



Triads as Memory Aids

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Triads as memory aids

Features of the California Waterscape

Below are some groupings to help you remember what's what. You can generally remember triads - a good way to master a subject.

I. Natural features

I, A. 3 major rivers, central Sierra:

- Stanislaus (whitewater rafting)
- Tuolumne (Don Pedro Dam, serving 2 major Irrigation Districts, Modesto and Turlock, plus City of San Francisco which sells to San Mateo County)
- Merced (Yosemite Park)
- (One other, the Mokelumne, is important to Oakland, Berkeley, and other East Bay cities.)

Herch H.

I, B. 3 major rivers, southern high Sierra:

- San Joaquin,
- Kings,
- Kern
- (plus the smaller but valuable Kaweah and Tule Rivers, between Kings and Kern)

I, C. 3 highest peaks and ranges with snowpacks in southern California:

- San Antonio (Old Baldy), in San Gabriel Range
- San Geronimo (Old Grayback) in San Bernardino Range
- San Jacinto in San Jacinto Range

3 shorter but important ranges in southern California

- Santa Monica Mountains
- Tehachapi Range (site of "The Grapevine")
- Coastal Ranges

I, D. 3 most important rivers of the northern Sierra, listed from north to south:

- Sacramento,
- Feather,
- American
- (and one neglected river, the Yuba)

- I, E. 3 major rivers of n.w. Coast Range:
- Trinity,
 - Eel,
 - Russian
 - *Klamath*
- I, F. 3 divisions of The Bay Area
- San Francisco Bay (south of Bay Bridge)
 - San Pablo Bay (north of Bay Bridge)
 - Suisun Bay and The Delta (east of Vallejo)
- I, G. 3 major divisions of Central Valley:
- Sacramento Valley,
 - San Joaquin Valley,
 - Tulare Lake Basin (s. of San Joaquin R.)
- I, H. 3 Coastal valley enclaves up north:
- Napa Valley
 - Sonoma Valley
 - Santa Clara Valley ("Silicon Valley")
 - *Livermore V.*
- I, Eye. 3 Coastal valley enclaves south of the Bay Area
- Salinas Valley (Steinbeck, "East of Eden", James Dean)
 - Santa Clara Valley of the South (Piru, Fillmore)
 - Santa Maria (sugar beets) and Santa Ynez (horse farms, Ronald Reagan, Fess Parker, Michael Jackson) Valleys
 - *San Benito*
- I, J. 3 Major inland valleys:
- Owens Valley, east of high Sierra (water sacrificed for San Fernando Valley, as in "Chinatown" with Faye Dunaway, Jack Nicholson, Walter Huston)
 - Coachella Valley (Palm Springs, Salton Sea) *White R.*
 - Mojave and Antelope Valleys
 - *Imperial V.*
- I, L. 3 important passes
- Cajon
 - Donner
 - The Grapevine
 - *Tehachapi*
 - *Coastal #101 (Rindge)*
- I, K. 3 major barriers to travel hemming in California
- The Sierra wall
 - The Grand Canyon

- The Siskiyou and Trinity Alps Mountains on the northern border

I, M. 3 major rivers of southern Calif:

- Los Angeles with Rio Hondo
- San Gabriel
- Santa Ana (including a tributary, the San Jacinto

I, N. 3 remote sources of water for southern California:

- Owens Valley via the L.A. Aqueduct;
- Colorado River via the Colorado Aqueduct;
- Feather River via the California Aqueduct (X-hauling)

I, O. Brecognized north-south divisions of the San Joaquin Valley and the Tulare Lake Basin:

- East Side, *Thermal Belt*
- West Side. Too simple to mention? The economic and cultural differences are so deep, these are like two different civilizations. The West Side is a Third-world Country masquerading as part of our state.
- *Cold belt. in middle*

I, P. 3 major aquifers or groups of them

- Coachella-Imperial Valleys
- Gravelly alluvial cones and fans at base of mountains everywhere, and in coastal valleys
- San Joaquin and Sacramento Valleys

I, Q. 3 big natural lakes (there aren't many in California)

- Lake Tahoe
- Goose Lake
- Mono Lake
- (Salton Sea is an "accidental" lake, formed in a natural basin by a man-made spill of Colo. R. water, 100 years ago)

II. Water Users

II, A. 3 old established city systems:

- SF (San Francisco)
- EBMUD (East Bay Muni Utility District)
- LADWP (L.A. Dept of Water and Power)

II, B. 3 newer city systems:

- SCVWCD (Santa Clara Valley Water Conservation District)
- SMUD (Sacramento Muni Utility District)
- MWD (Metro Water District of Southern Cal), "The Met"

II, C. 3 big Irrigation Districts

- Modesto/Turlock
- Alta
- Imperial

II, D. 3 major California users of Colorado River Water:

- MWDSC,
- Imperial I.D.,
- Coachella Valley (and the smaller Palo Verde I.D., with valuable priorities, high nuisance value)

II, E. 3 major California rivals for Colorado River water:

- desert valleys
 - Imperial,
 - Colorado,
 - Coachella
- Metropolitan Los Angeles;
- Metropolitan San Diego

II, F. 3 major out-of-State rivals for Colorado River water:

- Arizona, mainly Maricopa County (Phoenix), also Mohawk Valley;
- Nevada, mainly Las Vegas;
- Mexico;
- There are also Indian treaty rights, long ignored but now looming up.

II, G. 3 major sinks (consumers) of water:

- Sacramento Basin,
- San Joaquin Basin,
- Tulare Lake Basin.

(These are all potential sources for growing cities, along with the Imperial Valley. See Atlas p.102, where the Imperial is called the "West Low-Desert Colorado River" Basin. Reallocating these underutilized waters is "California's New Frontier.")

II, H. 3 major kinds of local water enterprise and distribution systems, other than cities:

- Irrigation Districts (one person, one vote);
- other kinds of water districts (one acre, one vote);
- Mutual Water Companies (cooperatives of a kind, but with one acre, one vote). *Can sell shares. Carlsplan.*

II, Eye. 3 major ways of distributing and "subdividing" water

- Irrigation Districts under Wright Act with Dennett Amendments
- Mutual Water Companies
- Acreage limitation under Federal Reclamation Act

II, J. 3 major State and Federal intercessions in California plumbing

- 1934, broke California calls in U.S. Bureau of Reclamation to take over the Central Valley Project
- 1944 Flood Control Act, Congress gives the U.S.A.C.E. control over water supply works on Kings, Kaweah, Tule, and Kern Rivers, to evade acreage limitation and "9(e)" contracts of the U.S.B.R.
- 193?, U.S.B.R. builds Boulder (now Hoover) Dam for L.A. and environs; 193?, supplements water for IID with the All-American Canal.
- 1960, State passes huge bond issue to build the Cal Water Plan (CWP), for the *latifundistas* of the West Side of the south Central Valley, plus some later supplements for southern California
- 1978, State voters turn down Peripheral Canal proposal to supplement transfers from far north to southern Cal.
- 2012, Gov. Jerry Brown asking voters to approve new substitute for Peripheral Canal, this one to go UNDER rather than AROUND the Delta

III. Big Agencies, Projects

III, A. 3 big power companies:

- PG&E (Pacific Gas and Electric)
- SCE (Southern Cal Edison)

- SDG&E (San Diego Gas and Electric)

III, B. 3 Major Federal and State Agencies:

- USBR (U.S. Bureau of Reclamation)
- USACE (U.S. Army Corps of Engineers)
- DWR (California State Department of Water Resources)

III, C. 3 major north-south aqueduct systems:

- CVP (Delta-Mendota and Friant-Kern Canals);
- CWP (California Aqueduct plus its many branches south of the Tehachapis);
- Los Angeles Aqueduct, Owens Valley to L.A.

III, D. 3 reservoirs in and around Riverside

- Lake Mathews (Colorado R. water bound for points west)
- Lake Perris (CWP water from far north)
- Diamond Valley Lake nr Hemet (CWP water bound for points south)

III, E. Flood control reservoirs near Riverside

- N.e. of #91 and #57 junction. *VAST RESERVOIR space E. of Corona*
- Huge hidden dam on upper Santa Ana, n. of Redlands, e. of Yucaipa
- On San Gabriel R. above and n. of City of Industry

IV. Storage, Distribution

IV, A. 3 rival claimants on reservoir storage space:

- water supply,
- power generation,
- flood control
- A 4th one, fisheries conservation, is rising fast in importance

IV, B. 3 new claimants on reservoirs (including natural lakes used as reservoirs):

- shoreline amenities,
- flatwater recreation,
- protecting whitewater recreation
- protecting fisheries, has risen to high priority

IV, C. 3 water uses producing the least value and the fewest jobs per unit of water:

- rice,
- hay and small grains (including alfalfa and barley),
- irrigated pasture
- Golf courses and cemeteries belong in this group, too, but even golf courses still occupy too little land to rank with the first three; and it is hard to measure the output of cemeteries.

IV, D. 3 major ways of applying irrigation water:

- flooding,
- furrowing,
- dripping, sprinkling, and other advanced methods

IV, E. 3 major ways of storing water

- snowpacks
- reservoirs
- aquifers

V. Reservoirs

V, A. 3 big Reservoirs

- Lake Shasta (Sacramento R.)
- Lake Oroville (Feather R.)
- Hetch Hetchy (Tuolumne R.)

V, B. 3 big reservoirs of high location value in High Sierra

- Millerton Lake (San Joaquin R.)
- Pine Flat (Kings R.)
- Lake Isabella (Kern R.)

V, C. 3 major dams and reservoirs on Colorado R.

- Glen Canyon Dam (Lake Powell), *Hi scenic value.*
- Hoover Dam (originally, Boulder Dam; Lake Mead)
- Parker Dam (Lake Havasu)

VI. Latifundia

VI, A. 3 giant landowners north of the Tehachapi's

- Tejon Ranch
- J.G. Boswell Co.

- Castle and Cooke (former KCLC) *& then Teyneco*

VI, B. 3 giant landowners south of the Tehachapi's

- Newhall Land Co. in Santa Clara Valley of the south
- Irvine Co. (Donald Bren)
- O'Neill family

VI, C. Westside corporations

- Major oil companies
- Stuart and Linda Resnick
- Central California I.D. (C.C.I.D.)

VII. Action and Reaction in history of water law

VIII.

VII, A. 3 major cases of institutional action and reaction in history of California water

- Lux v. Haggin, 1886, upholding riparian claims, answered by Wright Act, 1887, letting small farmers form Irrigation Districts, ruled by one-man-one-vote. 1896, SCOTUS upholds Wright Act in Fallbrook I.D. v. Bradley.
- Earlier, 1879, Calif. adopts new State Constitution, establishing Board of Equalization to let State impose heavy property taxes on latifundia held by the likes of Miller and Lux, Haggin-Tevis-and Carr, S.P.R.R., et al.
- Miller and Lux v. Madera Canal and Irrigation Co., 1909, extending riparian claims against upstream appropriators. Answered by L.L. Dennett's amendments to the Wright Act, letting I.D.s exempt improvements from their taxes, focus them on land holdouts. Soon, with Gov. Hiram Johnson in the saddle, Legislature also creates Water Commission to legitimize and document appropriative licenses, and weaken riparian holdouts. Legislature also forms District Securities Commission, to endorse the bonds of I.D.'s, thus helping sell them.
- 1926, Herminghaus v. Southern Cal Edison, a riparian blocks a power dam. Answered by 1928, California Constitutional Amendment, requires "reasonable use" to retain riparian water claims.

VIII. Measuring Water

VIII, A. 3 ways of measuring water volumes

- a.f. (acre-feet) (= 43,560 c.f.)
- million gallons (= about 3 a.f.)
- c.f. (cubic feet)

VIII, B. 3 ways of measuring water flows

- c.f.s. (cubic feet per second)
- m.i. (miners' inches)
- m.i. southern Cal standard