

Water Quality Issues from Abandoned Mines



(BANC PIC 1905.17175:99--ffALB)

MALAKOFF DIGGINGS,

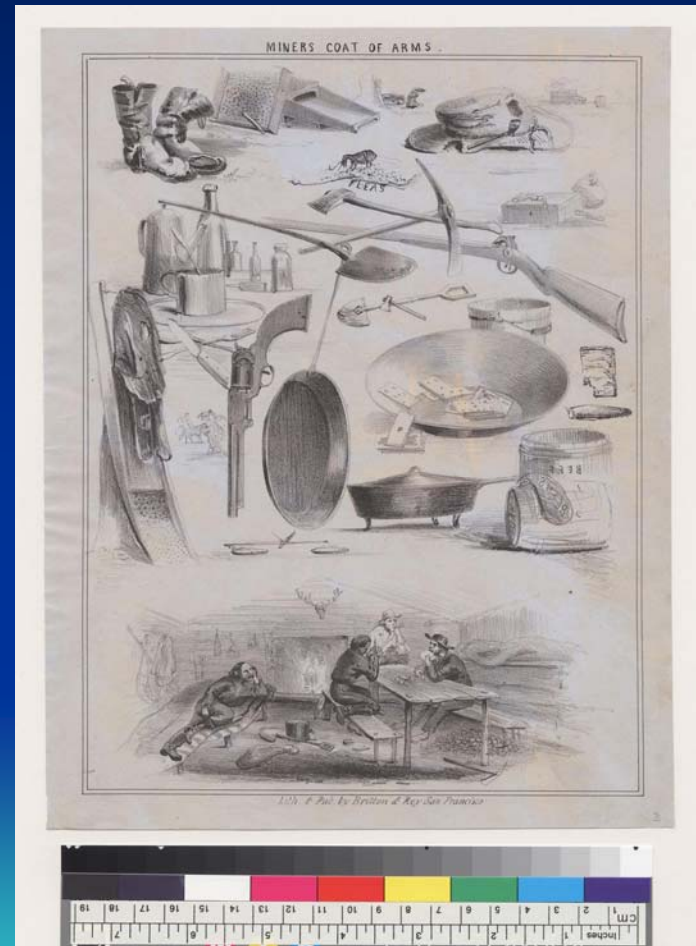
aka WETTING'S Mine, Nevada

NEVADA COUNTY, CALIFORNIA.

alt. WETTING'S Mine, Nevada

Early Gold Mining

- By individuals
- Simple technology, little capital needed.
- Effective for rich, easily worked placer deposits.
- Continued by Chinese as they had few employment options.



Hydraulic Gold Mining - Mercury

- Develop in several areas starting about 1853.
- Ended in the Sierra Nevada after the Sawyer Decision.
- About 6,000 ton of mercury were lost during mining.



Cherokee Mine

Hydraulic Mining

Monitors



Photo by Powell

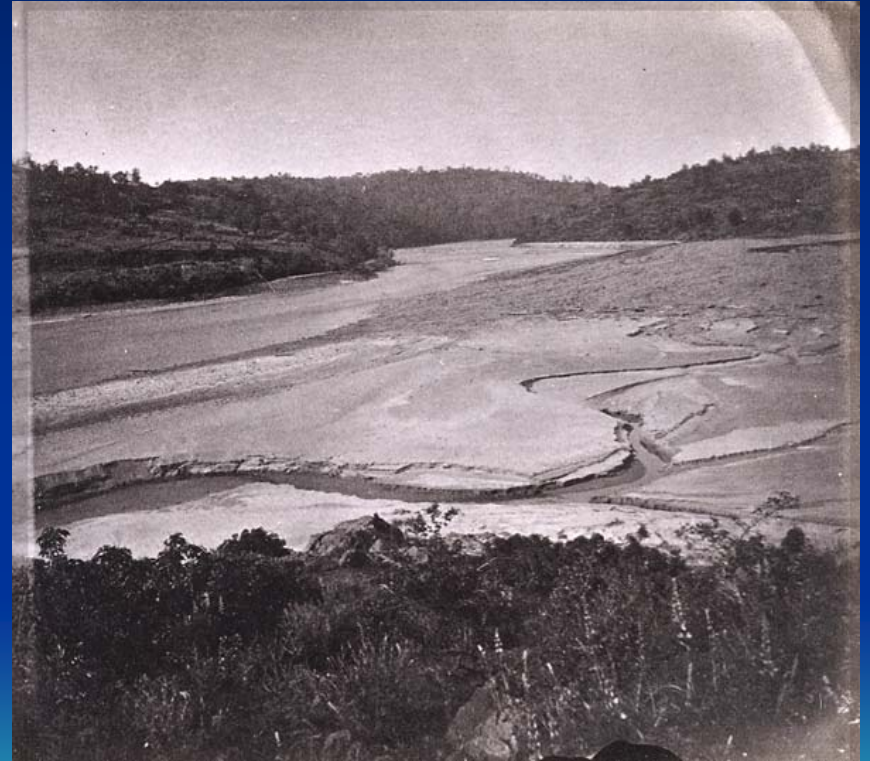
Eastman's collection G117, T 271, UCD

Flumes



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Hydraulic Mining



Sluices

Society of California Pioneers, LH0801

Legacy Mercury



The Sawyer Decision

- **1883 Court Decision 1** (Judge Sawyer, 1/7/1884)
No one can discharge or dump any of the tailings, cobble stones, gravel, sand, debris or refuse matter into the Yuba River.
- **1884 Court Decision 2** (State Supreme Court decision upholding earlier Gold Run case, 11/1884)
No person or corporation has the right to cover a neighbor's land with mining debris.
- **1893 Statute**
Hydraulic mining may be carried on within the State of California wherever and whenever the same can be carried on without material injury to the navigable streams, or lands adjacent thereto.



Hardrock Mining - Mercury



- About 3,000 ton of mercury was lost with hard rock mining waste.
- Many sites throughout the Sierra Nevada and desert areas.
- Much waste remains on site.

Hardrock Mining – Acidic Mine water

- Causes fish kills.
- Poses a human health threat when mine water contains arsenic and heavy metals.
- Costly to clean up.
- Clean ups usually require long-term maintenance.



USGS

Hardrock mining – Exposure to potentially toxic mine waste

- Human exposure to arsenic and fine silica via dust inhalation.
- Many site in remote areas.
- Sites attractive ORV enthusiasts.



Abandoned Mines

- Contribute to regional mercury contamination.
- Degrade surface water via acid, heavy metal loading.
- Pose human exposure risks.
- Are numerous and expensive to clean up.
- But are being cleaned up one site at a time.



Society of California Pioneers, LH0796

The Sawyer Decision

- **1883 Court Decision 1**

The [defendant companies – North Bloomfield et al]... are perpetually enjoined and restrained from discharging or dumping into the Yuba river... any of the tailings, boulders [sic], cobble stones, gravel, sand, debris or refuse matter.

- (Supreme Court Judge Lorenzo Sawyer, January 7, 1884)

- **1884 Court Decision 2**

No person, natural or artificial, has the right, directly or indirectly, to cover his neighbor's land with mining debris.

- (State Supreme Court decision upholding earlier Gold Run case, November, 1884)

- **1893 Statute**

The Civil Code of the State of California is hereby amended by adding thereto a new title, to be known as title nine....The business of hydraulic mining may be carried on within the State of California wherever and whenever the same can be carried on without material injury to the navigable streams, or lands adjacent thereto.

