohave Desert; intermittent. San Antonio sheet.

Sheep Creek; Riverside County; an intermittent stream, 2 miles long, flowing west of north into Deep Canyon Creek, which discharges to the Colorado Desert. Indio special sheet.

Sheep Creek; San Bernardino County; rises in the southwestern part of T. 2 N., R. 2 W., San Bernardino base and meridian, at altitude 6,300 feet above sea level; flows northward 2½ miles to its junction with Shake Creek (tributary to Deep Creek, which discharges to Mohave River); fall, 1,350 feet. Redlands and Deep Creek sheets.

Sheller Creek; Siskiyou County; rises in the south-central part of T. 48 N., R. 6 W., Mount Diablo base and meridian, at altitude 3,600 feet above sea level; flows in general west of south 4 miles into Cottonwood Creek (tributary to Klamath River, which flows into the Pacific); fall, 1,100 feet. Shasta sheet.

Shepard Creek; Diamond Creek basin; Alameda County; an intermittent stream, 1½ miles long, rising in San Antonio Rancho and flowing southwestward

into Diamond Creek, which discharges through San Leandro Bay to San Francisco Bay. Concord sheet.

Shepard Creek; Owens River basin; Inyo County, Inyo National Forest; rises on the east slope of the Sierra on Junction Peak, at altitude 12,500 feet above sea level; flows southeastward 1½ miles, then northeastward 10 miles to Owens Valley, where its waters sink; fall, 8,500 feet, of which 6,500 feet is made in the first 6 miles; principal tributary, Williamson Creek. Gaging station near Thebe (1906–1909). Mount Whitney sheet.

Shepherd Canyon Creek; San Diego County; rises in eastern part of Ex Mission San Diego Rancho, at altitude 575 feet above sea level; flows southwestward into Murphy Canyon Creek (tributary to San Diego River, which discharges to the Pacific through False Bay); intermittent; length, 3 miles; fall, 400 feet. La Jolla sheet.

Shields Canyon; Ventura County; a drainage way opening northward to Santa Clara River (tributary to the Pacific) in T. 3 N., R. 19 W., San Bernardino base and meridian. Camulos sheet.

Shovel Creek; Siskiyou County; rises on the east slope of Willow Creek Mountain in the central part of T. 46 N., R. 3 W., Mount Diablo base and meridian; flows northwestward 3 miles, northeastward 6 miles, then again northwestward 6 miles to its junction with Klamath River (tributary to the Pacific) in the central part of T. 48 N., R. 3 W. Shasta sheet and Punnett's map of Siskiyou County.

Shower Creek; Humboldt County; rises in the northern part of T. 2 N., R. 4 E., Humboldt base and meridian; flows northward 3½ miles into Mad River (tributary to the Pacific). Punnett's map of Humboldt County.

Sierra Canyon Creek; Malibu Creek basin; Los Angeles County; an intermittent stream, about 2 miles long, draining a small area in the northwestern part of T. 1 S., R. 18 W., San Bernardino base and meridian, and flowing northeastward into Triunfo Creek (tributary to Malibu Creek, which discharges to the Pacific). Camulos sheet.

Sierra Canyon Creek; Santa Ana River basin; Orange County; rises on the eastern slope of the Santa Ana Mountains, 2 miles southwest of Sierra Peak, at altitude 1,700 feet above sea level; flows southwestward 5 miles into Santiago Creek (tributary to Santa Ana River, which discharges to the Pacific); fall, 1,000 feet; intermittent. Corona sheet.

Sierra River; Salinas River basin. *See* Nacimiento Creek.

Silurian Dry Lake; San Bernardino County; in T. 17 N., R. 7 E., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Silverado Canyon Creek; Santa Ana River basin; Orange County; rises on the southwest slope of Bald Peak, at altitude 2,700 feet above sea level; flows westerly 8 miles into Santiago Creek (tributary to Santa Ana River, which discharges to the Pacific); fall, 1,700 feet; principal tributary, Ladd Canyon Creek; intermittent. Corona sheet.

Silverado Canyon Creek; Walker River basin; California-Nevada; rises in Mono County, Cal., in the western part of T. 7 N., R. 25 E., Mount Diablo base and meridian, at altitude 9,500 feet above sea level; flows somewhat north of east to its junction with Ferris Canyon Creek (tributary through Sweetwater Creek to East Walker River and thus to Walker River, which discharges to Walker Lake) near Sweetwater in Mineral County, Nev.; length, 5 miles; fall, 3,100 feet, of which 2,000 feet occurs in about 2 miles in the canyon; intermittent in upper course. Bridgeport sheet.

Silver Creek; Carson River basin; Alpine County; rises in the central part of T. 8 N., R. 20 E., Mount Diablo base and meridian, at altitude 9,300 feet

above sea level; flows northward and northeastward to its junction with East Fork of Carson River (tributary through Carson River to Carson Sink); length, about 10 miles; fall, 3,300 feet, of which 1,300 feet is made in the first mile. Gaging station near Markleeville (1910–1912). Markleeville sheet.

Silver Creek; Coyote River basin; Santa Clara County; rises in Yerba Buena Rancho, about 5 miles east of Edenvale; flows northwestward to the valley of Coyote River (tributary to San Francisco Bay) east of San Jose, where it sinks in a marsh. Mount Hamilton and San Jose sheets.

Silver Creek; Mohave Desert; San Bernardino County; T. 3 N.. R. 1 W., San Bernardino base and meridian; an intermittent stream, about 3 miles long, flowing northeastward into the Mohave Desert. Deep Creek and San Gorgonio sheets.

Silver Creek; Truckee River basin; Placer County; rises in the western part of T. 16 N., R. 16 E., Mount Diablo base and meridian, at altitude 7,500 feet above sea level; flows in general easterly to its junction with Truckee River (tributary to Pyramid and Winnemucca lakes); length, about 2 miles; fall, 1.450 feet. Truckee sheet.

Silver Creek; Walker River basin; Mono County; rises in the northwestern part of T. 6 N., R. 22 E., Mount Diablo base and meridian, at altitude 9,500 feet above sea level; flows southeastward into West Walker River (tributary to Walker River, which discharges to Walker Lake) in Pickle Meadow; fall, 2,700 feet. Dardanelles sheet.

Silver King Creek; Alpine County; rises in the northeastern part of T. 6 N., R. 21 E., Mount Diablo base and meridian, at altitude 10,200 feet above sea level; takes a general northerly course to its junction with East Fork of Carson River (tributary through Carson River to Carson Sink) in Silver King Valley; length, about 14 miles; fall, 3,700 feet, of which 1,700 feet is made in the first 2 miles. Dardanelles and Markleeville sheets.

Silver Lake; Lassen County. *See* Caribou Lake.

Silver Lake; Mono County, Mono National Forest; west-central part of T. 2 S., R. 26 E., Mount Diablo base and meridian; inlets, Rush Creek and North Fork of Rush Creek; outlet, Rush Creek, which discharges to Mono Lake; altitude, 7.212 feet; fall of Rush Creek in the 5 miles between Silver and Grant Lakes, 152 feet. Mount Lyell sheet.

Silver Dry Lake; San Bernardino County; in T. 15 N., R. 8 E., San Bernardino base and meridian, near the town of Silver Lake; a shallow intermittent body of water, formed in a bowl in the desert by the overflow of Mohave River during seasons of high water; shallow wells sunk near the edge of this lake give an abundant supply of brackish water. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I, p. 55.

Sinbad Creek; Alameda Creek basin; Alameda County; an intermittent stream, about 7 miles long, rising in the central part of T. 3 S., R. 1 W., Mount Diablo base and meridian, at altitude 1,250 feet above sea level, and flowing southeastward to Sunolglen, where it joins Arroyo de la Laguna (tributary to Alameda Creek, which discharges to San Francisco Bay); fall, 1,000 feet; the canyon lies between Pleasanton and Sunol Ridges. Pleasanton sheet.

Sisar Creek; Ventura County; rises in the southeastern part of T. 5 N., R. 22 W., San Bernardino base and meridian, at altitude 4.350 feet above sea level; flows southerly 4 miles, then south of east 2½ miles into Santa Paula Creek (tributary to Santa Clara River, which discharges to the Pacific) near Sulphur Mountain Spring; fall, 3,350 feet; principal tributary, Bear Canyon Creek. Santa Paula sheet.

Sisquoc River; Santa Barbara county; rises in the Santa Barbara National Forest on the west slope of Big Pine Mountain, at altitude 6,000 feet above

sea level; flows northwestward to its junction with Santa Maria River (tributary to the Pacific) in Santa Maria Valley; length, including major windings, about 45 miles; the drainage basin lies almost wholly in the San Rafael Mountains; the river is marked as intermittent nearly to its head and practically all of its tributaries are intermittent streams. Santa Ynez and Lompoc sheets.

Sisquoc River, South Fork; Santa Maria River basin; Santa Barbara County; an intermittent stream, 3 miles long, rising on the east slope of San Rafael Mountain in the Santa Barbara National Forest, and flowing northeastward to Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Santa Ynez sheet.

Skunk Hollow Creek; Santa Clara County; an intermittent stream draining a small area in the northeastern part of T. 8 S., R. 4 E., Mount Diablo base and meridian; flows southeastward to Grizzly Creek, through which it is tributary to Coyote River (tributary to San Francisco Bay). Mount Hamilton sheet.

Slate Creek; San Mateo County; rises in the southeastern part of T. 7 S., R. 3 W., Mount Diablo base and meridian, at altitude 2,300 feet above sea level; flows southwestward 4½ miles into Pescadero Creek, which discharges to the Pacific; fall, 1,800 feet. Santa Cruz sheet.

Slate Creek; Lassen County; rises in the central part of T. 34 N., R. 10 E., Mount Diablo base and meridian; flows northeastward, and discharges into Grasshopper Valley, which has no outlet; length, about 3 miles; intermittent. Honey Lake sheet.

Slate Range Dry Lake; San Bernardino County; south end of Slate Range, southeast of Searles Dry Lake. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Slide Canyon Creek, Little; Mono County; rises in the northeastern part of T. 3 N., R. 23 E., Mount Diablo base and meridian, at altitude 9,750 feet above sea level; flows northward 1½ miles into Robinson Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake); fall, 2,100 feet. Bridgeport sheet.

Slide Creek; Trinity County; rises in the northwestern part of T. 37 N., R. 12 W., Mount Diablo base and meridian, on the south slope of New River Mountains, near New River City; flows southwestward into New River (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, 7 miles. Punnett's map of Trinity County.

Slim Lake; Inyo County; Inyo National Forest, 1 mile southeast of Kearsarge Pass; 2 inflowing streams; outlet, a stream half a mile long flowing northeastward to an unnamed stream connecting Heart Lake with Little Pine Creek (tributary to Owens Valley); altitude, 10,578 feet. Mount Whitney sheet.

Smith Creek; Alameda Creek basin; Santa Clara County; rises in the southwestern part of T. 7 S., R. 4 E., Mount Diablo base and meridian, on the western slope of Pine Ridge, at altitude about 3,250 feet above sea level; flows westward about 3 miles through Horse Valley, then northwestward about 10 miles to the southwestern part of T. 6 S., R. 3 E., where it joins Isabel Creek to form Arroyo Hondo (tributary to Calaveras Creek and thus to Alameda Creek, which discharges to San Francisco Bay); principal tributary, Sulphur Creek, which drains the eastern and southern slopes of Mount Hamilton; fall, above junction with Isabel Creek, about 1,500 feet. Mount Hamilton sheet.

Smith Creek; Colorado Desert; Riverside County; rises in the western part of T. 2 S., R. 1 E., San Bernardino base and meridian, at altitude of 3,900 feet above sea level; flows southwestward 3 miles to a point 2 miles northeast of Beaumont, at the western end of San Gorgonio Pass, which slopes eastward toward the Colorado Desert. San Jacinto sheet.

Smith Creek; Russian River basin; Sonoma County; rises in the north-central part of T. 7 N., R. 10 W., Mount Diablo base and meridian; flows north of west 2½ miles into Russian River (tributary to the Pacific). Punnett's map of Sonoma County.

Smith Creek; Tenmile River basin; Mendocino County; rises in the northern part of T. 19 N., R. 16 W., Mount Diablo base and meridian; flows in general somewhat south of west to its junction with the South Fork of Tenmile River (tributary through Tenmile River to the Pacific); length, 7 miles. Punnett's map of Mendocino County.

Smith Creek; Toro Creek basin; San Luis Obispo County; an intermittent stream, 1 mile long, rising in T. 28 S., R. 11 E., Mount Diablo base and meridian, and flowing southeastward into Toro Creek, which discharges to the Pacific in Estero Bay. Cayucos sheet.

Smith Fork; Santa Clara River basin; Ventura County; a drainage way in the northeastern part of T. 7 N., R. 19 W., San Bernardino base and meridian, opening southward to Piru Creek (tributary to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Smith Lake; Trinity County; northern part of T. 36 N., R. 10 W., Mount Diablo base and meridian; one inlet; outlet, Stewart Fork of Trinity River (tributary through Trinity River to the Klamath, which discharges to the Pacific); altitude, about 6,000 feet. Punnett's map of Trinity County.

Smith River; Del Norte County, Cal., Josephine and Curry counties, Oreg.; formed in the western part of T. 17 N., R. 2 E., Humboldt base and meridian, by the junction of its North and Middle forks. The Middle Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises on the western slope of the Siskiyou Mountains in the central part of T. 17 N., R. 5 E., Humboldt base and meridian; flows northwestward 5 miles, then in general southwestward to the point at which it receives the North Fork. Below these forks the main river flows in general southwestward to the north-central part of T. 16 N., R. 1 E., then turns abruptly to the west, and northwest, in which direction it continues to flow to the point at which it enters the Pacific in western T. 18 N., R. 1 W.; length from mouth to head of Middle Fork, about 45 miles; principal tributaries of Middle Fork, Preston and Patrick creeks; below the mouth of the North Fork the principal tributaries are South Fork of Smith and Mill Creek. Gaging station on Middle Fork near Crescent City (1911–12). Punnett's map of Del Norte County.

Smith River, Middle Fork. *See* Smith River.

Smith River, North Fork; Del Norte County, Cal., and Josephine County, Oreg.; rises in the extreme southwestern part of Josephine County, Oreg.; flows in general somewhat west of south into Del Norte County, Cal.; unites with the Middle Fork of Smith River to form Smith River in the western part of T. 17 N., R. 2 E., Humboldt base and meridian; length, including major windings, about 20 miles; principal tributary, Stony Creek. Gaging station near Crescent City (1911–12). Land Office map of Oregon, 1910 (on which it is not named), and Punnett's map of Del Norte County.

Smith River, South Fork; Del Norte County; rises on the western slope of the Siskiyou Mountains, in the northern part of T. 16 N., R. 4 E., Humboldt base and meridian; flows in general southwestward about 12 miles, then takes a northwesterly course to its junction with Smith River (tributary to the Pacific) in the northern part of T. 16 N., R. 1 E.; length, including major windings, 32 miles; principal tributaries, Quartz, Jones, Hurdy Gurdy, Gorton, and Coon creeks from the north, and Goose and Rock creeks from the south. Gaging station near Crescent City (1911–12). Punnett's map of Del Norte County.

Smoky Creek; Trinity County; rises in the eastern part of T. 29 N., R. 12 W.,

Mount Diablo base and meridian; flows southwestward into South Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); length, about 6 miles. Punnett's map of Trinity County.

Snag Lake; Lassen County; southern part of T. 31 N., R. 6 E., Mount Diablo base and meridian; altitude, 6,500 feet; no outlet; inlet from Twin Lakes. Lassen Peak sheet.

Snail Canyon Creek; Ventura County; an intermittent stream, 4 miles long, rising in the northern part of T. 6 N., R. 23 W., San Bernardino base and meridian, on the north slope of Pine Mountain; flows northward and northwestward to Cuyama River (Santa Maria River, which discharges to the Pacific). Mount Pinos sheet.

Snake Creek; Washoe County, Nev., and Lassen, County, Cal.; rises in a spring 3 miles southeast of Observation Peak, at altitude about 5,300 feet above sea level; flows southeastward and discharges into the Mud Flat in the western part of Washoe County, Nev.; length in California, about 10 miles; in Nevada, about 12 miles. Honey Lake and Granite Range sheets.

Snake Lake; Modoc County; southeastern part; 1 mile west of the south end of Lower Alkali Lake; outlet, a stream 3 miles long, flowing southeastward to Bare's Creek, which discharges to Lower Alkali Lake; altitude, 5,300 feet. Alturas sheet.

Snow Creek; Riverside County; Tps. 4 and 3 S., R. 3 E., San Bernardino base and meridian; rises on the north slope of San Jacinto Peak (altitude, 10,805 feet) and flows northward to the eastern end of San Gorgonio Pass, which slopes eastward from a point near Beaumont to the Colorado Desert; fall in the 5 miles above the pass, 8,500 feet. San Jacinto sheet.

Snow Lake; Mono County; central part of T. 3 N., R. 23 E., Mount Diablo base and meridian; outlet, Robinson Creek to East Walker River (tributary through Walker River to Walker Lake); altitude, 10,150 feet; very small. Bridgeport sheet.

Snowy Creek; Ventura County; rises in the northeastern part of T. 6 N., R. 20 W., San Bernardino base and meridian, on the south slope of Alamo Mountain, at altitude 6,500 feet above sea level; flows northeastward into Piru Creek (tributary to Santa Clara River, which discharges to the Pacific); length, 7 miles; fall, 3,500 feet; principal tributaries, Big Cedar and Deadhorse creeks. Tejon sheet.

Soda Creek; Eel River basin; Lake County; rises in the central part of T. 19 N., R. 11 W., Mount Diablo base and meridian; takes a general southeasterly course to its junction with Eel River (tributary to the Pacific); length, about 9 miles. Punnett's map of Mendocino and Lake counties.

Soda Creek; Napa River basin; Napa County; rises in the southern part of T. 7 N., R. 4 W., Mount Diablo base and meridian, at altitude 1,200 feet above sea level; flows southward to its junction with Napa River (tributary to San Pablo Bay) 1 mile northeast of Napa; length, about 9 miles; principal tributaries, Milliken and Sarco creeks. Napa sheet.

Soda Creek; Navarro River basin; Mendocino County; rises in the northern part of T. 13 N., R. 13 W., Mount Diablo base and meridian; flows northward 1 mile, then in general southwestward to its junction with Anderson Creek (tributary through Navarro River to the Pacific) in the eastern part of T. 13 N., R. 14 W.; length, 5 miles. Punnett's map of Mendocino County.

Soda Lake; Salinas River basin; San Luis Obispo County; in T. 31 S., Rs. 19 and 20 E., Mount Diablo base and meridian; an intermittent water body lying on the western border of the Carrizo Plain; the plain is drained northwestward to San Juan Creek, which flows into Estrella Creek, a branch of the Salinas. McKittrick sheet.

Soda Sink. *See* Mohave River.

Soda Spring Creek; Russian River basin; Mendocino County; rises in the southwestern part of T. 12 N., R. 11 W., Mount Diablo base and meridian; flows southwestward 2 miles into Dry Creek (tributary to Russian River, which flows into the Pacific). Punnett's map of Mendocino County.

Soda Springs Creek; Laurel Creek basin; Solano County; a stream, 2 miles long, draining a small area in the eastern part of Tolenas Rancho and flowing southeastward to Laurel Creek, which discharges into the marsh on the north side of Suisun Bay. Napa sheet.

Soledad Canyon Creek; San Diego County; rises in northeastern part of T. 15 S., R. 3 W., San Bernardino base and meridian, at altitude 350 feet above sea level; flows northwestward about 4 miles to Soledad Valley, where it joins Los Penasquitos Canyon Creek which flows through the valley and passes into the Pacific through a tidal marsh 1 mile southeast of Delmar; principal tributary, Carroll Canyon Creek. La Jolla sheet.

Solomon Canyon; Santa Barbara County; a drainage way in the Solomon Mountains opening northward to the valley of Santa Maria River (tributary to the Pacific). Lompoc sheet.

Solstice Canyon Creek; Los Angeles County; an intermittent stream, 4 miles long, rising on the southern slope of Santa Monica Mountains, in T. 1 S., R. 18 W., and flowing southeastward into the Pacific Ocean. Camulos sheet.

Sonoma Creek; Sonoma County; rises in the north-central part of T. 7 N., R. 6 W., Mount Diablo base and meridian; takes a general southeasterly course to the point at which it enters San Pablo Bay; length, about 28 miles; in the 5-mile stretch above its mouth is connected by sloughs with Napa River. Napa sheet; Punnett's map of Sonoma County.

Soto Creek; Pajaro River basin; San Benito County; rises in the southern part of T. 13 S., R. 5 E., Mount Diablo base and meridian; flows northeastward into San Benito River (Pajaro River, tributary to the Pacific in Monterey Bay); length, about 4 miles. Land Office map of California, 1907.

South Eel River. *See* Eel River.

South Lake; Inyo County; Inyo National Forest; central part of T. 9 S., R. 31 E., Mount Diablo base and meridian; inlet and outlet, South Fork of Bishop Creek (tributary through Bishop Creek to Owens River, which discharges to Owens Lake); altitude, 9,750 feet. Mount Goddard sheet.

Sprague River; Klamath County. Oreg.; formed by the junction of its North and South forks in the eastern part of Klamath County; flows north of west about 40 miles, then southwestward to the point at which it unites with Williamson River (tributary to Upper Klamath Lake and thus to Klamath River, which discharges to the Pacific); principal tributary, Sycan River. Klamath sheet.

Sprague River, North Fork; Klamath County, Oreg.; rises in the eastern part of the county; flows southwestward to its junction with the South Fork with which it forms Sprague River (tributary through Williamson River to Upper Klamath Lake and thus to Klamath River, which discharges to the Pacific). Land Office map of Oregon, 1910; Klamath sheet.

Sprague River, South Fork; Lake and Klamath counties, Oreg.; rises in Lake County in the Fremont National Forest; flows northwestward into Klamath County where it unites with the North Fork to form Sprague River (tributary through Williamson River to Upper Klamath Lake and thus to Klamath River, which discharges to the Pacific); length, about 25 miles. Land Office map of Oregon, 1910; Klamath sheet.

Spring Branch; Gualala River basin; Mendocino County; rises in the southwestern part of T. 12 N., R. 13 W., Mount Diablo base and meridian; flows

southwestward 2 miles into the North Fork of Gualala River (tributary through Gualala River to the Pacific). Punnett's map of Mendocino County.

Spring Branch; Solano County; an intermittent stream, about 5 miles long, rising on the north slope of the Potrero Hills and flowing westward to the tidal marsh on the north side of Suisun Bay, in which it joins Suisun Creek. Antioch and Carquinez sheets.

Spring Canyon Creek; San Diego County; rises in T. 15 S., R. 2 W., San Bernardino base and meridian, at altitude 900 feet above sea level; flows southward into San Diego River, which discharges to the Pacific through False Bay; intermittent; length, 3½ miles; fall, 600 feet. La Jolla sheet.

Spring Creek; Klamath River basin; Klamath County, Oreg.; rises in springs north of the Klamath Agency; flows west of south 1½ miles into Crooked River (tributary through Anna River to Upper Klamath Lake, which discharges through Klamath River to the Pacific). Klamath sheet.

Spring Creek; Santa Margarita River basin; Riverside County; a southward-flowing stream, about 2 miles long, draining the southeastern corner of T. 7 S., and the northeastern corner of T. 8 S., R. 1 W., San Bernardino base and meridian; flows toward Nigger Valley on Temecula Creek (Santa Margarita River, which discharges to the Pacific). San Jacinto sheet.

Sproul Creek; Humboldt County; rises in the northeastern part of T. 5 S., R. 2 E., Humboldt base and meridian; flows southeastward 2 miles, then northeastward 3 miles into South Fork of Eel River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Squaw Creek; Eel River basin; Humboldt County; rises in T. 4 S., R. 4 E., Humboldt base and meridian; flows southwestward into East Branch of South Fork of Eel River (tributary through South Fork of Eel River to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Squaw Creek; Mattole River basin; Humboldt County; rises in the central part of T. 3 S., R. 1 W.; flows northwestward 5 miles, then northeast, north, and northwest 2½ miles into Mattole River (tributary to the Pacific). Punnett's map of Humboldt County.

Squaw Creek; Russian River basin; Mendocino County; rises on the west slope of the Coast Range in T. 12 N., R. 9 W., Mount Diablo base and meridian; flows westward to its junction with Russian River (tributary to the Pacific); length, 9 miles. Punnett's map of Mendocino and Lake counties.

Squaw Creek; Russian River basin; Sonoma County; rises on the western slope of the Coast Range in the northeastern part of T. 11 N., R. 9 W., Mount Diablo base and meridian; flows northwestward 2 miles, then southwestward 2 miles to its junction with Big Sulphur Creek through which it is tributary to Russian River (tributary to the Pacific). Punnett's map of Sonoma County.

Squaw Creek; Truckee River basin; Placer County; rises in the southeastern part of T. 16 N., R. 15 E., Mount Diablo base and meridian, at altitude 8,000 feet above sea level; flows east and northeast to its junction with Truckee River (tributary to Pyramid and Winnemucca lakes); length, about 5 miles; fall, 1,900 feet. Truckee sheet.

Squirrel Gulch Creek; Trinity County; rises in the central part of T. 37 N., R. 7 W., Mount Diablo base and meridian, at altitude 3,600 feet above sea level; flows southeastward to its junction with East Fork of Trinity River (tributary through Trinity River to Klamath River, which flows to the Pacific); length, 5 miles; fall, 1,300 feet. Shasta and Red Bluff sheets.

State Creek; Humboldt County; rises in the northeastern part of T. 11 N., R. 4 E. and the northwestern part of T. 11 N., R. 5 E., Humboldt base and meridian; takes a general southerly course to its junction with Klamath River

(tributary to the Pacific); length, about 10 miles. Punnett's map of Humboldt County.

Steamboat Slough; Sonoma County; extends northward and eastward from Third Napa Slough; one of the many sloughs in the salt water marsh between Sonoma Creek and Napa River. Napa sheet.

Steele Canyon Creek; San Diego County; rises in the northern part of T. 17 S., R. 1 E., San Bernardino base and meridian, near Jamul, at altitude 950 feet above sea level; flows north of west about 4½ miles into Sweetwater River (tributary to the Pacific through San Diego Bay); fall, about 600 feet; intermittent. Cuyamaca sheet.

Steer Creek, Carpinteria Creek basin. *See* Gobernador Creek.

Steinberger Creek; a channel in the tidal marsh at the south end of San Francisco Bay. Haywards sheet.

Steiner Creek; San Luis Obispo County; rises 4 miles north of the city of San Luis Obispo; flows very irregularly southward into Brizziolari Creek (tributary to San Luis Obispo Creek, which discharges to the Pacific); intermittent. San Luis Obispo sheet.

Stenshaw Creek; Siskiyou County; rises in the southeastern part of T. 13 N., R. 6 E., Humboldt base and meridian; flows in general westward to its junction with Klamath River (tributary to the Pacific) near Stenshaws; length, 3 miles. Punnett's map of Siskiyou County.

Stenson Lagoon; Marin County; Punta de los Reyes. Punnett's map of Sonoma and Marin counties.

Stevens Creek; Santa Clara County; rises in the central part of T. 7 S., R. 3 W., Mount Diablo base and meridian, on the west slope of the Monte Bello Ridge, at altitude 2,000 feet above sea level; flows southeastward along the western base of the ridge, then turns abruptly and flows northeast and north to the tidal marsh at the southern end of San Francisco Bay; length, about 19 miles. Palo Alto sheet.

Stewart Creek; Mendocino County; rises in the southern part of T. 14 N., R. 16 W., Mount Diablo base and meridian; flows northwestward 1½ miles, then southwestward 1 mile, and enters the Pacific half a mile south of Bridgeport Landing. Punnett's map of Mendocino County.

Stewart Fork of Trinity River. *See* Trinity River, Stewart Fork.

Stoddard Canyon Creek; San Bernardino County; Santa Ana River basin; rises in the northwestern part of T. 1 N., R. 7 W., San Bernardino base and meridian, at altitude 5,750 feet above sea level; flows southwestward into San Antonio Canyon, through which it is tributary to Santa Ana River (tributary to the Pacific); length, 3 miles; fall, 3,300 feet. Cucamonga sheet.

Stokes Canyon Creek; Los Angeles County; an intermittent stream, 4 miles long, flowing southwestward into Las Virgenes Creek (tributary to Malibu Creek, which discharges to the Pacific). Camulos sheet.

Stone Canyon Creek; Ballona Creek basin; Los Angeles County; an intermittent stream, about 3 miles long, draining a small area in the Santa Monica Mountains and flowing southward into San Jose de Buenos Ayres Rancho. Santa Monica sheet.

Stone Corral Creek; Ventura County; an intermittent stream, 3½ miles long, rising in the northwestern part of T. 5 N., R. 19 W., San Bernardino base and meridian, and flowing north of west into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); fall, about 2,000 feet. Tejon sheet.

Stone Creek; San Benito County; rises in the central part of T. 15 S., R. 6 E., Mount Diablo base and meridian; flows northwestward 2 miles, then in general south of east 6 miles to San Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay). Land Office map of California, 1907.

Stone Lagoon; Humboldt County; western part of T. 10 N., R. 1 E., Humboldt base and meridian; inlet, Laguna Creek. Punnett's map of Humboldt County.

Stony Creek; Del Norte County; rises in the southern part of T. 19 N., R. 3 E., Humboldt base and meridian; flows southwestward into North Fork of Smith River (tributary through Middle Fork of Smith to Smith River and thus to the Pacific); length, about 12 miles. Punnett's map of Del Norte County.

Stonybrook Canyon Creek; Alameda County; an intermittent stream, about 5 miles long, rising in the central part of T. 3 S., R. 1 W., Mount Diablo base and meridian, at altitude 1,350 feet above sea level, and flowing in general east of south to its junction with Alameda Creek (tributary to San Francisco Bay) in Alameda Canyon; fall, 1,200 feet. Pleasanton sheet.

Strawberry Creek; Alameda County; rises in the Berkeley Hills east of Berkeley; flows westward; enters San Francisco Bay at West Berkeley; length, about 4 miles; intermittent. Concord and San Francisco sheets.

Strawberry Creek; San Jacinto River basin; Riverside County; rises in the southwestern part of T. 4 S., R. 3 E., San Bernardino base and meridian, on south slope of Marion Mountain, at altitude 9,000 feet above sea level; flows southwestward into the South Fork of San Jacinto River; length, about 9 miles; fall, 6,500 feet. San Jacinto sheet.

Strawberry Creek; Santa Ana River basin; San Bernardino County; rises in the southwestern part of T. 2 N., R. 3 W., on the south slope of Strawberry Peak, at altitude 6,000 feet above sea level; flows southward 2½ miles, then south of west 1½ miles into East Twin Creek (tributary to Santa Ana River, which discharges to the Pacific); fall, about 4,100 feet. Redlands and San Bernardino sheets.

Strope Creek; Trinity County; rises in the northeastern part of T. 35 N., R. 9 W., Mount Diablo base and meridian, at altitude 6,000 feet above sea level; flows southeastward 4 miles to its junction with East Fork of Stewart Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); fall, 3,700 feet. Red Bluff sheet.

Stubby Canyon Creek; Riverside County; T. 2 S., R. 2 E., San Bernardino base and meridian; a stream, about 4 miles long, draining the eastern edge of the township and flowing southward to San Gorgonio Pass, which slopes eastward from a point near Beaumont to the Colorado Desert. San Jacinto sheet.

Suey Creek; San Luis Obispo County; an intermittent stream flowing southwestward into Santa Maria River (tributary to the Pacific) 2 miles northeast of the city of Santa Maria. Lompoc sheet.

Suisun Creek; Napa and Solano Counties; rises in the southeastern part of T. 7 N., R 3. W., Mount Diablo base and meridian, on the west slope of the Vaca Mountains, at altitude 900 feet above sea level; flows southward through Gordon Valley toward the tidal marsh on the north side of Suisun Bay. The map shows no direct connection between this creek and Suisun Creek, the channel in the tidal marsh on the north side of the bay extending southwestward from the town of Suisun. Napa sheet.

Sugar Creek; Siskiyou County; rises in the western part of T. 40 N., R. 9 W., Mount Diablo base and meridian, on the south slope of Mount of the Cross; flows north of east 5 miles, then northwestward 1 mile; sinks before reaching Scott River (tributary to Klamath River, which discharges to the Pacific), to which its basin is tributary. Punnett's map of Siskiyou County.

Sugarpine Creek; Trinity County; rises in the western part of T. 37 N., R. 8 W., Mount Diablo base and meridian; flows west of north 3 miles, then

northeastward 1½ miles into Coffee Creek (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Sullivan Canyon Creek; Los Angeles County; an intermittent stream, about 5 miles long, draining a small area in the Santa Monica Mountains and flowing southeastward into Santa Monica Canyon, which discharges to the Pacific in Santa Monica Bay. Calabasas and Santa Monica sheets.

Sulphur Canyon Creek; Ventura County; an intermittent stream, 2 miles long, draining southward to Hammond Canyon Creek (tributary through Canada Larga to Ventura River, which discharges to the Pacific). Santa Paula sheet.

Sulphur Creek; Alameda Creek basin; Santa Clara County; rises in the northern part of Los Huecos Rancho, at altitude 3,650 feet above sea level; flows northwestward 1½ miles, then southwestward 2½ miles to its junction with Smith Creek (tributary through Arroyo Hondo to Calaveras Creek and thus to Alameda Creek, which discharges to San Francisco Bay); fall, 1,400 feet; drains the southern and eastern slopes of Mount Hamilton and Copernicus Peak, and the northern and eastern slope of Mount Isabel. Mount Hamilton sheet.

Sulphur Creek; Rincon Creek basin; Ventura County; an intermittent stream, 1¼ miles long, rising on the west slope of La Granada Mountain in T. 4 N., R. 24 W., San Bernardino base and meridian, and flowing southwestward to Rincon Creek (tributary to the Pacific). Ventura sheet.

Sulphur Creek; Santa Clara River basin; Ventura County; an intermittent stream, 2½ miles long, rising in the north-central part of T. 5 N., R. 19 W., San Bernardino base and meridian, southeast of Whiteacre Peak, and flowing northeastward to Agua Blanca Creek (tributary through Piru Creek to Santa Clara River, which discharges to the Pacific); fall, about 2,200 feet. Tejon sheet.

Sulphur Creek, Big; Russian River basin; Sonoma County; rises on the west slope of the Coast Range in the southwestern part of T. 11 N., R. 8 W., Mount Diablo base and meridian; takes a general northwesterly course to its junction with Russian River (tributary to the Pacific) 1 mile north of Cloverdale; length, 14 miles; principal tributaries, Squaw Creek and South Fork. Punnett's map of Sonoma County.

Sulphur Creek, Big, South Fork; Russian River basin; Sonoma County; rises on the western slope of the Coast Range in the northern part of T. 10 N., R. 8 W., near Pine Flat; takes a general northwesterly course to its junction with Big Sulphur Creek through which it is tributary to Russian River (tributary to the Pacific); length, 12 miles; principal tributary, Little Sulphur Creek. Punnett's map of Sonoma County.

Sulphur Creek, Little; Sonoma County; rises in the eastern part of T. 11 N., R. 9 W., Mount Diablo base and meridian; flows north of west 5 miles to its junction with the South Fork of Big Sulphur Creek (tributary through Big Sulphur Creek to Russian River, which flows to the Pacific). Punnett's map of Sonoma County.

Sulphur Spring Canyon Creek; Santa Barbara County; rises in Santa Barbara Potrero, at altitude 5,000 feet above sea level; flows northwestward into Salisbury Canyon Creek (tributary to Cuyama River—Santa Maria River—which discharges to the Pacific); intermittent. Santa Ynez sheet.

Sulphur Spring Canyon Creek; Ventura County; an intermittent stream, 5 miles long, rising in the eastern part of T. 8 N., R. 23 W., San Bernardino base and meridian, at altitude 5,000 feet above sea level; flows west of south to Cuyama River (Santa Maria River, which discharges to the Pacific); fall, 1,100 feet. Mount Pinos sheet.

Sulphur Spring Creek; Alameda Creek basin; Santa Clara County; an intermittent stream rising in the northern part of T. 6 S., R. 4 E., Mount Diablo base and meridian, and flowing southeastward toward the head of San Antonio Creek (tributary through Arroyo del Valle to Arroyo de la Laguna, and thus to Alameda Creek, which discharges to San Francisco Bay); the point of junction with San Antonio Creek or one of its headwaters is not shown on the map—Mount Hamilton sheet; the creek is not named on the Land Office map.

Sulphur Springs Creek; Napa River basin; Solano County; rises on the west slope of Sulphur Springs Mountain, at altitude 400 feet above sea level; flows north of west to Lake Chabot (altitude 77 feet), which discharges to Napa River; fall, about 300 feet. Napa sheet.

Sulphur Springs Valley Creek; Solano County; rises in the southern part of T. 4 N., R. 3 W., Mount Diablo base and meridian, on the north slope of Sulphur Springs Mountain, at altitude 600 feet above sea level; flows southeastward 8 miles and discharges into Suisun Bay just north of Benicia. Napa sheet.

Summers Creek; Mono County; rises in the central part of T. 3 N., R. 24 E., Mount Diablo base and meridian, on the north slope of Monument Ridge, at altitude 10,500 feet above sea level; flows northward 4 miles through Tamarack Canyon, then winds to the east, southeast and northeast to its point of junction with Green Creek (tributary through Virginia Creek to East Walker River and thus to Walker River, which discharges to Walker Lake); length, about 10 miles; fall, 3,700 feet, of which 2,500 feet is made in the first 4 miles; passes through Tamarack Lake. Bridgeport sheet.

Summit Creek; Inyo County; rises on the east slope of the Sierras, 1 mile east of Olancha Pass, at altitude 8,500 feet above sea level; flows north of east 3 miles, then southeastward to the south end of Owens Valley, where its waters sink; fall, 4,100 feet. Olancha sheet.

Summit Lake; Mono County; northern part of T. 2 N., R. 24 E., Mount Diablo base and meridian; outlet, East Fork of Green Creek to Green Creek (tributary through Virginia Creek to East Walker River and thus to Walker River, which discharges to Walker Lake); altitude, 10,203 feet. Bridgeport sheet.

Sun Creek; Klamath County, Oreg.; rises in springs south of Crater Lake; flows southeastward into Anna River (tributary to Upper Klamath Lake, which discharges through Klamath River to the Pacific). Ashland and Klamath sheets.

Supply Creek; Humboldt County; rises in the south-central part of T. 7 N., R. 4 E., Humboldt base and meridian; flows in general northeastward to its junction with Trinity River (tributary to Klamath River, which flows to the Pacific) near Hoopa in the Hoopa Valley Indian Reservation; length, about 7 miles. Punnett's map of Humboldt County.

Sur River, Big; Monterey County; a stream, about 15 miles long, discharging into the Pacific 2 miles southeast of Point Sur. Post route map of California, 1911.

Sur Creek, Little; Monterey County; a stream about 8 miles long, flowing northwestward, and entering the Pacific 2 miles north of Point Sur. Land Office map of California, 1907.

Surper Creek; Humboldt County; rises in the northwestern part of T. 11 N., R. 2 E., Humboldt base and meridian; flows south of east 2 miles, then northeastward 2 miles into Klamath River (tributary to the Pacific). Punnett's map of Humboldt County.

Surrender Creek; Mendocino County; rises in the central part of T. 15 N., R. 15 W.; Mount Diablo base and meridian; flows westward 2 miles, then northwestward 1½ miles into the North Fork of Navarro River (tributary through Navarro River to the Pacific). Punnett's map of Mendocino County.

Susanna Canyon Creek; Los Angeles County; rises in the north-central part of T. 2 N., R. 9 W., San Bernardino base and meridian, at altitude 4,000 feet above sea level; takes a circuitous but in general southerly course into San Gabriel River; length, about 2½ miles; fall, 2,500 feet; intermittent. Rock Creek and Pomona sheets.

Susan River; Lassen County; rises in small lakes at altitude about 5,900 feet above sea level, north of Caribou Lake in the eastern part of T. 31 N., R. 7 E., Mount Diablo base and meridian; takes a general southeasterly course to the point at which it enters Honey Lake, of which it is the chief feeder; length, about 50 miles; fall, about 2,000 feet; principal tributaries, Willards, Williams, Bridge, Cheney, Piute, Gold Run, and Willow creeks.

Fifty per cent of the water entering the Honey Lake basin is believed to come from Susan River above Susanville. This portion of the basin is practically entirely timbered, the growth near the summit being dense and of a fine quality. The mean annual precipitation, as indicated by records kept at Susanville since 1885, is 22.20 inches. The river furnishes water for irrigation of meadows of native hay which are flooded by means of weirs built in the river assisted by levees.

Gaging station near Susanville (1900–1905).

Authorities.—Lassen Peak sheet (on which it is called Susan Creek), and Honey Lake sheet; Second Annual Report of the U. S. Reclamation Service, 1902–03, pp. 115–118.

Suscol Creek; Napa County; an intermittent stream rising in the southwestern part of T. 5 N., R. 3 W., Mount Diablo base and meridian, and flowing westward into Napa River (tributary to San Pablo Bay) near Thompson; length, about 4 miles. Napa sheet.

Sutton Canyon Creek; Carpinteria Creek basin; Santa Barbara County; rises on the southern slope of the Santa Ynez Mountains, at altitude 2,750 feet above sea level; flows southeastward 4½ miles into Carpinteria Creek; fall, 1,400 feet. Santa Barbara special and Ventura sheets.

Suzy Lake; Eldorado County; T. 12 N., R. 17 E., Mount Diablo base and meridian; inlet, from Halfmoon Lake; outlet, a stream 3 miles long, flowing southeast and north of east into Fallen Leaf Lake (tributary to Lake Tahoe); altitude, 7,750 feet; fall of outlet, 1,400 feet. Pyramid Peak sheet.

Swager Creek; Mono County; rises in the southern part of T. 7 N., R. 24 E., Mount Diablo base and meridian, at altitude 10,100 feet above sea level; flows east of south to its junction with Buckeye Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake) in Bridgeport Valley; length, 12 miles; fall, 3,600 feet; principal tributary, Long Valley Creek. Gaging station near Bridgeport (1911–12). Bridgeport sheet.

Swede Creek; Trinity County; rises in the southwestern part of T. 6 N., R. 8 E., Humboldt base and meridian; flows west of south about 4½ miles into Trinity River (tributary to Klamath River, which flows into the Pacific). Punnett's map of Trinity County.

Sweetwater Creek; California-Nevada; rises in Mono County, Cal., on the eastern slope of Sweetwater Mountains, at altitude 10,500 feet above sea level; flows northeastward 4 miles, then southeastward 7 miles to its junction with East Walker River (tributary to Walker River, which discharges to Walker Lake) in Mineral County, Nev.; fall, 4,200 feet, of which 3,000 feet is made in the 4 miles above Sweetwater Valley; principal tributary, Ferris Canyon Creek. Bridgeport sheet.

Sweetwater Reservoir; San Diego County; on Sweetwater River (tributary to the Pacific) 8 miles above its mouth, at altitude 145 feet above sea level.

During the extremely dry period from 1898 to 1904 there were years when no water from Sweetwater River reached the reservoir. From 1899 to 1904 the reservoir was dry, and to tide over this period of drought pumping was resorted to. Wells were sunk in the reservoir site and pumps installed, by means of which water was delivered to the distribution system. Pumping operations were also extensively carried on in the valley along the river below the reservoir San Diego sheet; Water-Supply Paper U. S. Geol. Survey No. 271, 1911, pp. 87–88.

Sweetwater River; San Diego County; rises on the south and east slope of Cuyamaca Mountains of the Coast Range; takes a general southwesterly course to the point at which it enters the Pacific through San Diego Bay south of National City; length, about 45 miles; drainage area, approximately 215 square miles.

The basin, which lies directly south of San Diego River and north of the Otay and Cottonwood creek basins, is extremely narrow. The topography is not so rough as that of the San Diego River basin, although the mountains and foothills extend within 3 or 4 miles of the shore line of San Diego Bay.

A considerable area of land between the bay and the foothills south of National City is highly cultivated, the greater part of the land being irrigated by water taken from Sweetwater River. The basin is poorly forested; the timber is confined almost entirely to the valleys of the streams and to the higher mountain areas. The mountain slopes are fairly well covered with brush but the lower foothills are almost bare.

The mean annual rainfall ranges from 10 to 15 inches along the foothill belt and from 20 to 40 inches in the mountains.

The celebrated Sweetwater dam is on Sweetwater River about 8 miles above its mouth at elevation 145 feet above sea level. There are two other reservoir sites on Sweetwater River, one a short distance above Dehesa post-office and the other below Descanso.

Gaging station near Descanso (1905–1912).

Authorities: Cuyamaca and San Diego sheets; Water-Supply Paper U. S. Geol. Survey No. 271, 1911, pp. 87–88.

Sweetwater River, North Fork; San Diego County; rises in the northern part of T. 16 S., R 2 E., San Bernardino base and meridian, at altitude 1,500 feet above sea level; flows north of west 2 miles, then southwestward 3 miles into Sweetwater River (tributary to the Pacific through San Diego Bay) near Dehesa; fall, about 900 feet; intermittent. Cuyamaca sheet.

Swift Creek; Trinity County; rises in the central part of T. 37 N., R. 9 W., Mount Diablo base and meridian, at altitude 6,000 feet above sea level; flows southeastward 8 miles, then to the east and northeast 7 miles, then again southeastward 1 mile to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific) in the central part of T. 36 N., R. 7 W.; length, 16 miles; fall, 3,700 feet, of which 1,000 feet is made in the first 2 miles. Gaging station near Trinity Center (1910–1912). Shasta and Red Bluff sheets.

Sycamore Canyon Creek; Los Angeles River basin; Los Angeles County; an intermittent stream, 2 miles long, rising in the San Rafael Hills and flowing southwestward toward Los Angeles River (tributary to the Pacific); reaches the edge of the valley 1 mile northeast of Glendale. Pasadena sheet.

Sycamore Canyon Creek; Otay River basin; San Diego County; rises in the northern part of T. 18 S., R. 2 E., San Bernardino base and meridian, at altitude 1,500 feet above sea level; flows northwestward into Dulzura Creek (tributary through Jamul Creek to lower Otay reservoir); length, 3 miles; fall, about 750 feet; intermittent. Cuyamaca sheet.

Sycamore Canyon Creek; San Diego River basin; San Diego County; rises in central part of T. 14 S., R. 1 W., San Bernardino base and meridian, at

altitude 1,200 feet above sea level; flows somewhat west of south to its junction with San Diego River, which discharges to the Pacific through False Bay; intermittent; length, 8 miles; fall, 900 feet; principal tributaries, West Sycamore Canyon and Quail Canyon creeks. Elcajon and La Jolla sheets.

Sycamore Canyon Creek; San Luis Obispo Creek basin; San Luis Obispo County; an intermittent stream, rising in the San Luis Range, in the eastern part of Canada de Los Osos Rancho, and flowing south of east into a lake in Laguna Rancho, 1½ miles southwest of San Luis Obispo; the lake discharges by a southeastward-flowing stream to San Luis Obispo Creek (tributary to the Pacific). San Luis Obispo sheet.

Sycamore Canyon Creek; Santa Barbara County; an intermittent stream, 4 miles long, rising in the Santa Barbara National Forest on the south slope of the Santa Ynez Mountains, at altitude 1,750 feet above sea level, and flowing southward into the Pacific Ocean just east of Santa Barbara. Santa Barbara special sheet.

Sycamore Canyon Creek; Santa Clara River basin; Ventura County; an intermittent stream, 1½ miles long, rising in the eastern part of T. 6 N., R. 20 W., San Bernardino base and meridian, and flowing southeastward into Alder Creek (tributary through Sespe Creek to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Sycamore Canyon Creek; Ventura County; an intermittent stream, about 8 miles long, rising in El Canejo Rancho, 1 mile northwest of Sandstone Peak, and flowing southwesterly into the Pacific Ocean. Camulos and Hueneme sheets.

Sycamore Canyon Creek, Little; San Diego County; rises in western part of Elcajon Rancho, at altitude 650 feet above sea level; flows southward into San Diego River, which discharges to the Pacific through False Bay; length, 2 miles; fall, 350 feet. La Jolla sheet.

Sycamore Canyon Creek, Little; Ventura County; rises in the northeastern part of T. 1 S., R. 20 W., 2 miles west of Triunfo Pass; flows southwestward 4 miles into the Pacific Ocean. Camulos sheet.

Sycamore Canyon Creek, West; San Diego County; rises in the southwestern part of T. 14 S., R. 1 W., San Bernardino base and meridian, at altitude 900 feet above sea level; flows southerly 3½ miles into Sycamore Canyon Creek (tributary to San Diego River, which discharges to the Pacific through False Bay); intermittent; fall, 500 feet. La Jolla sheet.

Sycamore Creek; Santa Clara River basin; Ventura County; an intermittent stream, 2½ miles long, rising in the eastern part of T. 6 N., R. 21 W., San Bernardino base and meridian, and flowing southward into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific) at Ten Sycamore Flat. Mount Pinos sheet.

Sycamore Creek; Walnut Creek basin; Contra Costa County; rises in the eastern part of T. 1 S., R 1 W., Mount Diablo base and meridian, on the south slope of the Black Hills, at altitude of 1,150 feet above sea level; flows west of south 3 miles, then northwestward through Sycamore Valley to San Ramon Creek (Walnut Creek) in San Ramon Valley; length, about 6½ miles; fall, 750 feet. Mount Diablo sheet.

Sycan River; Klamath County, Oreg.; rises in Sycan Marsh; flows southwestward about 12 miles, then east of south about 15 miles into Sprague River (tributary through Williamson River to Upper Klamath Lake and thus to Klamath River, which discharges to the Pacific); principal tributary, Long Creek. Klamath sheet.

Symmes Creek; Inyo County; Inyo National Forest; rises on the east slope of the Sierra, 1½ miles southeast of Mount Bradley, at altitude 10,500 feet above

sea level; flows northeastward 10 miles to the edge of Owens Valley, where its waters sink; fall, 6,500 feet, of which 4,700 feet occurs in the first 4 miles. Mount Whitney sheet.

Taboose Creek; Inyo County; Inyo National Forest; rises on the east slope of the Sierra in Taboose Pass, at altitude 11,400 feet above sea level; flows northeastward 5 miles and southeastward 5 miles to the edge of Owens Valley, where its waters sink; fall, 7,500 feet. Gaging station near Aberdeen (1906–1911). Mount Whitney and Bishop sheets.

Tahchevah Creek; Riverside County; T. 4 S., R. 4 E.; San Bernardino base and meridian; a stream about 2 miles long, flowing northeastward into Colorado Desert near Palm Springs. San Jacinto sheet.

Tahoe Lake; Placer and Eldorado counties, Cal., Washoe, Ormsby, and Douglas counties, Nev., about three-fourths of the lake is in California; principal inflowing streams, Upper Truckee River, Meeks, General, McKinney, Madden, Blackwood, and Ward creeks; outlet, Truckee River, which leaves the lake through a magnificent gorge at a point on its northwestern shore and discharges into Pyramid and Winnemucca lakes, Nev.; area, 193 square miles; altitude, 6,225 feet; noted as the largest body of fresh water in the United States at so high an altitude. Gaging station at Tahoe (1900–1912). Truckee, Pyramid Peak, Carson, and Markleeville sheets; Water-Supply Paper U. S. Geol. Survey No. 290, 1912, p. 180.

Tahquitz Canyon; Riverside County; a drainage way, about 1 mile long, opening southward to Martinez Canyon, which discharges to the Colorado Desert. Indio special sheet.

Tahquitz Creek; Riverside County; rises in the northern part of T. 5 S., R. 3 E., San Bernardino base and meridian, at altitude 8,400 feet above sea level; flows northeastward to the Agua Caliente Indian Reservation, where its waters sink; length, about 8 miles; fall, 7,900 feet. San Jacinto sheet.

Tajiguas Creek; Santa Barbara County; an intermittent stream, rising in the Santa Barbara National Forest on the south slope of the Santa Ynez Mountains, at altitude 1,700 feet above sea level, and flowing southward into the Pacific near Tajiguas; length, about 4 miles. Lompoc sheet.

Talega Canyon Creek; Riverside and San Diego counties; rises in the southwestern part of Riverside County at altitude 2,000 feet above sea level; flows southwesterly 10 miles into Cristianitos Canyon Creek, which discharges into San Mateo Creek (tributary to the Pacific); fall, 1,800 feet; intermittent. Elsinore, San Luis Rey, and Capistrano sheets.

Taley Creek; Humboldt County; rises in the southwestern part of T. 9 N., R. 3 E., Humboldt base and meridian, on Bear Mountain; flows northeastward 8 miles to its junction with Klamath River (tributary to the Pacific). Punnett's map of Humboldt County.

Talowa Creek; Del Norte County; rises in the eastern part of T. 17 N., R. 1 W., Humboldt base and meridian; flows northwestward into the northern arm of Lake Earl. Punnett's map of Del Norte County (on which it is not named); Land Office map of California, 1907.

Talowa Lake; Del Norte County; the western arm of Lake Earl (q. v.).

Tamarack Lake; Mono County; north-central part of T. 3 N., R. 24 E., Mount Diablo base and meridian; inlet, Summers Creek; outlet, Summers Creek to Green Creek (tributary through Virginia Creek to East Walker River and thus to Walker River, which discharges to Walker Lake); altitude, 10,150 feet. Bridgeport sheet.

Tapo Canyon Creek; Calleguas Creek basin; Ventura County; rises on the south slope of Oak Ridge, at altitude about 2,500 feet above sea level; flows

southerly into Simi Valley, where it joins Arroyo Simi (Calleguas Creek, which discharges to the Pacific); intermittent; fall above mouth of canyon, about 1,500 feet. Camulos and Santa Susana sheets.

Tapo Canyon Creek; Santa Clara River basin; Ventura County; rises on the north slope of Oak Ridge, opposite the head of the Tapo Canyon Creek which flows southward to Simi Valley, at altitude 2,500 feet above sea level; flows northerly to its junction with Santa Clara River (tributary to the Pacific); length, about 3½ miles; fall, 1,750 feet. Santa Susana sheet.

Tar Creek; Ventura County; rises on the north slope of Hopper Mountain in the Santa Barbara National Forest, at altitude 2,800 feet above sea level; flows westward into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); length, 4 miles; fall, 1,700 feet; principal tributaries, North Fork and Red Rock creeks. Tejon and Camulos sheets.

Tar Creek, North Fork; Ventura County; an intermittent stream, 2 miles long, rising in the central part of T. 5 N., R. 19 W., San Bernardino base and meridian, and flowing southwestward into Tar Creek (tributary through Sespe Creek to Santa Clara River, which discharges to the Pacific). Tejon and Camulos sheets.

Tarraville Creek; Alameda Creek basin; Alameda County; an intermittent stream, about 2½ miles long, rising in the eastern part of T. 5 S., R. 4 E., Mount Diablo base and meridian, and flowing northeastward to Arroyo Mocho (tributary through Arroyo las Positas to Arroyo de la Laguna and thus to Alameda Creek, which discharges to San Francisco Bay). Mount Hamilton sheet.

Tar Spring Creek; San Luis Obispo County; an intermittent stream flowing westward to Arroyo Grande Creek in Santa Manuela Rancho. Arroyo Grande sheet.

Tassajero Creek; Alameda Creek basin; Contra Costa and Alameda counties; rises in Contra Costa County, in the north-central part of T. 1 S., R. 1 E., Mount Diablo base and meridian, on the eastern slope of Windy Point, at altitude 1,750 feet above sea level; flows in general somewhat west of south to Amador Valley, where it joins Arroyo de la Laguna (tributary through Alameda Creek to San Francisco Bay); length, about 15 miles; fall, 1,450 feet. Mount Diablo and Pleasanton sheets.

Taylor Canyon Creek; Santa Ynez River basin; San Luis Obispo County; an intermittent stream, 6 miles long, rising in the eastern part of T. 32 S., R. 19 E., Mount Diablo base and meridian, and flowing southwestward into Cuyama River (Santa Maria River, which discharges to the Pacific); tributary, Redrock Canyon Creek. McKittrick sheet.

Taylor Canyon Creek; Walker River basin; Mono County; rises in the northwestern part of T. 7 N., R. 23 E., Mount Diablo base and meridian, at altitude 7,000 feet above sea level; flows northward into Lost Canyon Creek (tributary through West Walker River to Walker River, which discharges to Walker Lake); fall, 1,400 feet. Bridgeport sheet.

Taylor Creek; Siskiyou County; rises in the northeastern part of T. 40 N., R. 10 W., Mount Diablo base and meridian, on the west slope of Salmon Mountains; flows westward to its junction with Russian Creek (tributary through North Fork of Salmon River to Salmon River and thus to the Klamath, which discharges to the Pacific); length, 4 miles. Punnett's map of Siskiyou County.

Tbrup Creek; Humboldt and Del Norte counties; rises in Humboldt County in the northwestern part of T. 12 N., R. 2 E.; flows east of north 3 miles and unites with Klamath River (tributary to the Pacific) in Del Norte County. Punnett's map of Del Norte County.

Tecolote Canyon Creek; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 2,400 feet above sea level; flows somewhat west of south 6 miles to the point at which it enters the Pacific, 2 miles west of Elwood; intermittent in part of course. Goleta special sheet.

Tecolote Valley Creek; San Diego County; rises in the eastern part of the Pueblo Lands of San Diego, at altitude 350 feet above sea level; flows northwestward and southwestward about 1 mile, southeastward 3 miles, then irregularly westward 2 miles to False Bay through which it enters the Pacific; intermittent. La Jolla sheet.

Tecopa Dry Lake; Inyo County; southeast of Resting Springs; dry except after heavy rain. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I.

Teetah Creek; Humboldt County; rises in the south-central part of T. 10 N., R. 2 E., Humboldt base and meridian; flows in general east of north to its junction with Klamath River (tributary to the Pacific); length, about 10 miles. Punnett's map of Humboldt County.

Telegraph Canyon Creek; San Diego County; rises in the southern part of T. 17 S., R. 1 W., San Bernardino base and meridian, at altitude 500 feet above sea level; flows in general southwestward to San Diego Bay; length, about 8½ miles; intermittent. Cuyamaca and San Diego sheets.

Temecula Creek; Temecula River. *See* Santa Margarita River.

Temescal Canyon Creek; Los Angeles County; an intermittent stream, about 5 miles long, draining a small area in the Santa Monica Mountains and flowing southward toward Santa Monica Bay into which its flood discharge may pass. Calabasas sheet.

Temescal Creek; Alameda County; rises in the Berkeley Hills, just west of Temescal Lake; flows southwestward into San Francisco Bay; intermittent. Concord and San Francisco sheets.

Temescal Creek; San Dieguito River basin; San Diego County; rises in the eastern part of T. 11 S., R. 1 E., San Bernardino base and meridian, at altitude 3,000 feet above sea level; flows somewhat west of south 9 miles to its junction with Santa Ysabel Creek (San Dieguito River); intermittent; fall, 2,100 feet; passes through Temescal Valley at its head and Pamo Valley at its mouth. Ramona sheet.

Temescal Creek; Santa Ana River basin; Riverside County; rises in the southeastern part of T. 5 S., R. 5 W., San Bernardino base and meridian, north of Elsinore Lake, at altitude about 1,300 feet above sea level; flows northwestward into Santa Ana River (tributary to the Pacific); length, about 22 miles; fall, 800 feet; the direct drainage area of the creek comprises about 92 square miles and is untimbered; the creek is said, however, to be fed to some extent by subterranean percolation from other basins, and it possibly thus receives addition to its summer waters from Lake Elsinore, which lies on the plateau above and the drainage area of which extends to the distant San Jacinto Mountains. The flood waters of the lake flow over into the Temescal but by no means each year. Elsinore and Corona sheets; Irrigation in southern California, by Wm. Ham Hall, Sacramento, 1888, pp. 121–122.

Temescal Lake; Alameda County; northeast of Oakland; two inflowing streams. The map shows no surface connection between Temescal Creek and Temescal Lake. Concord sheet.

Tenaja Canyon Creek; San Diego and Riverside counties; rises on El Potrero del Tenaja, at altitude 2,000 feet above sea level; flows northwestward 3½ miles into San Mateo Creek; fall, about 900 feet; intermittent. Elsinore sheet.

Tenmile River; Mendocino County; rises in the northern part of T. 19 N., R. 15 W., Mount Diablo base and meridian; flows in general somewhat north of west to the point at which it enters the Pacific 2 miles south of Newport, in the southwestern part of T. 20 N., R. 17 W.; length, including major windings, 16 miles; principal tributaries, North Fork and South Fork. Punnett's map of Mendocino County.

Tenmile River, North Fork; Mendocino County; rises in the central part of T. 20 N., R. 15 W., Mount Diablo base and meridian; flows northwestward to the northern part of T. 20 N., R. 16 W., then southwestward and southward to its junction with Tenmile River (tributary to the Pacific) in the eastern part of T. 20 N., R. 17 W.; length, including major windings, 12 miles. Punnett's map of Mendocino County.

Tenmile River, South Fork; Mendocino County; rises in the northern part of T. 19 N., R. 15 W., Mount Diablo base and meridian; flows southwestward 4 miles into the southeastern part of T. 19 N., R. 16 W., then west and northwest 11 miles to its junction with Tenmile River on the boundary between Tps. 19 and 20 N., R. 17 W.; principal tributaries, Redwood Creek, North Fork of South Fork, and Smith Creek. Punnett's map of Mendocino County.

Tenmile River, South Fork, North Fork of; Mendocino County; rises in the central part of T. 19 N., R. 16 W., Mount Diablo base and meridian; flows westward to its junction with South Fork of Tenmile River (tributary through Tenmile River to the Pacific); length, 5 miles. Punnett's map of Mendocino County.

Tepusquet Creek; Santa Barbara County; rises in the San Rafael Mountains, on the east slope of Los Coches Mountain, at altitude 1,900 feet above sea level; flows southerly to Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific); length, about 9 miles; fall, 1,400 feet; principal tributary, Colson Fork; intermittent. Lompoc sheet.

Tequepis Canyon Creek; Santa Barbara County; an intermittent stream, 3½ miles long, rising on the north slope of Santa Ynez Peak, at altitude 3,200 feet above sea level, and flowing east of north to Santa Ynez River (tributary to the Pacific). Santa Ynez sheet.

Tequisquita Slough; Pajaro River basin; San Benito County; rises in the western part of T. 12 S., R. 7 E., Mount Diablo base and meridian; flows westward and northwestward and joins Pacheco Creek (tributary to Pajaro River, which discharges to the Pacific in Monterey Bay), in the western part of T. 11 S., R. 5 E.; length, about 20 miles; tributary, Cienega Creek. Land Office map of California, 1907.

Terwah Creek; Del Norte County; rises in the southwestern part of T. 15 N., R. 2 E., Humboldt base and meridian; flows southeastward 4 miles, then west of south 6 miles to its junction with Klamath River (tributary to the Pacific). Punnett's map of Del Norte County.

Texas Canyon Creek; Los Angeles County; a drainage way in the central part of T. 5 N., R. 15 W., San Bernardino base and meridian, opening westward into Deadman Canyon which discharges to Santa Clara River (tributary to the Pacific). Fernando sheet.

Thatcher Creek; Mendocino County; rises in the central part of T. 21 N., R. 10 W., Mount Diablo base and meridian; takes a general westerly course to its junction with Middle Fork of Eel River (tributary to Eel River, which flows to the Pacific); length, about 8 miles. Punnett's map of Mendocino County.

Thibaut Creek; Inyo County, Inyo National Forest; rises about 1 mile east of Mount Baxter, at altitude 11,000 feet above sea level; flows south of east 2½ miles and northeastward 3 miles into Owens Valley, where its waters sink; fall,

7,000 feet. Gaging station near Independence (1907-1909). Mount Whitney sheet.

Thompson Creek; Klamath River basin; Siskiyou County; rises in the southern part of T. 19 N., R. 7 E., Humboldt base and meridian; flows in general southeastward to its junction with Klamath River (tributary to the Pacific); length, about 12 miles. Punnett's map of Siskiyou County.

Thompson Creek; Klamath River basin; Siskiyou County; rises in the western part of T. 45 N., R. 11 W., Mount Diablo base and meridian, on the eastern slope of Marble Mountains; flows southeastward 7 miles to its junction with Scott River (tributary to Klamath River, which flows to the Pacific). Punnett's map of Siskiyou County.

Thompson Creek; Pajaro River basin; San Benito County; rises in southern part of T. 14 S., R. 5 E., Mount Diablo base and meridian; flows north of east into Pescadero Creek, through which it is tributary to San Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay); length, about 5 miles. Land Office map of California, 1907.

Thompson Creek; Santa Ana River basin; Los Angeles County; rises in the east-central part of T. 1 N., R. 8 W., San Bernardino base and meridian, at altitude 4,000 feet above sea level; flows southerly and southwesterly to the edge of Cucamonga Plain; length, about 8 miles; fall, 2,750 feet; intermittent. Cucamonga sheet.

Thousand Palms Canyon Creek; San Diego County; an intermittent stream, 4 miles long, flowing easterly into Collins Valley, which is drained by Coyote Creek to Borego Valley, in the Colorado Desert. Ramona and Indio special sheets.

Threemile Creek; Klamath County, Oreg.; rises in the western part of the county, 4 miles south of the head of Sevenmile Creek; flows eastward and southward into Cherry Creek (tributary to Sevenmile Creek, which discharges through Upper Klamath Lake to Klamath River, which flows to the Pacific); length, 8 miles. Ashland sheet.

Three Sisters Dry Lake; Kern County; Tps. 8 and 9 N., R. 11 W., San Bernardino base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I. Called Buckhorn Dry Lake in Water-Supply Paper 278, 1911, p. 14, Pl. VI.

Tick Canyon Creek; Los Angeles County; rises in the central part of T. 5 N., R. 14 W., San Bernardino base and meridian, at altitude 2,650 feet above sea level; flows southwestward into Santa Clara River (tributary to the Pacific); length, about 6 miles; fall, 1,000 feet; intermittent. Fernando sheet.

Tiee Valley Creek; Contra Costa County; rises in the eastern part of T. 1 S., R. 2 W., Mount Diablo base and meridian, 1 mile north of Las Trampas Peak, at altitude 800 feet above sea level; flows northwestward 2½ miles, then east and north 2½ miles into Lafayette Branch of Walnut Creek (tributary through Walnut Creek to Suisun Bay) near the town of Walnut Creek; fall, 650 feet. Concord sheet.

Tillman Lake; Shasta County; southeastern part of T. 31 N., R. 5 E., Mount Diablo base and meridian, 6 miles north of east from Lassen Peak; neither inlet nor outlet shown on map; altitude, 7,300 feet above sea level. Lassen Peak sheet.

Timber Canyon Creek; Ventura County; an intermittent stream, about 4 miles long rising on the south slope of Santa Paula Peak, in T. 4 N., R. 20 W., San Bernardino base and meridian, and flowing southward toward Santa Clara River (tributary to the Pacific). Santa Paula sheet.

Timber Creek; Ventura County; rises in the central part of T. 5 N., R. 21 W., San Bernardino base and meridian, on the north slope of Topatopa Mountains,

at altitude 5,500 feet above sea level; flows northeastward 3 miles, then west and north 2 miles into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); fall, 2,800 feet. Mount Pinos sheet.

Tinemaha Creek; Inyo County; Inyo National Forest; rises on the east slope of the Sierra opposite the head of the South Fork of Kings River, at altitude 12,800 feet above sea level; flows easterly to the west base of Poverty Hills whence its course is northward to the edge of Owens Valley near Fish Springs; fall above the edge of the valley, about 8,800 feet, of which 5,800 feet is made in the first 4 miles; principal tributary, Red Mountain Creek. Gaging station near Tinemaha (1906–1911). Bishop sheet.

Tin Mine Canyon Creek; Riverside County; Santa Ana River basin; an intermittent stream, 2 miles long, flowing north of east to Hagador Canyon Creek, which discharges to the valley of Temescal Wash. Corona sheet.

Tinta Creek; Santa Barbara and Ventura counties; rises 2½ miles west of Cuyama Peak in the Santa Barbara National Forest, at altitude 5,200 feet above sea level; flows southeastward into Rancho Nuevo Creek, which discharges to Cuyama River (Santa Maria River, which discharges to the Pacific); length, about 8 miles; fall, 1,800 feet. Santa Ynez and Mount Pinos sheets.

Tioga Lake; Mono County; Mono National Forest; western part of T. 1 N., R. 25 E., Mount Diablo base and meridian; inlet, Glacier Canyon Creek, which flows through the lake to its junction with Leevining Creek (tributary to Mono Lake); altitude, 9,650 feet. Mount Lyell sheet.

Tish-Tang-a-Tang Creek; Humboldt County; rises in the eastern part of T. 8 N., R. 6 E., Humboldt base and meridian, on the west slope of Trinity Mountains; flows in general south of west to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific) in the southern part of Hoopa Valley Indian Reservation; length, about 11 miles. Punnett's map of Humboldt County.

Titus Creek; Siskiyou County; rises in the central part of T. 15 N., R. 7 E., Humboldt base and meridian; flows southwestward to its junction with Klamath River (tributary to the Pacific); length, 4 miles. Punnett's map of Siskiyou County.

Tom Lynch Creek; Monterey County; rises in the southwestern part of T. 21 S., R. 12 E., Mount Diablo base and meridian; flows southwestward about 10 miles to the valley of Salinas River, which discharges to the Pacific in Monterey Bay. Land Office map of California, 1907.

Tomales Creek; Marin County; rises in Rancho Bolsa de Tomales; flows northeastward 1 mile, northwestward 1 mile, then in general westward to the point at which it enters the Pacific; length, about 12 miles. Punnett's map of Marin County.

Tonki Creek; Mendocino County; rises in the southwestern part of T. 20 N., R. 13 W., Mount Diablo base and meridian; flows in general southeastward 13 miles, then to the east and northeast 6 miles to its junction with Eel River (tributary to the Pacific). Punnett's map of Mendocino County.

Topanga Canyon Creek; Los Angeles County; an intermittent stream, about 9 miles long, rising in the southern part of T. 1 N., R. 17 W., San Bernardino base and meridian, and flowing southeastward to the Pacific Ocean about 5 miles northwest of Santa Monica; principal tributary, Garapito Creek. Calabasas sheet.

Toro Canyon Creek; Riverside County; an intermittent stream, about 2 miles long, flowing northeastward into the Colorado Desert. Indio special sheet.

Toro Canyon Creek; Santa Barbara County; rises on the south slope of the Santa Ynez Mountains, in T. 4 N., R 26 W., San Bernardino base and meridian,

at altitude 2,750 feet above sea level; flows southwesterly, and enters the Pacific at Leon Point; intermittent. Santa Barbara special map.

Toro Creek; Salinas River basin; Monterey County; a stream, about 3 miles long, flowing northeastward into Salinas River (which discharges to the Pacific in Monterey Bay) 2½ miles northwest of Spreckels. Salinas Valley map, sheet 1.

Toro Creek; San Luis Obispo County; rises in the Santa Lucia Range, in the northwestern part of Asuncion Rancho, at altitude 1,250 feet above sea level; flows southeastward 2 miles, then southwestward 7 miles to the Pacific in Estero Bay; principal tributary, Smith Creek. Cayucos sheet.

Toroges Creek; Alameda County; a stream, about 4½ miles long, rising 1 mile northwest of Monument Peak, at altitude 2,300 feet above sea level; flows southwestward to the channel of Penitencia Creek (tributary to Coyote River) in the tidal marsh through which the river enters San Francisco Bay. San Jose sheet.

Torrey Canyon; Ventura County; a drainage way opening northward to Santa Clara River (tributary to the Pacific) 2 miles south of Piru. Camulos sheet.

Tosquin Creek; San Benito County; rises in southeastern part of T. 12 S., R. 7 E., Mount Diablo base and meridian; flows southward about 10 miles, then south of west 4 miles into Rosario Creek, through which it is tributary to San Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay). Land Office map of California, 1907.

Towsley Canyon Creek; Los Angeles County; an intermittent stream rising on the northern slope of the Santa Susana Mountains, in T. 3 N., Rs. 16 and 17 W., San Bernardino base and meridian, and flowing northeastward to Wiley Canyon Creek, which discharges toward Santa Clara River (tributary to the Pacific) between Placerita and Pico Canyon creeks. Santa Susana sheet.

Trail Canyon Creek; Los Angeles River basin; Los Angeles County; rises on the south slope of Iron Mountain, at altitude 4,500 feet above sea level; flows southwestward and southward into Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific); length, about 4 miles; fall, 2,850 feet. Tujunga and Fernando sheets.

Trail Canyon; Ventura County; a drainage way, about 1 mile long, extending southeastward from Bear Mountain to Piru Creek (tributary to Santa Clara River, which discharges to the Pacific) at Castac Mine. Tejon sheet.

Trail Fork, San Gabriel River. *See* San Gabriel River, Trail Fork.

Trancas Canyon Creek; Los Angeles County; rises on the southern slope of the Santa Monica Mountains, in T. 1 S., R. 19 W.; flows east of south 5 miles into the Pacific Ocean. Camulos sheet.

Trinitas Creek; San Mateo County; rises 1½ miles northwest of Sierra Morena in Canada Verde y Arroyo de la Purisima Rancho, at altitude 1,500 feet above sea level; flows southwestward into the Pacific 2½ miles north of the mouth of San Gregorio Creek; tributary, Dry Creek. Santa Cruz sheet.

Trinity River; Trinity and Humboldt counties; rises in the northern part of T. 40 N., R. 6 W., Mount Diablo base and meridian, on the south slope of Scott Mountains, at altitude 6,000 feet above sea level; flows southwestward about 60 miles to the northeastern part of T. 32 N., R. 10 W., whence its general course is northwestward 68 miles to the northern part of T. 9 N., R. 4 E., Humboldt base and meridian, where it joins Klamath River. The drainage basin comprises nearly all of Trinity County and a small area in the northeastern part of Humboldt County. The river has many tributaries, the most important being East Fork, Stewart Fork, North Fork, New River, and South

Fork. Gaging stations near Trinity Center (1910–1912), at Lewiston (1910–1912), near China Flat (1911–12) and at Hoopa (1911–12). Shasta and Red Bluff sheets; Punnett's maps of Trinity and Humboldt counties.

Trinity River, East Fork; Trinity County; rises in the western part of T. 38 N., R. 5 W., Mount Diablo base and meridian, on the west slope of Trinity Mountains, at altitude about 6,600 feet above sea level; takes a general southwesterly course to its junction with Trinity River (tributary to Klamath River, which flows to the Pacific) in the central part of T. 36 N., R. 7 W.; length, about 18 miles; fall, 4,300 feet; principal tributaries, Crow Creek, North Fork of East Fork, Cedar, Halls, and Squirrel Gulch creeks. Gaging station near Trinity Center (1910–1912). Shasta sheet; Punnett's map of Trinity County.

Trinity River, East Fork, North Fork of; Trinity County; rises in the southeastern part of T. 39 N., R. 6 W., Mount Diablo base and meridian, in a small lake on the western slope of Trinity Mountains, at altitude about 6,000 feet above sea level; flows somewhat north of west 3 miles, then southward 5 miles to its junction with the East Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); fall, 2,500 feet. Shasta sheet (on which it is not named); Punnett's map of Trinity County.

Trinity River, East Fork of North Fork, East Branch of; Trinity County; rises in the southeastern part of T. 36 N., R. 11 W., Mount Diablo base and meridian; flows southwestward 5 miles to its junction with the East Fork of North Fork of Trinity River (tributary through North Fork of Trinity to Trinity and thus to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Trinity River, North Fork; Trinity County; rises in the western part of T. 37 N., R. 11 W., Mount Diablo base and meridian, on the south slope of New River Mountains; flows in general somewhat east of south to the southern part of T. 34 N., R. 11 W., where it enters Trinity River (tributary to Klamath River, which discharges to the Pacific); length, 22 miles; principal tributaries, Grizzly, Rattlesnake, Whites, North Fork Gulch, and East Fork of North Fork. Gaging station at Helena (1911–12). Punnett's map of Trinity County.

Trinity River, North Fork, East Fork of; Trinity County; rises in the northwestern part of T. 35 N., R. 11 W., Mount Diablo base and meridian; flows southward 10 miles to its junction with North Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific); principal tributaries, East Branch, Yellow Jacket Creek, and Indian Gulch Creek. Punnett's map of Trinity County.

Trinity River, North Fork Gulch; Trinity County; rises in the central part of T. 34 N., R. 12 W., Mount Diablo base and meridian; flows northward 1½ miles, then south of east 2½ miles to its junction with North Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Trinity River, South Fork; Trinity and Humboldt counties; rises in Trinity County in the southern part of T. 27 N., R. 11 W., Mount Diablo base and meridian; takes a general northwesterly course to the central part of T. 6 N., R. 5 E., Humboldt base and meridian, where it unites with Trinity River (tributary to Klamath River, which discharges to the Pacific); length, including major windings, about 75 miles; principal tributaries, Prospect, Red Mountain, Smoky, Rattlesnake, Indian Valley, and Grouse creeks, and Hayfork River. Of these the only one entering from the west (left) side is Grouse Creek. Gaging station near China Flat (1911–12). Punnett's map of Trinity County.

Trinity River, Stewart Fork; Trinity County; rises in the northern part of T. 36 N., R. 10 W., Mount Diablo base and meridian, in Smith Lake; flows eastward 2 miles, then southeastward 18 miles to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific); fall, about 4,100 feet; principal tributaries, Deer, Deep, Owen, Van Matre, and Buckeye creeks, and East Fork of Stewart. Shasta and Red Bluff sheets; Punnett's map of Trinity County.

Trinity River, Stewart Fork, East Fork of; Trinity County; rises in the southeastern part of T. 36 N., R. 9 W., Mount Diablo base and meridian, at altitude 6,800 feet above sea level; flows southeastward 5 miles, then in general somewhat west of south 6 miles to its junction with Stewart Fork (tributary through Trinity River to Klamath River, which discharges to the Pacific); fall, 4,800 feet. Red Bluff sheet.

Triunfo Creek; Ventura County; rises 1 mile north of Triunfo Pass, on Sandstone Peak (altitude, 3,059 feet); takes a very irregular but in general southeasterly course to the northeastern part of T. 1 S., R. 18 W., San Bernardino base and meridian, where it unites with Las Virgenes Creek to form Malibu Creek (tributary to the Pacific); length above point of junction, about 16 miles. Gaging station near Calabasas (1903–1906). See Malibu Creek. Camulos and Calabasas sheets.

Trout Creek; Alameda Creek basin; Alameda County; rises in the northwestern part of T. 5 S., R. 3 E., Mount Diablo base and meridian, on the north slope of Wauhab Ridge, at altitude 3,550 feet above sea level; flows southeastward 2½ miles, then north of east 1½ miles into Arroyo del Valle (tributary through Arroyo de la Laguna to Alameda Creek, which discharges to San Francisco Bay); fall, about 2,400 feet; tributary, Shafer Creek. Tesla sheet.

Trout Creek; Guadalupe River basin; Santa Clara County; a small stream rising in the western part of T. 8 S., R. 1 W., Mount Diablo base and meridian, and flowing southeastward toward San Tomas Aquinas Creek (tributary through Campbell Creek to Guadalupe River, which discharges to San Francisco Bay). The creek is not named on the Land Office Map and its point of junction with San Tomas Aquinas Creek is not shown on the Santa Cruz sheet; the compiler is therefore unable to determine definitely the exact course of the stream.

Trout Creek; Santa Clara River basin; Ventura County; rises in the western part of T. 6 N., R. 21 W., San Bernardino base and meridian, at altitude 5,000 feet above sea level; flows southwestward into Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); length, 3 miles; fall, 2,000 feet. Mount Pinos sheet.

Trout Creek; Truckee River basin; Nevada County; rises in the northwestern part of T. 17 N., R. 16 E., Mount Diablo base and meridian, at altitude 6,900 feet above sea level; flows east and southeast and enters Truckee River (tributary to Pyramid and Winnemucca Lakes) at the town of Truckee; length, about 4 miles; fall, 1,100 feet. Truckee sheet.

Truckee River; California-Nevada; rises in Lake Tahoe, at altitude 6,225 feet above sea level; flows almost due north to the town of Truckee, then takes a general northeasterly course to Wadsworth, Nev., turns again to the north and west of north and discharges into Pyramid and Winnemucca lakes, sending a stream to each lake (see Pyramid and Winnemucca lakes); total length, about 110 miles; fall, about 2,350 feet. From Lake Tahoe to Verdi, Nev., a distance of 35 miles, the country is heavily timbered with fir and pine; below Verdi barren wastes alternate with small and fertile valleys—the Verdi Valley, the Reno or Truckee Valley, and the Wadsworth Valley—all of which have rich, productive soil.

The most important tributaries of the Truckee are Donner Creek, the outlet of Donner Lake, Prosser Creek, and Little Truckee River, which carries the overflow of Webber and Independence lakes.

The river is used for power development by the Farad (Mystic), Fleish, and Washoe plants, and an emergency plant near Reno, Nev. These plants have an average capacity of about 2,500 horse-power each and supply practically all the power used by the towns of Verdi, Reno, Carson City, Yerington, Gardnerville, Sparks, and Virginia City, Nev. Almost the entire minimum flow of the river is appropriated for irrigation and power.

Gaging station at Tahoe (1895–96, 1900–1912); near Nevada-California State line (1899–1912).

Authorities: Truckee, Reno, and Wadsworth sheets; Water-Supply Paper U. S. Geol. Survey No. 290, 1912, pp. 180–181.

Truckee River, Little; Sierra and Nevada counties; rises in Sierra County, in the south-central part of T. 19 N., R. 14 E., Mount Diablo base and meridian, in Webber Lake, at altitude 6,750 feet above sea level; takes a general easterly course to the southern part of T. 19 N., R. 17 E., where it turns abruptly and flows southward to its junction with Truckee River (tributary to Pyramid and Winnemucca lakes) at Boca; length, including major windings, about 25 miles; principal tributaries, Independence, Sage Hen, and Dry creeks; fall, about 1,200 feet. Gaging stations at Starr (1903–1910) and at Boca (1911–12). Sierraville and Truckee sheets.

Truckee River, Upper; Alpine and Eldorado counties; rises in Alpine County, in the southern part of T. 10 N., R. 18 E., Mount Diablo base and meridian, at altitude 8,750 feet above sea level; flows northward to Lake Tahoe, which discharges through Truckee River to Pyramid and Winnemucca Lakes, Nev.; length, about 18 miles; fall, about 2,500 feet. Pyramid Peak and Markleeville sheets.

Trumbull Lake; Mono County; northwestern part of T. 2 N., R. 25 E., Mount Diablo base and meridian; outlet, a stream three-fourths mile long, flowing eastward to Virginia Creek (tributary through East Walker River to Walker River, which discharges to Walker Lake); altitude, 9,650 feet; fall of outlet, about 150 feet. Bridgeport sheet.

Tucalota Creek; Riverside County; Santa Margarita River basin; rises on Red Mountain in the southeastern part of T. 6 S., R. 1 E., San Bernardino base and meridian, at altitude 3,500 feet above sea level; flows in general southwestward about 9 miles; drains parts of Tps. 6 and 7 S., Rs. 1 E. and 1 W. San Jacinto sheet.

Tujunga Creek; Los Angeles County; rises in the northeastern part of T. 2 N., R 11 W., San Bernardino base and meridian, at altitude about 5,000 feet above sea level; takes a very irregular but in general westerly course to the valley of San Fernando, where it has made several broad and deep washes, which turn to the south and join Los Angeles River (tributary to the Pacific) 6 or 8 miles west of the eastern end of the valley; during low water the stream seldom runs much beyond the opening of its canyon, and only in times of flood do the waters reach the main river above ground; length above the mouth of the canyon, including major windings, about 22 miles, in which distance it falls about 3,500 feet. Tujunga, Fernando, and Santa Monica sheet; Irrigation in California [southern], by Wm. Ham. Hall, Sacramento, 1888, p. 383.

Tujunga Creek, Little; Los Angeles River basin; Los Angeles County; rises in the Angeles National Forest, at altitude 4,250 feet above sea level; flows southwestward 6 miles to the eastern edge of San Fernando Valley; the canyon occupies a position about midway between its flanking ridges and receives tributaries from both sides, so that the whole area is a deep, serrated trough

in the mountain. The basin comprises about 28 square miles, and delivers its waters out of a precipice-walled canyon, nearly 4 miles west and north of Big Tujunga Canyon. Its wash extends out into the main valley and joins that of Tujunga Creek on the east; its waters seldom flow beyond the opening of the canyon later than June, and only in times of exceptional floods do they run above ground all the way to the trough of the main valley. Fernando sheet; Irrigation in California [southern], by Wm. Ham. Hall, Sacramento, 1888, pp. 383–384.

Tuledad Canyon Creek; Lassen County; northeastern part; rises 3 miles southwest of Hat Peak at altitude 6,100 feet above sea level; flows south of east 10 miles and discharges into a sink in Duck Flat, Nev. Alturas and Long Valley sheets.

Tule Creek; Klamath River basin; Trinity County; rises in the northwestern part of T. 30 N., R. 12 W., Mount Diablo base and meridian; flows in general northeastward into Hayfork River (tributary through South Fork of Trinity River to Trinity and thus to Klamath River, which discharges to the Pacific); length, 7 miles. Punnett's map of Trinity County.

Tule Creek; San Diego and Riverside counties; rises in the northwestern part of T. 9 S., R. 4 E., San Bernardino base and meridian, at altitude 5,500 feet above sea level; flows west of north 4 miles, then northeastward 4 miles to Coyote Creek, which discharges to the Colorado Desert; fall, 2,800 feet. Ramona sheet.

Tule Creek; Santa Clara River basin; Ventura County; rises in the northeastern part of T. 5 N., R. 24 W., San Bernardino base and meridian, at altitude 4,800 feet above sea level; flows easterly to its junction with Sespe Creek (tributary to Santa Clara River, which discharges to the Pacific); length, about 4 miles; intermittent in upper course. Mount Pinos sheet.

Tule Lake. *See* Rhett Lake.

Tule Pond; Alameda County; about 1 mile south of Niles; a very small pond which lies in a completely inclosed depression. Pleasanton sheet.

Tulucay Creek; Napa County; rises in the central part of T. 5 N., R. 3 W., Mount Diablo base and meridian, at altitude 1,100 feet above sea level; flows westward 5 miles, then southward 2 miles into Napa River (tributary to San Pablo Bay) south of the city of Napa. Napa sheet.

Tuna Canyon Creek; Los Angeles County; an intermittent stream, about 2½ miles long, rising in the southeastern part of T. 1 S., R. 17 W., San Bernardino base and meridian, and flowing southeastward to the Pacific Ocean. Calabasas sheet.

Tunnel Canyon Creek; Santa Barbara County; an intermittent stream, 2½ miles long, rising in the northern part of T. 9 N., R. 30 W., San Bernardino base and meridian, and flowing southwestward into Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Tunnel Creek; Alameda Creek basin; Alameda County; an intermittent stream, about 2 miles long, rising in the southeastern part of T. 4 S., R. 3 E., Mount Diablo base and meridian, on the north slope of Cedar Mountain Ridge, and flowing northwestward to Arroyo Mocho (tributary through Arroyo las Positas to Arroyo de la Laguna, and thus to Alameda Creek, which discharges to San Francisco Bay). Tesla sheet.

Turner Dry Lake; San Bernardino County Tps. 6 and 7 N., R. 7 W., San Bernardino base and meridian; contains water only during or immediately after heavy rains. Water-Supply Paper U. S. Geol. Survey No. 278, p. 14 and Pl. VI.

Tuttle Creek; Inyo County; Sequoia National Forest; rises on the east slope of the Sierra east of Mount Le Conte (altitude, 13,960 feet) and north of Mount

Langley (altitude, 14,042 feet); flows north of east 10 miles to the edge of Owens Valley, where its waters sink; fall, about 8,200 feet; principal tributary, Diez Creek. Gaging station, near Lone Pine (1906–1911). Mount Whitney sheet.

Twelvemile Creek; Modoc County, Cal.; rises in the northeastern part of the county at altitude 6,000 feet above sea level; flows northwestward and westward across the California-Nevada line, and then passes northward into the south end of Warner Valley near Warner Lake post office. Alturas and Long Valley sheets; Water-Supply Paper U. S. Geol. Survey No. 220, 1908, pp. 32–33, 49.

Twin Creeks; Santa Ana River basin; San Bernardino County; two small streams which bring their waters to the head of the plain on the north side of San Bernardino basin, about 5 miles northwest of the opening of City Creek; the streams drain an area measured along the crest of the mountains about 4 miles long and reach the valley alongside of each other. West Twin Creek flows through Waterman Canyon; East Twin Creek receives as its tributary Strawberry Creek. In years of extraordinary rainfall they are subject to floods through which their waters may run over out on the plain, even through to Warm Creek (tributary to Santa Ana River, which discharges to the Pacific) without sinking, but except at such times their flood flow seldom reaches more than a mile or two into the valley. Gaging station on Waterman Canyon Creek (West Twin) near San Bernardino (1911–12). Redlands and San Bernardino sheets; Irrigation in California [southern], Sacramento, 1888, pp. 122–123.

Twin Lakes; Kern County; T. 10 N., R. 15 W., San Bernardino base and meridian, northeast of Liebre Twins; intermittent; no outlet shown on map. Tejon sheet.

Twin Lakes; Mono County; Tps. 3 and 4 N., R. 24 E., Mount Diablo base and meridian; inlets, Cattle Creek and Robinson Creek, the latter flowing through the lakes to East Walker River (tributary to Walker River, which discharges to Walker Lake); 2 lakes connected by a avery short channel; altitude of the upper lake, 7,096 feet, of the lower, 7,076 feet; fall of Robinson Creek in the 10 miles below lower Twin Lake, about 600 feet. Bridgeport sheet.

Twin Lakes; Shasta and Lassen counties; 2 small lakes one lying on the boundary between Shasta and Lassen counties and the other 1 mile southwest; an outlet northward to Snag Lake is shown on the map (Lassen Peak sheet); altitude of the upper lake, about 7,300 feet; of the lower lake, 7,000 feet; the lakes are connected by a northward-flowing stream about 1 mile long.

Twin Sloughs; Solano County; in the tidal marsh on the north side of Suisun Bay between Wells Slough and Suisun Creek. Carquinez sheet.

Two Bar Creek; Santa Cruz County; an intermittent stream, 3 miles long, rising in the northwestern part of T. 9 S., R. 2 W., Mount Diablo base and meridian, and flowing southwestward into San Lorenzo River. Santa Cruz sheet.

U-Ko-Num Creek; Siskiyou County; rises in the southern part of T. 13 N., R. 7 E., Humboldt base and meridian; flows somewhat east of north 9 miles, then northwestward and westward 8 miles to its junction with Klamath River (tributary to the Pacific); tributaries (unnamed on the map) include a stream 7 miles long draining the south slope of Marble Mountain. Punnett's map of Siskiyou County.

Union Creek; Trinity County; rises in the eastern part of T. 37 N., R. 9 W., Mount Diablo base and meridian; flows northwestward and northward to its junction with Coffee Creek (tributary to Trinity River and thus through Klamath River to the Pacific); length, about 5 miles. Punnett's map of Trinity County.

Union Creek; Santa Cruz County; a stream, about 2 miles long, rising in the southern part of T. 8 S., R. 3 W., Mount Diablo base and meridian, and

flowing south of west to Sempervirens Creek (tributary through Blooms Creek to Waddell Creek, which discharges to the Pacific). Santa Cruz sheet.

Upper Lake. *See* Alkali Lakes.

Usal Creek; Mendocino County; formed in the central part of T. 23 N., R. 18 W., Mount Diablo base and meridian, by the union of North, Middle, and South forks. The North Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises in the south-central part of T. 24 N., R. 18 W., and flows, in general, east of south about 5 miles to its junction with the Middle and South forks. Below the forks Usal Creek flows southwestward and enters the Pacific Ocean at Usal; length below the forks, 1 mile. Punnett's map of Mendocino County.

Usal Creek, Middle Fork; Mendocino County; rises in the extreme southwestern part of T. 24 N., R. 17 W., Mount Diablo base and meridian; flows south of west about 1½ miles, then almost directly south 3 miles to its junction with Usal Creek through which it is tributary to the Pacific. Punnett's map of Mendocino County.

Usal Creek, North Fork. *See* Usal Creek.

Usal Creek, South Fork; Mendocino County; rises in the western part of T. 23 N., R. 17 W., Mount Diablo base and meridian; flows southwestward about 2 miles, then northwestward 2 miles into Usal Creek through which it is tributary to the Pacific. Punnett's map of Mendocino County.

Uvas Creek; Santa Clara County; rises in the southeastern part of T. 9 S., R. 1 E., Mount Diablo base and meridian; takes a general southeasterly course to its junction with Pacheco Creek (tributary to Pajaro River, which discharges to the Pacific in Monterey Bay) northeast of Sargent; length, about 25 miles. Land Office map of California, 1907.

Valentine Creek; Mendocino County; rises in the northeastern part of T. 16 N., R. 14 W., Mount Diablo base and meridian, 1 mile west of Leonard Lake; flows northwestward into Big River (tributary to the Pacific); length, 3 miles. Punnett's map of Mendocino County.

Vallecitos Creek; Alameda Creek basin; Alameda County; an intermittent stream, rising in Valle de San Jose Rancho and flowing south of west to Sunol, where it enters Arroyo de la Laguna (tributary to Alameda Creek, which discharges to San Francisco Bay); length, about 4 miles; fall, 1,350 feet. Pleasanton sheet.

Van Duzen River; Trinity and Humboldt counties; rises in Trinity County, in the southern part of T. 2 S., R. 7 E., Humboldt base and meridian; takes a general northwesterly course to the central part of T. 2 N., R. 1 W., where it unites with Eel River (tributary to the Pacific); length, including major windings, about 60 miles; principal tributaries South Fork, Little Larribee Creek, Grizzly Gulch, and Yager Creek. Gaging station at Bridgeville (1911–12). Punnett's maps of Trinity and Humboldt counties.

Van Duzen River, South Fork; Humboldt County; rises in the northeastern part of T. 2 S., R. 5 E., Humboldt base and meridian; flows west of north 13 miles to its junction with Van Duzen River (tributary to Eel River, which discharges to the Pacific). Punnett's map of Humboldt County.

Van Matre Creek; Trinity County; rises in the eastern part of T. 35 N., R. 10 W., Mount Diablo base and meridian; flows northeastward 3 miles into Stewart Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Van Tassel Canyon Creek; Los Angeles County; rises in the northwestern part of T. 1 N., R. 10 W, San Bernardino base and meridian, at altitude 3,000 feet above sea level; flows southeastward 2 miles; sinks before reaching San

Gabriel River (tributary to the Pacific); fall, 2,000 feet; intermittent. Pomona sheet.

Vasquez Creek; Los Angeles County; an intermittent stream, 1 mile long, flowing northwestward into Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific) near Hoyt Ranch. Tujunga sheet.

Ventura River; Santa Barbara and Ventura counties; rises in the eastern part of Santa Barbara County in the southeastern part of T. 6 N., R. 24 W., San Bernardino base and meridian, at altitude 5,500 feet above sea level; flows southeastward to the upper end of Ojai Valley, then southward to the point at which it enters the Pacific Ocean near the city of Ventura; called Matilija Creek above Ojai Valley; length, including major windings, about 30 miles; principal tributaries, North Fork [of Matilija], San Antonio, and Coyote creeks. Gaging stations near Nordhoff and near Ventura (1911–12). Mount Pinos and Ventura sheets. *See also* Matilija Creek.

Verdugo Canyon Creek; Riverside and Orange counties; an intermittent stream, about 4½ miles long, flowing southwestward and entering San Juan Canyon Creek in Mission Viejo Rancho, opposite and just above the mouth of Bell Canyon Creek; fall, about 2,000 feet. Elsinore and Corona sheets.

Verdugo Creek; Los Angeles County; the main drainage way of the Canada Pass country; rises on the eastern slope of Verdugo Mountains, at altitude about 1,750 feet above sea level; flows southeasterly along the base of the mountains about 4 miles, then turns to the south and southwest and escapes through an open canyon between the Verdugo and San Rafael Hills into the San Fernando Valley at its extreme eastern end; the total area tributary to this creek comprises about 32 square miles; only its flood waters reach Los Angeles River (tributary to the Pacific). Santa Monica and Pasadena sheets; Irrigation in southern California, by Wm. Ham. Hall, Sacramento, 1888, p. 389.

Vibonas Creek; San Benito County; rises in the northwestern part of T. 12 S., R. 7 E., Mount Diablo base and meridian, south of Antimony Mountain; flows north of west about 10 miles to its junction with Pacheco Creek (tributary to Pajaro River, which discharges to the Pacific in Monterey Bay). Land Office map of California, 1907.

Victor Dry Lakes; San Bernardino County; Tps. 4 and 5 N., R. 3 W., San Bernardino base and meridian, near Victorville. *See* Mohave River. Water-Supply Paper U. S. Geol. Survey No. 224, Pl. I.

Villa Creek; San Luis Obispo County; rises on the western slope of the Santa Lucia Range south of Piney Ridge, at altitude 2,250 feet above sea level; flows west of south into the East Fork of Corral de Piedra (tributary to Pismo Creek, which discharges to the Pacific); length, 2½ miles; intermittent. San Luis Obispo and Arroyo Grande sheets.

Villa Creek; San Luis Obispo County; rises in the southern part of T. 27 S., R. 9 E., Mount Diablo base and meridian; flows in general southward, and enters the Pacific in San Geronimo Rancho, 2 miles northwest of Cayucos Point; tributary, Ellysly Creek. Cayucos sheet.

Vincent Gulch Creek; Los Angeles County; rises in the northwestern part of T. 3 N., R. 8 W., San Bernardino base and meridian, at altitude 6,500 feet above sea level; flows southeastward 3 miles into Prairie Fork (tributary to San Gabriel River, which discharges to the Pacific); fall, 2,000 feet. San Antonio sheet.

Vineyard Creek; Monterey and San Luis Obispo counties; rises in the northern part of T. 23 S., R. 13 E., Mount Diablo base and meridian; flows southwestward to its junction with Salinas River (tributary to the Pacific in Monterey Bay) just north of San Miguel; length, 14 miles. Land Office map of California, 1907.

Violin Canyon Creek; Santa Clara River basin; Los Angeles County; an intermittent stream, 4 miles long, rising in the southern part of T. 6 N., R. 17 W., and flowing southeasterly into Palomas Canyon Creek (tributary through Castac Creek to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Virgin Creek; Trinity County; rises in the central part of T. 9 N., R. 7 E., Humboldt base and meridian; flows southwestward 3 miles, then southeastward 8 miles to the northeastern part of T. 7 N., R. 7 E., where it enters New River (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Virginia Creek; Mono County; rises in Virginia Lakes, in the northeastern part of T. 2 N., R. 24 E., Mount Diablo base and meridian, at altitude 10,600 feet above sea level; flows northeastward 8 miles, then north and northwest 10 miles to the northwestern part of T. 4 N., R. 25 E., where it unites with Green Creek to form East Walker River (tributary through Walker River to Walker Lake); fall, 4,100 feet; principal tributaries, Dog and Clearwater creeks. Bridgeport sheet.

Virginia Lakes; Mono County; T. 2 N., Rs. 24 and 25 E., Mount Diablo base and meridian; outlet, Virginia Creek to East Walker River (tributary through Walker River to Walker Lake) a group of small lakes, 9 being shown on the map; the highest lies at altitude 10,600 feet above sea level, and the lowest, 2 miles farther east, about 9,700 feet above. Bridgeport sheet.

Vivian Creek; San Bernardino County; rises in the northeastern part of T. 1 S., R. 1 E., San Bernardino base and meridian, 1 mile west of San Gorgonio Mountain, at altitude 10,500 feet above sea level; flows southwestward into Mill Creek (tributary to Santa Ana River, which discharges to the Pacific); length, about 3 miles; fall, 4,200 feet. San Gorgonio sheet.

Volfe Canyon Creek; Los Angeles County; San Gabriel River basin; an intermittent stream, 1½ miles long, rising in the northeastern part of T. 1 N., R. 9 W., San Bernardino base and meridian, and flowing southward into Big Dalton Canyon (tributary to San Gabriel River, which discharges to the Pacific). Pomona sheet.

Waddell Creek; San Mateo and Santa Cruz counties; formed by the junction of East and West Waddell creeks. East Waddell Creek, which drains the larger area and is therefore considered the continuation of the main stream, rises near Hollow Tree Camp, in the western part of T. 8 S., R. 3 W., Mount Diablo base and meridian; flows sontheastward 4 miles, then southwestward to the junction with the West Fork; below the forks the creek flows west of south to the point at which it enters the Pacific, 3 miles southeast of Año Nuevo Point. Santa Cruz sheet.

Waddell Creek, East. *See* Waddell Creek.

Waddell Creek, West; San Mateo and Santa Cruz counties; rises in Santa Cruz county, in the southwestern part of T. 8 S., R. 3 W., Mount Diablo base and meridian, near Hollow Tree Camp; flows southwestward, crossing the southeastern corner of San Mateo County (T. 8 S., R. 4 W.), reenters Santa Cruz county, and flows in general west of south to its junction with East Waddell with which it forms Waddell Creek (tributary to the Pacific); about 6 miles long; tributaries, Berry and Henry creeks. Santa Cruz sheet.

Wages Creek; Mendocino County; rises in the southwestern part of T. 21 N., R. 16 W., Mount Diablo base and meridian; flows in general north of west to the point at which it enters the Pacific half a mile south of De Haven; length, about 7 miles. Punnett's map of Mendocino County.

Walker Creek; Mono Lake basin; Mono County; Mono National Forest; rises on the east slope of the Sierra in a small lake half a mile east of Mono Pass, at altitude 10,400 feet above sea level; flows northeastward 8 miles to its junction with Rush Creek (tributary to Mono Lake); fall, about 4,000 feet, of which about 2,500 feet is made in a little more than 2 miles in Bloody Canyon above Walker Lake. Mount Lyell sheet.

Walker Creek; Owens River basin; Inyo County; Kern National Forest; rises on the east slope of the Sierra 1 mile northeast of Olancha Pass at altitude 8,500 feet above sea level; flows northeastward to the edge of Owens Valley south of Olancha, where its waters sink; length, 6 miles; fall, 4,600 feet, of which 3,500 feet is made in the first 3 miles; principal tributary, Falls Creek. Olancha sheet.

Walker Lake; Mono County, Mono National Forest; northeastern part of T. 1 S., R. 25 E., Mount Diablo base and meridian; outlet, Walker Creek, which flows through the lake to its junction with Rush Creek (tributary to Mono Lake); altitude, 7,926 feet; fall of Walker Creek in the 5 miles below the lake, about 1,200 feet. Mount Lyell sheet.

Walker Lake, Nevada. *See* Walker River.

Walker River; California-Nevada; formed in Mason Valley, Nev., by the union of East and West Walker rivers. The East Walker, which drains the large area and is therefore considered the continuation of the main stream, is formed in the northwestern part of T. 4 N., R. 25 E., Mount Diablo base and meridian, by the junction of Green and Virginia creeks; of these two, Virginia Creek drains the larger area and must therefore be considered the head of Walker River. Virginia Creek rises in Virginia Lakes, in T. 2 N., Rs. 24 and 25 E., at altitude about 10,600 feet above sea level; flows northeastward 8 miles, then to the north and west of north 10 miles to the point at which it receives Green Creek; from this point the East Walker flows northeastward into Esmeralda County, Nev., then winds to the north and northwest to Mason Valley, where it receives West Walker; below the forks the river flows sluggishly northward, passing through Mason (Yerington) Valley to a point east of Wabuska, where it turns to the east and southeast, and 50 miles beyond the forks enters Walker Lake. Length from Walker Lake to head of Virginia Creek, 136 miles,[1] in which distance the total fall is 6,500 feet; fall in the 50 miles below the junction of the East and West Walker, about 400 feet.

Walker Lake into which the river flows, is next to Pyramid Lake the most picturesque and attractive of the desert lakes of Nevada. As one of the lakes occupied by glacial Lake Lahontan, it was thus described by Russell[2]:

"The lake is 25.6 miles in its longer, or north and south axis, and has an average width of between 4.5 and 5 miles. Its area is 95 square miles. Over a large area in the central and western portions it has a remarkably uniform depth of 224 feet; but as a rule the depth increases as one approaches the western shore, which is overshadowed by rugged mountains. The bottom throughout the central portions is composed of fine tenacious mud, which in many places is black in color and has the odor of hydrogen sulphide. Coarser deposits, consisting of sand and gravel, mingled with the empty shells of Pyrgula and Pompholyx, etc., were found only in the immediate neighborhood of the shore. * * *

"As in the case of the other lakes in the Great Basin situated at an elevation of less than 5,000 feet, the shores of Walker Lake are totally lacking in arboreal

[1] Measured with wheel on Bridgeport, Wellington, Wabuska, Carson Sink, and Hawthorne sheets.

[2] Russell, I. C., Geological history of Lake Lahontan, a Quaternary lake of northwestern Nevada: Mon. U. S. Geol. Survey, vol. 11, 1885, pp. 69–70.

vegetation except at the river mouth and are clothed only with desert shrubs. At the northern end, and following the immediate shores of Walker River for many miles, are luxuriant cottonwood groves, together with willow banks and meadow lands.

"The waters at a distance from the river mouth are of a clear, deep blue, changing to a bright-green tint near the shore, as in Pyramid Lake. They are charged with saline matter to such an extent that carbonate of lime is now being deposited."

The basin of Walker River contains three important valleys—Antelope and Smith valleys on the West Fork and Yerington Valley (Mason Valley), which takes its water from both forks. The minimum flow of the river is not sufficient to supply the demand during the summer months, but excellent reservoir sites near the head-waters of the forks are available for storing the flood waters for use during the dry season. The snowfall on the mountains in the winter months is very heavy, giving assurance of an ample water supply for the reservoirs.

Gaging station on East Walker River near Bridgeport (1911–12).

Authorities: Bridgeport, Dardanelles, Wabuska, Wellington, Hawthorne, and Carson Sink sheets; Water-Supply Paper U. S. Geol. Survey No. 290, 1912, pp. 150–151. *See also* footnotes on page 230.

Walker River, East. *See* Walker River.

Walker River, West; Mono County; formed in the center of T. 5 N., R. 22 E., Mount Diablo base and meridian, by the union of its Middle and West forks; the Middle Fork, which drains the larger area and is therefore considered the continuation of the West Walker, rises in the northeastern part of T. 4 N., R. 22 E., at altitude 11,200 feet above sea level; takes a general northerly course to the point at which it receives West Fork; below the forks the general course of the river is northeastward to Mason Valley where it joins the East Walker. The basins of the two forks are separated by a group of mountains known as the Sweetwater Range; length from head of Middle Fork to junction with East Walker, 75 miles; total fall of the West Walker from the head of its Middle Fork to its junction with East Walker, 6,700 feet; fall in the 20 miles between Wellington and the junction with the East Walker, about 300 feet. Gaging station near Coleville (1902–1908). Dardanelles, Bridgeport, Markleeville, and Wellington sheets.

Walker River, West, West Fork of; Mono County; rises in the eastern part of T. 4 N., R. 21 E., Mount Diablo base and meridian, on the north slope of Grizzly Peak, at altitude 9,700 feet above sea level; flows northeastward about 8 miles to the central part of T. 5 N., R. 22 E. where it unites with the Middle Fork to form West Walker River (tributary through Walker River to Walker Lake); fall, 2,200 feet. Dardanelles sheet.

Walkers Creek; Siskiyou County; rises in the southeastern part of T. 45 N., R. 12 W., Mount Diablo base and meridian; flows in general northward 9 miles to its junction with Klamath River (tributary to the Pacific). Punnett's map of Siskiyou County.

Walker Valley Creek; Mendocino County. *See* Forsythe Creek.

Wallace Creek; San Bernardino and Riverside counties; Santa Ana River basin; rises in the northeastern part of T. 2 S., R. 1 W., San Bernardino base and meridian, at altitude 4,500 feet above sea level; flows southwestward 1½ miles into Little San Gorgonio Creek (tributary through San Timoteo Creek to Santa Ana River); fall, 1,100 feet. San Gorgonio sheet.

Walnut Creek; Contra Costa County; formed near the town of Walnut Creek by the union of two branches, one from the west, called the Lafayette

Branch, and one from the south, called San Ramon Creek; the southern branch—San Ramon Creek—which drains the larger area and is therefore considered the continuation of the main stream, rises in the southeastern part of T. 1 S., R. 2 W., Mount Diablo base and meridian, on the western slope of Las Trampas Ridge, flows southeastward 5 miles, encircles the southeastern base of the ridge, and turns to the northwest, in which direction it continues to flow to its junction with the Lafayette Branch. Below this junction Walnut Creek flows northward to the tidal marsh on the south side of Suisun Bay which it enters as Pacheco Creek; the southeastward-flowing stretch at the head is called Bolinger Creek; length from the bay to the head of Bolinger Creek, about 30 miles; principal tributaries, Sycamore and Green Valley creeks, Lafayette Branch and Grayson Creek. Mount Diablo, Concord, and Carquinez sheets.

Walnut Creek; San Gabriel River basin; Los Angeles County; a drainage way marked on the Pomona sheet as a sandy wash lying along the north base of the San Jose Hills parallel to and about 3 miles south of the San Dimas Wash.

Ward Creek; Placer County; rises in the western part of T. 15 N., R. 16 E., Mount Diablo base and meridian, on the south slope of Ward Peak, at altitude 8,000 feet above sea level; flows south of east 5 miles to McKinney Bay where it enters Lake Tahoe (outlet through Truckee River to Pyramid and Winnemucca lakes); fall, 1,775 feet. Truckee sheet.

Wards Creek; Sonoma County; rises in the northeastern part of T. 8 N., R. 12 W., Mount Diablo base and meridian; flows southward 2½ miles, then eastward 4 miles to its junction with Austin Creek (tributary to Russian River, which flows into the Pacific) at Cazadero. Punnett's map of Sonoma County.

Warm Creek; Santa Ana River basin; rises in the northeastern part of San Bernardino Valley, about 2 miles north of Santa Ana River, 2 miles west of the opening of City Creek Canyon and 2 miles south of the edge of the mountain; flows southwestward about 8 miles to Santa Ana River (tributary to the Pacific) near the lower part of the San Bernardino basin; receives accessions from springs in its bed and in arroyos or cienegas which join it; the creek is the reappearance of some of the lost waters of the canyon creeks from City Creek to Cajon Pass. Lytle Creek joins it just below the city of San Bernardino, and they thence occupy one channel to the river half a mile east of Colton. See also City Creek. Redlands and San Bernardino sheets; Irrigation in California [southern], by Wm. Ham. Hall, Sacramento, 1888, pp. 125–126.

Warm Spring Canyon Creek; Santa Ana River basin; San Bernardino County; rises in the southeastern part of T. 1 N., R. 2 W., San Bernardino base and meridian, at altitude 4,000 feet above sea level; flows westward and southwestward into Santa Ana River (tributary to the Pacific); length, 2½ miles; fall, 1,900 feet; intermittent. Redlands sheet.

Warm Spring Canyon Creek; Santa Clara River basin; Los Angeles County; an intermittent stream, 2 miles long, rising in the western part of T. 6 N., R. 16 W., San Bernardino base and meridian, and flowing south of east into Elizabeth Lake Canyon Creek (tributary through Castac Creek to Santa Clara River, which discharges to the Pacific). Tejon sheet.

Warm Springs Creek; Russian River basin; Sonoma County; rises in the northern part of T. 9 N., R. 11 W., Mount Diablo base and meridian; flows northwestward 3 miles, then winds irregularly northeastward to its junction with Dry Creek (tributary through Russian River to the Pacific); length, including major windings, 12 miles; course circuitous; principal tributary, Ranchero Creek. Punnett's map of Sonoma County.

Warm Springs Creek; Santa Margarita River basin; Riverside County; rises in the eastern part of T. 6 S., R. 3 W., San Bernardino base and meridian, at

the south end of Paloma Valley; flows southwestward about 9 miles into Murietta Creek (tributary to Santa Margarita River, which discharges to the Pacific); intermittent. Elsinore sheet.

Warren Fork; Mono County, Mono National Forest; rises in the northern part of T. 1 N., R. 25 E., Mount Diablo base and meridian, at altitude 10,350 feet above sea level; flows southeastward into Leevining Creek (tributary to Mono Lake); length, 3 miles; fall, 2,400 feet. Mount Lyell sheet.

Water Canyon Creek; Los Angeles County; rises in northeastern part of T. 1 N., R. 10 W., San Bernardino base and meridian, at altitude 2,250 feet above sea level; flows southeastward toward San Gabriel River (tributary to the Pacific); length, about 1 mile; fall, 1,150 feet; intermittent. Pomona sheet.

Waterman Canyon Creek. *See* Twin Creeks.

Watson Lakes; Los Angeles County; sloughlike water bodies north of Wilmington Lagoon, discharging to the lagoon through Compton Creek. Downey sheet.

Weaver Creek; Trinity County; formed in the western part of T. 33 N., R. 9 W., Mount Diablo base and meridian, by the union of East and West Weaver Creeks. West Weaver Creek, which drains the larger area and is therefore considered the continuation of the main stream, rises in the northern part of T. 34 N., R. 10 W.; flows southeastward to a point just below Weaverville where it receives East Fork; below the forks the general course of the stream is somewhat west of south to Douglas City, where it enters Trinity River (tributary to Klamath River, which discharges to the Pacific); length to head of West Weaver, about 13 miles; principal tributary above forks, Garden Gulch Creek; below forks, Browns Creek. Punnett's map of Trinity County.

Weaver Creek, East; rises in the northern part of T. 34 N., R. 10 W., Mount Diablo base and meridian; flows southeastward 4½ miles, then southward and southwestward 3 miles to its junction with West Weaver (tributary to Trinity River) near Weaverville. Punnett's map of Trinity County.

Weaver Creek, West. *See* Weaver Creek.

Webber Lake; Sierra County; south-central part of T. 19 N., R. 14 E., Mount Diablo base and meridian; inlets, two streams which drain the eastern slopes of Webber Peak; outlet, Little Truckee River to Truckee River (tributary to Pyramid and Winnemucca lakes); altitude, 6,750 feet. Truckee sheet.

Welch Creek; Alameda Creek basin; Alameda County; rises in the southwestern part of T. 4 S., R. 2 E., Mount Diablo base and meridian, on the west slope of Valpe Ridge, at altitude 2,100 feet above sea level; flows irregularly westward 3 miles into Alameda Creek (tributary to San Francisco Bay) at the southern end of Sunol Valley; fall, 1,750 feet. Pleasanton sheet.

Weldon Canyon Creek; Ventura County; an intermittent stream, 2½ miles long, rising in the southwestern part of Ex Mission San Buenaventura Rancho, and flowing southwestward into Ventura River (tributary to the Pacific) near Rock Station. Ventura sheet.

Wellman Canyon Creek; Santa Barbara County; an intermittent stream, 5 miles long, rising in the southwestern part of T. 10 N., R. 28 W., San Bernardino base and meridian, and flowing southwestward to Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Santa Ynez sheet.

Wells Slough; Solano County; in the tidal marsh on the north side of Suisun Bay. Napa sheet.

West Lake; Los Angeles County, near the west border of the city of Los Angeles, Santa Monica sheet.

West Lake; Nevada County; northwestern part of T. 17 N., R. 15 E., Mount Diablo base and meridian; one of a group of small lakes about 2 miles northwest

of the head of Donner Lake; mapped as without outlet, but contours indicate possible discharge southward to Angela Lake; altitude of West Lake, about 7,350 feet. Truckee sheet.

West Lake; Walker River basin; Mono County; south-central part of T. 3 N., R. 24 E., Mount Diablo base and meridian; inlet from Bergona Lake; outlet to Green Lake on West Fork Green Creek (tributary through Green Creek to Virginia Creek and thus through East Walker River to Walker River, which discharges to Walker Lake); altitude, about 9,900 feet; fall of outlet in the half mile to Green Lake, 950 feet. Bridgeport sheet.

West Point Creek; San Mateo County; a channel in the tidal marsh in the southern end of San Francisco Bay, extending from Redwood Creek southeastward to Ravenswood Slough. Haywards and Palo Alto sheets.

West Ravine; Los Angeles County; an intermittent stream, about a mile long; flows southwestward toward Arroyo Seco (tributary to Los Angeles River, which discharges to the Pacific), which however it does not reach except in times of flood. Pasadena sheet.

West Union Creek; San Francisquito Creek basin; San Mateo County; a stream, about 2½ miles long, rising in Canada de Raymundo Rancho and flowing southeastward to Bear Creek (tributary to San Francisquito Creek, which flows to San Francisco Bay) near Woodside. Santa Cruz sheet.

West Walker River. *See* Walker River, West.

West Weaver Creek. *See* Weaver Creek.

Wheatfield Fork. *See* Gualala River.

Wheaton Wash; San Bernardino County; T. 16 N., R. 14 E., San Bernardino base and meridian; a drainage way extending eastward from the Ivanpah Mountains toward Ivanpah Valley. Ivanpah sheet.

Wheeler Canyon Creek; Ventura County; rises on the southern slope of Sulphur Mountain, in Ex Mission San Buenaventura Rancho, at altitude 1,500 feet above sea level; flows southward to Santa Clara River (tributary to the Pacific); length, 6 miles; fall, 1,250 feet; tributary, Hampton Canyon Creek. Santa Paula sheet.

White Gulch Creek; Siskiyou County; rises in the northern part of T. 39 N., R. 10 W., Mount Diablo base and meridian; flows northwestward 3 miles, then westward 2 miles into North Fork of Salmon River (tributary through Salmon River to Klamath River, which discharges to the Pacific). Punnett's map of Siskiyou County.

White Rock Creek; Mendocino County; rises in the northeastern part of T. 22 N., R. 15 W., Mount Diablo base and meridian, on the south slope of Iron Peak; flows east of south 2 miles, then north of east 3 miles into Woodman Creek (tributary to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Whitehouse Creek; Santa Cruz and San Mateo counties; rises on the west slope of The Chalks, in T. 9 S., R. 4 W., Mount Diablo base and meridian; flows southwestward into the Pacific Ocean 1 mile southeast of Franklin Point. Santa Cruz sheet.

Whites Creek; Trinity County; rises in the northwestern part of T. 35 N., R. 12 W., Mount Diablo base and meridian; flows northeastward 6 miles to its junction with North Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Whitewater River; San Bernardino and Riverside counties; rises in the northwestern part of T. 1 S., R. 2 E., San Bernardino base and meridian, on San Gorgonio Mountain (altitude, 11,485 feet); flows southeastward, and discharges into the Colorado Desert at the northern end of the Salton Sink. At

the foot of San Gorgonio Pass its waters are divided, one portion being used for irrigation in the vicinity of Whitewater, while another portion, at one time used for irrigation at Palm Springs, is allowed to waste into the desert. San Gorgonio, San Jacinto and Indio special sheets. Ground waters of the Indio region, California: Water-Supply Paper U. S. Geol. Survey No. 225, 1909, p. 30.

Whitlock Creek; Alameda Creek basin; Alameda County; rises in the eastern part of T. 5 S., R. 2 E., Mount Diablo base and meridian, at altitude 3,350 feet above sea level; flows southwestward into Alameda Creek, which discharges into San Francisco Bay; length, about 3 miles; fall, 2,200 feet. Tesla and Mount Hamilton sheets.

Whitney Creek; Siskiyou County; flows from Whitney Glacier on the north slope of Mount Shasta (altitude, 14,380 feet), northwestward into the lava beds at the base of the mountain; the natural drainage of this side of Mount Shasta is toward Shasta River. Shasta and Shasta special sheets.

Wickiup Canyon Creek; Los Angeles County; rises in the southeastern part of T. 3 N., R. 12 W., San Bernardino base and meridian, at altitude 4,350 feet above sea level; flows west of north about 3 miles into Tujunga Creek (tributary to Los Angeles River, which discharges to the Pacific); fall, 1,100 feet. Tujunga sheet.

Widow Reed Creek; Marin County; rises in the northern part of Corte de Madera Rancho, at altitude about 300 feet above sea level; flows in general southeastward into the western arm of Richardson Bay through which it passes to San Francisco Bay; flows through tidal marsh in lower portion; length, about 3 miles; principal tributary, a stream flowing through Mill Valley. Tamalpais sheet.

Wildcat Creek; Klamath River basin; Siskiyou County; rises in the southwestern part of T. 40 N., R. 9 W., Mount Diablo base and meridian; flows north of east 6 miles to its junction with Scott River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Siskiyou County.

Wildcat Creek; San Pablo Creek basin; Contra Costa County; rises in the southern part of Sobrante Rancho, on the west slope of San Pablo Ridge, between Grizzly and Bald peaks, at altitude 1,500 feet above sea level; flows northwestward along the base of the ridge to its junction with San Pablo Creek, just before the latter joins the tidal marsh through which it enters San Pablo Bay; length, about 10 miles. Concord and San Francisco sheets.

Wild Cherry Canyon Creek; San Luis Obispo County; rises in the southern part of T. 31 S., R. 11 E., Mount Diablo base and meridian, in the San Luis Range, at altitude 1,000 feet above sea level; flows southeastward to the Pacific through San Luis Obispo Bay one-half mile west of the mouth of San Luis Obispo Creek; length, about 2½ miles. Port Harford and Arroyo Grande sheets.

Wildhorse Canyon Creek; Riverside County; rises in the southeastern part of T. 6 S., R. 5 W., San Bernardino base and meridian, at altitude 3,100 feet above sea level; flows west of south about 4 miles into Los Alamos Canyon Creek (tributary to San Mateo Creek); fall, 1,650 feet; intermittent. Elsinore sheet.

Wildhorse Canyon Creek; Santa Maria River basin; Santa Barbara County; an intermittent stream, 3 miles long, rising on the north slope of the San Rafael Mountains, in the southeastern part of Sisquoc Rancho, and flowing west of north into Sisquoc River (tributary to Santa Maria River, which discharges to the Pacific). Lompoc sheet.

Wild Rose Canyon; San Bernardino County; T. 3 N., R. 1 E., San Bernardino base and meridian; a drainage way discharging westward through Furnace Canyon to Mohave Desert. San Gorgonio sheet.

Wiley Canyon Creek; Santa Clara River basin; Los Angeles County; an intermittent stream rising in the central part of T. 3 N., R. 16 W., San Bernardino base and meridian, and flowing northward to the valley west of Newhall, between Placerita and Pico Canyon creeks, where its waters sink; intermittent. Santa Susana sheet.

Wiley Canyon Creek; Santa Clara River basin; Ventura County; an intermittent stream, 1½ miles long, flowing northward to Santa Clara River (tributary to the Pacific) southwest of Buckhorn. Camulos sheet.

Willard Canyon; Santa Clara River basin; Ventura County; a drainage way opening northward to Santa Clara River (tributary to the Pacific) in T. 3 N., R. 20 W., San Bernardino base and meridian. Santa Paula sheet.

Willard Dry Lake; San Bernardino County; Tps. 30 and 31 S., R. 42 E., Mount Diablo base and meridian. Water-Supply Paper U. S. Geol. Survey No. 224, 1909, Pl. I and p. 52.

Willards Creek; Lassen County; rises in the northeastern part of T. 28 N., R. 10 E., Mount Diablo base and meridian, at altitude 6,400 feet above sea level; flows east of north 6 miles to its junction with Susan River (tributary to Honey Lake); fall, 1,700 feet. Honey Lake sheet.

Williams Creek; Eel River basin; Mendocino County; rises in the northwestern part of T. 23 N., R. 12 W., Mount Diablo base and meridian, in the Round Valley Indian Reservation; flows southeastward 5 miles, then in general southwestward 6 miles to its junction with Round Valley Creek (tributary through Middle Fork of Eel River to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Williams Creek; Honey Lake basin; Lassen County; rises in the northwestern part of T. 28 N., R. 11 E., Mount Diablo base and meridian, at altitude 5,600 feet above sea level; flows northward 4 miles into Susan River (tributary to Honey Lake); fall, 1,000 feet. Honey Lake sheet.

Williams Gulch Creek; Alameda County. *See* San Antonio Creek.

Williamson Canyon Creek; San Benito County; a stream, about 10 miles long, rising in the central part of T. 16 S., R. 6 E., Mount Diablo base and meridian, and flowing eastward and southeastward toward one of the upper tributaries of Chalona Creek (tributary to Salinas River, which discharges to the Pacific) immediately south of a small area drained by Johnson Creek to San Benito River. Land Office map of California, 1907.

Williamson Creek; Inyo County; rises on the east slope of the Sierra in a group of small lakes lying between Mount Tyndall (altitude, 14,025 feet) and Mount Williamson (altitude, 14,384 feet), at altitude 12,500 feet above sea level; flows northward and northeastward to its junction with Shepard Creek which discharges to Owens Valley; length, about 5 miles; fall, 5,000 feet. Mount Whitney sheet.

Williamson River; Klamath County, Oreg.; rises in the northeastern part of the county at altitude 5,000 feet above sea level; flows westward 4 miles, northward about 18 miles, then takes a southwesterly course to the point at which it enters Upper Klamath Lake (tributary to Klamath River, which discharges to the Pacific); passes through Klamath Marsh; length, about 60 miles; principal tributary, Sprague River. Klamath sheet.

Willits Creek; Mendocino County; rises in the southwestern part of T. 19 N., R. 14 W., Mount Diablo base and meridian; flows southeastward 6 miles, then north of east 2 miles into Deep Creek (tributary to Eel River, which discharges to the Pacific). Punnett's map of Mendocino County.

Willow Canyon Creek; Riverside County; Santa Margarita River basin; a short, intermittent, southwestward flowing stream, draining a portion of the

southwestern part of T. 6 S., R. 1 E., San Bernardino base and meridian. San Jacinto sheet.

Willow Creek; Contra Costa County; a sloughlike creek in Los Medanos Rancho, flowing northward to the eastern end of Suisun Bay. Antioch sheet.

Willow Creek; Honey Lake basin; Lassen County; rises in the southeastern part of T. 32 N., R. 11 E., Mount Diablo base and meridian, 1 mile east of Eagle Lake, at altitude about 5,400 feet above sea level; takes a general southeasterly course to its junction with Petes Creek, through which it is tributary to Susan River; length above junction with Petes Creek, about 18 miles; fall, about 1,100 feet. Gaging station at Merrillville (1904–1905) and near Standish (1900–1905). Honey Lake sheet.

Willow Creek; Klamath River basin; Humboldt County; rises in the northern part of T. 5 N., R. 4 E., Humboldt base and meridian; flows northward 5 miles, northeastward 4 miles, eastward 1 mile to its junction with Trinity River (tributary to Klamath River, which discharges to the Pacific). Punnett's map of Humboldt County.

Willow Creek; Klamath River basin; Siskiyou County; rises in the southern part of T. 42 N., R. 7 W., Mount Diablo base and meridian; flows northeastward 12 miles; sinks before reaching Parks Creek (tributary through Shasta River to Klamath River, which discharges to the Pacific) to which its basin is topographically tributary. Shasta sheet; Punnett's Map of Siskiyou County.

Willow Creek; Klamath River basin; Siskiyou County; rises in the eastern part of T. 46 N., R. 4 W., Mount Diablo base and meridian, on the western slope of Willow Creek Mountain, at altitude 4,400 feet above sea level; flows south of west 4 miles, then northwestward 10 miles into Klamath River (tributary to the Pacific), which it enters in the southeastern part of T. 47 N., R. 6 W.; fall, 2,300 feet, of which 1,400 feet is made in the first 4 miles. Shasta sheet.

Willow Creek; Owens Lake basin; Inyo County; rises in the eastern part of T. 8 S., R. 32 E., Mount Diablo base and meridian, at altitude 9,000 feet above sea level; flows southeastward 2 miles, then north of east 2½ miles to the edge of Owens Valley, where its waters sink; fall, 4,900 feet. Bishop sheet.

Willow Creek; Pajaro River basin; San Benito County; rises in the southern part of T. 15 S., R. 6 E., Mount Diablo base and meridian; flows in general easterly into Johnson Creek through which it is tributary to San Benito River (Pajaro River, which discharges to the Pacific in Monterey Bay); length, about 6 miles. Land Office map of California, 1907.

Willow Creek; Rhett Lake basin; formed in Modoc County by the union of its North and South forks. The South Fork, which apparently drains the larger area and is therefore considered the continuation of the main stream, rises in the northern part of Modoc County about 10 miles west of Goose Lake; flows southwestward to Boles Meadow, then northwestward to its junction with the North Fork; below the forks the creek flows westward; a portion of the flood discharge of Willow Creek passes into Clear Lake but, at the same time, a large part passes down Lost River to Rhett Lake. See Clear Lake. Alturas and Modoc Lava Bed sheets.

Willow Creek; Russian River basin; Sonoma County; rises in the northern part of Bodega Rancho; flows northwestward and enters Russian River (tributary to the Pacific) near its mouth; length, 4½ miles. Punnett's map of Sonoma County.

Willow Creek; San Luis Obispo County; rises in the southeastern part of T. 28 S., R. 10 E., Mount Diablo base and meridian, at altitude 650 feet above sea level; flows southwestward 3½ miles into the Pacific in Estero Bay. Cayucos sheet.

Willow Creek; Siskiyou County. *See* Cottonwood Creek.

Willow Creek; Ventura River basin; Ventura County; an intermittent stream, 2½ miles long, rising in the southeastern part of T. 4 N., R. 24 W., San Bernardino base and meridian, and flowing southeastward into Coyote Creek (tributary to Ventura River, which discharges to the Pacific). Ventura sheet.

Willow Creek, North Fork; Rhett Lake basin; rises in the northern part of Modoc County; takes a general southwesterly course to its junction with the South Fork, with which it forms Willow Creek (tributary through Lost River to Rhett Lake); intermittent. Alturas sheet.

Wills Canyon Creek; Ventura County; an intermittent stream, 2½ miles long, rising in the southwestern part of T. 5 N., R. 23 W., San Bernardino base and meridian, and flowing southeastward to Ventura River (tributary to the Pacific) in Ojai Valley. Ventura sheet.

Wilson Creek; Del Norte County; rises in the eastern part of T. 15 N., R. 1 E., Humboldt base and meridian; flows in general southwestward to the point at which it enters the Pacific, 4 miles northwest of Requa; length, about 8 miles. Punnett's map of Del Norte County.

Wilson Creek; Mono Lake basin; Mono County; rises in the northern part of T. 2 N., R. 25 E., Mount Diablo base and meridian, at altitude 9,600 feet above sea level; flows irregularly eastward into Mono Lake 1 mile above Black Point; length, 9 miles; fall, about 3,175 feet. Bridgeport sheet.

Wilson Creek; Santa Ana River basin; San Bernardino County; an intermittent stream, 2 miles long, rising in the northern part of T. 1 S., R. 1 W., San Bernardino base and meridian, and flowing southwestward into Yucaipe Creek (tributary through San Timoteo Creek to Santa Ana River, which discharges to the Pacific). San Gorgonio sheet.

Wilson Creek; Santa Margarita River basin; Riverside County; rises on Red Mountain in T. 6 S., R. 1 E., San Bernardino base and meridian, at altitude 4,500 feet above sea level; flows southward and southwestward, discharging into Wilson Valley in the northern part of T. 8 S., R. 1 E.; length, about 10 miles; the drainage line is broken in Reed Valley, but is indicated as a permanent water line from the south end of that valley. San Jacinto and Ramona sheets.

Winchester Canyon Creek; Bell Canyon Creek drainage basin; Santa Barbara County; rises in the Santa Barbara National Forest, on the south slope of the Santa Ynez Mountains, at altitude 700 feet above sea level; flows almost due south 3 miles to the head of Bell Canyon, through which it enters the Pacific. Goleta special sheet.

Windchuck River; Del Norte County, Cal. [Curry County, Oreg.?]; rises in the northwestern part of T. 18 N., R. 1 E., Humboldt base and meridian; flows northwestward and enters the Pacific in the extreme southwestern part of Curry County, Oreg.; length, about 6 miles. Punnett's map of Del Norte County. On the Land Office map of Oregon Windchuck River is drawn in the southwest corner of Curry County, no part of it extending into California.

Winnemucca Lake. *See* Pyramid and Winnemucca lakes.

Wise Creek; Mendocino County; rises in the northern part of T. 12 N., R. 12 W., Mount Diablo base and meridian; flows southeastward to its junction with Russian River (tributary to the Pacific) in the east-central part of T. 12 N., R. 11 W.; length, 8 miles. Punnett's map of Mendocino County.

Witch Creek; San Diego County; rises in the southwestern part of Santa Ysabel Rancho, at altitude of 3,000 feet above sea level; flows southwestward 2 miles, then northwestward 2 miles into Santa Ysabel Creek (San Dieguito River, which discharges to the Pacific); intermittent; fall, about 900 feet. Ramona sheet.

Wolf Creek; Carson River basin; Alpine County; rises in the northeastern part of T. 7 N., R. 20 E., Mount Diablo base and meridian, on the north slope of Arnot Peak, at altitude 9,500 feet above sea level; takes a general northeasterly course to its junction with East Fork of Carson River (tributary through Carson River to Carson Sink); length, 11 miles; fall, 3,400 feet, of which 2,000 feet is made in the first 2½ miles. Dardanelles and Markleeville sheets.

Wolf Creek; Gualala River basin; Sonoma County; rises in the southeastern part of T. 10 N., R. 12 W., Mount Diablo base and meridian; flows somewhat south of west to its junction with Middle Fork of Gualala River (tributary through Wheatfield Fork to Gualala River and thus to the Pacific); length, 4½ miles. Punnett's map of Sonoma County.

Wolf Creek, Little; Humboldt County; rises in the western part of T. 8 N., R. 1 E., Humboldt base and meridian; flows southwestward into the Pacific 2 miles southeast of Trinidad Point. Punnett's map of Humboldt County.

Wolfskill Canyon Creek; Los Angeles County; San Gabriel River basin; rises in the north-central part of T. 1 N., R. 8 W., San Bernardino base and meridian, at altitude 5,250 feet above sea level; flows southwestward 2 miles, then north of west 2 miles into San Dimas Canyon; fall, 3,600 feet. Cucamonga and Pomona sheets.

Wolley Creek; Siskiyou County; rises in the central part of T. 43 N., R. 12 W., Mount Diablo base and meridian, on the east slope of Marble Mountain; takes a very irregular but in general southwesterly course to its junction with Salmon River (tributary to Klamath River, which discharges to the Pacific); length, including major windings, about 25 miles; receives a number of branching tributaries none of which are named on the map. Punnett's map of Siskiyou County.

Wood River, Klamath County, Oreg. *See* Anna River.

Woodman Creek; Mendocino County; rises in the southeastern part of T. 23 N., R. 15 W., Mount Diablo base and meridian, on the south slope of Iron Peak; flows southeastward 5 miles, then north of east 2½ miles to its junction with Eel River (tributary to the Pacific). Punnett's map of Mendocino County.

Wright Canyon Creek; San Diego County; rises in west-central part of T. 14 S., R. 2 E., San Bernardino base and meridian, at altitude 1,900 feet above sea level; flows southwestward into Padre Barona Creek (tributary through San Vicente Creek to San Diego River, which discharges to the Pacific through False Bay); intermittent; length, 3 miles; fall, about 600 feet. Cuyamaca sheet.

Yager Creek; Humboldt County; formed in the central part of T. 2 N., R. 2 E., Humboldt base and meridian, by the union of its North and South forks. The North Fork, which drains the larger area and is therefore considered the continuation of the main stream, rises in the western part of T. 2 N., R. 4 E., takes a general northwesterly course to the eastern part of T. 3 N., R. 2 E., whence its course is southwestward to the point at which it receives the South Fork; below the forks Yager Creek winds irregularly westward and southwestward to its junction with Van Duzen River (tributary to Eel River, which discharges to the Pacific) in the central part of T. 2 N., R. 1 E.; length from Van Duzen River to the head of the North Fork, including major windings, 25 miles; principal tributary below the forks, Lawrence Creek. Gaging station at Carlotta (1911–12). Punnett's map of Humboldt County.

Yager Creek, Middle Fork; Humboldt County; rises in the northwestern part of T. 2 N., R. 3 E., Humboldt base and meridian; flows south of west 3 miles to its junction with North Fork of Yager Creek (tributary through Yager Creek to Van Duzen River and thus to the Eel, which discharges to the Pacific). Punnett's map of Humboldt County.

Yager Creek, North Fork. *See* Yager Creek.

Yager Creek, South Fork; Humboldt County; rises in the central part of T. 2 N., R. 3 E., Humboldt base and meridian, near Yagerville; flows north of west 3 miles, southwestward 2½ miles, then turns abruptly and flows west of north to its junction with Yager Creek (tributary to Van Duzen River and thus to Eel River, which flows to the Pacific); length, about 8 miles. Punnett's map of Humboldt County.

Yaney Canyon Creek; Mono County; rises in the western part of T. 5 N., R. 24 E., Mount Diablo base and meridian, at altitude 8,300 feet above sea level; flows eastward 3 miles into Swager Creek (tributary through Buckeye Creek to East Walker River and thus to Walker River, which discharges to Walker Lake); fall, 1,600 feet; intermittent. Bridgeport sheet.

Yellow Jacket Creek; Trinity County; rises in the northeastern part of T. 35 N., R. 11 W., Mount Diablo base and meridian, flows southwestward 5½ miles into East Fork of North Fork of Trinity River (tributary through Trinity River to Klamath River, which discharges to the Pacific). Punnett's map of Trinity County.

Yreka Creek; Siskiyou County; rises in the northwestern part of T. 44 N., R. 7 W., Mount Diablo base and meridian, on the east slope of Forest Mountain; flows in general northeastward to its junction with Shasta River (tributary to Klamath River, which flows to the Pacific); length, 10 miles; passes through the town of Yreka. Punnett's map of Siskiyou County, on which it is not named; Land Office map of California, 1907.

Yridisis Creek; Santa Barbara County; an intermittent stream, 1 mile long, flowing southward into El Jaro Creek (tributary to Salsipuedes Creek, and thus to Santa Ynez River, which discharges to the Pacific). Lompoc sheet.

Ytias Creek; Santa Barbara County; an intermittent stream flowing southwestward into El Jaro Creek (tributary through Salsipuedes Creek to Santa Ynez River, which discharges to the Pacific) in San Julian Rancho. Lompoc sheet.

Yucaipe Creek; San Bernardino and Riverside counties; rises in the eastern part of T. 1 S., R. 1 W., San Bernardino base and meridian, at altitude 7,500 feet above sea level; flows south of west to its junction with San Timoteo Creek (tributary to Santa Ana River, which discharges to the Pacific Ocean) near Bicknell; length, 14 miles; fall, 6,000 feet, of which 4,700 feet is made in about 6 miles at the head. San Gorgonio and Redlands sheets.

Zaca Lake; Santa Barbara County; a small lake 1 mile northwest of Zaca Peak. The map shows no connection between Zaca Lake and La Zaca Creek, but overflow from the lake must pass through the creek to Santa Ynez River, which discharges to the Pacific Ocean. Lompoc sheet.

Zanja Creek, The; the channel that takes waters from Mill Creek (tributary to Santa Ana River, which discharges to the Pacific), where it courses close to the south hillside of its wide-open lower canyon. This channel was constructed in 1821 and has long lost the semblance of an artificial work. Redlands and San Bernardino sheets; Hall, Irrigation in California [southern], pp. 300–301.

Zayante Creek; Santa Cruz County; rises in the northeastern part of T. 9 S., R. 2 W., Mount Diablo base and meridian, at altitude 1,800 feet above sea level; flows in general west of south about 10 miles to its junction with San Lorenzo River (which discharges to the Pacific Ocean) near Felton; fall, about 1,500 feet; principal tributaries, Lompico and Bean creeks. Santa Cruz sheet.

GAGING STATIONS.

The following list comprises the gaging stations maintained in the Great Basin and Pacific coast drainage basins in California from 1891 to July 1, 1912. It includes all the stations that have been maintained in California exclusive of those in the Sacramento and San Joaquin drainage basins. The stations are arranged in downstream order, tributaries being indicated by indention. A dash following the date implies that the station was being maintained July 1, 1912.

GREAT BASIN.

Honey Lake basin:
- Susan River near Susanville, 1900–1905.
  - Willow Creek at Merrillville, 1904–5.
  - Willow Creek near Standish, 1900–1905.

Pyramid and Winnemucca Lake basins:
- Lake Tahoe at Tahoe, 1900–
- Truckee River at Tahoe, 1895–96, 1900–
- Truckee River near Nevada-California State line, 1899–
  - Donner Creek near Truckee, 1902–
  - Prosser Creek near Truckee, 1903–4, 1907–
  - Prosser Creek near Boca, 1902–3.
  - Little Truckee River at Starr, 1903–1910.
  - Little Truckee River at Boca, 1911–
    - Independence Creek below Independence, 1902–1907.

Carson Sink basin:
- West Fork of Carson River at Woodfords, 1900–
- East Fork of Carson River at Silver King Valley, 1910–
- East Fork of Carson River near Markleeville, 1910–
  - Silver Creek near Markleeville, 1910–
  - Markleeville Creek near Markleeville, 1911–
  - Markleeville Creek at Markleeville, 1910–
    - Pleasant Valley Creek at Markleeville, 1910–

Walker Lake Basin:
- West Walker River near Coleville, 1902–1908
- East Walker River near Bridgeport, 1911–
  - Robinson Creek near Bridgeport, 1910–
  - Buckeye Creek near Bridgeport, 1910–
    - Swager Creek near Bridgeport, 1911–

Mono Lake basin:
- Rush Creek near Mono Lake, 1910–
- Leevining Creek near Mono Lake, 1910–

Owens Lake basin:
- Owens Lake near Olancha, 1908–
  - Owens River near Round Valley, 1903–
  - Owens River near Tinemaha, 1906–
  - Owens River near Lone Pine, 1908–
  - Owens River near Citrus, 1903–1906.
    - Rock Creek near Round Valley, 1903–
      - Pine Creek near Round Valley, 1903–
    - Bishop Creek near Bishop, 1903–1911.
    - Baker Creek near Big Pine, 1907–1910.
    - Big Pine Creek near Big Pine, 1903–1911.

Owens Lake basin—Continued.
Owens River—Continued.
Tinemaha Creek near Big Pine (Tinemaha), 1906–1911.
Birch Creek near Big Pine (Tinemaha), 1905–1911.
Taboose Creek near Aberdeen, 1906–1911.
Goodale Creek near Aberdeen, 1906–1911.
Division Creek near Independence, 1906–1911.
Sawmill Creek near Independence, 1906–1910.
Thibaut Creek near Independence, 1907–1909.
Oak Creek near Independence, 1905–1911.
Little Pine Creek near Independence, 1905–1911.
Shepard Creek near Thebe, 1906–1909.
Bairs Creek near Thebe, 1906–1909.
George Creek near Thebe, 1906–1911.
Lone Pine Creek near Lone Pine, 1906–1911.
Tuttle Creek near Lone Pine, 1906–1911.
Cottonwood Creek near Olancha, 1906–1911.
Ash Creek near Lone Pine, 1906–1909.

OWENS RIVER CANALS.

Owens River canal near Bishop, 1903–1905.
Bishop Creek canal near Bishop, 1903–1905.
Farmers canal near Bishop, 1903–1905.
McNalley canal near Bishop, 1903–1905.
George Collins's canal near Bishop, 1903–1905.
Rawson canal near Bishop, 1903–1905.
A. O. Collins's canal near Bishop, 1903–1905.
Dell canal near Bishop, 1903–1905.
Big Pine and Owens River canal near Bishop, 1903–1905.
Sanger canal at Alvord, 1903–1905.
East Side canal near Citrus, 1903–1905.
Stevens canal near Citrus, 1903–1905.
Powers canal near Bishop, 1903–1905.
South Hillside canal near Bishop, 1903–1905.
North Hillside canal near Bishop, 1903–1905.

Mohave Desert:
Mohave River at Victorville, 1899–1906.

Antelope Valley:
Little Rock Creek near Palmdale, 1896–1899.

Salton Sink:
Salton Sea near Salton, 1904–
Alamo River near Brawley, 1908–1912.
New River near Brawley, 1908–1910.

LOWER COLORADO RIVER.

Colorado River at Hardyville, Ariz., 1905–1907.
Colorado River near Mohave, Ariz., 1902–3.
Colorado River at Yuma, Ariz., 1891–

IMPERIAL VALLEY CANALS.

Imperial canal near Yuma, Ariz., 1903–5.
Imperial canal near Calexico, 1904–5.
Holt canal near Calexico, 1904–5.
Hemlock canal near Calexico, 1904–5.
Alamitos canal near Calexico, 1904–5.

Boundary canal near Calexico, 1904–5.
Wisteria canal near Calexico, 1905.

SOUTH PACIFIC COAST DRAINAGE BASINS.

Tia Juana River basin:
Cottonwood Creek and Dulzura conduit near Jamul, 1905–
Pine Valley Creek near Jamul, 1906–1908.
Sweetwater River basin:
Sweetwater River near Descanso, 1905–
San Diego River basin:
San Diego River and canal near Lakeside, 1905–
San Dieguito River basin:
Santa Ysabel Creek (head of San Dieguito River) near Escondido, 1905–
Santa Ysabel Creek near Ramona, 1912–
San Dieguito River at Bernardo, 1911–
San Luis Rey River basin:
San Luis Rey River at diversion flume, 1894–1899.
San Luis Rey River near Mesa Grande, 1911–
San Luis Rey River near Pala, 1903–
San Luis Rey River at Bonsall, 1912–
Santa Margarita River basin:
Temecula Creek (head of Santa Margarita River) near Temecula, 1905–6.
Santa Ana River basin:
Santa Ana River and power canal near Mentone, 1896–
Waterman Canyon Creek (West Twin Creek) near San Bernardino, 191–
Devil Canyon Creek near San Bernardino, 1911–
San Gabriel River basin:
San Gabriel River and power canal near Azusa, 1895–
Los Angeles River basin:
Arroyo Seco near Pasadena, 1910–
Malibu Creek basin:
Malibu Creek near Calabasas, 1903–1906.
Triunfo Creek near Calabasas, 1903–1906.
Santa Clara River basin:
Santa Clara River at Fillmore, 1911–
Piru Creek near Piru, 1911–
Sespe Creek near Sespe, 1911–
Santa Paula Creek near Santa Paula, 1911–
Ventura River basin:
Ventura River near Nordhoff, 1911–
Ventura River near Ventura, 1911–
Santa Ynez River basin:
Santa Ynez River near Santa Barbara, 1903–
Santa Ynez River near Lompoc, 1906–
Mono Creek at Mono dam site, 1902–1904.
Santa Maria River basin:
Santa Maria River near Santa Maria, 1903–1906.
Salinas River basin:
Salinas River near Salinas, 1900–1901.
Nacimiento Creek near Bryson, 1901.
San Antonio River near Jolon, 1900–1901.
San Lorenzo Creek near King City, 1900–1903, 1912–
Arroyo Seco near Soledad, 1900–
Pajaro River basin:
Pajaro River at Watsonville, 1911–