

Revolution in the Laundry

[excerpts]

By W. Storrs Lee

The Southern Pacific rails were laid across the broad Mojave just in time to aid and abet the first big desert industry; and the Santa Fe, too, soon pushed in from the East, as if the scheduling of all this tie and track laying were in accord with some grand design prearranged to accommodate a new brand of prospector.

Fortunes had been made and lost in trying to wrest silver and gold from the mountains that stretched north like gaunt fingers from the Mojave Desert-the Coso, the Argus and the Slate ranges, the Panamints, the Black and the Funeral mountains. For a time even the more conservative grubstakers of San Francisco had been confident that the desert was going to yield the kind of golden wealth that had come from the Sierra foothills and Washoes, but by 1882 or '83 they were stoically accepting their disillusionment and conceding that the real Eldorado might be in the common white stuff that littered the dry lake floors-sodium tetraborate; tincal, as it was known to the mineralogists; $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$, as it was known to the chemists; "cottonball crude," as desert dealers referred to it; "baking soda," as it was contemptuously misnamed by laborers who helped gather it; borax, as it was known to the druggists.

Although borate of soda had been sparingly used since ancient times by glassmakers, metal craftsmen and dyers, borax was not yet a household word in the 1880's. It was expensive stuff, sold by some apothecaries for as much as two bits an ounce. And there was good reason for its cost. For a hundred years the principal supply had come from Tibet, packed over the Himalaya passes on the backs of sheep, fifty pounds to an animal, and delivered in Calcutta after traveling 500 miles through some of the sorriest terrain on the globe.

In the eighteenth century deposits had been located nearer civilization in the swamps of Tuscany, 65 miles southeast of Leghorn. More recently, commercial quantities had been found in Turkey, in Chile, in Argentina, near Clear Lake, California, and in the marshes of western Nevada. The industrial demand for it was rising sharply.

Metallurgists had to have the salts for the production of alloys. Borax made nickel-plating a quick, practical process. Pottery and ceramics manufacturers were dependent upon it for the smooth, lustrous finish of their wares. Meat packers used it as a preservative. Soap companies had discovered that borax was an effective water softener and buffer. The leather industry required it as a neutralizer in preparing hides for tanning. It was the best-known rust inhibitor, and with interior plumbing coming into vogue, no bathtub, toilet, lavatory or kitchen sink, could be properly surfaced without the vitreous enamel produced from sodium tetraborate.

The discovery of this versatile, indispensable mineral in Death Valley was first made in 1873, but nothing much was done about it until seven years later when a far larger deposit was brought to light dramatically. That 1880 find brought a new kind of prosperity to the desert country. Within three years, borax was rolling out of the parched wastelands in quantities that the industrial world had never dreamed possible, and the price was steadily declining. It came by the vanload in some of the bulkiest vehicles to which draft animals had ever been hitched.

Transportation of borax from a place almost as inaccessible as Tibet was, of course, the major problem. The coming of the railroad had eliminated half the haul to the Coast, but it was still 165 miles from Furnace Creek in Death Valley to the nearest railroad station at Mojave, and at first the very notion of conveying vast quantities of anything out of the valley was looked upon as a proposition more impossible than running a stage line across the continent.

The mileage itself was relatively inconsequential. What created the real problems were the oceans of sand, the heat, the long, waterless stretches, the miry salt marshes, and the high mountain shoulders to be crossed with payloads of thirty tons or more. This transportation was not like the business of stage coaching, lumbering or even oxcart pioneering. No one had ever tried hauling over such terrain and for such a distance the ponderous weights necessary to make borax mining a profitable enterprise.

The 30 miles down Death Valley from Furnace Creek to the last water at Mesquite Spring were as hard a grind as any teamster could reasonably expect to encounter on the American continent, but at Mesquite Spring the hard part of the journey started. From there to Mojave the distance of 135 miles was broken by only three springs.

In the well-watered East, where draft animals were used for hauling enormous loads, watering troughs spaced at intervals of every 4 or 5 miles were considered a bare minimum. Yet from Mesquite Spring to the next watering place at Lone Willow, near the foot of a peak in the Panamint Range, it was 53 miles, and 40 of them were uphill through Windy Gap or Wingate Pass.

The average grade in Windy Gap was 100 feet to a mile, though there were short, winding stretches where the rise was as much as 400 feet per mile. Moreover, it was impossible to maintain any semblance of road through the pass. It was nothing more than a stream bed, a wash, down which foaming waves 20 feet high had been known to rush after a torrential shower. And the showers came just often enough to keep the pass strewn with boulders, cut by cross gullies, and surfaced with a foot or more of yielding sand. So tortuous was one turn near the crest that the driver of a long team of mules actually lost sight of his leaders around an overhanging cliff.

From Lone Willow it was 26 miles to Granite Spring, near mile-high Pilot Knob, then an easy 7 miles to Blackwater, and finally a long, waterless 50 miles into Mojave. The route was as lonely as it was dry. Over the entire 165 miles there was not a sign of human habitation, no hut, no shade, no shelter of any sort—an endless expanse of wind-blown sand and low shrubs. This was the territory over which the Harmony Borax Company, just north of Furnace Creek, expected to cart hundreds of tons of sodium tetraborate.

The worst traffic obstruction, more formidable than Windy Gap, was in Death Valley itself. The refining works were located above the mouth of Furnace Creek Canyon on the east side of the valley. The springs and the best road surface lay on the west side, so it was necessary to cross the salt marsh which extended for a width of from 8 to 10 miles down the full length of the valley. For most of the distance the marsh was a trap of bottomless slime and ooze, impossible to bridge, impossible to fill.

Here and there the slime was crusted over with salt, but that only added to its treachery, for the thickness of the crust was dependable nowhere. A man might walk on it confidently for a quarter of a mile, then the surface would suddenly give way and there was nothing underneath but that deadly pudding of ooze. To satisfy his curiosity, one investigator had taken a 15 foot pole out on the crust, chipped a hole in it, and with scarcely any pressure, shoved the pole down out of sight. Anyone was entitled to make his own guess on how much deeper than 15 feet the sink was.

But after tedious exploration, one area, a few miles south of Furnace Creek, was finally located where the surface seemed firm all the way across—firm, but so fantastically serrated that it resembled the margins of a northern lake after a stiff March storm had blasted out the winter ice and heaped it helter-skelter on the shore. Nowhere was there footing on these jagged salt crystals. Yet if a road were to be extended to Mojave this barrier had to be crossed. And no machine or horse-drawn contrivance could tackle the job. It had to be done by hand, with sledge hammers. Eight miles of chaos had to be leveled by men working in the merciless white glare and in temperatures of 110° and 120°.

Someone remembered the magnificent performance of Chinese coolies in chiseling a railroad bed over the Sierra Nevada in the snow and ice of midwinter. In an inverse climate and setting, this was the same kind of work. A few of them were put on the job with white men. The Caucasians quit. The coolies, in their broadbrimmed straw hats, kept at it.

Gangs of Chinese—a whole colony of them—were recruited in the valley towns and in San Francisco, and transplanted in Death Valley. Equipped only with sledge hammers, they laboriously chipped a swath through the morass of sandy salt, pounding tirelessly at the jumbled crystals, chattering in a dozen dialects, cheerful beyond all Occidental understanding, begging for tea and more tea as the only solace to keep them going. And the brew had to be hot. Under the broiling sun they drank the potent, steaming beverage until the sweat streaming off their bodies seemed to have the look of tea.

Across Death Valley they left one of the strangest roads in the history of transportation—a smooth thoroughfare of salt and sand hacked out entirely by hand, the only sledge-hammer road in existence, and another California monument to the persistent labor from the Orient. All this for a wage of a dollar and a quarter a day. Without them it is doubtful that a wagonload of borax would ever have left Furnace Creek for Mojave. They removed the last major obstruction on the route, and many of them stayed on to help grub for cottonball borax.

The problem of water supply for draft animals on the road still had to be licked. They would have to go dry during the day and fill up night and morning, or morning and night, if it were too hot for day travel. Sixteen or 17 miles a day was the most that could be expected of any beasts in this climate. The 165 miles divided fairly evenly by 10, so 10 stations were marked off on the route. Again there would be no shelter from sun or windblown sand at these stations; the wagons were roof enough. But each station would be furnished with a 500-gallon water tank, and feed bins to hold a few bales of hay and a half-dozen sacks of barley. Cached supplies would be consumed on the way out, and the empty wagons would bring in fresh water and feed en route back.

Meantime the designing of wagons worthy of this unique and perilous highway was entrusted to a veteran teamster of the desert, Ed Stiles, and a mechanic foreman, J. S. W. Perry-Perry to be in charge. The Harmony management specified only that the vehicles must be built to carry at least ten tons, for reasons of transportation economy, and must withstand all the rigors of the desert, known and unknown.

Perry went at the assignment like a scientist. He made a study of the heavy freighters in use on the West Coast and looked up everything he could find on the enormous carts that had been used in the East before the days of railroading. He knew that wagons carrying more than ten tons had once been commonplace in New England, that they had monstrous wheels standing 10 or 12 feet high, with rims as wide as 14 inches. He knew that half the work of maintaining these monsters in hot weather was preventing the wheels from drying out, shrinking and loosening, keeping the tires snug on the fellies, with continuous application of moisture. He knew very well that any of the standard wagons in the East or West would soon collapse on the Death Valley-Mojave road under the strain of ten tons of borax. Even an ordinary chair or table could dry out, shrink at the joints, and fall apart in a few months.

Perry had to begin from scratch. Lumber for the wheels and every other part would have to be weathered and preshrunk in the desert. He assembled quantities of hickory, ash and oak at Mojave, and for two months exposed it to the severest punishment of sun and hot air. Then he summoned a squad of expert wagon craftsmen and exhibited his blueprints.

The drawings called for rear wheels 7 feet high, front wheels 5 feet, each with steel rims 8 inches wide and an inch thick. Hubs had to be a 1.5 feet in diameter, and the cumbersome oak spokes tapered from a 5.5-inch width at the hubs to 4 inches at the fellies. Everything else was designed to the scale of the wheels. The body would stand nearly two stories high and be massive enough to carry half the contents of a Southern Pacific freight car.

All parts were custom constructed and custom forged. No one outside the elite circle of assembled blacksmiths and wood fitters was allowed to furnish so much as a bolt, and Perry took pains to inspect each piece as it went into place. Ten wagons were put together. Each weighed just over three tons, and Perry's bill for the ten ran up to an astonishing total of \$9,000. But they were worth every penny of it. The Perry guarantee went with the product. He swore that they could not be worn out, rusted out or rotted out. And time proved his oath good. A few of them still stand in the sun of Death Valley, almost as stout as on the day they were finished.

It was teamster Ed Stiles who contributed the idea of hitching one wagon to another, tandem, and hitching more mulepower out in front to draw two or three vehicles in a train, and undoubtedly he borrowed it from the Southern Pacific. In any case, the novel idea appealed to the economy-minded Harmony management, and from the first, Death Valley's borax moved toward Mojave in a train made up of two huge vans, with a water tank trailing behind like a caboose.

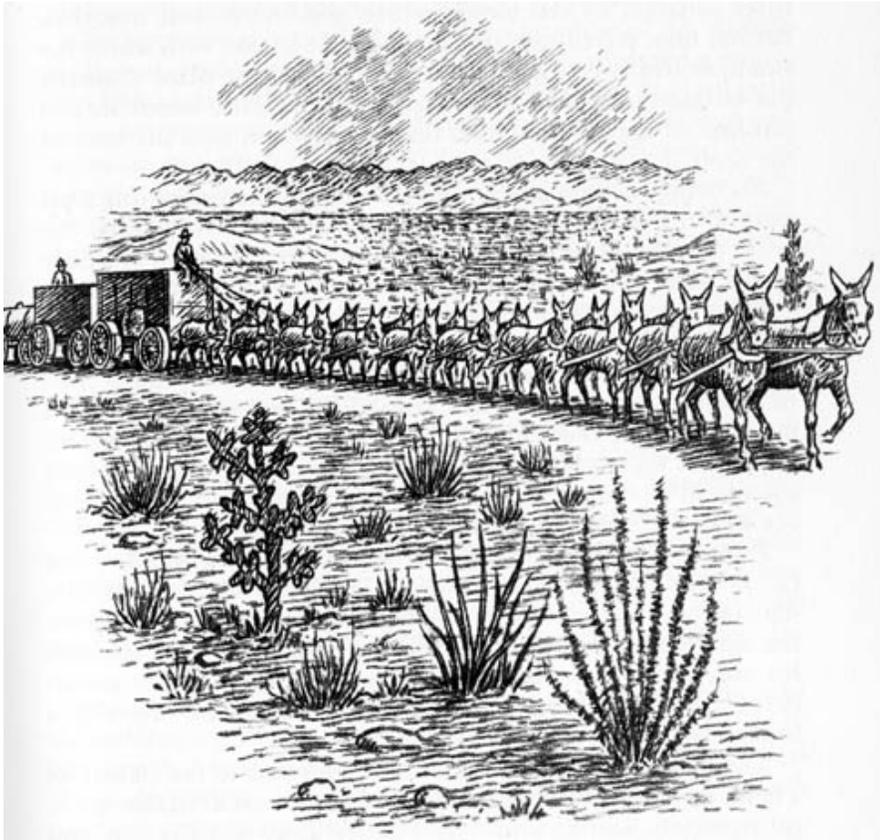
Fourteen, 16, 18 mules, plus 2 horses, supplied the draypower. The front span of mules were the "leaders"; the 2 horses next to the wagon, and hitched to the tongue, were the "wheelers." Twenty was the usual total, and 20 were needed on the steep incline of Windy Gap, heaving some thirty tons of dead weight, including the borax, the water cart, the unwieldy wagons themselves, and a vast assortment of tools, food supplies and cooking equipment attached to the sides. Altogether the outfit, in action, looked like a cross between a circus wagon and a Connecticut peddler's cart. Not since the construction of the Pyramids of Egypt had such an impressive rig crossed a desert.

Stretched out on the road, the leaders were a long 120 feet from the skinner, who rode the nigh wheeler or sat enthroned high on the front of the fore wagon. For such an entourage reins were useless. Instead, the skinner held a stout, cotton jerk line in one hand and a whip with a 6-foot stock and 22-foot lash in the other.

The single line was strung through rings in the harnesses of the twenty nigh mules to the bit of the nigh

leader. To make a left turn, the skinner pulled steadily on the line. To make a right turn, the line was given a series of short jerks; the jerks made the leader instinctively throw up his head, which in turn pulled a strap attached to the right side of the bit—a system as simple as it was ingenious. The leader took its cues from the line; the rest followed.

Driving a team was easy on a straightaway or on a road with sweeping curves. The test of a good skinner and his trained beasts came at a hairpin turn, where the leaders might go out of sight around the bend, and, because of the curvature in the road, were pulling at right angles to the load. The wagon would at once begin to veer to the side unless the pull of the front mules was counteracted in some way. The two pairs of mules directly in front of the horses—the pointers—were trained to take care of this exigency, and they were worth a hundred times their weight in borax.



If it was an abrupt turn to right, the pointers on the offside leaped over the taut haul chain and pulled like mad, diagonally to the left, dancing sideways as well as forward, to keep the wagons moving comparatively straight until the point of the turn was reached. Then at exactly the right moment they bounced back over the chain and perhaps repeated the maneuver on the opposite side. To the uninitiated observer it all worked so smoothly and simply that he never guessed the operation represented months of training and experience.

Commanding a twenty-mule borax wagon was something like sailing a full-rigged schooner singlehanded, using an oar for a rudder. In managing the team the line was a help; the whip that could flick a fly from the ear of the fourth off mule without disturbing a hair was a help; the brakes were useful; the swamper riding the trail wagon and working its brake was occasionally credited with giving some assistance; and the boxful of rocks kept on the seat to pelt perverse mules beyond the reach of the whip was indispensable. But all these aids were of minimum value in controlling the team, compared to the effectiveness of the skinner's tongue.

An inspired tongue and flexible vocal organs were what kept the animals on course and pulling together. The teamster's words had all the sting of his whip. That badge of trade was held in reserve as a threat and rarely

applied, but from the moment a skinner mounted his seat with a "Git ep, ye God-damned - git ep," the flow of profane eloquence was unreserved. The vocabulary, to be sure, was limited. Mule skimmers kept it that way on purpose, so they maintained, in order not to strain the intelligence of the animals or the lean-witted assistant, the swamper.

The profusion of four-, five-, and six-letter words had aim, thrust and cut of unmistakable meaning and nuance. Mules were sensitive beasts, each with a name, and when that name was linked with the bite of the driver's rebuke, ears perked up, a tail wilted, a quiver of terror or embarrassment seemed to pass over the hide, as though a lash had struck.

The yarn about the skinner who was converted overnight by a transient evangelist originated at Mojave. In fact, the gospel bearer was so proud of his proselyte that he accompanied him to the wagon next morning to see him off. With the preacher looking on from below, the skinner swung up to his high seat, sober, constrained, humbled.

There he sat for a long moment, trying to summon the magic words that normally set his team in motion. For the first time in his life he was tongue tied, totally bereft of his powers of persuasion. The evangelist had deprived him of the Biblical vocabulary and all the mortifying vulgarisms his mules understood. When he finally bellowed the command to "Get ep," without a single allusion to the Almighty or the organs of sex, the mules stood transfixed in their tracks, and reportedly all twenty turned their heads in unison to stare in wonderment at the master. The evangelist lost a good convert long before the wagons approached Windy Gap.

No question about it, the borax teamster felt compelled to lean rather heavily on diabolic conjuring. He had to be an unyielding tyrant, a wizard and an artist, in one. Yet despite the Satanic invocation, accidents did occur on the road to Mojave. Miscalculation of a hairbreadth in rounding one of the turns in Windy Gap, the failure of a leader to respond to a yank of the jerk line at a moment of urgency, or the tripping of a pointer in leaping the haul chain, could bring disaster. Everything depended on everything else, and a minor slip-up could send the whole outfit into a cliff or over the edge of one.

In such a mishap the cargo might be lost, a few mules injured, skinner and swamper placed on the casualty list, but those invulnerable wagons merely had to be righted, hauled back onto the road, and they were in service again.

The grade down the mountain shoulder near Granite Spring was the most hazardous stretch. It was straight; it was steep; it was miles long. Here was no sand to drag at the wheels; the surface was hard packed and the great wheels rolled down it all too easily. The difficulty in maneuvering that grade was in braking the wheels. And many times even the mighty brake blocks were not heavy enough to cope with thirty tons of borax, wagon and water pushing from behind. As the wagons gained momentum the skinner threw his weight on the front brake; the swamper did the same on the trailer. Groaning, screeching and sliding, the cumbrous monsters lumbered on faster and faster.

The race with death began when the brakes no longer held and the wagons were out of control. Then the full dexterity of the skinner was called into play. There was no provision in the harness hitch for holdbacks; the animals simply had to be kept ahead of the load to avoid being run down. Their quickstep became a trot, the trot a kind of canter, the canter a dead run, a lope and a gallop.

All precaution was thrown to the winds. Like a succession of pistol shots, the skinner's whip cracked over the heads of the frantic mules. Bowling behind, the wagons thundered their threat. They groaned under their weight, bounced and careened. Occasionally a terrified swamper, seeing certain perdition ahead, abandoned his perch on the trailer and leaped over the side to just as certain an end. But the skinner stuck to his post, barking his staccato profanity, yelling at the mules individually and collectively, pouring forth the last reserve of obscene curses that he kept in store for such occasions.

Often they made it to the bottom of the grade. Sometimes not. And a wagon would come along two days, four days, a week later, to shovel away the drifts of spilled borax from the tangle of wreckage, put a few

mangled animals out of the last of their misery, and bury the dead. There were quite a number of unhallowed graves along the Mojave road.

A heap of stones and a weathered slab of wood tacked at a rakish angle to a mesquite stake marked the resting place of a skinner in Windy Gap. GRAVE OF W. M. SHADLEY was the only citation. But a teamster who had found Shadley and helped bury him remembered the scene vividly. "It was twenty-eight days before we found him," reported the volunteer mortician, "and he was mummified. No odor from his body, and when we stood him up, he almost stood alone. Now he was a good man, and a martyr to Death Valley."

The trouble with the Mojave trek was that it served more as a route than a road. In mountain gaps it might be well defined, but elsewhere, depending on what sandstorms and washouts had done, a driver might veer a half mile or more off the course followed by the last team. No teamster in a real predicament could count on being picked up by the next wagon coming through. Usually he was not found until word got around that he was missing, and that could take weeks.

Jimmie Dayton died only nineteen miles from Furnace Creek. He happened to be driving a four-horse team on the day of his demise. It was mid-August of a deadly hot summer, and probably a sunstroke got him. In any case, he at least had a momentary foreboding that the end was near. In that moment his one thought was to save the horses. He drew them to a halt and slashed the reins to give them freedom to wander off to water. But then instinctively, as all drivers of the big teams did in coming to a halt, he set the brake. That was a mistake; he might as well have tethered the horses.

The dead animals and the dead man were found three weeks later. The scene told its own story, and Jim was put away where he had dropped. "It wasn't much of a grave," admitted a friend who helped with the interment. "We could only dig it four feet because we got into water at three feet. Jimmie wasn't fit to be moved. We just rolled him into the tarp with the shovels. I slit his pockets with a knife and found about eighteen dollars in silver and a watch. We lifted his body in the canvas and buried it. That was all. The only things that was said was what I said and it was something like, 'Well, Jimmie, you lived in the heat and you died in the heat, and after what you been through, I guess you ought to be comfortable in hell.'"

Few of the casualties on the borax run, however, could be attributed to such causes as wagon accidents and sunstroke. The most common provocation was human. It took 20 days for a round trip between Furnace Creek and Mojave, 20 days under a blazing sun, 20 days living on beans, bacon, coffee and cans, 20 days of wrestling with the elements and the animals on short supplies and ever-shortening tempers. Skinner and swamper were alone for almost three weeks at a stretch, and that proved to be about 19 days longer than any two independent characters could reasonably be expected to endure each other's company and the conditions under which they had to exist.

Status consciousness was in part responsible for the quick decline in rapport. The skinner was the boss, and he was inclined to make that fact incontestably clear. There was an infinite number of ways in which he could show his authority. Never would he trust the swamper near the driver's seat; that was reserved for him alone. He could load his subordinate with chores like harnessing and unharnessing, feeding and watering the animals, cooking meals and washing dishes, until the poor man did not have a moment he could call his own.

And since he did most of the dirty work, the swamper was the only one to be lambasted when something went wrong; when a buckle came undone on a harness; when a mule broke his tether at night or got the colic; and when the beans burned in the pan. The skinner got \$120 a month and he took endless delight in reminding the flunky that he was not worth half the 575 paid him.

On the road familiarity bred contempt. Disagreement over trifles expanded into major clashes. Two men would leave Furnace Creek the best of friends and arrive at Mojave ten days later with homicidal intentions. The heat, the solitude and the suspense brought out the worst in them. Vicious quarrels arose over an accidental voice inflection, the way a man wore his hat, a personal preference for crisp or wilted bacon. Skinner and swamper frequently arrived at one end of the line silent and sullen, without having exchanged an unnecessary word for days. They also arrived with fractured shins, broken noses and battered faces.

One swamper, half demented by desert heat and the arrogance of his skinner, shadowed his prey for a week, waiting for the right moment to vent his spleen. The moment came one evening at Lone Willow after they had fed and watered the mules and eaten their supper in the usual silence. The skinner unsuspectingly squatted by the mesquite fire, lost in his own thoughts. Behind him, poked into the sand, was the shovel with which the swamper had been digging mesquite to feed the blaze. Casually the outraged subordinate picked up the shovel, raised it, and finished off his enemy with a resounding clout over the back of the head.

No twinge of conscience bothered the assailant as he dug a pit next to the spring, rolled the despised body into it, filled the hole, then lay down on the soft earth of the grave for the only placid night's sleep he had known since leaving Furnace Creek.

Next morning he harnessed the team, climbed into the coveted skinner's seat, and headed for Mojave in triumph. But the swamper soon discovered that he knew less about driving a team of twenty mules than he had fancied. In descending a grade a mule stumbled; everything went wrong at once; mules, wagons, borax and water cart wound up in a frightful tangle, and when the would-be skinner worked his way out from under the wreckage he had a badly broken leg.

Painfully he dragged himself from one animal to another and cut them all loose, except one. He mounted that, and with a dangling leg rode to town, bearing a tale of chivalric purport: the sad death of the skinner from some mysterious natural cause; his own courageous attempt to bring in the team alone; the accident; the saving of the animals and the agonizing ride with a broken leg.

The crippled swamper was at once elevated to the stature of a hero, given the warmest sympathy and the best available medical attention. And he would have gotten away with his story and all the honors, except for one error. It had been a mistake to bury that body so close to the spring.

The next teamsters to go over the route noted the location of the grave and decided, in the interests of sanitation, that the corpse should be moved a little farther from the water supply. In the process of disinterment the bashed skull was discovered and the murderer was soon on the most-wanted list of a lynching party.

The doctors, however, took the trouble to turn their patient over to the authorities rather than to the mob. Neither the coroner nor the district attorney had the spare time to make a long investigative trek into the desert on a case involving purely circumstantial evidence, so the swamper was conducted a safe distance out of town and given the freedom of the West.

Less fortunate was a fellow swamper who pursued his skinner to Daggett, seventy-five miles east of Mojave, cornered him behind a blacksmith shop, and pommelled the archenemy into pulp with a handy wheel spoke. The killer was quickly identified and locked up, and when it became evident that the justice was about to release him for the usual lack of evidence, a masked mob took charge. The prisoner was dragged from the security of the jail; a rope thrown over the crossarm of one of the new Santa Fe telegraph poles did the rest.

Yet despite the difficulty of maintaining peace among mule skimmers and swampers, despite road accidents and traffic hazards, borax was being hauled out of the desert in unheard-of quantities. Mining was an enormous enterprise, calling for capital investment even greater than the demands of silver refining. Gigantic pans and vats for processing the crude cottonball borate had to be transported to Death Valley from San Bernardino 250 miles by wagon, and every mile of it was through the desert, a journey of almost three weeks. From San Bernardino, too, were shipped the water tanks, pumps and pipe in thousand-foot lots, all at a cost of eight cents a pound in freightage alone. And from Mojave came lumber, hardware and food supplies at comparable cost.



Figuring that there could be easier money in staking out borax caches than in silver or gold, many a prospector took the hint, lowered his sights, and went on the prowl for "baking soda." Typical of that clan were

the amazing Death Valley Lees, a brotherhood of five, lyrically surnamed Philander, Meander, Salamander, Alexander and Leander, alias Cub. They were all talented, all uninhibited, all slightly mad.

Half Indian themselves, they took up periodic residence with a miscellany of Piute squaws, proved prolific in reproducing their kind, and did more to populate the Death Valley neighborhood than all the legitimate newlyweds east of the Panamints. Along with the urge to procreate they were endowed with an equal urge to liquidate, and had no more compunction about using an innocuous human as a target than shooting a rattler.

Collectively they were jacks-of-all-trades, indulging in any kind of employment that came their way: ranching, teaming, mining, prospecting. The family roots were well established around Furnace Creek, and despite their idiosyncracies, employers were so hard put to recruit employees that even a Lee could usually find a job there.

Like everyone else, they did their share of prospecting on the side, and it was Philander, accompanied by a couple of companions, who discovered the first white hill in the Black Mountains and staked a claim. Promptly Borax Smith bought it-for \$4,000.

That Lee discovery started a chain reaction. If a man could pick up \$4,000 for simply pointing out a white hill, prospecting for borax was the business to get into. Shortly, Philander was back again with Leander and a report that they had come across another likely looking mountain on the edge of the Amargosa Desert. The white surface looked almost like quartz, they said apparently a whole hill of hard, glittering stuff. If it was borax, there was enough of it to upset the whole industry.

Smith's chemists decided, indeed, that it was borax-borate of lime-differing from the cottonball borate of soda principally in the way it would have to be recovered and refined. Smith grabbed it, called the new borate "colemanite" in honor of his former partner, and named the deposit Lila C, in honor of some mystery-shrouded maiden. The mad Lees were altering Smith's life and giving an entirely new complexion to an infant industry. Soon there would be no further need for grubbing cottonball from the desert floor, boiling and crystalizing it. Neither Smith nor anyone else had ever fancied that borate existed in such volume.

He organized the Pacific Coast Borax Company, then decided his pet industry had the makings of an international business. A distinguished British promoter, "Lord" Richard C. Baker, was invited to come to California and look over the prospects. He came, and Borax Consolidated, Ltd. was born, and a huge refining plant was erected at Alameda, ready to supply England and Europe, as well as America.

With the same aggressive fight he had used in taking over Teel's Marsh in Nevada, he went on the road to sell Twenty Mule Team Borax to the world. Two decades earlier this product of Death Valley had been a little-known drug. Smith was making it a cheap commercial necessity, essential to the biggest industries of the world, and he was about to put a box of it-with his Twenty Mule Team label-on a shelf in every kitchen cabinet.

BORAX-TWENTY MULE TEAM BRAND! blazoned the early advertisements in full-page display, designed to bring romance to the soap dish and the laundry tub. "Across the alkali desert of the Great West, a distance of 165 miles, through the hot, dry dust, with the temperature at 135° to 150°, comes the great Twenty Mule Team hauling the giant load of crude Borax to

"Borax in the past and present ages has stood as the greatest cleanser, detergent and solvent known to the civilized world Many so-called Borax Laundry Soaps or Soap Chips contain little if any BORAX, and they fail in their supposed mission. The TWENTY MULE TEAM BRAND contains a large per cent of Borax and, combined with pure soap, works wonders. This combination washes clean and, on account of its hygienic and sanitary properties, leaves the clothes thoroughly disinfected and produces that soft and fluffy feeling to the linen, so much desired.

"Softens the hardest water, washes colored and white goods alike, and for woollens and flannels it cannot be surpassed. This soap is manufactured on scientific principles and EVERY POUND IS KILN DRIED. A STARTLING REVOLUTION TO THE LAUNDRY TRADE. Economy and Labor Saving for the Housewife. Pacific Coast Borax Company. New York, San Francisco, Chicago."

In 1885 less than 1,000 tons of borax were produced in California; fifteen years later the output had jumped to 25,837 tons. The discovery of a still finer grade of colemanite in the Calico Mountains, 8 miles from a railroad, rather than 165, once more radically altered the business. Death Valley was temporarily abandoned and the mining town of Borate came into existence.

Along with other improvements, attempts were made to substitute steampowered tractors for mules, to haul the crude from mine to rail siding. Skinners and swampers brayed their protest, but the objections were premature. On the level, a tractor could draw a whole train of wagons; on an incline, the wheezing engine came to a halt, bucked like a bronco, and sat there churning a hole with its powerful wheels. The mule teams had to work overtime just keeping the monster out of trouble. It was soon given up as a bad job and the twenty-mule teams went back to work in triumph.

What Smith needed was a railroad, and enough money was made on the colemanite of the Calico Mountains to build on the Tonopah and Tidewater. Three million dollars went into that line which ran to the gates of Death Valley and on up the Amargosa River. But principally it was laid to tap the inexhaustible supply of borate in the Lila C, brought to light by the Lee brothers.

Macadam highway later replaced the rails, and a richer ore called rasorite-found in the Mojave Desert at Kramer-replaced the colemanite of Lila C. The days of twenty-mule teaming were done, but the famous label stayed put on the package. And, alas, there was not a room in any household in America that did not display some souvenir from the realm of the Borax King. The touch of $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ was on the walls, on the bathroom fixtures, on any photograph, in glassware, textiles or leather, in cosmetics and in the soap dish, in the magazine rack, on the kitchen pots and pans-even in the garage and the tool shed. One could not escape the stuff. In one disguise or another that symbol of the California desert was so commonplace that it was within sight or contact of almost every civilized man.

Excerpt taken from *The Great California Deserts*

Illustrations by Edward Sanborn
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