

# McCLURE'S MAGAZINE

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## EDITORIAL ANNOUNCEMENT

*Part First of Miss Tarbell's "History of the Standard Oil Company," which has proved itself "one of the most remarkable and stirring stories that has ever appeared in a magazine," closes with the article printed in this issue of MCCLURE'S. The series of nine articles which make up this first half of the work covers a period of ten years (1872-1882) and deals with the manoeuvres by which the Standard Oil Trust, with a capital of \$70,000,000, was developed from the Standard Oil Company with a capital of \$1,000,000. Part Second of the History will begin in the coming autumn, and will carry the narrative down to the present time. In dramatic interest, and in its direct bearing on vital public questions of the day, this second series of articles will equal, if it does not excel, the one now closing. It will treat of such important topics as Criminal Underselling, the Right of Unlimited Competition, and the Price of Oil.*

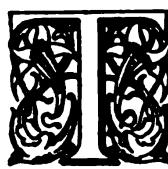
THE EDITOR.

## MOUNTAINEERING IN SWITZERLAND WITHOUT GUIDES

BY

ASHLEY P. ABRAHAM

PHOTOGRAPHS BY G. P. ABRAHAM & SON, KESWICK, ENGLAND



HERE are two ways of climbing a mountain. The usual, and to my mind the less enjoyable way, is with guides—Swiss peasants in the perfection of wind and muscle who engage for a given number of francs to take you from your hotel door up a given moun-

tain and to hand you back afterwards to the smiling hotel keeper, who finds no difficulty in persuading you that you have achieved a great and dangerous feat. As a matter of fact, most of the Swiss guides know almost every foot of the mountains around their own village as well as an average city man knows Wall Street. Consequently

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# THE HISTORY OF THE STANDARD OIL COMPANY

BY

IDA M. TARRELL

AUTHOR OF "THE LIFE OF LINCOLN"

ILLUSTRATED BY GEORGE VARIAN AND WITH PHOTOGRAPHS

## CHAPTER NINE

### THE REAL GREATNESS OF THE STANDARD

T was a big business Mr. John D. Rockefeller looked in the face in 1882 when, a compromise signed, suits for conspiracy dismissed, open criticism silenced, he completed his ten years' work and presented to the public the first great trust. The new creation aroused varying opinions : It was too big to handle ; it would topple from its own weight ; it was a monopoly, and our air and soil were hostile to monopolies ; it was watered, and eventually that water would dissolve it ; it was founded on a commercial crime and must suffer the consequence. Opposed to these prevailing opinions was the one held by a large number of business men who had been closely enough associated with Mr. Rockefeller to know something of the interior workings of his big machine. These men declared that the legitimate business operations of the Standard were of such intelligence and superiority that it was bound in the nature of things not only to preserve the position it had reached but to expand to meet whatever demands the oil trade might put upon it.

#### *A Perfect Type of Centralized Control*

What was there in this opinion ? In the first place there was this fact : Mr. Rockefeller's \$70,000,000 organization, the forty parts of which were scattered through more than a dozen States and the work of which included everything from making barrel bungs to making treaties with foreign governments, was centralized in 1882 as perfectly

as the Catholic Church or the Napoleonic government. As was pointed out in a former article, the entire business was now in the hands of nine trustees of whom Mr. Rockefeller was president. These trustees acted exactly as if they were nine partners in a business and the only persons concerned in it. They met daily, giving their whole time to the management and development of the concern, as the partners in a dry goods house would. Anything in the oil world might come under their ken, from a smoking wick in Oshkosh to the competition of Russian oil in China.

Everything : but nothing came unless it was necessary ; for below them and sifting things for their eyes were committees which dealt with the various departments of the business. There was a Crude Committee which considered the subject of crude oil, the world over ; a Manufacturing Committee which studied the making of refined, the utilization of waste, the development of new products ; a Marketing Committee which considered the markets. Before each of these committees was laid daily all the information to be found on earth concerning its particular field : not only were there reports made to it of what was doing in its line in the Standard Oil Trust, but information came of everything connected with such work everywhere by everybody. These committees not only knew all about their own business, they knew all about everybody else's. The Manufacturing Committee knew just what each of the feeble independent refiners still existing was

doing—what its resources and advantages were. The Transportation Committee knew what rates it got—the Marketing Committee knew its market. Thus the fullest information about new developments of crude, new openings for refined, new processes of manufacture, was always at the command of the nine trustees of the Trust.

#### *The Standard Information Bureau*

How did they get this information? As the press does—by a widespread system of reporters. In 1882 the Standard had correspondents in every town in the oil fields, and to-day it has them not only

was applied and affected the whole great structure, for by a marvelous genius in organization Mr. Rockefeller had devised a machine with a head whose thinking was felt from the seat of power in New York City to the humblest pipe-line patrol on Oil Creek. This head controlled each one of his scattered plants with absolute precision. Take the refineries: they were individual plants, having a manager and a board of directors like any outside plant, but these plants were not free agents. According to J. J. Vandergrift's testimony in 1879 the Imperial Refinery, of which he was president, had no control of its oil after



PASSING IN CHECKS AT THE BAYONNE WORKS—EVENING

*To prevent the use of a dummy on the pay roll, each employee on his arrival in the morning is given a brass check which, at the close of work, he must leave at the office.*

there but in every capital of the globe. The people in their employ naturally report all they learn. There are also outsiders who report what they pick up—"occasional contributions." There is more than one man in the Oil Regions who has made his livelihood for years by picking up information for the Standard. "Spies," they are called there. They may deserve the name sometimes, but the service may be perfectly legitimate.

These trustees then "knew ev'rything" about the oil business and they used their information. Nobody ever used information more profitably. What was learned

it was made. The Standard Oil Company of Cleveland took charge of it at Oil City, and arranged for transportation and for marketing. The managers of the Central Association, into which the allied refiners went in 1875 under Mr. Rockefeller's presidency, had "irrevocable authority to make all purchases of crude oil and sales of refined oil" as well as to "negotiate for all railroad and pipe line freights and transportation expenses" for each of the refineries. Each plant of course was limited as to the amount of oil it could make. Thus, in 1876, when the Cleveland firm of Scofield, Schurmer, and Teagle went into a running arrange-



REFINERY OF THE STANDARD OIL

ment with Mr. Rockefeller on condition that he get for them the same rebates he enjoyed, it was agreed that the firm should manufacture only 85,000 barrels a year, though they had a capacity of 180,000 barrels.

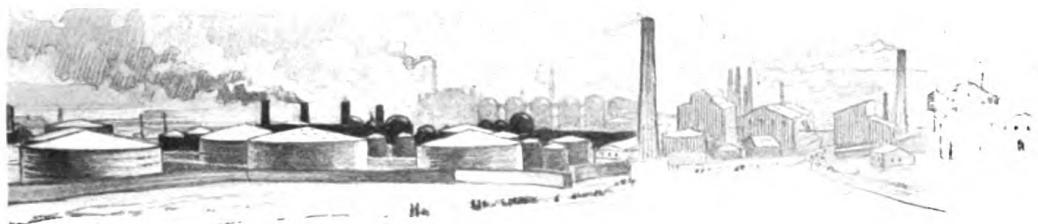
#### *Competition Among Component Parts*

One of Mr. Rockefeller's greatest achievements was to bring men who had built up their own factories and managed them to suit themselves to work harmoniously under such limitations. As this History has shown, the first attempt to harness the refiners failed because they would not obey the rules. No doubt the chief reason why they finally consented to them was that only by

so doing could they get living transportation rates; but, having consented and finding it profitable, they were kept in line by an ingenious system of competition which must have done much to satisfy their need of individual effort and their pride in independent work. In the investigation of 1879, when the producers were trying to find out the real nature of the Standard alliance, they were much puzzled by the sworn testimony of certain Standard men that the factories they controlled were competing and competing hard with the Standard Oil Company of Cleveland. How could this be? Being bitter in heart and reckless in tongue, the oil men denounced the statements as perjury, but they were the literal truth. Each refinery in the alliance was required to make to Mr. Rockefeller each month a detailed statement of its operations. These statements were compared and the results made known. If the Acme at Titusville had refined cheaper that month than any other member of the alliance the fact was made known. If this cheapness continued to show, the others were sent to study the Acme methods. Whenever an improvement showed, that improvement received credit, and the others were sent to find the secret. The keenest rivalry resulted—every factory was on its mettle.

This supervision took account of the least detail. There is a story often told in the Oil Regions to illustrate the minuteness of the supervision. In commenting as usual on the monthly "competitive statements," as they are called, Mr. Rockefeller called the attention of a certain refiner to a discrepancy in his reports. It referred to *bungs*—articles worth about as much in a refinery as pins are in a household. "Last month," the comment ran, "you reported on hand 1,119 bungs. Ten thousand were sent you at the beginning

IN THE STANDARD CANDLE WORKS  
REELING CANDLE WICKS



COMPANY AT BAYONNE, NEW JERSEY

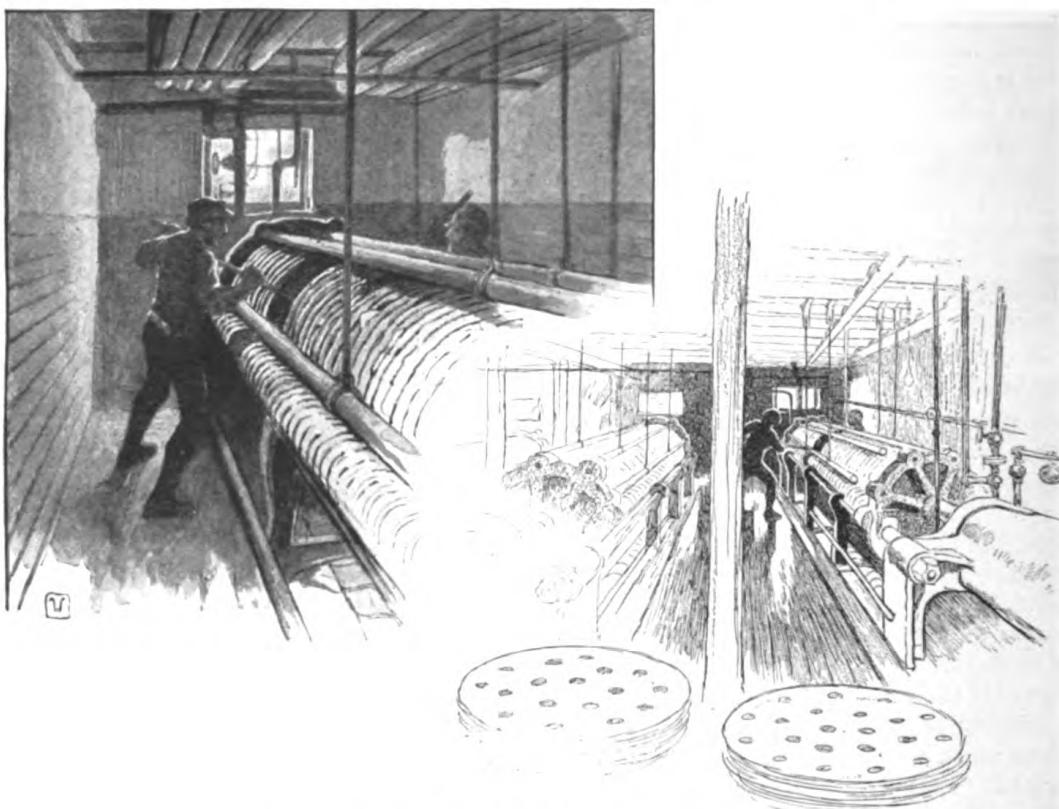
of this month. You have used 9,527 this month. You report 1,012 on hand. What has become of the other five hundred and eighty?" The writer has it on high authority that the current version of this story is not true, but it reflects very well the impression the Oil Regions have of the thoroughness of Mr. Rockefeller's supervision. The Oil Regions which were notoriously extravagant in their business methods resented this care and called it meanness, but the Oil Regions were wrong and Mr. Rockefeller was right. Take care of the bungs and the barrels will take care of themselves is as good a policy in a refinery as the old saw it paraphrases is in financing.

#### *Dismantling of Useless Plants*

There were other features of this revolutionary management which caused deep resentment in the oil world. Chief among them was the dismantling or abandoning of plants which the Standard had "acquired" and which it claimed were so badly placed or so equipped that it did not pay to run them. There was reason enough in many cases for dissatisfaction with the process of acquisition, but having acquired the refineries, the Standard showed its wisdom in abandoning many of them. Take Pittsburgh, for instance. When Mr. Lockhart began to absorb his neighbors there were some twenty-five plants in and around the town. They were of varying capacity, from little ten-barrel stills of antiquated design and out-of-the-way location, to complete plants like the Citizens', which Mr. Tack described in the March number of this Magazine. But how could Mr. Lockhart manage these as they stood to good advantage? It might pay the owner of the little refinery to run it, for he was his own stillman, his own pipe-fitter, his own foreman, and did not expect large re-

turns; but it would have been absurd for Mr. Lockhart to try to run it. He simply carted away any available machinery, sold what he could for junk, and left the debris. Now, one of the most melancholy sights on earth is an abandoned oil refinery; and it was the desolation of the picture combined, as it always was in the Oil Regions, with the history of the former owners that caused much of the outcry. It was a thing that the oil men could not get over, largely because it was a sight always before their eyes.

IN THE STANDARD CANDLE WORKS  
PRESSING THE CANDLES



PRESSES FOR EXTRACTING WAX FROM OIL

### *Strategic Location of Refineries*

Bitter as this policy was for those who had suffered by the Standard's campaigns, it was, of course, the only thing for the trust to do—indeed that was what it had been waging war on the independents for: that it might shut them down and dismantle them, that there might be less oil made and higher prices for what it made. This wisdom in locating factories has continued to characterize the Standard operations. It works only plants which pay, and it places its plants where they can be operated to the best advantage. Many fine examples of the relation of location in manufacturing to crude supply and to markets are to be seen in the Standard Oil Company plants to-day. For example, refined for foreign shipments is made at the seaboard, and the vessels which carry it are loaded at docks, as at the works at Bayonne, New Jersey. The cost of transportation from factory to ship, a large item in the old days, is eliminated entirely. The middle West market is now supplied almost entirely from the Standard factories at Whiting, Indiana, a town built by the Standard Oil Company for refining Ohio oil. Here

twenty-five thousand barrels of oil are refined daily, and from this central point distributed to the Mississippi Valley.

All of the industries which had been grafted on to the refineries by 1882 were run with the same exact regard to minute economies. These industries were numerous because of Mr. Rockefeller's great principle: "pay a profit to nobody." From his earliest ventures in combination he had applied this principle. Mr. Blanchard's explanation to the Hepburn Commission in 1879 of why the Standard had controlled the Erie's yards at Weehawken since 1874, shows exactly Mr. Rockefeller's point of view:

"The Standard," explained Mr. Blanchard, "had a force of men, real estate, houses, tanks, and other facilities at Hunter's Point for receiving and coopering the oil; and they had their cooperage materials delivered over there. The arrangement prior to that time was that the Erie Company performed this service for its outside refiners at Weehawken, for which the Erie Company made specific charges and added them to their rates for freight. The Standard Company said to us: 'We do the business

at low cost at Hunter's Point because we are expert oil men and know how to handle it ; we pay nobody a profit, and cannot and ought not to pay you a profit for a service that is not transportation any more than inspecting flour or cotton ; and the New York Central delivers our oil at that point. Now if you will deliver our oil at Hunter's Point and permit us to do this business, you may do so ; we want to do that business, and we cannot pay to the Erie Railway Company at Weehawken a profit on all of those staves, heads, cooperage, filling, refilling, and inspection, for we have our own forces of men and our own yards necessary for this work in another part of the harbor of New York ; and it is not a part of your business as a carrier, anyway.' In lieu thereof and for the profits that we could have made from the aggregate of these charges, we said to them : 'If you will pay us a fixed profit upon each one of these barrels of oil arriving here, you may take the yards and run them subject to certain limitations as to what you shall do for other people who continue to ship oil to the same yards.' They were only able to make this arrangement with us because of their controlling such a large percentage of shipment, and because of permanent facilities in Brooklyn ; if the larger percentage of shipments had belonged to outside parties, and they had had no yards of their own, we would probably have retained the yards ourselves."

#### *The "Holy Blue Barrel" Business*

This policy of paying nobody a profit took Mr. Rockefeller into the barrel business. In 1872, when Mr. Rockefeller became master of the Cleveland oil business, the purchase of barrels was one of a refiner's chief expenses. In an estimate of the cost of producing a gallon of refined oil in 1873, made in the *Oil City Derrick* and accepted as correct by that paper, the cost of the barrel is put at four cents a gallon, which was more than the crude oil cost at that date. Even at four cents a gallon barrels were hard to get, so great was the demand. If a refiner could get his barrels back, of course there was a saving (a returned barrel was estimated to be worth  $2\frac{3}{4}$  cents), but the return could not be counted on ; empty barrels coming from Europe particularly and consigned to Western shippers, were frequently seized in New York by Eastern refiners. The need

was held to justify the deed, like thieving in famine time. Fortunes were made in barrels, and dealers hearing of a big supply in Europe have been known to charter a vessel and go for them, and reap rich profits. In fact, a whole volume of commercial tragedy and comedy hangs around the oil barrel. Now it was to the barrel—the "holy blue barrel"—that Mr. Rockefeller gave early attention. He determined to make it himself. One of the earliest outside ventures of the Standard Oil Company in Cleveland was barrel works, and Mr. Rockefeller was soon getting for  $2\frac{1}{2}$  cents what his rivals paid 4 for, though he was by no means the only refiner who manufactured barrels in



JOSHUA MERRILL

*Since 1853 Mr. Merrill has been connected with the lubricating and illuminating oil business. Before petroleum was discovered the firm with which he was connected, the Downer Works of Boston, distilled oil from coal and refined it for burning. On the discovery of petroleum they built works in the Oil Regions and manufactured large quantities for export. In 1869 he discovered the process of deodorizing the petroleum lubricant referred to in the present article, and soon after a process for making from the paraffine series of petroleum distillates an oil igniting only at 300° Fahrenheit. This oil was the first petroleum illuminant to be officially declared safe for steamship and railroad use. About 1886 the Downer Works were obliged to shut down, mainly because of exorbitant freight rates.*



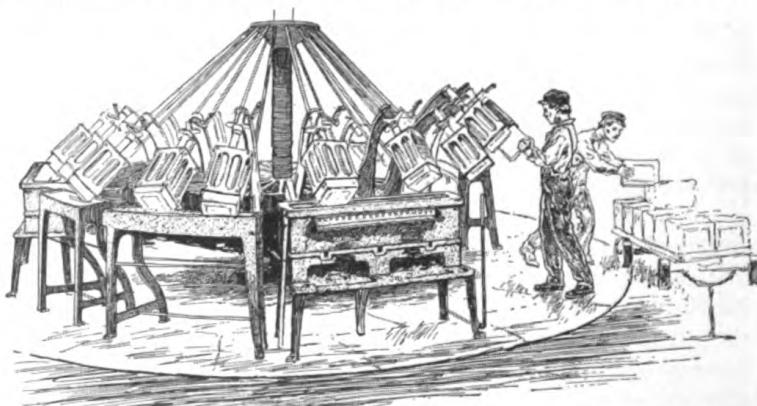
EARLY METHOD OF SOLDERING TIN CANS  
A MAN AND A BOY TURNED OUT 850 A DAY

the early days—each factory aimed to add barrel works as soon as able. The amount the Standard Oil Company saved on this one item is evident when the extent of their business is considered. The year before the trust was formed (1881) they manufactured 4,500,000 barrels, an average of about 15,000 a day. Since that time the barrel has been gradually going out of the oil business, bulk transportation taking its place very largely. Nevertheless, in 1901 the Standard Oil Company manufactured about 3,000,000 new barrels. In the period since they began the manufacture of barrels their factories have introduced some small savings which in the aggregate amount to large sums. For instance, they have improved the lap of the hoop, a small thing, but one

which amounted in 1901 to something like \$15,000. Some \$50,000 a year was saved by a slight increase in the size of the tankage. The Standard claims that these economies are so small in themselves that it only pays to practice them where there is a large aggregate business.

#### *Twenty-four Thousand Oil Cans a Day*

More important than the barrel to-day, however, is the tin can—for it is in tin cans that all the enormous quantities of refined sent to tropical and Oriental countries must go to prevent deterioration—and nowhere does the policy of economy which Mr. Rockefeller has worked out show better than in one of the Standard cannning works. Several months ago the writer visited the largest of the Standard can factories, the Devoe, on the East River, Long Island City. It has a capacity of 70,000 five-gallon cans a day and is probably the largest can factory in the world. At the entrance of the place a man was sweeping up carefully the dirt on the floor and wheeling it away—not to be dumped in the river, however. The dirt was to be sifted for tin filings and solder dust. At every step something was saved. The Standard buys the tin for its cans in Wales, because it is cheaper. It would not be cheaper if it were not for a vagary in administering the tariff by which the duty on tin plate is refunded if the tin is made into receptacles to be exported. This clause was probably made for the benefit of the Standard, it being the largest single consumer of tin plate in the United States. In 1901 the Standard Oil Company imported over 60,000 tons of tin with a value of over \$1,000,000. This tin comes in sheets packed in flat boxes,



THE "MERRY-GO-ROUND" SOLDERING MACHINE  
THREE MEN TURNED OUT 8,000 CANS A DAY



THE TROLLEY SOLDERING MACHINE  
BY WHICH THREE MEN TURN OUT 24,000 CANS A DAY

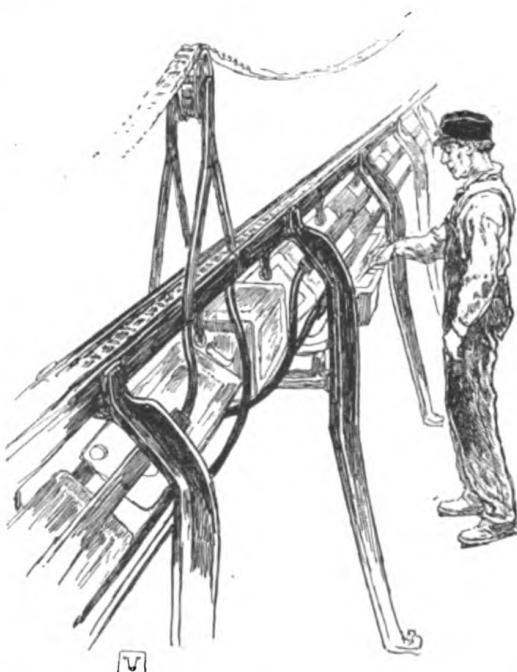
which are opened by throwing—it is quicker than opening by a hammer, and time is considered as valuable as tin filings. The empty boxes are sold by the hundred to the Long Island gardens for growing plants in, and the broken covers are sold for kindling.

The trimmings which result from shaping the tin sheets for a can are gathered into bundles and sold to chemical works or foundries. There is the same care taken with solder as with tin, the amount each workman uses being carefully gauged. The canning plants, like the refineries, compare their results monthly, and the laurels go to the manager who has saved the most ounces of solder, the most hours, the most footsteps.

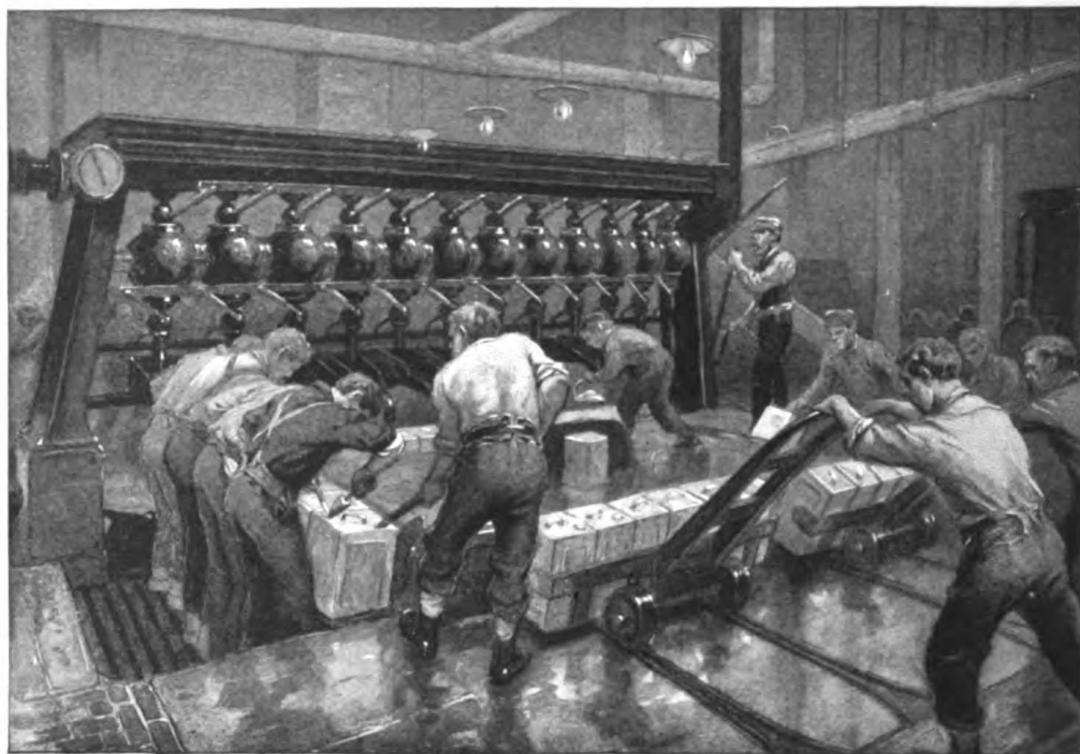
The five-gallon can turned out at the Devoe is a marvel of evolution. The present methods of manufacture are almost entirely the work of Mr. Herman Miller, known in Standard circles as the "father of the five-gallon can"; and a fine type of the German inventor he is. The machinery for making the can has been so developed that while, in 1865, when Mr. Miller began his work under Charles Pratt, one man and a boy soldered 850 cans in a day, in 1880 three men made 8,000, and since 1893 three men have made 24,000. It is an actual fact that a tin can is made by Miller in just about the time it takes to walk from the point in the factory where the sheets of tin are unloaded to the point where the finished article is filled with oil.

And here is a nice point in combination. Not far away from the canning works, on Newton Creek, is an oil refinery. This oil runs to the canning works, and, as the new-made cans come down by a chute

from the works above, where they have just been finished, they are filled twelve at a time with the oil made a few miles away. The filling apparatus is admirable. As the new-made cans come down the chute they are distributed twelve in a row along one side of a turn table. The turn table is revolved and the cans come directly under twelve measures, each holding five gallons of oil—a turn of a valve and the cans are full. The table is turned a quarter, and while twelve more cans are filled and twelve fresh ones are distributed, four men with soldering coppers put the caps on. Another quarter turn and men stand ready to take the cans from the filler, and while



A SECTION OF THE TROLLEY SOLDERING MACHINE



FILLING THE FIVE-GALLON TIN CANS

they do this twelve more are having caps put on, twelve are filling, and twelve are coming to their place from the chute. The cans are placed at once in wooden boxes standing ready, and, after a twenty-four-hour wait for discovering leaks, are nailed up and carted to a nearby door. This door opens on the river, and there at anchor by the side of the factory is a vessel chartered for South America or China or where not—waiting to receive the cans which a little more than twenty-four hours before were tin sheets lying in flat boxes. It is a marvelous example of economy, not only in materials but in time and in footsteps.

#### *The Military Genius of Mr. Rockefeller*

With Mr. Rockefeller's genius for detail there went a sense of the big and vital factors in the oil business and a daring in laying hold of them which was very like military genius. He saw strategic points like a Napoleon and he swooped on them with the suddenness of a Napoleon. This master ability has been fully illustrated already in this work. Mr. Rockefeller's capture of the Cleveland refineries in 1872 was as dazzling an achievement as it was a hateful one. The campaign by which the Empire Transportation Company was wrested from

the Pennsylvania Railroad, viewed simply as a piece of brigandage, was admirable. The man saw what was necessary to his purpose and he never hesitated before it. His courage was steady—and his faith in his ideas unwavering. He simply knew that was the thing to do, and he went ahead with the serenity of the man who knows.

After the formation of the trust the demand for these qualities was constant. For instance, the contract which the Standard



PACKING TRIMMINGS FROM SHEETS OF TIN FOR SALE

signed with the producers in February, 1880, pledged them to take care of a production of 65,000 barrels a day. When they signed this agreement there was above ground nearly nine and one-half million barrels of oil. The production increased at a frightful rate for four years. At the end of 1880 there were stocks of over 17,000,000 above ground; in 1881 over 25,000,000; 1882 over 34,000,000; 1883 over 35,000,000; and 1884 over 36,000,000, and the United Pipe Lines took care of this production — with the aid of the producers who built tanks neck and neck with them. In 1880 the Standard people averaged over one iron tank a day, the tanks holding from 25,000 to 35,000 barrels. There were not tank builders enough in the United States to do the work, and crews were brought from Canada and England. This, of course, called for an enormous expenditure of money, for tanks cost from \$7,000 to \$10,000 apiece. Rich as the United Pipe Lines were they were forced to borrow money in these years of excessive production, for, of course, they had to lay lines as well as build tanks. There were nearly 4,000 miles of pipe line laid in the Bradford region alone from 1878 to 1884, and these lines connected with upwards of 20,000 wells.

From the time it completed its pipe line monopoly the Standard has followed oil wherever found. It has had to do it to keep its hold on the business, and its courage never yet has faltered, though it has demanded some extraordinary efforts. In 1891 a great deposit of oil was tapped in the McDonald field of Southwestern Pennsylvania. The monthly production increased from 50,000 barrels in June to 1,600,000 in December. It is an actual fact that in the McDonald field the United Pipe Lines increased the daily capacity of 3,500 barrels, which they had at the beginning of July, to one of 26,000 barrels by the first of September, and by the first of December they could handle 90,000 barrels a day. If one considers what this means one sees that it compares favorably with the great ordnance and mobilizing feats of the Civil War. To accomplish it, rolling mills and boiler shops in various cities worked night and day to turn out the pipe, the pumps, the engines, the boilers which were needed. Transportation had to be arranged, crews of men obtained, a wild country prepared, saw mills to cut the quantities of timber

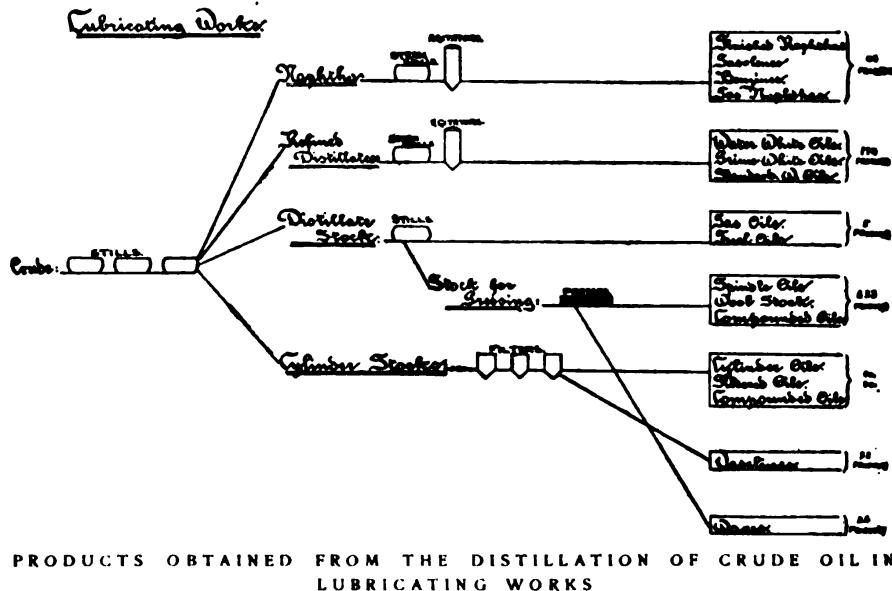
needed built, and this vast amount of material placed and set to work.

The same audacity and effectiveness are shown by the Standard in attacking situations created by new developments in handling business. The seaboard pipe line is a notable example. When the Standard completed its pipe line monopoly at the end of 1877, the pipe line was still regarded as the feeder of the railroad. Naturally the railroads were seriously opposed to its becoming anything more. In Pennsylvania particularly the laws had been so manipulated by the Pennsylvania Railroad as to prevent the pipe line carrying oil even for short distances in competition with them. Now for many years it had been believed that



LOADING A STEAMER WITH OIL FOR FUEL

the pipe line could carry oil long distances — many claimed to the seaboard — and as soon as the independents found that the oil-bearing roads were acting solely in the interest of the Standard they began an agitation for a seaboard line which finally terminated in the Tidewater Line, one hundred and four miles long, carrying oil from the Bradford field to Williamsport on the Reading Railroad, and it was certain that the Tidewater eventually would get to the seaboard. That the day of the railroad as a carrier of crude oil was over when the Tidewater began to pump oil was obvious both to Mr. Rockefeller and to the railroad presidents, and without hesitation he seized the idea. By 1883 the Standard was pumping oil to New York, and the railroads that



had served so effectively in building up the trust were practically out of the crude business. Yet the seaboard pipe line was no development of the Standard Oil Company. The idea had been conceived and the practicability demonstrated by others, but it was seized by the Standard as soon as it proved possible. This quick sense of the real value of new developments, and this alertness in seizing them, have been one of the strongest elements in the Standard's success.

#### *Capturing the Foreign Market*

And every new line of action was developed to its utmost. Take the work the Standard began in 1879 on the foreign market. Before the Standard Oil Company was known, save as one of several prosperous Cleveland refineries, the foreign trade had been developed until petroleum was *fourth* in our list of exports, and it went literally to every civilized country on the globe. In 1874 Colonel Forney made a trip through the Orient, and he wrote in one of his letters, that he found both Babylon and Nineveh to be lighted with American petroleum, and that while he was in Damascus a census was taken to ascertain how much petroleum was needed for each house in the place, and a proposition was made for its entire use. "At present," said the *Derrick*, in commenting on this letter, "petroleum is the chief commercial representative of the United States in the Levant and the Orient."

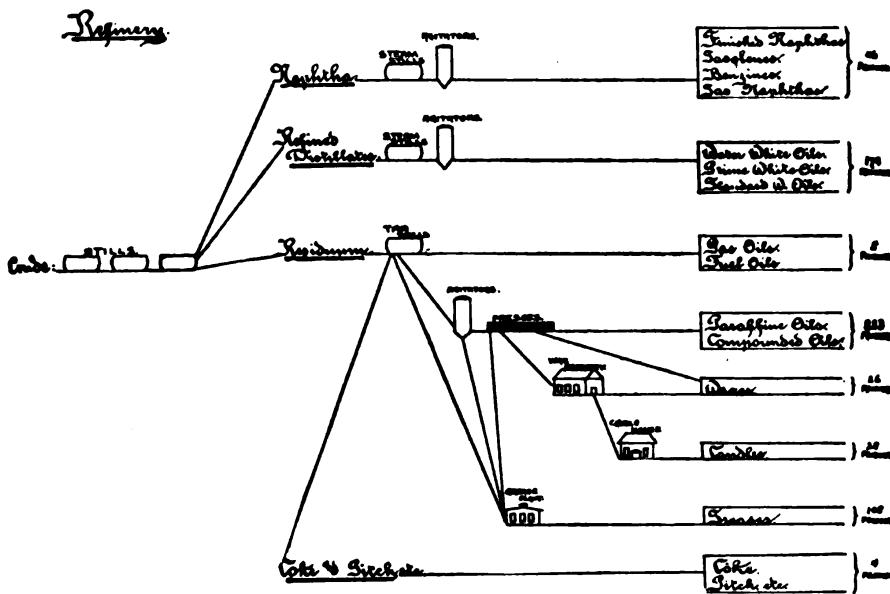
The same dithyrambic paragraphs were

written by oil men then as by the Standard now concerning foreign trade. For instance, compare the two paragraphs below — the one found in 1874 in the *Derrick*, the second in a defense of the oil trust published in 1900:

1874 — "It lights the dwellings, the temples, and the mosques amid the ruins of ancient Babylon and Nineveh ; it is the light of Bagdad, the city of the Thousand and One Nights ; of Orfa, birthplace of Abraham ; of Mardeen, the ancient *Macius* of the Romans, and of Damascus, gem of the Orient. It burns in the grotto of the Nativity at Bethlehem ; in the Church of the Holy Sepulchre in Jerusalem ; amidst the Pyramids of Egypt ; on the Acropolis of Athens ; on the plains of Troy, and in cottage and palace on the banks of the Bosphorus and the Golden Horn."

1900 — "Petroleum to-day is the light of the world. It is carried wherever a wheel can roll or a camel's hoof be planted. The caravans on the desert of Sahara go laden with Pratt's Astral, and elephants in India carry cases of 'Standard white,' while ships are constantly loading at our wharves for Japan, Java, and the most distant isles of the sea."

Exports grew rapidly through the same machinery which had created the foreign market. In 1870 there were something over one hundred and forty million gallons of petroleum products going abroad, in 1873, nearly two and one-half hundred million, in 1878 three and one-half hundred million. In 1879 the Standard began its work on the foreign trade by sending a representative abroad. Country after country seems to have been taken up, the idea being that the daily Standard Oil meeting should have the same full information before it concerning every place of foreign trade as it had of the American trade, and that gradually the com-



PRODUCTS OBTAINED FROM THE DISTILLATION OF CRUDE OIL IN  
A REFINERY

pany should control the foreign trade as it did the American industry, doing away with middlemen, "paying nobody a profit." This work, begun in 1879, has been carried on steadily ever since. Through it the Standard soon became largely its own exporter. It established stations of its own in one port after another of Europe, Asia, South America, and has built up a large oil fleet. It carried on an aggressive campaign for developing markets; it looked after hostile legislation; it studied the possible competition of native oils; it met every difficulty—prejudice, ignorance, poverty. Little by little it has done in foreign countries what it has done in the United States. To-day it even carts oil from door to door in Germany and Portugal and other countries, as it does in America, thus realizing Mr. Rockefeller's vision of controlling the petroleum of America from the time it leaves the ground until it is put into the lamp of the consumer.

#### *Controlling the Process of Manufacture*

The same economy and alertness were applied to the matter of making oils. In laying hands on the refineries of the country, Mr. Rockefeller had acquired by 1882 about all the processes of manufacturing known, both patented and free. These processes, including all the essential ones of to-day, had been developed entirely outside of the Standard Oil Company. As early as 1865, the year Mr. Rockefeller went

into the business, Mr. William Wright wrote an exhaustive book on the oil regions of Pennsylvania. Among other things, he reported quite fully what was being done in the refining of petroleum. He found that in several factories they were making naphtha, gasoline, and benzine; that three grades of illuminating oils—"prime white," "standard white," and "straw color"—were made everywhere; that paraffine, refined to a pure white article like that of to-day, was manufactured in quantities by the Downer works; and that lubricating oils were beginning to be made.

In 1872, the year that Mr. Rockefeller took things in hand, all of these original products had been greatly extended. Righolene and cymogene were both made. Mr. Joshua Merrill had succeeded in deodorizing lubricating oil, a discovery which made it possible to put the petroleum lubricants on the foreign market, and in 1871 Mr. Merrill's factory sold fifty thousand gallons in England alone. By 1872 paraffine wax was being made in many factories, and one maker of chewing gum in Maine used seventy thousand pounds that year. The foreign trade in all the products of petroleum outside of illuminating oil was already considerable.\* Many of the factories in making their oils gave them names; thus,

\*In 1872 there were exported as follows:  
 Crude..... 16,363,975 gallons.  
 Naphtha, benzine, gasoline, etc..... 8,688,257 "  
 Lubricating, heavy paraffine, etc..... 438,425 "  
 Residuum, pitch and tar..... 568,218 "  
 Illuminating..... 118,259,832 "



THE "WINDLASS" FOR SHAPING AN OIL BARREL

Pratt's Astral was a name for a water-white oil made by the Pratt works of Brooklyn. It was a high grade oil, made exactly as the oil made by many other refineries, but it had a name—a valuable one.

To-day tables analyzing the products of crude oil obtained at the Standard factories show the results tabulated in the cuts on pages 322 and 323.

Now all of the products in these groups could be made in 1872, but certainly there were not 46 distinct products under the naphthas as the table shows—nor were there 174 refined distillates. In fact these are not really products. They are rather brands. Thus, though the table shows 29 different kinds of odorized or deodorized naphthas, the main difference between them is their name. The 174 refined distillates are really the different grades of illuminating oil which any factory can get, given the proper crude base, with a multitude of different names applied to catch the trade. Thus among these 174 "products" are 33 kinds of "snow-white" \* oil and 41 kinds of "water-white" †—the principal difference between them being the different fire tests at which they are put out. The real service of the Standard has been not this multiplication of so-called products, but in finding processes by which a poor oil like the famous Lima oil could be refined. In the case of the Lima oil the Standard claims it

spent millions of dollars before it solved the problem of its usefulness. ‡

### *The Great Business of Lubricating Oils*

This multiplication of varieties is, of course, a perfectly legitimate merchandizing device, but it is not a development of products, properly speaking. Nor indeed was it for discoveries and inventions that the Standard Oil Trust was great in 1882, or that it is now—it is in the way it adapts and handles the discoveries and inventions it acquires. Take the matter of lubricating oils. After a long struggle it gathered to itself the factories and the patents of lubricating oils, and it has developed the trade amazingly; for, while in 1872 less than a half million gallons of petroleum lubricants were going abroad, in 1897 over 50,000,000 gallons went.

The extension of the lubricating trade was made possible largely by the discovery of Mr. Merrill referred to above. In 1869 Mr. Merrill discovered a process by which a deodorized lubricating oil could be made. He had both the apparatus for producing

(\*) The "snow-whites" are as follows:

S. W. 100 (fl)	S. W. Iowa S. T.
S. W. 110	S. W. Louisiana P. W. H. L.
S. W. 112	S. W. Louisiana Dia. H. L.
S. W. 115	S. W. Massachusetts S. T.
S. W. 120	S. W. Michigan S. T.
S. W. 130 Dia. H. L.	S. W. Minnesota S. T.
S. W. 130	S. W. Montana S. T.
S. W. 130 P. W. H. L.	S. W. Nebraska S. T.
S. W. 73 Abel	S. W. New York S. T.
S. W. 150	S. W. North Dakota S. T.
S. W. 160	S. W. Ohio S. T.
S. W. Canadian Legal Test	S. W. South Dakota S. T.
S. W. Georgia P. W. H. L.	S. W. Tennessee Dia. H. L.
S. W. Georgia Dia. H. L.	S. W. Tennessee P. W. H. L.
S. W. Indiana P. W. H. L.	S. W. Tennessee S. T.
S. W. Indiana S. T.	S. W. Wisconsin S. T.
S. W. Indiana Dia. H. L.	

(†) The "water-whites" are as follows:

W. W. 110	W. W. Iowa Perfection
W. W. 112	W. W. Iowa S. T.
W. W. 115	W. W. Kansas Perfection
W. W. 120	W. W. Kansas S. T.
W. W. 120 Eupion	W. W. Louisiana S. T.
W. W. 130 Sunlight	W. W. Louisiana Sunlight
W. W. 130	W. W. Massachusetts S. T.
W. W. 130 Eupion	W. W. Michigan S. T.
W. W. 130 Fireproof	W. W. Minnesota S. T.
W. W. 150	W. W. Nebraska S. T.
W. W. 150 Headlight	W. W. Nebraska Perfection
W. W. 150 for extra Star	W. W. New York S. T.
W. W. 150 49 grav.	W. W. North Dakota S. T.
W. W. 160	W. W. Ohio Perfection
W. W. 165	W. W. Ohio S. T.
W. W. Canadian Legal Test	W. W. South Dakota S. T.
W. W. Electric	W. W. South Dakota Perfection
W. W. Georgia Sunlight	W. W. Tennessee S. T.
W. W. Georgia S. T.	W. W. Tennessee Sunlight
W. W. Indiana Perfection	W. W. Wisconsin S. T.
W. W. Indiana S. T.	

‡ The amount of sulphur in the Lima or Ohio oil prevented its use as an illuminating oil, for the odor was intolerable, there was a disagreeable smoke, and the wick charred rapidly. The problem of deodorizing it was attacked by many experimenters and was finally practically solved by the Frasch process which the Standard acquired after spending a large amount of money in testing its efficacy. Probably 60 per cent. of the illuminating oil used in the United States now is manufactured from an Ohio oil base.

the oil and the oil itself patented. The oil was so favorably received that the market sale was several hundred per cent. greater in a single year than the firm had ever sold before. Naturally, an attempt was made by other lubricating works to imitate Mr. Merrill's new product. The most successful imitation was made by Dr. S. D. Tweedle of Pittsburg. The oil he put upon the market was considered an infringement by Mr. Merrill, who commenced suit against the agents handling it. The case was before the courts for some six years, and Mr. Merrill spent over one hundred thousand dollars in maintaining the patent. The case was finally decided in his favor by the Supreme Court in Washington. During this suit the Standard Oil Company stood behind Dr. Tweedle, furnishing the money to defend the suit. When finally they were defeated they took a license under the new patent which Mr. Merrill was obliged to get out, and paid him a royalty on the oil until within about a year and a half before the end of the life of the patent, when they bought it outright for a large sum, Mr. Merrill reserving the right to manufacture and sell the oil without a royalty. Most lubricating oils from petroleum are now made after Mr. Merrill's process.

Having obtained control of the lubricating oils, the Standard showed the greatest intelligence in studying the markets and in developing the products. It makes lubricants for every machine that works. It offers scores of cylinder oils, scores of spindle lubricants, of valve lubricants, of gas engine lubricants, special brands for sewing machines, for looms, for sole leather, for dynamos, for marine engines, for everything that runs and works by steam power, by air, by electricity, by gas, by man, or by beast power. Now any lubricating factory can produce the six or eight primary lubricants. Given these, the varieties to be produced by skillful compounding are infinite. They can be made more or less viscous, flowing, heavy, light, according to the needs of the machines and the idiosyncrasies of individuals who run them. The man who runs a machine soon knows what oil suits him and if his trade is big enough an oil is put up especially for him with a name to tickle his vanity. It may be exactly like a dozen other oils on the market, but having its own name it is reckoned a new product. Skillful com-

pounders insist that they can duplicate any of the 833 lubricating oils of the Standard if they can have samples. Of course this close study of the needs of a market and this adaptation of one's goods to the requirements are the highest sort of merchandizing.

### *The Marshals of the Great Captain*

Unquestionably the great strength of the Standard trust in 1882 was the men who formed it. However sweeping Mr. Rockefeller's commercial vision, however steady his purpose, however remarkable his insight into what was essential to the realization of his ambition, he would have never gone far had he not drawn men into his concern who understood what he was after and knew how to work for it. His principle



PLANING AND FINISHING AN OIL BARREL

concerning men was laid down early, "We want only the big ones, those who have already proved they can do a big business. As for the others — unfortunately they will have to die." The scheme had no provision for mediocrity,—nor for those who could not stomach his methods. The men who in 1882 formed the Standard alliance were all from the foremost rank in the petroleum trade, men who without question would be among those at the top to-day if there had never been a Standard Oil Company. In Pittsburg it was Charles Lockhart, a man interested in petroleum before the Drake well was struck, who had begun oil operations on Oil Creek in March, 1860, who had carried samples of crude and

refined to Europe as early as May, 1860, who had built one of the first refineries in Pittsburgh, and who was easily the largest refiner there in 1874 when Mr. Rockefeller bought him up. In Philadelphia the largest refiner in 1874 was W. G. Warden of the Atlantic refinery, and it was he whom Mr. Rockefeller wanted. In New York it was the concern of Charles Pratt & Company, one of the three largest concerns around Manhattan—the concern to which Mr. H. H. Rogers belonged. Charles Pratt had been in the oil and paint business since 1850, and he had become a refiner of petroleum at Greenpoint, Long Island, in 1867. Before Standard Oil was known outside of New York the fame of Pratt's Astral Oil had gone around the world. Mr. Pratt's concern was rated at the same daily capacity as Mr. Rockefeller's (1,500 barrels) in the Spring of 1872, when the latter wiped up the Cleveland refineries and grew in a night to ten thousand barrels. Mr. Vandergrift, who united his interests with Mr. Rockefeller's in 1874 and 1875, had been a far better known man in the oil business and controlled much greater and more varied interests up to South Improvement times. When he went into the Standard he controlled the largest refinery on Oil Creek, the Imperial, of about 1,400 barrels. He was president of a large system of pipe lines, and he was a member of one of the largest oil-producing concerns of the time—the H. L. Taylor Company.

#### *Vanderbilt on the Men who Built Up the Standard*

There is no doubt but that Mr. Rockefeller had plenty of brains in his great trust. It was those who had done business with him who were the first to point this out when critics declared that the concern could not—or must not—live. "There is no question about it," W. H. Vanderbilt told the Hepburn Commission in 1879, "but these men are smarter fellows than I am a great deal. They are very enterprising and smart men. I never came in contact with any class of men as smart and able as they are in their business. They would never have got into the position they now are without a great deal of ability—and one man would hardly have been able to do it; it is a combination of men."

It was not only that first-rate ability was demanded at the top—it was required

throughout the organization. The very day laborers were picked men. It was the custom to offer a little better day wages for laborers than was current and then to choose from these the most promising specimens; those men were advanced as they showed ability. To-day the very errand boys at 26 Broadway are chosen for the promise of development they show, and if they do not develop they are discharged. No dead wood is taken into the concern unless it is through the supposed necessities of family or business relations, as probably occurs to a degree in every human organization.

#### *Standard's Relations with its Employees*

The efficiency of the working force of the Standard was greatly increased when the trust was formed by the opportunity given to the employees of taking stock. They were urged to do it and where they had no savings, money was lent them on easy terms by the company. The result is that a great number of the employees of the Standard Oil Company are owners of stock which they bought at 80 and on which for several years they have received from 30 to 48 per cent. dividends. It is only natural that under such circumstances the company has always a remarkably loyal and interested working force.

#### *The Standard, the Independents, and the Inevitable*

Mr. Rockefeller's great creation was strong then in many admirable qualities. The force of the combination was the greater because of the business habits of the independent body which opposed it. To the Standard's caution the Oil Regions opposed recklessness; to its economy, extravagance; to its secretiveness, almost blatant frankness; to its farsightedness, little thought of the morrow; to its close-fistedness, a spendthrift generosity; to its selfish unscrupulousness, an almost quixotic love of fair play. The Oil Regions had besides one fatal weakness—its passion for speculation. Now Mr. Rockefeller never speculated. He dealt only in those things which other people had proved sure!

It is when one examines the inside of the Standard Oil Trust of 1882 that one sees how much reason there was for the opinion of those people who declared that Mr. Rockefeller could sustain the monopoly of the oil business he had achieved. One

begins to see what Mr. Vanderbilt meant when he said, "I don't believe that by any legislative enactment or anything else, through any of the States or all of the States, you can keep such men down. You can't do it! They will be on top all the time, you see if they are not." Little by little as the public began to realize the compactness and harmony of the Standard organization, the ability of its members, the solidity of the qualities governing its operations, they began to forget its history. Such is the blinding quality of success! "It has achieved this," they said; "no matter what helped to rear this structure it is here, it is admirably managed. We might as well accept it. We must do business." They were weary of contention, too—who so unwelcome as an agitator?—and they began to accept the Standard's explanation that the critics were indeed "people with a private grievance," "moss-backs left behind in the march of progress." It looked more and more to the outsider as if henceforth Mr. Rockefeller was going to have

things his own way, for who was there to interfere with him, to dispute his position? No one, save that back in Northwestern Pennsylvania, in scrubby little oil towns, around greasy derricks, in dingy shanties, by rusty deserted oil stills, men still talked of the iniquity of the railroad rebate, the injustice of restraint of trade, the dangers of monopoly; still rehearsed with tiresome persistency the evidence by which it had been proved that the Standard Oil Company was a revival of the South Improvement Company. It all seemed futile enough in 1882 with the public listening in wonder and awe to the splendid rehearsal of figures and the unctuous logic of the Mother of Trusts, and yet one can never tell. It was the squawking of geese that saved the Capitol, and it was not certain, many and great as were his business qualities, that Mr. John D. Rockefeller was going to be allowed to enjoy the fruits of his victory in that atmosphere of leisure and adulation which the victor naturally craves.

*(End of Part First of the "History of the Standard Oil Company." Part Second will appear in the coming volume of McClure's Magazine, beginning in the Fall of the present year.)*

## THE RANKS

BY PAUL KESTER

MARCH on!  
*Ye go to bitter conflicts,*  
*Leaderless, and lost;*  
*To sure defeat,*  
*To certain misery;*  
*From youth to age*  
*Forever overburdened*  
*And condemned*  
*To ultimate defeat.*  
*March on!*  
*Ye silent heroes*  
*Sharing each day*  
*The record of the great;*  
*Half-hearted, wounded,*  
*Suffering, blind,*  
*Strong, and defiant*  
*Underneath the load*  
*That crushes you,—*  
*March on!*