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THE HISTORY OF THE STANDARD OIL COMPANY

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CHAPTER I—THE BIRTH OF AN INDUSTRY

ONE of the busiest corners of the globe at the opening of the year 1872 was a strip of Northwestern Pennsylvania, not over fifty miles long, known the world over as the Oil Regions. Twelve years before, this strip of land had been but little better than a wilderness its only inhabitants the lumbermen, who every season cut great swaths of primeval pine and hemlock from its hills, and in the spring floated them down the Allegheny River to Pittsburgh. The great tides of Western emigration had shunned the spot for years as too rugged and unfriendly for settlement, and yet in twelve years this region avoided by men had been transformed into a bustling trade center, where towns elbowed each other for place, into which the three great trunk railroads had built branches, and every foot of whose soil was fought for by capitalists. It was the discovery and development of a new raw prod-



GEORGE H. BISSELL

The man to whom more than any other is due the credit of what is called the "discovery" of oil; for it was he who first took steps to find its value and to organize a company to produce it. It was he, too, who suggested the means of getting oil which proved practical. After the oil company which he organized obtained oil in the Drake well, he aided in establishing the needed industries and institutions in the new country.

uct, petroleum, which had made this change from wilderness to market-place. This product in twelve years had not only peopled a waste place of the earth, it had revolutionized the world's methods of illumination and added millions upon millions of dollars to the wealth of the United States.

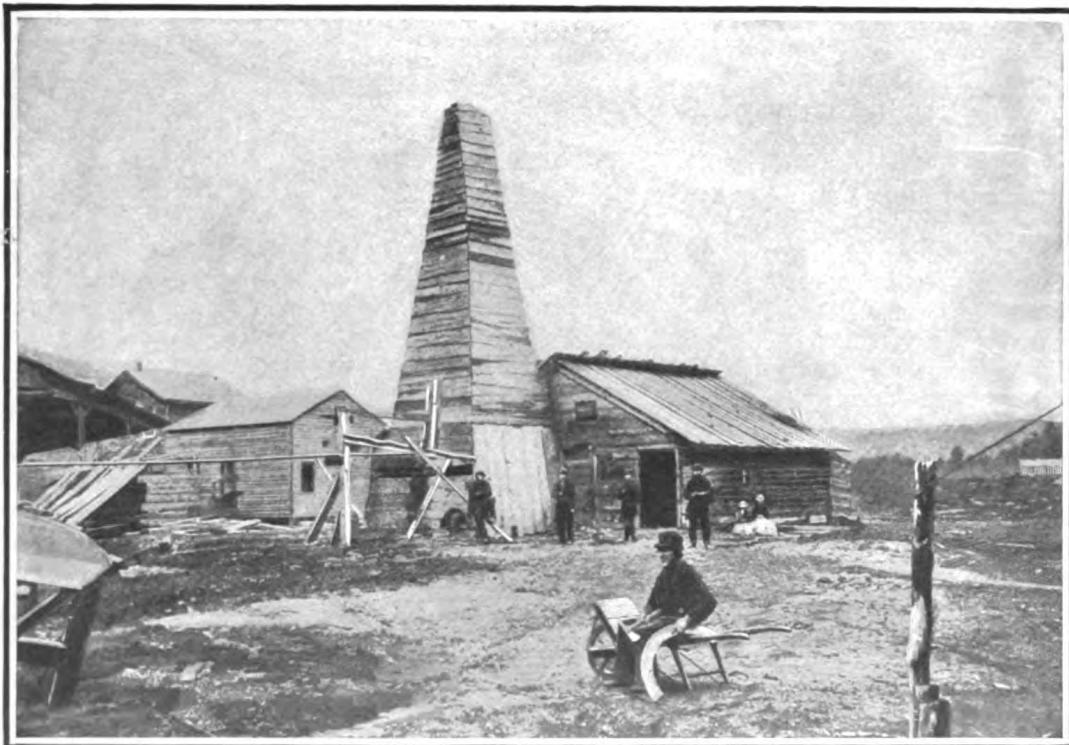
Petroleum as a curiosity was no new thing. For more than two hundred years it had been described in the journals of Western explorers. For decades it had been dipped up from the surface of springs, soaked up by blankets from running streams, found in quantities when salt wells were bored, bottled and sold as a cure-all—"Seneca Oil" or "Rock Oil," it was called. One man had even distilled it in a crude way, and sold it as an illuminant. Scientists had described it, and travelers from the West often carried bottles to their scientific friends in the East. It was such a bottleful, brought as a gift



Fac-simile of a label used by S. M. Kier in advertising Rock Oil obtained in drilling salt wells near Tarentum, Pennsylvania. Mr. Kier first "struck oil" in 1847. He tried refining it for a luminant, but with no success. Later he bottled his oil and sold it as a cure-all. It was his label which first suggested to George H. Bissell the possibility of obtaining petroleum from artesian wells.

to the professor of chemistry of Dartmouth College, in 1854, that at last found a man willing to take it seriously. This man was George H. Bissell, a graduate of Dartmouth, who, worn out by an experience of ten years in the South as a journalist and teacher, had come North for a change. At his old college the latest curiosity of the laboratory was shown him—the bottle of rock oil,—and the professor con-

tended that it was as good as, or better than, coal for making illuminating oil. Hundreds of others had seen bottles of rock oil and



THE DRAKE WELL IN 1859—THE FIRST OIL WELL

The entire plant of the Drake well consisted of a derrick boarded in (a practice of the very early days of the industry), the engine house, boarding house for the "hands," and a small saw mill. Oil was struck August 28th, 1859, and that year the well produced 1,800 barrels, a portion of which was sold at 65 cents a gallon. The well produced for over two years from the first sand. Later it was deepened to 500 feet. After the well gave out the machinery was carried off piece-meal as souvenirs. Louis Emery, Jr., of Bradford, has the drilling tools in his private collection. The engine house and derrick were exhibited at Philadelphia at the Exposition of 1876, and later sold as rubbish. The site of the Drake well is unmarked to-day.

heard its value speculated about, but Bissell was the first man to take means to find out what it was worth.

He began in a practical way. He formed a company—the Pennsylvania Rock Oil Company—the first in the United States, and leased the land on which the principal oil springs were known to be. Then he sent a quantity of the oil to Professor Silliman of Yale College, and paid him for analyzing it. The professor's report was published, and received general attention. From the rock oil might be made as good an illuminant as any the world knew. It also yielded gas, paraffine, and lubricating oil. "In short," Professor Silliman declared, "your company have in their possession a raw material from which by simple, and not expensive process they may manufacture very valuable products. It is worthy of note that my experiments prove that nearly the *whole* of the raw product may be manufactured without waste, and this solely by a well-directed process which is in practice in one of the most simple of all chemical processes."

This was well; but so far not enough of the oil had been obtained to manufacture anything in quantities. Mr. Bissell was not sanguine, but he was thinking. One day, walking down Broadway, he halted to rest in the shade of an awning before a drug store. In the window he saw on a bottle a curious label. "Kier's Petroleum, or Rock Oil," it read. "Celebrated for its wonderful curative powers. A Natural Remedy; Produced from a well in Allegheny Co., Pa., four hundred feet below the earth's surface," etc. On the label was the picture of an artesian well. It was from this well that Mr. Kier got his "Natural Remedy." Hundreds of men had seen the label before, but this

was the first to look at it with a "seeing eye." As quickly as the bottle of rock oil in the Dartmouth laboratory had awakened in Mr. Bissell's mind the determination to find out the real value of the strange substance, the label gave him the solution of the problem of getting oil in quantities—it was to bore down into the earth where it was stored, and pump it up.



E. L. DRAKE

"Col" Drake, as he was called in the Oil Regions, was born in Vermont in 1819. He never had a settled occupation, but served in different parts of the country as a clerk, express agent, or railway conductor. In 1854 he fell in with one of the stockholders of the Pennsylvania Rock Oil Company, and was persuaded to put \$200 into the concern. When it was decided to put down an artesian well for oil, Drake was sent by the company to conduct the operations. His final success made him an important person in the Oil Regions, but he never availed himself fully of the opportunities which were open to him, and in 1863 left the region. He took with him about \$16,000, which he promptly dropped in Wall Street. Soon after his health broke down completely, and he and his family were without the necessities of life. When this became known in the Oil Regions a sum was raised to aid him, and in 1873 the Legislature of Pennsylvania granted him an annuity of \$1,500. Drake died in 1881 in Bethlehem, Pennsylvania. In 1901 a handsome monument to Drake was unveiled at Titusville, Pennsylvania, and in the present year his remains were removed to that town.

Drake Strikes Oil

The company accepted the idea, and in the spring of 1858 sent a small stockholder, E. L. Drake, to sink an artesian well for oil. Drake had had no experience to fit him for his task. A man forty years of age, he had spent his life as a clerk, an express agent, and a railway conductor. His only qualifications were a dash of pioneer blood and a great persistency in undertakings which interested him. The spot to which he was sent was Titusville, a lumberman's hamlet on Oil Creek, seventeen miles from where that stream joins the Allegheny River. Its chief connection with the outside world was by stage to Erie, forty miles away. This remoteness from civilization, Drake's own ignorance of artesian wells, and the general skepticism of the community concerning the enterprise, caused great difficulty and long delays. It was months before Drake succeeded in getting together the tools, engine, and rigging necessary to bore his well, and before he could get a driller who knew how to manipulate them winter had come, and he had to suspend operations. People called him crazy for sticking to the enterprise, but it had no effect on him. As soon as spring opened he borrowed a horse and wagon and drove a hundred miles to find a driller. He brought back a man, and after a few more months of experiments and accidents the drill was started. On August 29th, Titusville was electrified by the news that Drake's Folly, as many of the onlookers had come to consider it, had justified itself. The well was full of oil. The next day a pump was started, and twenty-five barrels of oil were gathered.

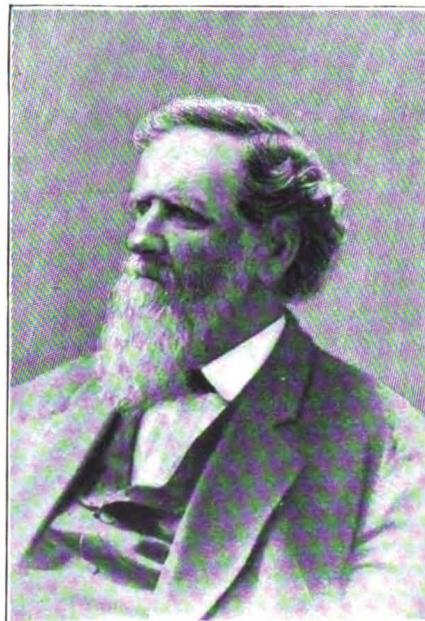
There was no doubt of the meaning of the Drake well in the minds of the people of the vicinity. They had long ago accepted all Pro-

fessor Silliman had said of the possibilities of petroleum, and now that they knew how it could be obtained in quantity, the whole countryside rushed out to obtain leases.

On every rocky farm, in every poor settlement of the region, was some man whose ear was attuned to Fortune's call, and who had the daring and the energy to risk everything he possessed in an oil lease. It was well that he acted at once; for, as the news of the discovery of oil reached the open, the farms and towns of Ohio, New York, and Pennsylvania poured out a stream of ambitious and vigorous youths, eager to seize what might be there for them, while from the East came men with

money and business experience, who formed great stock companies, took up lands in parcels of thousands of acres, and put down wells along every rocky run and creek, as well as over the steep hills. In answer to their drill, oil poured forth in floods. In many places pumping was out of the question; the wells flowed: 2,000, 3,000, 4,000 barrels a day; such quantities of it that at the close of 1861, oil which in January of 1860 was twenty dollars a barrel had fallen to ten cents.

Here was the oil and in unheard-of quantities, and with it came all the swarm of problems which a discovery brings. The methods Drake had used were crude and must be improved. The processes of refining were those of the laboratory and must be developed. Communication with the outside world must be secured. Markets must be built up; indeed, a whole new commercial machine had to be created to meet the dis-



JONATHAN WATSON

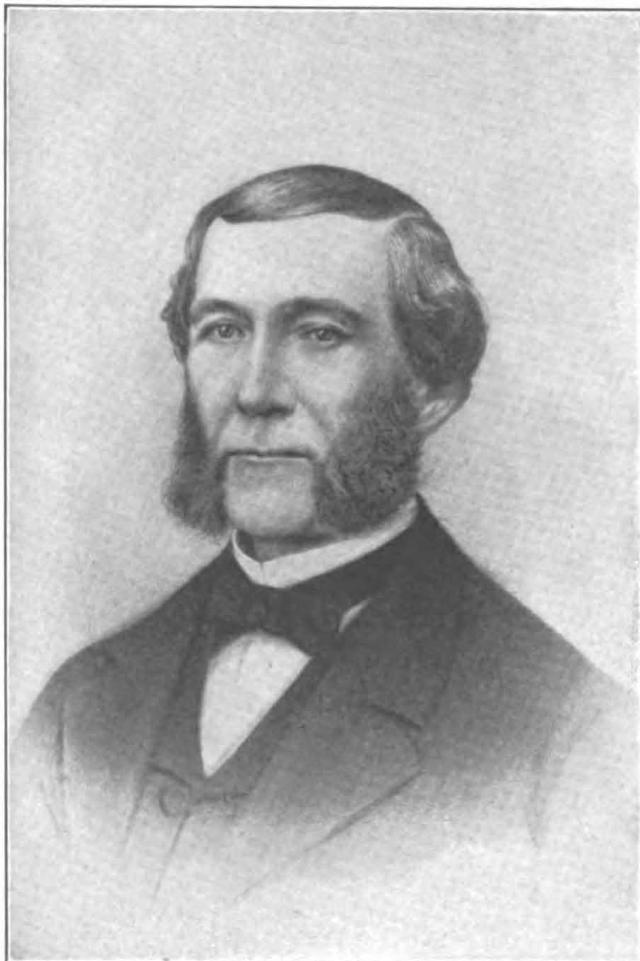
The third well put down in the Oil Regions was drilled by Jonathan Watson, a lumberman and merchant of Titusville. Mr. Watson long had had faith in petroleum if it could be found in quantities, and as soon as he heard of the Drake well he mounted his horse, and, riding down the valley of Oil Creek, spent the day in leasing farms. His first well started off in March at sixty gallons a minute, and oil was selling at sixty cents a gallon. In two years the farm where this third well was struck had produced 165,000 barrels of oil. Mr. Watson, who was one of the most daring of the oil pioneers, became one of the richest men of the regions, but late in life he lost his fortune by bad investments, and in 1893 he died a poor man.

covery. These problems were not realized before the region teemed with men to wrestle with them—men "alive to the instant need of things." They had to begin with so simple and elementary a matter as devising something to hold the oil. There

were not barrels enough to be bought in America, although turpentine barrels, molasses barrels, whisky barrels—every sort of barrel and cask—were added to new ones made especially for oil. Reservoirs excavated in the earth and faced with logs and cement, and box-like structures of planks or logs were tried at first but were not satisfactory. A young Iowa school teacher and farmer, visiting at his home in Erie County, went to the region. Immediately he saw his chance. It was to invent a receptacle which would hold oil in quantities. Certain large producers listened to his scheme and furnished money to make a trial tank. It was a success, and before many months the school teacher was buying thousands of feet of lumber, employing scores of men, and working them and himself day and night. For nearly ten years he built these wooden tanks. Then seeing that iron tanks—huge receptacles holding thousands of barrels where his held hundreds—were bound to supersede him, he turned, with the ready adaptability which characterized the men of the region, to producing oil for others to tank.

A Problem in Transportation

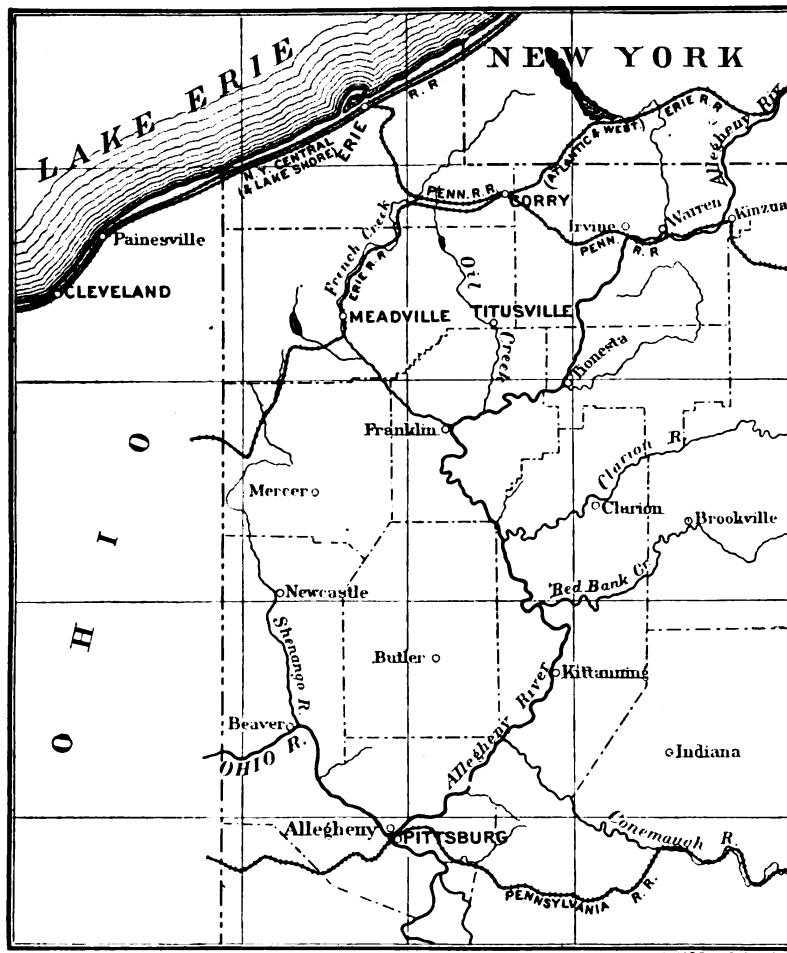
After the storing problem came that of transportation. There was one waterway leading out—Oil Creek, as it had been called for more than a hundred years,—an uncertain stream running the length of the narrow valley in which the oil was found and uniting with the Allegheny River, at what is now known as Oil City. From this junction it was 132 miles to Pittsburgh and a railroad. Besides this waterway were rough country roads leading to the railroads; at Union City, Corry, Erie, and Meadville. There was but one way to get the oil to the bank of Oil Creek or to the railroads, and that was by putting it in barrels and hauling it. Teamsters equipped for this service seemed to fall from the sky. The farms for a hundred miles around gave up their boys and horses and wagons to supply the need. It paid. There were times when three and even four dollars a barrel were paid for hauling five or ten miles.



SAMUEL VAN SYCKEL

The first successful pipe line in the Oil Regions was constructed by Mr. Van Syckel in 1865. It was four miles long, and consisted of two 2-inch pipes laid side by side. Van Syckel put \$100,000 into his pipe line, but through bad business management lost his money. He then went to refining oil. Here his great inventive faculty had ample opportunity, and he introduced various valuable methods and devices. Others reaped the benefit, for, again, Van Syckel became involved, and was obliged to sell his refining interest. He patented a continuous process of refining oil which he and many others believed of great value. He made an agreement with the Acme Oil Company of Titusville—a Standard Oil Company concern—to build a plant to manufacture by this method. This was never done. Van Syckel in 1888 sued the Acme Oil Company for breach of contract. The case was decided in his favor, and six cents damages were allowed. Van Syckel died in 1894, aged 83 years.

It was not too much for the work. The best roads over which they traveled were narrow, rough, unmade highways, mere openings to the outer world, while the roads to the wells they had to break themselves, across fields and through forests. These roads were made almost impassable by the great number of heavily freighted wagons traveling over them. From the big wells a constant procession of teams ran, and it was no uncommon thing for a visitor to the Oil Regions to meet oil caravans of a hundred or more wagons. Often these cara-



MAP OF NORTHWESTERN PENNSYLVANIA, SHOWING THE RELATION OF THE OIL REGIONS TO THE RAILROADS IN 1859, WHEN OIL WAS "DISCOVERED"

vans were held up for hours by a dangerous mud hole into which a wheel had sunk or a horse fallen. If there was a possible way to be made around the obstruction it was taken, even if it led through a farmer's field. Indeed, a sort of guerilla warfare went on constantly between the farmers and the teamsters. Often the roads became impassable, so that new ones had to be broken, and not even a shot-gun could keep the driver from going where the passage was least difficult. The teamster, in fact, carried a weapon which few farmers were brave enough to face—his terrible "black-snake," as his long, heavy black whip was called. The man who had once felt the cruel lash of a black-snake around his legs did not often oppose the owner.

With the wages paid him the teamster could easily become a kind of plutocrat. One early producer tells of having a teamster in his employ who for nine weeks drew only enough of his earnings to feed himself and horses. He slept in his wagon and tethered the team. At

certain stream never ran in a bed. In the summer it was low, in the winter frozen ; now it was gorged with ice, now running mad over the flats. The best service was gotten out of it in time of low water through artificial freshets. Mill dams, controlled by private parties, were frequent along the creek and its tributaries. By arrangement these dams were cut on a certain day or days of the week—usually Friday, and on the flood or freshet the flat-boats loaded with barrels of oil were floated down stream. The freshet was always exciting and perilous, and frequently disastrous. From the points where they were tied up, the boatmen watched the coming flood and cut themselves loose the moment after its head had passed them. As one fleet after another swung into the roaring flood the danger of collision and jams increased. Rare indeed was the freshet which did not leave a few wrecks somewhere along the creek, often scores, piled high on the bank—a hopeless jam of broken boats and barrels, the whole soaked in petro-

the end of the time he "thought he'd go home for a clean shirt" and asked for a settlement. It was found that he had \$1,900 to his credit. The story is a fair illustration both of the habits and the earnings of the Oil Creek teamsters. Indispensable to the business, they became the tyrants of the region—working and brawling as suited them, a class not unlike the flat-boatmen who once gave color to life on the Mississippi, or the cowboys who make the plains picturesque to-day. Bad as their reputation was, many a man found in their ranks the start which led later to wealth and influence in the oil business.

In the problem of transportation the most important element after the team was Oil Creek and the flat-boat. A more un-

leum and reeking with gas. If the boats rode safely through to the Allegheny River, there was little further danger.

The Allegheny River traffic grew to great proportions—fully 1,000 boats and some thirty steamers were in the fleet, and at least 4,000 men. This traffic was developed by men who saw here their opportunity of fortune, as others had seen it in drilling and teaming. The foremost of these men was an Ohio River captain, driven northward by the war, one J. J. Vandergrift. Captain Vandergrift had run the full gamut of river experiences from cabin-boy to owner and commander of his own steamers. The war stopped his Mississippi River trade. Fitting up one of his steamers as a gunboat, he turned it over to Commodore Foote and looked for a new stream to navigate. From the Oil Region at that moment the loudest cry was for barrels. He towed 4,000 empty casks up the river, saw at once the need of some kind of bulk transportation, took his hint from a bulk-boat which an ingenious experimenter was trying, ordered a dozen of them built, towed his fleet to the creek, bought oil to fill them, and then returned to Pittsburg to sell his cargo. On one trip alone he made \$70,000.

But the railroad soon pressed the river hard. At the time of the discovery of oil, three trunk lines—the Pennsylvania, the Lake Shore and Michigan Southern (connecting with the Central), and the Atlantic and Great Western (connecting with the Erie)—were within teaming distance of the region. The

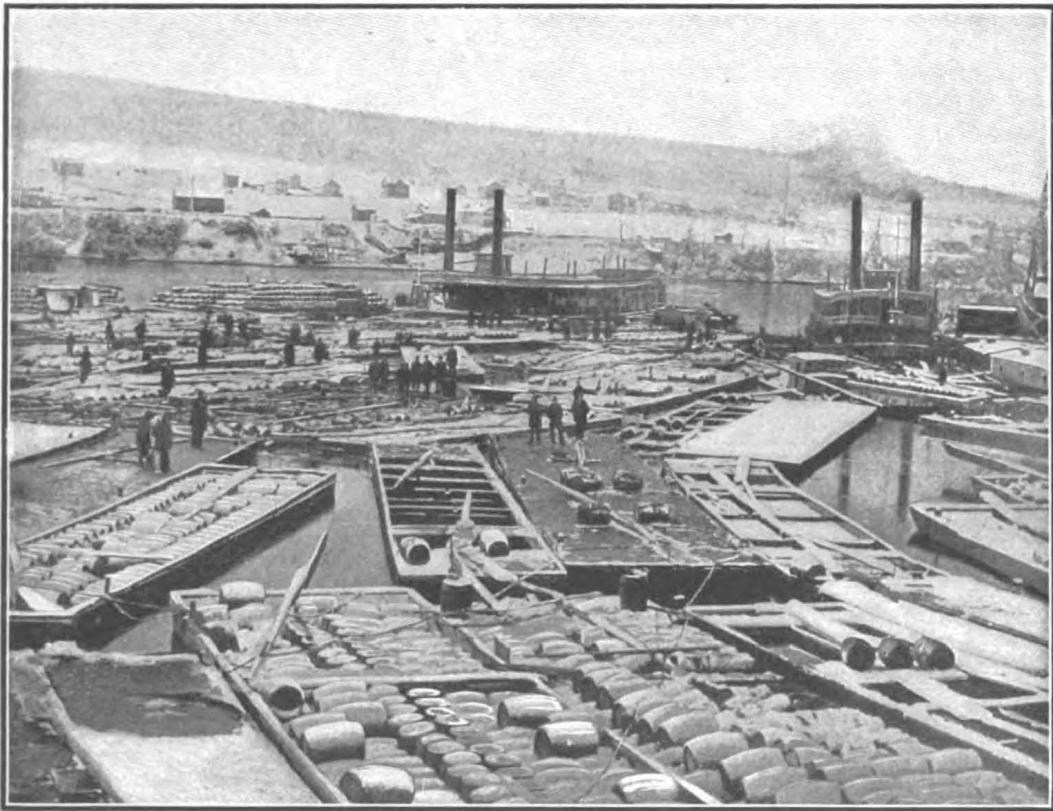
points at which the Pennsylvania road was reached were Erie, forty-four miles from Titusville, Union City, twenty-two miles, and Corry, twenty-six miles. The Lake Shore was reached at Erie. The Atlantic and Great Western was reached at Meadville, Union City, and Corry, and the distances were twenty-eight, twenty-two, and twenty-six miles, respectively. Erie was the favorite point at first, as the roads in that direction were the best. The amount of freight the railroads carried the first year of the business was enormous. It was said that in January, 1861, the Pennsylvania had earned enough in this one year carrying oil and machinery to pay six per cent. on the entire cost of the construction of the road. Of course, connecting lines were built as rapidly as men could work. By the beginning of 1863 the Oil Creek Road, as it was called, had reached Titusville from Corry; this gave an eastern connection by both the Pennsylvania and the Erie, but as the Erie was constructing a branch from Meadville to Franklin, the Oil Creek road became the feeder of the Pennsylvania principally. Both of these roads were completed to Oil City by 1865.

The railroads built, the vexatious, time-taking, and costly problem of getting the oil from the well to the shipping point, still remained. The teamster was still the tyrant of the business. His day was almost over. He was to fall before the pipe-line. The feasibility of carrying oil in pipes was discussed almost from the beginning of the oil business, and early in 1862 a company was organized for the pur-



WESLEY CHAMBERS

One of the shrewdest, kindest, oddest men the Oil Regions ever knew was Wesley Chambers. He had found his way to the creek in 1861, after eight years of unsuccessful gold-hunting in California. When he saw the lack of teams and boats, he set about organizing a service for transporting oil to Pittsburg. In a short time he was buying horses for himself and building boats. He saw, a few years later, that the teamster and the boat were to be replaced by the pipe-line and the railroad, and forestalled the change by becoming a producer. Mr. Chambers was not only a bold and successful operator, he was an active and intelligent force in all efforts to improve the social conditions of the towns of the Oil Regions.



FLEET OF OIL BOATS AT OIL CITY IN 1864

pose. Various experiments were made, both gravity and pumps being trusted for propelling the oil, but there was always something wrong; the pipes leaked or burst, the pumps were too weak. The idea had been almost abandoned when the man for the need appeared, Samuel Van Syckel. He came to the creek in 1864 with some money, hoping to make more. He struck oil several miles from a shipping point and saw his profits eaten up by teamsters. Their tyranny aroused his ire and his wits, and he determined to build a pipeline from his wells to the railroad. He was greeted with jeers, but he went doggedly ahead, laid his pipes, put up his pumps, and turned in his oil. From the start the line was a success, doing the work of 300 teams working ten hours a day. On the day that the Van Syckel pipe line began to run oil a revolution began in the business. After the Drake well it is the most important event in the history of the Oil Regions.

The teamsters saw its meaning first and turned out in fury, dragging the pipe, which was for the most part buried, to the surface, and cutting it so that the oil would be lost. It was only by stationing an armed guard that they were held in check. A second line of

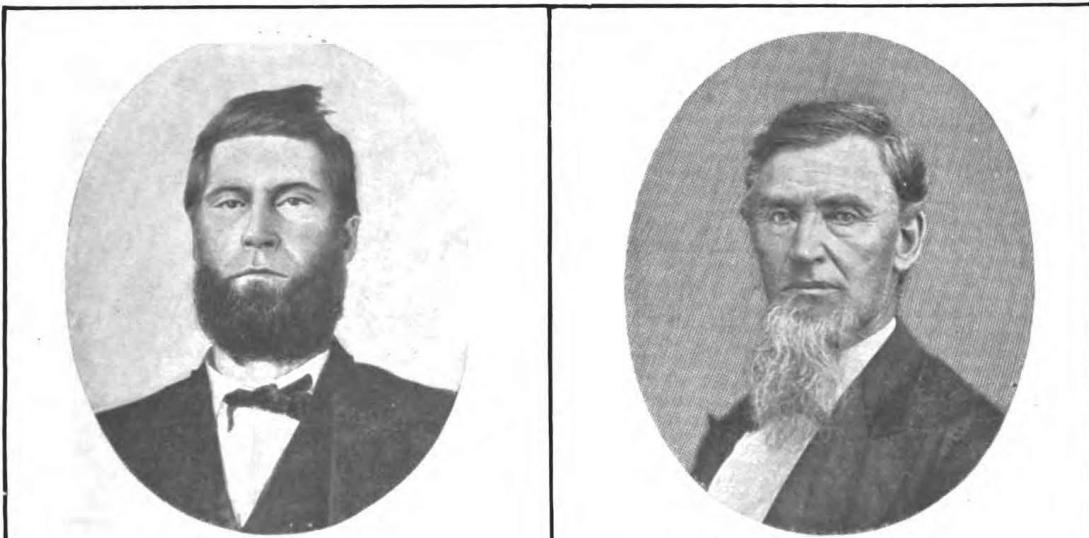
importance suffered even more than that of Van Syckel. The teamsters did more than cut the pipe; they burned the tanks in which oil was stored, laid in wait for employees, threatened with destruction the wells which furnished the oil, and so generally terrorized the country that the governor of the State was called upon in April, 1866, to protect the property and men of the lines. The day of the teamster was over, and the more philosophical of them accepted the situation; scores disappeared from the region, and scores more took to drilling. They died hard, and the cutting and plugging of pipe-lines was for years a pastime of the remnant of their race.

Making and Marketing a New Product

If the uses to which oil might be put and the methods for manufacturing it had not been well understood when the Drake well was struck, there would have been no such imperious demand as came for the immediate opening of new territory and developing methods of handling and carrying it on a large scale. But men knew already what the oil was good for and, in a crude way, how to distill it. The process of distillation also was free to all.

The essential apparatus was very simple—a cast-iron still, usually surrounded by brick-work, a copper worm, and two tin or zinc-lined tanks. The still was filled with crude oil, which was subjected to a heat high enough to vaporize it. The vapor passed through a cast-iron goose-neck fitted to the top of the still into the copper worm, which was immersed in

something of petroleum, and when it came in quantities began at once to adapt their processes to it. Merrill at the time was connected with Samuel Downer, of Boston, in manufacturing oil from Trinidad pitch and from a coal bought in Newfoundland. The year oil was discovered Mr. Downer distilled 7,500 tons of this coal, clearing on it at least \$100,-



JAMES S. TARR

One of the richest oil farms on Oil Creek was the Tarr Farm, a tract of 200 acres owned by James S. Tarr. Its first well, the Crescent, put down in June, 1861, flowed an average of 300 barrels a day for thirteen months. The second, "Philadelphia No. 1," flowed 4,000 barrels a day, and in its life yielded nearly one million barrels. Tarr is said to have made \$3,000,000 in four years from a farm worth in 1859 barely a thousand dollars. He left the region with this fortune, and spent the rest of his life quietly on a farm in a neighboring county.

WILLIAM BARNSDALE

The second well in the Oil Region was drilled by a Titusville shoemaker, William Barnsdale, an Englishman, who at his majority had come to America to make his fortune. The day the Drake well was struck he formed an oil company and began to drill a well. It took three months, and cost \$3,000 to do it, but he had his reward. On February 1, 1860, he struck oil—twenty-five barrels a day—and oil was selling at eighteen dollars a barrel. Mr. Barnsdale was interested in the first refinery built in the Oil Regions, and was one of the pioneers in the Bradford field.

water. Here the vapor was condensed and passed into the zinc-lined tank. This product, called a distillate, was treated with chemicals, washed with water, and run off into the tin-lined tank, where it was allowed to settle. Anybody who could get the apparatus could "make oil," and many men did it—badly, of course, to begin with, and with an alarming proportion of waste and explosions and fires, but with experience they learned, and some of the great refineries of the country grew out of these rude beginnings.

Luckily, not all the men who undertook the manufacturing of petroleum in these first days were inexperienced. The chemists to whom are due chiefly the processes now used—Atwood, Gessner, and Merrill—had for years been busy making oils from coal. They knew

000. As soon as petroleum appeared he and Mr. Merrill saw that here was a product which was bound to displace their coal, and with courage and promptness they prepared to adapt their works. In order to be near the supply they came to Corry, twenty-six miles from the Drake well, and in 1862 put up a refinery which cost \$250,000. Here were refined thousands of barrels of oil, most of which was sent to New York for export. To the Boston works the firm sent crude, which was manufactured for home trade and for shipping to California and Australia. The processes used in the Downer works at this early day were in all essentials the same as are used to-day.

As men and means were found to put down wells, to devise and build tanks and boats and pipes and railroads for handling the oil, to

adapt and improve processes for manufacturing, so men were found from the beginning of the oil business to tackle every problem raised. They came in shoals, young, vigorous, resourceful, indifferent to difficulties, greedy for a chance, and with each year they forced more light and wealth from the new product. By the opening of 1872, they had produced nearly 40,000,000 barrels of oil, and had raised their product to the fourth place among the exports of the United States, over 152,000,000 gallons going abroad in 1871, a percentage comparing well with what goes to-day.* As for the market, they had developed it until it included almost every country of the earth—China, the East and West Indies, South America, and Africa. Over forty different European ports received oil. In 1871 nearly a million gallons were sent to Syria, about a half million to Egypt, about as much to the British West Indies, and a quarter of a million to the Dutch East Indies.

The oil field had been extended from the Valley of Oil Creek and its tributaries, down the Allegheny River for nearly fifty miles, and probably covered 2,000 square miles. The early theory that oil followed the streams had been exploded, and wells were now drilled on the hills. It was known, too, that if oil was not found in the first sand struck in the drilling, it might be found in a second or third sand, and even a fourth or fifth. The Drake well had struck oil at $69\frac{1}{2}$ feet, but wells were now drilled as deep as 1,600 feet. The extension of the field, the discovery that oil was under the hills as well as under streams, and to be found in various sands, had cost enormously. It had been done by "wildcatting," as putting down experimental wells was called, by following superstitions in locating wells, such as the witch-hazel stick, or the spiritualistic medium, quite as much as by studying the position of wells in existence and calculating how oil belts probably ran. As the cost of a well was from \$3,000 to \$8,500,† according to its location, and as 4,374 of the 5,560 wells drilled in the first ten years of the business (1859 to 1869) were "dry-holes," or were abandoned as unprofitable, something of the daring it took to operate on such small means as most producers did in the beginning, is evident. But they loved the game, and every man of them would stake his last dollar on the chance of striking oil.

With the extension of the field rapid strides

had been made in tools, in rigs—in all of the various essentials of drilling a well. They had learned to use torpedoes to open up hard rocks, naphtha to cut the paraffine which coated the sand and stopped the flow of oil, seed bags to hold back the inrush of a stream of water. They lost their tools less often, and knew better how to fish for them when they did. In short, they had learned how to put down and care for oil wells.

Equal advances had been made in other departments. Fewer cars were loaded with barrels; tank cars for carrying in bulk had been invented. The wooden tank had been replaced by the iron tank holding twenty or thirty thousand barrels. The pipe-lines had begun to go directly to the wells instead of pumping from a general receiving station, or "dump," as it was called, thus saving the tedious and expensive operation of hauling. From beginning to end the business had been developed, systematized, simplified. There is no part of this rapid development more important than the commercial machine they had devised by 1872 for marketing oil. A man with a thousand-barrel well on his hands in 1862 was in a plight. He must sell his oil at once for lack of storage room or let it run on the ground; and there was no exchange, no market, no telegraph, not even a post-office within his reach where he could arrange a sale. He had to depend on buyers who came to him. These buyers were the agents of the refineries in different cities, or of the exporters of crude in New York. They went from well to well on horseback, if the roads were not too bad, on foot if they were, and at each place made a special bargain varying with the quantity bought and the difficulty in getting it away; for the buyer was the transporter, and, as a rule, furnished the barrels or boats in which he carried off his oil. It was not long before the speculative character of the oil trade, due to the great fluctuations in quantity, added a crowd of brokers to the regular buyers who tramped up and down the creek. When the railroads came in, the trains became the headquarters for both buyers and sellers. This was the more easily managed, as the trains on the creek stopped at almost every oil farm. These trains became, in fact, a sort of traveling oil exchange, and on them a large percentage of all the bargaining of the business was done.

The brokers and buyers first organized and established headquarters in Oil City in 1869, but there was an oil exchange in New York City as early as 1866. Titusville did not have an exchange until 1871. By this time the pipe-

* In 1871 the petroleum exports were 152,195,617 gallons. The production was 5,795,000 barrels, or 243,300,000 gallons.
† Estimate of J. T. Henry in his "History of Petroleum," 1873. The "Petroleum Monthly" of 1873 estimates cost to be from \$2,725 to \$4,416.

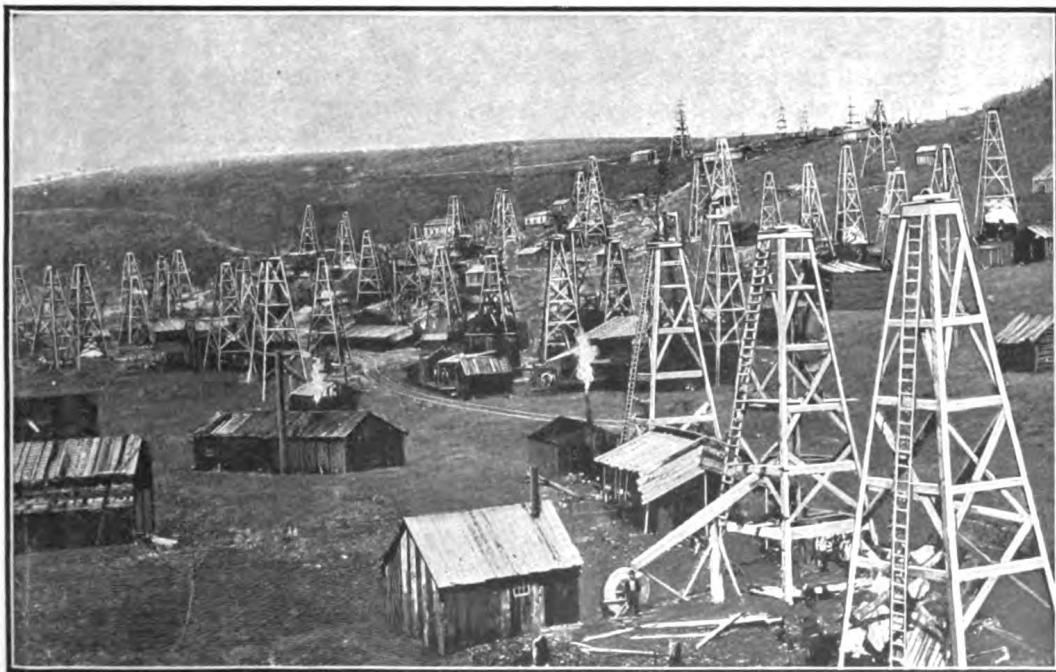
lines had begun to issue certificates for the oil they received, and the trading was done to a degree in these. The method was simple, and much more convenient than the old one. The producer ran his oil into a pipe-line, and for it received a certificate showing that the line held so much to his credit ; this certificate was transferred when the sale was made, and presented when the oil was wanted. It was a device of Charles P. Hatch, the man who, as early as 1869, had evolved the pipe-line methods of doing business practically as they stand to-day.

One achievement of which the oil men were particularly proud was the increase in the refining capacity of the region. At the start the difficulty of getting the apparatus for a refinery to the creek had been so enormous that the bulk of the crude had been driven to the nearest manufacturing cities—Erie, Pittsburg, Cleveland. Much had gone to the seaboard, too, and Boston, New York, Philadelphia, and Baltimore were alldoing considerable refining. There was always a strong feeling in the Oil Regions that the refining should be done at home. Before the railroads came the most heroic efforts were made again and again to get in the necessary machinery. Brought from Pittsburg by water, as a rule, the apparatus had to be hauled from Oil City, where it had

been dumped on the muddy bank of the river—there were no wharfs—over the indescribable roads to the site chosen. It took weeks—months sometimes—to get in the apparatus. The chemicals used in the making of the oil, the barrels in which to store it, all had to be brought from outside. The wonder is that under these conditions anybody tried to refine on the creek. But refineries persisted in coming, and after the railroads came, multiplied ; by 1872 the capacity had grown to nearly 10,000 barrels, and there were no more complete or profitable plants in existence than two or three of those on the creek. The exultation was great, and the press and people boasted that the day would soon come when they would refine for the world. There in their own narrow valleys should be made everything which petroleum would yield. Cleveland, Pittsburg, the seaboard, must give up refining. The business belonged to the Oil Region, and the oil men meant to take it.

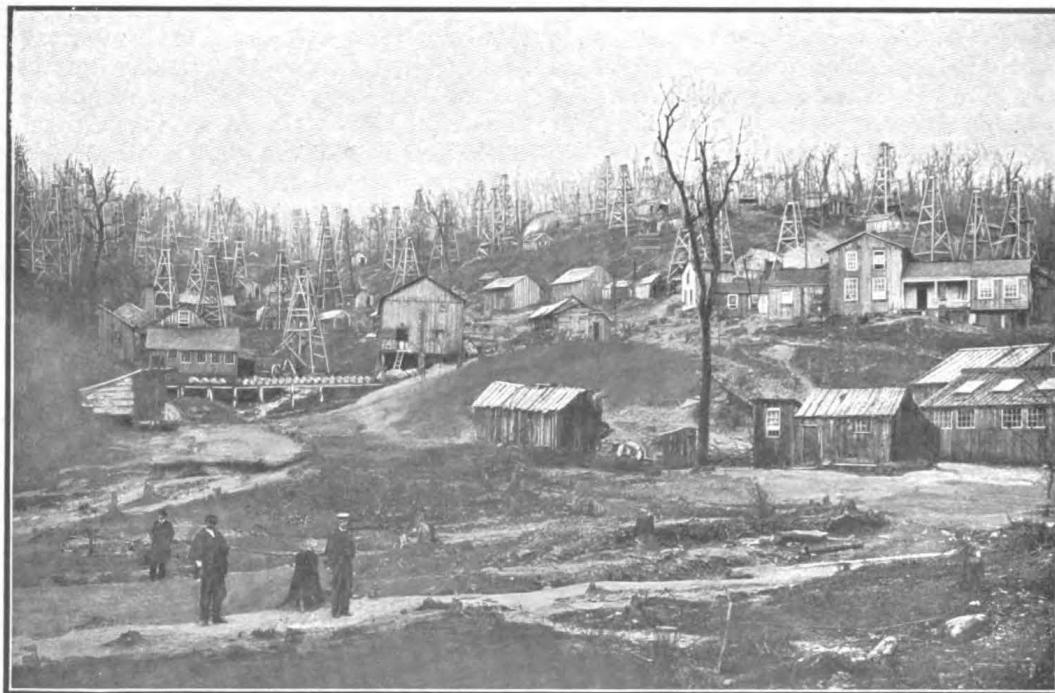
The Troubles of a New Industry

The odds against the oil men in developing the business had not been merely physical ones. There had been more than the wilderness to conquer, more than the possibilities of a new product to learn. Over all the early



BENNINGHOFF FARM

When the oil excitement broke out one of the best farms on the creek was owned by a German, John Benninghoff. There were about 300 acres in his tract, and all of it proved producing territory, the wells yielding from twenty-five to 300 barrels a day. Benninghoff made a great fortune, but would never deposit his money in a bank. In 1868 he was robbed, at the homestead on the farm, of nearly \$300,000, most of it currency.



AN EARLY REFINERY

years of their struggle and hardship hovered the dark cloud of the Civil War. They were so cut off from men that they did not hear of the fall of Sumter until four days after it happened, and the news for the time blotted out interest even in flowing wells. Twice at least, when Lee invaded Pennsylvania, the whole business came to a standstill, men abandoning the drill, the pump, the refinery, to make ready to repel the invader. They were taxed for the war—the taxes rising as high as \$10 per barrel in 1865, \$1 on crude, and twenty cents a gallon on refined (the oil barrel is usually estimated at forty-two gallons). They gave up their quota of men again and again at the call for recruits, and when the end came and a million men were cast on the country, this little corner of Pennsylvania absorbed a larger portion of men probably than any other spot in the United States. The soldier was given the first chance everywhere at work : he was welcomed into oil companies, stock being given him for the value of his war record. There were lieutenants and captains and majors—even generals—scattered all over the field, and the field felt itself honored, and bragged, as it did of all things, of the number of privates and officers who immediately on disbandment had turned to it for employment.

It was not only the Civil War from which the Oil Regions had suffered ; in 1870 the Franco-

Prussian War broke the foreign market to pieces and caused great loss to the whole industry. And there had been other troubles. From the first oil men had to contend with wild fluctuations in the price of oil. It had begun in 1859 at \$20 a barrel, and in 1861 it had averaged fifty-two cents. Two years later, in 1863, it averaged \$8.15, and in 1867 but \$2.40. In all these first twelve years nothing like a steady price could be depended on, for just as the supply seemed to have approached a fixed amount a "wildcat" well would come in and "knock the bottom out of the market." Such fluctuations were the natural element of the speculator, and he came early, buying in quantities and holding in storage tanks for higher prices. If enough oil was held or if the production fell off, up went the price, only to be knocked down by the throwing of great quantities of stocks on the market. To develop a business in face of such fluctuations and speculation in the raw product took not only courage—it took a dash of the gambler.

Speculation in oil stock companies was another great evil. It reached its height in 1864 and 1865—the "flush times" of the business. Stocks in companies whose holdings were hardly worth the stamps on the certificates were sold all over the land. In March, 1865, the aggregate capital of the oil companies whose charters were on file in Albany, New

York, was \$350,000,000, and in Philadelphia alone in 1864 and 1865 1,000 oil companies, mostly bogus, are said to have been formed. These swindles were dignified by the names of officers of distinction in the United States Army, for the war was coming to an end and the name of a general was the most popular and persuasive argument in the country. Of course, there came a collapse. The "oil bubble" burst in 1866, and it was nothing but the irrepressible energy of the region which kept the business going in the panic which followed. Then there was the disturbing effect of foreign competition. What would become of the business if oil was found in quantities in other countries? A decided depression of the market occurred in 1866, when the Government sent out reports of developments of foreign oil fields. If there was oil in Japan, China, Burmah, Persia, Russia, Bavaria, in the quantities the Government reports said, why there was trouble in store for Pennsylvania, the oil men argued, and for a day the market fell—it was only for a day. Men forgot easily in the Oil Regions in the '60's.

An evil in their business which they were only beginning to grasp fully in 1871 was the unholy system of freight discriminations which the railroads were practising. Three trunk lines competed for the business by 1872—the Pennsylvania, the Erie, and the Central. (The latter road reached the Oil Regions by a branch from Ashtabula on the Lake Shore and Michigan Southern division to Oil City; this branch was completed in 1868.) The Pennsylvania claimed the oil traffic as a natural right, for the Oil Regions were in Pennsylvania, and did not Tom Scott own that State? The Erie road for about five years had been in the hands of those splendid pirates, Jay Gould and "Jim" Fisk. Naturally, they took all they could get of the oil traffic, and took it by freebooting methods. "Corners" and "rings" were their favorite devices of securing trade, and more than once their aid had carried through daring and unscrupulous speculations in oil. The Central in this period was waging its famous desperate war on the Erie, Commodore Vanderbilt having marked that highway for his own along with most other things in New York State. All three of the roads began, about 1868, to use secret rebates on the published freight rates in oil as a means of securing traffic. This unlawful practice had gone on until, in 1871, any big producer, refiner, or buyer could bully a freight agent into a special rate. Those "on the inside"—those who had "pulls"—also secured special rates. The result was that the

open rate was enforced only on the innocent and the weak.

Serious as all these problems were, there was no discouragement or shrinking from them. The oil men had rid themselves of bunco men and burst the "oil bubbles." They had harnessed the brokers in exchanges and made strict rules to govern them. They had learned not to fear the foreigners and to take with equal *sang froid* the "dry-hole" which made them poor, or the "gusher" which made them rich. For every evil they had a remedy. They were not afraid even of the railroads, and loudly declared that if the discriminations were not stopped they would build a railroad of their own. Indeed, the evils in the oil business in 1871, far from being a discouragement, rather added to the interest. They had never known anything but struggle—with conquest—and twelve years of it was far from cooling their ardor for a fair fight.

The Conquests of a Decade

More had been done in the Oil Regions in the first dozen years than develop a new industry. From the first there had gone with the oil men's ambition to make oil to light the whole earth a desire to bring civilization to the wilderness from which they were drawing wealth, to create an orderly society from the mass of humanity which poured pell-mell into the region. A hatred of indecency first drew together the better element of each of the rough communities which sprang up. Whisky-sellers and women flocked to the region at the breaking out of the excitement. Their first shelters were shanties built on flat-boats, which were towed from place to place. They came to Rouseville—a collection of pine shanties and oil derricks, built on a muddy flat—as forlorn and disreputable a town in appearance as the earth ever saw. They tied up for trade, and the next morning woke up from their brawl to find themselves twenty miles away, floating down the Allegheny River. Rouseville meant to be decent. She had cut them loose, and by such summary vigilance she kept herself decent. Other towns adopted the same policy. By common consent vice was corralled almost entirely in one town. Here a whole street was given up to dance-houses and saloons, and those who must have a "spree" were expected to go to Petroleum Center to take it.

Decency and schools! Vice cut adrift, they looked for a school teacher. Children were sadly out of place, but there they were, and

these men, fighting for a chance, saw to it that a shanty, with a school teacher in it, was in every settlement. It was not long before there was a church—a union church. To worship God was their primal instinct; to defend a creed a later development. In the beginning every social contrivance was wanting. There were no policemen, and each individual looked after evil-doers. There were no firemen, and every man turned out with a bucket at a fire. There were no bankers, and each man had to put his wealth away as best he could until a peripetic banker from Pittsburgh relieved him. At one time Dr. Egbert, a rich operator, is said to have had \$1,800,000 in currency in his house. There were no hospitals, and in 1861, when the horrible possibilities of the oil fire were first demonstrated by the burning of the Rouse well—a fire at which nineteen persons lost their lives—the many injured found welcome and care for long weeks in the little shanties of women already over-burdened by the difficulties of caring for families in the rough community.

Out of this poverty and disorder they had developed in ten years a social organization as good as their commercial. Titusville, the hamlet on whose outskirts Drake had drilled his well, was now a city of 10,000 inhabitants. It had an opera house, where in 1871 Clara Louise Kellogg and Christine Nilsson sang, Joe Jefferson and Janauschek played, Wendell Phillips and Bishop Simpson spoke. It had two prosperous and fearless newspapers. Its schools prepared for college. Oil City was not behind, and between them was a string of lively towns. Many of the oil farms had a decent community life. The Columbia Farm kept up a library and reading-room for its employees; there was a good school-house, used on Sunday for services, and there was a Columbia Farm Band, of no mean reputation.

Indeed, by the opening of 1872, life in the Oil Regions had ceased to be a mere makeshift. Comfort and orderliness, even opportunities for education and for social life, were

within reach. It was a conquest to be proud of, quite as proud of as they were of the fact that their business had been developed until it had never been, on the whole, in so satisfactory a condition.

Nobody realized more fully what had been accomplished in the Oil Regions than the oil men themselves. Nobody rehearsed their achievements so loudly. "In ten years," they were fond of saying, "we have built this business up from nothing to a net product of six millions of barrels per annum. We have invented and devised all the apparatus, the appliances, the forms needed for a new industry. We use a capital of \$200,000,000, and support a population of 60,000 people. To keep up our supply we drill 100 new wells per month, at an average cost of \$6,000 each. We are fourth in the exports of the United States. We have developed a foreign market, including every civilized country on the globe."

But what had been done was, in their judgment, only a beginning. Life ran swift and ruddy and joyous in these men. They were still young, most of them under forty, and they looked forward with all the eagerness of the young who have just learned their powers, to years of struggle and development. They would solve all these perplexing problems of over-production, of railroad discrimination, of speculation. They would meet their own needs. They would bring the oil refining to the region where it belonged. They would make their towns the most beautiful in the world. There was nothing too good for them, nothing they did not hope and dare.

Suddenly, at the very heyday of this confidence, a big hand reached out from nobody knew where, to steal their conquest and throttle their future. The suddenness and the blackness of the assault on their business stirred to the bottom their manhood and their sense of fair play, and the whole region arose in a revolt which is scarcely paralleled in the commercial history of the United States.

