

CHAPTER I

Machinery on the Route to the Mines

First the huge machines were transported up the rivers, forcing steamboats to struggle against the currents of the Sacramento, the Missouri, and the Columbia. When the fall line was reached, or when the water's course diverged from the route to the mines, the mechanical devices were landed and transferred to sturdy wagons. Then they were carried up into the mountains.

These mammoth pieces of mining and milling equipment, moved in steamboats and wagons, were among the mechanical wonders of an age that prided itself on technological innovations. Both this fact and their sheer immensity attracted attention along the way. From San Francisco in 1864 came a steam engine and shaft bound for the Gould & Curry enterprise on the Comstock Lode in Nevada; the 300-horsepower engine was "said to be the largest high-pressure" engine ever made in California, and the shaft was described as being "as large around as an ordinary man's body." When the ship *Yosemite* landed the shaft at the Sacramento docks, the reporter for the *Bee* called it simply "an immense affair," but he was left little time to scrutinize it, because "it was at once passed along toward the mountains," bound for the Comstock across the Sierras.¹

Other routes provided entry for the gigantic and intricate machinery which Western metal mining required from the 1860s onward. It took from thirty to fifty wagons to transport

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a quartz mill across the plains to the Montana mines, or from Fort Benton on the Missouri after a steamboat trip from St. Louis. The *Idaho World* eagerly announced in 1865 that "the forty stamp power crusher belonging to the Pittsburg & Idaho Gold & Silver Mining Company is within a few days journey of us." Eighteen wagons were used in this haul, which was marred by the engineer's death from "complications following a gunshot wound." When a new eleven-ton roaster made its way into the Grass Valley district of California in 1869, it was transported in specially constructed wagons brought from San Francisco, over bridges that had been strengthened in anticipation, and pulled by ten yoke of oxen which were aided in turning corners by blocks and tackles. This slow-moving spectacle "resembled a circus coming to town" in Grass Valley, where "an immense crowd" watched the roaster make its way to the Rivot Company works on Canada Hill.²

Such were the devices that traveled, and occasionally clogged, the routes to the Western mines. They were the advance agents of the Industrial Revolution, helping conquer the mountain fastness of a primitive frontier. While it is true that the basic changes involved in industrialization occurred over decades or even centuries, when industrialization entered this Western frontier the clash of old and new was dramatic. Spaniards who had moved into the West in the colonial era were not accompanied by the massive paraphernalia of industrialism; nor were the early groups of other Europeans and Americans who came later. Explorers, priests, *hacendados*, soldiers, fur traders, placer miners—the noise they knew was the roar of a gun, the bellow of an injured animal, the shouts of drunken revelry. Their basic mechanical equipment was limited to firearms, wagons, and traps.³

More than machines went into the creation of that historical transformation known as the Industrial Revolution. Attitudes of businessmen, governmental leaders, inventors, and workmen were also crucial in the shift from animal to machine power, as was the availability of natural resources, labor, and paying customers.

The workman was located at a key point in this transformation. Usually drawn into industrial enterprises from a non-industrial tradition, the new worker was beset by changing demands in job skills and work discipline which frequently led

to severe tensions. These new industrial workers carried with them habits and values "not associated with industrial necessities and the industrial ethos," in Herbert Gutman's words.⁴

Such tensions were not limited to workers in the throbbing industrial centers of the East. They were present as well as the industrialization of underground metal mining proceeded on the Western frontier from the early 1860s through 1910. By the latter date the basic transformation was completed in technology, work organization, union formation, and protective legislation. The changes in lode mining over this fifty-year span were especially dramatic because of the juxtaposition of the world's most modern, complex technology alongside conditions matching the most primitive anywhere.* By 1880, Nevada had thirty-seven mines sunk beyond 1,000 feet in depth and five below 3,000 feet; outside the West, no American mine went as deep as 1,000 feet. That same year, Colorado's growing mine kingdom used 118 steam engines, and Nevada's used 90. These were outposts of modernity. Short distances away, however, were unconquered peaks, wild game, and Indians whose childhood memories included no white men or steam engines.⁵

The broad impact of this transformation for the 'Western

*Lode mining refers to underground mining below bedrock, the term being derived from the *lode* that occurs where several veins of gold, silver, or other metals run closely together; these and the ground between them contain metal-bearing rock, or *ore*. This differs from *placer* mining, which is the recovery of flakes, nuggets, and other particles of gold or silver that were freed when a vein was exposed to the elements and eroded. A *lead* (pronounced *leed*) is synonymous with a lode, although the term is also used to refer to an unexplored vein.

Other key mining terms include the following: In a lode mine, a *shaft* is a vertical opening from the surface. Occasionally a shaft follows a vein and is off the vertical; this is called an *inclined shaft*. *Tunnels* are horizontal passageways; *adits* are tunnels from the surface. *Drifts* are tunnels that follow a vein or ore body; *crosscuts* are tunnels that cross the trend of the ore or rock structure. Passageways that connect on the same general horizontal plane constitute a *level*. Ore is generally extracted in a *stope*, which is any enlargement of a drift or crosscut penetrating an ore body. *Raises* are passageways driven upward from one level to the next; *winzes* are passageways driven downward, usually to explore continuation of the ore.

Protection from cave-ins is provided by *timbering*, which consists of placing *posts*, *caps*, and *lagging* in excavated areas. *Stulls* are timber props or timbers wedged between the walls of a stope; planks laid across the stulls provide a platform for miners working higher up the sides of the stope.

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1. In the beginning: shallow mines, a hand windlass, and miners who provided much of their own financing. This small operation was in the Breckenridge district of Colorado, circa 1900.

Colorado School of Mines photo

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2. The contrast: changing the shift in a Comstock Lode silver mine, where dozens of miners lined up to be checked in before the long ride into the bowels of the earth. This involved fast-moving machinery, large crews, an elaborate division of labor—and all these industrial phenomena had been little known earlier to the men who became hard-rock miners in the frontier era.

Lithograph from Frank Leslie's Illustrated Newspaper in 1877.
Nevada State Historical Society photo

mine worker may perhaps be grasped by first focusing briefly upon a miner who was present at the turning point—at that “elbow in history” when an old way of life watches the birth of the new. Such a person was Albert Byron Sanford, who worked in Colorado in the summer of 1881 when lode mining in the Gunnison area was still on or near the surface, and who recorded his activities in a diary. Sanford described his job in the shallow mine, which mainly involved cutting and lowering trees for use as timbers. It was difficult labor, but in contrast with what came later—and was then already the case in many Western mines—Sanford’s summer seems almost bucolic. He picked berries, went fishing, and enjoyed incidents such as these:

Just above where we are working, there is a long rock juts out. A big wood chuck comes out and sits there every morning and watches us work.

Tonight we all got together and serenaded Mac. Our instruments consisted of drills pans cans &c. It was highly appreciated.

We have nice times of evenings when the boys from the other camps come around and relate stories of war, hunting Indian scouts and so on. Tonight Oscar gave us an account of the great fight of Sand Creek where so many Indians were killed.⁶

But it could not last, this life of independence and berry-picking. Every foot of rock blasted out of their shaft brought Sanford and his fellow workers closer to that day when their simple, inexpensive mine operation would have to give way to costly processes of hoisting, timbering, and milling. And with these changes would come the need for work discipline and a sharp differentiation between labor time and leisure time.

Sanford noted—perhaps unwittingly—an incident which pointed to the imminent changes. In the shallow-lode mining operation that Sanford was engaged in, as in placer mining, there was seldom a problem in stopping work for any reason. Sanford was largely his own employer. But at a nearby mine, he reported, a “row” occurred “and one of them left and threw up the contract because his pardner would not let him go fishing while he worked.” Such problems were largely unknown in placer or shallow-lode mines. This change never confronted Albert Sanford, however, for in September his father showed

up and the two of them journeyed together back home to the "farm," apparently located on the plains or in the Midwest. There, presumably, Albert Sanford might continue for some time to live without taking orders from an employer, and to retain the right of fishing or not fishing as his whims—not his boss—dictated.

As revealed in his diary, Sanford still retained much control over his own actions on the job. But such control would be drastically reduced for workers as industrialism spread. The contrast between Sanford's mining day and the start of a new shift at the mammoth Gould & Curry enterprise on the Comstock dramatically reveals one aspect of the transformation:

The operatives . . . were collected in a large room connected with the engine-room, waiting for the roll-call, which took place at 5 o'clock, each man answering to his name as the same was called by the time-keeper, and immediately after starting to his place—and as the last name was called, those that had been at work passed out, each one giving his name as he passed, which was checked by the time-keeper. By this means no mistake is made, and punctuality is secured which otherwise could not be done.⁷

The change in economic organization from Albert Sanford's shallow mine to the Gould & Curry did not occur everywhere across the region, did not follow any schedule, and did not result in identical approaches to enforcing work discipline. The varied rhythm of industrialism meant instead that placer mining continued down to 1910, repeatedly attracting lode miners and then releasing them back to wage labor. It also meant that the West was pockmarked by small lode mines which provided far different experiences for workmen than did

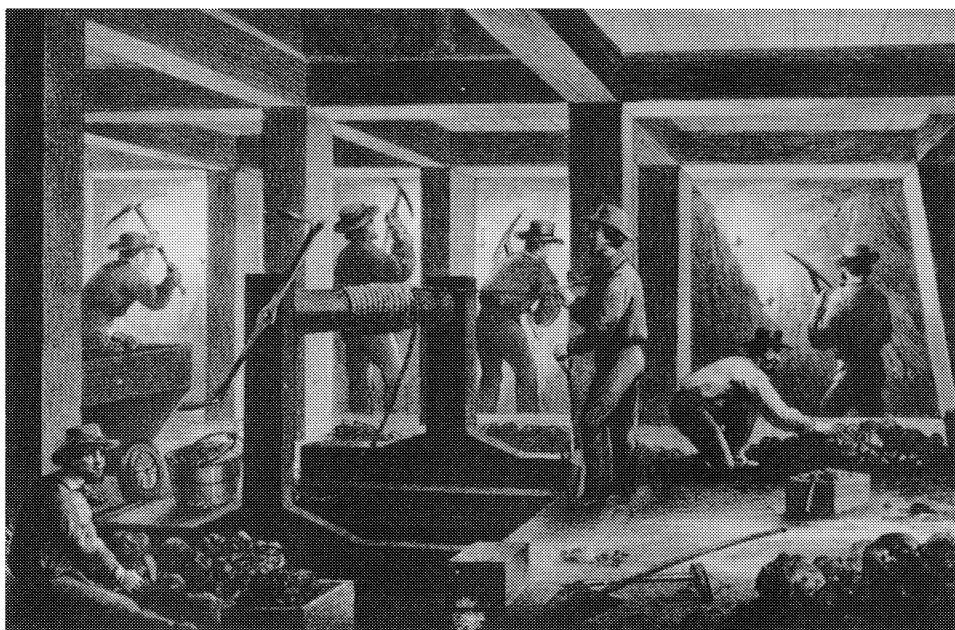
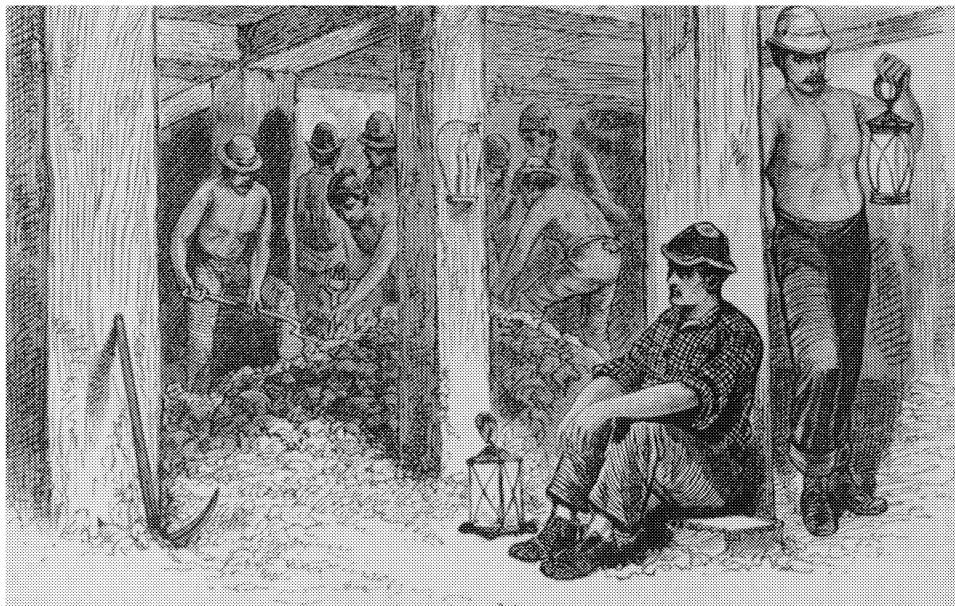
3a and b. *New methods of timbering made deep mining possible on the Comstock, creating an underground labyrinth that became a daily home to thousands of men from the 1860s on. Such operations were far beyond the capabilities of individuals, and they ushered in the era of the corporation in Western mining.*

a. *Lithograph from Frank Leslie's Illustrated Newspaper, March 16, 1878.*
Nevada State Historical Society photo

b. *Lithograph from Views of the Works of the Gould & Curry Silver Mining Company (San Francisco, n.d.).*

Nevada State Historical Society photo

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large enterprises. Many of these shallow mines, often employing less than a dozen workmen, existed side by side with mammoth lode operations of several hundred workers. Such contrasting conditions would complicate lawmaking, union organization, and especially attempts by later historians to generalize on the life of hard-rock miners.⁸

Although some placer operations became large enterprises as hydraulicking developed in the late 'fifties, it is still basically true that the industrialization of Western metal mining stood in sharp contrast to what had been known earlier. This was especially true of its large machinery, speed of operation, and numbers of workmen. Observers saw at once that lode mining *was* different from California gulch mining—vastly different from any occupation followed before by large numbers of men. Neither contemporary placer operations nor underground mining during previous centuries knew the fast-moving steel “cage” (a sort of elevator) which took the hard-rock miner hundreds and thousands of feet below the surface to a dark world of creaking timbers, dripping water, and unpleasant or dangerous gases. Nor did earlier periods know blasting: in former times, miners working underground had picked down the rock, or sometimes built fires to crack it loose. Western hard-rock miners, however, drilled holes in a pattern in the rock, so that blasting powder could be inserted. A longtime hard-rock miner, Frank Crampton, recalled his work:

Single jacking was one-armed swinging of the short-handled four-pound, iron hammer, while turning a drill steel with the left hand a fraction of an inch after each stroke. Two-armed swings with the long-handled, eight-pound hammer, while a partner turned the steel after each stroke, was double jacking. Either required fifty or more strokes a minute to be effective, from every position, excepting standing on one's head, and in all directions—up, down, at an angle, or to one side.

(That this speed could be maintained over long periods is doubtful. An 1872 account stated that a miner working “at ordinary speed” struck “20 blows per minute.”) After years of experimentation, shots were fired by using different lengths of fuse so the rock would break toward space opened by the preceding shot. This also made it possible for men to listen (from a safe distance) to ascertain which ones “missed.” Explosions

in the carefully planned row of holes shattered the rock on the floor, where it was loaded into mine cars by *muckers* and removed by *trammers* to the dump outside, to the mill or the smelter, or sometimes to other underground areas where it was used for support.⁹

As will be discussed in Chapter 4, some mines were hot and full of unhealthful gases, a problem which worsened as they were pushed deeper into the earth. Water was a continuing problem, requiring the wearing of "gum" boots, and occasionally "gum" hats and jackets as well. The widow of a former Colorado miner recalled lovingly the ritual of her husband's return each evening from the mine: "He came with muddy boots," she said, stretching her arms to indicate their great length, "and I hung them up to dry behind the stove." Until carbide lamps began to appear early in this century, hard-rock miners worked by the flickering light of candles, usually issued three to a man per shift. These were held on the sides of the drift or stope by "a splatch of wet clay" in some early mines, but generally were positioned in candleholders of bent wires or iron rods. The latter became identified with hard-rock mining, and were supplied with a hook for hanging the miner's jacket and a sharp point to be poked into the rock or timber. They could have other uses as well: Comstock newspapers reported after-hours brawls in which miners set upon each other, inflicting deep wounds with these devices. "The steel prong of a miner's candlestick," the *Territorial Enterprise* noted, "is about as long and as sharp, and produces the same kind of wound, as an Italian stiletto."¹⁰

As it expanded in the Gilded Age, lode mining came to involve more than the men who drilled and blasted or mucked and trammed. It included such varied types as carpenters and timbermen, pumpmen, engineers who ran the hoists and steam engines, powder men who stored and sometimes distributed the blasting materials, cagers who moved the mine cars on and off the cage, and pick boys who retrieved dull drills and picks, carried them to the blacksmith for sharpening, and hauled water to the men. In shallow mines all of these operations were often carried out by the same men. Larger mines had specialization and also had various echelons of shift bosses and foremen; by the 'nineties, there were large numbers

of workmen as well in mills and smelters—often located adjacent to mines—who worked for the same employers as the miners.¹¹

The term *miner* changed as well, undergoing refinement with this growing specialization underground. During the placer era's dominance, anyone employed in any way in the search for gold and silver merited the label; now it was increasingly restricted to those actually excavating rock. The additional label of *hard-rock miner* came to distinguish Western metal miners from placer or coal miners. This new, narrower definition explains why the percentage of men identified as miners could decline in a district despite an expansion of mine operations. In Grass Valley, for example, the growth of quartz (lode) mining in the 1860s required many more largely unskilled employees for such duties on top as breaking rock prior to delivering it to the mill; many new skilled artisans were needed as well for mill work, running and maintaining machines, and construction. Under the new definition, however, none of these groups were classified as miners. In Grass Valley this meant that the proportion of men called miners decreased while the percentage of men employed in mining increased.¹²

Soon, large numbers labored for single companies: in 1866, one mine on the Comstock and two in Grass Valley each employed more than 150 men, but by 1890 the major Butte mines had 300, 350, 400, 500, and 900 employees, topped by Anaconda's total of 3,000 in mining and smelting.¹³

While this led to a chronic labor shortage in the West, because of a variety of factors an employment agency's paradise did not materialize. When ore piled up faster than the mill could handle it, or when a hoist broke down, or when supplies ran short due to bad roads or other causes, hundreds or thousands of men could be suddenly left jobless in an isolated frontier economy which frequently held little prospect for alternate employment. Although Butte was known for its job opportunities, in 1885 the oversupply of job-seekers was so great that "as many as 20 and 30 can be counted at one time round every hoisting work supplicating for work which they cannot get," forced to remain because they chose not to "count railroad ties on an empty stomach. . . ." Employment was also affected by the railroad and telegraph links which soon reached the

West's mining camps and smelters, for they drew the hard-rock miner closely into a world economy beset by sharp fluctuations. Now, a drop in the copper price in Paris could immediately cause layoffs in Butte. This was especially noticeable after the silver panic of 1893 hit the West: when the news arrived in Granite, Montana, it immediately caused the town's silver mine to close and set off a stampede of the more than 3,000 residents, who fled within twenty-four hours. All the while the mine whistle wailed on, finally becoming inaudible as the steam pressure subsided amid the tumult of a community sent reeling by events thousands of miles away. The Western miner was isolated no more.¹⁴

The hard-rock miner's community life was usually boisterous, following the tradition established by the California placer mining camps in the days of the forty-niners. But new noises echoed through the Western canyons now: on the Comstock the quartz-crushing mills "are kept thumping, crushing, screeching with their steam whistles almost continually . . .," and visitors noticed "the steady puff! puff! puff!" of the steam engine, "the shrill sound of the steam whistle calling off the night hands," or the quartz mill "whose roar of many stamps made the echo resound through the surrounding mountains." (When the Homestake operation in the South Dakota Black Hills suddenly shut down its machinery in 1909 after thirty-two years of operation, the town's inhabitants felt themselves in a strange world. "You could even hear the dogs bark," one resident recalled.)¹⁵

In addition, life was more dangerous in a crowded, noisy lode-mining community than it had been in a placer camp. Streets were clogged with quartz wagons, while miners blasting too near the surface caused sagging homes and roads, and their dynamite frequently carried missiles beyond company property. A correspondent in Nevada's White Pine district reported that he saw "a sockdolager" of twenty-five or thirty pounds come sailing through the air from the Aladdin's Lamp mine "and gently pass through the roof of the Company's house." It made a hole "about the size of a flour barrel" in the roof, dropping at the feet of the camp cook. "It seemed to annoy him," the correspondent added. Aerial tramways stretched across mountain valleys would later have a similar impact on

other camps, spilling ore on homes, humans, and lesser animals below as the cables moved another load to the mill.¹⁶

Citizens of the modern era who are sensitive to noise, air, and other pollution will perhaps greet with disbelief the fact that the din of a mining camp generally did not stir the wrath of the citizenry. Far from it: the noise, the bustle, and the rocks in midair were considered symbols of the new industrial prosperity and a necessary accompaniment to progress. And there was no argument on the necessity for progress. The noise of quartz mills in Centreville, Montana, in 1864, was therefore described in lilting phrases: "The music of the engines and the ceaseless clatter of the stamps are agreeable to the ear, give encouraging promise of the future, and raise the village to a fixed and important place in the territory." Similarly, at Silver City in southwestern Idaho, the cacophony of engines and dynamiting was called "music to her people." An observer in Butte's early period noted the starting up of the Lexington mill and commented that ever since "we have enjoyed our favorite melody, the 'music of the stamps.' Long may the merry tune continue." When the district later became known as well for the billowing clouds of smoke which spewed from the copper smelters, killing vegetation, a local newspaper could still see the bright side: "The thicker the fumes the greater our financial vitality, and Butteites feel best when the fumes are thickest."¹⁷

The noise of mills and blasting and the fumes from the smelters combined with the jerry-built nature of mining camps to produce communities noted for dissipation and transience rather than lasting monuments of brick and stone. Especially in a camp's early years, life was centered in the unsavory demi-monde of saloons, gambling dens, hurdy-gurdy dance halls, and "the line," where prostitutes waited to break the monotony of a miner's life while relieving him of his pay. One estimate puts one hundred saloons in Virginia City by 1880—every second building downtown—and violence was so common there that a Comstock newspaper once exclaimed with surprise: "There was no one shot in Virginia [City] yesterday!" Responding to a report of a Nevada murder—in which two desperadoes shot an enemy while he slept in a railroad station, then fired randomly at nearby houses and a passing train—the *Alta California* lamented, "This is life on the mining frontier." The popularity of Shakespeare's works among miners, which

startled both contemporaries and later historians, was notable primarily because it was such an unexpected growth in such surroundings.¹⁸

But as welcome as Shakespeare was in Leadville, Virginia City, or Butte, one other visitor from afar was longed for with greater expectations. This was the railroad, at once providing other routes to the mines, permitting more rapid shipment of the latest technological devices, and opening up hundreds of low-grade properties with its cheaper rates for bulk shipment. Comstock mine owners predicted that the coming of the railroad would cut the district's costs in half. In Butte, the Iron Horse arrived precisely at that moment when large-scale copper discoveries called for an alternative to ox teams for hauling ore. Small wonder, then, that railroad men had such little trouble drumming up support in the mining districts: voters of Gilpin County, Colorado, for example, supported by 1,139 to 58 a plan for the county to purchase \$300,000 worth of railroad bonds. The U.S. Geological Survey agreed with the spirit behind these moves. The opening of the Western mines, it stated in its 1884 report, "may be regarded as the direct result of the rapid extension of the railroads in the Rocky mountains, cheapening the cost of suitable fuel and the shipment of product. . . ." ¹⁹

Soon there were extensive intricate equipment, great depth of operations, and a growing division of labor in the vast labyrinths below bedrock—all having a major impact on the Western hard-rock miner. And these were tied to another development which would also profoundly affect his life: the rise of large-scale capital investment, the unavoidable prerequisite for any lode mining that went more than a short distance below bedrock. As early as 1856, the *Sacramento Union* saw few places in Western mining where individuals or companies could make three dollars a day without "considerable" capital investment. A Comstock newspaper stated the situation bluntly eight years later: the miner was beginning to discover, it noted, that "a pick and shovel and sack of flour, though backed up by brave heart and willing hands, are hardly adequate to the work of driving tunnels and sinking shafts, to say nothing of the mills and reduction works necessary to silver mining." ²⁰

It would be difficult to overemphasize either the enormity

of lode mining expenses or the restrictions they imposed upon hard-rock miners dreaming of opening their own mines. Construction of the Gould & Curry mill on the Comstock cost the firm nearly \$900,000 by the close of 1863, during a period when the company was also forced to excavate the equivalent of two and one-half miles through poor rock in order to run an efficient operation. (The expenses brought dividends in this case: from 1862 to 1865, the Gould & Curry produced \$14.5 million in silver and gold.)²¹

The rebellious ores being encountered on the Comstock and elsewhere soon required a variety of milling and smelting devices and methods, such as the "Washoe Process," the "Reese River reverberatory," or by 1908 the electrical dredge, chlorination, and cyanidation. All this brought additional expenses beyond the never-ending daily overhead and operation costs—explosives, candles, timbering, deadwork, and water removal. (The latter could be extremely costly, as the owners of an Aspen mine learned when they had to provide pumps to handle a daily water flow of four million gallons. A mine in Idaho Springs, Colorado, was only slightly better off when it had to pump out forty tons of water for each ton of ore removed.) Litigation was the inseparable companion of high technology and high finance in the West, overloading the court dockets and crowding courtrooms with elaborate models of mineral veins and tons of specimens, thus swelling mining expenses further.²²

By 1863, Colorado's mines could no longer be adequately supplied by local capital, one study has estimated. This condition occurred early in other districts as well, for mining preceded settlement in virtually all Western states and territories. The miners of Desert City, Nevada, sent out a plea that "the mines of the district, to pay, must needs be developed as other districts, by means of tunnels, shafts and—capital." The thought was widely repeated. San Francisco became the early center of Western mining finance, and by 1869 it was estimated that three-fourths of the mines of White Pine were financed from there; a similar dependence was registered in many other districts.²³

But soon San Francisco was inadequate to supply the voracious appetite of the West's growing metal-mining industry,

and help was sought in the East. When mine owners in Philipsburg, Montana, realized their need for expensive smelting procedures, "it was not long," one writer wryly observed, "until the residents of the little camp ceased looking to the hills as a source of wealth: they looked toward Philadelphia." From the Western mining districts, travelers set out with ore samples and literature; an Idaho mine agent transported fully a ton of rock to New York, and in 1865 a quartz mining agency for Idaho territory was set up there. Easterners came to investigate on their own as well: "There were 33 Bostonians came in last night on a special train," a youthful resident of Lake City, Colorado, recorded in his diary one day during the summer of 1901. "They came in at 6:30 p.m. and went right up to the Contention Mine. Quite a crowd gathered at the Depot to see them come in." Four days later the Bostonians left—"the whole push"—presumably having a clearer view of what their funds would go for.²⁴

Eventually, even Eastern financial centers proved inadequate, and this left one major alternative: Europe. Thus, when the Colorado Legislature passed a law in 1887 "Preventing Non-Resident Aliens from Acquiring Real Estate in Colorado," the solons carefully specified that this prohibition would *not* apply to "foreign corporations, syndicates, or individuals acquiring, owning, holding or working mines. . . ." Foreigners were not welcome if their aim was to buy up farm and ranch acreage needed by settlers; the welcome mat was out only if they came to invest in the mines.²⁵

European money came eagerly, aided by completion of the transatlantic cable in 1867 and by continued railroad and steamship improvements which reduced the trip from London to the Comstock to a total of twenty days by 1868. The gradual pacification of Indian tribes encouraged travel by European investors also. One of the early European companies operating in Colorado was Mining Company Nederland, a Dutch firm organized in 1873 to take over a productive mine at Caribou. Most active across the region were the British, registering at least 518 joint stock companies for Western mining from 1860 to 1901. In Montana, the Lexington mines were purchased by French capitalists in 1881. Troubles beset many of these companies, however: Mining Company Nederland was ruined by

1876 due to a series of problems, and the leading historian of British investment in Western mines has concluded that only one British company in nine paid any dividends, and "many of these were but token payments of slight significance."²⁶

This transfer of mine ownership away from mining districts to a point beyond the mountains or seas proved another crucial change in labor-management relations in the mining West. Partly this stemmed from the continued competition for this capital, for the use of puffery or outright fraud became widespread in mine finance. Many leaders of the industry were angered by this financial chicanery. The famous mine expert T. A. Rickard concluded that the Comstock, for all its wealth and advanced engineering techniques, "did more harm than good to legitimate mining." This was because of the encouragement it gave to finding sudden riches without systematic work, and because of "forming share-mongering companies on mere expectations, with a view to market jugglery." A Colorado businessman warned a Scottish investor that "the keenest Yorkshire horse dealer is a mere innocent babe in comparison to a dealer in mines . . .," and another critic complained that whole communities were "demoralized by the spirit of gambling" because citizens were "over-anxious to capture the capitalist, so impatiently waited for in every mining camp." Eben Smith, a leading Colorado mine owner, would have agreed: he wrote to an out-of-state investor that "this country is full of more petty propositions in the way of mining stocks than Hell is full of imps. . . . They [are] sent over the country broadcast to catch suckers. . . ." ²⁷

To many persons the situation did not call for laughter, but former Comstock journalist Mark Twain could not resist. After the Eastern press had reported straightforwardly that springs with gold-bearing water were for sale in California, Twain could hold back no longer. The humorist explained that he did not doubt the authenticity of the news, for he had once owned the same springs and got "a dollar a dipperful," letting them go because of "the badness of the roads and the difficulty of getting the gold to market." But Twain found this no more remarkable than "the gold-bearing air of Catgut Cañon, up there toward the head of the auriferous range." The wind blew through six hundred miles of rich quartz croppings

for seventy-five minutes "every day except Sundays" and picked up minute particles of gold, which could best be precipitated by contact with "human flesh heated by passion." Lovers had special problems in such a wind, and two men arguing over a dog "had to stop and make a dividend" every three or four minutes or their jaws could clog up. Twain said Catgut Cañon locations would be stocked for the New York market; "They will sell, too." Coming during a period of extravagant claims for mine stocks, many readers must have nodded in agreement with his prediction. The sentiment was likely shared by a Montana judge who ruled in a case where—typically—the price of a mine's stock had no relation whatever to the mine's value. This custom, the judge stated, "has made the very word 'mine' in financial centers of the world almost synonymous with conspiracy to defraud."²⁸

The popular image of absentee control has generally been made up of pictures showing arbitrary dictation by distant owners, in ignorance of or in opposition to employees' needs. A recent generalization states that "giant corporations" in the West "did not allow local managers to make ultimate labor policy. . . ." However, evidence from a variety of sources, to be presented in this book, prohibits such a broad conclusion. Some firms were run with an iron hand from corporate headquarters; others allowed local managers considerable leeway.²⁹

British-owned companies, for example, usually gave one man charge of operations at the mine, frequently authorizing him to accumulate debts and hire and fire his own assistants as well as miners. When the question of a wage raise went before Pittsburgh officials of the Trade Dollar mine in Owyhee County in southwestern Idaho, they referred it to the company's board of directors, who voted to return it to the mine superintendent on the scene in Idaho and let him do as he pleased. Ernest Le Neve Foster, a well-known Colorado mine manager, struck back after he was bombarded with suggestions and criticisms from New York headquarters:

I should like to know what authority I have here, if I cannot work the property, for if I have to submit every contract or agreement to pay money for the Co. to the trustees for their action, then I am a mere clerk, and that I don't intend to be. If I am manager of your property, I intend to have all the authority a manager needs. . . .

A pretty pass things have come to if the board of Directors in N.Y. must know every time their manager required a new mine car, a pick or a drill. . . .³⁰

Not everyone got away with such independence, of course. Another Colorado agent was dressed down by a New York official after he disobeyed orders regarding the dispersing of company funds. If the company's hopes were ever to be achieved, the official warned, it would only be done through New York fund-raising—"You cannot do it at the Colorado end, never." Similar tales dot mining company records.³¹

What remained, obviously, was considerable variety in the type of control exercised from afar. Wages, for example, remained fabulously high in the Western metal mines compared to workmen's wages in Eastern cities, where the officials of most mining companies resided. But even if these distant owners had all exercised total control over minute details of their Western enterprises, this would not have resulted in disaster or a life of serfdom for all hard-rock miners. The record of Western mining does not support an accusation that mine owners were all ogres; many, in fact, are shown to have had real sympathies for their workmen, but their policies were carried out by foremen who understood ore removal better than labor relations. Others won their workmen's support through fair practices. The hard-rock mining story is replete with incidents of miners going to battle against crews in other mines to help their employer control a valuable stretch of ground, as took place when armed employees of the Ophir mine blasted into the Burning Moscow property on the Comstock in 1863 and "a general row occurred." Cases of workmen presenting gifts to retiring mine officials also dot mine camp records.³²

The evidence showing that hard-rock miners frequently got along well with their employers, won labor disputes against them, or simply held their own brought further complexity to the dilemma which the need for large-scale financing forced upon the frontier. Briefly stated, this dilemma was whether capital was so indispensable to the success of lode mining as to render intolerable anything that would discourage it. If capital was sacrosanct, then many of the normal com-

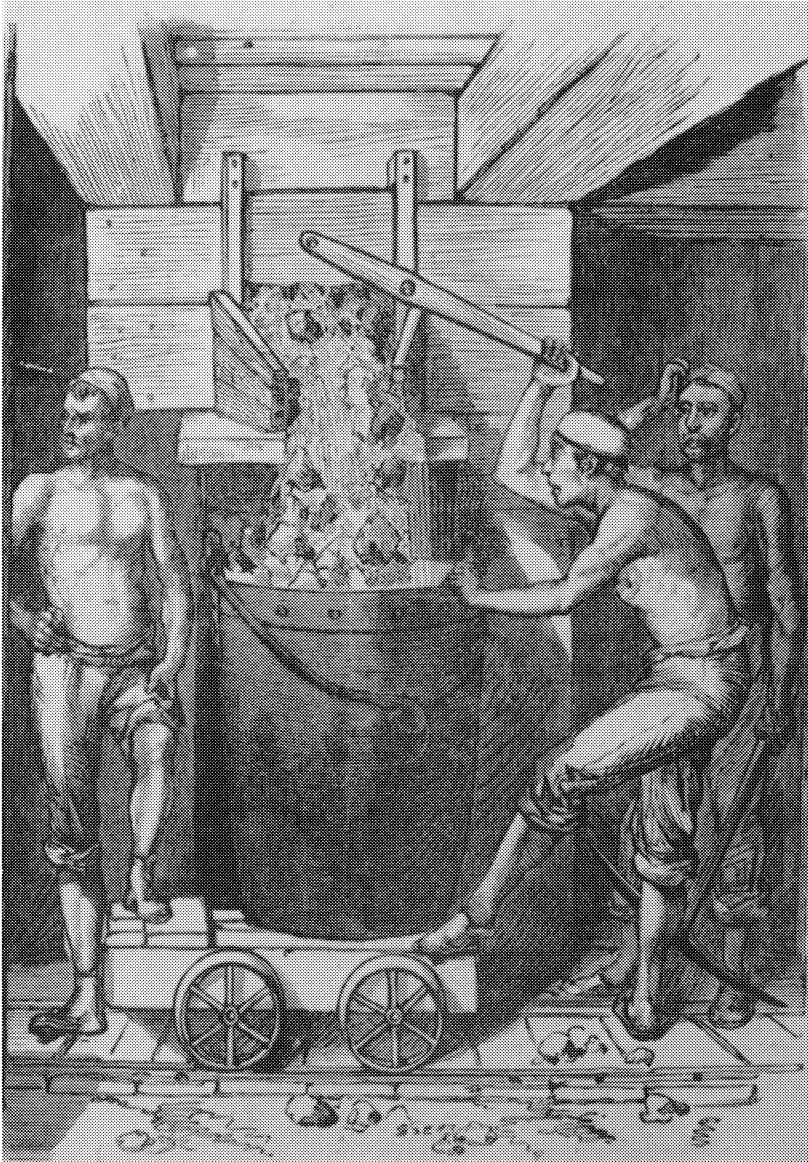
ments and activities of free individuals and a free-swinging press—traditions sacred long before settlement crossed the Great Plains—would have to be abandoned in the mining West. On the other hand, if the rights of criticism and free association were to be maintained in full vigor, some frightened investors might elect to place their capital elsewhere, and if so, Western mines would remain undeveloped. One side of the argument was stated baldly by the *Owyhee Avalanche* as southwestern Idaho's lode mining industry developed in the mid-1860s:

The prosperity of Owyhee depends solely upon quartz mines; such mines are of no general value until opened up and the ore crushed; and to effect this, much capital is a pre-requisite. Therefore, anything that tends to discourage capitalists in making investments is detrimental to the public welfare.³³

Others, however, feared the consequences of relying on wealthy outsiders. The dilemma was debated as early as the 1863 Nevada Constitutional Convention, as the Comstock's boom developed. Some delegates sought to provide individual stockholders with legal protection from liability for debts of the entire corporation; this was regarded as crucial in attracting investments. Warning of disaster if investors were frightened, one delegate claimed that "some of the heavy capitalists" in New York had refused to incorporate to work Nevada mines "solely on account of this personal liability clause." But another argued against obedience to outsiders: "Unless we hold these foreign capitalists individually responsible, they will not only own you, but will sell you." The convention voted to protect the individual stockholders, a decision that foreshadowed the ease with which mining firms would operate under Nevada laws.³⁴

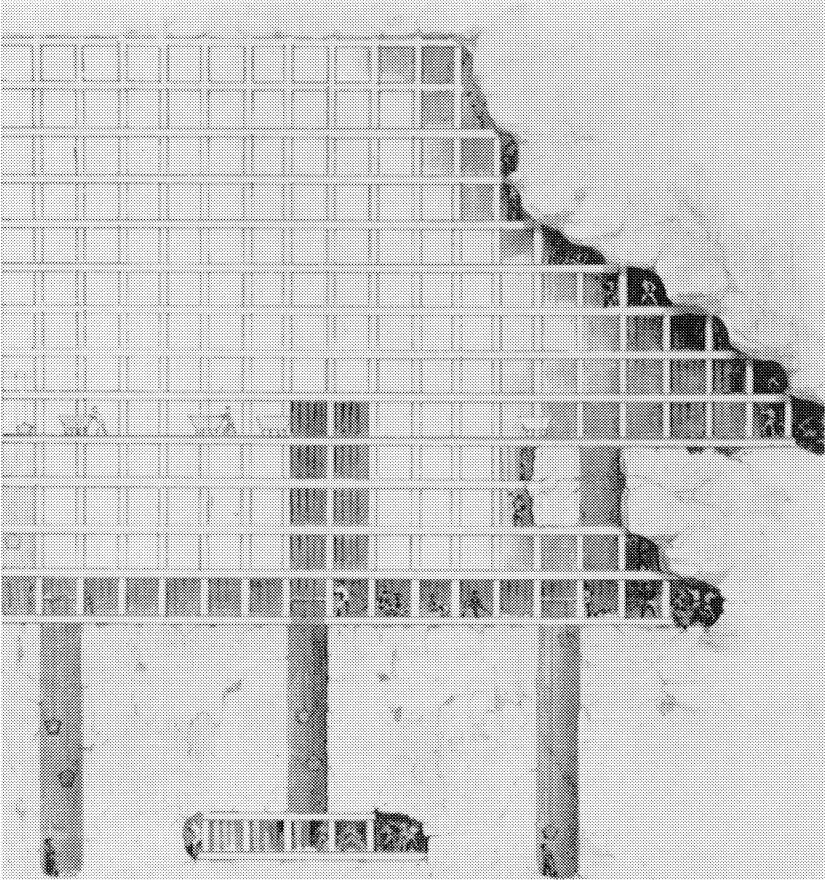
Financiers and investors soon emerged in the minds of some critics as opponents of the common people—as creators of "soulless corporations"—while at the same time other Westerners attempted to lure them and complained that not enough money was forthcoming. An Owyhee miner who angrily criticized companies which had left without paying their debts added that "some will say we should not publish such things of the mines; it will deter capitalists from investing. . . ." Not so, he added: "The country would be blessed if there never had

HARD-ROCK EPIC



*a. Lithograph from Frank Leslie's Illustrated Newspaper, March 30, 1878.
Nevada State Historical Society photo*

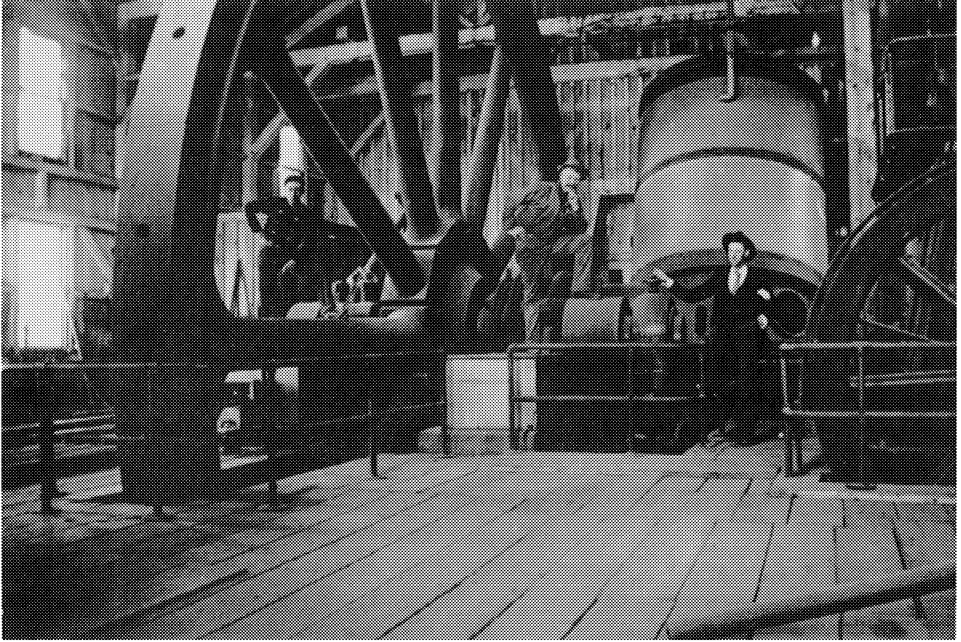
MACHINERY ON THE ROUTE TO THE MINES



b. Lithograph from Views of the Works of the Gould & Curry Silver Mining Company (San Francisco, n.d.).

Nevada State Historical Society photo

4a. and b. Elaborate timbering, ore chutes, tracks for mine cars, and extensive haulage systems characterized larger mines across the West. But these worked to reduce the laborer to the position of a cog in a large machine, dependent for his income, security, and safety upon the actions of others distant from him. The one-dimensional cross section of the Gould & Curry Mine provides a hint of the elaborate organization needed and the relative weakness of the position of the individual miner.



5. *The Cornish Pump—shown here in an 1879 version installed in the Union Shaft on the Comstock—made deeper mining possible by rapidly removing enormous amounts of water. Only through such employment of the latest developments in mine technology was lode mining able to expand in the decades after 1860.*

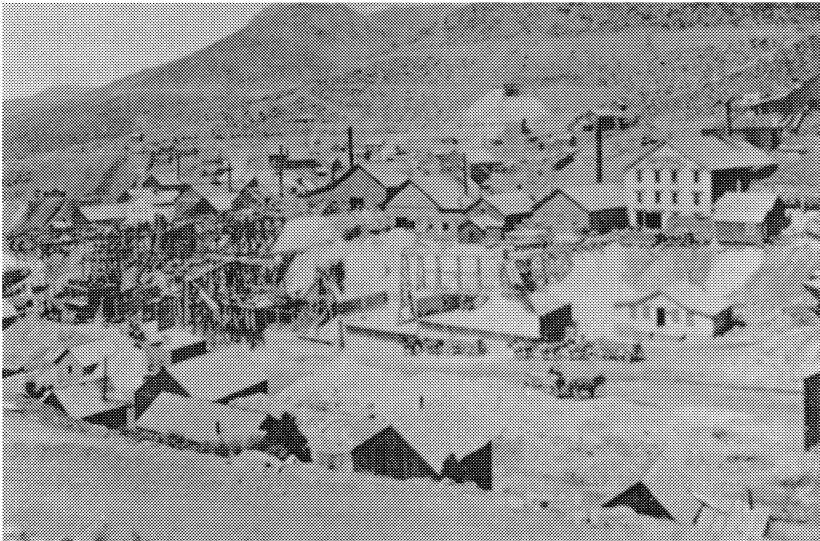
Nevada State Historical Society photo

been a dollar of San Francisco capital invested in it by such thieves. . . ." By the end of the century, this was developed into an anticapitalist philosophy by several leaders of the Western Federation of Miners, whose president held that "there can be no harmony between organized capitalists and organized labor," nor between employer and employee, or millionaire and working man.³⁵

The persistence of this dilemma over capital tore many Westerners who saw merit and error on both sides. It was especially hard on mining camp editors, since believers of one argument (miners and their allies) purchased most of the copies of the newspaper, while the other side (mine owners) kept the community from becoming a ghost town—there were always nearby examples of camps which had gone *that way*. The editor of the *Clancy Miner*, in a small camp near Helena in the 1890s, had particular trouble with the dilemma when the

miners sought to end compulsory patronage of a company boardinghouse. The editor supported the miners but also ventured that when a capitalist is "putting every cent he can rake and scrape" into a mine, "giving employment in the meantime to all the men he can work at the going rate of wages, he should be helped and encouraged in every way possible. . . ." Caught between the two sides, the editor added: "While we have always held that if there is a class of men on the face of the earth who earn their wages it is the American gold and silver miner, we would still regret to see them take such action as would close down any of the mines of Lump gulch and throw everybody out of work."³⁶

Various efforts were made to avoid the necessity for outside capital, although local interest rates of 30 to 40 percent reduced the alternatives. Homemade equipment attempted to provide new technology without the exactness possible in a large-scale foundry or factory; other would-be entrepreneurs sought to pool their savings as well as their labor. Such an effort brought confusion to an underfinanced Comstock mine,



6. The end product: industrial enterprise in the wilderness. Gold Hill on the Comstock Lode at the height of the district's boom years represented all the modernity, ugliness, bustle, and optimism of America in the Gilded Age. Less visible to the photographer were the myriad evils that industrialization posed for workmen.

University of Nevada Special Collections photo

where each shareholder was required to work several days for the group's enterprise. Since each was a part-owner, each played the role of director underground: after one drove a tunnel, "another would come in and obstinately start off upon the opposite tack—he would show those who preceded him that they had wasted their time and strength in a wild goose chase after the ledge, that it was the other way—he knew it, and he would convince them of it by showing them the ledge before he had worked his shift out." The result: a twisting, mixed-up passageway that caused an exasperated visitor to observe, "We have heard of dips, spurs, and angles of ledges, but we never knew that those terms could properly apply to a tunnel until we undertook to perambulate this one."³⁷

Others sought to avoid capital's grasp by going back to prospecting—seeking to either find and sell, or find and operate, their own claims. Many descriptions of the hard-rock miners' mobility reveal these goals. When men left the Comstock in a massive exodus to the Boise Basin in 1864, the *Gold Hill News* observed that many of them had formerly been placer miners in California; the news of a gold discovery in Idaho was sufficient to induce such veterans "to leave this place, where the mines are worked only by companies, for a country where every man can work for himself." And when miners flocked out of Utah camps to join the rush for the Salmon River district, the *Salt Lake Tribune* understood that dull times had not driven them away, "but the great majority of the miners had been working for wages and concluded to try their luck in the new and rich mines of Idaho." At least into the 'nineties, the Gold Hill Miners' Union—made up of men who labored for wages—maintained a supply of prospecting tools for the use of members.³⁸

This spirit did not die among hard-rock miners. As the Coeur d'Alenes of northern Idaho began to develop into a major lode-mining center in 1886, most of the 2,500 men working there were reported to be "independent miners" operating in pairs or squads. And by 1902, when the district was closely identified with such mammoth enterprises as the Bunker Hill & Sullivan, at least five hundred of the Coeur d'Alenes' three thousand miners were working in small lode mines or placer claims.³⁹

The point is that the arrival of the absentee owner in West-

ern metal mining did not completely close out other options, any more than signing on as wage laborers could totally erase dreams of wealth from the minds of hard-rock miners. These dreams would remain, though not pursued, even when apparently blocked by high costs, rebellious ore, or family obligations. Through it all, the miners' desire to win a piece of the Western *El Dorado* for themselves would continue to color labor relations in hard-rock mining.

For many other miners, however, a solution to the dilemma over the need for capital led in a different direction. These men responded to their loss of power under industrialism by developing a host of self-protection devices and associations to challenge company control. These will be examined in the following chapters, but at the outset it should be noted that the formation of labor unions aimed at overturning employer policies came very early in the Western hard-rock mining experience. By 1870, at the close of the first decade of large-scale lode mining in the West, miners' unions had been formed in the major camps and had successfully rebuffed several attempts by capitalists to dictate conditions that the workers found offensive. In Grass Valley in 1869, the miners even blocked efforts to switch to dynamite (instead of black powder) for blasting, forcing the abandonment as well of plans to substitute Chinese workmen for whites. These early union successes meant that the acquiescence of hard-rock miners would be a factor in the spread of lode mining during ensuing decades.⁴⁰

With the hindsight offered by the twentieth century, such developments show that various traditions were being challenged by the industrial system then aborning—especially traditions of self-government and individualism. Part of the drama of this clash in the West stemmed from the fact that the immediate forerunners of the hard-rock miners were the California placer miners, whose dedication to self-government in each gulch and canyon was widely hailed. It seemed natural to continue this system. When a rush to the new Nevada lode-mining camp at White Pine in the late 'sixties brought the rapid creation of a miners' government, an admiring editorial writer observed that whatever the circumstances when miners come together, "they are never at a loss in forming the rules necessary for the promotion of the common weal." He con-

sidered White Pine and other miners' meetings to be outstanding examples of American democracy: "No grander spectacle, no higher evidence of man's capacity for self-government have ever been presented." Events in that raw mining district, the editorial concluded, "speak volumes for the progress of the nineteenth century."⁴¹

But with the spread of the Industrial Revolution, the century was giving birth to other institutions that would increasingly challenge these traditions of American democracy. Some were inherent in the rise of the corporation, in the investment requirements that transferred the economic control of a community to some distant point. Brazen displays of this new control were fairly rare; more often, the simple fact that most workmen were employed by absentee-owned companies was enough to erode some aspects of self-government.

But occasionally the realization of this change came suddenly. It occurred when orders arrived from Europe to close a mine, or when miners waited powerless while a superintendent left for the East to discuss wage changes. The Comstock had this issue presented bluntly in the summer of 1867, after some citizens chafed over the requirement that miners labor on Sundays. They formed a committee to stop the "public desecration of the Sabbath day," but did not take their plea to the city council. Instead, they turned to the Comstock's mine owners, who lived in San Francisco, arguing in a fiery petition that "such violation of divine and moral law would not be tolerated in San Francisco; you yourselves would be the first to suppress it, why should you uphold or permit it here?" The committee had accurately pinpointed the seat of power over the Comstock's basic activities.⁴²

Such developments stand as historical monuments along the uneven path of industrialism across the mining West. They aid later travelers seeking to understand the drama that was played out there from 1860 to 1910. The machinery on the route to the mines was an early symbol of these changes, but few then could envision what this economic transformation would mean for social, cultural, political, and other aspects of life. Because such machinery became both a godsend and a curse, issues began to arise concerning the recruitment of workmen, the maintenance of high wages, the health and safety of work-

ers, and the power of citizens to control their own destinies. For the route to the mines was traveled by men, too—men who would provide the labor for this expanding industry. Their own search for protection would affect the future course of life in this vast region. That they came as free men, carrying traditions and expectations of independence and self-government, gave their acts special significance in the epic that unfolded as industrialism came to the Western frontier.