

FACTS ABOUT PETROLEUM.

The most celebrated oil-wells as yet discovered and operated on the American continent are located in the western part of Pennsylvania, principally in Venango, Crawford, and Warren counties. The wells next of note are found in Western Virginia and Eastern Ohio; and recently wells have been opened in the States of New York and Michigan, also in Canada.

OIL CREEK.

Oil Creek, which has become celebrated as the site of the richest oil-producing region on earth at the present day, is a tortuous mountain stream, taking its rise in the northern part of the State of Pennsylvania, near the south line of Erie County, and, with its tributaries, waters Crawford and Warren counties, and after a course of about thirty miles through these counties empties into the Alleghany River seven miles above the town of Franklin. The valley through which Oil Creek takes its course is narrow, and flanked on each side by high and rugged hills, on the top of which are broad fields of excellent farming land. The scenery on Oil Creek at one time, no doubt, was quite picturesque; but now the bottom lands are dotted with tall derricks, wooden engine-houses, and iron smoke-stacks, out of which columns of black smoke roll upward to the clouds. The pines and hemlock are cleared from the mountain sides, and all is busy life.

WHERE THEY FIRST STRUCK "OIL"

The extensive lumber saw-mills of Messrs. Brewer, Watson, and Co. were located on Oil Creek, near Titusville, the present metropolis of Petrolia. Near those mills oil first made its appearance in large quantities in this country. Half a mile below Titusville Oil Creek meets its principal affluent, Pine Creek, more commonly known now as the East Branch of Oil Creek; and the delta of these two streams is covered with old oil-pits, which occur at intervals all along the creek below Titusville. These pits are supposed by some to have been the work of the French during their occupancy of the country in 1759, on account of being located almost directly between the French forts of La Boeuf and Venango.

Petroleum, under the name of "Seneca oil"—so called from the tribe of Indians of that name who once inhabited the country—became early of great importance to the settlers, both as a medicine and for burning and lubricating purposes. The greater portion of oil was obtained from two natural springs. One of these was in the immediate neighborhood of Titusville, on the lands now owned by the "Watson Petroleum Company" of New York, on the spot where now stands the old "Drake Well." The other spring was on the farm of Hamilton McClintock, within four miles of the mouth of Oil Creek.

HOW OIL WAS FIRST OBTAINED.

During the year 1853 Dr. F. B. Brewer, of the firm of Brewer, Watson, and Co., conceived the idea of collecting surface oil by means of absorbing it in blankets, and wringing the oil out. Great quantities were collected in this novel manner, and used for burning purposes in the lumber mills of the Oil Creek region. The oil produced from the oil springs became so necessary and useful as to suggest the formation of an oil company in 1854 called the "Pennsylvania Rock-Oil Company." This was the first Oil Company ever formed. This was prior to the sinking of any well, or before such a thing was suggested.

THE PIONEER AT WELL-BORING.

Although Professor Silliman of New Haven, had in 1854 analyzed the rock-oil, and pronounced upon its properties, no further developments of any importance took place until the winter of 1857, when Colonel E. L. Drake, of Connecticut, arrived at Titusville, and was the first man who attempted to bore for oil.

He first informed himself thoroughly on the subject of boring, and visited the salt-wells on the Alleghany River for that purpose, where, after some difficulty, he employed a man who agreed to sink wells for the Seneca Company; but he and others to whom he had applied failed to keep their engagements, and it was not until the following spring that he could obtain a suitable person to commence the well.

INVENTOR OF THE DRIVING PIPE.

In sinking the well it was supposed necessary to dig to the first rock; but in consequence of the earth caving in on the workmen so frequently, Colonel

Drake invented the iron driving-pipe and mode of driving which is now in universal use, not only in the oil regions, but among the salt borers. He was obliged to go fifty miles to a machine-shop every time his tools needed repairing; but after many delays and accidents, on the 29th day of August, 1859, at the depth of 69 feet 6 inches, he struck a vein of oil, from which he afterward pumped at the rate of thirty-five to forty barrels per day. This is now known as the Drake Well, and was the first well ever sunk for oil, and the first petroleum ever obtained by boring.

EXCITING SCENES.

Now commenced a scene of excitement beyond description. The Drake Well was immediately thronged with visitors arriving from the surrounding country, and within two or three weeks thousands began to pour in from the neighboring States. Every body was eager to purchase or lease oil lands at any price demanded. Almost in a night a wilderness of derricks sprang up and covered the entire bottom lands of Oil Creek. Merchants abandoned their store-houses, farmers dropped their plows, lawyers deserted their offices, and preachers their pulpits. The entire western part of the State went wild with excitement.

FIRST FLOWING WELL.

In June, 1861, A. B. Funk sunk a well 470 feet deep on the M'Ilhenny farm, which was the first large flowing well. Then followed the Brewer, Watson and Co. Well on the G. W. McClintock farm, the Phillips Well on the Tarr farm, the Willard Well on the H. McClintock farm and the Rouse, Mitchell, and Brown Well on the Buchanan farm. This latter well flowed a stream of oil without pumping equal to one thousand barrels per day. Thousands of barrels of oil flowed into the creek before suitable tanks could be prepared to receive it.

WELL ON FIRE.

In the midst of the excitement, from some cause unknown, the gas and oil from this well took fire, and, as described by an eye-witness, columns of black smoke rolled upward into the air, the blazing oil leaped heavenward, and, falling over on all sides from the fiery jet, formed a magnificent fountain of liquid fire. The sight was awfully grand, but, sad to relate, nineteen human beings were burned to death. Among them was Mr. Rouse, one of the proprietors of the well.

THREE THOUSAND BARREL WELL.

The next large flowing well opened was the Empire, in the vicinity of the Funk Well, that flowed 3000 barrels per day. The Sherman Well was opened in April, 1862, then the Noble and Delemater Well in May, 1863. This celebrated well was commenced in 1860, and was bored to the depth of 167 feet and abandoned. Mr. Noble went further down the creek and became interested in other wells on the Tarr farm, but in the spring of 1863 he recommenced the work on his old well, and went down to the depth of 471 feet without having any indications of oil. At that depth he concluded to tube and pump, abandoning the idea of obtaining a flowing well, but to the great astonishment of himself and every one else, after pumping a very short time, suddenly the great Noble Well commenced to flow. Long before the opening of this well petroleum had become so plenty that most of the pumping wells were abandoned. Every person wanted a flowing well.

FIRST OIL REFINER.

Samuel M. Kier, of Pittsburg, was the first man who refined the crude oil, and to him we are indebted for this discovery. W. H. Abbott, of Titusville, erected the first large refinery at that place, which was before the days of railroads in that region.

Brewer, Watson, and Co. were really the great pioneers in the introduction of petroleum in large quantities. This enterprising firm expended the sum of \$740,000 in cash for barrels alone before they realized one cent of profit. All they required was the actual cost of the barrel. They have lived to reap a rich harvest from the arduous efforts in the introduction of petroleum, and have been handsomely repaid for the hardships and trials through which they have passed.

The only pumping wells opened at an early day, and not abandoned but worked until the present time, are the celebrated Economite Wells, located opposite the town of Tidecut, on the Alleghany River, in

Warren County, Pennsylvania. These wells are four in number, and are each now pumping 30 barrels of oil per day. Many persons at the present time, in passing through the oil regions, wonder at the number of abandoned wells to be seen. These wells were not abandoned because the borers failed to discover oil, but simply because it did not pay to operate them when oil was so plenty and cheap and no great demand existed for it.

VALUE OF TRADE.

The importation of merchandise, etc., during the year 1863, over the Oil Creek Railroad, was 70,000 tons, and the exports of oil alone equal to 750,000 barrels. It is estimated that the export from Titusville will amount this year to over \$18,000,000 and the imports will largely exceed those of last year, at least the local trade has kept even pace with the improvements in the way of building.

Oil in quantities having recently been procured north of Titusville, the entire line of Oil Creek above that place, as far as Oil Lake, is now occupied, and numerous wells are in process of drilling, causing great excitement in that region.

Oil City, at the mouth of Oil Creek, is situated at the base of a mountain under a bluff, and for want of room can never become a very large city. The town consists of only one street, winding down the west side of Oil Creek and the Alleghany River. It contains five or six hotels, all of which are crowded nightly with anxious oil seekers. All the business being done on one street the town has a very busy look.

MARKETING OIL.

The oil from these wells on the Alleghany River is taken to Irvine in tow-boats drawn by horses. These boats are built very stanch, and are made to carry from one hundred and fifty to two hundred barrels of oil. The horses often cross and recross, and sometimes pull and tug up through the centre of the river. The driver has regular fords to cross, and it requires as much judgment to drive tow horses up the Alleghany as to pilot a steamboat down the Mississippi.

BETTER MACHINERY WANTED.

In passing through the oil regions of Pennsylvania one is struck with the primitive mode used in obtaining oil. Inferior machinery and exceedingly small engines are used in most cases, with hardly sufficient power to raise the sucker rod out of a deep well. Yet wells are worked in this manner, only producing from one to three, or perhaps five, barrels of oil. Often they entirely fail to get a drop of oil. In such cases the wells are abandoned as worthless. At the same time, if the proper machinery had been applied with more powerful engines, twice or thrice the yield might have been obtained. The air-pump is a great improvement, and its application will no doubt add at least thirty per cent to the yield of all wells to which it is applied.

OIL REFINERIES.

The oil regions are dotted here and there with refineries where the crude oil is distilled and prepared for burning purposes. Many changes have taken place, and vast improvements made, in the refineries of oil since the first were erected. The most extensive establishment for this purpose, now in operation in the immediate vicinity of the oil regions, is at the town of Correy, in Crawford County, Pennsylvania, a new and thriving place, situated at the crossing of the Atlantic and Great Western and Philadelphia and Erie Railroads. The building is entirely of brick, and was erected by Samuel Downer, one of the pioneers in the business, at a cost of \$150,000, including machinery. Upward of 200 workmen are here daily employed, and when the works are operated to their greatest capacity 300 barrels of crude oil are daily required.

VARIOUS MATTERS.

New oil lands have recently been discovered in Adams and Sciota counties, on the Ohio River, about ninety miles above Cincinnati. The surface indications are very promising—such as oil on the water in the marshes and water-courses, the upheaval of the sand rock, and hills of shale saturated with petroleum, one tun of which has produced by distillation fifty gallons of oil.

In sinking a well for oil many curious and wonderful discoveries have been made. On the lands belong-

ing to the Story and M'Clintock Petroleum Company, of New York, located on Caldwell's Creek, near Tiusville, in sinking a well in October last the drillers passed through a log eighteen inches in diameter.

Oil wells are put down to a variety of depths, from 100 to 1100 feet.

In boring a well a correct journal is kept, showing the different kinds of rock and earth passed through, and the exact points where water-courses, gas or shows of oil are found. If a large vein of oil is struck, the well is immediately tubed with a 2 or 2½-inch iron pipe, put together in sections. The water from water-courses and the surface water is prevented from flooding the well by means of a leathern bag, called a seal-bag, filled with flax-seed, which is placed on the outside of the tubing and within the earth chamber below the water-courses. When the flax-seed becomes saturated with water it swells, and completely shuts off all communication with the bottom of the well on the outside of the tubing.

Preservation of Steam Boilers.

Engineers will appreciate the following information given in the *Mechanics' Magazine* by an English chemist, Mr. Blockly:—

"I have read with great interest your articles on this and its kindred subject, and feel that I only speak the sentiments of the manufacturing community in saying much gratitude is due for the able manner in which the matter has been treated by you. I trust you will allow me to state that the use of 'muriate of ammonia,' or 'sal ammonia,' or 'chloride of ammonium,' is not new. The present state of chemistry is such that every known substance has several names. Seven years ago I found it was in use to prevent incrustations, and only for its expense would have been more largely used then. I found also a gentleman of no mean pretensions as a chemist had used a mixture of sulphate of ammonia and common salt, which answered the purpose admirably, forming in the boiler chloride of ammonium and sulphate of soda; the boilers once incrustated did not appear to be cleaned by its use, but incrustation was effectually prevented, only a sludgy, sandy sediment being formed—easily cleaned by blowing off.

"Some localities are furnished with water of a different character, and for a number of years past the use of alkaline preparations has been adopted. Some of these compositions are made by boiling soda ash and lime together in water until the preparation is stiff. Others separate the lime, and stiffen with farina. I can positively assert that the use of alkaline substances is very old. One firm I know of use caustic soda ash regularly, and find it to answer perfectly, and there is a large dyer in this town whose boiler is always free from solid incrustation—the water is of a peculiar character, and contains a large amount of caustic soda as one of its ingredients. The composition you allude to to-day seems to lay claim to novelty—if so, the novelty cannot be from its possessing an alkali as one of its constituents. I have no connection whatever with any firm using boiler power or selling composition, and I would suggest to all users of steam power to try the use of caustic soda ash, a far cheaper material than most of the compositions, which I happen to know are often sold under the recommendation of the foreman or engineer, who gets a 'per centage,' or some other consideration. If this simple remedy does not succeed, I would suggest an examination of the water, and any chemist would undertake to provide some means as effectual as any composition. No one preparation can be expected to, nor does, answer under all circumstances."

A MINING INCH OF WATER.—To machinists and miners in California an inch of water has a specific meaning, as water is sold by the Ditch companies to the mines by the inch, that is, the quantity that will be discharged through an inch opening with a six inch head measured from the center of the opening is called a miner's inch of water. It is nearly equivalent to and is intended to be 1000 gallons passing a given point in an hour.

GEN. SCHOFIELD has levied a contribution of 100,000 rations of meat and flour upon the citizens in the vicinity of our armies at Goldsboro, N. C.

Bitumenized Paper Pipes.

At the late session of the Institute of Engineers, in Scotland, the subject of bitumenized paper pipes was discussed. We extract the mode of their manufacture, and their failure for intended purposes, as reported in the *London Engineer*:—

These pipes consist of a composition of bitumen and paper, and the process of manufacture is as follows:—Paper is made of a breadth equal to the required length of the pipe; a cylinder of the required length and bore of the pipe is selected; upon this cylinder the paper is rolled up, having previously passed through a cistern of molten bitumen; in concert with the cylinder which forms the bore of the pipe, another heavily-weighted cylinder revolves outside, by means of which the pipe in process of manufacture is subjected to great pressure, insuring an equal distribution of the bitumen, and compactness throughout the structure of the pipe. By this mode of manufacture it is evident a pipe of any required thickness can be made by continuing the process for a sufficient length of time. After the pipe is taken out of the rolling machine, and the cylinder forming the bore withdrawn, the inside is coated with an insoluble water-tight composition, which protects the paper and forms a very smooth surface, and consequently diminishes the resistance of friction—a matter of much importance in water pipes. The outside of the pipe is coated with a composition of bitumen and sand, which, besides protecting the material of the pipe from injury, renders it secure against those evils to which iron pipes are liable, either underground or exposed to the atmosphere.

Mr. W. Simons had seen those pipes laid in France, and knew that many thousands of pounds had been spent in laying paper pipes in Paris, some of them 2ft. in diameter. Mr. Maquet could, perhaps, inform them to what extent this had been done.

Mr. Maquet could not decidedly answer the question; but he had seen them laid in Paris for the supply of gas.

Mr. Copland, borough engineer, Paisley, said he had a line of 4-inch paper pipes laid; and he found great difficulty in getting the pipes jointed, and the service pipes connected with them. These pipes were supplied by the Patent Bitumenized Water, Drainage, and Gas Pipe Company, Limited, who proposed to join the service pipes by drilling holes in the ordinary way. Where the service pipes were connected bitumen was run over to make all tight; but the pipes were not in six months till they required so much repairing that they were glad to get rid of them at any price. They were still underground, and he had intended to look at them before the meeting, but had been prevented from want of time. He had, however, examined them before, and scarcely found a tight joint in all the 100 lengths laid. The pipes had become quite soft near the joint with the iron pipes—in fact rotten. With the simple pressure of his hand upon a spade he cut in a 4-inch paper pipe at the point of junction with the iron pipe. The pipes were continually leaking at the joints, and they were obliged to send to England for a workman to see if he could do any good to them; but he did not succeed, and they were compelled to lay down a length of iron pipes in their stead. The paper pipes were not jointed like the specimens exhibited, but were entirely fitted with thimble joints, scarcely one of which were tight. The pressure on the 4-inch pipe would be about 10 lb., but at the top of the street it was reduced to 2 lb., and even then it was scarcely possible to get a perfect joint.

Savannah Cotton.

Simeon Draper, Esq., Collector of the port of New York, has made a full report of all the facts connected with the cotton captured by Gen. Sherman at Savannah. The report shows that the total number of bales of cotton taken at Savannah was 38,500; 6,000 bales of which was Sea Island; it had been gathered in from various Confederate States, partly to prevent its falling into the possession of United States forces, but mainly to enable it to be easily shipped by the blockade runners. The greater portion of it belonged to the Confederate Government. Soon after Gen. Sherman took possession of the town many persons went into the warehouses on their own account and secretly marked a large number of bales. Many of these marks represented parties who

were dead. The persons who thus marked the bales and professed to be genuine claimants of the cotton were not the legitimate living representatives of the former owners. This cotton is now subject to the order of the Secretary of the Treasury and will soon be offered for sale at public auction.

Machine Molding in Lead Works.

Messrs. Bead and Dent, of Newcastle-street, Strand, have lately introduced a very important improvement into the plumber's art. Hitherto syphon traps have been made by hand, as it was impossible to cast them on loam cores with profit, and apparently no means existed of extracting any other core because of the peculiar form of the pipe. Accordingly, the traps of this kind were always made by beating up two half pipes from sheet lead and soldering the edges together with soft solder; a very good workman and his laborer could produce, on an average, four of these traps per day. The system is open to many objections, of which we may name one; the galvanic action between the lead and the solder leads to the rapid destruction of the metal. Under the new system the cores are formed of gun metal or of cast iron, according to an invention patented by Mr. Lowe, an American, some four years since. Without drawings, it would be impossible to give any idea of the complete machine, for it is nothing else. The traps, whatever their shape, so long as the pipe is circular or nearly so in cross section, are cast entire and of any thickness required, with the most perfect accuracy. Four men can turn out eighteen 3-inch traps per hour, so that the price of production is considerably reduced. The machine is capable of effecting a complete revolution in this branch of the trade, as the work produced is immeasurably superior to anything turned out by hand. The value of the machine is only equalled by its extreme beauty. We know of nothing in the iron or brass trades even distantly approaching it in simplicity and fitness to the required end, and some of the chair molding machines recently introduced are sufficiently elegant.—*Engineer.*

A New Detergent.

A new natural product of California possessing detergent properties is thus described by a contemporary:

"A few months ago, some persons engaged in making turpentine, in Plumas county, tapped some pine trees of a species new to them. The fluid flowed abundantly, but it had a peculiar odor, and when taken to the turpentine stills in the neighborhood, nothing could be done with it. At last it fell into the hands of a man who managed to distil the liquid, which proved to be a new discovery. Instead of the disagreeable odor of turpentine, it has a fragrance like citron, and is free from all resinous matter. Ten gallons of it weighs as much as six gallons and three quarters of pure water. It dissolves all animal and vegetable oils and leaves no stain of its own, nor does it affect any of the colors used in dyeing, and thus it is an excellent substitute for benzine, without the odor which makes the latter substance so offensive. It is also much cheaper than benzine. The new liquid is called 'Erasine,' because of its value for cleansing. It evaporates rapidly, and burns well, but is more expensive than coal oil. This novel product of California is now in market."

Perpetual Motion.

Correspondents frequently inquire if our Congress or some foreign scientific or legislative body has not offered a large prize to the discoverer of perpetual motion. No such offer has been made, so far as we know, though in our judgment it would be safe to offer any amount, since there is not the slightest probability that such a discovery will ever be made. It is a waste of both time and money to attempt to get up a self-moving machine. It may be very ingenious in contrivance, but after all it won't go unless force of some kind is applied to it. Every machine must of necessity have a motive power.

ENTERPRISING INVENTOR.—A man down east has recently patented a new boot which he has such faith in that he authorizes dealers to give new pairs where a radical and original defect appears in the stuff or make, provided the same has not been worn to an unreasonable extent before the defect is found out.