

and oil may be collected at a profit there, as in this State. A sample of rich oil from the line of the Sunbury and Erie Railroad, a few miles beyond Warren, in Warren county, has just been analyzed by one of our chemists, and has been shown to yield, on distillation, 14½ per cent of a pale limpid oil, of superior quality; 44 per cent of yellow or reddish-yellow oil, second in quality; 12 per cent of a thick oil with paraffine, and a small residuum of coke. It is clearly a true coal oil, capable of very easy conversion into the best forms of illuminating and lubricating oils, with a portion of paraffine or candle-making material, and a mere trifle of residuum and loss. In Venango county, still larger springs have recently been opened, and at one spring near the line of the Sunbury and Erie Railroad, in Crawford county, no less than 600 gallons rise daily from a boring of about 70 feet.—*United States Gazette.*

THE GREAT METEOR OF 1807.

The best authenticated and most intelligible account of the fall of aerolites which has ever been given, is that by Professor Silliman and Mr. Kingsley of the fall which took place in Weston, (now Easton) Conn., on Dec. 14, 1807. We have heard Professor Silliman give this interesting account. As soon as the news of the occurrence reached New Haven, Professor Silliman and Mr. Kingsley proceeded to Weston to collect the facts. They conversed with a large number of eye-witnesses, among whom was Judge Wheeler, of Weston. He was walking near his house at half-past six in the morning, when a sudden flash in the northern sky caused him to look up, and he saw a globe of fire passing behind a dark cloud. While behind the cloud its appearance was distinct like that of the sun seen through a fog, but only half or two thirds as large. As it emerged from behind the cloud it flashed with a vivid light resembling what is called heat lightning, streamed across the sky with a waving, conical train, and gradually disappeared near the zenith, the whole transit occupying about half a minute. In the clear sky, there was a brisk scintillation about it like a fire-brand carried against the wind. About 30 or 40 seconds after its disappearance three loud and distinct reports, like those of a four-pounder near at hand, were heard; they succeeded each other rapidly and did not occupy above three seconds; then followed a continued rumbling like a cannon-ball rolling over a floor, sometimes louder and sometimes fainter, which continued a few seconds and gradually died away. The passage of the meteor was accompanied by a fall of stones for a distance of nine or ten miles in the line of its course. The largest of these stones fell in a field belonging to Mr. Seely, within 30 rods of his house. A Mr. Staples lived on a hill at the bottom of which the stone fell. After the last explosion of the meteor, a noise like a whirlwind passed to the east of his house and over his orchard; at the same instant a streak of light passed over it in a large curve, and seemed to pierce the ground; a shock was felt, and a report like that of a heavy body striking the earth. Three or four hours afterwards Mr. Seely chanced to pass by the place where the body fell and discovered it. It had struck a ridge of rock which it had partly shivered, and glanced down the hill obliquely into the ground to the depth of three feet, leaving a hole five feet in length, and four-and-a-half in breadth, and throwing masses of turf and earth to the distance of 100 feet. The stone was in fragments, none of which exceeded the size of a man's fist, and Professor Silliman thought all the fragments together must have weighed about 200 pounds. Another stone fell into soft ground and was not broken; it weighed 35 pounds. Another fell in the road and penetrated the ground to the depth of two feet; it weighed 25 pounds. The most northerly fall was in the limits of Huntington on the borders of Weston, in the road; a Mr. Burr heard the stone fall, and on searching for it an hour afterward, he found that it had struck a granite rock and was broken in pieces, the largest piece not being bigger than a goose egg, and this was still warm. Several other masses fell in different places along the track of the meteor; one weighing 25 pounds, another 14, and another 7. In all cases the fall was distinctly heard by persons in the vicinity, and in one case smoke was seen to rise from the place where the mass fell. Professor Silliman collected such of the pieces as he could procure either by gift or purchase, and they are still to be seen in the cabinet of Yale College, New Haven.

NEW IRON FURNACE.

The people of Pittsburgh have recently been rejoicing at the completion of the first furnace erected in that vicinity for the purpose of making pig-iron. We learn by the *Gazette* that Messrs. Graff, Bennett & Co., of the Clinton Mills, in Pittsburgh, have been the pioneers in this enterprise, and it is remarkable that that city, which is so celebrated for its wrought-iron manufactures, should have been so long dependent upon other places for its pig-iron. As the new furnace is said to be the largest in the West, a brief description of it will be of interest to many of our readers.

The stack of it is 12 feet in the bosh and 45 feet in height. The outside is covered with banded boiler-iron; the inside, as usual, is lined with the best fire-brick. It is supplied with its ore, fuel, and lime (as flux) through two apertures near its top, and all the crude materials for smelting are lifted by an elevator. The engine for the blast, &c., is of 160 horse power; it is upright and was built by Messrs. Robinson, Minis & Miller, of South Pittsburgh. Its cylinder is 28 inches in diameter, its stroke 4½ feet. The blowing cylinder is 65 inches in diameter and 4½ feet stroke, and the pressure of the blast is maintained at 8 lbs. on the inch, which is double the amount that was generally carried a few years since. The hot blast is employed, and the air is forced through a stand of 80 tubes where it is heated in its way to the furnace.

The first run of metal from this furnace was effected on the 25th ult., in the presence of a large number of the leading citizens. All things went off admirably, and we understand that the quality of metal produced was excellent. The first run was smelted from the common Virginia and Ohio iron ore, but the company have laid in a large stock of Missouri ore from the Iron Mountain, also some of the best ores from Lake Superior. In regard to the future of this enterprise the *Gazette* says:—"The making of iron from the ore in Pittsburgh is at length an accomplished fact; the thing has been at length begun under the most favorable auspices, and we have not the shadow of doubt that the iron will be made cheaper and of a better quality than what has been used heretofore."

THE SOUTHERN LIGHTS.

By the following account, which we clip from a Californian cotemporary; it will be seen that the great auroral display of the last of August and first of September, which was witnessed nearly throughout the northern hemisphere, was accompanied by a similar exhibition about the south pole. These lights, in high southern latitudes, are not so strange as they are in the neighborhood of the tropics:—

The ship *Southern Cross* arrived at San Francisco on the 22d of October, from Boston. The *Southern Cross*, under Captain Howe, left Boston, on the 10th of June, making the passage in 134 days. She passed the straits of Le Maire on August 10th, being 60 days to Cape Horn. Then she, of course, got the wind in her teeth, and, being reduced to her small canvas, the stout ship battled the elements for 23 days off the Cape the greater part of the time in heavy gales of wind, with frequent rain, hail and snow squalls. On the night of the 2d of September, during a tremendous gale, a wonderful phenomenon presented itself. The rare spectacle of an aurora australis, or southern lights, was witnessed. It commenced about 1½ o'clock in the morning, and increased in splendor until towards daylight, when it gradually faded before the light of day. Our informant states that the whole heavens were of a deep red, which color was reflected in the ocean, upon which a fearful sea was running. These were surmounted by combs, not of the usual white, but almost blood red. Some of the crew were much frightened. Once, during the night, a tremendous hail and snow squall hustled upon the ship. Through the whole of this, the flames assumed the same roseate hue, and when a spray flew over the ship, it fell to leeward in ruddy showers. Between the squalls, in the clear places in the sky, the mysterious lights were seen shooting up in spiral streaks nearly to the zenith—now flashing out in the intense darkness with meteoric brilliancy, and now looming up against the horizon as with the blaze of some terrific conflagration, so that the glare was reflected upon the sails. Captain Howe and his officers say that they have never witnessed anything equaling this display for magnificence. During the gale, several times at night, brilliant comets or balls of electric fire appeared flickering at the mast-heads, yards, arms, and other salient points."

The large carpet factory of Messrs. Higgins & Co., Forty-third street, this city, was destroyed by fire on the 30th ult. A number of new looms had just been put up for weaving tapestry carpets. All was lost.

HIGH RAILROAD SPEEDS.

During past years, we have on several occasions directed attention to improving the "permanent way" of railroads, as being the most important means of securing higher speeds on them without proportionally increasing the working expenses. In Vol. X. of the *SCIENTIFIC AMERICAN* we maintained a lengthened controversy with the *New York Tribune* (which paper was then countenanced in its views by the *Railroad Advocate*), in which discussion we assumed the position set forth on page 389 of that volume, that defective permanent way, and not atmospheric resistance, was the great existing obstacle to attaining much higher speed on our railroads. Four years have rolled past since then, and in a recent number of the *London Engineer*, we find a very well written article on this subject, in which opinions corresponding to ours are expressed with the utmost confidence in their correctness. It says:—"For anything that can be seen, a speed of 30 miles per hour upon the water is practically impossible; whilst a speed of 100 miles per hour upon land is not impossible, unless from undeniable imperfection in the structure of our lines. With a proper condition of permanent way, and with sufficient power, there would probably be no difficulty in maintaining a speed of 10,000 feet per minute at the peripheries of the driving-wheels. A different construction of boiler, in which the steam would be generated in small tubes, and to a pressure of from 200 lbs. to 300 lbs. per square inch, would probably be requisite. *The permanent way appears to be the principal matter in which radical improvement is necessary.*"

On the page already referred to, there will be found the following sentence:—"We asserted years ago that trains could be run with ease at the rate of 100 miles per hour." On page 403 of the same volume will also be found the following sentence:—"We have been the constant advocates of improvements in our railroad system, and have frequently pointed to the great source of expense in working them, viz., defective permanent way, embracing numerous curves, inclines, bad tracks, &c." We recall these things because there seems to be a feeling prevailing at present in regard to the increase of speed both in steamers and on railroads, and the *Engineer* says: "We are not to expect that we have attained the limit of railroad speed, nor that future practice is to rest satisfied with the rates which have generally been maintained for the last fifteen years."

OUR PRECIOUS METALS.

In our last issue we gave a brief description of the great improvements which had been made in gold-mining, whereby auriferous deposits, otherwise unworkable, were now yielding vast quantities of gold. Every week brings us some fresh instance of the increasing value of our gold fields. During the past week, the steamer *Baltic* arrived with \$1,700,000 of gold, which makes the product \$36,000,000 already received this year. By the first of January next, \$4,000,000 more will be added to the year's product, thus making a total of \$40,000,000. This is an increase of \$4,000,000 over the import of 1858, and \$6,000,000 over that of 1857. This is a very cheerful feature regarding our annual gold crop.

In connection with our gold products, it appears that we are about entering upon a most fruitful enterprise of mining silver in Arizona. It is true that silver-mining is entirely different from gold-washing, but the silver-bearing rocks of this new territory are said to be so extensive and so rich in this precious metal that, in the course of a few years more, when our companies have their machinery in full operation, they will be yielding more silver than all the other argentiferous mines in the world.

ANTIQUITIES AT MARIETTA, OHIO.—Some workmen, while recently excavating for a cistern in the above place, after passing through six feet of sandy loam, and through three feet of conglomerate rock, so hard as to require blasting, found under the conglomerate a cavity, about a foot in depth, and in the earth below this cavity a human skeleton and the bones of animals. The bones were very old and crumbling. The skull of the skeleton, the most precious part to the ethnologist, was broken to pieces by a blow from a pick. A part of the upper jaw contained teeth, which were very much worn. It is somewhat difficult to account for the location of the bones. The conglomerate and accompanying sand appear to be a part of original strata, which, in the estimation of geologists, are older than the human race.