Rocks in the Road to Fortune

HENRY B CLIFFORD JR

Rocks in the Road to Fortune

or the

Unsound Side of Mining

BY

HENRY B. CLIFFORD

Practical Miner of 32 years experience

MEMBER OF

THE NEW YORK CONSOLIDATED STOCK EXCHANGE
THE LOS ANGELES STOCK EXCHANGE
THE SALT LAKE STOCK EXCHANGE
THE LOS ANGELES CHAMBER OF MINES
THE GILPIN COUNTY CHAMBER OF COMMERCE

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DEDICATION

TO my companion, and partner, who roughed it with me in Arizona, Colorado, New Mexico, Montana and old Mexico, who braved the hardships of a memorable trip down to the waters edge in the Grand Canon of the Colorado, before the Railroad had made the route one of modern comfort, who, without the slightest regret would leave the comforts of the East for the rough mountain fare of the new districts of the West, a true American woman, my wife Maude, is this volume dedicated.

BIOGRAPHY OF THE AUTHOR.

"EXPERIENCE IS A BITTER TEACHER"

It may be assumed that, to be successful in the practical side of mining, the operator must be of personal experience in many districts.

There are few men better equipped to deal justly with the question of commercial mining than the author of "Rocks in the Road to Fortune." That the reader may know that his experience has not been, and his knowledge is not, limited, we have compiled the salient points of his mining and public career covering nearly every district of importance in the United States and Mexico. The Gotham Press, having for many years published his works, is competent to write such a biography.

Henry B. Clifford was born in Louisville, Ky., April 28, 1859. He is the nephew of the late Nathan Clifford, formerly Judge of the United States Supreme Court, and, in 1848, Minister to Mexico. He has inherited the democratic tendencies of his famous uncle.

For many years Mr. Clifford has been a public advocate of mining, and addressed over 250,000 people upon the subject. In 1874, as a boy of 15, he was employed in the post office department in the city of Washington. He left that position and went to Colorado, on a United States survey, which marked the boundaries of the San Juan country. Being attracted to mining he entered upon a practical life in the industry.

For many years, Mr. Clifford was the business associate in mining of the late Colonel Robert G. Ingersoll from whom he no doubt is indebted for much of his platform ability.

His practical mining experience dates from 1875, when he was employed on the Pride of the West Mine, in Cunningham Gulch; the Highland Mary Mine; the Emma Dean Mine, at Eureka; the Crown Point; the Susquehanna, and other mines in San Juan County, Colorado. In 1878, he pioneered what is now known as Rico, Dolores County, Colorado. In 1879, he was engaged in making a study of the Silver Cliff region of Colorado, and while there was employed as Superintendent of the Domingo mine, and gained experience as a mining expert in the celebrated suit between the Bull and the Domingo that was fought in the courts of Rosita. He made an investigation of the Bassick mine, at Rosita, afterwards going to Leadville, to study the blanket formation that had at that time commenced to be productive.

In 1880, he made an examination of the mining regions in New Mexico and in the Chicicahua Mountains, Pima County, Arizona, operating on the Texas mine. He was also at Silver City on the

Seventy-six mine, and was employed in the Bremen mill at that place. In 1881 he was engaged on the Tough Nut and Grand Central properties at Tombstone, Arizona, and made his first trip into the State of Sonora in the spring of 1882, where he was employed by Gov. Piscaro in mill construction near the town of Ures. In 1883 and 1884 he was employed by the now United States Senator, Stephen B. Elkins, and others, to make a report on the Guanajuato mines, of Mexico, and remained in that Republic for three years, making, however, trips to the United States in the interim. He constructed the first American stamp mill ever erected in the State of Guanajuato. His report of that district has since been verified by the success that has followed the American mining invasion. In 1887, he became associated with copper operators, and was also identified in the French copper syndicate movement in America. He held large interests in the San Pedro copper mines, of New Mexico, and while there formed the acquaintance of Hon. William A. Clark, the "Copper King." In 1892, while Colonel Ingersoll was engaged in the Davis will case at Butte, Mr. Clifford made a study of the celebrated copper and silver zone at Butte, Montana.

In 1893, Mr. Clifford prepared, at the request of President Cleveland, the statistics of "The Cost of Producing Gold and Silver," an article which has added much to his reputation as an authority on mines and mining. For years, he has been a public advocate of the mining industry, making his first address on copper mines at the Grand Opera House, Harrisburg, Pennsylvania, in 1882. In 1891 he championed the interests of the State of Washington throughout the East, appearing in all the large cities, and as a recognition of his services to Puget Sound, he was voted the freedom of the city of Spokane. He wrote several able articles on mining, and the production of gold, for the Boston Transcript.

He made a thorough study of Yavapai County, Arizona, was successful in money matters in that vicinity; and, later, became a member of the New York Consolidated Stock Exchange; the Denver Stock Exchange; the Los Angeles Stock Exchange and the Salt Lake Stock Exchange.

In 1902, Mr. Clifford made an examination of the Cananea Copper Belt in Sonora, Mexico. In 1906, he examined the Como or South Comstock section of Nevada. In the same year he is accredited with opening the second enrichment of Clear Creek County, Colorado. In 1907, he examined the Montezuma District of Summit County, Colorado; also the district around Monarch.

Hon. John P. Jones, late United States Senator from Nevada, the highest authority on Comstock mining, classes him as one of the ablest miners in the United States. His opinions are sought by the leading operators of this country, and not even his opponents,—which every progressive man must have,—question his remarkable ability.

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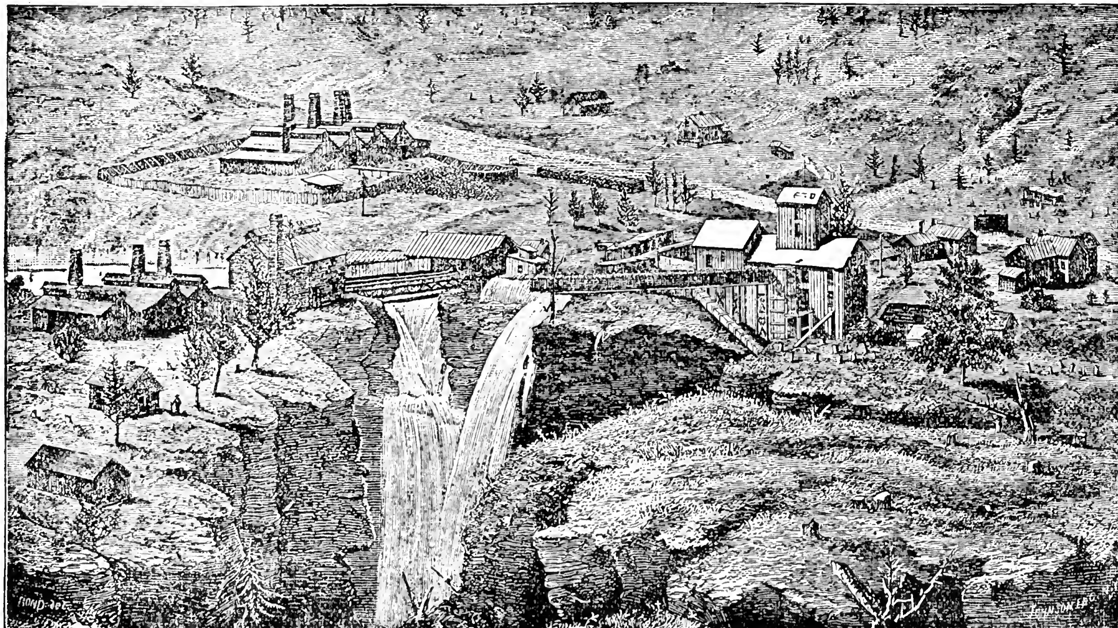

Crooke Concentrator, Lake City, Colorado. Scene of the authors first mill experience in 1876.
Reproduced from an old cut in Fossett's admirable work on Colorado.

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ROCKS IN THE ROAD TO FORTUNE

ROCKS IN THE ROAD TO FORTUNE.

BY

HENRY B. CLIFFORD.

"The Destroyer of weeds, thistles and thorns is a benefactor, whether he soweth grain or not."

What is here desired, is that a great industry may be better understood by those who have for years believed they were mining, when in reality they were simply speculating in the most remote forms of actual commercial operations, those antagonistic to the views of the writer, say that though evils do exist, that it is not possible to weed them completely out. This may be true, but perhaps this effort may assist. No one ever really thought that Kentucky would practically weed out whiskey drinking.

There are two ways to mine—the right way and the wrong. Experience proves that the right, or commercial, way has resulted in the United States making an annual production of gold, silver, copper and lead of nearly four hundred millions of dollars, and that there is a handsome profit in its extraction. A review of what is considered the wrong way proves that it has resulted in discredit to the industry, and sorrow to those who, believing the representations made by inexperienced men, invested that which they could not well afford to lose.

It may be asserted that the system of promotion, under which the average Eastern investor believes he enters mining, is unsound, and does not result in the profits which follow the efforts of commercial operators. One system brings profits to many; the other, profits to the few, and bitter disappointments to the many.

If a system is, by its results, after years of experience, shown to be unsound, the profits, beneficial to a few, at the expense of the many, and the reputation of an industry affected by the results of such a system, then it is the opinion of the writer that the unsound system should be abolished, and another employed, where the profits that unquestionably come from mining may be more equitably divided. The readers must judge the author, and form their own opinions as to his radicalisms or impartialities. They will remember that it is the opinion of one man here expressed, and his arguments must be considered as such. The writer is willing to acknowledge his own faults and mistakes. He does not oppose the flotation of mines, or prospects, by men who tell the truth. That to which he is opposed is, promotions by men who are not miners, and do not understand the necessities of the industry, but in bold advertisements assume that their advice is born of experience, when in reality they know little of the practical side, and unblushingly make extravagant promises, which every commercial miner knows cannot, except by miracles, be kept; or promotions by men who, because they have a little smattering of mine information, class themselves as experts, yet are not sufficiently experienced and seasoned in the industry, which requires years of study and sound judgment to win, by steering clear of the rocks in the road to fortune. The author is not infallible—having in the past made his own mistakes, but it is by bitter experience that we learn. During the days when I was susceptible to the excitements that follow the discovery of a little rich ore on the surface, before we knew that every sliver in the earth that contained mineral was not a mine, when he believed that all men were comparatively honest; in the days before ripened experience taught him that there was only one way to mine, and that was to actually extract ore and sell it, he made his errors. He placed too high valuation, trusted too much to others, with failure as the result; but with the passing years and closer associations with the commercial side of the industry, the truth became plainer, and the rocks in the road were more readily avoided, and by now asserting what I found to be wrong is hoped to save others the experience. That there is no personal antagonism is shown by the absence of any pointed reference to distinct man, mine or district.

Mining is a venture in which men risk for great gains, but then men risk in other ventures, where the returns are much less, and not as certain. But it is asserted that the risk in mining is not as great as the general public believes, and this belief has been generated through its losses, which would have, in many cases, been turned to profit had commercial mining been practiced.

Out of the thousands of investors that have made mistakes in mining, there are not many that ever entered the actual industry. Their money seldom found its way west of the Mississippi river. They invested in the promotion side, with which the commercial miner, the man responsible for the world's metallic output, had nothing in common.

The defenders of the present system of promotion,—that is, sensational advertising, promises of quick and big dividends, guarantee of principals, etc., can quickly silence our arguments by showing even ten successful dividend paying mines now in healthy activity that have resulted from the thousands of prospects incorporated in the last ten years, publicly exploited in the press or by extravagant prospectuses, in which the people, eager to aid in the development of mining, and believing that they were in on the legitimate side of metal extraction, through the rash assertions made, have invested and lost millions of dollars; or, even to show us two great mines that have for three years past paid, and is to-day paying $150,000 a year dividends—and there is a great number that made more extravagant promises than this —or even two of the sensationally promoted corporations that have redeemed their marvelous promises of profits to the extent of a continuous stream of dividends equal to 10 per cent. for the last two years; or, to show where a guarantee of dividends, or the return of the principal, has resulted as the investor was led to expect. The author, on the other hand, can show hundreds of individual instances, where miners, working on commercial principles with limited capital, have swollen the annual production of the states and territories by products extracted at a profit with limited capital. On the other hand, where actual miners conducted these ventures, the loss has been very limited. To my critics it may be said that I am myself willing to learn but give me fact. By those, who these views displease, there may be abuse of the author, but the argument of fact should not be lacking.

The mining industry is one of great profit and possibilities: that is, the actual business of ore extraction; and the aid of capital is desired to make larger productions. But I am confident that the sentiment of the commercial miners of this country is voiced, when it is stated that if it is necessary that the output of the mineral industry can only be fostered by the tears of the disappointed, the sufferings of the widows, or of poor men who have invested, expecting fortune, only to find poverty, then the quicker such "industry" dies an unnatural death, the better.

I expect criticism from those interested in the avenue of promotion of which we do not approve.

My personal life, my mistakes, and some of my successes, which perhaps are not fully deserved, are not at issue. Abuse is not argument. I am in favor of the public sale of Mining Stocks to small investors. Have sold them and may again sell them, but we want to see them sold on a truthful presentation of facts. I state facts, and ask for facts. The question and issue are plainly stated.

Do the sensationally promoted mining enterprises that have filled the press of the United States for over ten years with glaring promises and appeals for capital to invest in so called mines give the investor any reasonable profit, or add credit to the states and territories in which they claim to operate? And do these efforts result in commercial mining, where profit is won from ore? Not a profit taken from one man to enrich another. Does the money paid for stocks actually go into underground work? Is the system of heavy capitalization and the payment of excessive commissions the true basis for mine promotion, and does it result in benefit to the industry or the investor?

I know of hundreds of deserving miners who have prospects of merit, who are willing to proceed to develop them with even as small a sum as $5,000, but who are unable to interest investors, for the reason that they cannot compete with the publicity promoters, pay the excessive commissions, or gain the confidence of those whose experience in mining causes them to look with distrust upon every man seeking the aid of capital. I look forward to the day when the distinction will be drawn sharply between commercial mining and sensational prospect promotion; when a miner or stockholder may take his collateral into a bank, and receive the same consideration accorded the contractor, merchant, farmer or railroad official. I make especial reference to no mine, district or individual. The whole subject is treated in the hope that the readers of this book may, in a measure if they believe my assertions, protect themselves from the class that the commercial miner considers the industry's greatest detriment.

CHAPTER II.

THE PROBLEM THAT CONFRONTS PROGRESS.

"Everyone who has studied this question knows that all of our reserve should be in gold, for gold is our standard of value."—Congressman Fowler, Chairman of the House Committee on Banking and Currency.

The United States has recently passed through one of the most dangerous crises in its history, involving a stringency in money so wide-sweeping, that for a period the banks of the entire nation virtually suspended cash payments, and issued instead artificial money, causing the middle class depositors to become panic stricken. A crisis that, if unchecked, would have wrecked for a generation the financial reputation of the world's richest nation.

The quotation cited is to the writer the text of a subject which he has long maintained is essential to the welfare of our country: the increased production of gold profitably mined. Had our banks ample gold, there would have been no wavering of confidence, which was the direct cause of the stringency, through the hoarding of all kinds of money. Aptly has it been stated that the principal cause of the panic was that some one asked for a "real" dollar.

Congressman Fowler further said:

"We have to-day in the banks of the country about $12,000,000,000 of deposits. The banks hold reserves against this fabulous sum of about $900,000,000. Of this $900,000,000, about $200,000,000 is in bank notes, a mere credit, a mere promise to pay. Therefore, you will observe, that, approximately, one-quarter of all our deposits, or nearly $3,000,000,000, is based upon bank notes, which are in turn based upon another credit, a Government bond, which is due in about twenty-five years. The depositors of this country now have $12,000,000,000 to their credit in our banks, and have a right, and should demand now, that the reserve held to protect their deposits should be the real thing, gold coin, and not credit, not national bank notes."

The Congress of which Mr. Fowler is a member, and also future sessions, may pass many emergency laws; but subterfuges, while they may retard for a time the inevitable storm, unless the needed gold actually exists in commercial form, there will always be that uncertainty, which was the real cause of the recent panic. There is only one sound solution: we must obtain more gold. We know that other nations will not lend us a supply to meet temporary emergencies, except at exorbitant rates; therefore, the only alternative is to more deeply explore our mineral resources. For years, upon many platforms, the writer has asserted that the annual increase in our home production of the money metals was not adequate to meet the growing demands of our wonderfully increasing prosperity, and that for awhile we could expand upon credit, just so long as the creditor did not ask for payment in actual coin, but that, if the creditor, who in America is the depositor, should lose confidence in our ability to sustain the claim of a gold basis, then the crash would be as inevitable as the law of gravitation. For Credit is the only Capital on earth.

First, the stringency of 1893 brought our financiers to a semi-realization of this truth,—but by skillful bank-piloting, clearing-house certificates, and other forms of emergency money, we weathered that storm. But this last tornado was more far-reaching; the stringency was greater; and, call it by any name, there was practically a total suspension of both paper and specie payments in New York, Pittsburg, Kansas City, and Chicago. Any country, ostensibly upon a gold basis, sleeping in security of the people's confidence, never realizes the scarcity of gold or silver until the demand for a redemption of credits in actual coin. All the laws we can make will not add one dollar of gold to our supply unless the miner digs it from the earth, and the refiners change the raw material of money into the bars of mintable assay. There is only one solution to the problem which confronts us, as well as other nations. We must mine more gold, and in mining it, make it profitable to those who engage in its extraction; otherwise the miner or his partner, capital, will not continue in its labor.

This brings us to one of the great problems which face the West: the elimination of the unsound promotions which do not mine profitably, and add nothing of value to our productions. Yet do add discredit to the man who is actively engaged in commercial mining.

The United States is wonderfully rich in mines, of gold, silver, copper and lead; and, each year, science, industrial economics, and local conditions make a lower grade of ore profitable. Considering the money actually invested in commercial mining, the profits it returns to the investor are greater than from any other avenue of industry. Mark you, I say, "commercial mining," for I do not purpose to father the element which, while claiming to mine, does not. There is little doubt of the ability of our mines to supply all the gold the country needs, and even to help out other nations, provided the commercial miner controls the mining end, and the capital intended for mining be actually so expended. The problem is, how to make its extraction profitable to those who invest in the venture, which is necessary before gold can run current in the wide and sweeping river of trade.

To mine the needed gold, we must interest new capital, for that which is now successfully employed in mining cannot be spared from its field of endeavor. The present production must be sustained. We must gain, not lose, while seeking to increase our stores by new ventures. To attract new capital, we must offer profitable inducements. If capital, which is willing to assist in mining new gold and silver, meets with success, then capital remains in the industry. If, on the other hand, the eastern investor meets with failure after failure, he, naturally, classes the extraction of metals with unprofitable ventures, and, withdrawing his support, as well as the support of his friends, progress is then retarded.

We must have more capital to open known ore bodies, and establish mechanical economies, to make a lower grade of ore valuable. On all legitimately employed capital, the industry can return heavy profits; but there should be a system of investment which should protect the capitalist, and cause his money to be actually employed in mining. It is not asserted that there is a lack of actual investment, for there is a great and growing interest. The people believe in our mineral resources, and at every opportunity they invest in what they are told is mining. If even one-half of the money that the American buyer believes he is placing in the legitimate avenue, was properly applied to ore development, upon commercial lines, the gold product of our country last year would have been fully $20,000,000 greater. The practical miner does his part, but the non-commercial miner shirks his responsibility, and a large part of the money intrusted to him seldom leaves the East.

The West wants, and is eager, to do its part. It invites capital; but it does not wish to be credited with that which it never receives. It does not want to be held responsible for the errors of men who are speculators, not miners. The commercial operator rebels at being stigmatized as an undesirable industrial citizen, by those who, thinking they are mining, are simply gambling, or under the leadership of men who must be knaves or fools. The mistakes of the East were, in a large measure, the result of unreasonable rapacity. Until the last crisis, the commercial miner was not considered important; his modest efforts—which did, however, result in our great metal product—was overshadowed by the pompous, self-asserting promoter, who, to gain his end, almost destroyed the reputation of the American miner for honest intentions. A commercial operator, with his plain statement of facts regarding risk and profit, seemed so insignificant and uncertain, when compared with the bubble-blown non-commercial broker, with his positive "Millions to-morrow, for Ten Dollars To-day," that he could not obtain any courtesy or favor: it is believed that the day has come when the investor is awake to the fact that he has not yet met the real miner, the producer. If the writer can, by his efforts, assist in drawing the line between the commercial operator and the non-commercial vender of mining stocks, he will feel that he has done a little for the industry that has been kind to him for thirty-one years. Papers have offered me the use of their columns, but a paper article often passes with the day, the subject is too vast, consequently this book. He does not wish it to be understood that he is averse to the sale of mining stock, for he sells it himself. It is realized that incorporation is really the only safe and sound method of mining, for the risks and benefits are scattered among the many, as they should be. The argument is that the money really intended for mine development should actually be expended in underground work and needed equipment, and that men who really know should do the mining; and where men are engaged in selling stocks, they should tell the truth, without stretching a little fact to a painful length, that the buyer may know the risk he is taking, and be given the personal right to, by using his own reason, determine if he desires to speculate or invest as the case may be

CHAPTER III.

THE COMMERCIAL MINER.

There are so many different avenues called mining, by the inexperienced—so many rainbow characters that claim association with America's greatest industry, that the commercial miner—the man who is actually responsible for our great mineral output—is seldom encountered by those who, year in and out, invest in what they are led to believe are sound mining enterprises.

The Western miner is among the most honorable of men. He is not to be classed with those who may, for want of a softer word, be termed the parasites of this magnificent industry. Commercial miners are those who win fortunes from nature's treasure vaults by energy and hardships, thus causing the mining industry, by its actual production of gold, silver, copper and lead to be classed with the backbone of America's progress and wealth. Such men have nothing in common with those who do most of their ore extraction in eastern cities, through sensational paper promotions. A distinction should be sharply and clearly drawn between the two. One is a miner, who actually digs in the earth searching for and extracting metal ores; the other, a private individual, who gives advice upon a subject which he has not mastered. The non-commercial miner reaps his profit—through heavy commissions and promoter share holdings, which they often sell before the prospect has paid its western obligations—by promising enormous returns before he begins to mine or ship ore. He is quite sure to, but does not. In the great majority of cases, while he sows, his seed does not ripen in the harvest that brings profits, honestly won from nature. Gold, silver and copper miners are speculators in the sense that coal operators and oil drillers are speculators. That is, they venture with nature, with a capital of Experience; but, unlike any other industry, the wealth they woo, and often win, is the soundest of all. It is imperishable. The finder enjoys its possession, then it passes along through coming ages, bringing happiness to countless thousands. Fortune may give vast stores of it to one man, yet it all belongs to the world to-morrow.

There are four sources of wealth: the sea, the forest, the farm and the mine; and of them all that of the latter is more important; for the product of the former three is perishable. With the wealth of the mine, all the others can be purchased from other nations. In fact, it may be said that to our minerals may be attributed the unparalleled progress of America.

The precious metal extracted from mines is nearly always in circulation, either through the arts or as money metals. The miner enjoys the satisfaction of knowing that he produces a new, clean wealth. Its possession does not carry the thought, common to the quick acquirement of wealth in general speculations, that the holder is rich and happy because some other of the human race is poor and sad. But even though the miner, over night, springs from poverty into a Croesus, no man is more entitled to undisputed possession of his fortune, for it has been extracted from a source where no wealth known to man before existed. He has won the raw material of money from a source that was hidden from human eyes, yet this product, when manufactured into money, adds strength to nations, creates the sinews of war, is the herald of smiles, the forerunner of laughter, and the prosperity of the race.

The harder the times, the more important becomes the miner, for his product is the medicine that cures—if not "all the ills that flesh is heir to"—the ills of depression: such as the stringency of money, which we have recently experienced. The extraction of large amounts of precious metals has frequently saved a nation's credit: and Credit is the air of a nation's lungs: without it, it stifles, declines and falls, as fell old Rome in the days of the degenerate Caesars. It was the discovery of the Comstock Mines, in Nevada, at an opportune time, that enabled our country to live through the financial distress which followed the Civil War.

The Eastern investor knows so little about commercial mining, or of the miner who creates the wealth, that it is hoped in the future there may be a better understanding of the industry, and of those responsible for its greatness. This is the author's aim. The writer does not attempt to show the little he may know of geology, by the use of uncommon words and phrases, which only those well read in the sciences comprehend.

So many have lost money, by following the advice of men who do not know, or are interested in unsound promotions, that it is decidedly of interest to commercial miners, who are themselves at times seeking the aid of capital, that the rocks in the road, and many of the mistakes of the past, perhaps hereafter may be avoided; and if the investor will reason, he may be guarded against misrepresentation, and make himself a fortune, by entering mining upon commercial lines, the same as he would enter any other broad way of industry. To that end this is written, for the plain, old-fashioned man —young though he may be in years—who wants plain, old-fashioned language, which he understands. This work is not for those who do, but for the thousands who do not, know.

The many millions of dollars of mining profits accumulated each year are won by labor and common business sense. There are still vast sums to be wrested from cunning old Dame Nature's hidden treasury vaults, and each day the commercial miner makes success more positive. Money is needed to build machinery, open ore bodies, and market product, that new millions may be made. In the broad deep field of mining there are few, if any, extreme philanthropists. The miner is willing to share generously with those who supply the needed capital; but I never knew of a legitimate miner to spend thousands of dollars in the daily and weekly press with an honest desire to give ten dollars in a few weeks for each dollar invested with him to-day. The Eastern investor seldom meets the true Western miner on the question of where a fair risk for a large gain is discussed upon business lines. Their rapacity causes them to turn aside from the sound, and attentively heed the unsound.

Gold, silver and copper mining is as necessary as the digging of coal, but it is not all success. Mines are never found. The indications are discovered, but the bullion producer is created only by the application of capital skillfully used. Great mineral discoveries are worthless until opened, and the wealth of their ores freed by scientific application of fire and water, which turns the raw material of money into the bullion convertible into coin. Science applied to mining is simply organized common sense, utilized invention and profiting by experience; and it is as essential to couple investment with discretion and seasoned knowledge as it is to determine that ore exists in commercial bodies. When gold and silver mines are of intrinsic value, they are among the greatest of profit earners; but conducted without well-applied capital and experience, the same obstacle will be encountered as are found, in similar circumstances, in other business undertakings. The investor must learn that no venture is sure; and that "Sure things" are likely to be unsound. Rich mineral discoveries made to-day cannot be turned, in the very nature of things, into credit to-morrow. Only by skill and the expenditure of money are the enormous dividends credited to mining made possible. Every commercial miner or well-informed financier is aware of these facts, and it is to those who have much to learn of mining that these remarks are addressed. When they reason, they will perhaps understand that, when men offer extraordinary inducements, there is a personal want to be supplied—by the investor's money, and that when things are gratuitously given they are often the most costly of all gifts.

In the golden West, where the ore is actually extracted upon commercial lines, we seldom hear of serious disappointments among those who mine with experience and upon economic lines. The mistakes are brought to their notice through some unfortunate Eastern investor, who believed that the digging of gold and silver was simply the application of capital to some vein or deposit supposed to contain ores in commercial quantities, and that millions of profits were as good as banked. To this class of investors I say that, his ill-advised operations should not keep him from entering the real realm of mining. It is hoped that he may be won to the actual industry, and share the riches that follow the mastering of the combinations which hold the wealth that nature has secreted, in her subterranean pockets; for despite ill-advised losses, the dividends from commercial mining are enormous. Greater than the dividends upon the entire system of railroads represented by dividend stocks.

There are only three things to make mining commercial. But the fact that these three things must exist before profits can be reaped is not generally realized by the inexperienced, until after the purchase of stock has been made. The inexperienced buys—then he investigates. He should reverse that plan. Those who buy upon impulse, fearing they may not be in position to buy to-morrow, are, as a rule, sure to lose. To be successful, take time—but not too much time.

Reason, reflect, weigh. Do not let your impulse run away with your judgment: and do not believe all the sensational promises made by vendors of publicly promoted stocks.

The three cardinal necessities in mining are: Ore in commercial bodies well opened; good local conditions; practical management. Without these, there can be no success. Prospecting is the highest form of mine speculation, but that branch of the industry is only the beginning. Promotion is the persuasion of capital to venture. All mining is a venture, until success stamps it commercial, as all men are failures, until they are successes.

Mining is always termed speculative, on account of the risk and the great gains; the risks, however, are fast being eliminated. Ore, in known commercial bodies, is only the basis of legitimate mining.

All the arguments of brilliant orators, gifted writers, pages of sensational promises, and historical citations of the success that follows success, will not place a ton of ore in the barren vein. Invest in prospect, as that is necessary, in order that the industry may grow, some of the largest profits lay here; but realize that it is a prospect, and worth only a prospect's figure. Do not believe that every prospect will in the end prove commercial. If you wish to eliminate much of the risk, and are satisfied with from 10 per cent. to 25 per cent., then be sure you are in on the commercial side. But do not pay for a prospect the amount you would pay for a mine. A mine has a value proven by its actual product.

CHAPTER IV.

THE IMPORTANCE OF LOCAL CONDITIONS.

Such improvements have been made during the past ten years that it may be said that the industry has just crossed the threshold of that which is the only true avenue to success—commercialism; as once passed steam, electricity, the manufacture of iron and steel, and the improved conditions are largely responsible for it.

The advent of Eastern men with mercantile training has brought to the west practical economy, and they are assisting towards the commercial end. The weighing conditions which follow the successful upbuilding of any line of commerce or trade, we owe to them. Thus, mining to-day bears about the same relation to the efforts of thirty years ago as did the Elias Howe sewing machine of 1846 to the mechanical masterpieces of to-day, made indispensable by the expenditure of thought and necessary capital. To-day, mining ore for a profit is a business, and our ablest men are active in making valuable that which was worthless a few years ago; consequently, the district that bids for the favor of men who want profit from ore must be in a position to show results—not blind anticipations, or unsupported assertions from irresponsible men.

Those who have failed in mining ventures may now see the rock upon which their hopes were split, for believing too implicitly in those whose interests were purely selfish. They can now, however, succeed, if they will profit by their bitter experience. Ore, the only source of actual wealth from mines, is found in veins and deposits. It does not grow upon rocks, as some are led to believe, and is seldom above ground, except where the vein cropping carries high values, which is the exception, and not the rule.

Years ago we knew, comparatively, very little about mining geology, and many costly mistakes were made. But the investor can turn those errors to his advantage. Fortunes are now in the making upon the same properties that years ago brought losses and sorrows to their owners. Provided there is ore in the mines, but it is only by the change in conditions that such losses can be turned to profit. The advent of a railroad has been known to change the whole aspect of a district, from a commercial standpoint. So the investor should know that the conditions are favorable, even though his ore showing is good: for, unless local conditions are right, $20 ore may not be as valuable as $10 ore in more favorable localities. That this may be forcibly illustrated, I will say that in some parts of Colorado, a six dollar ore is very profitable, in California, a four dollar gold ore is commercial, yet in one of the Western states, to which inexperienced capital has been very generous, even a ten dollar ore is worthless, for the published freight rate on ore were as follows: To enter San Francisco, Salt Lake or Denver, all ores under $25 value was charged $8 per ton, on $300 ore the rate was $22 per ton—and after this from 3 to 5 per cent. of the value of the ore was added to the freight charge. Thus the advantage of conditions is shown—as the freight charge from Georgetown, Idaho Springs, Central City, Leadville and Montezuma regions of Colorado is only $1.75 per ton upon $25 ore. In years to come the district referred to may, by the improvement of conditions, enjoy lower rates also.

Commercial miners figure upon conditions as of almost equal importance to ore values, unless the mineral should be of the "picture" character, which is of rare occurrence; the ore being, for a limited area, then so rich that any expense of extraction or treatment can be met. But in such rare cases, and they are very rare, there is no necessity of inviting the public to buy shares in the mine; and where men offer to sell stock in such mines at a low figure, it is usually because they do not believe that the ore will hold out. The general run of mines which are classed as commercial are low in grade; from $7 to $15 a ton, with first class smelting ore averaging about $30 a ton. Therefore, before great tonnage mines can be made commercial, there must be mills, smelters, railroads, and power houses; and they are never undertaken until that is first known—which the inexperienced promoter studies last: The actual size and character of the ore bodies and the local conditions.

The merchant that contemplates the manufacture of products in a new locality first looks at his transportation facilities and labor conditions. They being favorable, he figures upon the cost of his supply of raw material, and the price obtainable for his manufactured product. The commercial miner does the same, for gold and silver are manufactured, just as is a stove, or any other product of metals. If local conditions are against the cheap extraction of ore, and the marketing of the same at a substantial profit, then the district is for the time being classed as non-commercial. If there are small streaks of high grade ore, some promoters will, however, keep the section in the investor's eye.

The casual buyer, reading the lurid promises of "Millions of dividends!" which only the experienced operator makes, does not often realize that certain conditions must exist before even moderate profits are possible. If he insists upon a statement of fact relative to the positive supply of mineral, the home or central market for the same, and the vital transportation feature, the answers should be plain, so that any man may understand them, and not vague, as is usually the case, when the actual conditions are not favorable. The assertion that a railroad is to be built next year does not always mean that it will be so constructed. Some sound reason should accompany the statement.

There is no lasting condemnation in being classed with non-commercial districts, as all districts were at some time in—more or less—the same category. The fault found with publicity flotations fostered by the inexperienced, is the blinding of the investor to the actual fact, the promising of profits, when the conditions at the time may be so averse that no man can make money without the self construction of roads and mills, which would necessitate the expenditure of millions of dollars. When inadequate facilities are at hand, the fact should be stated: then the investor takes his chance with his eyes open, and a knowledge of the obstacles ahead; then when successful, through the advancement of conditions, his profits will be proportionately large. Therein lies one of the principal speculative features of mining—the improvement of conditions in a mining camp. Those interested in the sale of mining stock based upon prospects claim that if the obstacles are made clear that there will be but few sales. This is not the fact, if the valuation on the prospect is reasonable; the investor will risk for the chances of reaping the great profits that come to the successful prospect when the conditions improve—but naturally, the buyer will not pay the same price that he does for a prospect located where conditions are more favorable.

There are many districts to-day on a commercial basis that were prospective as producers even five years ago. Conditions change, and the profit market changes with them. As they improve, we find the miner of to-day reaping profits from material which was considered non-marketable even ten years ago. Each year a lower grade will be made commercial. The investor should know the facts, in order that he may reflect and reason upon the time when conditions will so change that profits may be confidentially looked for. A poor man will not then mortgage his home to buy stock in a prospect that cannot, by reason of imperfect conditions, be commercial for years. Some of the more widely advertised districts are so lacking in water, transportation and smelting advantages that they may not be commercial for ten or twenty years. Those conditions are recognized by the experienced, but are seldom made a part of the public appeal for capital by the class of promoters that pay more attention to stock sale and their commissions than they do to ore extraction, the reputation of the industry, or the sorrow of those who may lose.

In the early days of mining—in some of the districts now recognized as the soundest commercially—the conditions were not so favorable as at present; and, while there was rich ore at the surface in those fissures that gave evidence of being mines, the cost of treatment was so expensive that fully eight-tenths of the vein contents of some of the best producers in those camps were uncommercial, and unmined until with the past few years. A big Bonanza is not, as proclaimed, always rich ore. Some of the largest dividend payers are low grade. The average value of the ore extracted from the great Comstock Mines of Nevada was under twenty dollars per ton and the average value of the rich mines of Butte, Montana, is less than $10 per ton.

Admitting that the mine has ore of a marketable grade, with the bodies well opened, the vital questions should be asked: Have you plenty of water flowing naturally? Have you timber? Have you a railroad? Have you a market near at hand, and what is the freight rate per ton on ore to the smelter, or the wagon haul to the mill, if one is owned, or to the custom works? And after meeting all fixed charges, will the ore leave a sound net profit? Commercial miners ask these questions; the holder of even ten shares should ask them. Lack of local conditions often make failures of mines that years afterwards prove bonanzas, but the facts of conditions should be known, that the buyer may figure upon the time when he is to expect returns. There is no reason why mining should not be carried on in sections where conditions are not perfect, for by taking the venture the purchase price should be small, and gradually the values increase with the improving of conditions. Some of the largest mining profits are reaped by buying and waiting, but they were positive of the grade and extent of ore bodies.

CHAPTER V.

THE PROSPECT, THE PROSPECTOR—HIS INFLUENCE ON WESTERN PROGRESS.

The prospector is the pioneer of mining. To him is due the credit of the magnificent results that follow the commercial extraction of ores and metals, amounting, in the gross, from precious and base product to over four hundred millions of dollars per annum; without the prospect there would be no commercial mines; every large producer that is to-day adding its quota to the world's needed supply of metals was at one time a valueless seam in the earth, its metallic contents made commercial by the energies and capital of those who develop the prospector's discoveries.

The West was first populated with the adventurous spirits, who followed the trapper and came from "no man knows where." Their antecedents were not questioned; in many cases they were known simply by some cognomen. They became a part of the country and were a step in its advancement. Writers have commented upon the character of the roving spirits that blazed the trail for the army of progress that followed with their civilizing influences; it has been claimed that many were so-cial outcasts. Be this as it may, I cannot see how the personal character of the early prospector can take from him his right to be honored for the part he afterwards played in the upbuilding of the Golden Empire West of the Mississippi River. Men make mistakes; perhaps the early prospector made his, but they became the pioneers and did their part towards laying the foundation of the precious mineral industry of the United States.

During the frontier days there were, no doubt, many persons who went West "Scarlet." Some of them may have been justly or unjustly accused; for if the pioneer codes of 1849 were anything like the blue laws of to-day, still upon the statute books of several states, it must have been a rare intelligence, indeed, that kept one from violating some section, punishable by imprisonment.

The wealth of the West owes its being to the fact that in the days of early gold and silver mining there were men standing upon man's own merit. Side by side with unfortunate judges, dissipated lawyers, thieves (if I may use a harsh noun) and all forms of gamblers, but they did there a man's work; and the world to-day enjoys the fruits of that labor. Those men—the early prospectors—braved the hardships of the severe winters, often suffering from lack of food, searching for the metal-bearing veins with rifle in one hand and pick in the other. District after district was opened by these roving spirits, who may or may not have been a credit to modern society, but they, and those associated with them in the upbuilding of the territories west of the Rocky Mountains, were engaged in laying the foundation for the civilization that followed and, as far as the winning of the golden fields is concerned, their past is a forgotten dream—the unsubstantial fabric of a vision. While by the laws of nature or fate there may have been evil spirits among the good, the same may be said to-day of more advanced circles.

For two years I was thrown in close companionship with an element in Tombstone, Arizona, and northern Mexico, before the Southern Pacific Railroad had reached the coast, who have become famed in history as desperadoes. A splendid opportunity of studying the character of these men was presented. They were, no doubt, what to-day would be termed "undesirable citizens" among the heterogeneous inhabitants, but as men I found nearly every one generous, self-reliant, courageous, purposeful, charitable. They searched those wild mountains, made discoveries, obtained small sums of money, came into Tombstone, and there laid the foundation for the reputation that followed them, even after their death. It was the results of street brawls, gun fighting and, in rare cases, of robbery and murder; but where murder was committed there was generally some reason. Perhaps the man who was killed would have killed the other, and, if an analysis of the causes that made these men notorious as evildoers were made, it would be found that the cause lay in the one word, "whiskey."

From 1875 until 1884 the writer met many of this class, who were prospectors for three months and desperadoes for one week, when upon a drunken orgie in some country town. The memory of these men will command respect as the ones that blazed the trail; their weaknesses we desire to forget. Their discoveries were purchased by men with means and the title was generally good; when a bonanza is discovered the District Recorder does not delve into the antecedents of the finder, nor does the world, that profits by the find, look upon its fortunes as tainted, because someone bearing an assumed name found it.

The laws of the United States governing the discovery of mineral lands has not changed materially since 1872, but in each district there are local laws relative to area and working conditions, which, however, do not conflict materially with the United States laws. The prospector enters an unexplored region and he searches for evidence of veins or deposits. Some of these men have marked intelligence; some are, and were illiterate; but the mental capacity of the prospector did not always weigh the heaviest in the scales of success. In prospecting, intelligence does not obstruct the inevitable stroke of the hand of fate, which often stays the worthy and gives fortune to the undeserving. For this reason it has often been claimed that, as far as prospecting is concerned, all men stand upon an equality in a new district; that is, those who prospected twenty years ago were in this category, for the science of mine search was then in its infancy, and it was generally a question of "blind luck." Fugitives from justice wandering in the Death Canyon, seeking only a hiding place from their nemesis, have fallen as if shot upon bonanzas; ignorant drunkards have been known to find rich property in mining trails, worn smooth by the feet of cultivated prospectors. The largest gold nugget that was ever found in the Big Bug District of Arizona, where the writer was at one time employed, was the prize of a no-account Mexican, who, when he awakened from his drunken slumber, felt his hand clutching the prize. Jean Valjean, first a criminal, then a hero in Hugo's immortal story, "Les Miserables," discovered a jet composition which made a poverty-stricken region commercially rich.

While the element of luck followed the prospector in the early days, it does not bear the same relation to success in this, the twentieth century. In the last twenty-five years the prospector has become the student of experience. He profits by the failures of the past. He is able to make deductions and to weed out the unsubstantial in favor of that which gives greater possibilities of success. In the old days a hundred prospects might be worked before the mother lode or the bonanza vein or deposit of the district was encountered. To-day, by using the experience of the past, the prospector is able to form conclusions from what he has seen in other cases, and he has reduced his risk down to possibly twenty-five per cent. Thus we find men of experience passing over slivers, crevices, ledges, dykes, etc., that were eagerly located and worked as late as fifteen years ago.

While the prospect is the indication of the mine, and is the starting point for the development of the same, it is but the first step in the industry, and in the prospect is found the "Saragossa Sea of derelicts mining ventures." Fully thirty-five per cent. of all the loss attributed to gold, silver, lead and copper extraction can be laid to the mistake of believing a prospect was a mine. If the exact position of the prospect, in the various branches that combine to make mining commercial could be understood by those residing far from the mines, and who are called upon to invest in the development of the same, a vast majority of the disappointments that follow Eastern effort to reap the natural wealth would be eliminated.

On the question of the prospects we ask extended indulgence; it is the germ that is responsible for the disease we hope to cure; that is, the elimination of the corporation, with its widely sold shares, upon the assumption that a prospect is a mine and the unsubstantial estimates made upon the earning power of the same. As this is written we fancy we hear those of a scientific turn of mind—students of nature, engineers and the well-read investor—saying, "How simple—a mere kindergarten." This work is not intended for those that know the truth and are as well able to draw the distinctive line as the most experienced miner. They are not often the victims of misplaced confidence. The writer intends this to be the plainest primer that it is possible for him to write; to tell the facts in homely language, so that even the slightly schooled may understand. Those who know do not require to be told. The writer hopes that it will benefit those that do not understand the distinction between the beginning and the end of mining ventures—the prospect and the dividend-paying mine.

It is not proposed to enter into a lengthy description of why veins contain minerals or why certain rocks lay flat and others tilted on end. The reader in search of that class of information will find it ably presented in many worthy scientific publications, such, for instance, as the "Mining and Engineering Journal," "Mining and Scientific Press," "Ores and Metals" and the works of Kemp, Richards, Beck, Rickard, Peters and Weed, or the comparatively more ancient works of Baron Von Humboldt; all up-to-date commercial miners read these works and know, but the layman does not read them. I want the man at the plough, the tradesman, the mechanic, the artist, the saleswoman and the clerk to understand in the plainest language that there is a distinct difference between a prospect and a mine. That they may understand that certain things exist; a description of why they exist is not to be attempted. The casual investor in a mining proposition has not the time to study the scientific beliefs of why the mine was formed. What he wants to know is that the mine exists, and that which he desires, profitable ore, is in the veins or deposit.

Many millions of years ago, when the world was supposed to be undergoing upheavals, contractions, and the surface opened by the cooling processes, which in certain parts of the globe were more pronounced than in others, especially where the upheavals of mountainous regions were the heaviest, as the molten mass thrown up from the bowels of the earth settled and the earth cooled, there were opened cracks and fissures, just as you see cracks and fissures open in a muddy bed after the waters have receded and the sun has dried the surface. Some cracks and fissures extended thousands of feet deep; others only to a few hundred feet, while some were less than one hundred feet in depth. Some pitched one way, some another, but generally the great cracks in the earth's crust had a tendency to strike north and south, though often large crevices struck east and west, cutting through other crevices that had a northern strike. On the question of exactly how these cracks were made scientists differ, but that is not a part of this work. These cracks, crevices and slivers exist, and they are filled with mineral contents. Some of them are very large and have a direct straight strike, with their feeders extending out on each side, just as though a pane of glass was dropped on the floor, where one great crack will be extended the full length of the pane, and from it will radiate hundreds of smaller cracks. Thus the great mother veins of the districts were formed; thus the worthless prospects found their origin.

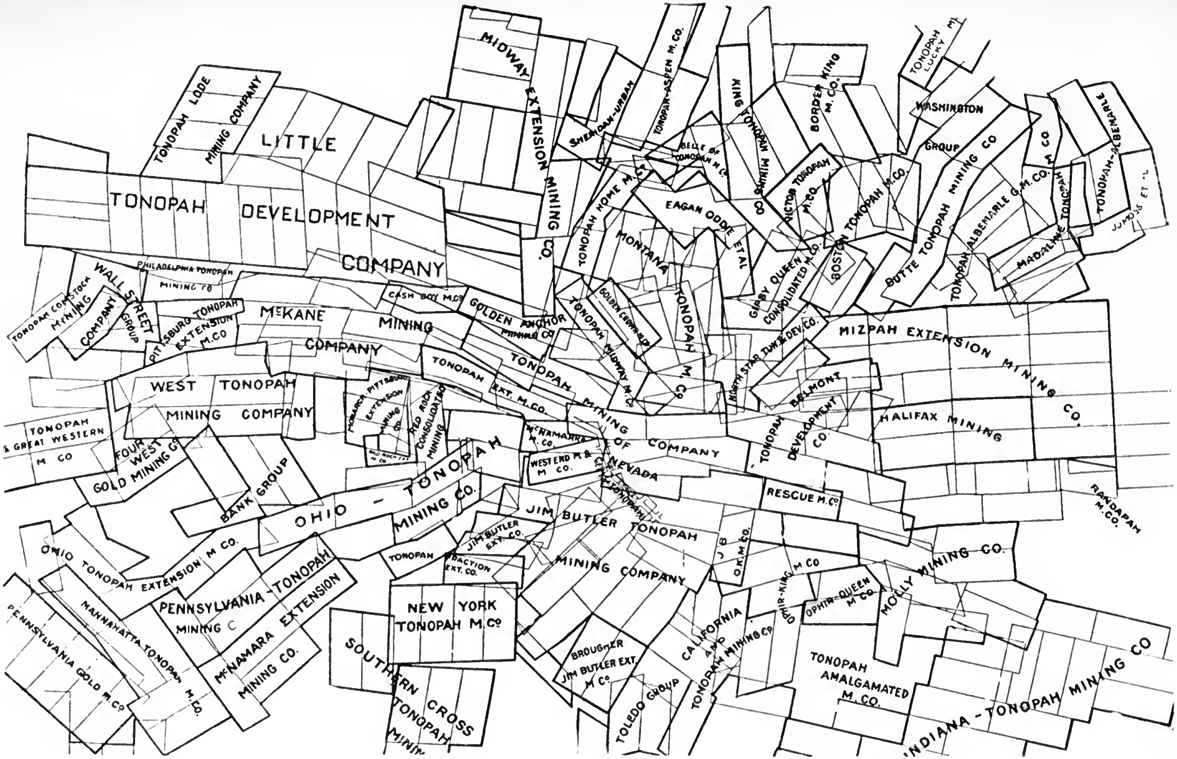
Later on it is claimed that hot waters, charged with mineral solutions and salts, flowed back and forth over the surface of the earth, and through these open fissures, until the precious metals were placed in the so-called treasury vaults, commonly called mines. Others claim that the metal was forced up from the molten mass in the centre of the earth; the layman has not the time to consider or to draw the distinction between which theory is right and which is wrong. That which interests him is the fact that the precious metal exists; he wants to understand that in the forming of the metalliferous veins that nature placed larger bodies of rich ore in some fissures than she did in others—some medium in value, others absolutely barren, yet all filled with silica or some evidence of metal value, and that he has the opportunity of owning all or a part of the riches.

As these conditions changed and the earth cooled and the hot water stopped surging through the veins, the crust formed on some of these cracks and they stand above the earth like a guide post, plainly visible to the eye—the beckoning finger of nature to the prospector. These are called croppings, and where they exist the labor of the prospector is comparatively easy, for blind ledges and deposits have no croppings, the abrasion of time having worn these finger-marks of nature away, and the veins are often covered with slide and dirt, sometimes to

Possible appearance of the surface of a mining camp, with the Lodes Slivers, aud Spurs.
The possible Commercial Mines represented by the darker lines.
The intersection points are often the richest.

the depth of a hundred feet. Here the prospector encounters his difficulty. He is obliged to find the vein by a study of the surface conditions, float rock, etc.; after he is convinced that a vein exists somewhere in the immediate vicinity, he starts deep trenches to what is known as bed rock and enters upon a search for the lode, which, when encountered, he is able to discern by its peculiar character. In every mining district there is hundreds of these results of upheavals, but in all districts there is few great commercial mines. Yet nearly all these mineral indications show a little evidence of value, sufficient to encourage the prospector, but the experienced pass over that, which, those not well versed, eagerly pounce upon and hold for years. The map facing will give an idea of the number and form of fissures, dykes, deposits and slivers as they exist, in nearly all districts. By the order of things it cannot be expected that all of them will prove of value. Only by the opening of the ground can the value be actually proven, thus the prospect stage, while the first step, is naturally most risky of all. Yet the great mines were the result of opening prospects, the value of the mine increasing with its showing of ore.

The reader may consider that the sketch of the lodes, slivers, and spurs is a little exaggerated, but it is not; a glance at the location map of any camp will convince. Following is a map of the noted Tonopah district of Nevada, reproduced, not as a reflection, for that camp is entitled to proper dignity, won by an honest production of metals from its central zone. The author's intention is to prove that, from the locations made by miners in any camp, where even one rich ore shoot has been opened, the crossing, overlapping system shows conclusively the intricate vein or sliver system. In other camps the surface maps show even more locations, thus it is plain that the experience of years in many camps, is necessary, for the prospector to reduce his risk, by locating that, which gives the least possibility of being barren.



Location map of Tonapah, Nevada. Reproduced only to accompany the author's sketch of the possible appearance of a Camp. All of the little squares are mining locations, and all carry hopes to their owners.

CHAPTER VI.

THE DEVELOPMENT AND VALUE OF A PROSPECT.

In depositing the gold, silver, copper, and lead in these fissures or slivers, nature has followed her own ideas and, notwithstanding that we have made great advances in the study of geology and metallurgy, we have never yet been able to fathom the secrets of nature by merely looking at a mine, even though it may be well opened. We, of course, know more to-day than we did twenty years ago, but we are still sadly lacking in perfect knowledge. It is by experience that we profit, by drawing deductions from what we have seen in other mines. We thus pass opinion upon what we see in new ones, and weigh the possibilities of success, through comparing what we know existed in the successful mines, and applying the experience to that, which we hope will be a mine. The reader can understand that a study of many districts is necessary to make the miner fairly capable of passing sound opinion. It took years to advance thus far, and the advancement was only made possible by development. One district has its characteristics and in the adjoining district there will be different ones, so that the advanced prospector is the one who searches for lodes, fissures and crevices, equipped with a knowledge of what existed in other sections.

The inexperienced have an opinion that all mines are good, if they show any surface value, and that it is only a question of deep development to increase the supply of ore and its value; but nature has always followed her own plans. In some of these veins, commonly called the mother veins, she has placed great wealth, the ore bodies often extending from the surface unbroken to a great depth and for a long length along the vein; but while one claim of 1,500 feet in length will be rich, the adjoining property on the same vein will be treated niggardly in nature's gifts. In some veins the ore is placed in small but frequent bodies; in others, she places one body, and never are there others found. In nearby veins there will be many continuations of ore bodies of a commercial character; in others, large bodies of ore that are commercially worthless. Some veins will carry nothing but gold; some nothing but silver. Then, there will be a compounding of gold, silver, copper, lead, arsenic and bismuth; in some, more gold is placed than silver, then the system is reversed. In some veins or deposits she scatters the metal so widely that, although it is there, and good assays can be obtained, it is an impossible task to gather it into profitable form by modern science. Consequently, the prospector, even after he finds a crevice, is a subject of nature's whims. Some people call it "blind luck," because no man can tell positively from the surface indications of a prospect what it is going to develop into.

A great many prospects have rich ore at the surface, and it continues down in commercial form to a depth of 300 to 400 feet, and then the body gives out and the mine becomes non-commercial. In Clear Creek, Colo., the silver mines around Georgetown and Silver Plume showed rich ore at the surface but, as greater depth was gained—while many of the the mines are still commercial—the bonanza ores were displaced by lower grades containing zinc and lead, though still made commercial by the lowering of smelting charges and the improvement in labor saving devices. The writer is to-day treating custom ore from Georgetown in his mills at Idaho Springs, that ten years ago was thrown over the dumps as worthless, the system of concentration not having been then, as perfect as it is to-day; yet from even the old dumps men are now making profit.

After a prospector settles upon a discovery as worthy of his efforts, he proceeds to comply with the law of the United States, which calls for the discovery notice. In this the prospector lays claim to 1,500 feet along the vein and from 75 to 150 feet on each side of the crevice. Within sixty days after the location, he is obliged to sink a 10 foot hole, either by shaft or open cut; he is then called on to make record of the location in the County Recorder's office, and this gives him possession of the property, but each year until the property is patented by the

United States Government, the miner is called on to do what is called "Assessment work," which is the expenditure of $100 per annum upon each property. The experienced prospector, if there is pay ore shown, proceeds to take it out. He erects his windlass, which is sufficient for the first 50 feet of depth; then he makes cuts along the vein and extracts the ore to the best of his ability. This he sends to the smelter, which pays him a fixed sum, after deducting smelting charges. If the ore is of low grade, he develops in the hope of striking high grade ore, or by opening sufficient of the ground to justify the erection of a mill to treat his product.

In all districts, there are hundreds of these prospects, and until they are explored no man living can positively tell which of the group will be the bonanza; unless rich ore in commercial bodies is shown at grass roots; consequently, until the human race starts its battle to win the wealth from nature, all of these veins, slivers or deposits, are equally worthless. As each discovery is tested, the value of the prospect increases in accordance with the increase of the ore showing and, perhaps, out of 500 locations —all of them metal stained and with metal contents visible—there will be won four or five great commercial mines that contain the prizes nature has placed deep in their hearts to reward man's energy.

Yet all of these fissures and slivers have their champions. Some of the crevices may be but a few inches wide; some measure a hundred feet; yet from the day of the surface discovery, the ownership of each inspires hope, and men of vivid imagination extol the worth of these undeveloped slivers in the earth, as of enormous value, until it is aptly said that "A prospect is a hole in the ground, owned by a liar."

It is a remarkable thing that the owner of a mineral discovery cannot often accurately describe it. If the vein is four feet in width, it is often called four and a half feet; if there is five inches of fifty-ounce ore exposed, when the description is made in some little mining town, it is called nine inches of seventy-ounce ore; and so it runs. The very best of the mining population are giving to exaggeration. It is not meant as misrepresentation, but there is something about the mining industry that leads to exaggeration, except by those who, long experienced and through many disappointments, cause them to hold ideas reverse to the bubbling expectations of those endowed with a vivid imagination.

In all districts, especially at high levels, the veins at the surface are often rich, and rare specimens can be obtained from prospects that have not, and never will have, commercial value; yet these specimens are taken from the work and is evidence to support the claim that the hole shows several feet of fine shipping ore. The inexperienced investor, who comes into mining camps with a desire to buy property, not being educated in nature's ways, cannot tell the difference between ore and gangue matter. He is shown a crevice, containing four feet of non-commercial ore, yet from various parts of it he can obtain assays that will run from $50 to $100 a ton. These are picked out, and he passes his opinion or estimate of possible tonnage upon these small specimens. And here lies the germ of the mistakes, for until that prospect is developed, and its ore contents proven, it is not a mine, and has no value, beyond whatever speculative value the owner may place upon it. A prospect may be valuable from the surface and pay its way, but more often it is worthless until well developed.

Nature, in her wise way, seems to have regulated the supply of gold and silver in her treasury vaults, yet from the prospects spring the great mines; the labor is to win the producer from the non-producer. It is the science of mining that enables the experienced man to pass over the sliver, the spur and the small, insignificant crevices, and to reduce his risk by locating the larger fissure that gives evidence of containing ore, which are more liable to be the mother vein and, subsequently, the bonanza.

As we gain experience, we learn to eliminate risks. We compare a small fissure with something seen in another district. We remember how it turned out. We pass it over, and, finally, perhaps, settle upon one or two great veins, but we are yet sadly ignorant of all the combinations that hold nature's secrets. As we learn, we apply the conditions to other districts and, generally, with good results. We have practically mastered metallurgy, but not geology.

The practical miner of experience draws deductions as he prospects. He knows that only one prospect out of a hundred may prove commercial. He knows that the great majority of the rich dividend paying mines of the world exposed pay ore from the surface; he seeks the vein showing rich ore. He is not a believer in the theory that if you sink upon any prospect that you will find rich ore at depth. There must be some indication, otherwise he will not devote his energies to the development. He realizes that, while ore exists at the surface, it may not continue with depth. He understands that you cannot put four feet of pay ore in a six-inch crevice; so he naturally searches for what is termed the mother vein, which may be from twenty-five to fifty feet in width. He has always before him the knowledge that, while a vein may not show any mineral at the surface, there have been cases where depth has proven it to contain rich bodies. Thus the development of the Consolidated Virginia Mines in Nevada was of material benefit to the prospector, for at the depth of 1,400 feet the great bonanza that gave the world $114,000,000 was uncovered.

The desire to find a large generous crevice prevails in all experienced prospectors. The author prospected the San Juan country with an old miner, who day after day passed over rich ore that appeared in small lenses in little cracks and crevices, which other men of less experience would gladly have taken up in the honest belief that it was a rich mine. Finally we stumbled on a great big dyke, with a small streak of mineral along the hanging wall. The old fellow went almost wild with joy, and he made his location there, after results proved his judgment to be correct, for it was the bonanza mine of Rico where the writer constructed a small adobe smelter. He had found a vein that was large enough to contain commercial bodies and the surface assays were satisfactory.

After the mineral indication is found, the first step is to locate and open the vein.

The prospector proceeds with pick, shovel and hand drills. Thus he sinks to a point where he can no longer throw the rock out with his shovel. Up to a depth of twenty feet, by benching, he is able to do this work alone. Then comes the windlass period. Admitting the prospect has increased in value and he is justified in either hiring a man to help, or to give an interest in the property in lieu of wages, the windlass is constructed and they work together. When drilling both men are in the shaft or tunnel.

When the shots have been fired, and the ground broken, one remains below and fills the bucket and the other hoists it to the surface. If there is any ore of a commercial grade, it is sacked and when a ton is obtained, if it is rich enough, it is shipped to a smelter, with the results, general supplies are bought. In this manner the prospect may be developed to fifty feet—often 100 feet. If the ore still continues and the prospect is still promising, the third step is taken. That is, the windlass is discarded and a tripod and horse-whim is erected. This is a little drum affair, worked by a lever, that gener-

The third stage of prospecting. The steam or electrically driven hoist. It will be noticed that there is no expensive building.

ally costs $125.00. The horse is used to draw the loads to the surface. The lever permits the bucket to go down while the horse is standing. Many thousands of dollars have been taken from mines by a horse whim, and if water does not trouble the miner, and ore exists an expensive hoist is not even thought of. In fact, one of the best mines in McCabe, Arizona, which paid from grass roots and is now one of the big producers of the country, was worked with a horse-whim to a depth of 250 feet, and the writer used a horse-whim upon a mine in Yavapai County, that territory, to a depth of 300 feet.

As the work progresses, levels are run to test the size of the ore body in length. These levels are generally run every 100 feet, though some prospectors, where the ore is commercial, run 50 foot levels, that they may stope ore.

As the ore showing justifies, additional men are put to work. If the ore shoot is shallow, and discontinues at the depth of two or three hundred feet the prospector determines whether the showing justifies the risk of sinking in barren ground. Often this is done and new ore bodies are opened, but if the ore shoot is continuous at the depth of 300 feet and the product of the prospect has assisted in the payment of the development, or the ore has been left standing and justifies the expenditure, a steam hoist is put upon the property. This generally costs, including the boiler, not to exceed $1,500. With a steam hoist of this value, the prospect can be sunk to the

500 foot level and considerable ore extracted, provided the ore is there to extract.

Further levels are run and if the showing is sufficient and the body is not a small lense, they determine upon the advisability of the construction of a mill, but the commercial prospector never considers the mill until he is positive that he has ore enough to run it. He would prefer to pay the local mill man his charges, for then if his ore shoot should disappear, he is not burdened with the heavy investment that follows the construction of a mill, which is useless unless there is ore for treatment. If the prospect at this depth has justified the labor and there is ample ore in sight, well opened and of a grade and character known to the owners, the erection of a mill is a natural sequence, but if it is a smelting product the experienced miner ships. He knows the folly of local smelter construction.

The prospect is now entering the threshold of a mine. It has an intrinsic value. It has ore exposed that justifies the owner in saying it is a mine. Now comes the value of the prospect.

If it is self-sustaining it does not require any capital, and it is not a mine until it is self-sustaining, but even though it be a mine in the full-accepted term, it may be that it is necessary to obtain a reasonable sum of money to quickly construct machinery, mills, etc., that the reaping of large profits may be accelerated, rather than wait for the profits of the mine to give them the needed money. Then follows incorporation.

The unsound miner will start in by placing a ficticious value on the prospect, or will say that it is worth millions of dollars, simply because it has shipped some ore. If the prospect, reaching this development, has made a product of $500,000, large headlines speak of the fact in sensational advertising. The fact that of this $500,000, there may have been only $150,000 net profit, is not touched upon. The commercial miner, when called on to invest in such a proposition, enters the mine and measures up the ore and deducts one half of it for operative expenses. If the net showing from these measurements and assays equals $200,000, they add one-third of that amount as its propective value, this being accepted as the prospects right. In other words, a mine with $200,000 net ore in sight can reasonably be classed as worth $300,000. They invest in the mine upon this basis of figuring. With the money obtained they proceed to equip the mine in first class manner.

Until a prospect has been developed as here stated, its ore bodies proven, it has no commercial value. It is a prospect, having of course, all the possibilities of value through eventually proving to be a commercial mine. Men may hold prospects at certain values and the figures may be within reason, but it makes no difference whether the mine has been developed by 5,000 feet of work, or 10,000 feet of work, until it is upon a dividend-paying basis. It is a prospect, and only worth, intrinsically, the value of the ore exposed, not the gross amount of the ore exposed, but only the net value after being marketed with the third added.

In the estimating of the value of prospects, the same leeway is accorded as is accepted system of the measuring of the ore in sight. That is to say, engineers are justified in assuming that the ore exposed will continue for one hundred feet lower than the exposed part, but be it prospect, invention, a new railroad or any line of industry, there is positively no material value to anything until it proves its ability to earn, excepting, of course, salvage.

As a prospect is developed, its speculative value increases or decreases, and where men buy prospects, paying from three to five hundred thousand dollars for them, it is because they believe that it is worth that figure from a speculative standpoint and it will always remain a speculation, until by the actual product of the ore shipped, it proves its right to the dignity of a mine.

Men point to expensive development and heavy mechanical expenditures as the reasons for placing an excessive valuation on a prospect. The commercial miner knows full well that 50,000 feet of development upon a non-productive mine is not worth as much as a 50 foot water-bearing well on a farm, for where a mine is open and shows no commercial ore, it is among the most worthless assets that any man could be possessed of. It is simply a hole in the ground. The expensive mechanical equipment that is placed on it, is valuable if it can be used in the commercial extraction of ore, but if there is no ore to extract commercially, the only value attached to the machinery is the possible opportunity of selling it to some other mine that is in the process of development or has ore.

In writing this article on the prospect, the author appreciates that it is not a literary gem. There is too much repetition relative to the value of a prospect, but that is the intention. To in every conceivable manner, impress upon the layman that a prospect is not a mine, that it is a question whether it ever will be a mine, and if it were the rule for the writer to place on every page of this book a few lines of reading matter, they would be:

"A prospect is materially valueless, until it becomes a commercial mine."

"Sensational promises by inexperienced men are the forerunners of disaster."

"Never build a mill until you have sufficient ore to run it for four years."

"Don't rely upon an assay, don't buy mining stocks from brokers, who are not capable, by experience, to draw valuable deductions from the evidence presented to them, and upon which they ask you to invest. A man may be a splendid judge of railroad values, yet a farce when valuing a mining stock."

CHAPTER VII.

PRESENTING THE PROSPECT TO THE INVESTOR.

A prospect when offered for development should carry a plain statement of facts, the ore showing, its value, market conditions, and, upon what, the owner bases his expectations of increased values. It is believed that the promoter or miner should frankly say:

"This prospect has no commercial value to-day, but by development, we believe it will prove profitable, having no value other than that of a speculative nature, I cannot promise an absolute return, but I do promise, that if a few thousand dollars is entrusted to us, the money will be expended in underground work, in an effort to determine its value. I think the showing, as it stands to-day, is worthy of the expenditure of $25,000; after which we can determine as to further work."

This is the commercial way, but the writer regrets that it is not the non-commercial way. I know to-day of prospects that are being heavily advertised, in the literature of which, there is no intimation as to the exact character or size of the ore bodies, and nothing in the advertisements but glittering generalities, skillfully put together, for the purpose of attracting the small investments of those, who, from my experience in meeting them, are not able to sustain a loss, and are not by experience in the world's affairs, capable of forming a businesslike opinion upon the merits of the prospect presented to them in such glowing form.

Men directly, or in some manner, indirectly, interested in the success of those who promote these prospects, defend the system by saying that "The loss made in the purchase of penny stocks is small and work limited hardships," but why would there be any more loss than is probable even when the prospect is opened upon commercial lines of development? Why should not every appeal to capital be accompanied by the plain statement of facts—there is no discredit in asking investors to aid in the opening of a prospect. A commercial miner with fair intent, frequently asks help to develop, and his letter generally reads:

"I have a claim that gives evidence of being of ample value to justify the further venture of $5,000, the sum needed to continue the work to the further depth of 100 feet and open two new drifts, by which time we can determine if this property justifies further development or mechanical equipment, we have a fair showing of ore that runs upon a smelter test of ten tons, $25 per ton, which, under present conditions, can be made to pay a little profit, but not enough to warrant mill construction until the extent of the ore is more defined. It is in a good district. There are three commercial mines here, and local conditions are favorable. I have spent in time and money upon this prospect about $5,000. I will give a one-fourth interest in the property for $5,000, and the entire amount to be expended in actual work. If more money should be needed I will sell another quarter to obtain the same."

This man is justified in placing this value upon the mine, it is not men like this that add distrust to the industry. Here we find a mine maker. He needs assistance and presents his case on a square presentation of facts, he is not to be classed with the man who asks $500,000 for a hole in the ground, which he claims is worth millions, with no more evidence of commercial value than the man who asks for $5,000. The commercial miner may not succeed, but the men who venture with him are pleased to consider other propositions. When they meet there is no ill feeling, a laugh, a friendly hand shake, a remark, "Well, old fellow, we lost." When men know what they face, and meet an honest loss, they never complain. It is the loss, brought about by misrepresentation that hurts.

Frequently we find men advertising that they have shipped ore, and that it runs so much a ton, and that they are paying dividends. This conveys the impression to the inexperienced that the prospect stage is passed, when in truth, generally in these instances, the prospect stage is simply well in advance of its infancy period, they do not state the amount of dividends they have paid, they do

Screening ore at a commercial prospect, meaning th t, while partially opened, yet paying. Much of the worl production comes from this stage.

not state plainly the actual net profit from ore shipments over and above capital expenditure in its extraction, for there is no profit except the net.

Of late we find men advertising prospects at ten cents a share, without stating the amount of the capitalization. This has been explained to me by men who consider themselves more intelligent than the masses, that the public does not reason on the total capitalization, that they want the shares cheap, and lots of them, and that if they published the fact that they had five million shares they would lose many subscribers that they succeed in interesting by non-publication of the total amount of shares.

This evasion of facts is common. Any man has a right to an exalted opinion of himself or his property, and there is no law that can take from him this right, provided his opinions are not expressed in a manner to lead someone to believe them, and in believing them, part with their money. Thus we find inexperienced prospectors who claim the right to assert that their prospects are worth millions of dollars, upon the theory that no man can tell what a prospect is worth until it is developed, and as evidence of the soundness of their reasoning, they point to the great dividend paying mines as having, at one time in their career, been prospects.

But how far can a promoter extend his belief for the purpose of inducing an investor to buy the shares that brings the promoter his commission, or some other form of personal profit before the soundness of his belief is verified? The fact that man has not yet mastered the science of second-sight, or the ability to know that a prospect will or will not develop into a commercial mine, before work is done, have enabled those of an equivocal turn to defend their acts, by the time honored, much abused excuse that "they honestly believed all they said about the mine or prospect, and that the loss resulted from poor judgment rather than dishonest intent; that they believed the ore was continuous to great depth, and that the values would increase largely with depth; that the mill they advised to be constructed would save 99 per cent. of the values."

A belief is allowed by law; in general affidavits, the information is cited upon belief, but the law with its basis of equity, expects the belief to be well founded, and honest belief, not a mercenary one; there must be some semblance of fact, some sound reason by precedent closely associated with the point in question. We take the ground that belief is not a defense, to fraud, that while a man reasonably believes that ore known to exist in commercial bodies at the surface, would extend 500 feet deep, but where a promoter is interested, more in the gathering of commissions or the sale of his personal shares, this right to express an unfounded belief to induce others to part with their money, is gravely questioned. Has he the right to claim that a body of ore will continue for thousands of feet and that its values will increase, when, in circulating this belief he personally gains and others lose? Is that not stretching the right of belief near the line of false pretense? This "belief" defense, has I hope, about run its course, the law has become broader and demands evidence.

In a recent law case, which resulted in the imprisonment of nearly everybody connected with the mine promotion, these theories were advanced, and the prosecuting attorney brought up the question as to the limit of a man's belief as to the depth of ore, and in this he was sustained by the Judge, who said that in all mining communities it is recognized that no one can tell how deep an ore body will go, but it was not logical to fix a greater depth than 500 feet in precious metal mines, even under the most favorable conditions and appearance of ore strength. This deduction was proper, because from an experience of thousands of ore shoots we find that the surface ore bodies only, in rare cases, exceed that depth; then it becomes necessary to find another ore body, which is speculation, especially if the territory is not well known.

If a promoter guardedly words his literature so that he evades responsibility, the investor should hesitate. If a miner believes that his ore will increase in depth, both as to size and value, and there are other mines in the district that have proven the fact by actual depth, then the belief is in a measure admissable; but if there is no local evidence to sustain the claim, the right is questionable. It is the same with the mill which the promoter or miner asks funds to construct, upon the claim that it will save 99 per cent. of the ore contents. The belief should be backed at least by some fact, some mill, that has actually accomplished it, on a like grade of ore. The foundation must exist for the belief. A mere wild guess or unfounded theory is not enough.

Following a belief that is based upon information given by a knave or a fool, is the right of any man if he desires to risk his own money, and has no regard for his family, but where a man extends the result of that belief into the homes of his friends, or those whom he influences by the expressions of fact, when it is only belief, and others are led to make unsound investments in so-called mines, then the belief is not deserving of the term "honest," it becomes dangerous, for the gaining of confidence that results in loss to those whose confidence is obtained through unsound argument, not based upon facts, is in a measure a crime, and the law handles the case upon a basis of fact, not belief.

The reader must understand that unless he insists upon a plain statement of facts governing such points as the author has endeavored to outline in this book, he may not be able to form a healthy conclusion as to what he is really investing in. If it is a prospect, a study of the various chapters on prospects will aid him materially in asking the questions, he should demand an autographic reply, and not an oral one, for the promoter is criminally liable for misrepresentation, if, what he asserts over his signature is, in the end, found to be untrue.

The advice of the author to the small investor is to buy into good ore proven prospects, but to ascertain the cash valuation placed upon the same by the figures advertised. If a prospect without ore in sight is selling its stock upon a valuation of over $100,000, it is safe to leave it alone. You may lose once in a hundred times, but the chances are, you will win ninety-five times out of a hundred by not being a party to the loss, through wild prospect investments.

The inexperienced man claims that his past development work, on a prospect should be considered as an asset. The author agrees with this, provided that at the time the estimate of past work is made, that there is ore in the propect of commercial value; but sweeping as the assertion may be, the author claims that a prospect is not, intrinsically, worth a dollar, aside from mechanical salvage, even though it has 10,000 feet of work upon it, unless it shows ore in commercial bodies, eliminating, however, the speculative value that the owner may himself place upon it. We speak from the intrinsic point of values—the estimating of what a man can make by the extraction, shipment or treatment of the ore. This is directly pointed to the promoter, who has simply, for effect, shipped a few tons of ore, without figuring the actual cost, and advertises, "This is a mine and not a prospect."

CHAPTER VIII

THE FOLLY OF RELYING UPON AN ASSAY.

The assay, and the importance to be placed upon the same, is worthy of a volume. With the exception of the "opinion" and "belief" evil, there is none greater than the assay folly. With the exception of its uses—to determine the value of a smelter or mill shipment, or to give the prospector a line upon the character of his discovery, the increase or decrease of the ore values as development in a mine or prospect progresses—the assay from the investor's standpoint is commercially worthless.

If there is one thing that causes the commercial operator to fight shy of a promoter, it is his display advertisements claiming a mine or prospect to be of great value simply because an assay shows ore running from $100 to $10,000 per ton. I have seen promoters asking capital to invest in prospects, which they class as mines, without giving any evidence that they have ever shipped a car of ore to smelter or mill, basing their rights to sell stock at an enormous valuation placed on a hole in the ground simply on an assay of some small piece of rock.

Among those who mine ore for profit the appearance of an assay of high grade is received only as the result of a "rare specimen," and the discovery is not treated seriously. Only in remote cases has high-grade ore been found to be commercial.

The writer owns a mining prospect near McCabe, Arizona, from which ore worth $30,000 a ton, assay value, has been obtained. The quartz was literally held together by strings of gold; but its discovery, while beautiful, meant nothing commercial. A few pounds extracted, then the same low-grade mineral followed. Those rich, localized specimens, sometimes amounting to a few sacks, are the delusive evidence of wealth that the inexperienced use in both deceiving themselves and the buyer not versed in the known ways of nature. In deposits where there is no positively defined fissure these rich bodies are sometimes extensive, but they are local and always give way to lower grades.

One of the greatest commercial miners of America will refuse an interview to a man seeking to interest him in a prospect, through the display of a specimen of rare beauty, yet will devote hours to the proposition represented by a mill or smelter statement of ore running less than $15 a ton. There is a chance that the latter may be commercial. There have been only seven mines of the picture ore character that have ever sustained records as producers. The risk of average is too great for the commercial miner to take.

An assay is made for two purposes; first, to determine if there is any actual value in a small piece of rock which may have been found by some prospector. If the piece shows value, he prospects further. If the assay is from a vein that shows ore in commercial bodies, and the value proves that it contains ample metal to make it pay, then the prospector can, if conditions are perfect, commence to ship. He does not require money beyond his outfit, for from the profits of his first 100 tons he improves his mine equipment, and ultimately his property becomes a dividend payer; but there have been less than 300 quartz mines that have paid their own way from the day of their discovery.

Recently the writer was told by a promoting miner, engaged in the search for capital to open a certain prospect, with no positive commercial record to recommend it, nothing but local report and old workings and some shipments many years ago, and no evidence that it ever paid a dollar, that he had eight inches of thousand-ounce ore already opened for a length of twenty-five feet. I put the query to him: Why he did not ship at least one ton of the ore and prove it; that it would make his efforts easier and benefit the camp. Then his search for capital would be ended. The answer was that I was a "pessimist!"—not to enumerate several other unpleasant characters. The writer did not doubt that a small piece of rock taken from the vein in question would assay one thousand ounces of silver to the ton, or about $600 value, for I had mined extensively in the same mountains, but our shipments from seven hundred tons upon commercial test resulted in less than $40 a ton, though we frequently had small pieces of ore that would assay $1,000. The following conversation ensued:

"Why don't you ship some of this ore? That district needs capital, and if you have opened a shoot of eight inches wide by even twenty-five feet long, it will create an excitement; for the shoot may develop into two hundred feet in length and several hundred feet deep. Our mine, which lies just under yours, has an ore shoot seven hundred feet long and five hundred feet deep. So the precedent of extent is there."

"I do not believe in robbing a mine. We have this ore and want to work it scientifically and open it right."

"How do you know you have eight inches of thousand-ounce ore? I know you have never shipped a ton from this mine since you owned it."

"I have had such assays as satisfied me. We know it is there and we do not want to rob the mine."

That is about as far as one can get with that class of men, as it is not to their interest to reason. Here was an instance where strenuous appeals were made to investors to buy stock in this prospect, as we term it—for it has not arrived at the dignity of a dividend payer—on a basis of a heavy capitalization seeking money at a sacrifice of share values when, according to the manager, he had then in sight that which they wanted to obtain from the investor—money. The remark, "We do not want to rob the mine," was not well timed. To my way of thinking, the mine should be robbed a little, then there would be no necessity in having the public share in a risk. If the writer had an eight-inch streak of one-thousand-ounce ore at even 14,000 feet elevation, with nothing but a Jack trail, and did not own even a pack animal, with a railroad twenty miles away, there would be no appeal for capital, for that ore would be commercial in the most remote quarters of the American continent. A pick, a few drills, a single hand-hammer, a little food, one ore sack, that is all he would ask. A hundred pounds of such ore is worth about $35. From an eight-inch streak any man can mine two hundred pounds a day. In a week he could pack enough of this ore to the railroad to buy a little more food and a couple of burros. In two weeks he could be shipping one ton a day. More burros, and then—the dreams of wealth realized! Where the will lies and the ore exists, the miner who wants to mine will find a way; but where there is more money in selling stock, the way is not always searched for.

Assays of small pieces also encourage the miner to prospect, in hope of opening ore in commercial bodies. Another assay is the control that is taken as an average of a large number of tons, either shipped in the crude form or in concentrates. Thus the shipper has a check on the smelter to which he sends his ore for sale or treatment. This is called the Umpire.

When a promoter says the assay returns from a shipment of from ten tons to a thousand tons show the ore to contain mineral that will pay after deducting all charges, then the assertion is of value, and you can seriously consider an investment, for unless a mine has ore in fairly large bodies it is not possible to make a commercial shipment, except in cases where gray copper ore is found in small unstaple lenses near the surface, as is often the case; then the prospect is not termed commercial until at least three hundred feet in depth is obtained. Many prospects make non-commercial shipments by tediously sorting the ore. I have known prospects that gave specimens that assayed from $500 to $10,000, yet you could not have extracted one ton of it in ten years.

Again, we have seen prospects that did for a limited period ship several hundred tons of high-grade ore extracted at excessive cost during the period of development. Often every dollar of this ore has actually cost three dollars—in time, supplies, transportation and smelting. Consequently it was non-commercial. Yet the gross values of these shipments are made a part of the prospectus. Many veins that carry from two to four feet of ore that only run $10 in commercial bodies will show specimens that run $1,000, and it is generally these small specimens that are assayed and the results published. They mean nothing of value to the commercial miner, who would prefer to see an assay of $15 from a hundred-ton shipment to a smelter or local mill.

I have discussed the assay question with men who were seeking the aid of capital and explained the fallacy of mine values from an assay; in many cases men have immediately proceeded to sample their property and ship several carloads to determine the actual value; in several cases the properties have been abandoned as worthless, and the owners were broad-minded enough to acknowledge their mistakes and thank us for the experience. In other cases the mines were found to be deserving of capital expenditure and further improved, labor-saving devices installed, and commercial mining to-day results, and thousands of dollars are made annually. But the great majority of those cases were under the directorship of practical miners, who realized that upon the returns of their ore depended their profits. There were no stockholders behind them.

In some cases the advice was received with resentment, with the remarks that they knew the value of their own ore and did not require smelter returns, and that any stockholder could go into the mine and take samples for himself. Seldom, however, were the properties represented by such men self-operated. They were generally run by Eastern corporations that desired favorable news from the mines, in order that the sale of stock might be accelerated, and the managers at the works did not hesitate to draw upon their imagination.

The average stockholder does not know the cardinal principles that go to make commercial mining. He does not know the value of rock, or what part of the vein is pay ore, or the parts that will not pay. In prospects carrying a lead streak it is easy to obtain good samples. Some mine promoters can go into ecstacies over a body of non-commercial ore, and carry conviction to the inexperienced, but not to the practical miner. He wants to see the value of the ore in carload lots. I have usually found that where a man claimed to have large bodies or rich ore, and would not ship a few tons, it was because he did not want to take the risk of his ore not running as high as the assay or as he claimed, and thus aversely answer his stock sale arguments.

Ore bodies are not continuous in any mine. The pay material occurs in shoots—some small, others large. One ore shoot in the Consolidated Virginia Mines produced $114,000,000. Other shoots also produced millions; others, hundreds of thousands; then again a few thousands. There is, however, always a limit to the shoot and the value of its contents, as explained in the chapter on prospects. Ore bodies are larger in some places than in others. When a miner understands his vein, he knows that his ore bodies may be one foot, and then swell out to four feet; then down again to six inches; then again, in running on the vein a length of twenty-five feet, the ore will swell to two feet in width, so that, until a mine is opened, the value of its ores and average size of its shoots absolutely known, an assay is of but little commercial value; for the reason that where the vein of ore is concentrated into a small body, the values are naturally higher than at the spot where the vein exposes four or five feet of mineral. Many promoters take their samples of ore and assays from the concentrated portions; the commercial miner takes his averages from all parts of the vein, in the pinches as well as the swells, that he may have an average of what he will actually ship, as the profits come only from what is shipped. I know of promoters who, while operating mines, by accident open the shoot at the point where the swells make the ore showing four or five feet. Often the work stops at that point and the large ore body is kept to show stockholders; and they base their calculations upon the possible tonnage of the mine by the magnitude of this face of ore, whereas this four feet of ore may not hold that size for a depth of ten feet; then again it may run along for fifty feet or a hundred. The only way to test the actual value of the mine is to open it to a reasonable extent and ship sufficient ore in carload lots to get an average of its commercial value. Estimation of the contents of an unopened mine from an assay is value founded upon dreams.

Pay no attention to assays from small pieces of rocks, but ask the promoter: "How many tons of ore have you shipped from this prospect while it has been under your control?" Do not accept from him the assertion that the prospect has shipped ore under some other person's administration. If a man is not able to ship ten tons or one hundred tons of ore for the purpose of demonstrating the commercial character and value of the ore, then it is a problem and is classed as a lean prospect; and a prospect is only worth what you can get for it on its speculative values. It is true that prospects often develop into million dollar mines, but the miner's usual risk follows them. Assays do not change the prospect into a mine.

If you are told that there are great bodies of shipping ore in some old, abandoned dump, ask how many tons they have actually shipped to know this. Reason should tell you that the mining districts are full of men who will gladly ship any ore that will pay to handle, especially if it lays above ground and there is a market at hand.

Assays are the stock-in-trade of the inexperienced vendor of mining shares. Upon them he bases his promises of profit. They are only the guide posts of ore values to the commercial miner. Be careful of investing upon assays. Demand mill or smelter returns from a few tons: for if a prospect is deserving of development, even a twenty-foot hole should show six or seven tons of ore: enough to make known its character and grade.

CHAPTER IX

ILL ADVISED MILL AND SMELTER CONSTRUCTION.

One of the excuses for asking for more money, when the "enormous advance in values" argument has run its course, and the promised dividends have not materialized, is that of the necessity of a mill to treat the ore, and exhaustive figures are quoted to show that, with a mill, the profits that did not come will then surely follow. Some promoters use this argument before they open their mines, because they "believe" the ore exists. They look with something akin to pity upon the experienced miner, who endeavors to reason that it is better, first, to open the property. It is desired that the reader should study this mill question with the same care that he gives to the chapter on prospects.

First, admitting that the ore exists, its volume and value should be known, and the character of the necessary treatment. Second, if the ore is called "free milling," the question should be asked as to the method that has been actually employed to determine whether it is milling, as mere opinion on assay is of little value. Laboratory tests are not reliable. Nothing is so safe as an actual mill run of one hundred tons, or one thousand tons treated in some other person's mill—not one built with your money before you have made a reliable run. If a mine is expected to supply a mill with an uninterrupted tonnage, it is no great labor to satisfy its owners by actually shipping a few hundred tons of ore to settle this question. Commercial miners will ship tonnage to a mill even at a loss, in order that this problem may be solved. Recently the writer expended $7,000 in the purchase of horses and wagons just to test a mine by hauling to smelters a few hundred tons of ore.

A miner who will ask for money with which to construct a mill, before he has fully tested one hundred tons of ore in a custom plant, is not favorably received by commercial miners. And if he is interested in the sale of a mining stock, claiming the needs of a mill, and is not willing to prove the character of his ore by a few carloads shipped to other mills,—then it is safe to study his proposition. If the ore is, beyond doubt, free milling, and there is unquestionable evidence that ample is exposed to justify the construction of a mill, then the crucial question is: Have you enough water to run the mill all the year? Lack of water is the death blow to milling. Some men build where only a spring exists, to usually meet failure instead of success. Free milling ore is the exception rather than the rule. Concentration is the coming system, and custom mills built upon those lines will produce profits, provided the ore is there. But there is a distinction between free mill amalgamation and a concentrator.

Study well the proposition to build a mill, as millions have been lost in their ill-advised construction, as millions have been made by miners who had, and have, no mills. While a few inexperienced men will continue in this folly, the mill building craze will never again obtain substantial footing among commercial miners. Here they profit by experience. Large smelting and refining companies have eliminated that, so-called, necessity.

For many years, Colorado was a faithful pioneer in new milling systems which constantly spring up. With the exception of the Carson River, Nevada, experiments, there was no country so willing to improve, or take to its heart every mechanical charlatan that came along. But those days are gone forever, and now, where a free amalgamation mill is properly located, and the ore is absolutely free, which is the case in many parts of California and Dakota,—the profits will be large. The mining districts are filled with the skeletons of mills and smelters built for single mines. Inquiry always brings forth the information that it was "An Eastern Company." A mine may be of commercial value, and yet become a failure with its own mill, for the reason that it cannot produce sufficient tonnage to keep it in profitable activity, even though the treatment is successful.

One good mill in a commercial district can be made to do the work of ten mines of separate ownership. This is the progressive system that commer-

Ore teams hauling from 17,000 to 20,000 pounds to the load.

cial miners are following,—for it is now known that there are few mines which can, by their own product, keep even a twenty-stamp mill, or concentrator, in constant activity. Experienced men know the class of mills that treat ores profitably. They know that concentration is the coming system for seventy per cent. of all classes of ore. They realize that it is better to be successful in an old-fashioned commercial manner than an artistic failure under more glittering auspices. Their methods are modest; that is one reason why the Eastern investor seldom hears of them.

If the proposition presented carries a smelting product, then the problem is simply the volume of ore known to exist, the value of the same, the cost of extraction and transportation, and the smelting charges. There is nothing else for the investor to consider. But that those questions must be answered is plain; otherwise, he—the investor—will assist in the architectural art of erecting a monument to the folly of inexperience.

Often the promoter will claim that he has ample ore, but that the smelters rob him, and that he seeks capital with which to build his own. If it is the construction of a concentrator that is involved, and sufficient tonnage has been made to establish the fact that the ore is adapted for concentration, the request for capital will receive consideration from local commercial operators. But it is indeed a poor miner who to-day talks individual smelters.

Colorado's wonderful mining success is indebted to the admirable treatment accorded the miners by smelter institutions. Year after year, as conditions make it possible, the smelter rates have been reduced. Each year we are able to treat at a profit a grade of ore that was not profitable the previous year. It has only been a short time ago that the flat charge of $14 a ton was fixed on ores. To-day we have a flat charge of $6 a ton, independent of silica contents; and the writer is to-day shipping concentrates upon which only a three dollar charge is fixed. It is less than a decade since zinc was the assassin of the industry, and many miners were ruined by it. The author is to-day treating for the public, lead and zinc ores from the mines of Georgetown, Colorado, which a short time ago were not even taken from the stopes. These metals are needed, and the smelter pays for them. There is only one thing more that the smelters can do, and that is, to lower the limit for payments for base metals, in order that the miner may receive a larger per cent. for his copper and lead, and a further reduction of the five per cent. gold basis. This is a hardship, but it will, in time, be remedied.

Experience has shown that where a miner is active in his condemnation of the smelter or railroads, and seeks the aid of capital to build a smelter, without at first shipping at least one hundred tons of his ore to prove its value, he generally has no minerals of commercial value to extract. And even though he were given a flat smelter charge of two dollars per ton, he would not make a profit. The present public smelting rate is lower than any individual smelter of small capacity can equal.

The writer has known men to advise the erection of mills and smelters, simply that they might receive a little wages, or the promoter his commissions. In such cases, the loss is a foregone conclusion.

The Rocky Mountains are strewn with idle mills, smelters, cyanide plants, secret processes, etc., that eloquently proclaim man's folly, and millions lost through inexperience, and the belief that the extraction of metals from ores was simply the ability to pay for, and construct, certain classes of machinery, which the investor was told was sure to bring a high percentage of saving. Fully thirty per cent. of all the money injudiciously expended in mining can be laid at the door of mechanical error. As stated, even before a promoter knows the actual character of his ore, or the possible tonnage of the mines, the appeal goes up: "We want a mill, a smelter," or some secret process that is destined to extract more gold and silver than nature actually placed in the rock. Fully ninety per cent. of those efforts result in abject failure, and more investors decry mining. I have seen this craze prevail for many years. Great reduction plants erected, a run of a few months, then—another monument to folly; while a few miles further down the same gulch can be seen a commercial miner working with an araster, or a crudely constructed stamp mill of limited capacity, making a fortune. In the first case, the men able to shower hundreds of thousands of dollars into judicious ventures lack the knowledge that the commercial miner possesses.

It may be a radical view to take of this proposition, but the writer holds to the belief that, while the machinery houses of the United States have assisted materially in the remarkable advance of mining and metal extraction, and their labor saving devices are largely responsible for the present economies to be witnessed in mining camps, yet it is a question, if it is right; if it is doing justice to the mining industry, for the sake of selling machinery, to permit the inexperienced to waste money in mechanical construction, when the vendor of the machinery, in a great majority of cases, is reasonably certain, from his knowledge gained by past experiences, that success is problematical. Would it not be better to inform the investor of the intricate avenues of metal extraction, to tell him the truth—that certain classes of machinery are successful on certain classes of ores? But the special class of ore must exist in large, proven bodies. That, aside from the concentrator, there is no system of treatment that can successfully treat complex product? That, there are few milling ores in commercial bodies; that it does not often pay to construct a small individual smelter; that even concentration is not successful on all classes of ores, and that, before any effort towards actual expensive construction should be made, those investing, for protection's sake, had better send two or three hundred tons of their ore, at any cost, to some mill, identical to the one they propose erecting?

It is admitted that such a policy would result in less machinery being sold; but would it not, in the end, add strength to the industry? For while the mechanical engineer receives his pay for those mistakes, the mining district, in which they are located, suffers more than do those who invest in the property; because as strangers pass through, there is nothing so depressing upon their own hopes as to see a number of closed mills. The experienced operator does not pay much attention to the inoperative plants, but those who are just favoring the mining industry, and ready to add their wealth, that new wealth may be made, conceive the idea that the district is a failure, and it is very hard to remove that opinion.

Mining machinery, when unsuccessful, is a poor asset. It is costly to install, and costly to remove. Very seldom can a corporation obtain thirty per cent. of its total cost of construction when the wreck is offered to the highest bidder. I venture that interjection only on mills, smelters and concentrators. Such machinery as pumps, hoists, drills, etc., are standard, and we know that they will work; but with ore treatment and aerial tramways to run by gravity there is a doubt. A retrospect of mining history will show that fully ninety-five per cent. of those mechanical abortions is the result of the machinations of some Eastern promoter and his unsound methods of flotation. A desire to force success, where nature did not place the material for success.

If the writer were called upon to make a contract with a firm for a class of mill machinery, which the firm claimed would positively work, he would deposit in the bank the amount of the contract, to be paid over to the machinery house: after the mill was constructed, and running successfully for thirty days, to prove its efficiency, and sustain the claims of its makers. Knowing that every sale depended upon such a proviso, firms would only construct machinery which they were positive would answer all tests. The investor would pay, only, when the machinery proves to be all its makers assert it to be.

Never be a party to mill or smelter construction, until you know the ore is well opened and its character proven by a few hundred tons actually shipped.

CHAPTER X.

EQUIPPING THE MINE—THE NEEDED MECHANICAL APPLIANCES FOR THE SMALL AND LARGE DIVIDEND PAYERS.

The question of equipping is one to be solved by the mine management. The average stockholder seldom enters into the details of that branch of the business, or knows from personal experience anything about the needs of the property, to open, operate and sustain ore bodies for steady productions, the ore bodies of a mine being to it what the reserves of a bank is to that form of institution,—to be drawn upon in the event of necessity. As the enormous expenditures made in a great commercial mine may prove of interest, this chapter is devoted to the subject, first treating the equipment of the small property.

A mine of limited capacity may be commercial from a profit-sharing standpoint, the same as a large one, the difference being that the production of the small mine is confined to smaller bodies, although commercial, the profits are, however, limited. Thus we find mines operating profitably upon six inches of $25 ore, in which case the equipment is not necessarily extensive—generally a 150-horsepower plant, run by steam or electricity, furnishing the motive power. Here is installed the ordinary ore house of no great cost—boarding and bunk buildings, and usually a blacksmith outfit, this worth probably $1,000; stables, office buildings. This latter, however, often covers the Assay Department. As to the machinery, if the mine is worked by careful, conservative men, there will be nothing installed upon it but a single drum hoist requiring about eighty-horsepower. The ordinary air compressor operates the drills, for nearly all mining is now done by air power or electricity. The compressor requires about seventy-horsepower, and will drive four large drills of the two inch size together with several small hand-stopping drills. The capacity of the compressor in free air being regulated by the altitude—that is to say, a compressor that will furnish 1,000 feet of free air a minute in New York City, would only furnish about 750 feet at an elevation of 12,000 feet. Thus compressors are built in accordance with the elevation at which they are to be operated. Such a commercial plant as this would not cost to exceed $30,000, including buildings.

Should the ore shoot be exhausted, there is always some salvage in such a plant. These small mines are worked for profit, the same as the large ones. There are fully forty per cent. of the producing mines of this country that may be classed as small mines; that is to say, mines that will pay from ten to twenty thousand dollars per year net profits. They are economically managed; good reserves are kept in sight as long as the continuance of the ore body makes it possible. They are worked upon a scheme of economy on account of the ore bodies being small. A twenty-five dollar ore, on the railroad, had better be shipped to the smelter, thus eliminating the cost of mill construction.

As the mine is worked its product may run from ten tons to thirty tons per day. The shaft is kept fairly well ahead of the ordinary work; generally fifty feet deeper than the drifts so that as the ore is extracted, new ore is opened that the stoping force may always have bodies to attack. If the ore shoot dips out of the shaft, a level is driven to catch the body upon its dip. If a fault occurs, drifts winzes or upraises are made, thus the small commercial mine that would be an abject failure under a mine management where Eastern and Western office expenses are heavy; the Superintendent receiving six or seven thousand dollars per year, etc., but on a basis of valuation as say $100,000 or $200,000, this mine might continue for many years to be commercial and return a profit, long after the invested principal had been returned.

On the other hand the larger mine naturally requires greater equipment; where the ore bodies are more extended and lower in value; greater tonnage becomes necessary and with its attending enormous expenditures for mine equipments. There are many great commercial mines in the United States and

Mexico, the surface equipment of which costs more than the total surface equipment of fifty of the so-called sound small commercial mines. The author knows modern mines working on low grade ore where the equipment in all branches has cost much over a million dollars, but they are not referred to. He has followed a plan of making no direct allusions to any individual, particular mine or district, and while describing a great mine, he will not refer to one of recent history. He evades the possibilities of a remark by those antagonistic to his ideas, that there was any effort at specially advertising, so he will take as an example one of the great Bonanza Mines of the State of Nevada; the figures being the same as have been used by many writers in the descriptions of the enormous expenditures of a great mine. To those who desire more extended statements as to the works of commercial properties, and especially the famous Comstock vein, reference can be made to the works of William Wright, known as "Dan de Quille"; Professor Church, F. Howard Shinn, Phillip Deideshimer and others. The author intends to show the folly of men who claim to make mines of a low-grade character with $50,000. The truth on the subject may be of general benefit as well as interest. When a man is told that a certain amount will accomplish a certain task, he expects it; when the estimates are made by thoughtless, inexperienced men, and more money is called for the investor loses confidence and often will go no further.

The figures here reproduced were verified by the author during his last visit to the Comstock in October, 1906, and are from the same source that all the published reports of the great vein or zone has been obtained—and give a reasonable idea of the magnitude of the operations carried on by the California mine.

In 1877 over $315,000 was spent for miscellaneous supplies and over $547,000 for fuel and for the timbers and iron used in the new shaft then being sunk. The "regular supplies" stored up and used above ground or sent down into the mines as required included the following large items: Timber, over 10,000,000 feet, costing about $224,000; ice, nearly 2,000,000 pounds, costing about $22,000; powder to the value of $17,000; candles worth $16,000; steel and iron, $5,000.

If we take the total expense account of the same mine for that year (1877), we obtain, perhaps, a more striking impression of the scale of operations. Supplies, as we have seen, were used to the value of about $315,000; salaries and wages come to about $788,000; cost of reduction was $2,220,000; of hoisting, $186,000; and of assaying, $53,000. Office expenses, teaming, surveying, taxes, litigation, and miscellaneous items, added to the above, bring the total to considerably more than $4,000,000. In such a mine the value of the outside works is nearly impossible to determine, for it is constantly changing. If there is no mill attached, half a million dollars would be a low estimate; complete reduction works add as much more to the total.

Everywhere, in the first view of a big mine, lumber, firewood, and machinery are the most striking features. The depths of the Comstocks in the last thirty years have swallowed up fully 800,000,000 feet of lumber—enough, if sawed into boards and scantlings, to construct forty thousand two-story houses of six rooms each. Will the reader now consider the soundness of the claims of the man who says he will succeed with a few dollars? This lumber would provide homes for two hundred thousand people. If the consumption of lumber had always been at the rate of such bonanza years as 1875 and 1876, the Comstock lode would now contain nearly three times as much lumber as this buried in its shafts and drifts, or sufficient for the homes of six hundred thousand people. Hundreds of square miles have been cut to supply this inexorable demand, and every foot of timber used has been hauled to Gold Hill or Virginia City and piled in the lumber yards at the works.*

The fuel used during the past thirty years has aggregated something like three million cords. In 1880 the Sierra Nevada furnaces used about sixteen thousand cords of wood, and four other mines used more than ten thousand cords apiece. Such a mine

*Senator Fair told the author in 1883, that there was always timber reserves in Virginia City for two months operations. The writer's first lessons in square set timbering was given to him by Senator Fair, while visiting the White Hall Gold Mines of Virginia.

keeps six months' supply of fuel on hand, and even a smaller mine always has five hundred cords piled in the yard.

The machinery on a commercial mine is of so many different types and is constantly undergoing so many changes, repairs, and improvements, that the foundries and machine shops at the mouth of a mine often seem as if they had been transplanted bodily to the Comstock from some large seaport. The total horsepower represented by all the engines used on the Comstock affords a still better measure of the work done. The mines in 1880 had engines of a combined capacity of 21,000 horsepower. Single mines have had 2,000, and even 3,000 horsepower in use at times. The power of the hoisting engine is necessarily great. At the Yellow Jacket the two hoisting engines are each of 1,000 horsepower. The main engine at the California and Consolidated Virginia shaft, everywhere known as the "C. & C.," is of 2,000 horsepower; it lifts a cage with two cars of rock and handles a passenger cage at the same time. What would be called an average cable at one of these great mines is made of steel and wire, woven flat, seven inches wide and five-eighths of an inch thick; the pulleys are forty or fifty feet above the shaft mouth on a cross-beam, supported by a very large and massive frame, which is built around the mouth of the shaft and is called the "gallows-frame." A steel cable such as is used on the Comstock weighs from twenty-five thousand to forty thousand pounds. In the case of those that taper regularly toward the lower end, where less strength is needed, the reduced size is not obtained by leaving out some wires, but by gradually tapering each wire in its manufacture.

Will the reader now stop and do a little hard thinking? Will he recall the sensationally promoted prospects—recall the promises of enormous profits if a few dollars are invested? The many display advertisements that speak only of what you are going to receive,—never the statement of the possible cost of working a great mine. This property here referred to is only one of the big mines of America. There are mines at Butte, Montana, at Lake Superior, at the Rand, at Leadville, at Idaho Springs, at Bisbee, Cananea and other points, all paying, all equipped more or less the same as the California. In small mines a little money is all right, but in a big mine you need a National Bank.

We will divert a little from the subject of unsound ventures and, for the sake of information, describe an underground visit to a great mine. The system followed in one mine is generally the same in all others. The deepest mine to-day operated by the writer is 2,100 feet below the surface. The visitor can either go down the shaft or can ride in an electric trolley 8,000 feet through a cross-cut tunnel, then go up, but the sensation is the same. The visitor in both cases retires to a dressing room, takes off his or her ordinary clothing, puts on one of the suits kept there for the purpose—flannel pantaloons, woolen shirt, heavy shoes, and felt hat

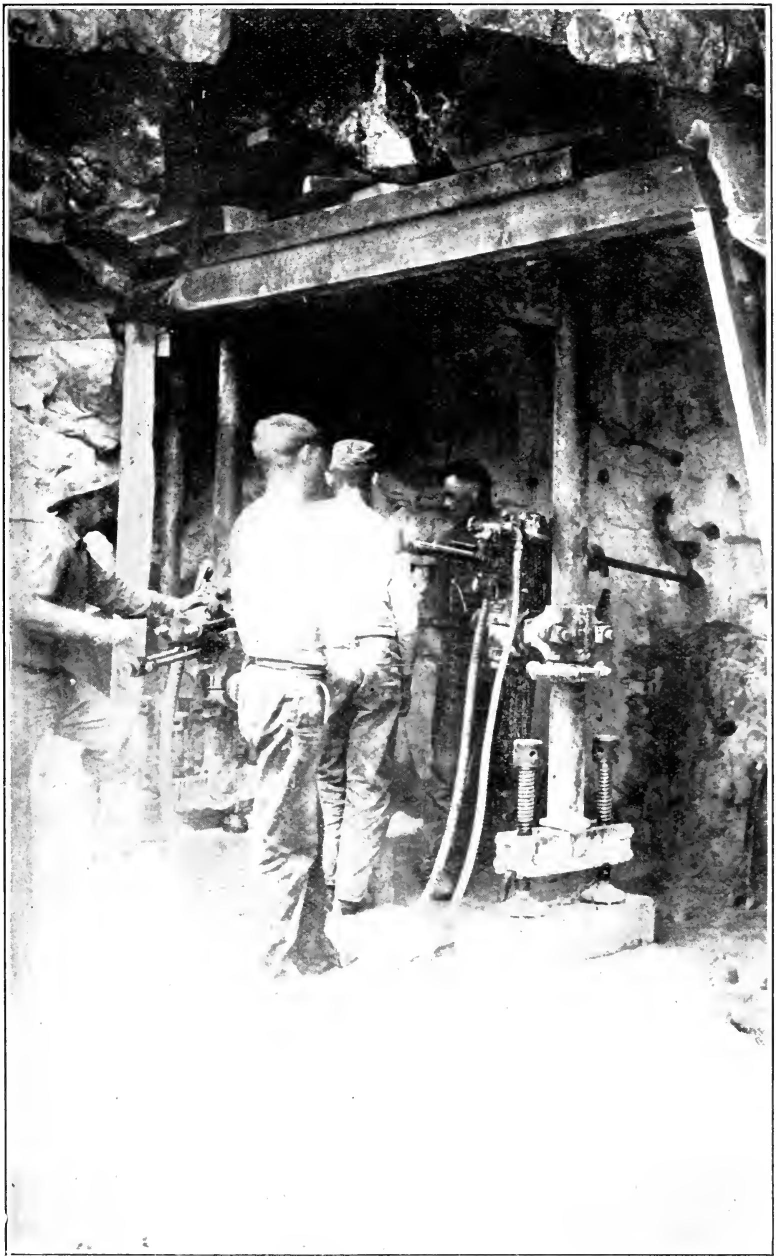
—is placed in charge of a foreman, and they enter the cage. If it is a drop by shaft from the surface, the foreman waves his hand; in an instant you are dropping noiselessly into the darkness, lit only by the flickering rays of a lantern, which shows timbers seemingly leaping upward.

Pretty soon a station appears, but we pass without. There seems to be a large irregular room opening back from the side of the shaft. Men are busy there, moving about in the well-lighted space, and there is machinery at work. If we went slower, we should see a drift extending from the station and dividing into many passages, and miners and foremen would be noticed passing to and fro engaged in various occupations. Every hundred feet a station flashes past, and the immensity of the work begins to grow upon the traveller.

Sometimes, the man in charge of a station hails us as we pass, and the foreman makes a reply that is Choctaw to the uninitiated, for we are dropping rapidly away from the sound. As we reach a depth of a thousand feet or so the cable sometimes begins to "spring" with a peculiarly disagreeable bobbing motion, which gives a novice a new sensation, as if hung in an abyss by a rubber strap. In the midst of this we come to a full stop at the fifteen-hundred-foot station and step off on the floor.

A station is the office for the work done on that mining level, as well as the point where men stop and where freight is shipped or received. It is walled, roofed, and floored with huge timbers and planks, and is a large, well-lighted place crowded with mining supplies, barrels of ice water, candles, fuse, powder, tools, etc. If it were not for a car track which crosses the middle of the floor, coming from the level beyond and connecting by switches with all the hoisting compartments of the shaft, the place would sometimes seem a combination of office and country store. The car track that extends through the main drift of the mine connects by turn tables with the side drifts and cross-cuts. Laden cars arrive regularly from the "stopes" or places where ore is being taken out, and are sent to the surface by the station tender. Empty cars as they arrive are returned to some place where they are needed by the car men, and so the work goes on steadily, excepting when shifts are changed.

The drifts, or "galleries" as some call them, are four to six feet wide and seven to eight feet high. The miners prefer to cut them outside of the vein as much as possible, as there is less danger of caves. The floor of a drift is horizontal, or slightly raised, to facilitate the delivery of ore. The main north and south drift is the Broadway of the level, and sometimes even contain a double car track. The cross-cuts start from the main drift at right angles with the vein, so as to cut into the ore body if any is found. Like the levels, they are about a hundred feet apart. They are extended entirely across the lode to the other wall, and are connected with each other by cross-drifts. Every new cross-cut attracts the attention of all who are interested in the mines.



Breaking rock with air power drills in a Commercial Mire on the deep level.

If one cross-cut is in pay ore, there is much greater excitement when the next one, a hundred feet farther on, is to be opened. In this way, with drifts, cross-cuts, and cross-drifts, the skeleton of the underground plan begins to be apparent. Imagine a general plan something like this on each level, and we only have to describe the winzes to complete the framework of the passage-ways. A winze is a small shaft sunk wherever it is needed, from one level to another, for ventilation, to explore new ground, or often, when sloping, to serve as a chute for ore and timbers. An "upraise" is the beginning of a winze started on a level and carried upward toward the higher level. If it is finished its name is changed to winze. The only connection between one level and another besides the main shaft is by means of these winzes. Vertical winzes are in reality shafts; sloping winzes are inclines; drifts, cross-cuts, and cross-drifts are really tunnels.

The main shaft which connects all these underground workings is not always vertical, neither does it always remain the same for its entire length; it may be an "incline," as the Crown Point shaft, which is vertical in the eleven-hundred foot level and then follows the lode, which dips thirty-five degrees at that point. The car used for hoisting through an incline is a "giraffe," absurdly so called "because the hind wheels are very large and the front ones low, so as to keep the car level." One would suppose that the name kangaroo would be more appropriate. It carries eight tons of ore at a trip. Sometimes another or "back-action" car is fastened behind. A ride on a giraffe is very exciting. The track is well lighted and the cars climb it with the speed of a lightning express. The giraffes, like the elevator cages, have safety grips. At the bottom of the shaft or incline is the "sump," a pit or well sunk there to collect the water from the mine. Here are the suction ends of the pumps. Here is the bottom of the mine.

CHAPTER XI.

SENSATIONAL ADVERTISING.

"A plain, homely fact does more good than a million beautifully garbled lies."

Perhaps my conception of honest intent is wrong, and that which I termed unsound is beneficial,—to use the language of the dearest, sweetest character that the writer ever knew: the late Colonel Robert G. Ingersoll.

"I may be wrong, mistaken; but, if I am, it is an honest mistake. I believe it. Give me proof that it is wrong, and openly my fault will be acknowledged."

One evening, in Ansonia, Connecticut, a short time before the world lost this great man and soul, and lover of humanity, we discussed the past and present conception of the meaning of Honesty. Condensed, it was: to be fair, open, broad, generous, charitable in thought, as well as with a ready and helping hand. If this conception changed, with the passing of the fathers of the republic,—if honesty is to use one's superior knowledge and intelligence to defraud the less gifted and the lowly; to take, without giving substantial equivalent; to ignore, or forget—the conditions of a trust; to take advantage of innocence and misplaced confidence, because one has found a loophole in the law which makes him immune to punishment; to deceive by skillfully, artfully worded promises, which apparently means "yes," but in reality "no"; if to gain the hard-earned wealth of others, one promises that which at the time he knows there is not a reasonable chance by his ability to fulfill, without perhaps that chance which, in all things, is just possible in life; if to excite to the point where reason is forgotten, and in falling enriches him who caused the loss; if promising to return, with no intention to keep the promise; if to tear from each dollar, bestowed in trusting confidence for one specific purpose a large part of that dollar as one's compensation, before there is any result from the venture in which the investor was urged to embark; if to excuse one's faults by previously prepared excuses:—If Modern Finance calls these things honest, then the writer is wrong in condemning certain forms of mine-promotion as unsound. The reader must bear in mind that this is the opinion of one man, the writer of this book.

A cleaner, better condition in mining is desired, that the industry may be progressive. The writer knows that some things are done which are serious mistakes. His own faults and weaknesses have been acknowledged; but on the question of a better understanding between the Eastern capitalist and the Western miner, the reader must be the judge.

Fassett is right:

"The growing importance of the mining industry, its immense production, the rapid accumulation of fortunes, and the well-known prosperity of some mining regions have created so widespread an interest in gold and silver mines that any information relating thereto is beginning to be eagerly sought after. There has ever been a fascination and romance attending the search of the precious metals, and time intensifies rather than diminishes the feeling. Under the magic influence of gold and silver discoveries, a spirit of enterprise has been engendered that has brought about the accomplishment of results as unexpected as they are grand and wonderful. The wilderness is peopled, states are founded, and almost an empire established, where the presence of civilized man was unknown but a few short years ago."

To keep this unrest alive, to increase our product, the industry must command respect. For that, we hope.

Ever since the wonderful profit possibilities of the industry became recognized by a class of men ready to go into any business where money can be made without manual labor, the public has been importuned in every conceivable form to buy mining stocks, for a few cents a share, which according to the vendors are "bound to bring fortunes to the holders." Ninety-five per cent. of these promotions were based upon simple prospects, that had not yet proven of commercial value.

For some time the system of circularizing was forced. Then the idea of saving postage by reaching hundreds of thousands by a display advertisement in the papers was conceived. Those lavish public notices of the fortunes that await you by the investment of a few dollars, have in a large measure run their course, and do not appeal to the intelligent investor, who understands that newspaper promotions are costly, and not always to be accepted as truthful statements of facts; but they will appeal to the wage earner not experienced in the ways of so called modern finance. It is estimated that thirty per cent. of all the money taken in by those who follow this form of advertising is paid out to advertising agencies.

Many of the most seductive advertisements are written by men who know very little about mining; some of them were never underground. They have been taught to write in the manner of the artist, who paints on commission the beauties of a landscape. The more fascinating the picture, the more praise and price for the artist. These word-artists boast of their ability to promise large profits without really saying anything upon which a grand jury could indict. Of late years, the more successful writers of mining literature deal in what Rufus Choate called "glittering generalities," and constantly keep in the minds of the readers the fact that some man has acquired great wealth in mining investments, and that the shares offered at a few cents have an equal chance of success. The commercial miner, with his knowledge of the actual conditions, could not write such matter, as his sense of honor, proper pride and self-respect would prevent him. He would know that even the mining industry, with its enormous possibilities, could not make good the promises. These alluring effusions, when dissected, mean nothing, and when some wronged and indignant investor arrests or sues those responsible for the efforts, he is often met with the defense that a man has a right to believe that a mine might be worth a hundred millions, and yet the mine itself, from a commercial standpoint, not be worth a dollar. They know the law cannot control the mind of man, and he who expresses his belief, or who simply says, "that he is informed, or that he believes," such a mine will develop into a property worth millions, is simply giving an expression of opinion; yet, in reading these advertisements the unskilled overlook those little legal loopholes. There are, however, some able judges who do not agree about a man's belief constituting a defense, if the expression of the belief has caused some investor a loss and the expressor of the belief a gain. This subject is further discussed.

Some judges are of the opinion that even the advertising writers are parties to the act; that they know that their efforts are not intended for the public's good, or that there is any reasonable evidence of the ability of the promoter to keep his promise. The glittering displays of ancient history, covering the success of some of the most noted mines, or obscure cases where a hundred dollars has brought in a thousand, are so skillfully worded that the reader, glancing hurriedly over the matter, fails to see that in the advertisement there is no positive assertion, only hope and promise; one line of fact, reading: "We are shipping ore," is worth a page of such financial chaff.

There are but two things that should be told in a mining advertisement; first: "This is a prospect; some time after money is spent upon it, it may pay." The other is: "This mine has ore to-day in commercial bodies; it is well developed and equipped; therefore, it is reasonable to conclude that its present showing, which is of commercial nature, will continue for years."

That is all there is to mining. It is one or the other: prospect or mine. It may be called a mine, but unless it is upon a sound commercial basis, it is only a prospect, with its attendant hopes and risks. The so-called successful financial writer tries to cover the fact that a prospect is not a mine.

The promoter who is associated with some advertising agency has advantages not possessed by the average broker. He is able to carry credits, and often, before his bills fall due, he reaps the harvest of his labors. Other brokers are obliged to pay at the time their advertisement is inserted; besides, they are obliged to pay full public rates. They have, also, chances of having reading notices inserted that look like legitimate news from the mines.

When they are interested in opening some prospect, so-called special news letters are often published wherein their property is made to appear in fascinating relief; stories of strikes of rich ore are thus chronicled, and to all appearance it has the marking of legitimate mining news, sent out by the Associated Press. Generally this material is prepared and mailed to some paper under contract to insert financial advertisements. When published, other papers reproduce it innocently, thus the fame of the prospect is spread, and those selling the stock make up sheets of articles reproduced from different papers and mail them to those they are trying to impress.

Ridicule has often won victories for just causes, I am going to apply ridicule to the system of sending the self-prepared articles purporting to reflect the worth of some rich property. Mark Twain had experience in the sixties; the value of these so-called telegrams was known to him.

A number of years ago, when he was prospecting in the Nevada and California deserts, his eyes chanced to read a dispatch sent by a well-known mining writer from San Francisco to the Saturday Evening Post, in reference to gold said to be held in solution in the waters of the Calistoga Springs.

Now, Mark just applied his keen sense of humor to the ludicrous situation produced by the erstwhile "mining" writer, and he himself wrote thuswise:

"I have just seen your dispatch from San Francisco in Saturday Evening's Post," wrote Mark, "about gold in solution in Calistoga Springs, and about the proprietor having extracted 1,600 ounces of gold of the utmost fineness from two barrels of water during the past fortnight, by a process known only to himself. This will surprise many of your readers, but it does not surprise me, for I once owned these springs myself. What does surprise me, however, is the falling off in richness of the water. In my time the yield was $1 a dipperful. I am not saying this to injure the property in case a sale is contemplated. I am saying it in the interest of history. It may be that the hotel proprietor's process is an inferior one. Yes, that may be the fault. Mine was to take my uncle (I had an extra one at that time on account of his parents dying and leaving him on my hands) and fill him up and let him stand fifteen minutes to give the water a chance to settle. Well, then, I inserted him in an exhaust receiver which had the effect of sucking gold out through his pores. I have taken more than $11,000 out of that old man in less than a day and a half.

"I should have held on to those springs but for the badness of the roads and the difficulty of getting the gold to market. I consider that the gold-yielding water is in many respects remarkable, and yet no more remarkable than the gold-bearing air of Catgut canyon up there toward the head of the auriferous range. This air, or this wind, blows steadily down through 600 miles of the richest quartz croppings during an hour and a quarter every day except Sundays; is heavily charged with exquisitely fine, impalpable gold. Nothing precipitates and solidifies this gold so readily as contact with human flesh heated by passion. The time that William Abrahams was disappointed in love he used to sit outdoors when the wind was blowing, and come in again and begin to sigh, and I would extract over a dollar and a half out of every sigh. He sighed right along, and the time that John Harbinson and Aleck Norton quarreled about Harbinson's dog, they stood there swearing at each other; and they knew how, and what they didn't know about swearing they couldn't learn from you and me, not by a good deal, and at the end of every three or four minutes they had to stop and declare a dividend. If they didn't their jaws would clog up so they couldn't get big, nine-syllable ones out at all, and when the wind was done blowing they cleaned up just a little over $1,600 apiece. I know these facts to be absolutely true, because I got them from a man whose mother I knew personally. I do not suppose a person could buy the water privilege at Calistoga now at any price, but several good locations along the course of the Catgut canyon gold-bearing trade winds are for sale. They are going to be stocked for the New York market. They will sell, too; people will swarm for them as thick as Hancock veterans in the South."

There is generally but little fact in these articles. A misrepresented fact is punishable and for that reason these articles say seldom anything positive like: "One hundred tons of ore were shipped to the smelter last week." The reader, once posted, can mark these self-prepared articles at a glance; there is seldom any statement of fact.

When impressed by the promises made through newspaper advertisements, remember, that that is not the system of raising money followed by commercial operators, who have mines. The system is too costly; and further, remember that if this system is the sound way, that the practical miners have not yet realized it, for a review of all the propositions promoted by sensational advertisements during the past ten years, proves there is not three to-day upon a healthy dividend paying basis.

It should be said that not one has so resulted, but the number three is set from the knowledge that accident, more often than the ability of the majority of promoters, make mines. The writer has openly asserted that if one hundred promoters of prospects or non-commercial mines could be eliminated from the field of mining, that there would end the system of unsound promotions, for, with the passing of the generals, the privates or local agents and travelling canvassers would find new occupations.

Where the locality is widely advertised, the district in which the scene is set invariably suffers. The money raised does not always find its way into the prospects; only a limited protion of it goes into actual underground development; when the results do not show ore in commercial bodies, the cry against mining goes up again. The investors who do not reason seldom recognize, that the district is not responsible for the foolish efforts of men, who do not understand mining; but ever afterwards there is a feeling of prejudice against that marked region, deserving men with properties, that do show ore, in need of development, to make the same commercial, fail to obtain support in the sections where the party prejudiced has influenced. What the mining district most requires, for a long, healthy life of ore-producing activity, is, that development be continued upon such lines as give reasonable chance of ultimate profit, sensational advertising of the vast riches of the district only works permanent injury, unless the money obtained is honestly and well spent, that the prospect may have a fair chance to prove their worth. Every man has a right to advertise his wares, but in the case of mining, which is based upon the risks all experienced men acknowledge do exist, there should be statements of facts, in bold, positive type. Not a little fact, so woven between uncertainty, history, theory, promises and expectations, that the inexperienced can not separate the fact from romance. The public is willing to take a fair risk. It wants, however, to be told the facts. Commercial mining is built upon truth, and its results are known. Mining builds the world's greatest fortunes, and the restless American is eager to share the wealth. He believes that he is investing in legitimate mining; otherwise he would not invest. He would speculate in those mine shares acknowledged as Stock Exchange offsprings when the rise and fall mean but little intrinsically to the mine itself. Then why is it necessary to garble, to distort the truth about a prospect?

When shares are sold upon the promises stated, and the mine does not pass upon a dividend paying basis, the promoter, as an excuse for himself, will say that he has honestly tried to make a mine. "I did my part; I raised the money." But if success or failure follows his effort, it will generally be found that the promoter seldom loses. He, at least, gets his commissions. He is in the business for what he can make out of it. Few of them ever consider the commercial side; that which appeals to them is the proposition that gives the widest latitude for exaggerated statements, such as the old Bonanza Mine to be reclaimed; or the possible extension of some producing property. Legal talent is employed to keep his public assertions within the limit of the law, and the announcements are written with a view of exciting the inexperienced. There are few cases of record, where the investor ever collects from one of these men. Their failures and misrepresentations are usually credited to the unfortunate industry to which they have annexed themselves. Their apologies or regrets that are the closing chapter in those unsound ventures, are never accompanied by a manly statement of the fact, nor of a return of that which they received, that the wrong may, so far as it lies in their power, be atoned for.

The commercial miner of all districts disapproves of these publicly floated propositions. They know that success seldom follows. Let the investor look back ten years and see that if, within that period, from thousands of promotions, there have been even ten great dividend paying mines, made by funds obtained through this form of sensational publicity. Then study the source of the vast product that yearly flows from our mines; the many millions of dollars in dividends honestly won. You will find that nearly all of it comes from properties that seldom advertise a line, but, instead, are making a daily product through its own operations, or the results of mine leasing. Their efforts are so homely, so careful that they have no place in the modern world of unsound show and tinsel.

Publicity promotions are not based upon the principles that make success. They are worked upon the theory that one mine is as good as another, and that they are justified in capitalizing at millions, and keeping a large part of the money the public invests as their share for inducing men and women to invest. Very little of the money paid for the shares so sold ever goes into underground work. There are other avenues of expense that must be paid first.

I know of persons who have held that the papers publishing those sensational and misleading announcements were in part responsible; but the writer does not fully agree upon this point. The great metropolitan papers that sell space over their counters cannot know of the truthfulness of all financial advertisements. It is the business of the papers to sell space, not to set a corps of engineers to investigate the claims of the promoters. Yet, it is a fact, that when it has been brought to the attention of many papers that certain advertisements were misleading, they have been "thrown out," and only recently a Western promoter found it hard to gain access to the principal Chicago dailies.

It may be said of mining papers that are in close touch with the industry, and know, from the few—if any—successes which come from sensational advertising, that the system does not give substantial returns, are better able to discriminate between the good and the bad. Provided that even a mining organ could take the trouble to attempt to draw the distinctive line. The remedy lies with the reader; let him reason. He can understand that sensationalism is for the profit of some one, other than the buyer. Let him try to sell, and he is met with the statement that the broker does not buy, he is selling. It does not take a very brilliant mind to understand this position. If we can divert the capital actually intended for mine development—from the coffers of the promoter, placed there upon claim of commissions and expenses,—into actual mine or prospect work, the returns would be handsome, and soon the industry would pass to its proper position in the esteem of the people, and while there would be disappointments the same as follow any industry, there would be less by fifty per cent. than the records show under prevailing conditions of modern promotion.

CHAPTER XII.

HAS EXAGGERATION A PLACE IN MINING?

Can Misrepresentation be an Excuse on the Plea of Speculation?

The writer was present when a mining prospectus was being prepared by one of the most successful of promoters of sensationally presented propositions. The heading was, "Chunks of Gold." Then followed the usual revamping of the stories of marvelous wealth, won by the investment of a few dollars, the promise of heavy dividends, and positive guarantee that, upon the personal "honor" of the fiscal agent, there would be no loss. This man was suave and convincing in manner and speech. In his office it was a standing jest that "if ever a man visited his private room he was, in nearly every instance, sure to get his money."

Upon inquiry, it was found that the property to be promoted was undeveloped, but that the crop, ping, or "blossom rock," had shown small specks of free gold, visible with a glass; but there had never been a ton of ore shipped, nor even a commercial test made. A small piece of rock, showing free gold —a common sight in any gold district—had been clipped down until an assay would, in truth, show a value for that little, carefully-trimmed specimen of $10,000 a ton.

I knew this man intimately; knew that he had never worked a day in a mine, and could not tell the difference between free milling and base ore. The subject of how to write a mining prospectus was discussed. I claimed that the matter as prepared was misleading and might work an injury to some-one who would risk more than he could afford to lose.

At this interview it was recognized that there are some men who prepare their way to escape the results of failure at the time they are preparing their arguments to convince the buyer that failure is impossible and the guarantee bona fide.

"How will you redeem the promise you make?"

"We make no promises. Can't you see that we are appealing to their speculative spirit? They want the bright side of it. The public wants to gamble, and one must stretch the story to interest its cupidity. If the thing fails I will be sorry. I can't see into the ground, can I? This thing has just as good a chance of being a mine as any undeveloped property, but we don't guarantee one thing."

"But is it not better to tell the plain truth? Then, if they lose, you will not feel as if you were solely responsible for the results. The man of limited means—would then reason upon his chances?"

"Not in a hundred years! You can take a good mine and tell the cold, plain facts, and you will not

Party of visitors 2,000 feet deep in a Commercial Mine.

arouse their speculative desires. They want to be excited."

"But there is very little, if any, truth in this prospectus. You have, literally speaking, no 'chunks of gold.' "

"We don't say that we have! If people want to believe all they see in print, it is their own fault, not mine."

"Well, there are some men and women who read and believe every word you write; they are unread in the world's affairs. Why not write the facts?"

"Why, man alive! I would not sell a share in a thousand years if I were to do as you suggest! I have to dress up this mining game or the people won't buy and I obtain no commissions. I have tried the 'plain-fact' literature and was sued for office rent."

"But is it right?"

"I am not trying to teach the world the way to live. I am selling mining stock. I am following the popular way, and I'll bet you one hundred to one that, as far as sales results are concerned, I win out. Now, take, for instance, this prospectus headed 'Chunks of Gold.' That's the catchline. We don't say we have chunks of gold, but if we started the book with 'A Mining Enterprise' or 'A Good Prospect,' there is not one in ten that would take the trouble to read a line of it. 'Chunks of Gold' catches the speculative spirit and the rest is done by our follow-up literature."

This man was at heart a generous, charitable fellow—so far as giving in the name of charity was concerned—but he, through his system of extravagant flotation, brought sorrow to many homes. Years have passed since that interview, but this man followed each new camp, promoted mines, and hundreds of thousands of dollars were lost, yet a few days ago I met him in Philadelphia a broken man.

I have heard it said by men of intelligence, but who did not understand commercial mining, nor see the results of injudicious investments by men and women who could not afford to lose, that those extravagant promises are absolutely necessary, in order that the success of mining may be assured; that, unless people speculate in prospects, there will be no commercial mines; and that, while there is a great deal of loss through unsound promotions, it is necessary to make them attractive; otherwise the public would not buy.

A leading mining editor called my attention to the fact that in the commencement of Cripple Creek, Colorado's great gold district, there were as many wild-cat and fake mining companies promoted as there are now. I say that experience is the best teacher, and that the history of the wild-cats and fakes of Cripple Creek should be used as an object lesson for to-day and to-morrow. The commercial miner profits by the experience of the past. Why should not the investor do likewise? If there were such exaggeration and misrepresentations in Cripple Creek, why should they follow us to every district? We know the indications of the unsound. Why not benefit?

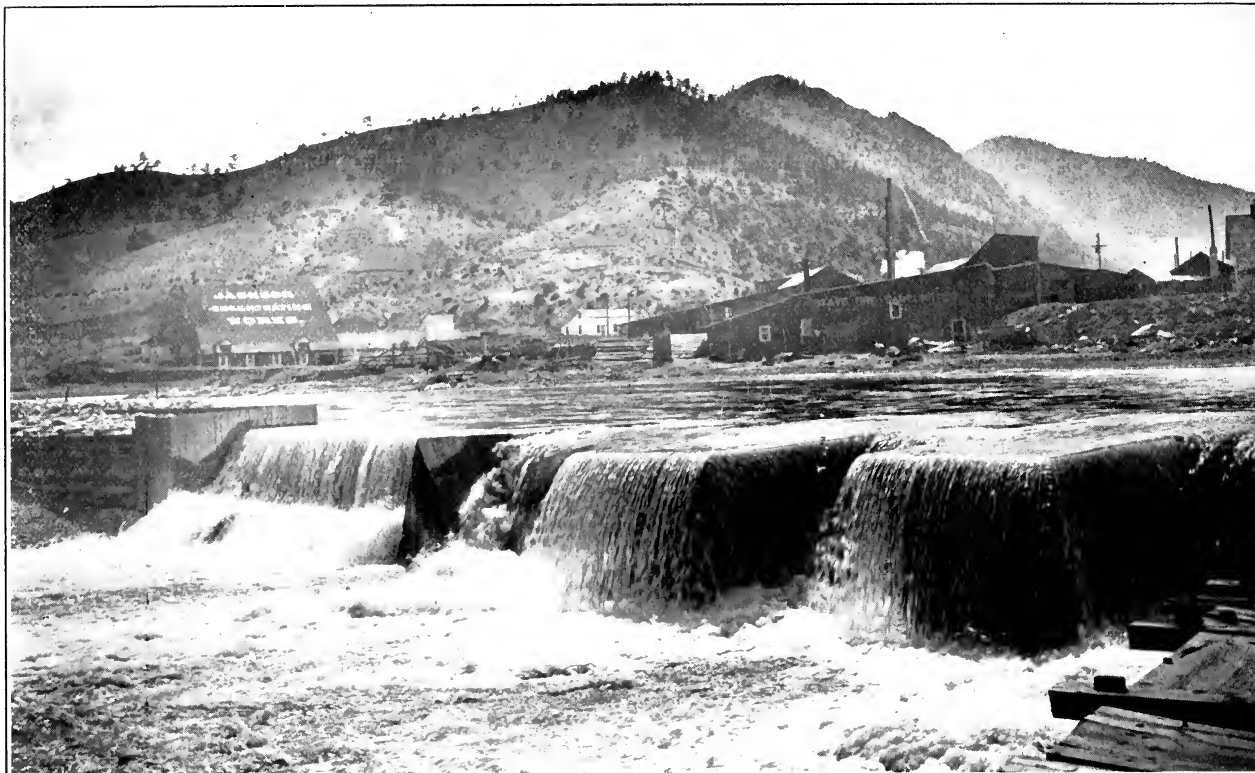
This editor and every commercial miner at once recognizes the promotions based upon unsound principles; as each new district springs up, the sensationally promoted venture follows. Their representations are based upon some one, or, perhaps, three rich discoveries. Following these are hundreds and thousands whose very make-up and promises cause suspicion. The commercial miner does not give them a second thought; but those in remote districts of the East read of the truly big properties; and also read the promises, claims, and exaggerated literature, of the unsound, invests, with the usual results.

Was there ever a new district that did not suffer in reputation because of these unsound ventures? The experiences of the past should unquestionably be used to better the operations of the future. It is well understood that mines are made, and not found. But there are cardinal principles about mine or prospect, from which the experienced miner can draw conclusions as to the possibilities of profits. A prospect should show mineral before the inexperienced should be asked to invest.

It is the inexperienced that is responsible for the extravagant promises which never are fulfilled, except in rare cases of accident or luck, such as caused the fame of a noted Western camp, which, however, has yet to prove its right to a permanent position by the side of Cripple Creek, Gilpin, Clear Creek or

Leadville, Colorado. If it is necessary to deceive or exaggerate, in order to cause the public to invest, then the sooner mining is considered unworthy of the energies spent upon it, the better.

I have found, in my experience, that where there is self-interest there is always an excuse for the defense of anything that is built upon unsound principles. While the commercial miner condemns those sensational flotations, high capitalizations, excessive commissions, and extravagant promises of dividends, there are men who will reason that it is the cupidity of the public which makes those misrepresentations necessary. Then why is it that the commercial miner does not make them? Why it is that ninety-five per cent. of all these flotations emanate from the East, or by Eastern men who have entered the mining field as brokers, not miners? On this point I leave the investor himself to judge. There are two ways of mining, the right and the wrong way. I believe the right way is to first demonstrate the value of a property before seeking by widespread, alluring advertisements the capital of the poor, because it is usually those in medium circumstances who are affected by these failures. If a miner knows, by actual development, that he has more than ordinary chances of success, then is the time to ask capital to invest upon a reasonable basis, and place the matter plainly before them on the ground of fact, and not romance. If it is a prospect, with its attendant risks and possible gains, say so, but don't convey the impression that



Splendid water power, used to operate mines and mills in a famous Colorado camp.

the element of risk no longer exists; don't pay, or promise to pay, enormous profits before the prospect has proven its right to be called a mine.

I do not believe that the mining industry is based upon any such theory. Wherein is it necessary to exaggerate to gain the ear of capital? It is such acts that have practically closed the ear of capital to legitimate operators.

I know that this is a commercial business, the same as any other line of commerce or trade, and while there are elements of risk in the development of a prospect, there is no more risk in opening a mine, after its prospect stage has passed, than there is in conducting a mercantile business; but the investor must deal upon miners' principles. The truth about the risk should be told, the same as the merchants tell of the risks of competition.

Nearly all wrongs have their champions. Men use their intelligence to excuse the unsound acts of those from whom they receive compensation, directly or indirectly. Thus we find men who excuse those extravagant promotions, by claiming that those who buy mining stocks want to gamble; that they know that they are taking great chances, but are eager to take them; that they do not expect to win always, but that they go into the venture as they would into the betting ring at a race track, or roulette, or other games of chance. I never knew that the grand mining industry had degenerated to the point where the labors of the extraction of precious and base metals, upon such scientific lines as are followed to-day, was in the same category with gambling and horse racing. It is admitted that there are stock gamblers that are intelligent enough to know that in those Eastern, sensational, promoted matters the profits to be made come through the ability of the promoters to raise the price of the stock, and thus enable the so-called gambler to sell at a profit to some other man not as well versed in modern finance as himself, thus succeeding at the expense of some other man. But the percentage of men who gamble in these stocks is very small, as compared with the general line of investors who make purchases upon promises that they believe to be true.

It is a positive fact that eight-tenths of all the money taken in by the publicity promotions come from the pockets of those who, weary of toil, seek to better their condition. They are not conversant with the ways of modern finance. They are honest themselves, in the old-fashioned way. They believe that others are honest. They cannot read between the lines, where a little foothill of fact covers a mountain of romance. They do not know that there are men in the world who use their talents for the purpose of making a little fact cover a vast amount of insincerity and promises. Their little savings are more to them than the thousands risked by the gambler. But no discrimination is made. The tears of the widow who risks her little all in the hope that she may better the condition of her children; the sorrows of the man whose hair has been tinted by the winding sheet of time, who risks his pittance in the hope of ameliorating the condition of his family, are as nothing in the scales. When the loss comes, the excuse is given that they were speculating and knew they were gambling. Those people believe that they are going into a legitimate business, where their profits will be much larger than in any other line of industry. They virtually are so informed. There are no plain phrases in those advertisements and prospectuses to tell them in cold type that they are gambling. It is called "investment for a rainy day," and the like. The talents of men are used to so clothe the fact that prospects are a venture and risk, that even the most skillful and experienced reader of financial literature cannot draw the distinctive line.

A friend, with intent to serve me, but a slave to pride and "what society says," was much exercised, that I should write this book. He reasoned that it would kill my business, as he termed it, "They will drive you out of Wall street." I have long wanted to do a little for the mining industry, and those honest fellows who really do mine. This work has not been written upon impulse, but with desire to assist in eliminating exaggeration and untruth. As to the unsound promoter, to whom my remarks are directed, I have nothing in common.

For many years mining has been the chosen avenue of certain men, who do not mine—they are the fathers of the scandals that bring no credit to the industry or its people; they take, but do not return. All commercial miners recognize the type to whom the author refers. It is fairly well known that the efforts of the writer are in the interest of the real miner. Repeatedly I have asserted that unless the unsound promotion is in some strenuous manner prevented, there will soon be no mining supported by the capital and confidence of the public. No man, to whom that here written does not pointedly apply, will feel a personal affront. "Rocks in the Road" has not been written for them. For the element that do the things herein set forth as unsound, the author has no sympathy. They should seek other avenues. I have always maintained that it was cowardly for the owner of a newspaper to attack any man or his property, for some personal reason, that the owner of the paper can lay his opinion, be it based upon truth or untruth, before many thousands, while the attacked party has only the long, tedious, expensive right to the appeal of the courts, or a non-successful effort to personally explain his side, to each man he meets. Therefore, there are no names or direct intimations in this entire book. The treatment of a general subject is undertaken. Some of the ablest men in mining have been informed as to the author's intent, and the matter to be published. Their reply has been unaminous, "publish it."

As far as personal attack is concerned,—that is possible, naturally men who have long fattened at the expense of others, will resent any attempt, no matter how small, to take from them an easy mode of making money. The writer asks that in any reply to this work that facts be stated, not vague charges, abuse or generalities, but hard, cold facts be given. The only question here involved is the truth of what is here written, the age, color, morals, wealth, poverty, ability, past mistakes or perhaps personal character will not answer. The point at issue is plain. Is the author telling the truth?

As for the opinions of any man who lives upon misrepresentation and unsound mine promotion, I care less than I do for the favorable regard of the poor human derelict that drifts along the dark alley of our great cities. What did those men ever do for me, or for mine, or the industry? The writer has never been a favorite with their class, and never will be. There is not an epithet known to the English race that they have not applied to me.

The commercial miner is, in a certain measure, a gambler with nature. If he were such in the generally accepted term of the word, I am sure he would object, if the class of men herein referred to could be sustained in their claim that mining is wild gambling and that they themselves follow the gambler's trade. It is nauseating to hear "sure thing" operators class themselves as such. It takes manly courage to be a gambler, a stage robber or a bank thief. The writer knows the honest gambler. He with others counted as fairly honest men, respect the true type. It requires less courage than the coyote, to legally misrepresent or exaggerate for personal gain, thus taking from those who trust you, and it is plainly assented that when a man by the use of a superior intelligence, which should be used in benefiting mankind, does by legally garbled reports, misrepresentations and word painting, with the knowledge that he is immune from legal prosecution or physical danger; thus taking money without giving just equivalent; without telling the plain truth he is beyond the pale of every gambler in the entire West. In this chapter attention is called to the claims made as to gambling and we differ on the construction they place upon the word.

That kind of operation is not gambling; it is misrepresentation. Exaggeration is only another form of the word. The Western gambler would be ashamed to be classed in the same category with these men, for it is a deadly insult to class him with the "sure-thing" operator. And wherein lies the chance taken by the man who is responsible for these unsound enterprises? In promotions, where from one hundred thousand dollars to two hundred thousand dollars are obtained from the public, the stock lists show that the result is the accumulation of thousands of small investments, running all the way from $10 to $100, which on the face proves that it is the accumulation of labor; for the rich and the gamblers do not invest in that modest manner; and that those men of moderate means are trying to better their condition. It is safe to assert that if those who have worked hard for their money were told that they were gambling, they would not invest a dollar. A study of the various advertisements that have preceded the many disappointments that follow this class of mining does not impress one with the idea that they are appealing to gamblers, but to investors. It is not necessary to use the following language if you are appealing to a gambler?

"Safe as a savings bank, but the interest you will receive from this investment is four times greater."

"Why let bankers use your money to buy mining stocks and reap the profit when you yourself can gain the profit? Do not wait. Telegraph your orders at our expense. The rise is going to come to-morrow."

"One hundred millions in sight! All we need is a mill!"

"Others grow rich by the investment of a few dollars; why not you?"

"Look at our satisfied customers and be one of them!"

"This stock will pay 100 per cent. per annum."

"We guarantee the safety of this investment, etc., etc."

Is this the language that anyone would use to convince a gambler?

No; those exaggerated promises and no-fact assertions are intended to reap the harvest won by the labors of the poor; and the commercial miner, digging his well-won stores of gold and silver, is in no manner a party to the crime.

It is such things as these exaggerations—if the word "misrepresentation" is harsh—that have brought the mining industry into such disrepute that the commercial miner is to-day unable to even obtain money from the public to increase his successful mill capacity or purchase new hoisting plants for producing mines. Mining is not a gamble; it is one of our grandest industries. Its product is imperishable. It creates more fortunes and pays larger interests than any other of our national industries. It is not necessary to misrepresent. The people will buy into good mines when the plain truth and facts are told. But the past shows that they do not have the opportunity.

CHAPTER XIII.

MISLEADING ADVERTISEMENTS—IS IT INTENT OR IGNORANCE?

If an attempt were made to reproduce the many sensational advertisements published during the past ten years, in which extraordinary promises were made, which have, so far, not been realized, many volumes would be required. Consequently, a general review of such announcements, and companies as have been in the public eye, is not possible, but the results of any one of the most positive in their sensational promises, and assertions, may be taken, as a right, to ask, if any of the others, equally as positive, have resulted in any manner other than failures, that is to say, as far as their promises are concerned. The reader perhaps now recognizes the right of the commercial miner to hold the name "mine" sacred; therefore, when a man says he has no prospect, but has a mine, it is assumed that his property is a dividend payer; consequently I call attention to the following display announcement, which is of the class that work detriment to the miner in search for capital for legitimate mine developments:

"A mine, not a prospect, but you can purchase this stock at a prospect price; this mine has been a winner from the start! At the grass roots the ore ran many dollars to the ton, and the values increase with depth, until now at the bottom of shaft, assays show values from $150 to nearly $1,000 per ton. This property has shipped many tons of ore, and produced profits for its former owners. In the opinion of the best mining men in the district, this property will be 'a shipper' before 100 feet is reached, and will take its place among the 'producers' of the district. Shares 25c. per share. This stock will no doubt go to par within 90 days."

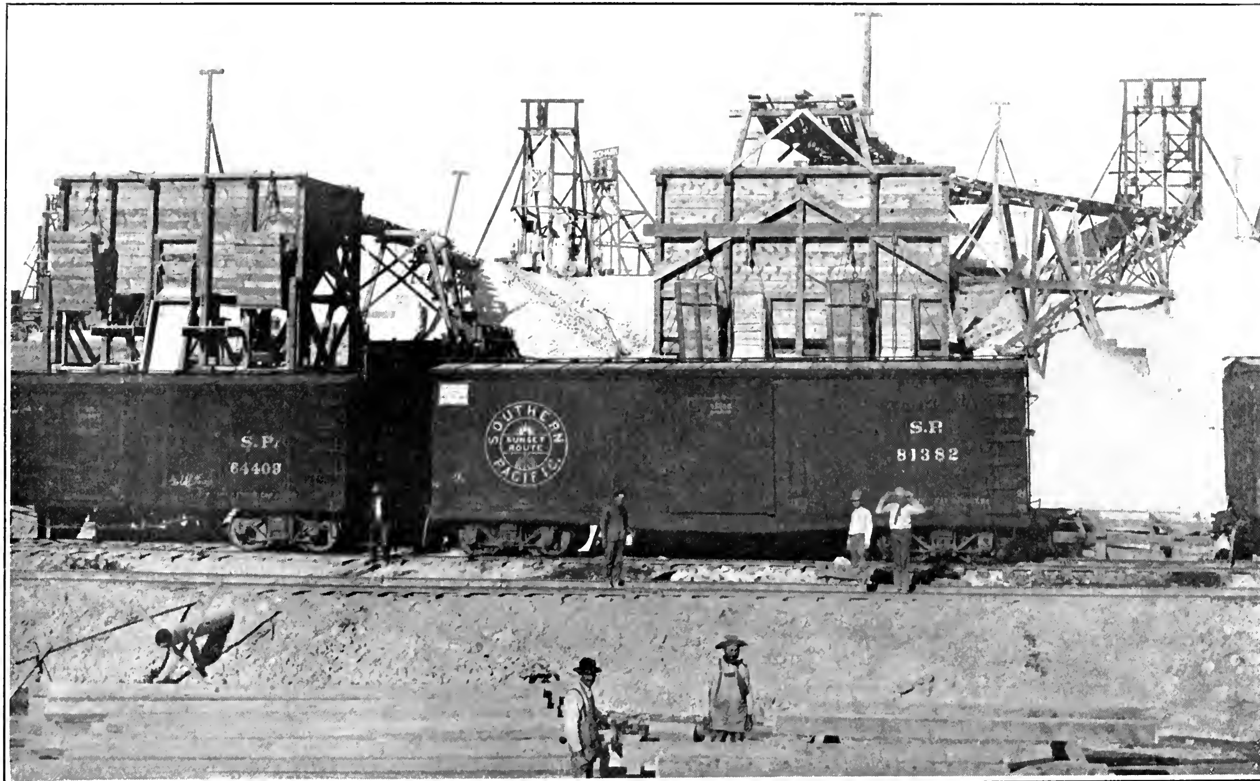
The above language was used in various paragraphs of a three-column advertisement, published in a Western paper just one year ago. The intent was to convey the impression that this prospect was past the period of doubt. The illustration is simply used for argument's sake, to aid in asking if the commercial miners are not justified in their indignation at the reckless handling of the word "mine," and "dividend." At the start of this advertisement the claim is made that it is a mine; strictly speaking, all the speculation of the prospect is passed; it has arrived at the great dignity of a mine; no longer a prospect. The broker tells you this in plain language, and as an evidence of the strength and value of the property, that is not a prospect, but a mine, proceeds to put the high valuation of $375,000 on the total stock of the corporation said to own this property, for figuring the stock at twenty-five cents per share, the price is $375,000 to the man that buys these shares. This being the figure asked for commercial mines, it adds to the claim of value and this must be a mine, for a prospect would not be considered so valuable. Shaft No. 1 contains, it is stated, ore of high grade, but there is nothing about the value of ore taken from No. 1 shaft, which by numbering the shaft, leads one to infer that there are a number of other shafts or work. I have since found out that the main shaft on this property was but forty-seven feet deep at the time this advertisement was inserted. The claim is that the ore assays $150 to the $1,000, but not a word as to how much ore of this character exists; simply the statement that there is ore that assays those high figures.

The reader will remember the chapter on assays, its bearing upon the value of the mine. It is not questioned that an assay of $150 to $1,000 could have been obtained, but how much could they ship of that grade of ore, if they were called upon to prove its existence in commercial bodies? Way back in ancient history, it is claimed in this announcement, that many tons were shipped, and a profit made by its early owners. How many tons of ore could be shipped from a forty-seven-foot shaft? This vital point is not considered. Not a line of evidence as to the number of tons, or the amount of profit, nothing but the appeal to buy.

We know there are hundreds of slivers, lodes and ledges, that are not commercial, but which have shipped some ore, but if at a profit, is the question. As stated in other chapters, ore has been shipped that runs two or three hundred dollars a ton, but not with much, if any profit, so that ancient history is not a matter of fact of interest; it is the present in which the investor of to-day is concerned. We infer that a few tons have been shipped, but the development being very shallow, the tonage must, indeed, have been very limited. The startling announcement is here made that the miners in the district are of the "opinion" that this mine will be a shipper before the depth of 100 feet is reached. Here we again face "poor old opinion." Reading the advertisement headed "A Mine, not a Prospect," and then be rudely awakened by the "opinion" of the best miners in the district, used as evidence, that they will ship before the depth of 100 feet, is indeed a shock. The very first line of the advertisement says a mine, not a prospect. What becomes of the mine? If it is not upon a paying basis, or a strong shipper, why is it called a mine? It is in reality anything but a prospect. I admit that rich surface ore is found in many prospects, and that a few tons of rich ore have been shipped, but in the end these prospects were abandoned, yet this forty-seven foot hole is put before the public as a mine! And for fear the investor may not realize the importance of the offering, they are advised, "not to take time to write, but to wire for these shares," with this important line:

"This stock will no doubt go to par within ninety days, but you will have to get orders in at once."

Just to think! Less than a hundred feet in



Loading high grade ore in a famous western camp; some of the ore has run as high as $20,000 per ton.

depth, not shipping, simply promising to ship, yet valued at $375,000 and in ninety days to be worth $1,500,000. Is comment possible? Why the incentive to sell? Why not wait ninety days and reap the enormous profit themselves? Would a commercial miner, with any knowledge of the industry, write such trashy advertisements, with the intention of having a man of limited means telegraph his money to buy these shares, using the argument that they are going to par within ninety days, when no man living can see in the ground? This advertisement was written a year ago. I have made inquiries, and have been unable to find that the ninety-day period which was going to make these shares sell at par, has made any material difference in the value of this property.

The author does not desire the reader to believe that he is making an exception in the selection of this evidence of misleading announcements; he has not taken, with deliberate intent, any paper. The quotations made are from an issue that was casually handed to the writer with the remark, that it contained a notice, relative to one of the mill constructions in which the author was interested; and while looking through the paper, the idea was formed for a chapter, in which the language used in these advertisements, could be displayed or commented upon. It can be understood that these advertisements are not as radical as some that have been published, for the reason that the paper in question makes an effort to keep its columns fairly clean.

In the above case, however, it was not possible to censor the language; the assertion was plainly made, "A Mine, not a Prospect." However, taking another advertisement in the same issue, it reads as follows, and is even more startling.

"Take a flyer in one of the greatest gold mines ever discovered. We have panned seven to nine dollars per pound in gold from fifty pound lots of this ore. We will be shipping pay ore by September. The property will be a payer from grass roots."

Here are men who claim that in fifty pound lots they are able to pound out from seven to nine dollars a pound in virgin gold, and yet they are making frantic efforts to obtain capital, offering extraordinary inducements. This is one of the most ridiculous advertisements I have ever read. They say they own "forty acres of this rich property, and have discovered other large veins, which they will locate, together with their extensions; assays run from $1,000 to $132,000 per ton." The above is only capitalized for $200,000, of which $100,000 is in the treasury. They only offered in the beginning 50,000 shares for sale, at ten cents a share, which if all sold, without paying any commissions, cost of advertising, etc., would net them but $5,000; and yet they claim they have panned from seven to nine dollars a pound in fifty pound lots. If they would pound up 700 pounds of this ore they would have the money they are asking the public for.

The author has done some work of this character on surface ores showing free gold, and he has crushed and panned as much as fifty pounds a day. As labor in any mining camp is not much over four dollars per day, and the cost of a gold pan, with pedestal and mortar would not exceed ten dollars, it appears strange that there should be any demand for money in property of this character. The last line in the advertisement reads: "Wire for reservations and send draft at once."

Where there is a will, and the material exists, the miner will find a way. The author, on the Dolores River, Colorado, ground up grains of wheat in a coffee mill to make flour upon which to subsist.

A refreshing change in the language of an advertisement is found in the same paper. The promoters are bidding for capital. The writer knows the property in question. He knows it is a prospect, and the owners know it is a prospect. They are seeking, by the most favorable language possible, consistent with truth, to create a good impression yet keeping within the bounds of reasonable fact, and we read the following:

"Many fortunes are made in a day by well-selected mining investments. Perhaps no other business in the world can build fortunes as rapidly as honestly operated mining. The start is generally prospective. It is not necessarily a gamble, but it has to do with seeking a hidden treasure of unknown worth. Ore in paying quantities may be encountered with little depth. It may not be found for hundreds of feet, but we work on driving a tunnel or sinking a shaft getting nearer and nearer the possibilities of the mine. Perhaps many companies that have proven successful in mining have started with no more to recommend them than a piece of prospect ground almost worthless in the open market, but development of the properties has made many such parcels of mineral land command thousands of dollars in but a few months' time—nature provides the possibilities of fortunes in mining.

"Good business management is absolutely essential in this method of co-operating with nature. The management should be as capable in its line as industrial administration is along its beaten paths. Fools may stumble onto fortunes, but only business men can make those fortunes perpetually profitable.

"These fortune-builders in the mineral world, have, during the past three decades, built up in gold mining alone an annual production in this country of $100,000,000."

No commercial miner can find fault with this language. It is the truth. All they say is possible in nature. These prospects are worthy of the effort.

We turn over in the same issue two pages, and find another advertisement, about the same size, describing a corporation with a capital stock of $5,000,000, divided into five million shares of $1 each, par value, this stock being offered at twenty-five cents per share, or a valuation of $1,250,000 on the total capital stock. In this announcement we find the usual revamping of what other mines have done, the display of an assay certificate showing that a specimen of rock ran twenty-one per cent. of copper, and the man making the offer to the public, says: "I know all about this property; I went all over every part of it before I allowed my name to go into the directory; I want to prove to you that this stock is the best buy in copper; if you are wise you will load up on it, for we propose to begin shipping in August. There are no difficulties ahead of this company, and nothing to prevent us beginning the shipment of this ore this Spring; there are thousands of tons of ore lying in the creek bottoms, which run from $35 to $50 per ton in value." Here is another case of where there has evidently been no shipments, nothing upon which to base a commercial opinion, and yet the public is asked to buy this stock at the rate of $1,250,000, and for the purpose of showing what a wonderful property they have, they outline the side of a mountain, and say they have a block of copper worth ten million dollars, "a mountain of copper ore, where we expect to take out ten millions in copper."

It will be noticed in this instance they say we expect to take out ten millions in copper. "It is our intention to gather up the rich ores that lay in the creek and ship them to the smelters at once." And they further say that in their estimates they have purposely cut down the percentage of copper in this great block of ground, which they have not opened, and do not know what it actualy contains, but for estimating they cut it down to four per cent., although much of it will run as high as fifteen per cent., so they say, and the general average, they claim, should be in the neighborhood of eight per cent. greater than the average of the world's greatest copper mines. Not a word in this advertisement about even one ton of this mineral having been shipped. Not a word about even two hundred feet of development work having been done, but they say they are going to do this work, yet they ask the public to pay at the rate of $1,250,000 for something that is in the primary stages of a prospect.

The writer has strictly adhered to his policy of not pointedly, by name, referring to any man or his work, but to treat the subject generally. I am in the business of mining. I want to buy and sell prospects and mines in the future, as I have done in the past, speculate in stocks on exchanges as long as that system exists. After I sell a prospect, its future rests with its purchasers, but I have always tried to impress on them that it is better to get money slowly by a plain statement of facts, rather than to obtain funds upon promises that could not be redeemed, and misrepresentations that only bring sorrow; that word painting and skillfully manipulated intimations in an advertisement was not the proper way. In reference to this copper advertisement the Spring has passed, and I have failed to find that any of this rich ore that laid in such abundance in the creeks and ravines, has been shipped to assist even in, a measure, the development work contemplated. It would not surprise me if this corporation is now in a state of inocuous desuetude. If only five hundred men bought the stocks, there are five hundred men who may not be favorable to mining. I make this plain non-ambiguous remark: No commercial miner ever wrote that advertisement.*

*The author recently met one of the promoters of this Copper prospect, and was informed that the matter was written by an advertising agent, also that there was a quarrel among the owners.

CHAPTER XIV.

THE UNSOUND DIVIDEND.

Capital is liberal when frankly dealt with. When misrepresentation prevails, then capital becomes suspicious. The American investor is most intelligent and daring, but he demands returns in proportion to the risk involved. When promised returns, the realization of these promises is expected. Disappointments and delays only engender shaken confidence. It is the word "manipulation" and deceiving promises that have driven a great deal of conservative capital from mining, which would have assisted in the creation of new wealth, if it knew the truth, and could rely upon the evidence. Much of this is due to the unsound claims as to the time and the amount of dividends that a mine or prospect will pay. It is ignorance of the necessities of mining that has caused these mistakes, the foolish promises, which the skilful miner knew could not be realized, even considering the enormous possibilities of the industry.

The dream of the miner, as he labors in the bowels of the earth, poorly clad, subsisting upon coarse food, sleeping upon hard beds, and suffering other privations, is that his efforts may result in winning from nature a new dividend-paying mine, that being the final goal of all who endeavor to win wealth from the earth. After this is reached, there practically ends all personal want, provided the ore shown justifies the belief that the mine is upon a firm, paying basis. No longer the need of credit at the local store, no more appeals to capital for money with which to prosecute developments. When a mine is upon a sound dividend-paying basis, the earth itself freely gives up the raw material of money, and smelters or custom mills give the stamped coin in exchange for this material.

The highest dignity to which the miner aspires is to be upon this basis; the prospect has then passed through the period when it requires help in its development. It then commences to return all the money it in the past demanded as tribute from man, the future will take care of any mine requirement; otherwise it would not be upon a sound dividend-paying basis with the usual large reserves of ore.

In the old-fashioned days of mining—which fortunately still hold sway in the larger commercial operated properties, organized many years ago—mines were not classed as on a paying basis, until ample ore was exposed to justify the claim that there were years of dividends ahead. Since the coining of the words "Modern Finance," the dividend period in a mine's career is not always considered the same, as above illustrated; but instead "high financiers" and unsound promoters, recognizing that the dividend period is the attractive point to the investor, many proceed, with either deliberate intent, or ignorance, to ambiguously announce in language, which in reality does not in law express, that their mine is paying, but does convey the idea. Thus they use the word dividend in their sensational advertisements with the intent that the investor's eye may be attracted to the word and cause him to read. If he be of a susceptible nature, they figure that he may write for information; then follows the usual literature, they recall instances of dividends paid by other mines, statements of which have no commercial bearing upon the operations of the prospect advertised, in which the correspondent is asked to invest. Not one out of a thousand of the promotions, which have in the past been lavish in the display of the magnetic word "dividend," ever earned even one per cent. upon the total capital stock of the company promoted; more generally, they have never earned a cent of net profits.

Careful study of many of these advertisements, wherein the display of the word "dividend" is made, will show the reader or the commercial miner that the property involved is simply a speculative prospect; and upon a cold analysis of the subject matter published, it is found that the word is used to tell about some other mine that has passed to the dignity of a profit earner, or vaguely refers to some expected dividend from the prospect in question, which, however, may never mature, unless nature places the ore in the property to make possible the dividends expected, a fact that only actual results can prove.

Step by step the unsound promoter has invaded the most sacred avenues of mining, until at last he has intruded upon the most cherished of all, the dividend branch, which no man, until the word painter and misconstructor studied out the way, ever invaded, until he had the right, by an absolutely sound dividend-paying mine; but the modern financier found the way to obtain benefits by using the word, without at law, really doing so; that is, to get the effect without misrepresentation to the extent of committing a crime. In the sale of mining stocks of all characters, dividends is the argument used to influence the investor; that is the point that he seeks, the turning point, that leads to positive profit. If he is successful, then he is in turn held up to others, as a living example of the profits that come to those who risk and win. Thus we find ordinary prospects of no commercial value being classed as "about to pass the dividend period;" and the stock offered for sale at a few cents a share, the claim being that "we are about to pay dividends." This intrusion of the unsound promoter into the dividend avenue, is one of the most serious of all the burdens that the industry is forced to carry through the association of irresponsible men. The public having been taught that the dividend-paying mine is among the soundest investments in the world, naturally is confused, if he finds that the unsound elements are even in that branch. The experienced man will understand that when a mine is paying sound regular dividends, there is no necessity of spending thousands of dollars in the public press urging people to buy the stock at great sacrifice, for the mine is then making the money material.

There are only three sides to the dividend problem.

The mine is upon a sound dividend-paying basis, flooding its owners with wealth, and does not need any further help. Consequently no necessity for a frantic offer to sell shares at a low figure.

The mine is preparing to pay them, but is not yet doing so, consequently it is still a prospect, but it has good ore exposed and it has shipped small lots, proving that ore does exist. But it is not developed, and, from a commercial standpoint may never pay.

The mine has been well opened, ample ore blocked out; a test of its value has been made by a large run; several hundred tons of ore having been shipped proves its value to be commercial, and it may be said, it is just pushing open the self-sustaining profit-sharing door, it is a commercial mine as near as one can be, without positively being one. It needs the installation of better machinery to make the mine pay.

The promoter who confines himself to the truth can deal upon either one of the three, and be justified in asking the aid of capital, except in the first instance, when the request must necessarily be followed by a logical reason, the mine being upon a paying basis, but when the word "dividends" is juggled in a word painted advertisement referring to other mines that do pay, simply to excite inquiry or further investment in the stock of the corporation covering the property, or to invite investment in something promoted by the same persons, at a high valuation, but not yet upon a dividend-paying basis, and the reference to dividends in some other mine only made for the purpose of attracting answers to the advertisement, there arises the question as to the sincerity of the promoter, or the soundness of any venture where, even remote misrepresentations and deception are practiced by stretching of truth to perhaps evade the stern results of law.

The investors who can buy the stock of a dividend-paying mine at reasonable figures are lucky, for they are among the choicest of securities; but the promise to pay a dividend, the payment of an unsound one or the payment of a dividend on a few shares in a corporation where the majority of shares waive their right, is not a sound system of mining finance. The writer has always asserted that upon a fair valuation, the dividend of a mine should be ten per cent. to entitle it to a valuation at par; in other words, that ten per cent. should be paid each year upon every dollar invested. I recognize that this is not the system followed by high financiers who heavily capitalize mines, that are capable of paying ten per cent. upon say $1,000,000, yet, by increasing the shares, cause the dividends to equal six per cent. and demand par for the stock. The combating of this system is obvious; the mine is not like any other industrial enterprise that can be built up generation after generation, where the trade mark and honesty of management, good services and efficiency are of value; where the product sold to the public can be increased year after year. But in the mine it is different. The ore shoots from which mines make their dividends in the end become exhausted, some shoots may hold for two years, other may run for five years, some for one hundred years, but there finally comes the end of each distinct shoot, every ton of ore taken from a mine decreases its value that much. Ore does not grow during the life of a man. We do not know how many millions of years it has required to make ore. so we can only figure on what we can find in sight, therefore in addition to ten per cent. on a mine stock, there should be a redemption fund of at least five per cent. set aside for the return of the principal in the event of the total exhausting of the ore bodies.

This dividend question is so important that I propose to discuss it in all its ramifications. Men may not, to-day, be interested in this question, the length of the chapter may not appeal to many, but it is believed that some day each man may have occasion to want to know. I would like this volume, then, to be at hand.

In the winter of 1876 I worked upon the Little Annie gold mine in Southern Colorado. The late

U. S. Senator Thomas Bowen was owner. I was very proud of a large Colt's revolver I owned, even wore it to work. One day Mr. Bowen noticed that the flap of my revolver sheath was buttoned down. He said, "Bert"—I was called by my middle name in those days— "You may never need that gun, but if ever you do, the other fellow won't give you time to unbutton it. You want that gun ready at hand, for quick action, if you need it. If you are going to need it you will need it bad, you want your hand to fall on the handle at the time you do need it."

It is the way with this book; the reader may not need it now, or for years, but when he does, I would like it to be in his library, where his hand can fall upon it.

Before mine dividends can be paid, they must either be earned from mining and milling ores, or the mining and selling of the products of the mines. In both these cases the ore must exist. After ore is found to exist then the minimum cost of extraction and treatment must be considered. There must be a system of reserves outlined that a continuous stream may follow, for a dividend paid one year and skipped the next is not the sound kind that investors desire.

The layman does not realize the labors necessary to equip a mine for a dividend payer. The existence of ore does not end the operation. There must be methods conceived and established for economical extraction of the same. Ore reserves must be developed which can be called upon the same as the surplus of a bank or mercantile business.

In all well-regulated dividend-paying mines the care of reserves is a paramount consideration, the work of development being kept ahead of these ore bodies, which are seldom attacked until the ordinary development fails to uncover new ore. Then the mine draws upon its reserves to sustain its dividends, while the work of sinking and drifting uncovers new bonanzas. Then the first efforts of good miners are to reimburse the reserves drawn upon.

In many of the bonanza mines of America, Australia, Mexico and Africa, these ore reserves amount in value to many millions of dollars, and dividends were not commenced until the directors felt that the reserves would enable them to continue the same, even though two years of development work should in the future be required. Consequently, it is estimated that nearly thirty per cent. of the total expenses of operations in well-regulated mining companies is charged to the reserve account.

It is ignorance of these necessities of mining that causes well intentioned promoters to make mistakes in promising dividends before these reserves are established, thus we find men sinking, doing a little drifting, and in so doing, extracting a little ore, which they sell, and because it returns a trifling profit, they claim the dignity of paying dividends.

There are several forms of what I term unsound dividend-paying promotions. As has been frequently stated, the views herein expressed are my own. I do not question the legal right of any man to do as he may deem fit; he may have the right at law, but the question asked, is it morally right to do the various things, which the author says, by experience, by the net result, proves profitable to a few, and non-profitable to thousands, and further, places the industry in a false light. Old-fashioned miners look for the net results, something sound and permanent. If the new order of mine financiering, where there is no absolute net result beyond the semblance of a result, is the beneficial one, then I admit that the ideas of the commercial miner are moss-covered and entirely out of date.

To my idea, the mine dividend, paid by a company organized as a mining company and before the world as such, is the net results from mining ore, the milling, smeltering, or sale of the same, or from net royalties from ore extracted, the dividend being paid, after all expenses of every kind have been deducted from the ore proceeds, and only declared, after the mine has been well opened, and there is exposed large bodies of ore, to sustain the draft of the operators to pay many following dividends. Not the payment upon a few shares for the purpose of special attention, but upon all the outstanding shares. Not to sell stock from the treasury to pay cost of labor, office expenses and advertising, that the entire proceeds of the smelter check may be called dividends. Not dividends paid from some other avenue of trade, but paid from ore, honestly won from nature, at a firm net result. I admit, that I am not modern in high finance, but the assertion is made boldly that there is no profit from mining unless it be a net profit, the reader has his right to form his own conclusions; what is written is what I have been taught to believe.

As an example we will say that a corporation is organized and its entire capital stock issued for a prospect. The capital may read $5,000,000, of which $3,000,000 is paid to the owner of the prospect and $2,000,000 is placed in the treasury. A commission contract with some fiscal agent is executed, wherein he agrees to try and sell the treasury stock for a compensation of 40 per cent. of every dollar he raises, and further the promoter gives him a bonus in stock from the $3,000,000 held by the owners. First the agent offers 500,000 shares for sale at twenty-five cents per share thus placing a valuation of $1,250,000 upon this prospect, that perhaps never shipped a hundred tons of ore. Admitting, as the work progresses, they open ore, or the ore that may have been shown at the surface continues, and after two hundred feet of work has been done, they have extracted $5,000 gross value of ore, at say an expense of $7,000. From this $5,000 of ore must, however, come the cost of transportation and smelter charges, the net result may be $2,500; not figuring cost of extraction. Now the idea of modern mine finance commences to be active. The prospect has shipped ore, to the inexperienced this is evidence that it will always ship; the agent, interested in his commissions and his promoters shares, has a personal reason for wishing the world to know that the prospect has shipped. The more stock he sells, the larger his commission account, in addition he may have an opportunity to sell a few of his promoter's shares, in which case he takes it all; the mine does not receive a dollar, yet its burden has been increased that much. Perhaps the promoter's stock is pooled, then his incentive to increase his commission is stronger.

No matter who may be responsible, agent or owner, if they reason that they can sell more shares by advertising that they are shipping ore, than they could possibly do by a plain statement of the fact that the prospect is not yet paying, they are then "word painting" and in a measure misrepresenting, thereby doing the industry an injustice. The reason is generally lacking in these cases, the personal interest overpowers reason, it is boldly stated that they are upon a shipping basis, the stock is advanced to thirty-five cents per share, adding $500,000 additional value to the yet non-commercial prospect.

The writer has heard this defended by saying that a large part of the treasury stock is still unsold, but this logic is not sound. If a man buys only one hundred of these shares at thirty-five cents per share, he pays at the rate of $1,750,000 for the prospect, figuring its capital stock at $5,000,000. He pays $500,000 more than the man who made his purchase the month before.

The campaign of education starts, the advertisement reads generally of this order:

"Eureka! On the high wave of success! Follow the mine makers! Put your money where it will work while you sleep. Last month we offered you this stock at twenty-five cents per share, now it has advanced to thirty-five cents a share and climbing to the dollar mark. We are shipping ore, we are doing that which our competitors said we could not do under a year. We are shipping ore and the profits are going to our fortunate stockholders."

There is not a word to inform the investor just how much ore was shipped to justify the raising of the price $500,000. The man with the commission contract may be able to tell, for in the first instance he received forty dollars on each 400 shares of the stock sold, now he receives fifty-six dollars on the same number of shares; in other words if the reader pays $140 for 400 shares, the broker takes fifty-six dollars, which is considered very heavy compensation in all legitimate investments, but a common one in prospect promotion, as explained in the chapter on commissions.

As will be noticed there is no statement of fact in the announcement, beyond wherein it is stated that the company has shipped ore, a complete silence on the vital points of how much ore was shipped and the net value of the same.

Generally two months are given for the effect of the startling announcement that ore has been shipped to run its course, then there may appear a more blood quickening advertisement, reading something like the following:

"Some men allow opportunities to beat in their doors before they conclude to see who is rapping; we have been telling you, importuning you, to buy this stock at thirty-five cents per share, now it is too late. The advance has been rapid. It is now fifty cents per share. Why? Because we are paying dividends. The price will be fifty cents a while longer, then it will start climbing to a dollar. Yet some men allow their neighbors to grow rich right under their noses. Better get in while this allotment at fifty cents per share lasts. Be in with the Mine Makers. Wire your orders at our expense."

Here again we see no evidence of a statement of fact, upon which a grand jury could act, the only one being, "we are paying dividends," a very close assertion; they do not claim the mine is paying dividends, but "we are paying," meaning the person, to the world the prospect has apparently arose to the dignity of a dividend payer, the stock has been advanced and the prospect is now valued at $2,500,000, yet not a vestige of evidence as to how the dividend was paid, the amount, or the number of shares upon which it was paid.

Has not the reader often seen the progress of such organizations? Have not the rapid increasing values in stocks been flaunted in your face, accompanied by the warning, "Don't be too late. Wire in your orders at our expense." Can the reader recall even one of those promotions that are to-day upon a healthy basis? That these publicity dividend propositions, where much is promised, have held their sway, especially during the craze for stocks in new districts, there is no question. The files of many papers sustain the charge.

The subject of their misleading nature has been discussed in the chapter on the evidence of sensational advertising. A hypothetical reference to one class, carries the nature of all, where the dividend period is prematurely born, when the inevitable results follow, the investigation shows self interest, ignorance and inexperience. We cannot accept the "belief excuse" or the "I was informed defense" for each time these unwarranted rises in value took place there was a motive, and it is plain that it was personal.

It is true, that investors could have written and ascertained how these so called dividends were paid. Legal advisers who are bright enough to be in the class that our President intimates, "Burn the midnight oil to keep their clients within the revised statutes," a statement to which Joseph Choate called the attention of the bar a few nights ago—will advise the promotor to either not answer, or to answer truthfully, the reason being that only one out of a thousand readers ever take the trouble to investigate, assuming that what is said be true. The man who does ask unpleasant questions can be well lost, as an investor, either by no answer, or a plain answer, the latter preferred, because he is only one of a thousand, and ever after, there is legal evidence that the promoters did not hesitate when asked to give a plain statement of fact. But what is the position of the man who does not, either through oversight or lack of experience, read between the lines, take these precautions. The man who reads and believes, his sufferings over his loss must weigh something, especially if his money has been won hard, and if it is his first won dollars that are risked. This I say is unfair, for one man by his superior ability to juggle words and evade the responsibility of his acts by legal precaution, to take from the less gifted without giving just equivalent.

Men engaged in high mine finance are ever active to make money by means that are startling in their audacity. It has been known that dividends have been paid upon shares covering mines not even in activity at the time of payment, in the interim the sale of stock was in progress. In one case the directors sold to the fiscal agent the future product of a prospect—that dividends might be paid, as they considered, legally. Another case the dump was sold to the fiscal agent and the cash received used in paying dividends, but in these instances the promoter controlled nearly all the stock, and was making preparation for the legal defence that, the money paid, had been legitimately earned in a branch of mining, that if a man wanted to buy a dump, the corporation had the right to sell, and could divide the proceeds among the stockholders.

The writer does not question the right to sell or to divide, the thought arises, is it with honorable intent. I know of an instance where a man had placed a prospect upon the New York curb at $5.00 per share, and during the "craze" increased the capital stock several millions, then utilizing some mules packed a little base bullion over mountains to the sea, declared a dividend, I am told, upon a limited number of shares, and worked the stock up to $14.00 per share; a close friend sent me an order to buy at $10.00. I pleaded with him to be cautious, explained that I knew there was nothing, as yet, commercial behind it, that I knew the men, had interviewed miners who had examined the property, but the "inside influence" prevailed and he bought and bought. One week ago he told me that he was in $64,000. The stock he purchased at such high figures is to day quoted in a weak market, at less than one dollar per share. Here is a striking example of the results of the premature dividend. When the writer first found this gentleman he was wealthy, broad minded, and willing to risk a little in legitimate mining, in the hope of the profits that come to the holders of paying mines. He had much influence, but to-day he and his influence is lost to mining. It will take years for his wounds to heal; a poor struggling operator with a good prospect will receive but slight consideration at his hands. You can not sell this man a piece of quartz containing ten dollars of free gold for five dollars.

Here is a single example of the loss to the industry, to those who are sound in their operations and assertions. It is useless to say to him: "You were in with bad management; we are paying dividends." This argument has no weight. He replies, "Yes, I know, $64,000 worth of the mine that pays dividends." Who is the gainer, who the loser, in this case? A few men benefited to some extent, by this premature payment of a dividend upon a few shares, the investor lost, but the injury to that broad commercial avenue travelled by honest men who do mine is beyond calculation. Its result will be felt for years. Men with limited means, seeking aid to open some promising ore shoot, will feel it severely; the residents of that particular district, in which the mine is located will feel it.

The editor of a paper recently remarked that I was radical in virtually classing certain promoters as unsound, that there were honest men engaged in mine exploitation. He is right, there are many men to-day seeking capital upon honest, plain statements of facts; they are, however, combating the effects of that of which I speak. My remarks are plain; there is nothing ambiguous about them; in this volume there is no direct individual charge. I say that the promotions floated by sensational advertising and misrepresentation never pay one time in a thousand; that's a broad statement, no qualifications, but a plain blunt charge that not over one time in a thousand do they ever result in healthy paying properties, and even the one exception will perhaps be the result of blind luck, while on the other hand seventy per cent. of the commercial operated mines do return profits. Those who are in the line, which I assert is not sound, have the right to prove that I am not telling the truth. Any reader of this book will admit that; I say every man has a right to ask the aid of capital to open a prospect. I have stated some of the greatest fortunes are made through investing in the prospect period, but it is claimed that a statement of facts should follow, and this statement may carry reference to the mines in the same district or local conditions. No dividend should, however, be paid unless the mine by its ore reserve can continue in their payment; not to pay a few dividends, unsoundly won, for the purpose of selling stock, only to face the usual results when the profits distribution does not continue.

As to terming a man a thief, I have no right, unless I know him to be such. Perhaps my conception of what constitutes a thief may, like my ideas of honesty, not be modern. A thief is one who steals; the manner of the stealing may differ. Is it only the man who robs your house, or picks your pocket, that comes within the definition of the term "thief?" If so, then why is a dishonest bank president, or trustee, termed a thief, when, without robbing your house or picking your pocket, he converts to his own use your property by another form? In so taking, both risk imprisonment; they have the manly courage to rob, with a knowledge that they will be punished if apprehended.

Now we take the other side, the side of the coward. He takes your money by a system of word juggling, misrepresentation and unsound evidence of value, he publishes circulars or makes that, which to the inexperienced, apparently says yes, when at law it means, I am not positive, or a plain no. He promises that which he is aware he has no reasonable chance of redeeming. If you invest in the securities offered, believing the statements, as you read them, to be true, then when disappointment follows, you find the maker of the statements is immune from punishment, because under the law his yes did not mean yes, his promises of a kind not amenable to law, that in the payment of a dividend that he had not overstepped the statutes; he, having induced you to part with your money without giving you just equivalent; what would be the term you would apply to that man?

CHAPTER XV.

EXAMPLES OF UNSOUND DIVIDEND PAYMENTS

EFFECT OF DECEPTIVE LITERATURE

Many unsound systems for the apparent payment of dividends have been carefully worked out; some are ingenious, some are crude and quickly find their end; others more intelligently planned have longer existence. Some of the boldest operators have taken a hand in the "dividend field" and the audacity of their work is appalling.

A body of men associate themselves together, obtain a prospect and commence to sell stock. A review of the splendid dividends paid by legitimate mines is made. They may, or may not be mining ore, but the intent is to make it appear, that they are mining upon commercial lines, if they are of the bolder type,—this is not an overdrawn example,—they advertise something in the following order:

"Dividends, dividends, our fourth dividend of two per cent. per month has been paid, our next one will be paid on the 15th—were you present at the last melon cutting? No? Then we extend you an invitation for the next slicing, on the 15th. Send in an order for a few shares of this fortune building stock, this sound dividend payer; millions in sight."

You are impressed. Two per cent. per month means twenty-four per cent per annum. $1,000 invested gives you an income of $240 per year. Your $1,000 may be in a savings bank, drawing thirty dollars per annum, you read the stereotyped matter: "Why leave your money in banks at three per cent. when we can pay you twenty-four per cent.?" You are an honest man, never having been associated with the high financiers of the day; you do not reason and study like the man skilled in the ways of the unsound, you do not see that there is not a word in the advertisement, wherein, they say the two per cent. per month is earned by ore extracted from a mine. You read the name of the mining Company, you assume that it is money won from nature, and you draw your savings and invest.

Your money then goes into bank, to their's, or some credit other than your own, as far as you are concerned it is gone. On the next dividend day you do receive two per cent., the same amount on the next, and the next dividend day, but it is only a part of your own thousand dollars that you are receiving.

In the interim you are urged to buy more shares or interest your friends, and being anxious to do your acquaintances a good turn, you do bring it to their notice, thus innocently adding to their misfortune. You have failed to reason that any mine paying two per cent. does not have to advertise its shares or sell at a sacrifice; that even one per cent. per month does not go begging even in the West, where the common bank rate is eight per cent., you have failed to ask yourself the common question—if this is a sound twenty-four per cent. investment why are they so anxious to sell? Finally you learn the truth, when, either the United States Postal Authorities interfere, and you receive back your unanswered communication relative to the non-receipt of your dividend, marked "Fraudulent," or the promotors feeling that they have returned to you all that you should receive, pocket the remainder and leave for parts unknown. Then what do you and your friends do? You stamp mining as unsound, a fraud, when in truth you have not been in mining at all.

Does the reader realize that such barefaced frauds have been perpetrated? It does not seem reasonable, but it is the truth. If they exist again, it will be the public's own fault, for to speak plainly, it is the demand, the rapacity of inexperienced people for quick and unreasonable profits from mines. They expect too much, and that before the mines are even opened.

There are many fine producing mines that do pay two per cent. per month upon reasonable capitalization, and they have been paying it for years, some mines pay much more than this, but the shares are not sold by sensational advertisement; it is earnestly desired to have it understood, that the commercial miners are in no manner a party to transactions, such as are here illustrated, they regret them, and make efforts to stop the practice, where the courts are appealed to examples are made; but just so long as the Eastern investor does not exercise common sense in the purchase of mining shares the commercial miners will be kept busy denying any responsibility.

A fraud such as here described, is easy to run down; every mine paying two per cent. is well known and inquiries can be quickly made; it is not, however, as easy to correct the effect of those who operate close to the mines, that is, the inexperienced broker who makes his promotions from the mountains, to the Eastern investor, the location of the operator conveys the impression that they are miners, when the announcement of a dividend is not accompanied by a statement of how it is earned, the cure becomes more difficult. The Charter of mining corporations are in cases sweeping, and the legal right to pay dividends from many avenues is allowed; such as services, stock speculations, results from real estate deals, sale of mines, or sale of contracts. Yet when the announcement is made the assumption is carried, that it was won from ore taken from mines. One of the evils, is the neglect to state the total cash amount of the dividend, which may only be $1,000, then it may be $50,000, if the sum total was known, the public would invest upon the evidence, but the promoters evade this point and instead use the space to call themselves successful and say: "Get in with the mine makers."

There is a large amount of fine gray matter lost in conceiving these plans, which could be much better employed, and that, at the result of more profit and more pleasure, for in the end nearly every one of these unsound promoters lose all they obtain; they have few happy moments; there must be some remorse in the knowledge that you take from, but do not give; there must also be ever before them the fear of loss of their liberty, or physical harm from those whom they cause to suffer, but new ones spring up as the others pass, for each year we witness new methods of saying yes, yet at law meaning no.

A man may organize a corporation with a capital stock of $100,000, issue it all to himself or associates for services, contracts or some prospect hole. He sells a few shares and calls himself a mining president, at the same time he may be dabbling in mercantile pursuits—a life or fire insurance agency, teaming, selling real estate, buying and selling ore. With the money thus earned, he will declare a dividend upon the stock of the company he has fostered, and pay one per cent. per month to those who hold the few shares he may have sold, as he may hold the balance, or a large part be in the Treasury, a little earning can legally pay quite a dividend upon $100,000, and if say, $2,000 is only earned and paid on $10,000 it looks like old bonanza days; but it would not be two per cent. upon the entire capitilization. Thus the "Financier" advertises that his company is a dividend-payer and no more stock is to be sold in that particular corporation; perhaps he does not want the world to know how the dividends are earned, or the amount. The system does not end here. The idea is conceived that perhaps the public will reason, that if a man has made a big success of one company he can make a success of others, so by keeping in the public eye, the fact, that one great success has been made, a string of subsidiary organizations are promoted. There is nothing wrong in this, providing the intent is honest, and the basis of the first corporation, which acts as the Bell-wether is sound, the dividends fairly won from legitimate ore extraction, for if one success follows a man's judgment, the world owes him the credit, and gives him the right to assume that other successes will follow; but if the intent is to convey one idea that is not true, then a question arises. It is the language of the second Company that follows the flotation of the first organization that creates the doubt in the mind of the commercial miner, such for instance as the following:

"We have another big winner. We regret you did not buy into our first dividend payer, but it is too late for that, unless you can buy stock from some fortunate holder who was wiser than you. But you can get into this new one on the low basis of ten cents a share." If the capitalization of the new one is \$5,000,000 of \$1 par, the investor is paying at the rate of five hundred thousand dollars.

And so it goes, through the press or by circulars, reaching the homes of people who perhaps never heard of the first dividend payer, but who are influenced by what they read. Generally it is kept prominently in the public eye that the first company is paying steady monthly dividends, but if there has ever been one of those corporations, that states plainly, each month, the amount of their dividends, or the source from which they were derived, I have never had the pleasure of seeing the advertisement. Perhaps in this manner they succeed in floating several companies that may never pay; perhaps they may make the second flotation pay a small dividend, but their great "clean up" perhaps may come from the general sale of stocks in their corporations for which they do not make any promises, thus evading the law.

The mining world welcomes the entry of a dividend payer into the list, that is held up with so much pride, providing it is a legitimate earner, no ambiguous language about the amount paid or the number of stockholders it was paid to. Notice of this kind need not however, be made after the promotion period has passed and the mine settled down as a steady producer. Then the declaring of dividends is expected as a matter of course.

We do not assert that is is not possible for these propositions to become dividend payers, but while the appeals go out to the public for money to make them such, the facts should be told. We do, however, assert plainly, and without qualification, that we have never seen a steady dividend producer that has resulted from this system of flotation.

It is reasoned, by the conservative element, that it is better not to pay a dividend if the payment is to be suspended after a few months, thus conveying the impression that the dividend period of the mining industry is uncertain. For that reason the system is stamped unsound and not beneficial to mining. If a crash comes in a dividend paying stock, the entire Western country is affected. The influence does not stop with those who have lost their money, but every industrial promoter seeking money in his respective line takes occasion to revamp and enlarge upon the more recent failures in the mining world. Then there is a further detriment in the fact, that generally those who, from their inexperience with the world's affairs, believe all that is said, suffer and are of a class that cannot afford to take a loss. It is only natural that they should denounce, with great bitterness, everything pertaining to the avenue in which they made such a distinct mistake.

We will take a pointed illustration. If the reader, after having worked hard, at the end of a life of sixty years, had made a small saving and that came to him which comes to every man, and his wife and mother were left alone, with nothing to protect them in the future against want, except say the savings of $20,000, which you, in your wisdom, had placed in bonds, reasonably safe, but only bearing four per cent. per annum, which would give them an annuity of $800, ample for them to live modestly, though with perhaps not many luxuries, but at least not want or feel the pinch of privation. But in the event of sickness overtaking them, heavy doctors' bills threatened cuts into the principal, and they had that fear in the heart, that is in the heart of the writer, and every man who has a knowledge of what may happen by the turn of the wheel as life goes round, and they begin to think, how can they protect themselves, how can they retrieve the loss made by the misfortune that has overtaken them?

Then at this period, if by chance that seems to be the forerunner of fate, those you left and made efforts to protect, received one of these sensational circulars, wherein great profits were promised, one of the kind where it says: "It is believed that we will make $100,000 a month," or that "We are paying dividends of one per cent. or two per cent. a month," and proceed to cite historical evidence of the millions won from nature, or one of these great "believe" advertisements, such as are presented to the inexperienced.

Perhaps it will be reasoned that the writer exaggerated, that no man would be so foolish as to make such promises, but they do, and that publicly.

On the morning of February 1st of the present year, the writer clipped from the New York "World" the following item, which was a part of the annual report of the President to the stockholders in a non-commercial mine. It read as follows:

A double track drainage and transportation tunnel. The small pin point of white is day light at the portals.

"We should be able to make a profit of at least $400,000 a month, or $5,000,000 a year, or over fifty per cent. on the par value of the stock issued."

According to this report there had been $10,000,000 of this stock issued, and the mine had not got beyond the point of "We should be able;" it had not arrived at the point of saying "We are earning," but "We should be earning"—a very wide latitude.

Suppose this circular, or one of a similar nature more especially referring to the fact that they were paying dividends, fell into the hands of those you had left, only protected by the sum of $20,000, and your wife and mother reasoned they could increase their income from $800 per year to even $1,600 per year, that by so doing it would give them added luxuries, more comforts, enable them to perhaps employ another servant, that your mother might be saved the labor of house drudgery, and acting upon that impulse and desire to better their condition, they believing in the sincerity and truth of the people making these representations. did take those bonds and sell them for $20,000, and put $10,000 of it into this class of stock, and received their first dividend, and also received circulars urging them to get more money to put into this gilt edge security, such as is done time and again, and finding that they had received a dividend, their remaining caution was swept away, and they invested their last $10,000 and that after two or three little dividends. The result that usually follows unsound promotions faced your family, and they were brought to that point that you had so longed to keep them from, the point of necessity and want, and they became an object of public charity, perhaps to find their way to the Alms House or forced into menial servitude; if it were possible for the dead to return, what would you try to do to the men responsible for that legal crime?

That picture is not overdrawn. The writer witnessed one similar to it some years ago. I was introduced to a family that had formerly been in affluence, but were then working in the Government Printing Office. This lady asked permission to see me and she told me a story that is really the basis of the illustration presented here.

Attribute it to my curiosity, or inquisitiveness as you may, whenever I see anything pertaining to the mine promotion that looks strange, I want to know the reason, on the grounds that there is said to be good godly reasons for the existence of poisonous plants and deadly serpents. In the month of January of the present year, I noticed a clipping in one of the Western dailies, it read as follows: "The Homestake Mine has declared a dividend of fifty cents per share, payable on such a date." Just a small headline. The Homestake is a great dividend paying mine, one of the many properties, that sustains the credit of the mining industry, a mine which has continuously paid dividends for nearly a generation, with the exception of last year, when a fire destroyed some of the workings and the dividend was passed one or two times. It was evident that there was nothing extraordinary in the payment of fifty cents per share, I have never seen any display advertisements of the fact that this mine, or any of the other great mines of the United States were paying, or had paid, consequently my curiosity was aroused at what I had seen in another paper, being pricked by the knowledge that in mines operated commercially, the payment of a dividend creates no excitement, no blare of newspaper trumpets; the notice of the dividend is taken as a matter of course. It is expected this month, next month, and for many months to follow, as it had been paid many months continuously in the past. It causes no more comment than the payment of a railroad or bank dividend.

The fact that nature had given up more of her treasures, did not call for the expenditure of a large sum of money in the public press, calling attention to the fact that a dividend had been paid, that there was another property owned by the same people, which would probably go on a dividend paying basis next month, and the public urged to buy into the second on the evidence of the first. Never in the writer's experience has he witnessed the notice of a mining dividend, paid by a commercial mine, extolled in a full page advertisement, reproducing one of its dividend checks made out to the order of some stockholder, with the words "Did you get one of these? if not, it was your own fault. Buy in with us on the new deal," or "if you did not get one of these last month, buy some stock and get one next month;" or other language intended to excite investment.

Every man has the right to his opinion. It is not asserted that it is not possible for the promoters of mines really worth millions of dollars, by some strange desire of their own, to thus express their personal opinions, by telling the world at great expense, that their mine is paying dividends. We are always glad to know that men are fortunate, it encourages others; it may be a matter of pride with them, they have the right to cover four pages in making that statement if they can afford it. What seems strange is the reproduction of a dividend check, if it is simply the payment of a regularly won profit, from ore bodies giving evidence of continuing to great depth, why the necessity of this display, is it not usual in the conduct of affairs in commercial mines? it rather savors, of "something" to follow, if there is no mercenary motive, no more stock to sell—and what sound reason can there be for selling treasury shares in a dividend paying mine,—or no personal attempt to promote some other company, of what benefit is it to the mine, could not the money thus expended, be used to better advantage? On the 3rd of February of the present year the following dividend notice was published in the New York Herald. It is reproduced to show just how the announcement of a commercially earned mining dividend is made:

"The Board of Directors has this day declared a quarterly dividend of two per cent. on the capital stock of this company, payable on the 27th day of February, 1908, to stock holders of record on the books of the company at the close of business on Monday, February 17th, 1908."

There is nothing of a display nature in this, no ambiguous wording; it plainly says: "To all stockholders of record, two per cent. will be paid upon the capital stock;" not a word about the greatness of the men who earned this dividend, nothing about: "Buy some shares in the next big winner," just a plain regular announcement of an honestly won dividend.

It may be that the display of evidence, that a dividend has been paid is regular, the assertion made is that it is strange. A review of the ultimate results of such flotations, however, leads the writer to question the soundness of the intent, and the benefit that will accrue to the general industry. Go back ten years and study all of the publicity promotions that have paid, promised to pay or which guaranteed to pay, and study the result. It is a long list of abuses, of betrayed confidences, the payment of a few unhealthy dividends upon limited amounts of the shares, that additional shares may be sold, the selling of shares by the grossest forms of misrepresentations, as to ore in sight or pledges to pay profits at a fixed time, the issuances of guaranteed bonds, by a guarantee company, which means scarcely anything of a sound profit earning nature, and other devices used to convey the impression that the investment was sound. When the crash comes, it is found that the plans were laid, in some cases crudely, in others legally protected by the attorney who makes a study of the evasion of the laws a practice. It will be seen that in paying to a few, or from channel other than legitimate ore extraction, they are immune from legal action.

The writer buys and sells prospects, mines and mills, also develops them. Often he is obliged to ask the aid of capital, as do thousands of other men, who follow the commercial side of mining. Few men have ample personal funds to carry more than one enterprise, those that are extended must seek aid. What is the incentive we offer to capital to join us in the risk? It is, that we hope to pay large and handsome dividends.

The man who enters the field of competition and asks money upon the assertion that "We will pay dividends next month," or "We have been paying them, and will continue paying," and we can sell our shares at ten cents each. While our competitor sells his prospect non-dividend shares at twenty-five cents has so great an advantage, the conservative miner with his plain statement of facts is completely driven from the field. If the truth were being told there would be no complaint, but the truth, in nearly every one of these cases, has been distorted. If the investor finds by experience, that the dividend period has been used by men to deceive, what confidence can they place in the mines that are paying them soundly? How can the small merchant in the South or East draw the distinction between the sound and the unsound?

There is another side, one that seldom comes in the lime light, a sad side. A miner while prospecting is not often overburdened with cash; his capital is hope, energy and a little credit at the local store; a small cabin gives him his shelter. He may be a good judge of the cardinal principles that go to make mines, and the selection of prospects from which considerable of the risks are eliminated. His wife and children often share the hardships and hopes, and some of them are deserving of all that the wheel of fortune can turn their way. He finds a good prospect, develops it as far as his means will admit, then incorporates a little company, leaving the family buoyed up with hope. He goes East, presents his plain statement of facts and offers his development shares at a reasonable valuation that he may continue his work—and he is met with the remark: "are you paying dividends?"

"No I am not deep enough; I have some commercial ore, but the prospect is only a few feet deep and I need this money to continue, that the size of the shoot may be determined."

What sense Mr. Miner is there in my paying you twenty-five per cent. for your shares that are based only upon a prospect, when I can buy shares at ten per cent. in a mine that is paying dividends now?

The miner tries to explain, but he can not teach the investor in a few moments. All the buyer sees is the fact that one is a prospect, and the other claims to be a mine. The miner says: "How do you know that they are earning the dividend?"

"How should I know? They say they are earning it, and besides I know a man that bought the stock last month, and he received his dividend check last week, he brought it over here and showed it to me, and gave me the address of the Company, so I could write to them and buy a few shares before the price goes up; I am going to put my money where it will earn now, not into a prospect, that may never earn, besides the literature of this company gives me the names of men, highly esteemed, who are its directors, and they figure that next year we will receive 100 per cent. upon our money."

The miner finally realizes that there is nothing to be gained by an argument of reason, so he traces out another investor, and he asks him the same question about dividends, or says when can you guarantee dividends? The miner knows that if he speaks honestly, he can not set a time with any certainty, and tries to explain. The investor picks up a daily paper and reads the following headlines in bold type:

"We are going to pay dividends next month, buy before the first one is paid and double your money."

He turns to the miner and says: "Why should I put my money in with a man who has no idea as to when he will pay a dividend, when this stock is ready at hand, which will pay a dividend next month. No, thank you, Mr. Miner; good day, come around when you have a mine, not a hole in the ground. You can say you have a good chance; I am not taking chances. Good day."

How many good, square honest men have faced this, day by day, their slender stores of cash getting lower and lower, their letters home filled with as much encouragement as is possible, they wait, they search, while out in the little mining camp there are others waiting anxiously, watching the mails, living on hope, existing on what the morrow may bring. Those who have never felt the anguish of waiting and watching cannot realise what it means. I have drained deep the contents of that cup. I know that man's emotions—beaten, discouraged. I know how that family feels when he returns home, bringing disappointment. The author has no hidden motive in writing this book, he has made no personal attack, but if he can aid a little in making the miner's walk to the door of capital more pleasant, by opening the eyes of capital to the true worth of the legitimate miner, he will feel repaid.

There are two cardinal reasons why the payment of dividends is of much importance to the general industry and should be plainly announced. First that the world may know that there has been a new profit earner added to the now long string of producers, that the prospect stage has again been passed thus justifying man's belief in nature, and giving more encouragement to other prospectors, also those that follow him with their capital. If the dividend paid is not a sound one, and the property has been widely heralded as a producer, thus attracting the eye of the world, and those ever ready to decry mining, if the property earns but one or two dividends, then dies out, with the attendant disgraceful charges and counter charges, made by promoter and share-holder it would be better that the dividend period had never been assumed. It is therefore, asserted, that where a man, in his ignorance of the mine necessities, the time and development necessary to open ore bodies, the careful calculations on future product, that continuous dividends may be won, commences to pay dividends, upon an unsound system of actual reserves, the commercial miner has a right to question the wisdom of passing the dividend period, simply for the purpose of accelerating the sale of shares, does not the entire industry suffer, when the highest dignity, to which the mine aspires, is shown by failure to be questionable, as to permanency of profit division.

Second, as the reputation of the commercial mines is based upon the splendid profits won from paying mines, and as each new sound producer is added to the list it creates more reputation and attracts more capital. As the earth gives the profits, should the earth and the industry not be entitled to every vestige of honor to be derived from the possession of a new dividend payer? Therefore, have we not the right to know the size of the dividend paid, the mine from which it was won, and the district in which the mine is located, that other miners may point with pride and personal anticipation to the new profit earner? Mark you, I say if it is an honestly won dividend from ore. Not some system of passing the profits from teaming, water powers, old machinery, timber, profits from commissions, etc. But a mining profit. If people want to invest in farms or brick buildings, that is a separate line. I assert that mining, is mining ore, not speculating in shares, trading in horses, building lots or any form of mercantile pursuits.

The unsound dividend question is a serious one; the public naturally say: "The highest dignity of the mining industry—the dividend—is based upon fraud and uncertainty." We were told that when a mine passed to a paying basis, practically all speculation ceased, and that thereafter it was one continuous stream of profits, giving us a higher rate of interest than we could obtain in any other line of investment, and that the object of every commercial miner was to put his property on a dividend basis, yet here we have invested our money into what is known as a dividend stock, have received two or three payments, and in the end our loss has been complete, just the same as when we bought into a prospect, under the belief that it was a mine. How are we to draw the distinction?

Thus the unsound promotion has invaded the most sacred temple of mining. They have found lawyers who have reasoned it out, that it is not criminal to pay dividends under the system they follow, the primary requisite being, not to be too explicit in the advertisement.

Perhaps it may occur to the large publications to insist, that in all the advertisements referring to dividends, that the actual total cash amount, and how it was made, be set forth, specifying also the amount of ore reserves exposed.

CHAPTER XVI.

ENORMOUS COMMISSIONS CHARGED BY PROMOTERS. METHODS EMPLOYED TO EXCITE THE INVESTOR.

The remark has been made that I am too radical, that the investing public are quick to run—that the writer is sowing a lot of trouble for himself. I am not yet fifty years of age; my desire is to remain a miner; every dollar myself or my family possess is invested in mines, mills, smelters and prospects. The firm that I represent have, in actual hard cash, over $3,000,000 invested in mines, mills and prospects. The writer works night and day endeavoring to interest capital in the ventures. In some of the larger ones, which are of a purely development nature, considerable money is represented; in one over $700,000 has been expended without one dollar of profit return as yet; in others from $100,000 to $400,000 have been invested. All are in process of search for ore in commercial bodies. Unless we do interest others, the reader will realize that this load will be very heavy.

After reading "Rocks in the Road," is it not recognized that when I endeavor to interest the energies and capital of men by the order of enlightenment herein broadly attempted, will I not be asked the same crucial questions? Who stands in more danger than the author, if, I, myself, practice that which I say is unsound? The writer knows what he faces.

I only ask the inexperienced investor to investigate the claims made by promoters, and not to condemn general mining when they experience disappointments that are not caused by mining. Many of the evils I refer to have been touched upon by the Mining Record, Profit and Loss, Mining Investor, Mining World, Engineering and Mining Journal and the Mining and Scientific Press, all edited by able journalists. As to their practical experience in mines, they may themselves speak. I only know them by their splendid literary achievements. The writer says that practical experience, underground, overground, through financial operations in the East and West, also an all round knowledge of mines and men, is essential to enable one to know both the light and dark side of the industry. These papers make effort in their editorials to warn the investor, but, as has been stated in the chapter on "Worthlessness of Local Endorsements," their pages are also filled with excitable news from the mines, for which they are not individually responsible, they accepting it as matters of public interest, each issue, however, of some of them being filled with notices of prospects, advertised upon the assumption that they are mines; consequently the weight and wisdom of their logic is lost in the maze of matter that confronts the reader. It is admitted that their reasoning is sound, but the effect would be more lasting if the logic and advice were by itself, and not alongside of some announcement that a mine was paying dividens, yet still selling treasury stock. It is like one sound apple in a basket of unsound ones, similar in effect to informing a child that red-colored candy is injurious, yet at the same time placing the sweet within its reach.

"Rocks in the Road" has been written without individual reference to man or mine, promoting or not under promotion. It has been published in its form with a deep set purpose; the writer desires that it be kept ready at hand for reference, papers containing the ablest editorials are read and thrown aside, mining booms come and go, there is a lull in the sale of shares; then it flashes out with the discovery of some new bonanza, books are kept for centuries; it is the hope that "Rocks in the Road to Fortune" will also be, for a while, kept for future reference.

If any man should say it is unwise to pick at this sore, thus aggravating the evil, my reply is, that if some man does not attempt to eradicate the causes of the disease the sore will never be cured, and soon there will be no industry upon which the sore can find a place. For thirty years, like a cancerous growth, the unsound system has clung to the industry. It is about time some remedy was at least attempted.

The excessive commissions charged by promoters is one of the most deadly germs of the disease that we are forced to combat. The investor in his own interest should help in the fight for healthier blood in the arteries of mining, and in assisting us he will be saving himself. The writer feels reasonably well equipped by experience to treat this commission evil. Many of those who are responsible for it are my personal acquaintances. To some I have sold prospects, made my usual argument against the high commission, was always overruled, and the commission contract executed. One aptly said, "What business is it of yours? We pay you for the property; there your interest ends." But it does not kill the argument that the excessive commission almost invariably annihilates the chances of the prospect. I ask for any evidence to the contrary.

The promoter, from his standpoint of personal interest, is within his business rights. There is, however, another side of the case. It is not one prospect that has to be sold to make the industry more prosperous, but many must be opened. This individual case—as to the general run—places the prospect before the people at inflated figures, and then extracts from forty to fifty per cent of the cash received, a practice that is not conducive of ultimate success, and the resulting disappointments narrow down the circle of men and women who do buy, being desirous of making money through mines, thus each year, by repeated failures, the circle becomes smaller. I may sell to the promoter and get my price, but there may come a time when I will have to go to the people; then will be felt the results of the pernicious system.

The argument that forty to fifty per cent is not excessive is answered negatively by the raw, cold resume of the results of these promotions, not one in a thousand of which ever opened into sweet blossom as circulators of wealth profitably won from the earth; besides, every miner and shareholder in a mine or prospect is affected. For the promoter does not boldly say, "my commission is forty or fifty per cent"; that vital weakness is hidden, and the investor believes that nearly all of his money goes into the prospect. When failure follows, the circle is drawn down finer and it becomes more difficult to interest capital, because the industry generally is blamed for the acts of a few. Can anyone convince a sane man that his investment is safe where the broker tears off forty or fifty per cent from every dollar that comes into his possession? Can any reasonable man expect even the great mining industry to win success from prospects burdened down all through their industrial life by a load of fifty per cent, for which it received no benefit?

If a capitalist desired to buy a $1,000 bond which the broker advertised was sound and paid six per cent. When the money passed over the counter, if the broker took $100 the investor would look upon the transaction with amazement, not to say distrust, for ten per cent is a very large commission to charge upon sound securities. But bring it closer. You, after hard labor in all kinds of inclement weather, had managed to save your first $1,000 and desired to invest it where it would bring you in a handsome interest, and perhaps lay the corner-stone in your fortune. With the knowledge facing that you cannot afford to lose, yet with the three per cent offered by savings banks, though safe, there is nothing but thirty dollars per annum ahead for you. Consequently you read in the great dailies a display advertisement, giving a glowing description of a mining enterprise, which stated, or intimated, that "money invested in the shares was like placing money in a government bond, excepting that the mine will pay ten times the amount of the bond," and follow it up with a long string of irrelevent information about the millions that other men have made, and ask you the threadbare question, "Do you want to be a mining king?" You have had no experience in reading between the lines, and do not realize that there is no statement of fact in the matter. You are impressed. You do know of the hundreds of millions of dollars won each year from the earth, so you reason.

Your $1,000 in the bank is worth thirty dollars per year. You are worth just $1,000. The promoter says he will pay thirty per cent, or three hundred and thirty-three dollars per year, or interest on $10,000, bank rate, or making you worth $10,000 instead of $1,000. You write for information and your mail grows in volume. The high-sounding names in the directory appeal to you. Of a certainty such men would not be a party to misrepresentation. The local endorsement also impresses. Is it not evidence direct from the mine?

You hesitate. The broker knows you are hesitating. One morning a suave fellows calls upon you direct from the promoter, but his introduction conveys a different conception of the reasons. He has taken the trouble to call; he shows you a letter addressed to himself at some town near the place you reside in. It says, "Before you leave that section it might be well to drop in on John Clarkson at Wingo. He has been writing us, and as the stock is going fast, you can give him some inside information that may cause him to hasten his judgment. If we can make him a few thousand he will be a good reference for us in future transactions. We will hold 10,000 shares at ten cents for his account until you see him." He starts his conversation. It generally runs on in the usual way: "It is the greatest mine in the State." Rockefeller has been buying up the stock, and just as soon as the Board meets the price will be fifty cents per share," and a long line of this kind of unsubstantial ramble. Finally you are impressed, draw your $1,000 and journey to the city, where you visit the broker. As you enter, the magnificent surroundings fairly awe. There are several up-to-date stenographers, busy with their machines; clerks passing in and out. The scene is impressing. Finally, the nature of your business being made known, you are received cordially. Your $1,000 is an open sesame. In the conversation that follows it is made plain that these august gentlemen are doing you a great service. You regret that you have so little. But you take your savings and pass it over, in the belief that all that has been told is true, that there is no doubt about the stability of the enterprise or the safety of your money.

When the broker received your $1,000 what would be your ideas of the stability of the enterprise if, in front of your eyes, he took $400 of your $1,000 and put it into his pocket? And you, in your innocence, should say, "What is that $400 for," and he blandly say, "Oh, a mere trifle; that is just my share of this transaction; my compensation for convincing you that this is a good thing. This other $600 I am sending to the office of the mining company as their share, and they will send me the 10,000 shares of stock which you bought at ten cents a share. It really makes no difference; you get your 10,000 shares just the same. The only difference is, that while you are waiting for the profits to come from the mine, which are sure to come, we don't wait. We take ours first."

This naturally would astonish you. But if you could follow the $600 that the broker sends to the mining company's office and there witness the welcome it receives, and while the messenger boy is waiting for the 10,000 shares of stock for which you paid $1,000, and from which the broker has already extracted $400, would it surprise you if you heard the president say:

"You might as well make out Smith's bonus stock at the same time you are making out the 10,000 shares for the purchaser."

And there should be delivered to that boy your 10,000 shares and a further 3,300 shares for the broker, thus giving to the broker your $400 and also in addition one-third of the amount of stock you hold, and for which you paid hard cash, and for which the broker or promoter paid nothing.

If you could go a little further and see the president take the $600 and divide it up as follows: $100 for salaries of officials and the expenses of the eastern office, then a draft for $500, drawn to the order of the superintendent and mailed to the mine. You follow that draft; you see its arrival. You notice the expensively furnished superintendent's office, a fine span of horses at the door, more typewriters, mailing glowing descriptions about the mine, but no ore being shipped. The superintendent clips off $100 more of your $1,000 for outside expenses, and finally passes over to the foreman of the mine $400 and says, "Put that underground." Would you consider that $600 of your money has really been invested in mining, placed underground in an effort to make a mine? No, the $600 is lost to you. It is lost to the mine. All through the life of that enterprise it is burdened with the $600 that has been frittered away, ill spent.

Now this may seem rather far drawn, but it is the truth, and is about the way the money of the eastern investor finds its way into commercial mining. Even the $400 is not well spent, because in the mine the lax system that follows the unsound principles of the office always prevails.

I have stated that one of the greatest obstacles that faces the future success of commercial mining is the unsound promoter, and he is responsible for the high commission evil, which has completely strangled the efforts of practical men who seek capital upon a fair statement of facts. That these excessive commissions are realities, the writer knows from personal experience. I have tried to sell prospects upon a fair valuation, and have been unable to even receive courteous attention from men who were prominently before the public in glowing advertisements, mining brokers, who would not even discuss the promotion of a prospect on a commission basis of twenty per cent, which is in itself excessive.

During the World's Fair at St. Louis, where the writer had a mining exhibit, I became very well acquainted with some of the most prominent promoters of what we term "unsound ventures." Frequently arguments have been indulged in, but to no avail. On their side it was self; on mine, a knowledge that while I wanted the money, my work could not succeed upon their lines of financing.

The writer one day called on a promoter of some reputation, and the following conversation relative to commissions took place:

"It is useless to even talk to me about my handling this proposition of yours under fifty per cent commission. I get it from everybody I do business with, and I cannot make any distinction between your property and theirs."

"But do the prospects that pay you this commission justify by their actual showing the representations you make and which you say the vendors made to you?"

"I do not know; I am a stock broker. The men are endorsed highly in their local towns, and they tell me that without question the property will go upon a dividend-paying basis within the next six months. There was no argument when I asked them for fifty per cent. They granted it and were glad of the opportunity to place their property in my hands."

"But this property that I am presenting to you is almost a mine. It has bodies of ore blocked out, and from reading this literature that you put out on the property you are handling I can see nothing in it that justifies the belief that it will go on a dividend-paying basis in even a year. I don't believe it is as good a prospect as the one I am presenting, as it has not the ore showing."

"Now, my friend, I don't know you. These gentlemen came to me well recommended. I do not care to argue over this matter. My terms are fifty per cent. If you want to talk that figure, all right. I don't know that your property is any better than theirs. I have just as much right to believe that they are telling me the truth as I have that you are telling the truth, and as they say that their mine is sure to go on a dividend-paying basis within six months, and you say that you cannot tell whether your proposition will ever go on a dividend-paying basis, and that you can only pay twenty per cent commission, of what interest is it to me to even consider your proposition? I believe that the property paying me fifty per cent commission is as good as the property that you offer at twenty per cent, consequently I do not care to do any business with you on those lines."

"Of course I cannot convince you against your own interest, but I tell you that there never was a mine in the world that could pay that commission unless it was a blind luck bonanza, and when the blind luck bonanza is found it does not need money. The trouble with you eastern promoters is that you want to remain in ignorance. It is to your interest. You have no regard for the ultimate result, all you want is your share. You have entered the mining business wrong at the start. Instead of becoming identified with the sound end of it, and thus shaping your career from the basis of a sound venture, you instead start your lines wrong. You do not stop to reason, for reason would tell you that the man who told you these things is falsifying, and that caused by self-interest, that even of the fifty per cent that you pay them, one-half of it, no doubt, goes in their pockets, and perhaps very little of the remaining quarter goes into the prospect. You are in the position of a cat which, for the first time, tastes fresh meat. All through the cat's life there is a remembrance of the taste. It is the same way with the promoter who does not understand mines. If an honest man came to you first and explained mining, its risks and its enormous possibilities, and the needs of the mine, and succeeded in interesting you on a sound basis, where the commissions would not have exceeded twenty per cent., which is more than any industry should pay, all through your life you would have been a sound promoter, because when the other man came along you would know he was misrepresenting. But, unfortunately for you, who may desire to be an honest man at heart, you get in wrong at the start; you met the fifty per cent. man, and all through your life you will have memories of the fifty per cent; that's your ideal, and you will feel that all mining should pay that commission.

"I will tell you something that may surprise you, and wither your heart with envy and regret. You are a novice as far as commissions are concerned; you fell too soon, because you met first a man that was only willing to give you fifty per cent; you gulp him and his proposition down, and stamp yourself an insignificant fifty percenter, when, if you had looked around a little, you could have walked into a higher grade. I know of promoters who are getting sixty, seventy per cent, and in one case, when the oil excitement of Spindle Top, Texas, was sweeping over this country, I was in Cincinnati, trying to sell a prospect, and was informed by a gentleman that he had been offered eighty per cent of the total receipts. I tell you this that you may have a little to think over and perhaps feel sad that you did not first meet the eighty percenter. Further, I will say to you that while I cannot do business with you, no man that wants to give a fair gain for a fair risk can do business with you; but if you could look into the homes that the fifty percenter wrecks, and see the sorrow you bring, you would be ashamed to have been connected with it. And, further, I will tell you that I knew a man in Hartford, Conn., who was given the stock books of the company he promoted, with certificates signed up in blank, and he could fill them out for what he liked and send the company what he felt the company ought to have. No; you jumped too quick; you should have looked around a little; you should have more than you get. You are the class of man that believes any hole in the ground that shows ore is a mine—the class of a man that a certain miner had in view when the following conversation took place:

A miner, kicking his borro down the trail towards the local store for supplies, meets a prospector coming up. The latter says to the former:

"Don't see you in town much. Keeping yourself up on the mountains pretty close?"

"Yes, beating at the old hole up there."

"How is she looking, Bill?"

"She don't look well. Ore is about all pinched out. I am going to stick with her fifty feet further, then if she don't look any better, I am going to stock her and turn the company over to one of them eastern promoters."

It is natural to say that the writer is not a favorite with the gentleman in question. I have followed his promotions. Not one has ever turned out an honestly earned dollar. For a while he kept in the public eye. Later on his mail was stopped by the United States Government as fraudulent. Whereupon he started out again under another name, but it was too late. The damage had been done to those who believed his earlier assertions..

I once met a forty per cent promoter who was fair enough to acknowledge that the commission was excessive. He said:

"You complain about the forty per cent commission, and I agree with you that it is ruinous to any legitimate mining enterprise. It is a fearful load for any business or mine to carry. But other brokers get that figure. Some get more. I have had men come in here with holes in the ground that they call mines and offer me a fourth interest in the stock and fifty per cent of what I took in, but, as green as I was, I did not believe that they were good, because, as you say, I did not see how any mine could stand to pay those rates."

"But you have continued in accepting forty per cent. commission and also some bonus stock?"

"Yes, I have continued to accept it because in the beginning I got in wrong, and I cannot change the system. I know of men other than myself in this business who realize that it is wrong. But, as I have said, we cannot help ourselves. The system has been started wrong, and I will explain why it has been so started. In the first place, the heavy commissions paid us have created an expensive system of flotation. The local agents in the smaller cities look upon us as grafters. They have an idea that we are getting nearly all that comes in anyhow, and they demand their tribute. It may surprise you when I say that forty per cent does not always bring us a profit. First, here are the office expenses, the costly literature, advertising, circularizing, etc., all of which costs money. The local agents through the country to whom we supply literature at our own expense demands twenty-five per cent of every dollar he takes in. We even have to pay the postage on the certificates that we mail back to him. Besides, each day it becomes harder to sell stocks."

"That's natural. Each day the people are becoming more aware of the fact that there is no stability in the system of mine promotion by sensational promises and expensive publicity, that there are no results, that it is nothing but a system of promise and generality, that it is not mining. It is to the credit of the public that they have slowly commenced to realize that the way you raise money is unsound, and that forty per cent is a load that they do not themselves wish to carry, because they are carrying the load when the burden falls on the property in which they invest. Now, such being the case, why don't you take up the sound side of mine promotion, insist upon the absolute evidence of values, and turn down all of these propositions that offer you forty or fifty per cent commissions?"

"But I am not a miner. I am not able by experience to discern whether these men are telling me the truth. I have my heavy expenses here. They offer these commissions and I naturally take them."

"Do you ever consider the case? Do you know that in the history of mining there have never been four commercial mines made by that system? I do not even know of one, but I say four for argument's sake?"

"No, I never studied the matter. In fact, I am a commission broker, and the man who sells the mine is responsible for making the assertions."

"But you are the man who gives his word to the public. When you are convincing the buyer, he believes all you say, yet you tell me that you do not know whether what you say is true or not. Then why do you say it?"

This man comes under the title of the inexperienced broker. He accepted the commissions because others accepted them, and that the precedent was established in the beginning.

Another promoter told me that his market letters grew more costly each month; that they have to use stronger language to keep pace with competing brokers; that the promoters who publish what is known as "house organs," or papers owned by the brokers, are faced with a heavy monthly outlay. I asked him the question, "Don't you find the people recognize that the paper is your own organ, and is simply sent to them for the purpose of influencing opinion in your ability, no matter how well you may disguise the fact?"

"Yes, and for that reason the expense grows greater. We actually expended $2,000 per week upon our paper, employed the best writers upon questions of finance. We were looped on to wires, tapping the western fields, that it might give us the semblance of standing, and in every conceivable manner disguise the fact that it was our paper. We went so far as to editorially attack other promoters who were paying bogus dividends, guarantees, curb flotations, etc."

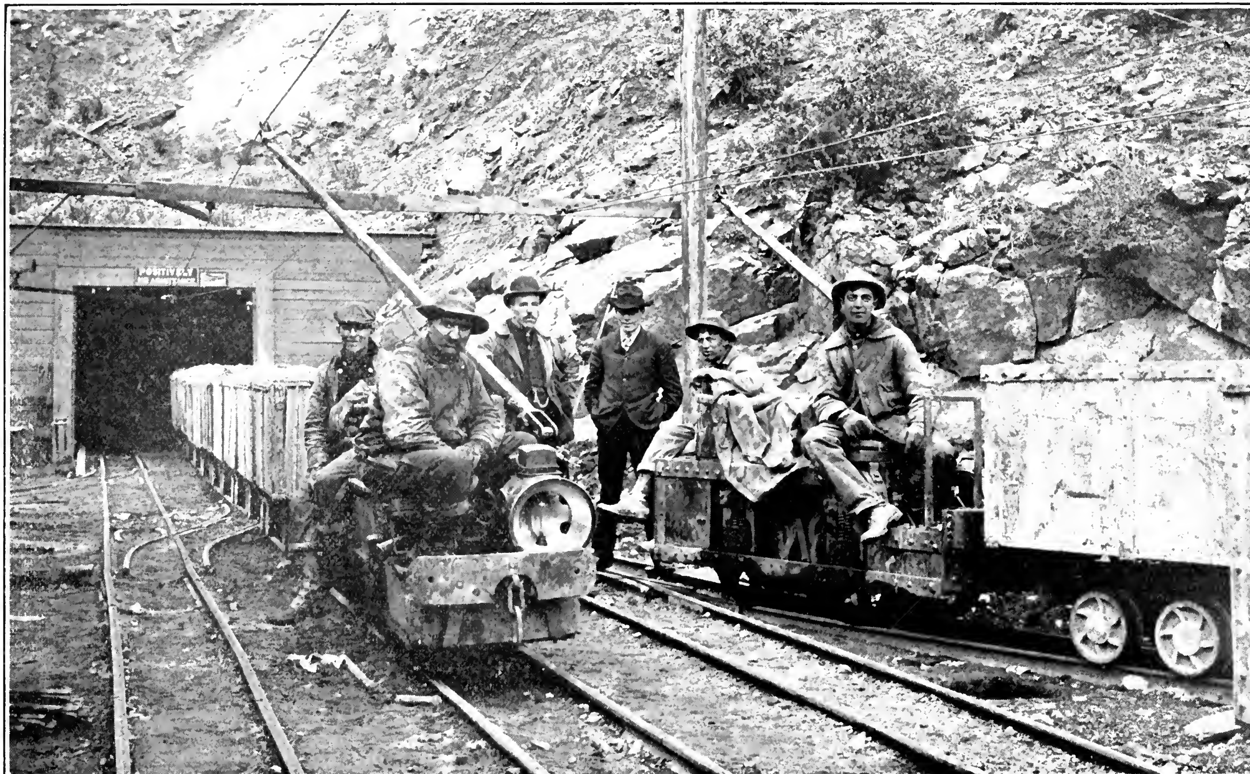
"What was the object of the attack?"

"Our correspondence proved the wisdom of the plan. We obtained various lists of investors and mailed them a copy. When they saw we were open in our condemnation of certain practices, they naturally said, 'This firm knows its business, and I will trust them with my affairs.' Then we kept before them the fact that we had sold some stock that had paid, and claimed credit for giving advice upon some stock that had advanced rapidly in value."

"Did all this pay and was it right?"

"It did pay for some time; we have carried average receipts of $3,000 a day for several months at a time. Then our returns would drop off and we be faced with the necessity of doing something new to renew confidence. As to its being right, that question does not enter into the calculations. I do not believe any man with a cultured mind, ever did a wrong deliberately, there were always extenuating circumstances, such as a personal want, a sick family, etc., and that failing to obtain help they forgot themselves."

"That's just it; I agree with you that there are fine intellects engaged in mine promotion upon the forty per cent and fifty per cent. It is this class of



Hauling ore by electricity from a Commercial mine that lays 17,000 feet in the mountains.

men who should reason, they know right from wrong. Will you ever look upon the extraction of ore as a business to be gauged by its profits and not altogether from the speculative end?"

"The people do not seem to reason that way. I can take a high grade dividend mine, capitalized at a million dollars, and sell the shares at fifty cents on the dollar, equivalent to five hundred thousand dollars for the mine, and the public will not buy that stock. I can take a prospect capitalized at five million dollars and offer the stock at twenty cents on the dollar, or at the rate of one million for the prospect, and they will buy it. They do not seem to reason. Why should I? They evidently go upon the assumption that if they strike ore, the stock will be worth par."

"Then you mean to say that the public do not care whether it is a shallow prospect with a thousand to one chance against success, or a splendidly equipped prospect?"

"Yes, that's what I mean; we give them what they want."

"But is it not a fact that in placing the prospect before them, you intimate that it will be a positive success and go to par, and thus really educate them to this pernicious belief?"

"We naturally try to make it appear as favorable as possible."

"But isn't it a fact, that it is the promoter of unsound enterprises that has created this belief in the public, that every prospect will be a mine, and is not the promoter himself responsible for this education, and for the disastrous results that come to eastern investors through following the advice, and buying in what they believe is sound mining enterprises?"

The man was fair enough to say "Yes."

An exhaustive review of the careers of the men who charge these exorbitant commissions shows a remarkable fact, if there is anything in the hand of retribution, it follows these men, because generally the money that they make is taken away from them by some means. One of the heaviest promoters, who recently established the most costly offices ever seen in the United States, after an experience of what is known as a successful campaign, met loss after loss in other ventures, until his entire fortune was swept away. And it is the same with them all in the end—they have nothing.

In these promotions there is an influence exercised, far-reaching in its disastrous effect; it invades the smallest city, and agents that were at one time satisfied with an honest, though modest, commission of from three to ten per cent on reasonably secure collaterals, see their future destroyed through tasting the higher commissions paid by the unsound promoter. There is something sad following the results of these unsound mine ventures, where they affect a local broker. The main office sends into the country, suave men; they point to the enormous possibilities of the mining industry, and obtain the co-operation of men highly respected in their localities; they even invade the churches and obtain the co-operation of preachers, broad-minded physicians become an easy dupe, and they sell these stocks to their intimate associates. When the results follow, which are generally bad, these men are the ones that suffer the most. They were not solely to blame,—it was lack of judgment; they did not have the experience to measure men or to detect the unsound.

It is a terrible thing to live in a small country city, where every child knows you, where your family ties are such that you cannot leave it all behind and hide yourself in some new locality, but you have to stand there and face it for years, where a man says, as he passes you on the street, "That man swindled me." Those local agents, perhaps, are honest; the twenty or twenty-five per cent that is paid them by the unsound promoter they believe is honestly earned. There are, of course, cases where the man at heart is dishonest, but I am, however, speaking of the man who is anxious to make money, and believes what is told him. If they had been let alone, they would have continued on in their honest way making a living, respected by those who knew them.

A few years ago one of the big promoting houses in New York City sent an agent through the State of Ohio, forming what is called "local agents." In a small city they made a connection with a respectable man, and for quite a while he sent in a number of orders each week. Finally they grew less and less, then ceased. The main office, not desiring to lose a good salesman, sent a man to visit him, thinking that perhaps some other house had won him away. The road man found him sitting on a bench in front of a broken down building, and said, "I am from the firm in New York; how do you do?" "Very well, thank you" (silently whittling a stick). "Haven't the house been treating you all right?" "Oh, yes" (still whittling). "Nobody been trying to knock the firm to you, have they?" "No," (still whittling). "Why haven't you sold some more stock for us?" "Haven't got any more friends" (still whittling).

This tells the story. This man had worked all of his friends, and it is a case with all of those local agents who are inexperienced; they believe what is told them, and when the crash comes, they suffer. Even the children in the streets cry after them, making jocular remarks about the mine.

A promoter of wide experience, who should have been a rich man, informed me the other day that it actually cost him sixty per cent to get the stock sold, and then twenty per cent to collect the money. This is a gratifying confession, for it proves that the people themselves are awake to the fact that a man cannot spend thousands of dollars in the dailies, advertising stocks for sale at a sacrifice, pay the expenses of extravagant offices, railroad charges of traveling salesmen, and have anything left to put under ground.

I assert that if the commission basis for flotation of mining stocks had been placed at twenty per cent, and a fixed figure of sixty per cent of the total receipts actually placed in underground development, there would to-day have been one-third more of a precious metal production than there is.

I further predict that within a year it will be almost impossible for the majority of promoters to sell mining stocks without boldly stating the amount of commissions they are receiving, the amount that the prospect actually cost, and the amount of cash which goes under ground in mine development.

During the last session of the Denver Legislature, the writer consulted with a Denver daily, on the question of endeavoring to obtain a national State law compelling promoters of mines or prospects to put sixty per cent, of their total receipts under ground. If the people of the United States, who are favorable to the mining industry, who appreciate the wonderful possibilities of our mineral domain, and who desire to participate in the riches placed by Nature in her treasury vaults, taking a fair risk for more than a fair gain, will ask every promoter to tell them the amount of cash they receive as commissions before they buy the stock, it will go a long ways towards solving the problem that confronts us.

What the promoter says relative to the cost of selling shares is true. There is much expense attached to it that does not appear to the casual observer. Some of the most unscrupulous and brainy human sharks are in this business. The man who desires an easy living always searches out some avenue where he can live in comparative luxury, through divorcing those who do work hard from their earnings, by plausible promises of quick fortune. The man who is simply ignorant and does not know that these excessive commissions are not based upon unsound rules, and not conducive to the welfare of any industry, who only reads of the bonanza side of mining, who knows nothing of the needs of a great property, that a continuous stream of dividends may pour from the earth through its long life of profitable existence, are themselves the prey of what is known as the "road agent." This class follow the unsound promoter the same as a pilot fish follows its favorite, and much of the commissions fritter away upon schemes presented to the inexperienced promoter, whereby he is led to believe that he can obtain the names of the shareholders in other companies or the lists of other brokers, considerable of their money is paid out to men who claim to be able to sell stocks, who receive advances for expenses, and who remain upon the pay roll as long as they can find any plausible excuse for so doing. They very seldom turn in any equivalent for what they receive, for men of this class are not workers, they are drones in the hive, they go into country towns, and exist in their way, satisfied to have their board and personal expenses paid, and in return they write encouraging letters to the home office.

The expenses of sustaining what is known as "information bureaus" are very heavy. Under this branch the investor is led to make inquiries relative to the property in question, or the stability of the promoters. Sometimes there is a chain of two or three of these bureaus, one referring to the other, all with the intention of creating opinion favorable to the promoter.

There is the further expense of publishing the catch notices; that is to say, when one promoter has made a heavy campaign in the papers, and is supposed to have sold a lot of stock, other promoters seek to obtain the names of the stockholders by inserting advertisements, warning the public, asking for proxies for bogus meetings, or over the name of an attorney, stating that valuable advice will be given of great importance to the stockholders in certain companies, and that if they write they may save themselves considerable of a loss.

Every conceivable form for attracting the attention of the investor is used. It all costs money, and before the promoter knows it, he is out in deep water; the sale of stock always at some time slacks up in every enterprise, then they have to start other enterprises to keep the interest alive; thus one firm in this country has been known to have floated twenty subsidiary companies,—it is virtually an endless chain, some supposed to be earning dividends, some not.

Each promoter has his own way of trying to attract the attention of the public to himself; some stand as reformers, and their system is to put advertisements in the papers, warning the public against all mining stocks and inviting them to write to them for information. We may yet hear that some man is preparing, to present to Congress a bill to protect the investor against mining fraud. I listen to all these reports, but when one has a split lip, he does not care to laugh. But all of these things go to make up the business of mine promotion as practiced by the unsound promoter, and it is this system that has led to so much discredit and caused so much loss to those who believed they were mining, when they were nowhere near mining. Yet every promoter insists that his is the best.

A colored preacher of the Methodist faith was exhorting his congregation, crying aloud:

"Come and jine the army of the Lord."

From away in the rear, a buxom colored woman got up and cried out:

"I have already jined."

"Where did you jine, sister?"

"In Richmond, last year."

"What church?"

"Baptist."

"Go long, niggar; you ain't in the army, you're in the navy."

A very intelligent promoter, in discussing the question of exorbitant commissions, stated that they did their part; that they were not responsible for the failure, that they raised the money, and that it was the fault of the mine. I claim that it was not the fault of the prospect, but a fault of the system, that is here combated, because the prospect never had a chance. It did not receive sufficient of the money intended to be put into the development, to give it a fair chance. This argument will not stand the cold light of investigation, because, no matter what may happen to the mine, the promoter always gets his, and in taking it he cripples the enterprise to the extent that not one in a thousand ever becomes dividend payers.

The writer is aware that the prospect is the basis of the mine, and that from apparently worthless prospects, often rich bonanzas are won. The system of interesting capital in prospects is not combated,—it is the value placed upon the prospect that meets with the condemnation of the commercial miner, for when a prospect is presented to the eastern investor at high valuation, he is led to believe that it must be a mine. Every man has a right to a just proportion of any enterprise as compensation for his labors in the promotion of the same, but the writer does not believe that a man should take from a project a large proportion of money needed for its operation, until the results of the operation prove that he is entitled to the same.

Take, as an illustration, a man in a three dollar room, his rent unpaid, his meal ticket punched out, with no credit, and fear in his heart that the landlord may rap at the door and throw him in the street; he has more than an ordinary brain and he conceives an idea, something that he thinks is of value. If the landlord came in at the time and asked for his rent, he could not cash the idea for even three dollars. Consequently the non-proven idea is of no material value. To make it so, the material value must be shown, and this man is not able to do that through his lack of capital. He goes to a capitalist and explains his condition—explains his idea; the man has no evidence that the idea will ever amount to anything, but he believes what the inventer says and advances him $10,000 with which to patent the idea, make a model, and to demonstrate the practicability of his thought. It is not believed that the man with the idea should take $4,000 from the $10,000 before he proves the practicability of the idea, and convert that amount to his own use; he will be excused in converting sufficient of the money to pay his living expenses, but not forty per cent, because as yet his idea has not proved of value,—it may never prove of value, yet the capitalist has faith, and on that faith he puts up the needed funds.

It is just the same with a prospect; there is no material value, until capital and labor associate themselves together and open the prospect and demonstrate its intrinsic value; without capital or labor the prospect will always be worthless. The man who, wandering over the mountains, finds the sliver, does not by that discovery create its value; it can only be made of commercial interest by the application of capital, and when a man says, "I have faith in what you say and in the indications that you claim exist, and I'll help you open that prospect to determine its value and take a chance with you, here is $10,000, go ahead and open it," has the man the right to put from $4,000 to $5,000 of that money in his pocket, before he makes an effort to demonstrate the value of the prospect?

Before sending your money to an agent or promoter, ask these questions: How much commission are you receiving directly or indirectly? How much bonus stock do you receive? How much of my money goes into actual underground work?

CHAPTER XVII.

EXCUSES GIVEN INVESTORS WHEN FAILURE FOLLOWS UNSOUND PROMOTIONS.

In a previous chapter it was stated that some men prepared their excuses for failure almost as soon as they make their announcements calling for subscriptions.

When commercially planned ventures fail, there is seldom an excuse offered, those interested having been informed in the beginning of operations, of the risks, the possibilities of success, and the facts under which the venture was promoted being duly explained. Thus, those supplying the capital needed to prove the commercial or non-commercial character of the prospect are prepared for either success or failure. The experienced men study conditions, and the possibility of the discontinuance of ore is discussed, the amount of capital needed in the event of success is plainly stated, that there may be no lack of funds in the event that the prospect becomes commercial.

Generally the prospectus of a commercial operator reads about as follows:

"This prospect was discovered at an elevation of 10,000 feet and gave an ore showing directly at the surface. There has been a 100 ft. prospect hole sunk and ample value is shown in the ore, to class it commercial, provided the ore continues with depth and the shoot is of sufficient length.

"Having reached the efficiency of a horse whim, we are faced with the necessity of a forty-horse power hoist to continue development. This, with boiler equipment, will cost $3,000, which, when installed, will give us ample power to prove the worth of this prospect. If at the depth of 300 ft. we find that the ore is continuous and that our work has enabled us to place, practically in sight, $200,000 gross value of standing ore, we will then be obliged to put in $20,000 more, to install an air compressor, improve the living quarters and prepare to ship ore. If the mineral holds its present character, it will be a smelting product and we will need no reduction machinery, shipping to the custom work. If the ore should change and become lower in grade and of a concentrating character—yet amply exposed to justify the expenditure—then we must be prepared to either join some other producing mine in the construction of a co-operative mill, or to install one of our own, so it can be stated that the extreme limit of risk in this proposition may be classed as $20,000, for, if by the time that is expended, we have not demonstrated the commercial character of the prospect, we will not go further without the consent of those interested. If we are successful and construct the mill, $50,000 will be the limit that we will need to place the property upon a dividend paying basis.

We always have the right to discontinue work at any point, in event that the ore showing is discouraging, so the loss can be limited."

Here the commercial operator invites the assistance of capital upon a plain statement of facts. The buyer is not told that there are millions of dollars in sight, that there is no element of risk, and the question of the total capital investment that may be needed is covered. The buyer in this case knows that he is taking a risk and knows its limit; he therefore uses his judgment relative to the handling of his funds, that he may be prepared to meet the demands that may be made upon him in the event of success. In such cases there never occurs the closing down of properties at an important stage of their development because the promoters have run out of money and did not in the beginning arrange for sufficient capital to carry work to a certain point. In these commercially operated prospects the figures sometimes run as high as a million dollars, but in each case the investor knows the steps that will be taken as his money is called for. Generally these men subscribe the amounts they desire, and pay it in as the money is needed at the mine, but more often the entire capital is placed in bank at the time of promotion.

The inexperienced operator, who obtains a prospect with a small body of fifty dollar ore showing at the surface, goes upon the assumption that the shoot is practically endless, and he figures vast tonnage without even a few hundred feet of work upon the property to demonstrate the size or continuity of the ore body. He does not figure upon the contingencies that may arise, nor the need of a set amount of capital. He proceeds to incorporate, and publish the prospect as a mine. Success to him is positive. He never expresses a doubt, and as long as he can sell stock he continues to work in a desultory manner, for these unsound ventures are never operated as when under the influence of experienced men. It is giving a wide latitude when I say that less than thirty per cent. of the total receipts from these ventures go into underground work. The balance is expended in various forms of promotion, finally comes failure, a natural consequence, for failure is possible even in the well-conducted venture, but in the latter the loss is limited. It is a commercial proposition. They do not proceed to waste money when their judgment tells them that Nature has not been generous to this particular prospect. But when failure comes to the unsound venture there is not even the satisfaction of knowing that the money was lost in a fair fight with Nature. Soon the company languishes, the stockholders receive no more glowing reports of the progress of work, rich strikes, high assays and glowing newspaper accounts. Later an excuse is given that a few dollars more is necessary and they ask for a voluntary assessment. Finally the loss is total. The mine closes, and becomes a monument to inexperience, then follow the excuses. Men and women who have invested, believing the assertions made in the literature, ask for information and many excuses are used, except the right excuse, which was:

"We did not know how to mine."

One splendid system to follow is to ask the promoter if he has secured all the money needed, and never send him all of yours until you are given sound evidence that he has, otherwise your dividend may be one of the excuses enumerated. With ample money, well expended, there are many prospects that can be made commercial, but which will remain prospects if not soundly financed.

One of the most serious of all mistakes made by the inexperienced, or those of an unsound turn of mind, is the failure to estimate upon what it will cost to carry certain developments to successful termination. A man figures that he will build a warehouse to cost $100,000—he has no money of his own, consequently he seeks capital by incorporation. Should he go out and obtain first ten dollars from one man, twenty from another and perhaps fifty from a third, and then commence to build, with no assurance that he can raise the residue, if he fails, as he invariably will do, he loses the money that a few have foolishly invested without asking the vital question: "Have you the money to complete this work?" Of what benefit is the crying, cringing excuse of that man?

"I thought I could raise the money. Am very sorry. I should have known better."

Yet day after day, year after year, this system is followed by the unsound promoters of prospects.

They seldom, if ever, make a plain statement of the cost of the project. They seldom, if ever, solicit subscriptions by an open explanation of the sum total to be required. But instead they boldly flare out and solicit subscriptions and take every dollar they can seduce by any artifice from the investor, spend it, either upon themselves, partially upon themselves or their office expenses and trust to luck to take care of the morrow. It is believed that where a man takes a large part of one man's money, expends it, at the same time aware of the fact that unless a great deal more is obtained the enterprise is doomed to failure, thereby causing the loss of the money prematurely collected, that man can be reached by law. Millions of dollars are lost in this manner, and additional distrust of mining inspired. A man has a right to solicit subscriptions to open a mine, but he should first know what it is going to cost, and that cost should be plainly set forth in the appeal to capital.

Commercial miners ask aid, but by a plain statement of facts; generally reading as follows:

We estimate it will cost not to exceed $100,000 to demonstrate the soundness of our judgment of this enterprise. We solicit subscriptions, payable ten per cent. on subscribing, which will be placed in bank pending the raising of the needed funds. If the $100,000 is not fully subscribed the ten per cent. will be returned.

The man who reads the publicity appeals for money will be doing the industry a great benefit if he will write the promoters the following letter:

"If you will tell me the amount needed to place this property upon a paying basis, using a sound estimate, I will become a party to the amount, with the understanding that my money is not to be used until the full amount is secured, and further inform me how much of my money will be absorbed in the commission end and how much will actually go under ground."

If the investor will do this instead of sending their money before they know if there is ample security to make success, there will be many more commercial mines and we will not be obliged to face the excuses that follow the usual run of publicity promotions such as:

"The mine is all right, but we did not have money enough. If we could have gone a little deeper we would have surely hit the ore. It will yet prove to be a rich property and then we will all regret not continuing."

"We found the smelters would rob us on our ore shipments, so we closed down the works until better rates are given us."

"The water was more than we could handle with our equipment and the foolish stockholders would not put up any more money to buy heavier pumps."

"We are very sorry, but we believed what was told us about the assay of the ore; we later on found that it did not run as high as we were led to believe and consequently it would not pay to work."

"We were lied to by our engineer. The mine was salted."

"There was a horse in the vein which cut off the ore."

"We found the cost of treatment too high, so we have shut down until the mill men who have been treating the ore, come to their senses and make a lower rate."

"We were deceived by our Superintendent. He was robbing us."

"I am very sorry, but I am not a miner and I believed in what the other men told me. I find that they were dishonest men just as ignorant as myself and we were unable to make a success of it."

"It is unfortunate, but it could not be helped," and other excuses of a like nature, none of which would be given by a commercial miner, because all the things, obstructive of success, are considered before they undertake the venture. Every point bearing upon the operation of a mine would be investigated and the Superintendent would know just what to expect in the event of success or failure. To the commercial miner there is but three reasons for failure. "There is no ore." "Local conditions are bad," or "The ore is not marketable."

Where men conduct mining as a business, they consider these points with the same care as a manufacturer of pottery would consider his clay supply, his fuel, his market, and his transportation facilities, but where a man is more interested in selling the stock of a prospect than he is in creating a commercial value from the product of the mine, he does not consider these vital points. The investor, trusting to the promoter, does not himself study these cardinal principles so essential to success.

Perhaps in the future, if the buyer of shares is prepared for the excuses of the unsound promoter, that operator may not be as ready with his stories, but may attempt to learn the commercial side of the business. If that can be accomplished, the writer has done considerable toward the betterment of the feeling between the Eastern investor and the Western commercial miner.

CHAPTER XVIII.

THE WORTHLESSNESS OF CHEAP ENDORSEMENTS—THE VALUE OF EXPERT REPORTS.

The writer has many acquaintances among the editors of the leading mining journals and they all know his ideas upon this subject. Frequently it is claimed that he is too radical on the question; the reader can form his own opinions. Whenever these editors say a good thing, I always give them credit.

The desire is to congratulate the editor of a certain monthly on the following, which is reproduced bodily:

"When considering a mining investment offering, do not be influenced so much by the number of alleged endorsements as by the character of them.

"Some alleged authorities will endorse everything, whereas, those whose endorsements would carry weight frequently refrain from endorsing anything.

" 'Well known and representative local citizens,' who testify to the innumerable good points of a mining proposition, may prove, upon investigation, to be just so many 'saloon loafers,' who have signed the endorsements written for them, for the nominal consideration of so many fingers of whiskey.

"'Leading mining and financial publications,' which are quoted regarding the 'Sure thing' proclivities of certain investment offerings, may, upon investigation, prove to be so many 'write-up' sheets, which will publish, for a consideration, most anything which will go through the mails.

"It has become a practice on the part of some operators to use alleged endorsements from the press securing the same advertising patronage, and frequently writing the endorsements themselves, or editing what the fly-by-night publisher 'dreams' out for them.

"Always investigate the source, and, where you can, secure the original of the alleged endorsement, seeing what it looks like in print, and what the publication in which it is, looks like itself."

This is first-class reading matter, and, if the investor could see it on the same page with the advertisement displaying these so-called "valuable endorsements," it would be a long step in the right direction. But the force of this, and other equally good advice from the same editor, is lost, for the reason that it is only a small part of the contents of the monthly. The display advertisements, news from many camps and the farcical system of reports upon mining companies, confuse the inexperienced reader of mining literature, and the study of the "many fortune-building opportunities" causes him to forget the warning. Some investors who read, and heed, may say, "These advertisements must be true or they would not be in the paper where the editor openly cautions the buyer."

The man of limited means, however, does not always reason that the paper is powerless to censor all advertisements, and cannot do so, if it is to remain in business. The Daily Mining Record, The Mining Investor, Profit and Loss, The Mining World, The United States Investor and several other reputable mining publications write splendid advice, but, unfortunately, it is often side by side with some sensational promise. If any one of these papers were to make an index book of their advice to investors, while it would not always be the result of practical experience that generated the thought, yet some matter would be found that would save the investor vast sums, if he could turn to the subject at the time he needed the advice. But the influence of able articles written one day are lost the next, for the life of these publications, in the vast majority of the issues, is thrown aside, and, when kept, the special advice cannot be found when wanted. It is this knowledge that causes the author to publish "Rocks in the Road to Fortune" in chapter form, so that each question is treated by itself.

These local endorsements have long been a jest in the producing camps and we only hope that those who read the article referred to will remember it. Frequently, among the first steps taken by men, inexperienced in practical mining, when they are preparing their advertisement and literature, is to obtain the written endorsement of some miner, surveyor, storekeeper or general encyclopedia of local information, and these opinions and endorsements are spread broadcast through the press and mails, with the object of creating the impression that the property to be promoted is of high local reputation. Those who are better versed in criminal law obtain these endorsements for the purpose of being able to say: "We were ourselves deceived."

A retrospect of the field of mining failures, however, does not bear out this claim of innocence, for such efforts are confined to the avenue of what is termed "Unsound promotion." The commercial miner never stoops to this. To him, the very publication of a series of endorsements of this kind stamps the project suspicious. When the papers containing these endorsements find their way into the camp, it is a matter of mirth, for generally those who are the endorsers are poor fellows with but little mental capacity, and only in rare cases have they even common underground ability. The storekeeper and saloon proprietor endorse to bring trade. The irresponsible hanger-on in the district—a failure in life, with no credit at bar or tailor—has nothing to lose. A surveyor, perhaps capable of running his lines, deplorably ignorant of the science of mining, may add his opinion, which is generally, however, worthless; and last but not least, the venerable old-time miner of "forty years experience," which, if investigated, should read "forty years of failure."

There is, also, the expert endorsement—the so-called Engineer, who writes of geological formations, the fact that the prospect lays similar to one in South Africa, or who draws a map showing that the prospect is in the heart of some mineral zone that has produced ore; the man who talks considerably, yet does not say anything; the expert who draws his conclusion of what the ore will average by a few samples, or what the Superintendent "told" him. He has obtained from a few sacks of high-grade ore, which almost any prospect can, for a few feet, show. The so-called Engineer that winds up his report with the opinion that it will be a dividend payer, yet, in forming that opinion, he has not himself measured or sampled enough ore actually in sight to justify the belief that the prospect will even pay one per cent. per annum on ten thousand dollars.

If the investor will only read between the lines of this class of report, and ask some pointed questions, they will assist materially in clearing the field of mine engineering, leaving it to the hundreds of legitimate members of the Institute of Mining Engineers, who will plainly say yes or no.

The commercial miners will appreciate a letter to the engineer in question, reading as follows:

"What prospects have you reported upon that are to-day on a healthy, dividend-paying basis? Are you of practical underground experience—I mean, have you ever worked in a mine, as a miner, or is your experience book-taught. In making the examination, how many samples did you take, and did you ship a few tons for test. From the ore actually in sight, can you advise the purchase of the stock at the valuation placed on the shares? How many hours were you actually employed in making this examination—I mean time actually spent underground?"

The writer has witnessed many so-called examinations. the expert arrives in the morning, rides over the country, visits a prospect, remains a few moments, accepts the advice of those interested, picks a few samples, and the "deed is done;" such a thing as insisting on mill returns under his own supervision is not often thought of.

A man can make a superficial though sound examination of a prospect where the desire be to determine as to the advisability of its owners doing a little more work, but where the intention is to promote the prospect on the grounds that it is a mine, and make extracts from the expert's reports, I assert that there should be a complete sampling. Mill returns and the amount of tonnage actually in sight—especially if the floatation is upon a basis of from $100,000 to $500,000. Remember that experts or engineers are only human, and there have been cases where they have been incarcerated for making reports that were not considered altogether sound.

There is another class of engineers that the investor in prospects should know, for, through following their "conservative" advice, many good things are lost. I refer to the man who turns down nearly everything he sees, of a prospect nature, that he may not make any mistakes, and thus he is classed as a "safe man." If the mining industry, which is built upon courage to risk, that the gain may be large, depended upon this class of endorsement, the West would be a sparsely settled community. Next to the "sure thing" promoter in the matter of detriment to the industry, comes the "sure thing engineer," the so-called "mine coward," the man with a high reputation as a "heavy charger," who makes no mistakes. We all know that an engineer cannot see in the ground, that his opinion is only that born of experience, that very few prospects develop into mines, but if all prospects are condemned there will soon be no commercial properties, thus the man who only wants to examine producing mines is of little benefit to the mining world; he is afraid to go out in the arena and say boldly: "This prospect is good and should, by the nature of its showing, develop into a mine."

The "mine coward" keeps capital out; he only brings new capital in where it is not needed, for these men, posing like sages, only bring to the attention of Eastern capital mines that are of proven value—properties passed the prospect stage—and that do not require any expert testimony to prove that they are shipping ore. Any feeble-minded ore sorter can select such a mine as a valuable property. New money is not needed at that avenue, for new money is constantly being won from the earth. What the West wants is new money for prospect development that more mines of that character may be opened up. The "sure thing" engineer is of benefit only to the Eastern man rich enough to pay for a producing mine; he is, however, of little use to the prospector who needs a square, fearless endorsement. This divertisement from local endorsement is, however, treating the endorsement side.—Let the investor reason.

Local endorsements mean but little, and they have weight only among those who do not know that generally it is the poorest of all. The endorsement that carries weight with the commercial miner is the plainly expressed opinion of a practical operator, who says:

"I have tested the ore in sufficient volume to convince me that the value is there. The ore bodies already opened justify a further exploration. It is a good prospect. It will cost $50,000 to prove if it is a mine."

This kind of talk is worth more than a thousand endorsements from men who do not know. The best endorsement of a mine or prospect is the following:

"We have recently shipped two hundred tons of this ore, and the smelter returns justify us in asking you to invest in the venture. We place a speculative value of $100,000 upon the property and invite you to participate in its operation upon that basis."

CHAPTER XIX.

THE ABANDONED MINES.

THE LOSSES THAT FOLLOW THEIR RE-OPENING.

The longer a mine or prospect remains idle, the more liable is its value to be exaggerated. Nearly every old district has one, or perhaps a dozen, abandoned properties of which tradition speaks as marvelously rich. Many companies have lost large sums in reclaiming them. The writer has had sad experience in this avenue of mining, and the only consolation is the costly knowledge that, when a man is a mining liar, there is no limit to his romance. When interested in local reports as to the value of the ore left standing in the bottom of an abandoned mine at the time of its shut-down, carefully weigh the information. Go into some other district and casually refer to the fact that such an abandoned mine has been highly spoken of. No matter how unanimous local opinion may be as to its worth, obtain a little outside information, divide it by half, then reason it out by a study of conditions past and present. Do not be influenced by the old time miner, "who worked the last shift in the shaft, and knows that they left three feet of fine smelting ore in sight." I have seen these large bodies pinched down to six inches after the mines were unwatered.

The longer a mine that has shipped some ore in the early days, is closed, the more its ore values increase in the minds of those who remain in the vicinity, subsisting as they may,—and there are always old-timers near by who talk a lot of romance.

As years roll on, the abandoned mine really becomes to them a treasury vault. They finally believe that which they, in the beginning, knew was fiction. One will cite some remarkable occurrence, or speak of some shipment; the next will enlarge upon it, and so it goes. At last, the "unbitten" comes along, or some promoter in need of a "mine with a history," and the property is launched with a flare of figurative trumpets. If the mine is filled with water, so much the better; for, in the plausible manner common to such, he may say:

"Water in those days was the enemy of the richest mines, and this one did not possess the magnificent machinery that we now intend to install, in order that we may circulate the wondrous wealth of this old bonanza, which we will do when the water is under control, with our powerful pumps. Every obtainable record proves conclusively that the ore, which is known to be at the bottom of this rich mineral depository, is sufficient to pay, at least, one million dollars a year in dividends."

Generally, those old abandoned mines never did pay, and never will pay. Many of them did ship some rich ore, but figuring the cost, there was little, if any profit; seldom did the ores, found to be rich at the surface, continue to great depth. Nearly all mines, especially those at high elevations, show rich ore at the surface, but usually it gives way to a lower grade, generally at about two hundred feet in depth. Most of these old properties were worked when silver was $1.25 per ounce, and even then they failed. Local conditions may have improved, but the difference in the price of silver must be considered. Many have been pumped out, only to find that the shoot, that may have paid a little in the early days, had been completely worked out, or that the existing grade was low, the high grade having been extracted, leaving behind only the mill dirt. Miners seldom leave any ore that will pay any profit.

There have been cases where mines have been tied up in litigation for a number of years, which were and are of unquestionable value. But in such cases there is, as a rule, a well-kept record of it, and cogent reasons as to why it is unworked. But even bitter litigation does not remain long unsettled, if there is rich ore to be mined. But where an American mine has been abandoned for a number of years, there are more reasons than water to account for it, and it is safe to let the "golden" opportunity pass, You will win upon general averages.

The writer has assisted in the reclaiming of this class of mines, and from his experience, if the property be of extensive underground work, his advice would be to leave the old shaft and go off somewhere else upon the same vein and sink a new one;

provided you are determined to open the mine, for if ever there was a costly undertaking, it is to reclaim an abandoned property; the timbers are usually rotten, the nails eaten by acid water, old stopes caved, and there are labors ahead almost equal to the task of Hercules when he undertook the cleaning of the Augean stables.

By close association with the residential human relics of the old days of any mining camp, a man can appreciate the unsoundness of their reasonings and arguments. A simple study of conditions, past and present, will show the fallacy of their claims, which are merely iridescent dreams that have left such pleasing recollections as to have all the substance of reality.

The historian of those abandoned mining wrecks are generally interested in some little claim near at hand; and, perhaps on the assumption that misery loves company, they entice the inexperienced to operate. One favorite story is: "Just before the water drove the miners out of the lower works, there was coming up in the bottom of the shaft the richest ore that they had ever seen in the mine."

Another page of those Mountain Cabin Fireside Romances is the "cave in" story, "when the timbers slipped; and before they could get them caught up, the Eastern company started fighting among themselves, and the mine closed down." Nearly every practical miner has heard all those stories, and sometimes the best permit their better reasoning to be overcome. They hesitate, and they are lost; only, however, with the usual result. I plead guilty to having twice in my life expended thousands of dollars in these foolish efforts, but the last case was upon the advice and representations of men I did not believe would stoop to the level of a common liar. I do not mean to assert that there are not some abandoned mines that are valuable, for there are many, but they are few and far between in America.

In Mexico, the water problem was a serious one. Those ancient mines were operated long before the discovery of our Comstock resulted in the construction of pumps which controlled the flow from about 3,000 feet deep. One mine, the Belcher, pumped over 1,000,000 gallons each day. Two or three centuries ago, old mines were abandoned, because the water could not be controlled by the crude whims, and in many cases rawhide water bags carried up to the surface on the backs of men. The writer knows the obstacles which the Mexican faced; for, in 1884, he was engaged in mill construction, and mine examination of the Veta Madre, at Guanajuata, and there witnessed the evidences of the patient toil—which enabled that great vein to so far make an aggregate production of $1,400,000,000. Down in the Valencia and the El Rayas mines, fully 2,000 feet deep, there are stone steps worn smooth by the countless times the bare feet of the peon passed laboriously to the surface, or to the receiving stations which marked the opening of the great eightsided shaft, bearing rock, and often water, from undrained winzes far in the vein.

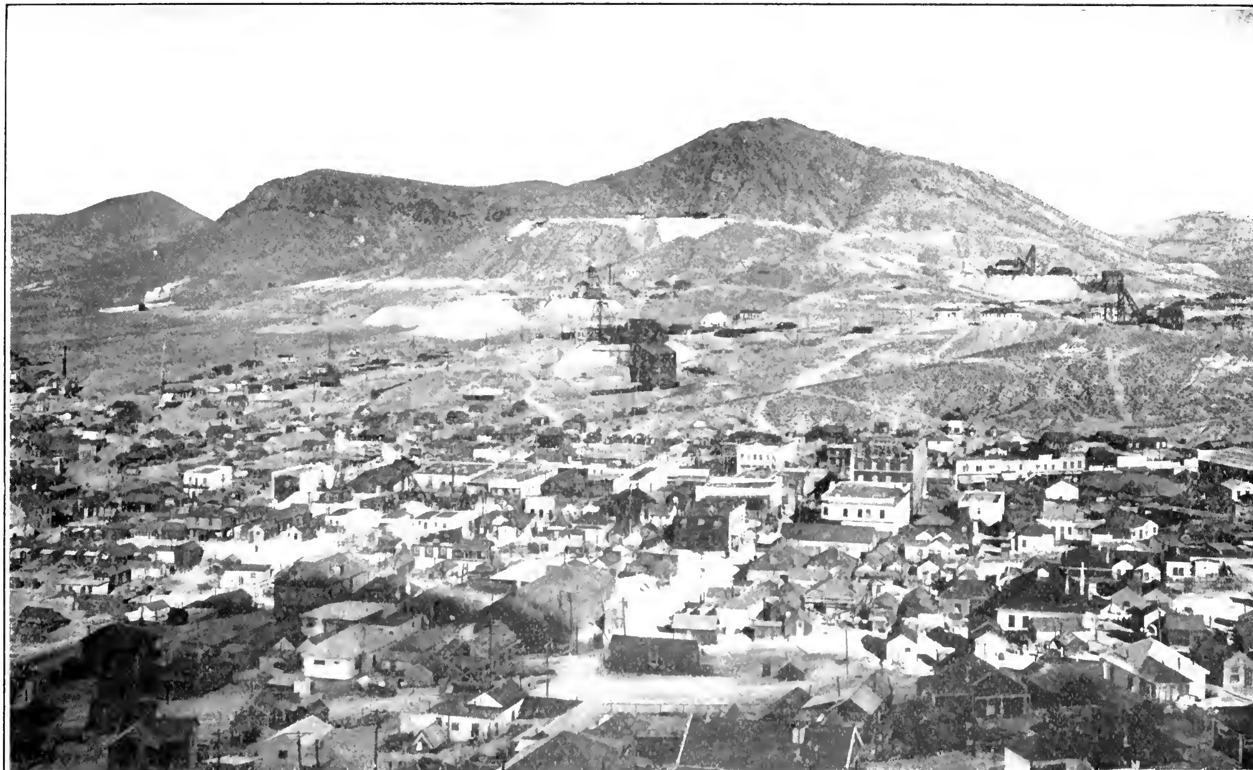
That there may be splendid Mexican mines long ago abandoned which will pay to-day is unquestioned, but the history of American mines dates back scarcely half a century, and even in that time there were improvements of which the Mexican miner never dreamed. Yet, in considering the reopening of even a Mexican mine, abandoned two hundred years ago, there is much food for thought in this day of commercialism. A grade of ore would pay under the then existing conditions that could not be mined to-day. Even if the mine were reclaimed, the fact that it had been worked extensively would not be entirely in its favor, but rather against it. The problem of the worked-out shoot presents itself, the difference in the price of metal and labor is also to be considered.

When the glory of Mexico was at its height, silver had a far greater world-value than it has to-day, and to obtain it whole tribes were cruelly held in slavery. The labor cost was practically nothing. A few grains of corn to the slave each day, a hovel in which to sleep, harsh taskmasters, urging the weary Indians to increased energy,—even the sun by slow process converted into bullion the ores won by tyranny. In those days, labor was without value. Even a $3 ore under the then prevailing conditions, was commercial; to-day the limit of profitable silver ore is fixed at a gross value of five dollars and fifty cents per ton.

After a study of mining history in the border states of our sister republic, as well as at Guanajuata and Zacatecas, it is the writer's belief that if the price of labor ruled in the past as it rules to-day, with silver at one dollar an ounce, the product of Mexico, instead of being $5,000,000,000 would not have reached $2,000,000,000.

On the question of abandoned mines, with the sad memories of personal experience, rudely taught, against our own judgment, resulting in too much confidence in the honor of men, the writer would say that the old is not as valuable as the new. Where American capital has been properly and extensively employed in the old mines of Mexico, the result has been satisfactory. If the values are in the ore, the American can extract it, provided the conditions and time are propitious.

Take, for example, the writer's experience in Guanajuata, Mexico, in 1883-84-85. He realized the importance of the lower grade ores, and built the first American stamp mill at Marfil; also an Areal Halliday Tramway from the Valencia mine. But as coal was $20 a ton, it was found that the expenses were too great. The period was fully fifteen years ahead of the times. Later, capital followed the trail then blazed; water power was harnessed; electricity brought in; the cyanide system of ore treatment perfected; and, as a result, there has been built upon the foundation the writer started, and lost, a great, profitable industry. 1907 saw success to the American form



A mining camp. Substantial building erected within a few months after discovery of ore. The mines are in the background.

of stamp mill crushing, followed by cyaniding; and the product from this old camp is claimed now reaches, in Mexican money, $12,000,000 a year. But at no time was the mother vein at Guanajuata abandoned. With the exception of periodical shut-downs, caused by revolutions, this vein was always worked. The values were there, and the miners extracted the ore. There were periods of Borrasca and Bonanza, but the work continued. As to the profit, the cost of labor prevailing naturally made it satisfactory. But if that vein was just discovered, I venture to say that the American miner would extract more ore in thirty years than the Mexican extracted in nearly four hundred years. A study of the short life of the Bonanza days of the "Comstock" will bear me out in my assertion.

Abandoned mines in Mexico, and abandoned mines in the United States, are two different things. But in Mexico the labor problem is yet to be faced; as Americans invade, the price of labor increases, though the price of metal remains the same. Then there is always some future bullion tax to be considered. A man may make mistakes in Mexico, but if he profits by experience he will not repeat them. The writer bought the Game Ridge 40-stamp mill, near Rosita, Colorado, dismantled it, freighted it to Guanajuata, and never opened the boxes. The experience in the smaller mill first constructed, gave him all the knowledge at that time possible to gain,—there was no use of wasting more money.

The hardest problem in mining is to know when to stop.

Should an abandoned mine be attractive to the investor, he can reduce his possibilities of loss by a careful estimate of the probable cost of reclaiming, also to determine if there is any basis of fact for the prevailing romance. Inexperienced men generally go into these abandoned propositions without considering the full cost. It is safe to figure that the expense of opening and retimbering an old mine will be fully seventy-five per cent. of the original working charge; more often it is over the cost of new work, unless it is simply a shaft to drain—but where a mine has thousands of feet of levels and stopes it is a serious thing to undertake to again open that part of a vein. In these assertions we will not be joined by some persons. And I state that there are some mines classed as "abandoned" which really had ore, but the prevailing conditions did not permit of profitable operation. Such mines were seldom extensively worked and can be reclaimed without much capital expenditure, for if the local conditions did not admit of profit, there would not have been any large extraction, unless it was the basis of a stock gambling scheme, where product was made irrespective of a profit margin. But when a mine is reported to have shipped ore extensively, the evidence is against rather than in favor of the property, after its abandonment. It is probably worked out in its exposed shoot, and this coupled with the heavy task of reclaiming would force a commercial miner to sink in a new place for he would have new ore with which to, in part, pay the expenses. When the defenders of abandoned mines speak, they are general, they seldom point to the example of success, where dividend paying mines have been created from abandoned ones. A success in America on these lines is the exception. I would be pleased to have the names of even four. The opening of new mines is preferred. The shell of a sweet nut is of little value after the kernel has been extracted.

CHAPTER XX.

THE EXPERIENCE OF THE BROKER OF VITAL IMPORTANCE TO THE INVESTOR.

In February, 1899, the author delivered an address at the Broadway Theater, Norwich, Connecticut, on "Copper Mines of the World," in which an explanation was made of the ways the colossal fortunes of the mining kings had been amassed, taking the commercial side, describing the personal efforts of such men as Clark, Daly and Douglass in directing and advising with their best talent, asserting that by an intercourse and exchanging of views with experienced men, profitable deductions were made, pointedly stating, that so far, there was no great commercial success in copper mines, except in those where experience directed.

After the address, I met the usual crowd seeking personal information, among them a lady of considerable age. She, it seems, has lost about all she possessed in the stock of a certain mine, highly boomed a short time before, but of which all commercial operators residing in the district, had expressed doubts of even a reasonable chance. The lady had been induced to buy, not by an unsound promoter, but by a young broker who was at the period of life that I have termed "My Puppyhood," the period when his system was ripe for inoculation with virus of mad, unreasonable belief in the dreams of wealth to be won by simply buying a stock and waiting until the Standard Oil Company came to your price. "Poor Standard Oil," when all other arguments of the inexperienced stock broker had been used in their efforts to boom a stock, the so-called master-stroke is generally applied: "Standard Oil Interests are after this great mine."

I asked the lady if the young man upon whose advice she bought, knew anything of mines.

"Not that I know of; his family are very respectable neighbors, and they tell me that the bad men who gave him such glowing accounts of the mine were the men engaged in selling the property, but that there was no ore of value. I am sure he himself was honest."

"But, my dear madam, did it not occur to you that your young friend, while no doubt sincere, was not, by experience capable of giving you good advice?"

The lady had not thought of that. She had invested upon the assertions of a youth, who, no doubt honestly expressed the belief engendered by the wild vaporings of a lot of irresponsible fakirs. Her's and other like experience teach the necessity of dealing only with the experienced man, not only in mining, but in the purchase of every other industrial security.

As experience is necessary in the selection and operation of a property, equally essential to the success of the investor, is the practical knowledge of his advising broker on questions pertaining to mining. It is needless to say that a broker is only the handler of the stock, who buys and sells as instructed by the investor. This is, in a measure true of Exchange Members who buy and sell in the open market, filling orders without asking questions such as the writer has done, but it is not the case with the promoting broker who encourages investment by advertisements or literature, and whose commissions are five times the amount of the Exchange broker. He knows the investor does not often deal direct with the miner, he buys his securities from the broker and generally forms his opinion of the value of a prospect or mine, either intrinsically or speculative, from the broker's advice or literature.

The writer has frequently asserted in private and upon public platforms, that a man who claims to be a specialist in any avenue of industrial activity, where he invites capital in the projects he stands financial sponsor for, that he should, by experience be able to judge the value of the project which he is promoting, or the intrinsic worth of stock he may be selling. Mining is that one particular avenue which a man cannot learn entirely by books. He must be closely associated with the operators of the property and have a personal knowledge borne of practical experience, enabling him to judge the worth of statements made by vendors of mines, or by experts who write reports upon the same. Otherwise his opinion is not worth a dollar. A mine is brought to an Eastern promoter, he makes his commission contract, and prepares the literature. It is upon these effusions that the public invest their money. The broker should be in a position to say:

"I am, by my experience in mines, reasonably positive that all the assertions made in this financial circular are true."

It is claimed in mining, as in no other line, experience, hard and cold as chilled steel, is more essential to success in the flotation of these enterprises, than any other attribute. Experienced men may make mistakes, but they will be honest ones. We all make them, for fortune is a fickle jade and Nature plays many pranks, but it is only reasonable to expect more, larger, greater success from investments founded upon the opinion of those who do know something of the practical side of mining, than from those who have not the remotest conception of the operation of a mine or its actual possibility of success from its ore showing, or vein contents. There is many a poor miner to-day, wandering through the streets of the Eastern cities, thinly clad, poorly fed, seeking, thus handicapped, the large but not always generous ear of capital, who knows more about commercial mining in one hour than the self-esteemed promoter of five million dollar corporations, based upon bare prospects, will ever know in this life.

A broker dealing in railroad or general industrial securities which have an intrinsic value based upon positive earnings, which increase or decrease each year, or have a speculative value, regulated by stock exchange orders of supply and demand, according to sentiment, may be able to advise judiciously as to the possibility of a rise or fall in values, but it is only his opinion, which is prompter to his advice. Still, by his experience in the stock market, he has a right to advance his opinion, but when this class of brokers goes outside of the line in which he is versed, and stands as sponsor for mining enterprises, and solicits the investments of the masses, that are lacking in experience and knowledge, of whether the broker is qualified to direct in our most important industry, where men of forty years' experience feel their way slowly, then the public should know that the broker is simply talking speculation, and if failure follows, the industry itself should not be held responsible, for the raw speculation in shares is not mining ore. Long "market letters" ably written, inspring reports, vague hints of coming bonanzas, weigh but little when compared to the man who sends the following letter to shareholders:

"We opened a new ore shoot on the second level west. So far, the values are strong, the bodies large, and shipments last week were 200 tons, of a value of $30 gross, leaving a net profit of $20 a ton.

"We shall make no extensive improvements, until the extent of this new ore body has been better opened and its tonnage capacity fully established."

This is a statement of fact, the kind that counts, in these commercial days. This little mine may be worked by a horse whim, it may only have a hut for the shelter of its men, but ten tons of fifty dollar ore, honestly won, is of more benefit to the world than the efforts of the inexperienced, who, by their ability to cover facts, and thus winning the confidence of many, erect great mills, dig deep holes, denude the mountains of timber to fill the maw of outraged earth, drive to their work in automobiles, write misleading, though it may be legally worded reports upon the progress of work, and yet in the end never earn an honest dollar for all their ill-directed efforts.

In 1882 the writer published his maiden work. It was only a little book called "Years of Dishonor in Mining." There was great excitement prevailing. The Lake Valley mines of New Mexico were being floated by the late Whittaker Wright, operating from Philadelphia. The stocks were being boomed by inexperienced Eastern brokers. I had come from Tombstone, Arizona, seeking employment in my line. During that craze, the manipulations of values were the bait, misquoted experts' reports, etc. The Leadville boom was on and silver mining was just crossing the line of commercialism. If there were years of dishonor, from 1880 to 1884 we may class that period as the crown of them all. The people were told that the ore bodies were unlimited, that the values increased with depth and that millions would positively result from mines, that, even to this day, are non-commercial. I have some market letters written by brokers at that time. They are interesting reading to-day—interesting because one would think an idiot wrote them. Character and honor had more standing then than they have to-day, men believed more in man's integrity, the legal thief was yet an infant, high finance were words then uncoined. The promoters, and it may be said that New York then held the ablest of the West, would bring old venerable men into meetings, whose very appearance was indicative of honor, and these reprobates that belied their manly personal appearances, would lie so sincerely that even the most skeptical would be convinced. My little book was of a limited issue, money was scarce with me, the few volumes were quickly absorbed and the public never knew of its existence, but I was a marked man. Hon. Stephen B. Elkins, at that time laying the foundation of his fortune in West Virginia coal, characterized the book as the enemy of the "cheese-grabbers of Wall street," but its influence was lost. I then promised myself to some day write a book the size of the edition being such that few could buy them all up.

When the crash came, as invariably ends these crazes, the promoter attributed the failure to the fact that he had been deceived. Not those promoters; they were the wisest lot that the West ever knew. The promoter of to-day is a butcher when compared to the handlers of the fine stilletto that those men plunged into the vitals of the public. But we never heard of an instance where those who profited by the unsound promotions were willing to return at least the amount of the heavy commissions they received, to those who, believing in their judgment, had invested and lost their money, so that it brings us down to the point of discussion as to the necessity of a broker having some practial knowledge of the mining industry, that he may be able to determine at least, in a measure, whether or not the representations made, have any tangible basis of truth, and this cannot be done by any man not versed in the practical side of gold and silver extraction from ores.

It has always been a mystery to the commercial miner why the sensible Eastern investor allows himself to be deceived by a certain class of men who claim to be mine promoters, and experts upon the question of profitable mine investment, without asking the broker or promoter to, over his own signature, give an outline of what constitutes his practical experience, that the buyer may be able to judge of the value of the man's advice. Their pretence is so shallow, their misrepresentations and ignorance of commercial mining so apparent, that it is strange that any man or woman could be led into giving them a dollar. If there is any one individual in the world thoroughly detested by those who dig the actual product from the hidden vaults of Nature, it is the so-called promoter of sure-thing investments in mines, who, failing in other avenues of life, fastens himself upon this industry and proceeds to fatten at the expense of those whom Nature created broad and liberal in their views, who at all times desire to assist in the development of our mineral wealth. When the mistakes come, and the loss is apparent, the general investor lays the responsibility to the uncertainty of mining. The fault, however, lies with themselves. They should have reasoning powers enough to realize that a man cannot walk out of a dry goods store, a real estate office, an advertising concern, from stock brokers, sanctorums, dealing in railroad securities, and put up a sign as a mine promoter and stand as a prophet and adviser on the intricate questions of mining and have anything other than blind luck to guide him in the selection of property in one of the world's greatest industries, where even the most experienced men hesitate to invite investment, especially in the prospect stage.

I can understand that an electrician can well advise on electrical ventures, the real estate agent can place a better valuation on a tract of land than a mining expert, but their opinions of a mining venture are of the same value as the opinion of the miner on any of their distinct specialties, which he only knows superficially.

The reader of this book must certainly appreciate the necessity of a knowledge of practical mining by a broker to base an intelligent opinion upon the value of a prospect and subsequently the value of the stock issued upon the same. If the investor would ask the promoter to give him a written statement of his practical experience, not an oral statement, of his connection with mines, there would be some advantage to be gained by those who have to trust their investments to the broker.

In the last six years vendors of mining shares have sprung from almost every line of life. They have been attracted to the sale of unsound promoted securities by the enormous commission that has been paid. The exodus from many walks of life into the sale of mining shares by men who do not know if mineral grows upon rocks or in the loose soil, has been caused by the wild speculation in Eastern promoted mines that have never, as yet, returned a dollar, and the chances are that they never will; but those associated with unsound mine promotions paid enormous commissions, some cases sixty per cent., and thus attracted persuasive talent from other avenues of trade. One can almost hear two expert salesmen say:

"I see that the floorwalker has left his position and is selling mining stocks. He has a fine office and is making money. Let's you and I get a typewriter and start in the business."

This may seem far fetched, but it is practically the fact. New York and the East have created more mining stock brokers from shoe clerks, board markers, worn-out street brokers, real estate and life insurance agents, than would fill a volume. Every country village has its mining broker, every school district some itinerant vendor of shares, until it has finally become a joke and the villain in the melodrama seeks to ruin the hero by selling him shares in a mine. Is it any wonder that the respectable element of our greatest industry rebels at the stain placed upon the escutcheon of mining by these irresponsible men?

It is desired of the public that before they buy they should ask the broker what business he followed before entering the promotion of mines, and how much actual underground experience he personally has enjoyed, or how many actual dividend-paying mines he has created, or what reason he had for claiming to dignify himself as a representative of the mining industry. The answer, if truthful, would cause many to hesitate. If an untruth is written he is amenable to the law. Over night, grocerymen, shoe salesmen, life insurance agents, club men, race track touts, bond clerks and physicians have become mine agents, or established offices as mining brokers, and their advice spread before the world.

In asking questions as to the broker's practical experience, do not accept an ambiguous answer. Let the promoter tell you in plain language, over his autograph signature, just the experience he has had and not allow him to evade the question by telling you that "they have good advice from some of the best mining men in the United States." I know of a young fledgling who is a heavy advertiser who claims ability to give advice because his father frequently visits mines. You should know if the broker, by his own experience, is capable of judging if the advice is good.

It is a known fact that most of the serious disappointments of the past ten years were promoted by men who never even spent continuously two months in the mines or earned a hundred dollars in the practical side of the industry. Some of the most prominent never drove a drill or handled a pick for wages. To these men the prospect is a mine, and that which the commercial miner would not consider worthy of venture is loudly heralded to the public as a bonanza of enormous proportions, and from the receipts the broker expects a large share for his valuable advice and labors of promotion.

The question of the experience of the broker is vital, for who would follow the advice of a man who would say:

"I was formerly a life insurance agent and know nothing of practical mining; I depend upon what the owners of the mines tell me. I commenced to sell mining stock because I found it easier and more profitable than selling life insurance," or if he should say:

"I am not obliged to know anything about the practical side of the industry. I read the reports on mines and I form my judgment. I understand that all prospects have a chance of being mines, and I sell properties on the representation made by others to me. I have no interest in the matter beyond to collect my commissions. If the mine fails I am sorry, but I am not an expert."

On the other hand, supposing the broker, in reply to this question, says: "Mining is my specialty. I am not only a stock broker, but I make a business of thoroughly investigating the profit possibilities of every mine that comes to my office. I have worked in several mines, many months at a time. I am closely associated with commercial miners. I originally lived among them. I was considered a miner. Some of them I know to be absolutely honest. I know that it is only about one out of every hundred prospects that ultimately turn out to be mines, consequently when I sell a stock in a prospect the investor is informed that it is a venture and that I cannot guarantee positive success, but my experience with mining leads me to believe that this prospect is far more valuable and further along toward being a dividend-paying mine than the general run of prospects. There is no value to this stock from an intrinsic standpoint, but from a speculative standpoint there is a value to it. If you are in a position to speculate where a little risk may bring you a very large gain, this prospect gives you that opportunity, as it is in the hands of practical men, and seventy five per cent. of every dollar invested in these securities goes into actual underground development."

You would have confidence in this man's assertions. He has not tried to deceive you; he has told you the facts. By his practical experience in mining he is able to weigh the statements presented to him by the mine or prospect vendor. The investor is more justified in taking a risk upon the representation of such a broker than he would be upon the assertions of some boy who, perhaps, was a board marker in a stock broker's office and graduated to an oak desk and the ownership of a typewriter.

This is not an exaggerated view, for it is not an unusual thing to find mere youths, from twenty-two to twenty-five years of age, opening mining offices, sending out market letters, writing descriptions of geological formations, great ore bodies, continuations of mineral zones and, like sages, giving the public information as to the value of mines. They use the public press. There is no great reorganization plan undertaken that they do not claim to have information of value and warn the stockholders to write for their market letters, which, when received, is only a rehash of what those interested would themselves gladly give.

I would like to see their answers to the questions here suggested, for the average mining brokers of the East are deplorably ignorant of even the needs of a mine, and those that are the loudest in their circulars or advertising are generally the least informed. I would like to see the answers to this question:

How many people have made money under your advice, money honestly won from Nature through profitable ore extraction? Not the paper values that the investor sees quoted, so long as he himself does not try to sell, but old-fashioned dividends from a commercially operated mine that does not want to sell a little more stock to perfect some needed improvement, but honest hard money won and paid, not upon a few shares for the purpose of attracting other buyers, but upon all the stock, such as is paid by the great commercial mines that do earn and pay dividends. I do not want to hear about what you are going to do. I want to know what profit you have actually made and paid. How many mines have you advised people to buy into and how many of them are to-day beyond the stock selling period and have settled down to earn and pay?

The West is filled with mining operators who seek capital and sell shares in both prospects and mines; they are willing to prove their right to your confidence by a manly, straightforward statement of their ability. There may be Eastern promoters who have moved West, that their residence near the mountains may give the impression that they are experienced, but they are the same old "tribe." Insist that they answer the questions requested. There are no doubt many able men in the East who are by experience capable of forming sound conclusions. I simply say, Be sure your broker is experienced. As to the speculative trader, that is a different thing. He is treated in the chapter on mining share speculation.

The broker dealing in mining shares upon either the earning power basis, or the development period, where the investor buys for a fair gain with a fair risk, upon the knowledge that he is informed as to the actual conditions at the mines, is not to be classed with the broker, who, is continually exciting the public to buy, buy, buy, ever ready with excuses to cover the reason for the declines, always ready with the advice to buy at the low figure. The worth of their advice is shown in the chapter on speculation; their posing as financial advisers on mines has about as much influence in creating confidence in the commercial operator, as the Eastern banker would have in the man trying to sell securities of the Electric Light Companies of New England, writing upon paper headed, Dick and Charlie, Leadville, Colorado, ore buyers, teamsters and dealers in high grade New England Electric Bonds, Life Insurance, etc.

When one stops to really consider the value of Eastern advice on mine investment, it is about on a par with the value of the guarantee that certain promoters make to encourage conservative investors. There being no way known to science to guarantee that nature will place ore in the ground, the guarantee is a joke. I have seen men make them, just to get money to keep Chinamen from confiscating their laundry, or to pay a pressing landlord. Men who make guarantees that mining stocks will pay dividends or your money refunded, need your cash very badly to satisfy some pressing creditor. The same applies to the average vendor of Eastern promoted shares, who promise you the impossible to obtain your subscription.

CHAPTER XXI.

THE MINING CORPORATIONS.

CAPITALIZATIONS AND WHAT THEY MEAN.

Penny Stocks not Always the Best.

The author has explained that this volume is not intended for those who do know, or for those who are looking for literary gems to add to their collections of such authors as Darwin, Huxley, Spencer, or Gibbons. "Rocks in the Road" has been written with a view of employing the four hundred and seventy five commonly used words, with no attemp at teaching the master minds of finance, or those whose natural ability enable them to live by fooling others not as well equipped mentally. My friends, who may toss this work aside as of no interest to them, will not cause my pride to in any manner feel injured.

I am writing this book in the hopes that the "man up the state," who wants to do a little in mining, may reach out, take this book from, perhaps, his slender library, read it, ask questions, and do that little mining, in a sensible manner, able to draw deductions that may guide him right, and thus make him money, thereby cementing his friendship with the Commercial Miners.

I have speculated in stocks, and desire to continue to do so, as long as I am a member of any exchange. I have taken the money thus won, without a pang of regret; because I won it from some man who would have taken mine. Exchange members, do not always know whose money they take. We buy or sell for a profit, either way. We do not know who is hurt. The man we win from, may have won from some other. When we receive our Clearing House checks we do not really know who paid us. It is a fair business and has no bearing upon the "sure thing" operator, who says "Yes" when he means "No."

The reader is plainly informed that the writer deals in stocks, buys and sells prospects. If any individual searches me out and wants to do business in my line, he will be received in the fold—but my office is for square speculators; it is not a sanitarium. I do not want the accounts of those who believe all the trash they read relative to sure investments, where there is no possibility of a loss, and where ten dollars invested to-day will bring positively one thousand to-morrow. Each state has sound institutions where the accounts of the feeble minded can be carried. For my part I do not care to be bothered with them.

As I have stated, this book is intended for those who want plain reading, and to know why certain things exist.

There are well written mining works that elucidate many things that I attempt, but the language is too fine, it is expressed for the few.

"The granite mass being discharged with such force, that upon reaching its intended designation placed the recipient in a comotose condition."

Nearly everybody knows from this that some man was knocked out by a granite rock. But does everybody know it? As to the length of these chapters being such that they will not be read, I will take the chance. If a man is interested he will read. The writer has seen ditch laborers diligently studying patent medicine literature in a search of a remedy for a pain.

Incorporation is the basis of our material progress; without it there could be but few great industrial undertakings. If I followed the usual procedure of financial writers, I would say: A stock company is an association incorporated under the laws of some State, or by the direct act of some legislature, for the purpose of transacting business. It is composed of a number of persons whose share in its capital and whose interests in its profits are represented by shares of stock. The company gives each stockholder a certificate showing how many shares he owns. In a legal sense the corporation is a person, with the same powers that a person possesses to act and to sue. Yet the persons who compose the corporation have, individually, no control over it or rights on the property it may own. A contract made with a corporation is not made with the stockholders individually. The corporation therefore is a person without personality. Hence the aphorism that "corporations have no souls."

But I am not going to do that; instead, will try to tell in plain language just what a mining corporation really means, and its importance to the small investor. If they want to study the higher forms of literature on corporations, they can read the books of Sereno S. Platt, Henry Clews, or the works of such corporation attorneys as James B. Dill and John R. Dos Passos.

In mining, a corporation simply means that a charter has been taken out by three or more men, for the purpose of owning and working a mine or prospect, through corporate ownership, instead of individual, thus enabling many men to own interests in the prospect or mine, through possession of a stock certificate. If the individual held the property and wanted to sell a one-one hundredth interest, he would have to make a deed, and that deed be placed of record otherwise, under incorporation, the owner deeds to the Company, and the interest can then be represented by shares, yet the title is as safe as though the deed had passed to the small interest holder. It is simply a form. If you owned an apple and cut it into a thousand pieces each piece would represent a one-one thousandth part of the apple.

The amount of capitalization does not affect the intrinsic value of the prospect or the mine. Some Companies incorporate for many "millions" but the sounder operators favor small amounts. For illustration: A prospector has opened a lode or sliver, he has gone as far as his personal means will admit, and desires the co-operation of capital to prosecute further development.

He, and a few associates, form a corporation under some law, called,—say the Mineral Hill Mine Co., capital stock, \$1,000,000; divided into 1,000,000 shares par value of \$1.00 each. To this Company, he deeds his prospect, and in lieu of cash he accepts the \$1,000,000 of capital stock, less the amount held by the incorporators, which may be four or five shares. This enables him to pay up the entire capital in full, by property purchased, consequently he classes his stock fully paid, meaning that the buyer, even though he only pay five cents per share, cannot be called upon, in any event, for further payments. He further stamps the stock non-assessable, which means that the holder cannot be assessed in event the Company should need money. The only way the shareholder can be approached is by asking him to make a voluntary contribution, which, however, is not compulsory.

The stock is now the property of the former owner of the prospect, and he generally contributes a part of his 1,000,000 shares to the treasury for the purpose of sale. I have used the \$1,000,000 illustration simply for argument. There is no set amount for capitalizations. It may be \$20,000,000, but the intrinsic value is only the worth of the property covered. The amount of the capitalization is often set by sentiment, opinion or style. A prospect not upon a commercial basis is simply prospective as to value; some wild dreamers may say this prospect is going to be worth \$25,000,000, and he causes that capitalization to be placed upon it. Others

Timbering in a vein that dips from the perpendicular. The two miners are upon the hanging wall side of the vein.

have a leaning to $10,000,000, some $5,000,000; it depends upon the actual experience of the promoters and their intent.

The writer has known prospectors who had an ideal figure; they never dreamed of more or less. A hole in the ground was to them worth their ideal. Some men want $10,000 some $50,000, others $100,000, they are satisfied with the amount, and it seldom weighs with them, that their prospect may be worth more or less; their ideal figures in all sales, be it for cash, or on bond and lease, or through incorporation; so it is with mining capitalizations; the actual value is not represented. It is simply the ideal of the incorporators.

The commercial miner reasons that while the prospect is in a non-commercial stage, and is drawing upon its owners for development, that the capitalization should be very low, from $50,000 to $100,000, the increase following the increase in value, as development progresses, and the shares are usually sold at nearly the rate demanded to accomplish certain work.

The author was present at a meeting of gentlemen composed of advertising agents, physicians, real estate operators, brokers and merchants. They were discussing over the capitalization to be placed upon a non-commercial prospect. One suggested that the figures be set at $1,000,000 and the stock sold at twenty-five cents per share, which, in itself, would have been at the rate of $250,000, figuring the par value at $1.00. Another said "make it

$5,000,000, that is the popular figure now, and besides we cannot sell the stock at twenty-five cents per share, we will have to sell the first at ten cents, and work it up to twenty-five cents by five cent stages. This was finally agreed upon and the stock offered at ten cents, or at the rate of $500,000 for the non-commercial prospect. Here simply the expression at an ideal raised the price $250,000 over the first statement.

Promoters reason—that is, those in the business of selling shares rather than with the intent of mining commercially—the more shares they can offer for a few cents the more pennies they can seduce from the investor. They do not figure the intrinsic value of anything; they delight in saying, that for ten dollars you can buy 1,000 shares of this stock, and as the par value is $1.00 per share you are receiving $1,000 of stock for ten dollars, the fact that a million of the shares may be commercially worthless, does not occur to them. It is better to own ten shares, for which you pay ten dollars and have them represent an ownership in something sound, rather then hold a million shares in a worthless shaft that is not even salable for post holes.

Some men claim that the average buyer likes to say, "I own 1,000 shares in a mining company" rather then say "I own ten shares;" he feels richer, when in reality, by the very order of the unsoundness of inflated figures he is doomed to failure and loss, consequently the capitalization only means the opinion of the promoter. The intrinsic value would be just as large if the sum was fixed at $100,000 instead of $10,000,000. We all have experience in modern finance, several times I have been affected by inflated values placed upon prospects that I have owned; the result was always unsatisfactory, except to the agent, with whom the business was transacted. Never again will the writer be associated with a prospect capitalized at high figures. It does not work out right at the mine. I believe further, that within two years there will be an end to even $1,000,000 corporations, based upon prospects; mines will be capitalized at many millions, but not prospects, not at least, until they prove to be mines, for the retrospect shows a field strewn with dead and crippled companies that might have been successful had there been less capitalization, for where a mining company has many millions of shares there is a recklessness that follows their sale, and gifts to directors, that does not follow the lower capitalization. As an example—a man having in his pocket one hundred pennies spends them more recklessly and without the thought that he bestows upon a full dollar. or the method of its disposal. There are many prospects killed by these heavy capitalizations that would have proven producers had the corporation been a close one, and the price set upon its shares substantial.

In these penny stocks there is too much of the gamble, too much of the thought, "Oh, it is only a few cents per share," when in reality it is considerable that is lost, and the loss does not benefit the industry, for generally, in these high capitalizations, very little of the money is expended in actual underground work; most of it going for commissions, or general expenses.

The writer has made a study of these penny promotions and it is found that the percentage of them, that, really, in the end, become commercial mines, is so small as not to be worthy of citation. In the past five years there has not been three $1,000,000 capitalization which were started at ten cents per share or at $100,000 prospect valuation, that to-day give reasonable evidence of proving of commercial value. But within the last ten years there has not, to my knowledge, been even two of the corporations capitalized at over $1,000,000, and sold on the penny basis, that has resulted in a strong dividend paying mine, the kind that is now paying.

The reader is earnestly requested not to class commercial mining with the results that follow the penny flotations, for it can be shown where heavy and steady profits are won by the proper application of a very small amount of capital; and if we take the question of copper mines into consideration it will be seen that the first capitalizations of the Great Lake properties, upon which their success was won, was upon very limited capital. The inflations of values coming after, the management under the low capital basis, had made the great success; and to bear out this statement I herewith present a list showing the capitalizations and the dividends paid to-date by gold, silver, lead and copper mines, based upon reasonable capital consistent with their worth.

Name of Mine.	Capital.	Dividends.
Alaska Mexican	$1,000,000	$ 1,806,000
Alaska Tredwell	5,000,000	9,975,000
Alaska United	1,000,000	333,350
Beck Tunnel	100,000	615,000
Arizona Copper	3,775,000	3,368,000
Bald Butte	250,000	1,354,000
Boston and Montana	3,750,000	49,225,000
Bunker Hill	3,000,000	9,876,000
Calumet and Arizona	2,500,000	9,300,000
Central Eureka	400,000	778,000
Con-Mercur	1,000,000	1,225,000
Daly West	3,600,000	5,877,000
De Lamar	400,000	2,926,000
Gemini Keystone	500,000	1,950,000
Grand Central	250,000	1,333,000
Hecla	250,000	1,460,000
Portland	3,000,000	7,747,000
Calumet and Hecla	2,500,000	105,900,000

It is not necessary to make further reference, as to the results; the list could be extended for pages, even showing privately operated commercial mines that employ less than $50,000 in capital. When a man handles real money he is careful with it; when one is handling paper values he is reckless.

The author does not combat the system of incorporation, he strives against unsound promotions, and it is his belief that prospects capitalized at many millions of dollars and sold at a few cents per share are not conducive to the desired results, which are that more precious metals be profitably won, thus keeping alive a healthy incentive to invest in our mineral resources.

Mining should never be prosecuted by individuals. The capital expenditures to make possible the enormous profits attributed to mining are greater than individual fortunes can stand. Incorporation alone is the proper way, for then the aggregate investments of the many make possible success, and in mining companies honestly managed the dollar of the man of moderate means is equal with the dollar of the millionaire. Both serve to the same end, and when success follows, then the division of the profits reaches both firesides alike. It may surprise the reader, when the assertion is made, that the aggregate small investments have done more to make our dividend paying mines then has the capital of the men of larger means, but in nearly all successful ventures there has been an absence of sensationalism in their promotions, such as is referred to through the first fifteen chapters of this volume.

If it were not for the incorporations of mines poor men would be debarred from participating in the profits. The question that confronts the investor is the honesty of the management, the basis upon which success is expected. Those being favorable the problem is, "Am I being invited into this venture upon a basis of equality?"

The investor may go a long way towards creating a sounder system of mine promotion by reasoning before he invests and by following the suggestion made in the chapter on "Excuses that follow failure," that is, by refusing to send money until the total sum needed is subscribed and he is informed as to his position relative to a profit distribution in event of success.

When reading a sensational advertisement offering shares at a few cents, study the capitalization; you may find that the advertiser does not state the amount of capitalization, but if you can find out the total amount and know the number of shares figure it out. If the shares are ten cents each and there are 5,000,000 shares, that means that, as far as you are concerned, you are paying at the rate of $500,000 for the prospect. Then write the following letter:

"I noticed that figuring the total capitalization I am paying at the rate of $500,000 for my shares; at this price the mine should be upon a paying basis or almost at that desirable period. What is the exact amount you paid in cash for this property? and have you paid the full amount due or is there some contract outstanding covering the purchase price? What is the cash value of the present equipment? How many feet of actual work has been done? How much ore is actually in sight, ready for shipment? How much cash commission do you extract from moneys sent you for stock? and how many promoters' shares were given you as a bonus?"

Then close your pocketbook and await the reply.

There is one more point relative to mining incorporations that may be of interest, and that is the directors. Considerable money is expended by publicity promoters in displaying in their advertisements the names of their directors. What are directors? It is the body that directs the operations of the corporation. If they do not know how to direct then failure follows. Merchants, lawyers, doctors, inventors, and bankers, make, no doubt, good directors for a bank, when they pass upon loans, etc. The same men may operate a railroad, where what they desire to do is a well-known fact, as is shown in other cases, and they deal with what they can see. But in prospecting or commercial mining they are not at all times able to see, and such a board of directors are, as far as mining is concerned, almost worthless except from the point of organization and an honest division of the profits among the stockholders when the profits are won; but as far as the ability of a board of directors, composed of Governors, Lawyers, Bankers, Real Estate Agents, Doctors and Railroad Officials, to turn a prospect into a mine is concerned, they are powerless. It takes miners to do that work, and miners cannot, themselves, make mines unless nature first placed the ore in the ground. A good board of directors can add caste to the undertaking, they can divide the money if it is given them to divide, but all the directors in the world cannot put ore in the ground; so when you are considering a mining venture look to the evidence of mine value as the principal thing to consider;

study the property and not the directors, they cannot win from nature. It takes too many years of wide experience to even stand a reasonable chance.

If the writer desired to give the names of certain men who have been directors in non-profitable mining ventures the reader would realize that the highest reputation in our country has been smeared, a little, by the foolish belief that names could make a mine.

Inexperienced boards work another injury to the commercial side; generally there is some one among them who has a son who is "just dying to go West" or a young friend who needs work, or perhaps a fledgling from some college where a course in mining is a part of their education. These men are sent to take charge of mine operations, that require years of experience, to enable a man to know how to handle men, machinery, or open ore, even after you are so fortunate as to find it. The results are inevitable and much of the loss is truthfully attributed to this class of management.

A good board of directors is of course better than a poor one, but unless they have clean, practical men in charge at the mines they are seldom successful; unless by chance they stumble upon a bonanza which will bear out the idea of the late Senator, Jerome B. Chaffee, who is credited as saying, "a good mine will stand any kind of management." But the writer was personally acquainted with Mr. Chaffee—and from the way he made me walk around at the Little Pittsburg mines I am led to believe he never made such a remark.

If the investor is impressed with the influential names in a directory write the following letter to one or two of them:

"I notice you are a director in a mining company in which I am thinking of making a small investment; do you know anything about the property from personal investigation on the ground? Do you know sufficient about the practical side of mining to pass a sound opinion upon this property or what you saw? Is there any commercial ore in sight? If there is not, then upon what grounds do you place a valuation, such as the selling price the stock represents? Am I right in the belief that a prospect remains a prospect until it actually becomes a paying mine? Do you know that the title is good, and how much commission and promoters' stock is given the fiscal agents? Did you pay hard cash for your stock the same as I may be called upon to do? I ask these pointed questions because I am impressed with the fact that you are a director, and once before I went in on the strength of some big name; then when the crash came the directors said they only went on the board to accommodate a friend; that they really did not know anything about the mine, all of which did not save me the loss I would have saved had I known the truth. Therefore I ask you these plain questions, which I understand are not out of place, and are such that a director should answer. Being a director you should, and no doubt do, know all about these vital points so interesting to the investor."

Let the investor write this letter to one or two of the most widely known directors. It may do you good; it may also cause honest, though foolish men, who allow their names to be used, to hesitate a little. If a respectable citizen answers these questions satisfactorily over his own signature, not his secretary's, then it is reasonably safe to go in.

CHAPTER XXII.

THE POOR MAN AS A MINE INVESTOR.

Early in life I commenced to serve my apprenticeship in the sad school of experience with mine promoters. I drifted along in the current of over capitalization, unwarranted estimates of value, and ambiguous reports by experts that meant nothing, but I was happy in my ignorance. I was told that the ore bodies exposed upon the surface would go down thousands of feet, that values would increase with depth. A retrospect makes me acknowledge that of all the fools that believe this trash, I was perhaps the biggest. In those days any prospect was considered to be a mine and was capitalized upon the assumption that it was. The fact that ores lay in shoots, some large, some small, was not as well understood then as now. Mining was simply,—"find a vein and become rich."

When I had passed through the puppyhood of mine experience and my eyes opened, at first feebly, I commenced to question the right to make exaggerated statements for the purpose of encouraging men to invest in prospects upon unsound estimates. The older and wiser in the world affairs labored with me and impressed upon me that if we followed the plan of a statement of facts, the prospect would show up so poor that people would not invest, and by so doing I would be taking from the poor man his only opportunity to grow rich with limited investment.

It is admitted that, without prospects, there will be no mines, but it is asserted that the risks that follow a prospect should be plainly stated, that the poor man may form his own opinion of the risks, and himself determine if he is able to take them, not by misleading statements create the impression that there is practically no risk, and to encourage this belief to the extent that he may mortgage his home. It is needless to say that men and women do not do this, because they do. In March, 1882, I was called to Philadelphia to deliver an address at the Young Men's Christian Association Hall, on Tombstone, Ariz., a silver camp then in the height of its glory. After the address I met many persons interested in mining, all eager to discuss the subject and ask questions about some section in which they were interested. Among them was an aged man, whom I learned was in a position bordering upon destitution. This gentleman had been a prosperous merchant; first he invested a thousand dollars, then the usual excitable literature found its way to his desk, then further investments, finally he mortgaged his home, the property proved worthless, the home was lost and with broken spirit he drifted down the stream. Men who do not meet the masses do not realize the sorrow a mis-statement often brings. This is the other side of misrepresentation.

The poor man is naturally anxious to believe the statements made, he is a willing victim, his desire to improve his position makes him so. Six-tenths of all the buyers of sensationally promoted issues are poor men. It is nothing to the promoter's credit to obtain the money of the inexperienced, he is not equipped in the world's affairs equal to the man who seeks his dollars. It is not the excitement of bagging game, that carries danger in the pursuit.

The wage-earner, chained to his occupation, has not the opportunities of ameliorating his condition that clerks, traveling salesmen, etc., enjoy. His money comes hard, he hoards his small savings in banks, and after years of toil, bowed down with age, he finds himself the possessor of perhaps two or three thousand dollars. His capital, even though he is broad enough to appreciate that there are great opportunities, limits him from amassing rapid wealth through any of the avenues of mercantile advancements. If he invests it is with the view of bettering his condition. He reads, he believes; he cannot read between the lines as does the more experienced; consequently he is more susceptible.

Let me say, advisedly, that the wage-earner runs a great risk in his general mine investments, because he is the object of the alluring advertisements wherein his cupidity is excited by unscrupulous men, who, by well worded appeals, practically tell him that failure is impossible and disarm him of his natural caution which would tell him to reason.

The writer says that mining is the best avenue for the poor man and his limited means; but it must be in the commercial side, where the truth is told, where the value placed upon prospects or mine is a fair one.

A man saving $300 a year has but one avenue in which to embark with a reasonable feeling of certainty that his investments will give him a competency—that avenue is Mining, which gives the one opportunity in the world of becoming rich by utilizing a small amount of money; there is no other way of realizing more than simple interest, but it is not the best avenue if the investment is made with inexperienced men, upon unreasonable valuations and unsound promotions. Such a thing as absolute safety does not exist, except in a measure through low interest bearing bonds or highly productive real estate, but a well managed, ore proven mine, sold upon a reasonable capitalization of from $50,000 to $500,000 is as near safe as any semi-speculative security can be.

We know that every man is willing to venture a little to reap a large profit, but he wants to be told the truth, then he invests guardedly; he is safe even though he does not succeed—men of limited means often win fortunes from mines, they see the value of their share rise, and they hold and hold, blind to the only safe way to reach success through any stock that has had an abnormal advance and which some speculator desires to buy, that is to sell, reap a profit, then reason on a new investment and risk a part of the earnings of the other. Let the stock alone where the vendor tells you there is no risk, for a man who will ask you to buy any large amount of speculative issues upon the assurance that it is without the attendant risks of life or investment, is either a knave or a fool.

If the man of moderate means will take a pencil, and figure out the cash valuation placed upon many prospects, he will study over the investment, then if he goes into the venture, it is after his own reasoning, keeping in mind what has been written, as to the value of the prospect.

The intention of the writer is to encourage the investment in the prospect stage, but to eliminate the vendor of shares who boldly says: "This is a mine," when it is only a prospect, and sells it upon a valuation that only mines of intrinsic earning power command. Among men, who are known as commercial operators, it is not believed that the man of moderate means should be called upon to pay a producing mine price before it is actually a mine.

A poor man should buy the partially developed mine, then only to the extent of his means, never to the extent where the happiness of his family would be jeopardized in event of disappointment. Well opened prospects placed upon a valuation of from fifty thousand to one hundred thousand dollars are the prime issues for the man of limited means, for when they pass to the stage of mines the profits are heavy and deserved.

The seeds of fortune in mining are sown by judicious investment in enterprises that have been developed to a point where the mine is almost ready to pass to a dividend-paying basis. Fortunes are not made by small investments after a mine passes upon a dividend-paying basis, for then the stock is held at high figures; but a prospect without commercial ore is worthless.

The poor man is naturally suspicious, he reasons from the defensive side, and the first question he asks, is why a good thing is brought to the east. Suave promoters have a ready answer, but the cold truth is, that, proven good things are not brought to the eastern investor except upon a valuation, justified by the production or ore showing of the mine.

CHAPTER XXIII.

SPECULATION IN PROSPECT SHARES IS NOT BENEFICIAL TO THE INDUSTRY.

It is the desire of all persons connected with commercial mining that every dollar, intended by its owner for actual mine operations, shall be so applied and no subterfuges used to divert the same into other channels. It is either intended that the influence of the dollar shall be directed to opening ground, or for speculation, which is remote from actual mining. If the former, then the intention is to dig into the earth; if the latter, then it is not a "mining investment." The right to gamble—to bet on the volume of a fall of snow or rain, horses, or the rise and fall of quotations made by manipulators—irrespective of the intrinsic worth of the property covered by the shares—is not under discussion. The writer asserts that the money intended to open prospects should be actually so applied, otherwise there will soon be only the skeleton of this industry left.

As stated in previous chapters, it is necessary that new capital be obtained to increase production; the capital at present involved being required to sustain the present output. The vast majority of people who buy shares on "mushroom" exchanges, or "curbs," believe—notwithstanding the arguments of the promoter to the contrary—that they are placing their money where it will be made a part of other moneys needed in the proper development of prospects, that dividends may finally be paid. There are men who make a business of speculating in shares, irrespective of any value. The rise and fall of quotations is their thermometer. Many a man speculates in stocks issued upon mines and railroads who does not know where they are located. But this is not the case with the general run of investors to whom mining appeals; the average buyer believes that a certificate represents a value, which the use of his money has increased.

Consequently, any form of mine or prospect promotion that does not do that, which the investor believes will be done with his money, is open to discussion as to its benefits, the same as the results of the operations of the Forty Per-Cent Commission Agent, the payment of unsound dividends, or fictitious increasing of prices—where a broker sells shares one week, then raises the price next, without mine values to justify the rise, simply to accelerate share sales. If a man invests in a mining proposition that is not yet paying dividends and is told that he is going to make a lot of money, he either realizes that he is to make it through a speculative rise in value—irrespective of the intrinsic value of the property—or, that he is to make it through a material rise as the prospect reaches, and finally passes, the dividend period. The first instance is unsound, for the vendor cannot force nature. He secures the money upon representations he cannot fulfill. He does not know that there will be a rise in values that are material. He can only force a fictitious rise, which could not be sustained in the event of many buyers desiring to sell. In the latter case, he believes that the money is to be used in the improvement of the property. If he is simply "gambling in stocks," that is another phase of the matter, and this chapter will be of no interest to him. I assert, however, that he is not in mining, and that gambling in prospect stocks is not a sound business and always results detrimental to the industry. It comes down to the point that has been discussed all through this book: Shall the Mining industry be the avenue through which a few will profit at the expense of the many?

If a man has nothing to do but watch the stock ticker, or stand in the "curb" crowd, who knows that there is a possibility of a stock rising and falling a point or so a day, such as did the room traders in the writer's office, and who knows that it is not mining for ore, but "speculation," and that his only opportunity of profit lies in buying at a low figure and selling at an advance, thus taking from some man the profit he may make by the transaction, instead of taking it from the earth, then he is speculating in fictitious quotations, but he should not attribute his losses to the industry; he should not say, "I have been speculating in mines." A trader in stocks can follow the advice given him by embryonic brokers, for perhaps their advice in these instances is just as good as any other man's advice; it becomes merely a question of gambling.

If the brokers who write the alluring circulars were to confine their efforts to the obtaining of customers from the class that are known as "stock gamblers," the loss or gain would be kept among those who know, and the winnings one day would, perhaps, be lost to some other man the next. These, however, are not the facts. The circulars sent out by those pseudo mining operators find their way to almost every interior fireside of the people residing far away, who buy mining stocks as an investment, who spend their time in manly pursuits, the felling of trees, the tilling of the ground, the hauling of products to market, or the wage-earner kept at his bench. These people are not in touch with the speculative pulse of the stock market; they are not in position to buy at ten cents and sell at eleven cents. To them mining investments are something to be held on to, an opportunity to grow rich from a wealth honestly won from nature; this is what the literature tells them. Very few know, or are informed, that the money they invest in prospect stocks quoted upon exchanges seldom goes in the ground. They feel,—when shown the increase to encourage them to buy more—that the rise in quotations comes from betterments at the mines. To them, mining is the extraction of a precious metal from the earth, sold or milled, and the residue net results declared as profits, just as it is to the commercial operator. The other side is raw speculation, where you have to watch the board every hour, and you cannot often follow that end and at the same time attend to your ordinary business.

If a gentleman residing in the northern part of the State of New York is visited by a travelling stock salesman, or receives market letters wherein the usual "Buy, Buy, Buy" is made a prominent feature, or is given a "hurry-up" call by telephone, showing a desire to put him "on to a sure thing," and he is told that a certain stock is selling low and is bound to go up, and he buys a thousand shares at ten dollars a share, thus paying $10,000—say, in February, 1906—he is not watching the ticker; he is far away attending to his business. He has believed that he is in mining. He puts that stock away among other securities, which he hopes will bring him a competency in his old age. Finally, he needs some money badly, and he turns to his reserves; he sends the one thousand shares to a broker, and he is unable to get a sound bid. The best he can do is—say a dollar a share. The reply comes back, that "it is a bad time to sell stocks," "the people are frightened," "there is a depression," "money stringency," and a lot of other excuses—not one of which should follow legitimate mining, for, if a man is profitably extracting ore, his product is the medicine that cures all these ills. If this man is faced with a $9,000 loss, is it reasonable to expect that man to be friendly to the mining industry?

If the reader thinks that this is an overdrawn example, let him take a pencil and figure out the declines in some of the stocks that were sensationally promoted and boomed on some exchange or curb. The cold, calm way to look at these matters is by pencil and paper, figure the price paid and the price obtainable when you want to sell.

The writer has, for many years, been a member of stock exchanges, and he can conscientiously say that there is legitimate share speculation. But he means in the mines of proven merit; not when the company is needing money for development purposes, but where the mine is paying its own way, even though it is not upon dividend basis, at least doing something to justify a value, but not where quotations are manipulated simply for the purpose of exciting the cupidity of those not well versed in the ethics of speculation. When a mine has passed to the dividend period, the speculative value attached to the stock is that which follows the possibility, of the striking of greater ore bodies of a higher grade that may increase its earnings. In such cases, of established values, there should be a mart in which to buy or sell such shares. But the quotation of prospect mining shares, as has been practised in the last three years upon new exchanges and upon "curbs," or upon private quotations—suppose to be sound—only brings sorrow to those who invest upon the values, and causes them, for years, to entertain a feeling of doubt as to the stability of mining generally.

A review of the mining companies listed and values quoted upon the earnings, will show that there is a striking regularity of quotations in the shares of the real dividend payers—a stability not shared by the shallow prospect—where, if the demand is good, enormous values are added by each upward rise of a few points, which, however, are not sustained when a number of sellers appear in the market. Fully 500,000 of our American people are now sadly aware of this fact, but they should not even intimate that the legitimate avenue of mining is responsible for their misfortunes, or that commercial miners assumed any part in the trading. There is another form of listed stocks known as "semi-dividend" payers; that is to say, mines that pay a long time and then cease paying. These can only be classed as speculative prospects; because, if the dividends stop, the property falls back into the prospect class. The value of such is only gauged by the actual net value of the ore left in sight, or salvage. But speculation in this class of shares is justified upon the assumption that the property will soon resume dividends. But a prospect that has never paid a net dollar, not even with a fair volume of good ore in sight—with the chances that follow prospects—that they may never pay, and the prospect itself in sore need of capital to demonstrate its worth, that prospect has no place on a stock exchange, where the quotations indicate a healthy condition at the property, and when put there during its incipient period, it is that some man may obtain another man's money, and should be plainly marked speculation only, for the reason that the money invested by the public in the stock so quoted does not help the prospect. It is not treasury stock they are buying, it is simply a lot of certificates of doubtful value changing hands. If a man puts fifty thousand dollars into fifty different stocks known as "stock promotions," though quoted on an exchange, not a dollar of that money goes into the prospect—the money simply passes along. If a prospect needs capital for its development, the funds, or even a reasonable part of it, cannot be kept on hand to sustain a market quotation. Consequently, why is a prospect listed until the funds needed to prove its worth has been secured?

Where a number of bare prospects are listed, most of them without a ton of commercial ore in sight, and practically no development, and a value all the way from $100,000 to $600,000 placed upon them, simply because they are in the same district or county wherein a good mine is located, the manipulations of the quotations covering the same has no bearing upon the intrinsic value, such as the actual striking of a body of high grade ore would have. It is simply gambling in the highest form of risk—for not one in a hundred ever pass upon a dividend paying basis. The striking of a little sliver of high grade ore, or the shipping of a few tons does not stamp the prospect commercial. Considering the general high capitalization placed upon these holes in the ground, which it is fashionable to figure at $1,000,000, each point rise means an added $10,000 to the value, provided all the capital stock has been issued, yet often without any work being in process at the mines, these values are often marked up from $5,000 to $50,000 in a day, and some man suffers. It savors of the man who told his wife at supper: "Sue, I made $1,000 to-day." "How did you do it, Phillip?" "I marked up all the goods in the store twenty-five per cent." "But suppose you can't sell them?" "Then I will mark them down again and take my loss." The writer may be radical as "my friends" say, but from the standpoint of a commercial valuation eliminating speculative pos-commercial valuation, eliminating speculative possibilities, there never was a hole in the ground without ore exposed worth $200,000. Yet there has been many thousand sold at much higher ratios. It is a system that is deplored for it is, indeed, rare where ever they earn a legitimate dollar from actual ore extraction.

The writer appreciates that speculators make profits buying and selling mining stocks upon the rise and fall; but the trader must be closely identified with the stock exchange or the "curb" on which the stocks are quoted. He cannot be a merchant or a farmer far away from stock tickers. He must have a knowledge of mining—or his broker must have a practical knowledge—that he may be able to draw distinctions between the good and bad news that generally finds its way to the East for the purpose of influencing quotations. If a broker is a miner and he hears of a strike and can find out—as he generally can—the nature of the strike, he can form a good opinion as to whether the stock will hold its high values or not. But ninety-nine people out of a hundred cannot follow quotations or take advantage of news.

The writer was on the floor of his New York exchange when a big strike of copper ore was made in the Anaconda mine, at the depth of 2,200 feet—it flashed over the wire about two years ago—Eastern speculators and share buyers alike went fairly crazy, and the quotations almost pushed the board marker off his platform. It was reported that they had struck into fifteen feet of the richest copper glance ore ever found, and they predicted immense figures for the mine. The writer did not question the existence of that body of ore. He had examined the camp and had friends in the district at the time. He knew that it was usual to strike those lenses of ore in Butte mines; it was simply a question as to the volume of the lense; but none of them had in the past ever extended to any great length and, when they were found, were generally kept to sweeten up the lower grade ores, as some of the Butte ores ran less than 3 per cent and, to maintain a higher average, these bodies of high grade ore were mixed with the lower and sent to the smelter; then, again, the higher grade ores were shipped alone, and considerable comment made on the richness of the shipment. But, to the writer, it was like taking candy from a child to make money out of that report. It was only a question of how much money a man could put up as margins on the short side of the Anaconda stock. I knew that they could hold those figures for a while, but the decline was inevitable.

The opportunities for a speculator to make money in any class of stocks, provided he has good advice, are recognized. But, when he is speculating in mining stocks, the advice of the broker, if not good, may cause him loss as often as gain, and the advice cannot be sound unless there is sufficient experience to appreciate the meaning of strikes and to draw deductions as to the value and continuity of the ore said to have been discovered.

Where the prospect is listed upon some exchange, the question of how the operating expense is obtained is unexplained in the literature; there is generally nothing but the advice to buy. In general mining, the development fund must first be in hand. Without improvement the prospect is worthless. If the manipulator succeeds in raising the price from ten cents to a dollar a share and the operations at the mine show no material increase, the quotation is based simply upon venture without any substantial merit.

If William Johnson, of Akron, Ohio, buys a thousand shares of stock in the King Bee prospect, quoted at ten cents a share, receiving it from Clark, who paid eight cents per share, who in turn received it from Jackson who paid six cents per share, who in turn received it from the promoter at four cents per share—all of these men make what is known as speculative money. Each takes from some one else. The mine, or prospect, has given them nothing. Finally, the stock goes to twelve cents per share, and Charles Peterson, of Madison, Wisconsin, buys in the open market and receives Johnson's stock. Anyone can understand where Johnson made $200 dollars. But what did the prospect receive, that it might push development work and thus demonstrate its value? Perhaps Peterson may sell to some other person. But there is always a limit of rise and demand; perhaps he cannot sell—and he has to rest upon the intrinsic value of the prospect. Then it is found out that the prospect has no material value; it is worthless from a commercial standpoint; there is no money in the treasury to even make an effort to determine if it is valuable or not. Consequently, Peterson is the loser. The man who originally put out the stock and all of the others down to Peterson have made money. But Peterson, having read the flaring headlines: "Buy listed stocks; you can always sell as well as buy," now knows that there is nothing in that slogan. And there never was anything in it unless there were more people wanting to buy than there were men who desired to sell.

Now, for an illustration, the writer will explain how these prospects are listed. A camp is discovered. Some very rich ore is found at the surface. Perhaps lessees—who are the makers of commercial mines, or rather the extractors of what commercial ore exists—commence to ship. And the excitement is on—such as has followed frequently in the last twelve years. The prospect that shows the ore is the bell-wether of the district. Promoters flock in there, and, finally, the citizens organize an exchange. Prospectors will take ground in the immediate vicinity, that perhaps may show an assay value, and perhaps not. They do about ten or fifteen feet of work, perhaps a little more, then they take advantage of the fever that has clouded reason, and commence to sell stock. This prospect may not have cost them $500 dollars. They form a corporation with a million shares capital, of one dollar each par value. Then, by influence—or some other system known to themselves—they list this prospect upon the exchange, putting 400,000 shares in what is called a "treasury" for development purposes, and 600,000 shares is paid for the property—for which they expended, perhaps, $500 and, perhaps, afterwards did $300 in work.

They begin to circularize, using the stereotyped remark about "buy listed stocks, you can always sell." Now, these men are anxious to sell that stock. So they meet, and say: Well, what will we start it at? One will say: Well, say ten cents a share. So they start it at ten cents, this being the popular figure, which is upon a valuation of $100,000 on all the stock, though intrinsically there is no value. They hold all of the stock. They could have started it at fifteen cents just as well. They know no stock is out. Consequently, the stock in cases is "washed." Circulars go out through the country showing rises in value of this stock. The promoters say that it is going very high; it's right in line with the big strike; assays show high values, etc. Yet, during all the time, there has not been one ton of commercial ore shipped—perhaps, even work at the mine is not under progress. They have the location. It may never be worth a dollar, and it surely will never be worth a dollar until it is developed.

The writer has received telegrams from Western promoters, new in the business—and perhaps thinking that he did not know—wherein it was claimed that they were going to put a certain stock on the market one day at twenty cents a share, and to "buy in," as it was going to go up. I have had many of those telegrams sent to my Wall Street Office, and to-day every stock tipped shows a loss of from sixty to eighty per cent of the original price at which they were put out. It is to the interest of "mushroom" operators to convey the impression that you can sell as well as buy. But it is a foolish man, indeed, who does not understand that the only way he can sell is, that some other man may want to buy; if he is not there, then he must be searched out, a costly undertaking. He must understand that the promoter that held the stock in the beginning, for which he paid practically nothing, and who sold it for ten cents a share, is not inclined to give the public his money, he is not buying at an advance, he is selling; consequently, if there are any bidders, they must come from the outside public.

Otherwise the man that holds the stock is compelled to hold and take his loss.

This class of promotion is unsound, and in the last two years it has been carried on to such an extent that its influence has been felt in every hamlet of the United States. In one district of the West—where it is earnestly hoped there may be three or four commercial mines—properties that give no indication of ever being commercially valuable were quoted around a value of from $300,000 to $500,000 for the man that bought, paid that rate. Every conceivable system of promotion was worked, it is said that the telegraph bills of some firms in a month were sufficient to do ample development work on many prospects to demonstrate their value. Some of those interested in these "mushroom" quotations built up a business of such proportions as to be almost incredible. I read in one of the reliable publications in the United States, "The Mineral Industry," that the receipts of one firm of brokers reached $147,000 in one day. Yet, every one of the promotions of that firm is to-day dragging along in the mud of inattention and inactivity at a few cents above nothing, and, perhaps, if there were a heavy offering of shares, there would be no bids at all. Here is illustrated the evil of speculation without ample development.

Men say that my statements relative to the decline in values need not be confined to mining, but is also shown in railroad shares and bonds that followed recent depressions. It is admitted that certain railroad shares and bonds have eased off materially. But where a railroad bond is concerned, its decline has not affected the material value. There is something of intrinsic merit behind the stock or bond—some actual physical evidence of value; the bond covers something that is earning, consequently, a five per cent. bond may be selling at ninety per cent of its face value, but there is something behind the bond to earn the five per cent and the holder knows that he will receive his interest, even if the bond sold as low as seventy per cent of its par value. But there is absolutely nothing behind the undeveloped non-commercial prospect—nothing but hope. The only value it ever had was through the creating of confidence. And, as long as that confidence existed, the value was sustained; but, when destroyed, and no money on hand to try to make the prospect demonstrate its value, then there was absolutely nothing substantial to justify the catch-penny line of "Buy listed stocks, you can sell them when you wish;" it is simply another form of unsound promotion. The man who sells the stock direct, without a quotation, reaps a heavy commission; the man who sells the same class of stock by listing upon quotations that cannot be sustained by intrinsic merit, endeavors to save the commission he would be forced to pay to the itinerant vendor of mining shares in eastern cities; in both cases the public pays the commission.

How can we prove that a system is unsound? Simple argument will be controverted by those interested in keeping the system alive. There is only one tangible way: by an unbiased study of past facts. So, we will study the results of mining share speculation upon exchanges; see the results in the beginning, follow them down, and see the results to-day; weigh the same from the crucial side of actual net profits—not "theory," "hope in the future"—but the actual results, past and present.

A man who invests $100 and loses the money, finds poor consolation in the argument that he "sold out too soon," or "gave up too soon," or that "some day some other man will reap the fortune that he missed." The investor is interested in what he is going to make, and that, through the sound basis of the enterprise in which he has invested. The speculator does not look back. He knows there is nothing to see.

If there is no intrinsic value to the prospect, the holder of its shares can only make money by watching for an opportunity to sell at an advance to some other man. Does it look reasonable that the promoter, who originally put out the stock at a few cents a share, is going to allow some farmer, merchant, school-teacher or preacher to make a profit should any man want to buy stock at an advanced figure? Does it not look reasonable that the promoter himself will reap those benefits, being on the ground, sell his own shares? Is it not like the story of a city waiter who had drifted into a country town? A gentleman came in, and ordered dinner, saying:

"Waiter, bring me a sirloin steak, cut an inch and a half thick, smothered with mushrooms—with a Martini cocktail and a 'washer' of Yellow Label."

The waiter looked at him in amazement.

"Go on. Don't you know if there was anything in the house like that the boss would eat it himself?"

We will look at the results of these so-called listed prospects, for it is upon net results that the man who is not a stock gambler must depend for his profit. So, we will take the cold hard facts, and study them out and see wherein there has been anything susbstantial gained through the listing of certain prospects. In drawing a comparison between past and present values of stocks that have been listed or placed upon the "curb," as I claim, for the sole purpose of influencing speculation, will say: A few stocks on each exchange or " curb" have not been singled out as examples; and while the list is too long to reproduce, a fair average of the declines of all the principal stocks is here reflected —not from one "curb" or one exchange—but the East and the extreme West is taken—that is, the quotations in New York and also the quotations in San Francisco. Thus the comparison will not be charged as too local.

In studying the differences in prices, the reader should consider the matter seriously. The author has never been much of a hand at reproducing statistics. They are generally dry reading, and, in this case, they are only made a part of this work as one of the links in the chain of evidence that he is endeavoring to weld together in the hopes that the American people will insist that their money is placed underground, and not in share speculations. The final results of these ventures is depressions in the general mining market. The good suffer with the bad; and many sound development propositions suspend operations for lack of support. But it is hoped that those who speculate will be fair enough to admit that they are not mining.

The first list will be that of the New York curb. With it are three of the more speculative issues of the large exchange itself,—using the quotations of 1906 and February, 1908.

Name of Stock	Prices in 1906	Prices in 1908
Amalgamated Copper	$105.00	$46.00
Amrican Smelter	150.00	62.00
Anaconda	62.00	32.00
Guanajuato Con.	7.00	2.50
British Columbia	12.50	4.50
Cumberland Ely	12.75	7.87
Davis, Daly	13.00	4.50
Ely Con	4.87	.62
Boston Copper	31.00	14.50
Furnace Creek	3.63	.29
Geroux Con	10.27	4.00
Greene Con*	14.00	8.75
King Edward	3.50	.56

Mitchell	14.00	.75
McKinley Dar..................	3.60	.87
Micmac	6.37	3.62
Nipissing*	34.00	6.75
Tenn. Copper..................	48.75	28.50
Tonopah, Nev*.................	19.00	5.00
Tonopah Ex.....................	10.00	1.62
Belmont	6.75	1.87
Ely Central*....................	5.00	1.00
Greene Silver*.................	10.00	.75
Greene Gold....................	3.75	1.00

What is the feeling of the man who bought in 1906 and held until 1908?

I will now take up the quotations on the San Francisco Stock Exchange. Most of these corporations are what is known as "million-dollar corporations"—though some at higher—that is to say, one million shares of a par value of one dollar each. Consequently, when a stock has sold at 30 cents a share, it was at the rate of $300,000 for the prospect, provided all the stock was issued. When it is selling to-day at 5 cents a share, it is at the rate of $50,000 for the prospect, or a loss on the quotation of $250.000. These quotations were made in 1907 and 1908, a period of about eighteen months. The list has been considerably reduced, as space would not permit us to name all the prospects traded in. But the decline has run through the general list in about

*) Indicates highest price reached by the stock.

the same proportions as San Francisco's quotations in 1907, and February, 1908.

	Prices in 1907	Prices in 1908
Belmont	$ 4.70	$ 1.75
Golden Crown	.14	.06
MacNamara	.48	.38
Montana	3.50	1.95
Mont. Pitts	.22	.05
Tonopah	16.00	5.00
Golden Anchor	.31	.05
Home	.10	.02
Jim Butler	1.15	.44
Midway	1.75	.80
West End	1.40	.39
Tonopah Ext.	4.00	1.60
Adams	.20	.07
Blue Bull	.50	.19
Booth	.83	.25
Com. Frac	4.70	.81
Daisy	2.25	1.02
Dixie	.13	.05
Fr. Moh'k	1.15	.30
Grandma	.25	.10
Jumbo	4.00	1.25
Kewana	1.62	.51
Laguna	1.50	.90
Lou Dillon	.18	.05
Mohawk	17.00	10.00
Oro	.47	.14

Red Top............................	3.75	2.00
Silver Pick........................	1.30	.31
St. Ives...........................	1.65	.48
Atlanta	.76	.36
Blue Bell..........................	.29	.09
Colum. Mtn.........................	1.02	.22
Conqueror	.22	.06
Empire	.15	.05
Great Bend.........................	1.00	.32
Great Bend Ext.....................	.32	.06
Jumbo Ext..........................	2.20	.50
Kendall	.40	.20
Lone Star..........................	.23	.11
Red Top Ext........................	.51	.14
Sandstorm	.55	.29
Silver Pick Ex.....................	.12	.02
Triangle	.51	.08
Goldfield Cs.......................	8.50	5.00
Bullfrog Mn........................	.28	.10
Nat. Bank..........................	.46	.13
Mont. Sh. Ex.......................	.15	.02
Steinway	.18	.04
Yankee Girl........................	.11	.02
Bon. Clare.........................	.39	.11
Gold Bar...........................	1.25	.36
Mont. Mtn..........................	.32	.15
Tramp Con..........................	1.45	.32
Dexter	.27	.11
Jump Jack..........................	.17	.05
Man. Con...........................	.65	.21
Pine Nut...........................	.19	.04
Stray Dog..........................	.32	.15

The writer has but little personal knowledge of the intrinsic value of the various prospects represented by these quotations—the properties being mostly of recent location. Consequently, he is not in a position to say that they are worthless—no man being able to forecast what a prospect may develop into. I have, however, been informed by people that have seen many of these prospects that there is scarcely any development upon them, and that very few really give any indication of being, at the present time, commercially valuable. I know of men who have defended this system of promotion by stating, that, if one mine has been found in the district, any person having a prospect has the right to sell it at a value far in excess of its intrinsic merit, on the ground that if one mine is found there may be others found, as has been the case in other districts. According to this assumption, a man can start out with a burro and a few notices and make fifty locations a day within the area of one of two miles of some strike, and be justified in asking from $100,000 to $250,000 for the property upon a speculative basis; it would seem that such an argument would, in some manner, be based upon personal interest. It is admitted that a prospector of experience, who has made a study of conditions and indications, can go into any district and reduce his chances of loss by applying to each location the results of past experiences. But it does not get away from the fact, that men of limited experience, who stake everything for miles around some apparent good deposit, simply because they can get an assay, are not justified in asking these enormous figures; because, there is no district, but in which, a man can get an assay from almost every "sliver" that has been formed. But it is generally recognized by scientific miners that, while there may be 10,000 "slivers," there may be only a very few commercial mines. And, if we went upon this assumption, a man would be justified in taking ten thousand locations and selling them at rates of from $100,000 to $200,000, making the loss so appalling that the mining of precious metals would be in complete discredit.

The only way to mine, is to mine; that is to say, open a prospect, and when its value is known, then you are in position to ask a figure. But no man is justified in demanding exorbitant advances over his expenditures simply upon the assumption that he is in the same county with some lode or deposit that has shown paying ore.

There are, perhaps, many of the prospects enumerated which, at some time, with proper development, may prove to be mines; but, as far as their commercial aspect at present is concerned—with the bare exception of perhaps six or eight out of a thousand—there is nothing in evidence that would justify their being classed as of any material value, figuring the money invested as against what actual profits could be made to-day. Yet these prospects have been quoted at prices running from $100,000 to as high as $20,000,000 each; for I class all property as prospects until, by their proper opening and ore showing at the bottom, they advance beyond the prospect period. And at this point the writer desires to say that he does not draw a line of demarcation against any formation, be it deposit, slip, geyser, or blanket, provided it contains ore in a paying body; Mining precious metals to-day, upon commercial lines, means the extraction of ore wherever it is found in a commercial body. Prospects that show the highest quoted valuation, even though they show marketable ores in large bodies, cannot be unqualifiedly stamped as commercial until their earning power, by continuous shipments through several years enables a sound valuation to be placed upon the same. In a celebrated district of the West—which all commercial miners hope will prove its right to a standing as a permanent commercial camp—the quoted values were not borne out by the intrinsic worth of the prospects listed, but all of the production was practically made by miners following a system of commercial mining; the lessees, who have made a practice of entering mines where ore was shown, extracting the same, paying a royalty, and making their profit between the cost and the net; but until a mine is systematically opened, its value cannot positively be stated, notwithstanding its shipments are of the sensational order. There are many properties in the world that make heavy productions for a few years from shallow workings, then die out. A mine that makes a strong product one year, a smaller product the second, a still lighter product the third and fourth then eats into its reserve the fifth year, should not be termed commercially sound. There are many hundreds of mines which are commercial to the extent of their ability to produce a mine that only makes a net product of $100,000, is commercial to that extent only. That is to say, if a mine has an ore shoot that shows three millions of dollars, it is reasonable to place a valuation of $1,500,000 on that ore shoot, and perhaps add $500,000 for an admitted speculative value. But in these sensational camps —where strikes are made near the surface and products of from $500,000 to $4,000,000 are made the first year or two—the values that are placed on the stock is so large, often reaching ten to twenty millions of dollars, that it causes the commercial miner to hesitate, because all the product is not profit. He has the knowledge before him that these high quotations may stand for a year or two, but if there should be a fault in the ore body, or a decrease in value, that these quotations may slough off at the rate of a million dollars a day. The men that make these quotations are inexperienced in commercial lines, or are simply speculators. A man cannot place an intrinsic value on a mine until its ore bodies are opened and the amount of ore known to be in sight; yet in the last boom that took place in the United States, they jumped the values, through quotations, to a point that, on a sound estimating of values, would not have been posible for five years, figuring needed development to sustain such estimates.

Two years ago the writer addressed letters to leading publications of the West on the question of result that would follow a certain Western boom. His predictions have been verified to the letter. It did not take any great skill; any miner of experience could have made a like prediction, simply by retrospect of the past booms, of which there has been twelve, during the past twenty-five years, located in various parts of the world, generally far away from the center of civilization, as it is possible for the boomers to locate and make discoveries. After the froth is blown away, and the district settled down to a sound basis of production, is the time to gauge the value of the properties; and the man who waits generally can buy much lower than at the commencement.

Until a prospect is making regular shipments, the right to sell shares at exorbitant prices is questioned. It is needless to say that only a few people are hurt; because, if only one man, or one woman, buys shares at a high figure, they are hurt. Then again, it is not possible to make a mine by simply "washing" stock sales up and down to create favorable impression as to the value of a prospect through the constant rise of its share values. Neither is it substantial evidence that a prospect is valuable because it may be located in the immediate vicinity, or perhaps the same county, with some sensational "find." It is in the same position relative to their value as was the learning of a gentleman, who, giving a dinner to a celebrated linguist, arose and said to his guests:

"I will bet a thousand dollars that the Professor and myself know more about the Chinese language than any two men in the house; he knows it all, and I know nothing."

It is possible that one mine may have it all; thus, the productions that are so loudly heralded from new camps may be made from a centralized point, and all outside of that central zone may not be worth a dollar—all living upon the reputation of the few, and talking about what the few have done. The right to sell prospects is not combated; it is the failure to work them that creates a feeling against unsound promotions. There is no man living that can "wish" ore in the ground, or know that it exists without the work necessary to prove it; and where men intend to invest in prospects, the money should actually go underground, and not simply be changing hands, as is done when prospects are quoted and speculated in upon exchanges and "curbs."

I reiterate that the best system for a man to follow in mining is through developing good prospects that show ore, and give evidence of commercial value—but only upon moderate valuations.

It has been asserted that this volume is too large, that nobody will read it, and, consequently, it will have no influence. I could have written in ten pages all that a commercial miner would have required to understand the writer's intention. He would have known the basic principles upon which I am acting; but the man that does not know is the one I seek to assist. I want him to invest in mines and prospects, and join in reaping the enormous profit that comes through the same. But I have made all these deductions and illustrations to irrevocably impress upon him that his money should go underground, and that speculation is NOT MINING. Perhaps a few may read: I hope a few will consider me sincere.

I would suggest that the occasional investor ask the following questions before he sends his order to buy a listed prospect stock:

How much of this capitalization was given to the original promoters for the location?

How much actual capital did the promoters invest?

How much money is there in the treasury of this company to prosecute developments?

Is there any commercial ore in sight?

How much of the money that I pay for this stock goes into actual underground development?

Is my money simply passing to some other person, and the mine itself not benefited by my purchase?

Some periodicals make much ado over the advice, "investigate before you buy," but there are few who teach the investor a proper way to investigate. The mere warning does not carry to the inexperienced a knowledge of how to ask the vital questions that may lead him to a proper investigation; that is one excuse for the length of this chapter. The writer has always asserted that where a paper, if owned for private purposes or a public medium, accepts the advertisements that look unsound, then if some of the promoters get into trouble, it is a bad form to loudly denounce them, boldly stating that they are "thieves" and ought to be in the penitentiary; Are they not simply bolting the door after the horse has been stolen? Besides it has another effect. If a newspaper is sustaining the operations of unsound quotations, at the same time condemning some other promotion, and yet their pages in the same issue are filled with advertisements of mining companies soliciting subscriptions, are they not conveying, indirectly, the impression that the advertisements in that issue are sound?

CHAPTER XXIV.

COPPER MINES AND THE BARRIERS IN THE WAY TO SUCCESS.

Were it not that the inexperienced broker has made a specialty of extravagant representations relative to copper mines, thus bringing loss to those ever ready to invest in mining, and disrepute to the industry, this branch would be let severely alone. Any experienced man would do likewise, for two reasons: first, commercial copper mining is one of the most stable and profitable of the various avenues that constitute mining: second, but "red" metal mining is a rich man's undertaking; the problems confronting success are greater than they are in precious metal extraction, for, until the copper properties are proven "commercial," they are the very personification of risk. A poor man has about as much chance of opening and equipping a big copper mine as had the fabled camel with the needle.

The profits, however, that follow legitimate operations in this field, when the extraction of the metal is upon commercial lines, are enormous; and the production is steady. But, in making its copper mines, there is a greater necessity of experience and heavy capital expenditure than follows the making of precious metal mines. In an average precious metal prospect, an ore shoot can be figured upon from precedent, there is a reasonable regularity of the strike and dip. But not so in copper. There is an old expression, that "Gold lies wherever you find it," and we are fast arriving at that stage where we are compelled to admit that copper lies where you find it, though there are few great coommercial mines outside of certain districts; but a little copper, commonly called "teasers" can be found in almost every hilly region.

Copper ore shoots and deposits lay in all forms; some perpendicular, others at forty-five degrees; some like great plums in a pudding, others like little raisons that lay near the larger plums. In the Tyee mine of British Columbia, the ore starts at the surface in a little narrow shoot, lays like a badger, and gets larger as it goes in. In 1887, the writer operated a copper mine in San Pedro district, New Mexico, which was afterwards leased by the Hon. William A. Clark, where the ore lay like a strata of coal, starting in on one side of the mountain and going through to the other side.

At Jamez, Mexico, nature placed copper ores in bodies over 200 feet thick, and about 40 feet long. In the same regions, the same character of ore will be so small in volume as not to admit of profitable extraction. At the Balakala mine, California, the ore lies practically on the surface, but is cut off by slate and porphyry at a short depth. In the famous United Verde mine, which nearly all promoters use as a criterion in writing their sensational matter, the ore lies like a great chimney, or pipe,just as though a piece of iron tube was pushed down into the earth. The size runs from 200 feet wide to 1,000 feet wide, and is of a known depth of over 1,400 feet, perhaps much deeper. The writer made a study of the surface of this ground, with the view of applying the information to other sections. But the similarity was never again found, though he has frequently "read" that hundreds of prospects under promotions have the indications.

In 1901, I made an examination of what was supposed to be a copper deposit, lying near the Grand Canyon of Colorado, the surface of which gave the appearance of wonderful ore body; but it was nothing more than copper-stained limestone, with bodies of green carbonates, together with some very high grade ore. But it did not extend, in places, over ten feet deep, consequently, was not commercial. A few cars of select ore was shipped for the purpose of exciting attention.

At Morenci, the ore lies flat, occurring in bunches and large chambers. The old Dominion mine of Arizona has a longitudinal shoot, while in the Copper Queen, one of the famous mines of the world, a map of its stopes looks like the foundation plans of a great building. In Vermont, the ore lies flat, like coal stratas. In Alaska, the high grade lenses look like wedges, are bunchy, and, while some of the bodies are large, they seldom go down over forty or fifty feet, then the usual lower grade ore is encountered. One ore body, in a British Columbia mine, looks like a shoemaker's plan of a foot. The ore body of the Rio Tinto, Spain, resembles snakes crawling over rocks. That is to say, the ore bodies lay between two stratifications. They start near the surface and lay comparatively flat. In the Butte (Montana), the shoots lay almost parallel, occurring in lenses, and look like several companies of soldiers marching along, the dividing line between the companies being cross formations, which are barren.

There is only one great defined copper lode on the American Continent, and that is the Lake Superior lode. This remarkable copper-bearing fissure has been explored to the depth of 6,000 feet. It may be said that it is the first commercial mine operated in this country. But in this case, as in the case of the Superior mine, can be calculated upon, almost to a quarter of a cent of its metal contents, and to within two or three feet of the dip of the vein; the strike being known and its value recognized as from one per cent. to an average of three per cent.

So, there is no positive precedent to follow in the search of copper mines. Nature has followed her own ideas; we think we know, but, to be frank, we do not. In some districts the deposits are spread over a vast area, and the copper contents so low, as to make the property non-commercial, were it not for the application of the most scientific machinery and enormous capital expenditure. But, so perfect have become the economies, made possible by the improvement of modern machinery, that copper mines, carrying less than one per cent. of copper, are to-day commercial. But the writer wishes it distinctly understood that these are copper mines, magnificently opened, and well equipped; the same properties would be commercially worthless without the expenditure of many millions. A precious metal mine can be worked with even a thousand dollars capital, provided the ore is there, but not so in a copper mine with an average of even four per cent. ore. It takes a lot of money to open a "red" metal property.

Copper promotions have commanded the attention of many of the inexperienced brokers, who believe because copper is shown at the surface that success is inevitable; and they point to the shipment of a few hundred tons of high grade ore as evidence. Investors are importuned by the usual revamping of wornout statistics and assertions of wealth to be won by the investment of small sums. The re-told tales of the fortunes made from early investments in the Lake Superior mines, and what can be accomplished to-day by the improvement of machinery is all made a part of the argument to induce the inexperienced investor to buy copper shares; but the writer has never read an advertisement that plainly told the truth, that rich surface ore does not extend deep, and that it requires large sums to make one pay

This chapter is written with the hope that the investor may understand that he has not as much chance of growing rich out of a small investment in unequipped, undeveloped copper properties as he has in the general run of precious metal prospects. There is an old saying, that "it takes a gold mine to open a silver mine;" it can be aptly said that it takes both to open a copper mine; but when they are open, and the ore found to be continuous and in large commercial bodies, they are going among the greatest of our profit earners.

To meet the demand for copper mines titles have ben changed like the fashions. It is reasoned by the promoter that the investor follows the "craze" wave, according to what line of mining is fashionable; that he wants to get into something new, one year it is gold, then lead, then silver, then copper; and that to get money he has to follow the craze. This explains the plunging of the promoters into the Press whenever a new mining district is discovered; and prospects sold at mine figures before the district proves its right to a permanent place as a producer.

In the last five years there has been a great demand for copper mines, and the people in the interior cities have been told that an ownership of a few shares would ameliorate their condition for life. The desire of the promoter has been to handle "copper." Consequently, gold mines, with a little copper as a by-product, have been re-labeled "copper mines;"silver and lead properties, carrying two per cent. of the "red" metal, are also dignified by the same title; poor, sickly, water-stained limestone stratas are heralded as coming Verde's, Anaconda's, Copper Queen's, etc.; and the people who believe all this have been, in the end, the losers: the general mining industry has suffered a loss, not only of prestige, but of friends. A retrospect proves that the "commercial miner" was not a party to those unstable ventures; nearly every one is traceable to the door of the man who "calls" himself a miner, but who, perhaps, was never a day underground in his life—his mining is generally done at a desk.

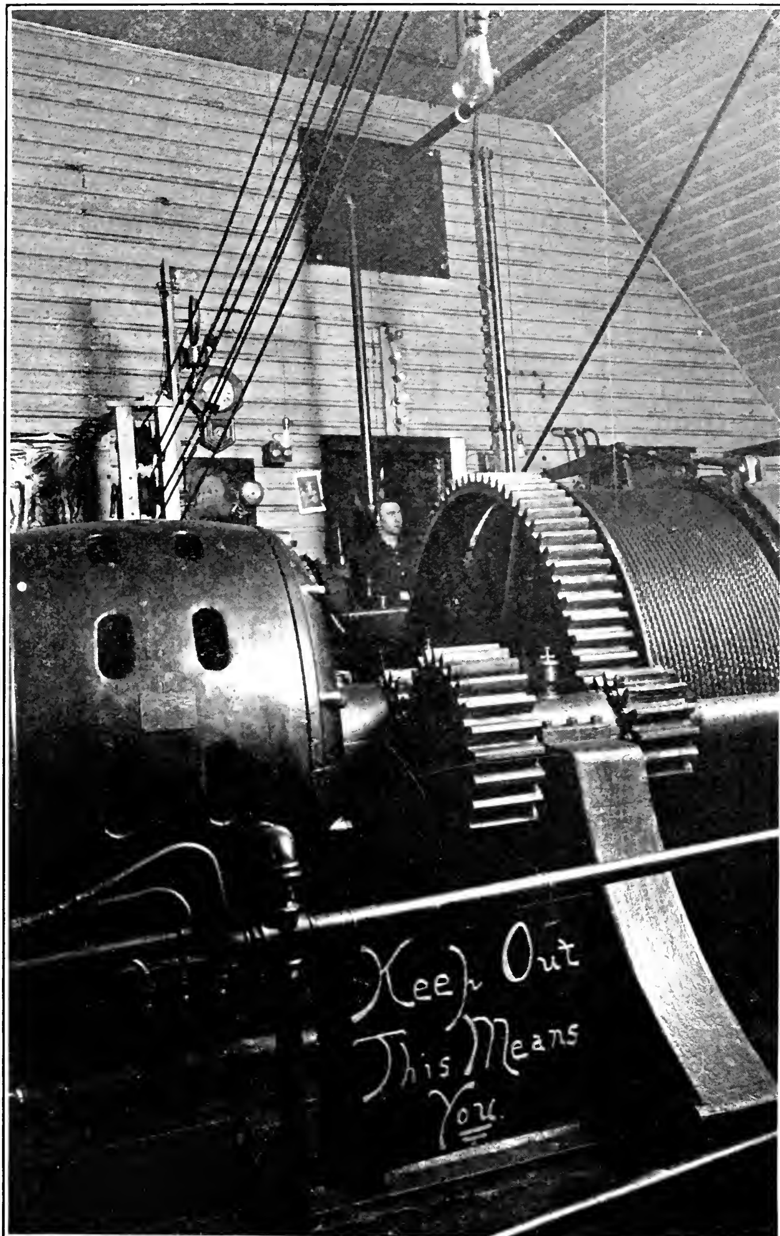
The search for new copper mines has commanded the attention of the miners of the world. The frozen North, and the sun-baked South have been raked over; but the commercial results are yet to be proven. Men who were in menial positions around large producing mines where no great mental capacity was required, have been seduced from their proper employment, in which they were useful, and made high officials of some new copper company, that the promoter might point, in extravagant language, to the fact that at the head of their organization was a man who had been "identified with one of the great dividend producers," and make display of his opinions of what the "new corporation will do;" thus spreading broadcast his "ideas" as the argument for a sale of the shares. In each case history repeats itself, and we look back over a field littered with failures and disappointments. Stevens, in his Copper Hand-book, has made no pretense to cover the facts; he and others know the truth. But it may be said that, in the interim, large sums of money have been legitimately expended in Utah, Arizona, Ely, Nevada, and Mexico, in efforts to create commercial coper mines.

In 1901, when this copper excitement was at its height, promoters, with so-called great copper prospects for sale, were to be found in every large hotel; and hundreds of prospects with a little "green stain" were capitalized at millions of dollars, and the shares sold in every little hamlet and school district. Fabulous stories of the wealth of Clark, Daly, Heinze, Phelps, Dodge, and others, were reproduced in startling advertisements to encourage the investment of a few dollars. To the inexperienced, it looked as though the only sure road to wealth lay in copper shares. Some of the promotions were quoted upon "curbs" and small exchanges for the purpose of creating the impression that the share values were firm. The writer did a little speculating during those days, but his coterie of old miners had passed through the excitement of the French Copper Pool of 1887-8; they knew that there was only a certain number of producing mines, and that somebody was storing copper, that it was only a question of time when the supply would exceed the demand, that prices would drop. It is strange how soon a speculator will forget. The crash that followed the hoarding of copper by the French Syndicate hurt many a man that rushed blindly into the second excitement, only with the usual result of being "scorched." For if there is any metal in the world that is subject to wide fluctuations in market price, it is the "red."

This copper craze was, however, a harvest for the unsound promoter. He reaped enormous profits. But with the exception of the "Shannon" and the "Green Consolidated," both promoted upon commercial lines, where enormous sums were actually expended in equipping and mining, railroad building, etc., not a big producer was made through the floatation of the cheap propositions.

The author recalls meeting many men, in moderate circumstances, who deplored the fact that they "were too poor to buy copper stocks." Some did mortgage their homes; others taking money from mercantile pursuits; these, in the end, filled the suicide's grave. The manipulation of values of copperper shares resulted in the widest suffering, and it is hoped that America may never again experience a like "juggling" of quotations. When the crash came, the losses were appalling. But, for some unexplained reason, the rally was quick; probably caused by the larger holders agreeing not to sell except by allotment. Again the metal values rose; and in the year just passed, copper touched twenty-five cents per pound. The writer had once before seen it touch that figure, twenty-seven years ago, only to fall again to nine cents, years thereafter.

The commercial miners took advantage of this price, and rushed their ores to market; they recognized that the logical price of copper, in a healthy demand, is not over seventen cents per pound. Finally, there came the inevitable slide, commenc-



An electric hoist in a Commercial Mine. This is over a shaft now 2,000 feet deep.

ing in August, 1907. Commercial miners welcome this decline. This is a strange assertion but it is true. For through the decline was foreseen a sounder market for copper, through legitimate extraction. It was a fact that production was far in excess of the demand, but is was a false production. There was no profit in mining much of the copper that was finding its way to the open markets, thus making the load too heavy for the manipulators. The sixty commercial mines of America were not causing the burden. There were other interests affecting the supply. Mexico was pouring in its metal. Then there were hundreds of worthless prospects upon the eastern market selling shares; all mining a little copper for a purpose, and loudly proclaiming the fact. The statement, "we are shipping copper," gave them a standing; but seldom, if at any time, did these announcements carry the "amount" of copper they were shipping, or the actual "cost" of its production. The inexperienced were buying shares, believing because they were "shipping copper" that they were into real copper mines. But in truth, it was their money that was keeping alive the operations. For the copper itself was being produced, often at a cost of over a dollar a pound. But its production gave the promoter the ammunition, which was commonly called his "literature." If the investor had known sufficient of the mining industry, to have asked the plain question, "How much copper are you producing?" and "How much does it cost to market it?" no man would be so foolish as to buy shares in a mine that is making copper at a cost greatly in excess of its selling price.

When the decline came, people stopped buying these prospect shares. Then this artificial production ceased. A few shareholders were inveigled into buying at a lower figure upon the argument that "the time to buy is at the time when the stock is low," but the majority of people do not do this. They get frightened, and they take the loss that is not necessary, they should not have bought in the first place. But all this is beneficial to the legitimate industry. This artificial production has ceased. And it is doubtful if the prospects will ever be opened again in this generation; for once confidence is lost, it is hard to regain. These non-commercial producers were adding considerable to the world's supply. But it is now ancient history. Without the money supplied by the share buyers, they cannot be worked, and eventually, the product of the United States will again come from the old commercial producers and the new, but more modernly equipped, low grade, concentrating propositions of Utah, Nevada, Arizona, Montana, and British Columbia; but all of the latter are yet to make good in commercial activity.

A review of the literature put out by these embryonic promoters of copper prospects show that they are built entirely on unsound lines. In their effort to attract the attention of the investor, they use the most extravagant assertions relative to the value of the ore in the prospects. The fashionable argument used is, "We can make copper for eight cents a pound; as it is selling for twenty-four cents, our profits, consequently will be enormous." Here is a bald assertion that the records of copper mines do not bear out. Prospects thus advertised, without even knowing that the ore is in commercial bodies, without discussing the cost of opening, or the equipment, are placed before the public as bound to be commercial, and are capitalized all the way from one million to ten million dollars. The writer has known of cases where large shipments of rich surface ore has been made for the purpose of trying to convince the stockholders that they had copper mines, in several cases eight or ten carloads of ore, running from twenty-five to thirty-five per cent., have been shipped as evidence of the enormous values contained in the prospects.

I do not deny that there are masses of very rich glance ore on the surface of many prospects; but the experience of many years has proven that this class of ore does not go down. The commercial miner looks for the permanent product, which is generally three to four per cent. sulphide ores. Rich ore often occurs as lenses in the bodies of the lower grade ores found at great depth, but I do not know of a commercial mine anywhere in the world that has carried this class of ore through its life. Consequenly, the capitalization based upon such evidence, without a proper opening of the properties, is wrong. The rich ore simply acts as a fuel for the fire of the promoter. If 500,000 tons of ore is taken from a mine, shipped to smelters at a dead loss, it would have been better not to have shipped at all. But the statement, "we have produced $500,000 of copper ore already," is the bait used to ensnare investors. These rich bodies of ore found at the surface do not deceive the commercial miner. They are found all over Arizona, in small lenses; Alaska is noted for its fabulously rich surface copper, which, however, does not extend to great depth.

It may surprise the reader when I say that the bulk of the production of copper won from commercial mines, is from properties carrying ore running about three and one-half per cent. per ton, on the average. The same advice relative to the value of a gold prospect and its ore showing applies to copper prospects; for until its ore bodies are well opened, its intrinsic values cannot be computed, and investors should overlook the reference to the "high grade ores" so boldly presented by promoters as evidence of the commercial value of their prospect.

The Anaconda mine, that has paid $32,000,000 in dividends, works on three and one-fourth per cent. ore; the Calumet and Hecla, that has paid $105,000,000 in dividends runs on two and one-half per cent. ore; the Tamarack mine, that has paid $9,000,000 in dividends, works on one and one-half per cent. ore; and the Mohawk mine works on less than one per cent. ore, while many of the mines now in process of development in Utah, Arizona, Nevada, Montana, and British Columbia are figuring upon a product from bodies running less than two per cent., figuring first upon concentration, then smelting.

Embryo copper mines are the playthings of the rich, who are able, by their capital, to make them commercially valuable. But a poor man had better leave the development of a copper prospect severely alone. The greatest mines are profitable only when the productions enter into the thousands of tons per day. There is not a big copper bonanza in the world that is working on a tonnage of less than 200 tons per day. It is only by making an enormous output, and with labor-saving devices at hand, that the immense profits accredited to copper mines are won.

That the inexperienced investor may be able to meet the argument of the copper promoter when he places before him prospects that he claims will run high in values, ask the following questions:

How many thousand tons of this ore have you actually shipped?

How many thousand feet of lateral and exploration work have you done, that you know the extent of your ore bodies?

For, in copper mining, until fully 5,000 feet of underground work has been accomplished, and that work demonstrating the value of the ore in commercial bodies, the copper prospect is not worthy of a poor man's investment. The risk is too great—that is, if he considers it from the point of an investment. If he wants to speculate, that is another thing; advice is of no use to him.

I have cited the low grade ores, upon which the commercial mine works, and, as an illustration of how feeble are the efforts of the man who proposes to work a copper mine with limited capital, I will explain the value of a "per cent" of copper. It means that if ore contains one per cent of copper, one ton of the crude mineral bearing rock, will show twenty pounds of the "red" metal; and, as copper has sold as low as nine cents and as high as twenty-five cents, no man can set a figure that he can be sure will be maintained. If copper is sold at eleven cents a pound—as it did sell only five years ago—it means that each ton of one per cent ore is worth $2.22, from which the cost of mining, maintaining and marketing must be deducted. If there was anything staple in the price of copper, a man could better judge the value of his ore bodies. But the great mistake made by promoters, and even by some commercial miners, is, that they figure their cost of production and earning capacity with copper at twelve and one-half cents a pound. In opening a prospect, local conditions considered, the promoter should figure copper at eleven cents a pound as a selling price. Then he is reasonably sure of not running behind—provided he has a million dollars at command, to properly open the mine and equip it. It is needless to say that this is a radical position to take relative to the price of copper, saying: "It is bound to go up again." That's the share-seller's argument. But the commercial miner knows there is nothing staple in copper prices.

The writer asserts, that the rise and fall of any commodity should be figured on its average, and not its highest or its lowest quotation. During an experience of thirty-one years, I have witnessed a wide variation in copper values. My first experience was at Tombstone, Arizona, in 1880, when twenty-five cent copper ruled. I saw nine cent copper a few years thereafter. The author sold copper in January, 1907, from a Colorado mine, at twenty-four cents per pound, and seven months later, sold from the same mine, at thirteen cents per pound. Copper did, however, at one time—many, many years ago—sell at fifty cents a pound—I think just after the close of the Civil War.

Copper mining is not all profit. It costs considerable to maintain a ground after the ore is worked out. Then again, copper mines are not inexhaustible—as some of our promoter friends claim. One of the largest producing mines in the United States faces a total charge of $3.50 per ton simply to lay that ore on the surface—and the deeper the mine, the greater the cost.

I cite these matters that the poor man who believes what the "penny promoter" tells him about getting rich by a small investment in copper mines, may understand that all men are not truthful.

As near as I can figure, there has been about three thousand two hundred copper mines organized in the United States. As near as the writer can learn there are only two hundred and sixty-one "commercial" copper mines in the world, and of these, some of them will not pay ten per cent on even $100,000. It is believed that, of the two hundred and sixty-one mines stamped as "commercial," fully seventy-five of them do not produce $25,000 per annum, gross value. In our great United States, held up to the world as the "King of Copper Producers," there is only about sixty producing mines; and while the copper production in 1907 is estimated to have been 791,000 tons—about one hundred and seventy-three mines scattered over the world—produced the bulk of that tonage. As to the future value of copper—that will depend entirely upon the demand; for, notwithstanding the search for a substitute, copper is still supreme as an electrical conductor, and is, unquestionably, the only true alloy of brass and bronze.

In a previous chapter, the writer has stated that prospects listed on exchanges do not reflect their actual value by the quotations. The same applies to copper shares. A distinction may be drawn in favor of the precious metal dividend-paying stocks that generally hold a regularity of quotations. Not so in copper mining—even among the great producers; because there is more manipulation in the producing copper shares than there is in the dividend-paying precious metal shares. Among Exchange members, it is largely recognized that quotations on copper shares are maintained more for the ability of the operators to borrow money from banks using the shares as collateral, rather than to reflect the intrinsic value of the property from an earning standpoint. Thus, speculation in securities, of even the large commercial copper properties, are not to be indulged in by the man of limited means, unless he is in position to watch the market every day, and has a level head—which no greedy man has—and be satisfied with a fair profit, not endeavor to become a Clark on a hundred dollars. Otherwise he is gone—as sure as the sun rises—it is only a matter of time. If those I met last year, who deplored their inability to load up on copper, happen to read this book, they will, I am sure, feel that the hand of Providence was in their poverty.

If two brothers, each with $10,000, entered a broker's office during the high period of 1907; one buying ten shares of Calumet and Hecla—the mines that have paid $105,000,000 in dividends, and to-day one of our greatest producers, paying $1,000 per share; the other brother saying: "I think the stock too high, so I will sell ten shares short," and both of them closed their accounts at the low period of the year, one of them would have $5,350, and the other one $15,350.

A study of the following high and low prices for the listed coppers in 1907—the total loss of which, through the decline of all the coppers at one time, figuring capitalization, etc., being $650,000,000—will, I believe, cause the reader to agree with me that mines or prospects have nothing to gain by speculation—except for those who speculate.

	High.	Low.
Adventure	6 1/2	62 1/2
Allouez	74 1/2	19
Amalgamated	121 1/4	41 3/4
Atlantic	22	6 5/8
Bingham	37	4
Boston Consolidated	34 1/2	8 5/8
Butte Coalition	39 1/2	10
Calumet and Arizona	198	89
Calumet and Hecla	1000	535
Centennial	47	15
Copper Range	105	44 1/4
Daly-West	20 1/2	7 3/8
Franklin	29 3/8	6
Granby	151	65
Greene-Cananea	25	5
Isle Royale	36 1/2	11 1/2
Mass Mining	9 1/4	2 1/4
Michigan	24 1/2	6 3/4
Mohawk	97	37
Nevada Cons	20 1/2	6 1/4
North Butte	120	30
Old Dominion	63	18
Osceola	181	71
Parrot	38	9
Quincy	148	70
Shannon	24 3/8	7
Superior and Pittsburg	29	7
Tamarack	170	51
Trinity	42 1/4	9 1/2
United Copper	77 1/4	7 1/4

	High.	Low.
United States Smelting.........	70	24 3/4
United States Smelting pfd.....	49	27 3/4
Utah Cons.....................	79	25 1/2
Victoria	11 5/8	3 1/2
Winona	14	2 5/8
Wolverine	201	92 1/2

The mines represented in the above list are as valuable to-day as they were when quoted at the highest figures last year. It proves that the intrinsic value of listed mines are not considered, but their quotations are ruled by sensational advances in the price of metals, reported strikes, or shortages of supply. Some person bought these shares at the high figure, naturally some one was injured. The man residing in some interior city, speculates in listed Copper stocks, he will have little time to sleep; not for a moment can his eye be taken from his gun. He may then win, but it will not be mining, it will be speculating in quotations.

With the knowledge that 'a man who gives advice is a fool upon general principles,' the writer ventures the opinion, or rather his belief, that a man of limited means may make a lot of money by assisting in the primary opening of a copper prospect, upon low capitalization, with the intention of selling out to large interests, after the ground has proven fairly well as to ore contents; where, also, he receives an equitable division of the interest for the risk he takes in opening the ground, as stated by the author in his chapter on the "Equitable way to mine." But when it comes to the point of developing and equipping a copper mine, it is better to leave that task to the big operators.

If you are asked to buy shares in copper prospects, think hard and long, don't refuse on the spur of the moment, but don't jump, think a while; with your pencil and pad as your advisers, figure it out. Sleep over it; and see if you are getting in the prospect at the point where your money is to be judiciously expended in underground work, with a view of proving the prospect worthy of the immense sums needed in its development and equipment, which rich men are always ready to supply when they can see actual evidence of the making of a mine; but for a few men of small capital to try to make a copper mine is folly.

There may be mines that carry an average of twelve per cent. of copper in commercial bodies, but the writer has never heard of them. He has known of substantial shipments of that grade of ore from many mines, but—it was only the "show" ore. Like a certain general, chiding some timid officers, saying, "You fellows are fine on dress parade, but in actual service you are not worth a darn." It is the same with high grade ore in a big commercial mine—the rank and file, the low grades, do the fighting that results in victory.

The writer is not infallible; he only gives his opinions, the simple views of one man, himself covered with copper scars. He is entitled to a little distinction, like was the gentleman of Hebrew extraction, who had placed "F.F.F.F.F." behind his name upon his visiting card, which, he explained, with a look of pride, stood for three failures and two fires. The author can put three F's—two Coppers, and one abandoned mine. But a man's mistakes should not prevent him from trying to help others, by placing a warning post over some bog of quicksand that he "wollered" in.

In Copper ventures, like the unsound promotions in precious metal mines, the money does not often go into the ground. Perhaps, if it did, the result might be more remunerative to the small investor.

CHAPTER XXV.

THE EQUITABLE WAY TO MINE

THE UNSOUND PROMOTER—HIS NECESSITIES AND INFLUENCES IN BOOM CAMPS.

In a previous chapter, the writer has asserted, that if one hundred men were eliminated from the business of mine financing, or made to understand that ore extraction is a business and not a plaything there would be fewer failures and more profit for operator and investor. For my part, I would prefer the men, now marked as unsound, to remain in the business, provided they would get away from exaggeration and unreasonable demand, and learn something about the practical side of the industry. Some of these promoters are bright, active and ingenious, such men are of advantage to any industry, when their talents are properly applied.

The author, perhaps, is acquainted with more promoters than any miner in the United States; his public appearances in the interest of mining, his efforts to sell prospects and soliciting capital for mill or smelter construction, have naturally brought him in touch with really all of those whose natural brain capacity causes them to lead. One reason for my refusal to make pointed reference is that much of my knowledge of the ways of the Eastern promoter has been won from them direct, many being boastful of their money raising achievements. Perhaps they may have thought that I was of their stock selling creed, and thus imparted to me many of their methods which otherwise would have been jealously guarded, when, in truth, I never sold $100,000 of mining stock in my entire thirty-one years of experience, and that which I did sell, was when I was like a crowing babe. And, being ashamed of my lack of reason, where failure followed, I have endeavored to clear my conscience by voluntarily giving the purchasers of that limited amount, something better. A man's honest mistakes can be excused, but that which is inexcusable is a persistence in following the unsound system when one knows it is unsound.

There are, no doubt, honest men engaged in prospect promotions, who accept as their right, the excessive commissions so burdensome to mining, that they are taught that it is only the recognized right of a broker. The writer was informed by a man who had raised nearly a million and a half dollars, that before he knew the truth, he believed that mining was the gateway to positive wealth, there was but little risk, that any man who possessed a mine was fortune favored, that at night he would dream of the gold sticking out of the veins, and he believed every wild assertion he made. Such men are the creatures of circumstances; it is an affliction, the lack of reasoning powers. But there are men in this business that are dishonest clear through; they know that they do not give a fair return, yet persist in fostering the unsound. Men who have felt the arm of the law are more dangerous, for punishment is not a novelty; they are bolder, the results of their operations far reaching.

The writer believes that ninety per cent. of the mistakes made by prospect promoters can be attributed to inexperience and lack of reason, coupled with an unreasonable desire for more than they are really entitled to, their mental capacity considered. It is useless of any man to explain to me, that his labors are worth forty or fifty per cent. Men say that it is impossible to raise money at a less charge. The author retorts, that as the mining industry profits but little and the promoter is the sole gainer, be the same large or small, why continue a process that is built upon unsound lines? Why not allow mining to proceed along in the old-fashioned way common to miners, commercial miners, where men raise money by a plain personal statement of facts, figure the amount required, and apply the money in actual work, thus endeavoring to make MINES. If it takes all the investor's principal simply to get in the promoters hands, upon the assumption that it goes into mining, why not leave it with its owners and await some more equitable system of promotion. The question of "self" has considerable to do with modern prospect promotions, and the plain blunt truth had best be told.

Behind the majority of unsound promoters lie the result of, to them, new-born personal extravagance; those having little personal estate, seek to maintain a position in life far above their material worth or income. A broker, earning a modest competency in some other avenue, his family satisfied with the even tenor of their ways, becomes a promoter of some prospect, and immediately follows the complete renunciation of the simple, though happy life. He enters a new sphere; he associates with men known as "spenders;" to maintain his position he requires more money in a month than did the natural plane to which he really belonged, require in three months. His necessities become greater; his pride is swollen; he mingles with those who are able to spend, through their own, or the resources won from others, and he must become a "spender" himself—automobiles, expensive suppers, better clothes, elaborate offices, all a necessity to maintain the dignity of a modern eastern mine promoter, who generally styles himself, "Banker and Broker." Either the mine pays for this display, by a natural product won from the earth, or the investors pay it. Thus is born the "40 and 50 per cent. commission" and greater efforts to seduce investment, the natural caution of man making it more difficult to interest, consequently great cost of floatation.

The writer once heard a man bitterly denouncing another one, making the remark that he wished be knew some way to bring him worry. I jokingly told him that, if he really wanted to do the man an irretrievable injury, to manage in some way to have him become a prospect promoter, for then he would always live beyond his means, and consequently would always be unhappy.

Many men want reasonable compensation for their services outside of this avenue of financing. In ordinary pursuits they would perhaps, be earning thirty or forty dollars per week; but, when they become promoters, their self-esteem enlarges, they place a greater value on their services; when they make failures, they are ready with their excuses, one of which is that he "would have been successful, but 'knockers' had spoken ill of his property, thus curtailing his ability to sell."

It is admitted that in mining circles, as is the case in every avenue of life, there are small-souled, jealous-minded individuals, failures themselves through lack of energy or ability, who dislike to see any man prosper; they are the seed from which spring assassins of character and property values. But, we may be thankful of the fact that there are only a few of the kind, and their ilk is well known. But the writer does not know the proper definition of that appellation, "knocker," or how it should be applied. I have had experience with the personal "knocker" who has some little prospect that he desires to sell, and when the more progressive miner succeeds in attracting the attention of capital to some mine or prospect, endeavors to decry the property by saying that they have something better, just over the hill, that can be bought for less money. Generally, these are old worn-out human fossils without sufficient ambition to get out and work up a sale for themselves. But I cannot reconcile the word to everybody who does not express an opinion alike to the man who is selling the property. Men differ on values, speculative and material; each man has his right to opinion, and when asked his opinion, it should be given as an honest one.

As ripened experience comes to us, we find that the word is applied to men who are really among the best citizens of mineral bearing regions. The hold-up man, garroting a citizen, may term the individual who calls the police, and thereby saves the victim's life and property, a "knocker." Thus the term, in the eyes of some, is applied to the scientist and respectable commercial miner who does not approve of the extravagant, misleading statements and excessive values, who when asked his opinion, gives it upon the positive evidence as he sees it, after expressing belief in the ultimate success of the prospect involved, but not in positive terms, both fair opinions, but not acceptable to the unsound promoter, who stamps upon him the brand of "knocker." In "boom" camps, the experienced promoter endeavors, in the beginning of his operations, to create a feeling of distrust for the so-called "knocker." To such an extent has this been carried that in saloons and dance-halls of Western towns have been placed placards, bearing the instructions: "Boost, but don't knock." This is a capital spirit in booming a town, for there is some material value behind even swamp land, which can be used for planting cranberries, but the system of stiffling, the cutting off the air that feeds the light of investigation, is wrong. I believe in publicity, of truthful information relative to mines. If a vein shows a quarter of an inch of very rich gold ore, it is not believed that it should be classed at 4 ft. of mill ore. He does not believe that the temporary money of foolish investors, brought into a district by misrepresentation, will lay the foundation for permanent success in any mining state or territory. Men who make wild assertions, generally spend more money in convincing the investor than they do in fighting nature in the search for ore.

The writer does not believe it is right to keep the truth of a mining camp in the dark. When open investigation is not permitted, yet at the same time, the sale of shares loudly heralded by the promoter, it savors of the highwayman who loves the shadow, who does not attack his victim in the glare of the arc light. In camps sensationally boomed, it is safe to say that the extravagant literature and wild assertions as to values emanate from four or five persons, upon whom the responsibility directly rests. But, is there not a deeper responsibility resting upon the inhabitants themselves? They surely read, and know the representations are made for the sole purpose of inducing the man of limited means to invest. They know that a few tons of highgrade grass-root ore does not make a mine, and if the claim DID expose large bodies of $100 ore, there would be no necessity to sell stock, and if the prospect DID NOT show ore in paying bodies, that it was not a mine and worth only a prospect's figure.

The writer has heard his views decried in Western camps, by men who claim that the buyers of these "penny" mining stocks are determined to get rid of their money. One gentleman said to me, "Let them spend their money; if we don't get it out here, some other mining man will get it in some other district." If this logic is sound, then I must admit that I am wrong; but I cannot reconcile as right, the efforts of a group of promoters, who for months ahead, flood the country with personally controlled papers, vaguely hinting that some enormously rich discovery has been made, finally to spring the sensational find, sell out, and then let chance determine the commercial value of the prospect.

I admit that often very rich ore is found at the surfaces, so rich, that men working in the prospect steal it; but generally this class of ore is irregular and of unknown extent, consequently unreliable as commercial ore producers. But it seems strange to a commercial miner, that any prospect showing large bodies of even $50 ore, located in any part of the United States, can have a sound reason for spending thousands of dollars in its publicity "promotion," and vending of its shares at bargain prices. For $50 ore is highly commercial in every district in the United States outside of Alaska.

New camps are welcome; without their coming the industry will soon die out. That which is not welcome is the flamboyant advertising that deceives.

Once in a thousand times these ventures prove profitable, but generally it is the result more of "luck," than science, and it is claimed that the "luck" theory no longer has a place in mining. To continue the "luck" theory longer is an insult to the intelligence of the able scientist, who has mastered many of the secrets of nature and made mineralogy an open book.

The desire of the author is that the layman may enter the profit-earning industry of mining with a reasonable chance to win success. This book has been written in the hope that it will create the "pencil and pad" habit. It is not intended to advance theories, but to express facts, as I have found them. The author is a dismal failure as a literary genius. What favorable reception "Rocks in the Road" receives will be due to the homely expressions, upon what he considers the burdens of the industry. My views may not be shared by all. The writer has made no attempt at establishing a creed; that which is here written are the thoughts of but one man. I did not want to write this volume, but after waiting years for others to write, finally attemped it.

Those whom I believe injure the reputation of mining, advance the opinion that no book can obtain sufficient circulation to reach even 100,000 people, while there are millions who buy mining shares. The author, however, has the hopes that if the reader believes my motive sincere, that what I say is true, he will bring this volume to the notice of others and thus, perhaps, a little can be accomplished.

As to remedies, the reader can suggest them. I believe there is a more equitable form of mine promotion, but beyond marking out the way to investigate, by questions that go to the root, the writer does not desire to venture, beyond stating his beliefs, the soundness of which the investor may pass upon.

When a man starts out to advise, in either love or money affairs, he is handling delicate subjects, not often thanked for good advice in the first, and always receives condemnation, and no belief in good intent, if he fails in the second. My natural instincts advise me to state my beliefs only, leaving the former to judge.

The broker should have some knowledge of practical mining, to enable him to form his own opinions as to the truth or falsity of the reports made upon mines, prospects, mills or smelters.

The investor should leave listed or "curb" prospect shares to those that follow speculation, and in considering the purchase of shares, figure the cash valuation by the number of shares, and never pay for a prospect, slightly developed, a sum equal to the cost of a producing mine.

Every sliver in the earth, showing mineral, is worthy of financial support, to a limited extent, and its owner has the supreme right to invite capital in its development, upon a modest financial valuation, but not upon enormous capitalizations. First, the value of the mineral lode should be proven, at least to a reasonable extent, after which it is time enough to fix its commercial value. Give the investor a large share, for the risk he takes and his confidence in nature.

When a prospect is undertaken, have some objective point, figure upon its cost, and have the amount underwritten, or reasonably in sight, before starting with a few dollars and trusting to luck to obtain the balance. Many good properties are today lying idle on account of unsound systems of financing.

The excessive commissions charged by brokers strangle the venture before it starts fairly to exist. There is no business in the world that can have plain sailing towards success, burdened down with a debt for which it received no benefit.

Promoters are unreasonable in their demands, the public likewise in their expectations; they both put upon mining more than even this rich profit-sharing industry can sustain. I have seen promoters, to whom I have offered rich mine leases, requiring but $25,000 as cash investments, expect dividends of twelve per cent. upon a valuation of capitalization of $500,000.

It is believed that enormous capitalization is the curse of mining, even when the shares are sold at a few cents each. Lower values and more cash is the sounder system. The first has been tried and found wanting, and the latter tried for years and found sound.

The writer believes that the investor should have monthly reports as to the progress of work, and that where prospects are to be developed, contracts should be let, for then the expense of a number of officials can be dispensed with, and those furnishing the money will know just how much work their funds will pay for. Many good prospects are strangled for lack of the "sinews of war" that are absorbed by expensive superintendents, etc.

A mill should never be erected until at least 2,000 feet of development, showing ore, has been prosecuted.

And last, and most vital of all, the point considered most just; the investor who supplies the money to open a prospect or erect a mill, should not only hold preferred shares, but his entire principal should be returned to him, from the first net profits, before the residue shareholders receive a dollar. For, without the money of the investor, the prospect would perhaps forever remain a worthless seam of ore, unless the owner developed the same with his own resources.

The present system of prospect promotion brings little, if any, credit to the industry; it takes from the investor the golden opportunity to reap wealth from mines which nature intended should be his heritage; failing to meet success, under a system that can result in nothing, other than failure through inexperience, greed and extravagant expenditures, he loses courage, confidence, he retires from what he considers the mining field; thus his chances for the betterment of his financial condition, through winning wealth from the earth, are closed to him by his own sad experience, when he has, in truth, not even had a chance at mining.

Perhaps men may differ with the writer on many points. I only ask that our arguments may be confined to facts covering this subject, not generalities, but pointed facts placed the same as I have placed them. Recently I asked a gentleman engaged in mining the question, "Can any mine grow to success by the payment of fifty per cent. commission?" He evaded by replying, "It depends upon the mine." The writer speaks of general net results, not some accident, which is possible in any line of industry, and which has so often been witnessed in mining. The other day an investor, studying the way to prevent explosions in automobiles, unconsciously invented the noiseless gun that may revolutionize arms. When discussing these questions, the writer means sound net results, something won and returned, such as commercial miners win and circulate, and in which we desire the world to share.

Is it to be wondered at that the ownership of big mines are held and operated by miners, when the eastern promoter demands half for his efforts in their sale? The unsound promoter will not pay for a producing mine, he wants something cheap. Any prospect that shows a little mineral enables him to use the argument that he has a "great chance of it being a mine," but a producing property earning dividends has a value, and while the value of the prospect increases as its ore bodies are opened, there is nothing positive until they are proven. The author plainly asserts, that except by mining underground, or where bonanza ore is shown at the surface, and then in volumes, that capital is not required, you cannot make mines without putting a goodly share of the money in actual underground work, and how can the prospect receive its just share, if the broker takes fifty per cent? Their assertion that it costs so much money to find the investor, that there is but little profit to themselves, is answered by saying, that as the results are not profitable to anybody, other than the agent, the system that calls for the choloroforming of a man to deaden his natural sense of reason should be abolished.

I believe that men and women should invest in good prospects, but at least seventy-five per cent. of the money they intrust to a broker should be actually used in mine development or mechanical equipment, that aside from the salary of the secretary, there should be no official compensations until the property is upon a paying basis. I intend to follow this plan, but cannot, of course, force my views upon others. It rests with the investor to dictate the policy to be followed in the expenditure of his money.

I want to see the day passed when mining is ridiculed, where a man now walks into a bank, speaks to the paying teller, who stands there counting and stacking gold, the results of honest toil by miners, who, when he says: "I would like an interview with the President about a little mining enterprise," be faced with the retort, "Oh, h——, he has no time to waste on bunco mining games!"

CHAPTER XXVI.

ORE IN SIGHT. SHOOTS. WORTHLESS ORE.

One of the three most serious evils for which the inexperienced miner or promoter is responsible, and that, faced by the commercial operator in his search for capital, is the reckless use of the words "ore in sight." It not being unusual to read advertisements headed, "Millions of Dollars of Ore in Sight," "Ten Millions Blocked out," "All is Ore, Fortunes are to be Won by the Mere Taking." To the inexperienced, these assertions convey the impression that the invitation to capital is based upon a mine or prospect condition, which by development has eliminated risk, for, when there are millions in sight, commercial success is most positive.

The writer has, within the past hour, returned from examining a new ore shoot opened on the 900 foot level of a gold mine, the lessees having expressed a desire that he look at the formation, and advise them relative to its profit possibilities; while underground, discussing the peculiar character of the new shoot, at the same time listening to the argument as to its value, the thought for this chapter was born. In fact, this book has been written under various circumstances; the chapter on copper was dictated at Butte City, Montana, Christmas Eve of the past year, where the writer had been dispatched to consider a heavy water flow 1,200 feet deep. One of the chapters on Prospects was outlined in a cabin at 10,200 feet elevation, after examining a thirty foot hole, which the owner believed was a bonanza.

In presenting the matter relative to Ore Shoots, the writer again remarks to his engineer friends, that "Rocks in the Road" has not been written for them—they do not require what little information I can impart—but for those who do not know what an ore shoot means, yet are daily invited to risk their money in the purchase of mining shares upon the evidence presented to them by the promoter relative to the values or ore showing, the faithful follower of mining, who, year after year, believes and risks. He is the man that I hope may profit, at least a little, through this volume, that he may continue to invest, but upon sounder lines, where the returns will meet any reasonable expectations. As ore is the basis of all mining returns, the investor should be told a little of what the more experienced believe they know, giving him the opportunity to pass his opinion upon the evidence submitted.

Ore bodies are not, as many believe, continuous for miles down, or along veins. As stated in the chapter on Prospects, they lie in all sorts of forms—some large, others small; some come to the surface, and the miner reaps profit from the day of their opening; others lie deep. A remarkable thing, however, is the fact that ninety per cent of the profit earning mines of the world, displayed ore from the grass roots, a great majority of the pay mines being enabled, at least, through their visible ore shoot, to pay a large part of their operating expenses.

Each district carries an individual character, relative to ore shoots, especially as to size. In some sections the bodies are larger when worked out; others are sought for and when found in the same vein, they too, are large; while in districts only a few miles away, the shoots will be smaller, and always will remain short or narrow during their operative life. The student of mining has often wondered at the peculiarity of ore shoots. It is a known fact that while, of course, there are exceptions to all rules, a mine will strike its pace of values directly upon opening of its first shoot, and through its commercial life the average values will hold; to such an extent is this the truth, that the ore value of almost every shipping mine can be computed to within a few cents per ton, the aggregate tonage considered. In a great many ore bodies of medium grade there are rich, though limited lenses, intermingled with the lower grade ores; but the general average is nearly always the same month in and month out, the various enrichments sweetening up the totals, that is to say, the surface enrichment will show an average of perhaps $25 a ton, yet, figuring a thousand tons it will average down to as low as $10 a ton; in fact some of our richest mines will not average twelve dollars, and the Homestake will carry about three dollars. When the underground enrichments, that is, the shoot that follows the surface, are encountered, it may be higher grade—it may be just the same grade as the surface, or it may be poorer, but generally the value of a mine and the product of its ore can, in a measure, be estimated by the values found in the first three hundred feet. Commercial ore means the average ore, which can be shipped in three classes; first, second, and third, the last being commonly called concentrates or mill dirt.

Science, in the last ten years, has made rapid advancement, making possible the extraction of profit from very low grade ores. We owe much to the study of geology and metallurgy; but we do not know it all; each year we further master the secrets of nature. We were, however, children twenty years ago, as far as a proper knowledge of mining was concerned, thus those who lost then, were simply schooling those who win to-day. We improve by applying the experience in one district to the veins in another; we can now come near forming a healthy conclusion. There is, however, no man living, who can walk over the surface of the ground, or even underground, and positively know what will be the future production of an ore shoot that is not thoroughly opened, therefore, the assertions made relative to ore in sight, that is not in sight, is misleading.

In examining a mine, the engineers are allowed much latitude in figuring upon the ore. Thus, in measuring the mineral in sight, he can with reason assert that the ore will continue from fifty to one hundred feet further in all directions, beyond the actual ore faces, and place his estimates accordingly. But it seems so ridiculous for men to make bold assertions in public advertisements claiming that they have millions of dollars of ore in sight, when there is not sufficient work done on their property to justify the claim that there is even $100,000 of commercial ore exposed, in many cases where the sun still casts its shadow on the bottom of the shaft.

The way engineers compute the contents of ore shoots is by blocking out the ground, that they may measure the ore bodies, on at least three sides. Some engineers make a practice of taking samples every five feet; others ten feet; some of them who are more conservative insist upon a quarter of a ton from every twenty feet of ore exposed, all of which is mixed, quartered down and sent to the sampling works for tests, the assay proves the value, the tonnage the amount. Ore in sight naturally means something that you can see, not that which the imagination may cover. You can see the number of tons on a small platform, or in a block of ground developed on four faces; you can measure a kiln of bricks, or a tank filled with oil, but that which you can not actually see is not in sight, and all the sensational publicity claiming it will not make it so; it rather increases the suspicion that the assertions of the miner can not be relied upon, which, however, is an injustice to the commercial operator who states facts.

The skilful miner watches the daily developments, in even old tried out mines, with as much interest as he would new ones, there being always the possibility of a fault cutting off the ore, a condition that would lead the inexperienced to believe the mineral shoot had ended. But the practical engineer or mine foreman studies the fault plane, and finds his pay ore down, up, or to the side, as the case may be. These ore faults are a study in themselves. Last year the author examined a mine in Montezuma district where the ore had been completely faulted five hundred feet below the surface by a direct side fault, yet in a few feet the second fault reversed the first fault, thus pushing the ore body back into place. The reader will understand that even after the ore is known to be in commercial bodies, and the mine in healthy activity, the manager in charge must be constantly on the alert for the changes in formation. Reason will explain the folly of placing inexperienced men in charge of mines.

Ore shoots have their limits, no matter how large; if worked continuously, there comes an end to that ore. To use an expression of T. A. Ricard, considered among the world's soundest mining authorities, "even Methuselah died." As has been stated before in the chapter on Prospects, shoots occur in all forms, long, lean, wide and narrow, some rich, some poor, and until opened by shaft, drift and uprises, no man living can tell their value or tonnage capacity. Thus it is apparent, that bad form is followed, born of ignorance or selfish intent, when a prospect hole, with a few hundred feet of work, is heralded through the press as having millions of ore actually in sight, and the investments of the people solicited upon such assertions.

Often truth is spoken in jest; thus, a promoter, handling a poorly-developed project, was showing a friend through his hole in the ground; the visitor said, "Charlie, where is your pay streak?" "In New England," was the truthful reply.

Another thing to be considered is the regularity of the shoot after it is found. In true fissures the ore bodies have a set strike, dipping north, south, east or west, according to the strike of the vein. After experience in a mine, the operators can figure, reasonably certain, where an ore shoot will strike a level lower down; but in each district the metal contents of shoots seem to change, and there are different conditions to consider. On Quartz Hill, Colorado, which has made an estimated production of one hundred and twenty millions of dollars in gold, the vein system lies like a network, crossing and recrossing; some have a north dip, some a south, generally the north dippers carry the values. Often a rich ore body is paralleled by a poor vein; the writer at one time had a lease upon one of the veins where a barren lode crossed it and below the junction the barren one had the values, and the one that was richer on the surface continued in lean ground.

In certain mines the ore lies in what is called surface lenses, believed to be water formed, the formation being commonly known as Andesite. Where these lenses occur, mining is more difficult than in the true fissure; they break off suddenly; they twist and curve according to the crevice in which the ore is found. There is no continuous line of ore shoots such as exist where the true fissure vein is common, and especially in the great mines carrying heavy sulphide ore, which generally lies in close relationship to granite and porphyry. The surface lenses in water formed districts show enormous values, and they are commercial to the full extent of their contents, some of the deposits containing millions of dollars; but it is harder to block out ore in sight in such ground than it is in the fissure, though if the deposits are well opened, a computation is possible. Where these rich surface shoots are found, there follows sensationalism, hysteria, foolish promises and inevitable nervous prostration of both investor and the district.

The ore bodies of all mines lie in the matrix of the vein; that is, the gangue, or they may lie directly on the walls, though the logical position for the body of ore is on the foot wall. Some of the richest ore shoots, however, have been found on the hanging side. To the layman, in looking at a great fissure vein filled with crevice matter, it would appear that mineral at one time was evenly disseminated through the mass, because in the leanest portion of the gangue matter there are frequently found heavy traces of mineral, often small pieces of very rich ore, and to use a common expression, the ore shoot itself is like a plum in the pudding, the bread part being the matrix, the plum the bonanza. The reader may now understand that it is not all pay ore, by the order of things; if it were all pay ore there would be but little value to metals.

A layman might, and perhaps with reason, claim that these ore shoots were formed by contraction that took place after the precious metals were deposited in the fissures, and that the values were drawn from long distances and formed into the ore shoots, similar to the system followed by a carbuncle while drawing to its head; the material from which the richer ore has been drawn is naturally poor and called gangue, although it will assay something. Yet there are men who promote mines, with no knowledge of mining, who claim that because gangue matter carries a value it should be classed as ore. Thus we find men estimating on ore bodies that, while they do show mineral, and would perhaps show a good assay, the ground itself is commercially valueless. The investor must not be misled by the statement that millions of ore are in sight, for the reason that if it were of commercial value, and local conditions good, the property would not go begging, even in the west, where we need money badly to open new ground, and are able to pay as high as twelve per cent. for its use. The broker should be asked as to the amount of work done, and the value of the ore blocked out, from a commercial standpoint. The investor may be met with the "needed mill" argument, but remember the chapter on "The Folly of Mill Construction," insist on a plain answer, is the ore of commercial value?

The writer knows of a mountain that a man could honestly say contains fifty million dollars in ore, but it is not worth a penny, as the value is not sufficient to make it commercial. The unsound promoter figures upon the ore possibilities of a prospect by the assay value. If he finds a large body of ore running four dollars a ton, which, unless it is free milling gold ore, is practically worthless, he makes the estimates upon what he supposes is ore in sight, figuring the contour of the mountain as a surface, and his imagination in considering development; it is these imaginative miners that the writer terms "unsound." It is not my intention to say that the men are dishonest when I use the word "unsound"; it is meant that they are inexperienced in mining, their system of promotion unsound, profitless to any but themselves; as to dishonesty, some promoters are naturally so, but not all; some make honest mistakes, but we would prefer that no mistakes be made, honest or otherwise.

The writer is interested in a mine that has two streaks of ore, one on the hanging and one on the foot wall. Upon the property in question, there is about 20,000 feet of open work. There is a core of ground or gangue matter lying between these two ore streaks that is absolutely worthless. It is a detriment to commercial mining. It would not pay to haul out, yet all through this core there is mineral that will assay on the average about $3 a ton. Figuring the tonnage that is in sight, it can be computed that there is $6,000,000 of metal in that ground; but it is of no present value, perhaps may never be.

In combating the author's request for a plain statement of the true facts, of the form and extent of ore shoots, as experience has show them to be, one promoter took the ground that he had the right to believe that if he had ore on the surface that it would go down thousands of feet. The writer does not agree with this theory; it has been treated before under the "I believe" system. If mining is to be continued on past lines of promotion, which the writer claims brings but little money into the actual industry, then the questions I am referring to should not be discussed. The fact that ore shoots do not continue unbroken to great depth should not be told. The public should be left to follow their ideas, as formed through inexperience, to believe all that men tell them. But this would, nevertheless, not change the facts. The truth is, that ore bodies are not regular and that the estimating of ore in sight, until it is actually in sight, is not a sound system. Consequently, the statement is not true, and, not being based upon facts, should not be a part of the promotions of mines, which we desire shall be operated upon a basis of fact.

If the business of mining is not actual underground work, the return of net profits from ore actually won from the earth; but if the mining industry is only to give a certain class of men the right not to mine but to refer to what the real miner does, but himself do nothing towards actual ore extraction, use his energies and ability to "word paint," to excite the inexperienced into the taking of great chances that generally result in profit to the promoter, and seldom any returns to the investor or credit to mining—the right to stretch the "belief" and "I-was-informed" theory to great length, to say that when a strike of ore is made there is not a reasonable limit to the body, to sink a few holes, not sufficient to admit of a study of the ore, and then estimate "millions in sight"—if these are the true lines to be followed in commercial mining, the writer's conception is entirely wrong. He will, I trust, be excused for his ignorance in believing that mining is the result of work, its profit the result of ore extracted and sold at a profit above the total cost of operation.

The commercial miner opens one shoot; before that is exhausted he searches for another. Thus the great mines devote at least one-third of their energies to opening new ore. When these shoots are opened, there is considerable of the same left behind as reserves—that is blocks left standing for future operations. Some large dividend paying mines carry millions of dollars as reserves, the ore bodies being to a mine what the cash reserve is to a national bank; it can not be stolen. The late W. S. Stratton, discoverer of the Independence at Cripple Creek, believed in this natural bank theory. The question of ore reserves should be considered when some propery is actually milling, showing a gold production and paying dividends on the basis of that product. Some mines can make limited productions, but unless there is a proper regard for its ore reserves the soundness, or good intent of the operators, may with reason be questioned if they pay premature dividends. The writer does not desire to be classed as a reformer; he expresses the personal desire that mining be conducted upon sound lines, the same as those followed by the commercial operator who does sustain the industry.

Often men's ideas run to the tunnel system in their search for ore, that is, cross cutting a vein at a depth and then figuring on the value of the ore shown in the cross cut and averaging it with the value of the ore as exposed at the surface, assuming that it is ore all the way up. This is all right if the ore is continuous, but wrong if it is not. The writer has known men to have a small streak of ore in their discovery shaft, which they may work to the depth of perhaps two hundred feet, then deliberately leave the ore and go down the side of a mountain and run in a long tunnel for the purpose of striking the vein at right angles. The Mexicans do not follow a system of leaving good ore in one place to hunt for it in another. Why should the more advanced American do so? These tunnel propositions are of great benefit to stockholders and a state where the intention is to cut a system of veins or drain or to act as a common carrier for known producers along the strike of the tunnel, but individual cross cuts should not, in the writer's opinion, be driven until the ore is proved worthy.

Early in my life, long before I had seen a mine, tunnels to me were a study. While I was in the Topographical Department under the Postmaster-General at Washington, though a mere boy, I read several books on tunnel mining, being attracted to the subject through an acquaintanceship with the late Theodore Sutro, who came to Washington asking Government aid for the purpose of driving the Sutro tunnel to cross cut the Comstocks. I have always attributed my entrance into mining to Mr. Sutro. Before he came to the capital the height of my ambition was to enter political life. But after listening to that able gentleman in his public lectures on the Comstock and its great wealth—although the "Big Bonanza" had not at that time been struck—I determined upon a mining career. In a study of the history of cross cut tunnels the world over, a curious fact is shown, that is, only five out of every hundred have struck an ore shoot at the intersection; that is to say, a large body of paying ground; the tunnels may have passed through may veins that were big producers higher up, and which have continued to produce after the intersection. But with the rare exceptions noted, cross cut tunnels fail to strike ore bodies, but then, no great deposits of ore were ever opened by the cuttings of railroad grades through mining districts. This is no argument against cross cut tunnels; it is citing the fact which a miner understands, and the results are not discouraging, because, as is well known, about one-half of the contents of every vein show barren gangue. And a tunnel only cuts a vein about ten feet high by twelve feet wide, and often even a smaller face, which is an infinitesimal amount of a crevice to puncture, considering the vast amount of crevice matter contained in a vein, an ore body may be within ten feet of the sides of the tunnel, and their existence never known until opened. A glance at the map of the ore shoot in the Comstocks will show shafts sunk to great depth just to one side of "Bonanzas."

Such great tunnels as the Newhouse of Idaho Springs, the Yak of Leadville, the Sutro of Nevada, the El Paso tunnel of Cripple Creek, not to mention Mexican and South American tunnels, in which we have no personal interest, are of much benefit to mining communities, and largely aid in increasing the production, through giving relief from water, better ventilation, cheaper transportation. However, tunnel propositions projected by individuals without ample capital are slow, long drawn out affairs. They are especially open to question, where a man may have a little bunch of ore on the surface, then run a tunnel three or four thousand feet long to tap the vein a thousand feet deep before he is positive, by a shaft development, that the ore extends down, each added failure in the mining industry only brings it further into disrepute; but if the owner invests his own money, no one can complain. It has been stated jocularly that perhaps the promoter who drives these long cross cut tunnels, before he really knows that his ore goes down, desires a long time to try out his arguments and thus sell securities before the existence or non-existence of the ore refutes or confirms the claim. Where the country is propitious and great depth can be gained, tunnel mining is the ideal method. Thus we find the San Juan country of Colorado especially adapted for this form of operation; Clear Creek, Summit, and Gilpin County are also favored, and it is to be regretted that the topography of the famous Cripple Creek district does not admit of a deeper tunnel system, although it is undisputed that the projected Roosevelt tunnel that is to go under the El Paso tunnel, will give additional relief and make several hundreds of millions of dollars of ore available.

That the discovery of ore shoots is liable in any mine, is shown by the fact that poor men have been known to strike ore at the surface and to continue in pay ground throughout the entire operative life; but for a man to have a wide ore shoot and of great length the vein itself must be large. It is not reasonable to expect a breast of ten feet of ore in a vein that is only three fet wide. A study of ore shoots enables the commercial miner of to-day to win fortune quicker and with greater certainty than was possible twenty-five years ago, for the reason that we have the results of the famous Comstock before us, a better understanding of the old mines of Mexico and Peru, all of which have been examined by our engineers and their opinion published. Every carpenter carries his kit of tools; so does the advanced commercial miner carry his, perhaps the cheapest set in the world, a library of mining books written by such men as Weed, Ricard, Richards, Peters, and others. Twenty-five dollars so invested gives the prospector a kit of tools that may make him a million in a night. Even lessees in the large mines invest sixteen dollars in a kit, subscribing to the Engineering and Mining Journal, the Mining and Scientific Press, Mining Science, and the Mining World, these four publications keeping them in touch each week with the world's discoveries and deductions as made by engineers throughout the mining world. With knowledge so cheap, is there any excuse for ignorance? Thus mining and the study of ore shoots is to-day a science. The miner of America reads of the way ore shoots dip or swell in African, Siberian and South American mines, and he applies the results of the study to our own districts.

In closing the side that has reference to promotions by inexperienced men, sensational promises made to excite investment, ambiguous assertions that mean nothing, the old Methuselah system of raising the prices of stock every few weeks for the purpose of hastening the determination of the investor to buy without any material increase in values at the mine, the payment of unsound dividends, enormous capitalizations upon non-commercial prospects. Before turning to sounder things, the real industry that is responsible for the glorious record made by American mines, the writer reiterates that which he has said before, that the desire of all commercial operators is that the investor may be taught that there is the right way and the wrong way to mine, the sound, the sensational, the productive, the non-productive.

It is desired that new capital may find its way into mining and reap its share of the enormous profits that are annually won by legitimate efforts at ore extraction: the subject matter herein expressed are the author's views; he has made no attempt to describe in scientific terms the reasons, the theories, and the belief of geologists; there are abler men engaged in writing such books. Perhaps he may have been over-zealous; but those who do not see the result of misrepresentation, cannot appreciate the disappointment and sorrow that follows the investment of a few dollars by people who can not afford to lose; I am further actuated by a knowledge that the mining industry itself does not profit. Therefore I am taking nothing away from the industry, for it receives nothing through unsound promotions, but rather I hope that the public will demand that the money it intends for mines shall be actually expended in underground work.

The investor must be the judge and he can not well judge, unless he has some evidence marked in plain old-fashioned language from which to draw his deduction. There is good and bad in every line of life, it is with pleasure, however, that we look over the mining industry in all of its ramifications and realize how few there are engaged in this magnificent avenue of natural wealth that are unsound, or to use a more generous word, inexperienced. The writer has stated that if one hundred generals of publicity promotions were eliminated, or rather their energies kept in the industry, but upon commercial lines, if they were taught the truth themselves, there would be many successes that otherwise will, perhaps, be failures. Enlightenment will enable the investor to ask those vital questions which his inexperience does not permit him to ask; and thus in the end the evils, of which the commercial miner complains, may be eliminated from the business of promotion.

It is very little that the commercial miner asks; that enterprises based upon prospects should not be termed mines; that all promotions should be presented upon plain statement of facts; that dividends should not be paid until the mine is in position to sustain them for a number of years; that the money intended for underground work should be so applied; that the great debt saddled upon prospects created by excessive commissions should, in the future, be reduced to reasonable amounts. All other industries promoted upon lines, where capital is publicly solicited, embark upon the sea of commercial life burdened with but a small debt, as compared to the forty or fifty per cent that mining carries through certain systems of promotion. Why should mining be the exception? All industrial enterprises use their capital in improving their plants; mining should enjoy the same privileges, for then the return will be greater to the investor, far larger than he can obtain from any other line of industrial activity.

CHAPTER XVII.

HOW THE GREAT BONANZA WAS FOUND.

Turning to the commercial side of mining, with the intent of explaining to the investor the enormous profit possibilities of the industry, the vast fortunes won by men of limited means, millionaires created in a night, the wonderful strides of mining science, the better understanding of ore shoots and metallurgy, the writer will make a feeble attempt at describing how the great bonanza of the Comstocks was discovered, that Aladdin-like cave that enriched the world in a few years, one hundred and fourteen millions of dollars, establishing precedents that miners of to-day follow in their search for great ore bodies.

In 1881, the author was visiting the City of Washington, and was, for a month, private secretary to United States Senator Wilkinson Call, of Florida, and Hon. Benjamin F. Jonas, of Louisiana, the position giving him the courtesy of the floor of the United States Senate. It was there that he made the acquaintance of Senator James G. Fair, then wearing the fresh laurels of the victories of the Comstock, and John P. Jones, to whom is accredited the first discovery of the great ore shoots on that famous lode, notably the Crown Point Bonanza. These two gentlemen, perhaps, have often considered the writer a pest, because lounging in the cloak rooms, between dry debates, at each opportunity, recognizing the value of such experience with a desire to learn about the underground work of the greatest of American mines, I discussed with them the conditions of the Comstock Lode, how the lenses lay, what seams they followed in tracing one ore body to another, the character and indications of the water pockets that they encountered, which at times almost threatened to inundate the entire works. What I have to say relative to the discovery of the Big Bonanza is largely the information that was directly imparted to me by both Senators Fair and Jones. Since that time, the writer has become closer associated with John P. Jones, the recognized authority on silver mining in the west, and William M. Stewart, the recognized legal authority on mine litigation, from whom the writer has received much valuable information relative to mining law. There are few men, whose personality was more pleasing than was that of the late James G. Fair. He was a chunky-built man, weighing about 185 pounds, and wore a short cropped beard. His was as handsome and manly a face as I have ever had the pleasure to gaze upon; he was a man all through, generous to a fault, would go to any trouble to help a friend. The author at that time was interested in the White Hall gold mines of Virginia, and Senator Fair, to aid him in floating the proposition, paid the expenses of a special train and accompanied the visitors to that property, and it was there that the writer received his first instructions in square-set timbering from, perhaps, the greatest living underground miner.

It is asserted that when mines are rich, honestly operated, and considered as commercial propositions, there is no line of industry that can equal the profits. It is the one fascinating avenue in which men of limited means may embark with a feeling of reasonable certainty of returns, when the intention is to mine and not to speculate, without treating the veins or deposits in a generous manner, as far as placing a majority of the investment in actual underground work is concerned. It was labor and capital that won the Big Bonanza, of which I now write.

That the reader may understand a little about conditions leading to this remarkable achievement —the opening of the Big Bonanza—I will say that the Comstock Lode is a zone of about five miles long; it starts near the Carson river, one branch running to what is known as Silver City, the two branches uniting and the great lode then extending northward, past the base of Mt. Davidson, again splitting into two arms about two miles from Virginia City.

The first bonanzas of the Comstock were found near the southwest end and were worked up as far as the California, the first ore body being opened by John P. Jones in what is known as the Crown

Point. From the California north—in the early days—there was an impression that the zone was barren; shafts had been sunk, but no pay ore had been encountered, and for a long time it was considered that the Bonanzas were confined to the south end.

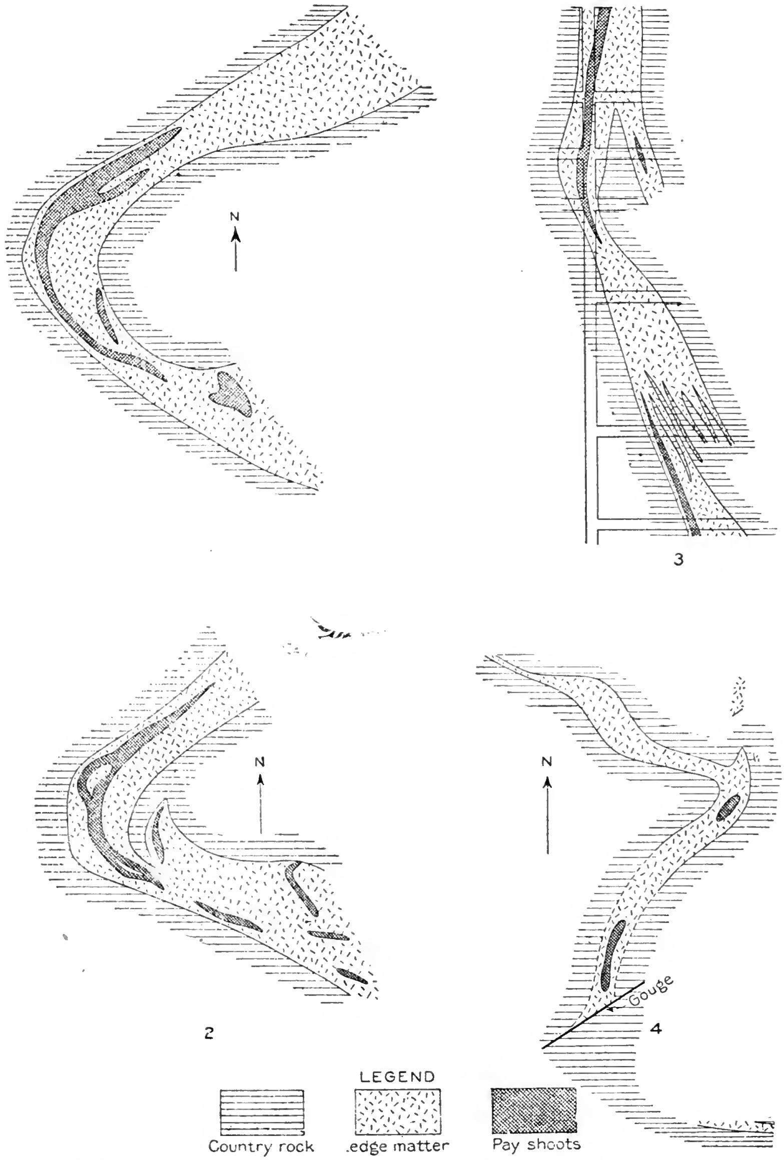
The author met many men at Dayton, Nevada, who followed the fortunes of the Comstocks from 1868 down to the present day, and from them much valuable data has been obtained and from them he was informed that John P. Jones was the first to really open bonanza ore on the Comstocks, but the rise of Mackay from a mine laborer is the interesting feature of the history.

The discovery of the Crown Point's bonanza in 1870 had, however, increased the value of all the mines on the Comstock by about $45,000,000. A still greater bonanza—the one by which the fame of Nevada was spread abroad in every land and every tongue—was near discovery even while Senator Jones was running the fateful drift that raised Crown Point stock within a year from $2 a share to $1,825 and lifted the stock of Belcher, the adjoining mine, from $1.50 a share to $1,525.

There were four men in what is known as the Big Bonanza firm—Mackay, Flood, Fair and O'Brien. Mackay and Fair were the miners. This syndicate had been interested in a mine known as the Bullion, but had not made a success of the enterprise, as the ore shoots were not of sufficient length and richness. They had therefore resolved to risk their fortunes upon a great undertaking, that was, to open up the northern part of the Comstock vein in that unexplored territory before mentioned which all the miners considered barren. The ground was owned by others, consequently it was a delicate piece of financing to obtain control of the territory without exciting comment. They finally, however, secured control of the ground for about $40,000, that is nearly fifteen hundred feet in length, or about the size of an ordinary mining claim. They did, however, obtain more shares later, but the ultimate cost was fully $100,000. They then had control of what is known as the California and Consolidated Virginia mines, and they took possession in 1872.

The world-famous property known as the Consolidated Virginia was only about 710 feet in length and showed absolutely no pay ore at the surface, the first ore being in the California to the south. In 1872 they spent in all $212,000 in development of the Consolitated Virginia. They afterwards, at the depth of 1110 feet below the surface, started their drift, passing through other mines to reach their own ground. Fair had charge of this work. It is still stated all over the Comstocks that he had the "finest nose" for ore of any man then in Nevada, and he clung to that drift with the pugnacity of a bulldog. He finally struck a change in the ground and found a narrow seam of rich ore. The writer, in memory, can now see Senator Fair raising a paper cutter as he explained that streak of ore, while sitting at his desk in the Senate. He said: "The streak of sulphide was scarcely thicker than the blade of that paper cutter." This seam, which nine out of ten miners would not have noticed, was followed inch by inch; so fine did it at times become that the rock had to be washed to keep the drift upon the thin film of clay and ore; often it appeared lost and was again picked up and followed through the labyrinths of hundreds of feet. Mr. Fair was taken ill at a very important period of this development work, he was obliged to remain above ground for some time. On his return he found that the less experienced miners had lost the film of ore and were driving into dead barren rock. He went back in the drift, made his crosscuts, and again found the thin thread of ore. This drift at that time was only about 100 feet from the Consolidated Virginia's own ground, and it looked very blue for those men; for notwithstanding they had spent such enormous sums, with no indication of ore, other than the thread, and they were within one hundred feet of their own ground, and if they did not strike the ore the loss would have been total; but Mr. Fair persisted, and the other shareholders that they had not succeeded in buying out, sustained them; the work was driven forward. The values of the shares, however, depreciated day after day, and it was predicted that Mackay and Fair would again be back working for wages in the Comstock mines.

The brainier men of the Comstock, such men as Jones, Sharon and Stewart, were not so confident



Cut showing that ore shoots are not continuous, and that no special strike is maintained. No. 3 explains how the shaft passes through the first ore shoot, and how, by drifting the second ore shoot is found.

that the bonanza firm would not find ore. The metallic film was followed still further. Finally, like the bursting into bloom of a flower, the drift entered a vein six feet wide and averaged clear across its face $65 per ton. On each side of this vein were two parallel ore bodies but not of large size. In thirty days after the striking of the ore body the vein was twelve feet wide.

A shaft was in the meantime being sunk and by the time that they had reached the ore body thus opened by the drift, there was a large amount of bonanza ore in sight. A drift was run southeast from the bottom of the shaft extending about 270 feet. This drift cut the real "Big Bonanza," and they at once were aware of the enormous deposit of ore, the hidden treasury vault, the combination of which had been worked out, the doors were thrown wide open, and its wealth revealed to the world.

In thirty days they had hewn out a great underground cavern and they supported it with square sets of timber, although they extended the drift 160 feet further through the vein, every inch of it was still in this rich ore, no matter where they assayed it, sides, bottoms, roofs, faces, it ranged in value from $93 to as high as $625 per ton. It is aptly stated that the top of nature's greatest deposit of mineral wealth had been pried off—greatest up to that time, but the future may show even greater.

In the month following such work as had never been seen on the Comstock before or known in history was under way, but it was only the beginning of still greater exploits by disciplined labor. The efforts of the brawny men, stripped to the waist, toiling in the depths, were evidently almost like the way the sailors toil between decks of fighting ships. The great shaft was being sunk at the rate of three feet a day and at the 1200 foot level a drift showed that the ore body continued to grow wider, but they had not yet commenced to take out the ore.

The work of exploration went on and the immensity of the ore body was more and more plainly revealed through the winter of 1873 and the spring and summer of 1874. The bonanza was cut across at a depth of 1,400 feet, and also at the 1,500-foot level, in 1874. Here the ore was of such unparalleled richness that for the first time the outside world of mining men and speculators began to talk about it.

There were "short turns" and speculations numberless in the stock during the year and a half that followed the ore find of March, 1873, but, all in all, the inability of the stock speculators, both leaders and masses, to comprehend the greatness of the discovery seems inexplicable. As soon as they became convinced that the bonanza was really unprecedented in magnitude, they hastened to buy heavily; but by this time the general public had been roused to a sudden fever of excitement and the value of the famous mines rose every hour on the stock boards. In December, 1874, Consolidated Virginia reached $610 per share, rising again in January to $700, which made the selling value of the mine $75,600,000. California stock went even higher, for it was said that the bonanza extended over from Consolidated Virginia in such a way as to give the California mine the larger part. California shares, worth $37 in September, rose to $780 in January, 1875, making the valuation of that mine $84,240,000. The 1,310 feet on the lode which had been valued five years before at forty or fifty thousand dollars are now worth in the market, according to stock sales, about $160,000,000.

Extending their work far north into the California; they made winzes from level to level to use in removing ore. They proved that the width of the mass was from one hundred and fifty to three hundred and twenty feet, and that the richness continued without abatement through drift after drift, level below level. The ore output increased, and a dividend of three dollars a share declared in May, 1874, had been followed by others. "The scene within this imperial treasure-house was a stirring sight. Cribs of timber were piled in successive stages from basement to dome, four hundred feet above, and everywhere men were at work in changing shifts, descending and ascending in the crowded cages, clamoring up to their assigned stopes with swinging lanterns or flickering candles, picking and drilling the crumbling ore, or pushing lines of loaded cars to the stations on the shaft. Flashes of exploding powder were blazing from the rent faces of the stopes; blasts of gas and smoke filled the connecting drifts; muffled roars echoed along the dark galleries; and at all hours a hail of rock fragments might be heard rattling on the floor of a level, and massive lumps of ore falling heavily on the slanting pile at the foot of the breast."

When the fifteen-hundred-foot level was reached and the ore cut into was richer than ever before known on the Comstock, the "Territorial Enterprise," of Virginia City, came out with double-leaded columns, under the heading of "Heart of the Comstock." Of the lowest crosscut the "Enterprise" said: "It has been bored into the bonanza through a mass of chloride and sulphuret ores which excites the imagination of all beholders. It is now in two hundred and five feet, ninety-five of which is in the extraordinary rich ore of which so much has been heard. In this crosscut was encountered, a day or two since, the stephanite, a species of ore that is almost pure silver. At the distance of one hundred and eighty feet from the crosscut a chamber of about ten feet each way has been excavated. Its walls on every side are a mass of the finest chloride ore, filled with streaks and bunches of the richest black sulphurets. It looks as if the whole mass grew richer with every foot of the advance." Ores of this kind assay up into the thousands of dollars, but it seemed impossible that such large masses of silver should have been deposited, even in the Comstock, so the "Enterprise" reporter brought his estimates down to one hundred dollars a ton, reduced the size of the deposit, and figured out $116,748,000 in sight.

It is no secret on the Comstock that this reporter was William Wright, widely known on the Pacific coast as "Dan De Quille," one of the best living writers on mining subjects.

"The San Francisco newspapers," said he, when interviewed, "had been saying for a long time that there was no ore in Consolidated Virginia; that people were getting up a stock deal. Some of us happened to know, however, that Fair had been quietly taking ore out of the mine through the old Bonner shaft. One day he drove up to the 'Enterprise' office and came in.

" 'Those city papers have been abusing us long enough,' he remarked; 'I won't stand it! Where's Dan? I want him to go down to the mine. I'll show him what we're doing.'

"This was before anyone had definite knowledge of the strike. It was before the 'Enterprise' had printed anything important, you understand—only rumors or street talk. When I had been in the mine before I could not get into those drifts. Fair spoke pretty loud, as if he only wanted to shut up the city papers, but probably he had all the stock he wanted

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Dan De Quille wrote an admirable work entitled "The Big Bonanza." If the reader is interested in the history of the "Comstock's," Shinn's modern work, "The Story of the Mine," published by Harper Bros., is recommended. The author has used many of the statistics from that book in this chapter.

and had just got ready to tell the truth; I don't know. Anyway, I jumped up and ran out when I had the word; you never saw a reporter go faster. We drove to the mine and went down to the richest place in the bonanza.

"Fair said: 'Go in and climb around. Look all you want, measure it up, make up your own mind; I won't tell you a thing; people will say I posted you!' And so he went away. That just suited me. After I was through I went to the 'Enterprise' office and wrote two articles, one of which you have just quoted from. That was the first authentic account of the big bonanza, and that was the way the 'Enterprise' had a scoop."

A little later a visitor to the mine "stood where the miners were digging ore, and looked a hundred feet upward and on each side across the ore body. On all sides of a pyramidal mass of timbers, growing larger each moment under the toil of busy hands, were twinkling stars of lamps where men were hewing at the sides and ceiling." Often the sides of the huge cavern glistened as if set with silver; but this was not silver—only crystals of iron and copper pyrites. There were also great masses of blue, purple, and white crystals of quartz, some of them weighing many pounds, with crystals several inches long. The miners say of a vein that contains such crystals that "it is alive" and think that the best of signs of a large bonanza. Chloride silver ore is pale green and steel gray in color. "Silver glance" is black and lustrous. The general color scheme of the great bonanza, despite an occasional glitter of crystals, ranged from bluish gray to deep black.

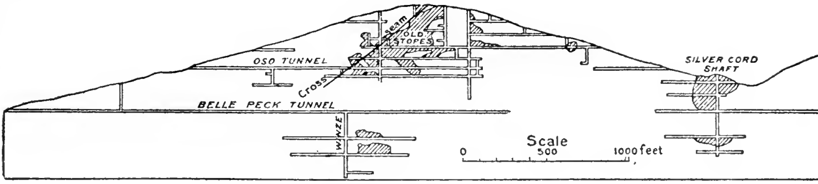
All of the contents of the bonanza were sent to the mill just as it was blasted or hewn out. Some of the ore was so rich that waste rock and low-grade ore were mixed with it in order to work it better. An average block of ore three feet square contained from three hundred to five hundred dollars in silver and gold. Even in the widest part of the ore body, three hundred feet across the entire contents were milled without assorting. Some of the richest ore was near the line of the California mine where a mass of porphyry crowded the ore into less space. The silver here was often in the form of crystals of stephanite, or in bunches of pure and malleable silver, in coiled wires, and in silver crystals. There is hardly any more beautiful sight in a mine than a "nest" of wire gold or wire silver gleaming in the dark sulphurets. A few of the more exquisite combinations of metals and crystals that occur at times in mines of the first rank are still preserved in cabinets, but by far the greater part have been destroyed, sent to the mill if valuable mineral, or to the dump heap if unremunerative. Old miners in some of the famous mines tell stories of cavities as large as an ordinary room into which a drift will sometimes break; cavities set thick with rock crystals of every beautiful color known to the mineralogist—white, pale pink, olive green, rose, purple, or violet. In such a glorious place it seems, even to the ignorant miners, as if the jewel caskets of monarchs had been surpassed, for here Nature has the hues of sapphire, emerald, tourmaline, amethyst, chrysophane, opal, and lapis lazuli. Such crystal rooms are extremely rare, and more often occur in New Mexico and Sonora than in Nevada districts. One ore chamber ten feet square, situated about fourteen feet south of the California line, seemed to Comstockers the richest part of the lode, and many specimens of ore from here were saved for collectors in various parts of the world.

Now that the Pacific coast was stirred with the great news, estimates of the actual "ore in sight" began to be in order. I have alluded to the first newspaper estimate of about $116,000,000. Next came Mr. Diedesheimer, the inventor of the "square-set system" and one of the most careful mining engineers on the Pacific coast. He reported to the directors that there was enormous amounts in sight. A little later he gave proof of his faith in his own report by putting every dollar he could raise into shares in the two mines at the highest price. Even the director of the Carson mint, with his assistants, who examined the bonanza, was unable to fix any definite limit to its yield and thought there was not less than $300,000,000 already in sight. Mackay, however, a miner of unsurpassed judgment, utterly refused to make any estimate, and flatly said it was an impossible task, because barren masses of rock, porphyry, the difficulty of obtaining accurate assays, and many other elements of uncertainty made calculation absurd. He "preferred to mine it out first and then take the milling returns."

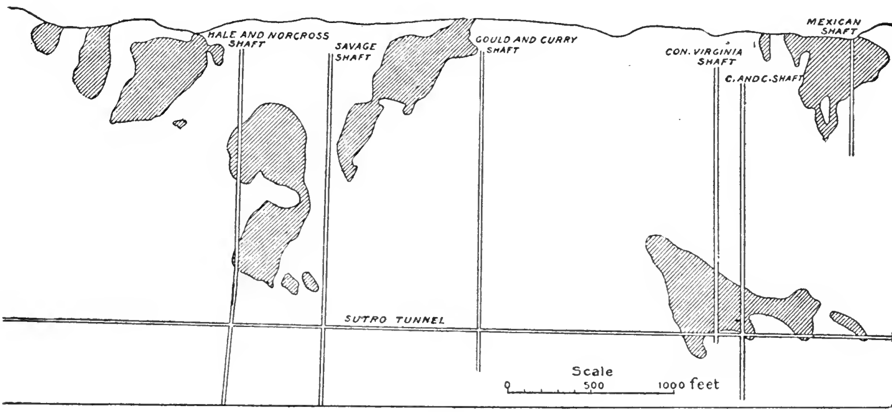
The public made loud demands for estimates, and for a thousand other details, often beyond the power of human ability to satisfy. Whatever was said or was left unsaid, the men who controlled the bonanza were abused and misrepresented. That was a part, and no small part, of the price they had to pay for their fulfilled ambitions. Powerful though Mackay and his companions were in their own field, neither they nor any other men could control the genius they had released from the casket of the bonanza. The actual available capital of the Pacific slope that could be put into mining ventures in January, 1875, was not greater than $20,000,000. To tie up more than this in such investments or speculations would be to injure and seriously check the growth of the western third of the continent. Now, as already shown, the stockboard valuation put upon the two bonanza mines in that month was $160,000,000. It is not likely that more than a fourth of the stock was ever in the market, but the entire Pacific coast, as above stated, could not have bought and paid for more than twenty millions' worth.

Then, too, in addition to the immense and probably justifiable valuations put upon the Consolidated Virginia and California, every other mine upon the lode had greatly risen in estimated value. The prices paid in January, 1875, showed that Ophir had risen to over $31,000,000 because it was next to the bonanza mines; Best and Belcher was rated at nearly $9,000,000, and Mexican a trifle higher; Gould and Curry, Savage, Exchequer, Yellow Jacket, Overman, Bullion, Crown Point, and several others were valued at from three to twenty millions apiece. It made little or no difference where they were located. Indeed, the theory was now held by most speculators that every so-called "barren" place in the lode would prove to have immense ore bodies somewhere below the thousand-foot level. The total valuation of all the mines on the lode at this date was $393,-253,440. How much gold coin would really have been needed at this time to buy, not merely the floating stock in the market, but also enough to control every mine on the lode, is hardly to be estimated. There was not enough coin in America.

Prices of shares had no influence upon the work in the mines. Through good days and evil the ore yield increased. Consolidated Virginia extracted about 12,000 tons in 1873, producing in bullion $645,000; in 1874, 91,000 tons, of a milling value of $4,981,000; in 1875, 169,000 tons, milling over $16,-000,000; and in 1876, 142,000 tons, milling over $16,000,000. Then the product began to lessen. The exact amount of ore extracted in six years ending with 1878 was 682,385 tons. The bullion product



(A)



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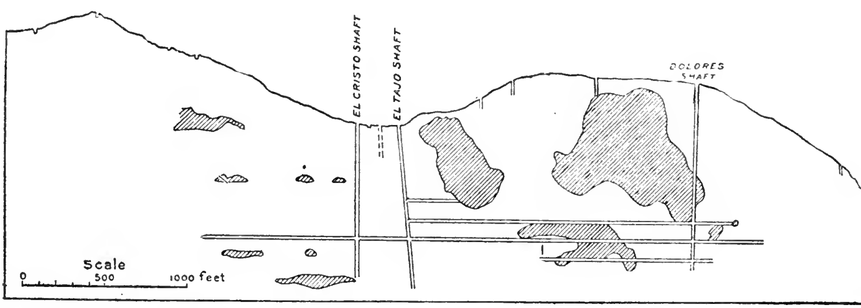


(C)

Longitudional section of two American mines and one Mexican mine Showing how the ore shoots lay. The ore bodies represented by map B. has produced over $300,000,000. The lowest shoot under the Con Virgina shaft is the Big Bonanza that produced $114,000,000. The reader can see that shoots are not continuous.

was $60,732,882. California in 1875 and the three years following extracted 486,043 tons of ore, which gave the total bullion yield of $43,727,831. Nearly $105,000,000 was the product of the Big Bonanza, as Comstockers have always called this body of ore.

As for dividends, everything was done to increase them. The returns to stockholders were unprecedented in the stories of great mining enterprises. By the middle of 1879 Consolidated Virginia had paid fifty-two dividends aggregating $42,120,000 and California had paid in dividends $31,050,000. A thousand miners were employed; a new and much larger shaft was sunk. Mills and machinery had been rebuilt and enlarged at great expense. The stock of the thirty mines on the lode was valued in 1875 at $393,000,000.

Here is an object lesson. There were two classes of operators on the Comstocks, the miner and the speculator; of the two the miner was the most important; he gave the world the new wealth; the speculator then, as now, gave the world nothing, but took from one to enrich the other. Mackay and Fair created an imperishable wealth and the vast fortunes built up were deserved. The words of Mackay, "My business is mining, not speculating. I make money here out of the ore," is the motto that all honest commercial miners follow, and in working out the problem of ore extraction on those lines no man is injured. The world always profits.

There are, no doubt, many other bonanzas hidden deep in the bowels of the earth, and many poor men like Mackay, Fair and Jones will unlock the doors, enjoy the millions, then pass them on to the uses of the world.

The writer has been asked if there is a future to the Comstocks. The answer is, Yes. As science perfects labor-saving devices, as electricity supersedes steam in pumping, as the treatment charges of ores are lessened, there will be millions upon millions of new wealth taken from the Comstocks, especially, from the veins that lie to the south and commonly known as Silver City. Then the question of ore at a greater depth than 3,200 feet is yet to be answered. The great veins that parallel the Comstocks in the Como Mountains are yet to be considered. There is more than a remote possibility that there will be new life near Virginia City. There were many ledges cut by the Sutro tunnel which are yet to be fully explored. No mining camp is ever dead; it may be asleep, but not dead; in fact during the author's last visit to Nevada there were rumors of new bonanzas, and I believe there is hope.

CHAPTER XXVIII.

Bonanza Mines of America Operated on Commercial Lines—Great Dividends—The Follies of the Past—To-Day's Success—The Question of Deep-seated Enrichments.—The Feature of American Mines.

While travelling through Eastern cities, the writer frequently met persons who, from their disappointments, were biased in their views relative to the soundness of the industry; many displayed what they considered evidence of mine ownership—that is cheap type-printed certificates—intimating on their face that they covered mines which no doubt represented perhaps a location, or a few feet of unskillfully applied work. In no case was there evidence of commercial operations submitted.

The operations of yesterday should not be compared with those of to-day; there has been born a new industry; remarkable advances in all its avenues have taken place. So deep have we read into the pages of the book of nature that, while we do not understand all of geology, we know that the achievements of our scientists and inventors, working upon the great problems of labor-saving devices and metallurgical treatments, are fast drawing us to the period when the word "impossible" will be used with great caution.

The progress in metallurgy has been so marked that a mine that would have ruined a National Bank fifteen years ago is to-day a reservoir of wealth. Within the mining life of the writer, the smelting charges on ordinary ore in the central portion of the United States has been reduced from $30 a ton to $6 a ton. This means that 100,000 tons of ore, worthless a decade ago, would to-day be worth $2,000,000. The cost of transportation, mining and milling in a well-known district has been reduced from $90 a ton in 1862 to $12 a ton in 1907. The writer knows of one mine in that district that as late as 1882 shipped 1,000 tons of ore worth $100 per ton which returned less than $15,000 net. The profit on the same ore to-day would be $70,000. Thus the improving conditions are solving the problems that man gave up as "impossible."

Many mines where rich ore was extracted, leaving behind great bodies of what was known at that time as worthless ore, are to-day operating with greater profit upon the so-called valueless ore than they did at that time upon the high-grade ore. At Cripple Creek old dumps containing ore, discarded ten years ago, are being shipped bodily to the mills. So successful has become the science of mining and milling that nearly all of the failures of the past decade, where any ore did exist, are the basis of the success to-day. Some of the world's greatest enterprises are reaping their stores of wealth through gathering up the broken threads of the labors prosecuted by the earlier miners with such heavy losses and discouragements.

If we were to compare the miner of 1908 with the miner that the writer met when he first passed through Clear Creek County, Colorado, in 1875, it would be like comparing the magnificent telephone system, as perfected to-day, with the single wire and crude equipment that Alexander Bell experimented upon at the time he gave his first public demonstration. Conditions that were absolutely impossible thirty years ago, are so universally common now, that little thought is given to the mighty changes that have taken place. This is an age of commercial mining, that of wild speculation has passed. Every economical point of interest to mine or prospect is to-day considered. The saving of pennies is considered, as is done in all lines of industrial activity.

Two years ago I read an article written by either Capt. J. Smith or Gen. Hall, both eminent Western mining writers, in which the question of the influence of the telephone was discussed, and, while that item would not be considered by many of those who invest in prospect shares, it was shown that the introduction of the telephone into the mining industry had made a saving so large as to be incredible. In the earlier days, a man working on the thousand-foot level of a mine, who wanted timber, tools or supplies, went up to the surface in a bucket and brought them down. When called upon to go to town for supplies, he rode on the hurricane deck of a mule, or tramped the mountain trail. Thus the loss, not only of time, but figuring the cost of labor, was heavy. To-day nearly every great mine in the West is equipped with a telephone system, the object of the mine superintendent being to keep his men undisturbed, at the faces of their drift, fighting the rock with air, steam or electricity—the more rock broken, the greater the profit. The introduction of the time clock has made an improvement and saving. Where men understand that there is a record kept of the time they enter and leave, there a spirit of punctuality is born. Thirty years ago dynamite was practically unused, the old black powder being the explosive employed. The author recalls the system of soaping brown paper cartridges then used in sinking wet holes; it all seems so far away when the present is considered. There were then but few mines in the United States operated by compressed air. The electric pump had not been invented. Thus, those who were of the opinion that they were mining thirty years ago should put their experience behind them without a regret and start anew; they were simply pioneering, blazing the trail for the present wonderful system of commercial operations under which even a six-dollar ore is profitable.

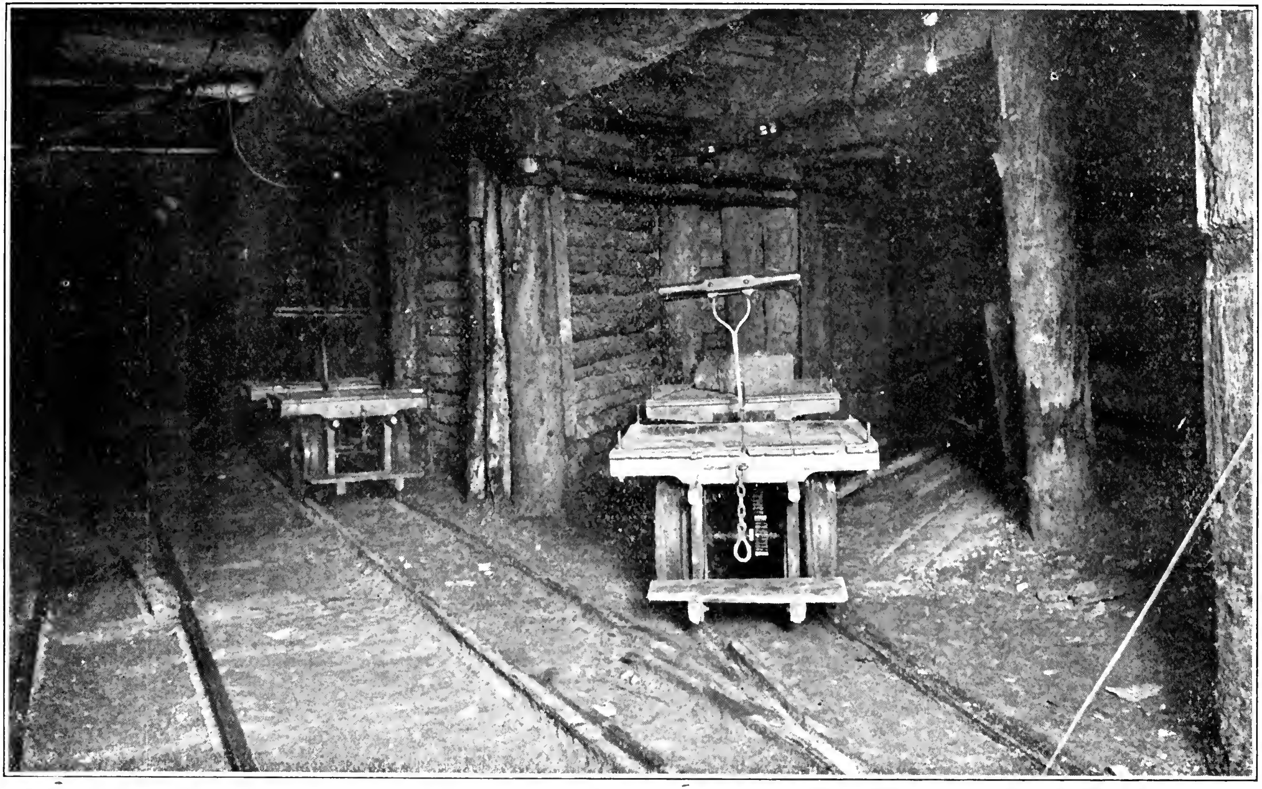
In the old days, when mineral-bearing rocks were thrown over the dumps as useless, and general failure followed the efforts of the unskilled, those same dumps are to-day being cleared of shrubbery, trees and moss, and the so-called refuse of a quarter of a century ago is bonanza ore to-day. Year by year our smelting and reduction institutions are devising closer economies that they may treat greater volumes of a lower grade.

Past disappointment should be but the spur to win present and future success. The losers should feel no spirit of resentment against the great industry that was not responsible for their mistakes or lack of judgment in human nature. They should now actually mine; the way is open. Never in the history of the world was there such fortune-building opportunities as is now at hand. The collossal fortunes credited to the miners of the Comstocks, the kings of copper, silver and gold, who owe their wealth to Montana, Colorado, Arizona, Utah Goldfields and California, may see their fortunes far outstripped by men who are to-day laboring at a bench. We have known so little of mining in the past that the efforts of thirty years ago may be compared to Watt watching the lid of the kettle when he conceived the idea of controlling steam, with the magnificent and powerful mechanical wonders that to-day move the industrial world.

The professional ignorance of the miners of 1880, when viewed from the advanced standpoint of today, is appalling. When the writer first entered Arizona, there prevailed an impression that the mines did not extend to depth. It was believed that the surface enrichments ended their profitable life. In other states and territories it was believed that the deeper the development the leaner the values.

As sinking progressed to the depth of 1,000 or 1,200 feet, this theory was born out; there did appear that lean zone, which the miner, however, to-day understands. But 1,000, 2,000, or even 3,000 feet in the earth is not sufficient to solve the secrets of nature in any district. With recent improvements, deeper workings, we have found, show that below the first enrichment, there often lies a comparatively barren zone. Invariably, however, there follows a deeper enrichment. In the State of Colorado enrichments exist at from 2,000 to 2,400 feet; and one shaft is projected to go to the depth of 4,000 feet. While the miner is busy opening ground, the geologist is fast at his heels, reading the formations, explaining to other scientists the reasons for the interruptions between the surface and the deeper underlying ore bodies; thus the experiments in Africa are followed with profit in every district in America.

When the writer was twenty, and egotistically considered himself a miner—as miners went in the past—he was under the belief that sandstone could not contain mineral; that only certain rocks of the primary age could make fissure veins—foolish beliefs, through which many fortunes have been thrown aside. As the intelligence of that splendid body—The American Institute of Mining Engineers—is applied to mining, we unearth commercial bodies of ore in almost every formation. Even petrified trees at Silver Reef, Utah, show values.



Point of intersection of a vein by a cross cut tunnel. This point is 8,000 feet from the surface on the level, and 2,000 feet below the apex of the vein. Here the author wrote the last lines of this book.

Thus the dogmas, the old theories, are exploded by the advancing army of progressive miners.

The problem to be solved in the next few years is the existence of ore at 4,000, 5,000, or even 8,000 feet. These depths are startling to the novice, but not to the miner. There is now one shaft in a Lake Superior copper mine, nearly 6,000 feet deep, and the ore is still in place; why not at 8,000 feet? In lower altitudes gold mines are past the 3,000 foot line. What the enrichments may be at greater depths we are not able to say. The evidence is favorable to more wonders of the mineral world. It may be, that there is a continuous line of enrichments down as far as man can go with his puny appliances. A few weeks ago the writer was discussing the question of the oil and gas stratas of the State of Pennsylvania, with one of the most distinguished and successful operators in that section, and he claimed that no man could tell the depth limit of gas, oil, or metal stratifications, and as an illustration stated the fact, that in the beginning they held the impression that the 600 foot stratification was the limit; then operators went further and struck another, and more productive stratification at the 1,600 foot point, and now they have gone still further and found a new layer, more productive than either of the first two, at the depth of 2,500 to 3,000 feet. Thus no man knows what the earth will show in its stores of precious metals at 7,000 feet. Only recently there was struck a new ore body in one of the Comstock veins at the depth of 3,200 feet at a point where the miners thought no ore existed; yet here was opened up indications of a new enrichment running $60 a ton. Therefore the writer claims the only way to test out a mine is to do work wherever sound evidence indicates the possible presence of ore, consequently a system which does not do actual exploration, when money is supplied for that purpose, is deplored.

Mining as an investment is fast gaining a deep-seated confidence in the minds of those who reason. There was a time when the banking interests, with a desire to discourage depositors from drawing their funds to invest in mines,—thus curtailing the bankers' business of discounting commercial paper, —decried mining as risky, as being operated by inexperienced or dishonest men. But the people are awake to the fact that there is a difference between commercialism and mere stock speculation; that there is the same certainty about the extraction of precious metals and profits from proven ore bodies, as there is the extraction of profit from coal and iron. They are aware that without the raw material of money, which the mine alone can give, there would be but little material wealth behind the currency of the banks. Besides, the banker himself now seems, not always, to be the soundest of the sound; they, too, speculate and even try to win great wealth from mines, the very avenue that, in the past, they decried. It has become widely known that the great money interests did not, in the past, know the meaning of commercialism in mines. A few months ago the author was a guest at a dinner given by the Bankers' Club of Chicago; at his side sat President Reynolds, of the Great Continental National Bank. In a conversation Mr. Reynolds said: "I never heard the word 'commercialism' applied to mining before."

Thus, with a better acquaintanceship, with the knowledge that the mines can afford a higher rate of interest, with comparatively equal safety to the five or six per cent. industrial investments of the east, mines naturally attract more capital, men have awoke to the fact that the bank is not always sound, not half as sound as a good commercial mine, where the deposits are lying underground, beyond the reach of those who might misappropriate the same, there to be drawn upon, day by day, and circulated as the people need the gold and silver.

Thus to decry mining, and say that the banks are better,—while the author admits, that the savings bank, is a safer investment, provided a man is rich enough to be satisfied with 3 per cent.—it is not, however, always the case with other banks. On January 27th of the present year, the writer clipped the following from an editorial in the New York Journal, which referred to a certain National Bank that had just closed:

"Three months ago this bank had deposits aggregating twenty-four millions and was apparently as thriving a money mill as ever ground out dividends; now its doors are closed and a National Bank examiner is in charge."

The day has passed when selfish interest can keep intelligent and willing American capital from investing in legitimate mine operations; and while there is a risk in the search for metals, the enormous dividend possibilities make these investments more desirable than those of the lower interest bearing securities, which necessarily always possess speculative elements.

Wherever you look in any avenue of the great mining industry, there is seen the stamp of advancement. The people are advancing in their reasonableness, they no longer expect nature to give up its stores of wealth without a struggle; they appreciate that a great mercantile business or industrial enterprise of any kind requires time in the laying of its profit-earning foundation, before even bonanza ore bodies found to-day can be converted into the coin of the realm to-morrow. They no longer expect more from mining than even that rich profit-earning avenue can return. The day when an unscrupulous man may obtain money upon mere promise has passed; unreasonable and sensational claims quickly stamp the enterprise as one to be scrutinized. It is realized that it takes money to open veins and erect mills; both require time; the people are inclined to grant it. The day for the penny operator has passed; he can no longer ply his trade with impunity; he must base his assertions upon facts. The efficient Post Office Inspectors are watching their every move, thus safeguarding the investments of the people. We have advanced in the age of publicity, leaving everything of a dark, or star-chamber nature behind. The argument of the unsound, who, when the searchlight of truth is turned upon him, cries blackmail at every individual, or daily paper, who demands the facts relative to sensationally promoted ventures, is no longer considered as worthy of answer.

There is a new era in mining, the era of the sound, the era that is to bring results, which the commercial miners of the United States are eager to share with those who advanced the capital needed in their battle with nature, that the metallic veins will be forced to disgorge more of the hidden wealth, needed in the march of progress.

Prejudices are swept away, pride and personal egotism is no longer a factor, the theories of men crumble as we advance. With mature experience we find that that which at one time was considered detrimental is really beneficial. A few years ago the leasing system was decried, it is now the writer's opinion that within ten years all great dividend-paying precious metal mines, and perhaps copper mines, will be operated upon these lines, the mine owners being called upon to do the development work, maintain their property and the establishing of concentrating plants in which the lessee may have his ore treated at a fair figure. Thus, there will be two systems of mining, the individual extraction, and the corporate or individual ownership of the property in fee.

In the past leasing was considered as injurious, it being claimed that the work was not well done; the term "gutting" was coined, but the word is misapplied at the present time. After years of experience with this individual system, it has been proven sound, and where ore exists in paying bodies in the best mines in the United States, there is found the lessee, the company by its term of contract protecting its property against unworkmanlike ore extraction. The lease system was in vogue in the mines of Guanajuato, Mexico, when the writer first visited that camp, and he was informed that the tribute system had existed for a hundred years.

The rich mines of Goldfield and Tonopah, Nevada, to which the commercial miner of this country looks so earnestly for a staple production, owe their fame to this form of mining. It is said that the total production of Cripple Creek has amounted to $225,000,000. It is safe to say that at least $75,000,000 of that vast amount was the direct result of the lessees, and that district is to-day practically operated upon those lines. There are many mines to-day in operation, making profitable returns, which would have been closed years ago had not the lessees won them a new life. While leases often make millions of profit for the operators they build up the reputation of the camps and attract capital. It is stated, that while one set of lessees took for their share $3,750,000 of the product of the famous Mohawk gold mine of Goldfield, Nevada, and in the same district eight other properties operating under lease increased the output $7,000,000 more, the system has added to the reputation of the region, and caused prospectors to search for new ore in other localities. Whatever the future fame of the State of Nevada may be, it can largely be attributed to that form of operation.

The investor, not in close touch with the industry, seldom hears of the magnificent records made by the mines operated upon commercial lines, except through information imparted in a general manner by some promoter as an argument to buy his prospect shares. Thus the history of such famous mines as the Bunker Hill and Sullivan, of Idaho,—that have so far paid over $10,000,000 in dividends; in 1906 paid $2,340,000; and in the year just passed $1,960,000,—is but litle known; or the Hercules, which paid $1,030,000 last year; the Federal Mining & Smelting Company, which in the past twelve months disbursed $1,710,000. Nor is the system, employed in the Coeur de Alene district explained, from which the mining of low grade ore last year enriched those interested to the extent of $5,000,000. Also the Utah Consolidated, or the United States, both of Utah, that returned nearly $5,000,000 in dividends in 1907; the names may be known, but the magnitude of the operations but little understood. Even way off in Mysora, India, commercial mining now has a firm foothold, and we find fifteen producing mines with a total capital investment of $15,000,000, upon which they pay a flat dividend of 38 per cent. upon the full amount. The dividends earned from American mines last year, were sufficient to give every man, woman and child in the United States two dollars each.

The era of low capitalization is here. The wild dreamer with his $5,000,000 capital on a $1,000 hole, has no standing. It is shown that such mines as the Portland, only capitalized at $3,000,000, has paid its shareholders $7,747,000, and more than enough ore blocked to pay $3,000,000 more. The great Camp Bird mine paid last year twenty-four per cent. in dividends, a total of $4,000,000, upon a total outstanding capitalization of $4,100,000, and the mine shows about $4,500,000 blocked out ready for the mill, and the returns are twenty-seven per cent. profit on its ore extraction. The Homestake shows forty per cent. profit upon its ore extraction. Thus all through the commercial avenue of mining, so little understood in the East, enormous returns are shown.

During this last stringency in the money market, the commercial mines of the United States were the medium that supplied, and were looked to for a quick stimulant, and it only came from mines operated and capitalized upon reason. There are thirty-three mining enterprises in the United States capitalized at $302,000,000, or an average of less than $1,000,000 each, that have already paid in dividends 84 per cent. of their total issued capital. One mine, the United Verde, of Arizona, is credited with a dividend record of $25,000,000, or over eight times the face value of its capital stock.

The author abhors statistics; but that the investor

Seventeen hundred foot level in a Commercial Mine. Telephones and Electric Lights installed.

may know that the Aladdin-like stories of enormous wealth won from real commercial mines, is not fiction he here presents a list of some of the most noted dividend payers.

DIVIDENDS.

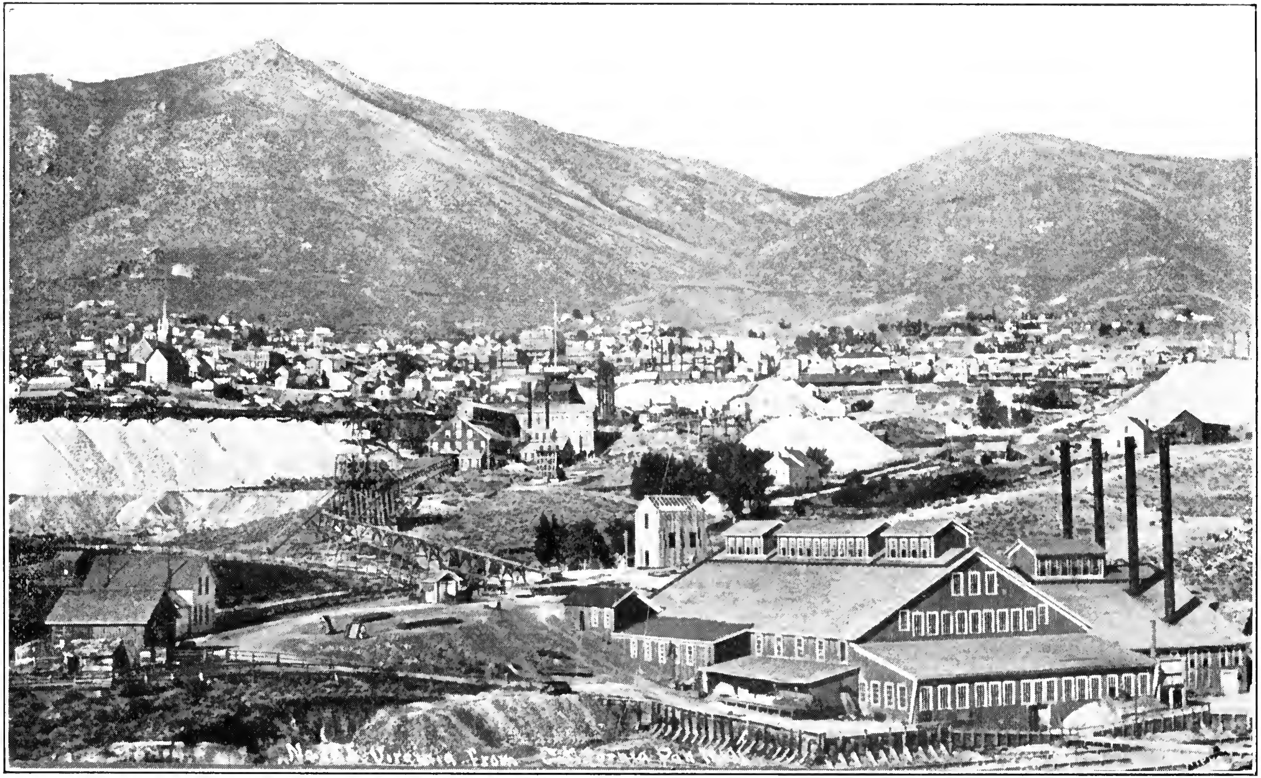
If the writer were to publish a complete list of the dividend-paying mines of the world, the reader would become eye weary; the total would be so vast as to be almost beyond credence. I cannot commence to enumerate the countless "small commercial mines that are winning wealth for their shareholders, consequently, will only list the more prominent mining companies of America, and perhaps known to the reader by reputation. I will not list those that have paid millions, but which are to-day, from several causes, not adding their quota to the world's supply; those that are earning are sufficient to bear out the writer, that the general Eastern investor knows very little about our great commercial mines—the men who made them, and who are constantly making more.

Name of Company and Location.	Dividends. Total to Date.
Alaska Mexican, g., Alaska	$ 1,806,381
Alaska Treadwell, g., Alaska	9,785,000
Alaska United, g., Alaska	333,370
Amalgamated, c., Mont................	55,942,865
Am. Sm. & Ref., com., U. S..........	12,625,000

Am. Sm. & Ref., pf., U. S.	$ 26,213,053
Am. Smelters, pf. A., U. S.	2,195,000
Am. Smelters, pf. B., U. S.	3,750,000
Anaconda, c., Mont	39,050,000
Arizona, c., Ariz	6,182,361
Atlantic, c., Mich	990,000
Bald Butte, g. s., Mont	1,354,648
Beck Tunnel, g. s. l., Utah	615,000
Boston & Montana, Mont	49,225,000
Bull, Beck. & Cham., g., Utah	2,688,400
Bunker Hill & Sull., Ida	9,876,000
Butte Coalition, c. s., Mont	2,450,000
Calumet & Arizona, c., Ariz	9,300,000
Calumet & Hecla, c., Mich	105,900,000
Camp Bird, g. s., Colo	4,000,000
Central Eureka, g., Cal	778,921
Columbus Con., c., Utah	226,832
Combi'tion Co. G'f'd, Nevada	668,000
Con. Mercur, g., Utah	1,205,000
Copper Range Con., Mich	6,477,801
Creede United, g., Colo	214,053
Daly Judge, g. s. l., Utah	225,000
Daly West, g. s. l., Utah	5,877,000
De Lamar, g. s., Ida	2,926,370
Doe Run, l., Mo	1,523,630
Elkton Con., g., Colo	1,966,960
El Paso, g., Colo	1,022,750
Fed. Sm., com., Idaho	2,618,750
Federal Sm., pf., Idaho	3,281,250
Findley, g., Colo	325,000
Frances-Mohawk, g., Nevada	410,000

Gemini-Keystone, Utah	$ 1,950,000
Gold King Con., Colo..................	1,407,504
Goldfield Con., go., Nevada............	1,000,000
Grand Central, g., Utah..............	1,333,000
Hecla, s. l., Idaho.....................	1,460,000
Homestake, g., S. D..................	22,313,240
Horn Silver, g. s. c. z. l., Utah.........	5,642,000
Inter'l Nickel, pf., N. Y...............	1,048,992
Iron Silver, Colo......................	4,100,000
Jamison, g., Cal.......................	294,070
Kendall, g., Mont....................	1,130,000
Lightner, g., Cal......................	295,694
Mammoth, g. s. l., Utah...............	2,140,000
Mary McKinney, g., Colo..............	801,765
Mohawk, c., Mich....................	1,400,000
Mohawk, Nevada	4,900,000
Mont. Ore Purch., Mont..............	9,437,274
Nevada Hills, s. g., Nevada..........	300,000
New Century, z. l., Mo................	230,300
Newhouse M. & S., c., Utah...........	600,000
New Idria, q., Cal.....................	960,000
New Jersey Zinc., U. S................	8,400,000
North Butte, Mont...................	5,800,000
North Star, g., Cal...................	1,636,989
Old Dominion Cop., Ariz..............	280,843
Ophir, g. s., Nevada..................	1,797,400
Osceola, c., Mich.....................	7,035,650
Parrot, c. s., Mont....................	6,807,649
Pennsylvania, g., Cal.................	284,925
Portland, g., Colo....................	7,747,080
Quartette, g. s., Nevada..............	375,000

Quincy, c., Mich.	$ 17,945,446
Rocco Homest'k, l. s., Nevada	112,000
Sacramento, g. q., Utah	258,000
St. Joseph, l., Mo	5,558,357
Silver King, g. s. l., Utah	11,187,500
Silver King Co't'n, Utah	187,500
Shannon, c., Ariz	450,000
Snowstorm, s. l., Ida	450,000
Standard Con., g. s., Cal	5,192,641
Stratton's Independ., Colo	4,895,865
Swansea, g. s. l., Utah	329,500
Tamarack, c., Mich	9,420,000
Tennessee, c., Tenn	1,662,500
Tomboy, g. s., Colo	900,000
Tonopah of Nev., Nevada	3,500,000
Tonopah Belmont, Nevada	518,003
Tonopah Ext'nsion, Nevada	278,530
Tonopah Midway, Nevada	300,000
Uncle Sam, g. s. l., Utah	165,000
United States, com., Utah	1,147,653
United States, pfd., Utah	4,242,146
United Cop, com., Mont	5,962,500
United, c. pf., Mont	1,500,000
United, z. l. pf., Mo.-Kan	303,006
United (Cripple Creek), Colo	280,071
United Verde, c.,	19,710,322
U. S. Red. & Ref. Pf., Colo	1,005,504
Utah, g. (Fish Springs), Utah	282,000
Utah Con., c., Utah	7,686,000
Victoria, Utah, Utah	177,500
Vindicator Con., g., Colo	1,770,000



Virginia City, Nevada. The high point is Mt. Davidson, under the foot of which passes the Comstock Lode, that has, it is claimed, enriched the world $700,000,000. The California mill in the foreground, the deepest working, is 3,200 feet.

Wolverine, c., Mich....................	$ 4,500,000
Work, g., Colo........................	150,000
Yankee Con., Utah....................	157,500
Yellow Aster, g., Cal..................	958,789

We are so wealthy in mines of our own, that we can be generous, and present the fact that the North American Continent is rich in other regions, therefore I here present a few of the dividend payers of Mexico and Canada; as it all bears out the argument that when commercially operated mines are wonderful profit producers.

Name of Company and Location.	Total to Date.
Amistad y Conc'rdia, Mex.............	$ 258,064
Batopilas, Mex.........................	55,784
Buffalo, s., Ont.......................	162,000
Coniagas (Cobalt), Ont................	20,000
Consolidated M. & S., B. C............	781,885
Crow's Nest Pass, B. C................	2,018,648
Dos Estrellas, g. s., Mex..............	1,020,555
El Oro, g. s., Mex.....................	4,600,800
Esperanza, s. g., Mex..................	7,233,520
Granby Con., B. C.....................	2,968,630
Greene Con. Copper, Mex.............	6,137,800
Greene Con. Gold, Mex................	300,000
Green Gold Silver, pfd., Mex..........	120,000
Guanajuato, Mex.......................	74,250
Guggenheim Expl., Mex..............	3,960,000
Kerr Lake, s., Cnt.....................	480,000

LeRoi No. 2, g., B. C.	$ 716,400
McKinley-Darragh, s., Ont.	180,000
Mex. Con. M. & S. Co., Mex.	600,000
Mines Co. of Am., Mex.	2,905,000
North Star, B. C.	351,000
Penoles, Mex.	8,263,375
Reco, g. s. l., B. C.	327,082
Silver Queen, s., Ont.	120,000
Slocan Star, B. C.	575,000
St. Eugene Con., B. C.	402,120
Tilt Cove, c., N. F.	21,360
Tretheway, s., Ont.	80,000
Tyee, c., B. C.	136,800

With the passing of the sensational promoter, enters the commercial miner, bringing his economies, deliberate thought, and a desire for net results; the era of the unsound has passed; it has been found weak, non-profitable; and nothing weak and non-productive ever returns to favor with the American. His aim is upward, never down or backward. Each day brings clearer conception of the right, or commercial way. The wrecks, the ill-advised efforts of the past, that strew the mining highways, will hereafter be referred to in jest, the same as are old speculations in visionary dreams, South Sea Bubbles, Gold from the ocean's brine, etc. As the procession of the skilled and enlightened passes on, they will point to the monuments of inexperience and folly as the result of a dead age, gone, never to return. As we turn each new page in Nature's book of wonders, as we sink deeper into the gold and silver arteries of the earth, exposing new and more remarkable mineral bearing formations, as electricity is improved and applied to our mines, mills and smelters, as the worthless ore of to-day is made profitable to-morrow by the natural order of improvement in extraction and treatment, when the golden streams from our metallic veins are cementing the foundation stones of even a greater national structure of wealth and power, when our surplus metallic riches are being used to enrich other nations, not as blest with mineral wealth, a retrospect of the last twenty-seven years will cause the remark, "what baby miners we were in 1880!"

I have been informed that writers of plays visit the locality in which their scenes are laid; they call it "getting atmosphere." The writer has by a force of circumstances seen enough atmosphere. If lying out in driving snows: if weary climbing hills in search of mineral wealth; if suffering from hunger and thirst: if the digging of disappointing holes in the earth under the most adverse circumstances: if the witnessing of sorrow: if the personal remorse of one's own mistakes: if the grasping of the hands of dying comrades, crushed by falling timbers: if watching the lurid glare of the molten slag at the witching hour—if all these experiences can be termed atmosphere, and essential to good reading, there is some little hope for "Rocks in the Road to Fortune."

It is now the hour of noon, on the 11th day of

March, as I pencil the last hundred lines of this volume, using a candle box as a desk and a time book for these notes, I am 2,000 feet deep in the bowels of the earth, in a great gold vein over fifty feet wide, at the intersecting point of the tunnel 8,000 feet in from the earth's surface. The hissing of compressed air, the rumble of the electric trolley dragging its trains of ore from the network of veins that lay 9,000 feet still further into the gold belt, the dull thud of dropping rocks, that are constantly falling in all mines, like the passing of human lives; the jingling of steel as a miner throws down an armful of drills; the clanging of the hoisting signals as a ton of ore dashes upward to the sunlight—all may be called atmosphere. Around me are lying miners, some eating their rough fare, others talking, others silently smoking, perhaps thinking of a little sun checked porch, vine covered; all pictures recalling roughly garbed Titans. These are real men, "world-workers," the kind that women really love, those who create our wealth by honest manly toil, who, if the world were stripped of its tinsel and class, would be the Kings, the real producers, the commercial miner, whom I hope, that great world far to the east of the Rocky Mountains, may in the future know better.

THE END.

APPENDIX

APPENDIX

Common Terms used by Commercial Mines.

Air-Shaft—A shaft or pit used expressly for ventilation.

Amalgam—An alloy of quicksilver with some other metal.

Amalgamation—Absorption of gold and silver by mercury.

Apex—The landing point at the top of a slope or inclined plane, the knuckle; also, the top of an anticlinal. In the United States Revised Statutes, the end or edge of a vein nearest the surface.

Arrastre—A circular trough in which drags are pulled round by being connected with a central revolving shaft by an arm and chain. Used for grinding and amalgamating ores.

Assay—The determination of the quality and quantity of any particular substance in a mineral.

Assessment Work—The annual work necessary to hold a mining claim.

Back of Ore—The ore between two levels which has to be worked from the lower level.

Bar Mining—The mining of river bars, usually between low and high water, although the stream is sometimes defected and the bar worked below water level.

Base Bullion—Lead combined with precious metals.

Base Metal—Metal not classed with the precious metals, gold, silver, platinum etc., that are not easily oxidized.

Bed Rock—The solid rock underlying the soil, drift or alluvial deposits.

Black Sand—Dark minerals found with alluvial gold.

Blast—(1) The sudden rush of fire, gas and dust of an explosion through the workings and roadways of a mine. (2) To cut or bring down coal, rocks, etc., by the explosion of gunpowder, dynamite, etc.

Blind Lead, or *Blind Lode*—A vein having no visible outcrop.

Blowpipe—An instrument for creating a blast whereby the heat of a flame or lamp can be better utilized.

Bonanza—An aggregation of rich ore in a mine.

Breasting Ore—The ore taken from the face or end of the tunnel.

Bulkhead—(1) A tight partition or stopping. (2) The end of a flume carring water for hydraulicking.

Cage—A platform on which mine cars are raised to the surface.

Calcining Furnace—A furnace used for roasting ore in order to drive off certain impurities.

Carbonates—Lead ore. The oxide and carbonic-acid compounds of lead; also applied to lead sulphate.

Cave, or *Cave-in*—A caving-in of the roof strata of a mine, sometimes extending to the surface.

Charge—(1) The amount of powder or other explosive used in one blast or shot. (2) The amount of flux used in assaying. (3) The material fed into a furnace at one time.

Chute—A narrow inclined passage in a mine, down which coal or ore is either pushed or slides by gravity.

Claim—A portion of ground staked out and held by virtue of a miner's right.

Clean-Up—Collecting the product of a period of work with battery or sluice.

Coarse Metal—In copper smelting, the compound containing the copper concentrated in it after the first smelting to get rid of the bulk of the gangue in the ore.

Contact—Union of different formations.

Country Rock—The main rock of the region through which the veins cut, or that surrounding the veins.

Creep—The gradual upheaval of the floor or sagging of the roof of mine workings due to the weighing action of the roof and a tender floor.

Crevice—A fissure.

Crevicing—Picking out the gold caught in cracks and crevice in the rocks over which it has been washed.

Cribbing—Close timbering, as the lining of a shaft, or the construction of cribs of timber, or timber and earth or rock to support a roof.

Croppings—Portions of a vein as seen exposed at the surface.

Cross-Course—A vein lying more or less at right angles to the regular vein of the district.

Cross-cut—(1) A tunnel driven through or across the measures from one seam to another. (2) A small passageway driven at right angles to the main gangway to connect it with a paralled gangway or air-course.

Crusher—A machine used for crushing ores and rock.

Dead Work—Exploratory or prospecting work that is not directly productive. Brushing roof, lifting bottom, cleaning up falls, blowing rock, etc.

Deposit—Irregular ore bodies not veins. A bed or any sedimentary formation.

Diggings—Where gold and other minerals are dug out from shallow alluvials.

Dip—To slope downward. The inclination of strata with a horizontal plane. The lower workings of a mine.

Divide—The top of a ridge, hill or mountain.

Drift—(1) A horizontal passage underground.

Drill—An instrument used in boring holes.

Dry Amalgamation—Treating ores with hot, dry mercury.

Dry Ore—Argentiferous ores that do not contain enough lead for smelting purposes.

Dump—A pile or heap of ore.

Dyke, or *Dike*—A wall of ingeneous rock passing through strata, with or without accompanying dislocation of the strata.

Face—The place at which the material is actually being worked, either in a breast or heading or in longwall.

False Set—A temporary set of timber used until work is far enough advanced to put in a permanent set.

Float—Broken and transported particles or boulders of vein matter.

Float Gold—Gold in thin scales, which floats on water.

Flour Gold—The finest alluvial gold.

Flux—Iron ore, limestone and sand, which are added in various proportions to the charge in a furnace to make the gangue melt up and flow off easily.

Foot-Wall—The lower boundary of a lode.

Free Milling—Ores requiring no roasting or chemical treatment.

Gallows Frame—The frame supporting a pulley over which the hoisting rope passes to the engine.

Gangue—Waste material from lodes.

Grub Stake—The mining outfit or supplies furnished to a prospector on condition of sharing in his finds.

Hanging Wall—In metalliferous mining, the stratum lying geologically directly above a bed or vein.

Horse Whim—A vertical drum worked by a horse, for hauling or hoisting. Called also *Horse Gin.*

Incline—Short for inclined plane. Any inclined heading or slope road or track having a general inclination or grade in one direction.

Ingot—A lump of cast metal.

Jigging—Separating heavy from light particles by agitation in water.

Leaching—to dissolve out by some liquid.

Little Giant—The name given to a special sort of hydraulic nozzle used for sluicing purposes.

Lode—Strictly a fissure in the country rock filled with mineral; usually applied to metalliferous lodes. In general miners' usage, a lode, vein or ledge is a tabular deposit of valuable minerals between definite boundaries. Whether it be fissure formation or not is not always known, and does not affect the legal title under the United States Federal and local statutes and customs relative to lodes. But it must not be a placer, *i. e.,* it must consist of quartz or other rocks in place, and bearing valuable mineral.

Low Grade—Not rich in mineral.

Mill Run—The test of a given quantity of ore by actual treatment in a mill.

Motar—The vessel in which ore is placed to be pulverized by a pestle.

Mother Lode (*Main Lode*)—The principal vein of any district.

Ore Shoot—A large and usually rich aggregation of mineral in vein. Distinguished from pay streak in that it is a more or less vertical zone or chimney of rich vein matter extending from wall to wall, and having a definite width laterally.

Panning, or *Panning off*—Separating gold or tin from its accompanying minerals by washing off the latter in a pan.

Peter Out—To "peter out" is to thin out, or gradually decrease in thickness.

Pinch—A contraction in the vein.

Placer Mining—Surface mining for gold where there is but little depth of alluvial.

Prospect—The name given to underground workings whose value has not yet been made manifest. A prospect is to mine what mineral is to ore.

Prospecting—Examining a tract of country in search of minerals.

Roasting—Heating ores at a temperature sufficient to cause a chemical change, but not enough to smelt them.

Rock Drill—A rock-boring machine worked by hand, compressed air, steam or electrical power.

Shaft—A vertical or highly inclined pit or hole made through strata, through which the product of the mine is hoisted, and through which the ventilation is passed either into or out of the mine. A shaft sunk from one seam to another is called a "blind shaft."

Shift—The number of hours worked without change. A gang or force of workmen employed at one time upon any work, as the day shift, or the night shift.

Skip—A mine car. A car for hoisting out of a slope.

Slag—The liquid refuse from a smelting operation, which floats on top of the metal.

Smelting—Method of extracting a precious metal from its ores.

Specimen—A picked piece of mineral.

Spur—A short ridge or offsetting pointed branch from a main ridge or mountain. A short branch or feeder from the main lode of a vein.

Square Set—A variety of timbering for large excavations.

Sulphide—A combination of sulphur and base.

Sump, or *Sumpt*—A catch basin into which the drainage of a mine flows and from which it is pumped to the surface.

Tellurides—Ores of the precious metals (chiefly gold) containing tellurium.

Underholding, Undermining—To mine out a portion of the bottom of a seam or the underclay, by pick or powder, thus leaving the top unsupported and ready to be blown down by shots, broken down by wedges, or mined with a pick or bar.

Upraise—An auxiliary shaft, a mill hole, or heading carried from one level up toward another.

Upthrow—A fault in which the displacement has been upward.

Winch, or *Windlass*—A hoisting machine consisting of a horizontal drum operated by crank-arm and manual labor.

Winnowing Gold—Air-blowing. Tossing up dry powdered auriferous material in the air, and catching the heavier particles not blown away.

Winze—Interior shaft connecting levels, sometimes used as an ore chute.

Zone—The strike of the mineral bearing lodes or deposits.