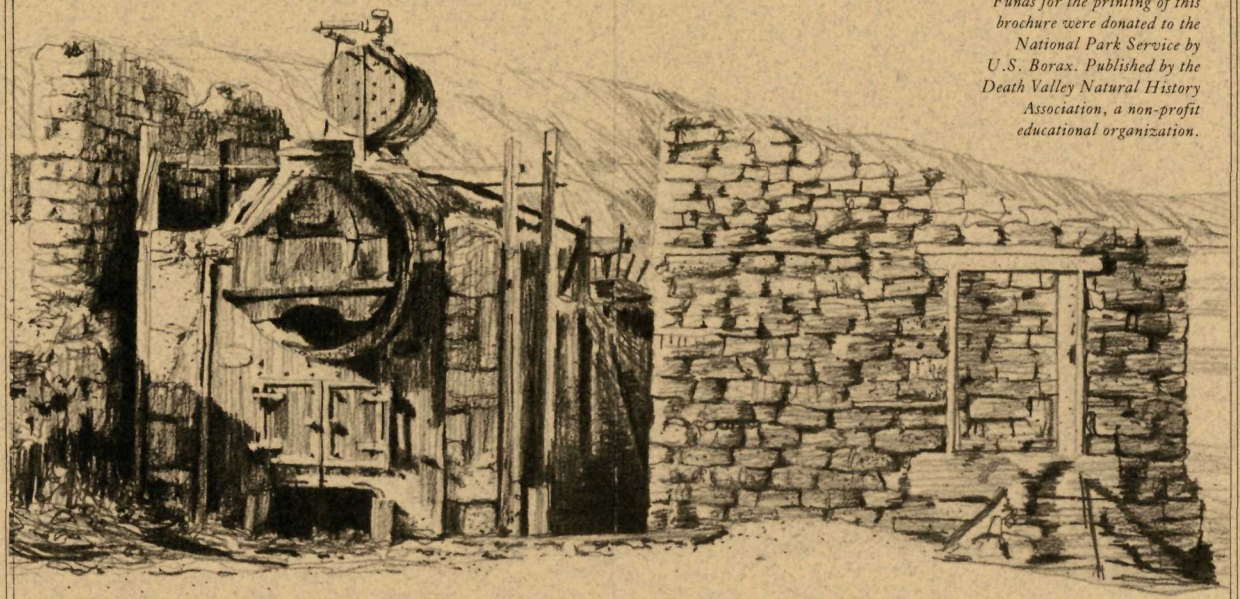
also visit the ruins of Eagle and Harmony Borax Works to relive the pioneer saltmarsh period.

A THIRD CHAPTER in Death Valley borate mining began in January, 1971, when Tenneco Inc. (now American Borate Company) began open-pit mining in Furnace Creek Wash. With the 1976 passage of The Mining in the Parks Act, Public Law 94-429, borate mining has trended to underground operations. A plant north of Death Valley Junction processes colemanite. Other borate minerals are shipped directly to markets.

USES OF BORAX . . . much of the world's industry depends upon borates. Some of the principal industrial uses include the glass industry, porcelain enamel, soap and detergents, fertilizers, ceramics, cosmetics, building materials, fire retardants, and automobile antifreeze solutions and even used as shields for nuclear reactors. The largest use of Death Valley borates is fiber glass production. Colemanite is essential for the resilient fibers used in glass boat hulls, automobile bodies and aircraft sections.

The borate industry in the United States has grown from a 2,000 ton output in 1882 to well over a 1,500,000 ton output today.



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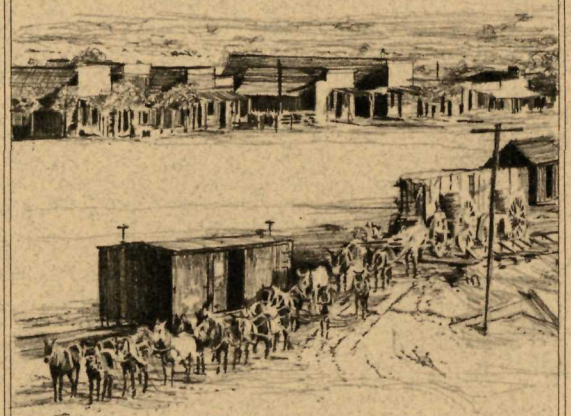
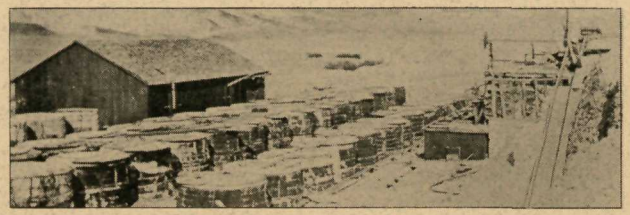
DEATH VALLEY BORAX



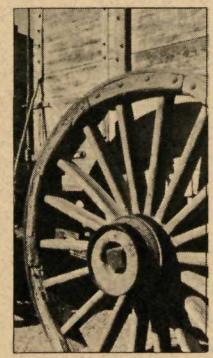
BORAX belongs to a group of boron compounds (the borates) that resemble quartz crystals, fibrous cotton-balls, or earth white powders. They originated in hot mineral springs or in the fuming vapors associated with volcanic eruptions. In the Furnace Creek area, borates were deposited in the remains of old lakebeds — of which the badlands of Zabriskie Point are a good example. Later, partial alteration and solution of these veins by groundwater moved some of the borates to the floor of Death Valley, where evaporation has left a mixed crust of salt, borates, and alkalies. Remaining piles of these materials can still be seen about two miles west of Harmony Borax Works.

THE HISTORY OF BORATES in America began with the borax boom of the 1870's, when prospectors claimed many California



and Nevada salt flats. Aaron Winters found borax on the Death Valley saltpan in 1881. He soon sold his claims to William T. Coleman, builder of the Harmony Borax Works, where borate-bearing muds were refined until 1889. EAGLE Borax Works, a contemporary of Harmony, folded in 1882 owing to poor-quality deposits, intense summer heat, and remoteness from markets. Coleman's company escaped the heat by moving their summer operations to the Amargosa Works near less-torrid Shoshone. 20-mule teams* solved the transportation problem, with tandem wagons that bore a payload of over 20 tons.

By 1890, saltmarsh operations were obsolete, and F.M. "Borax" Smith consolidated most claims in the Pacific Coast Borax Company, which then concentrated upon underground mining of a newly discovered borate in the Calico Mountains near Barstow. Not until 1907 did this same mineral, colemanite, bring miners back to Death Valley to honeycomb the Greenwater Range, first at the Lila C. Mine and, after 1914 at Ryan. 20-mule teams saw temporary revivals both in the Calicos and at the Lila C., but each operation eventually replaced them with a narrow-gauge railroad. After 1928, Death Valley's borate spent another 42 inactive years while more profitable deposits were worked at Boron and Searles Dry Lake (Trona), California. The Borax Museum at Furnace Creek Ranch highlights minerals and mining equipment. It emphasizes the underground mining period. You should



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