

Editorial Summary.

ITALIAN PETROLEUM.—This valuable mineral product is abundant in Italy, and remarkably pure. The city of Genoa was long lighted with crude mineral oil. In the provinces of Modena and Parma, it issues from the mud volcanoes, or from parts adjacent. A Mr. Fairman, of Pisa, has obtained from the Government the exclusive right of search in the rich oil districts of Reggio and Modena, besides an increased duty on the importation. He is now offering privileges on liberal terms to English capitalists. The U. S. consul at Ancona (Mr. Charles Ribighini), has lately placed upon the English market a very fine oil found in Southern Italy, which he calls from the place of its nativity "Toccolina." It is described as perfectly limpid, of a bright yellow, without smell, and of a gravity of 80° to 85°.

FRENCH COMMERCE.—The returns for 1866 show that France like our own country is at a standstill in shipping, while carrying on a great commerce in foreign bottoms. We learn from a cotemporary that the entering tonnage was 5,117,460, against 4,572,857 in 1865, and 4,312,668 in 1864; and the outward, 3,625,012 in 1866, against 3,249,070 in 1865 and 2,968,720 in 1864. The question is, what became of the tonnage that went in but did not come out? Nothing extra hazardous, we hope, in entering French ports. Apparently two distinct classes of tonnage are referred to without discrimination, or else tuns of freight are meant, instead of tonnage of shipping.

THE PARK HEAD FORGE (Scotland) is among the heaviest workers of its kind. It has two 7-tun hammers, one 6-tun and eleven smaller hammers of one tun and upward. Among its heavy forgings have been the stern frame for H. M. ship *Achilles*, weighing forty tuns, and a double-throw crank shaft lately forged for one of Her Majesty's ships, weighing about thirty-two tuns. This was completed in six weeks and one day. For welding stern frames and other forgings of a similar construction, a hydraulic press is employed, and the weld is made in the furnace while exposed to the heat. There is a vertical drill in the establishment with a spindle 10 inches thick.

THE POPULATION OF EUROPEAN CITIES.—In 1866, censuses were taken in Great Britain and France, and the reports show the following population of the principal cities: London, 3,037,991; Paris, 1,825,274; Liverpool, 484,337; Glasgow, 432,265; Manchester, 358,855; Birmingham, 335,798; Lyons, 323,954; Dublin, 318,437; Marseilles, 300,131; Leeds, 228,187; Sheffield, 218,257; Bordeaux, 194,241; Edinburgh, 175,128; Bristol, 163,680; Lille, 154,779; Toulouse, 126,936; Newcastle-on-Tyne, 122,277; Salford, 112,904; Nantes, 111,956; Hull, 105,233, and Rouen, 100,671. New York and Philadelphia have each a much greater population than any of these cities after London and Paris.

OXYGEN AGAIN.—M. Sessier de Mothsey offers as a simple and cheap apparatus for obtaining oxygen from the atmosphere, a tube containing a solution of permanganate of potash or soda and a jet of steam at a certain temperature. Heating the solution to the proper degree, a current of air speedily saturates it with oxygen, the nitrogen escaping; when the jet of steam is thrown in, displaces the oxygen and expels it from the solution. Being heavier than the atmosphere, the oxygen is collected in the tube nearly pure. The operation may be continued indefinitely. The apparatus will be exhibited on a large scale at the Paris Exposition.

NEW HAMPSHIRE GOLD MINING quite distances in excitement that of Vermont, apparently. A correspondent of the *Boston Journal* says that in Lisbon, four companies have been started, aggregate capital reported at \$1,000,000. One stamp mill is running on surface ores yielding \$6 50 per tun, promising great riches below. At and near Rumney, 25 miles south, over a thousand acres of land have been taken up, on the discovery of a lead which has been traced several miles, and from which gold, silver and lead have been smelted. In Lyman, adjoining Lisbon, large tracts of land have been secured for copper mining.

NOVELTY IN TANNING.—A tannery has been located at Rockford, Ill., in which is employed the patented process by exhausting the air from the vat. The tanning is said to be accomplished in twelve hours, and that of sheepskin in fifteen minutes. The weight of leather from a given weight of hides is ten per cent greater than by the ordinary process, and the cost of the works is but ten per cent that of the old. It is also claimed that the leather is better; but this point can only be determined by wear.

A VOLCANO IN THE MOON is said to be in active eruption. The crater called Linne has been lately observed to be obscured, and it is said that the same darkness was observed on this spot in 1788. The *London Spectator* says: "The impression is that an eruption is going on, but if so, must not the moon have an atmosphere? Could combustion take place without oxygen? Would the smoke—the carbonic acid gas—rise without some heavier gas, like atmospheric air, to rise in?"

NEUMEYER'S PROCESS for making inexplusive gunpowder, is as follows:—75 parts nitre, 6.25 sulphur and 18.75 charcoal, (the latter prepared from birch wood in a closed retort, soaked in soda lye and dried upon canvas strainers) are mixed in a moist state, and granulated in the ordinary way. English war powder consists of 75 parts nitre, 10 sulphur and 15 charcoal. Sporting powder, 77 nitre, 9 sulphur and 14 charcoal.

AMERICAN CIGARS AND "FINE CUT."—According to the records of the Internal Revenue Bureau, the number of cigars returned by manufacturers throughout the loyal section of the country, amounted to an aggregate of 1,281,359,855 on which tax was paid, between July 3d, 1862, and March 1st, 1866. The gross amount of tax paid on these cigars was \$6,500,000. Of chewing tobacco, in the fiscal year of 1863, 15,231,174 pounds were returned, which yielded a tax of over two and one-quarter million of dollars; in 1864, 39,180,634 pounds, tax, \$5,877,095; in 1865, 22,462,854 pounds, tax \$5,936,101; and for the first nine months of the year 1866, 18,330,647 pounds, tax \$7,329,428.

TOBACCO DE-VENOMIZED.—M. Melsens has found that tobaccos from various countries contain nicotine in very different proportions. In tobacco from some parts of France (e. g. the department of Lot) there is nearly eight or 7.96 per cent of nicotine, while Havana tobacco contains only two per cent. He proposes to smokers a way of preserving them from the effects of the alkaloid, and advises them to put into the tube of the pipe or cigar holder a little ball of cotton, impregnated with citric and tannic acids: as the smoke passes through the cotton it will deposit the nicotine therein in the shape of tannate and citrate.

PARAFFINE OILS will be injurious to brass bearings and journals if they contain sulphur or its compounds, as a result of the refining process. Dr. Vohl points out a way to detect these elements. He digested the oil for some hours at a gentle heat with a small piece of potassium, and adding water, tested the aqueous solution with nitro-prusside of sodium. The result was a deep purple solution showing the presence of a considerable amount of sulphur. Hydrofluoric acid as a bleaching agent, has been found by Dr. Vohl in the oil, and is very objectionable for lubrication, as it quickly attacks metals, and not less so for burning, as it forms a highly irritating vapor which causes inflammation of the eyes, destroys colors and acts on glass.

CHEAP RIDING.—It has been demonstrated in London, that men can be carried far more cheaply than they can carry themselves. The laboring man is conveyed to and from his home, distances varying from one to six miles, for one shilling per week, or less than two cents a trip. It is easy for him to see that his time and strength saved are worth more than this to him in wages at his work, and that many times this can also be saved to him in rent by fixing his residence out on the railway. Accordingly two of the most costly railways in England command by this policy a laboring men's traffic which is nearly if not quite the most profitable they enjoy.

PHOTOGRAPHY is applied in a very simple manner to register automatically the state of the thermometer or barometer at any regular intervals desired, throughout the day or even the twenty-four hours. An arrangement of clockwork is made to revolve the sensitive plate into position and uncover and close the camera tube at the proper intervals, thus obtaining a picture of the instrument. The movements of the compass, and the path of a ship, are also to be registered or rather pictured by photographic contrivances.

SOLUTION OF ROSINS FOR VARNISHES.—Calcutta copal and its congeners, as well as amber, are found, after heating in a closed vessel to 350° to 400° cent. (660° to 750° Fah.) to have acquired the property of dissolving when cool, in hydrocarbon or vegetable oils, without loss, and producing new and very fine varnishes. The combined influence of heat and pressure is the cause of the novel properties, the latter rising as high as twenty atmospheres.

A MONITOR.—At a recent meeting of the Institute of Civil Engineers, in England, Mr. John Bourne, celebrated engineer, read a paper upon the Navy, in which he demonstrated that the broadside system of iron-clads was a failure, and that the turret system—of which he expressly gave the credit to Capt. Ericsson as its inventor—must eventually be adopted by the English Admiralty, as combining the utmost possible concentration of offence and defence.

ABOUT 8,000 hogs, 2,000 sheep and 150 head of other cattle are now slaughtered weekly at the Communipaw abattoir. The yards will hold 20,000 hogs, 15,000 sheep and 6,000 head of cattle. A new and more merciful mode adopted for slaughtering beeves, is to insert the point of a sharp lance in the back of the neck, at the base of the brain. The death of the animal is said to be instantaneous, and is of course free from terror.

SAWING.—The foreman of Lawshe, White & Co., Osceola, Pa., furnishes us with the equipment of their mill, with which over 11,000,000 feet of lumber were cut in eight months, as follows: 1 slabbing gang; 1 flat gang; 1 muley saw; 1 double-edger. This mill, our informant says, having all the late improvements, can cut more lumber with the same number of saws than any mill within his knowledge.

PORCELAIN.—Since our article on glass, we have seen a report of recent experiments by M. Pelouze, in modifying the substance by varying the proportions of its constituents. Among other results, by increasing the proportion of silica to 400, he obtained a beautiful porcelain resembling the translucent marble called Algerian.

THE pride of position not unfrequently is the parent of injustice. Those mechanics who through perhaps compulsory experience, or by the favor of circumstances, have achieved a position which gives them responsibility and influence, are too often the most unreasonable in their exactions from the uninformed, or the inexperienced apprentice.

THE CLIMATE OF MICHIGAN is materially modified by the great lakes that surround it, softening and moistening the prevailing winds. In consequence, although in about 42 to 46 degrees north latitude, the belt of country bordering on the eastern shore of Lake Michigan for some miles back from the water, is becoming celebrated for the perfection of its fruits and the certainty of the crop. The state owes to the same cause the most extensive and valuable forests of timber now anywhere to be found east of the Rocky Mountains.

NEBRASKA produces twenty-five native varieties of the plum. In early spring, says a report to the Agricultural Bureau, hundreds of acres together of these indigeneous plums display one sheet of white flowers covering the landscape, and loading the air with fragrance. A certain variety has been observed which withstand the attacks of the curculio, and bear abundantly, while all others were thinned out by the insect. Three varieties of gooseberry are also native to this State, one of which is of remarkable size and flavor.

PATENT OFFICE DECISION.—It was omitted to be stated that the able decision, having reference to important improvements in sinking wells, from which an abstract of the points involved was given in last week's issue, was rendered by the Hon. Elisha Foote, S. H. Hodges and S. C. Fessenden concurring.

LONDON has a society for the saving of life from fire, by means of which 89 persons were rescued during the last year, from 610 fires. The force is 100 strong, with 85 escape stations.

"CANDEL."—The origin of this term is doubtful; but it seems to be the general opinion in the mining districts where candel coal is obtained, that it is an easy corruption of "candle," referring to the free inflammability of the article.

CINNABAR.—Cinnabar of a beautiful vermilion color is found in an unusual form in Idaho, being abundantly spread throughout a gangue so massive, compact and homogeneous, that specimens may be cut and polished like marble.

A GREAT BELT lately manufactured by P. V. H. Van Riper of Paterson, for a cotton mill in Philadelphia, measures 103 feet in length, 28 inches in width, and three-fourths of an inch in thickness. It consumed 100 hides and cost about \$1200.

ITALY shows a strong symptom of genuine *renaissance* in the activity and ambition of her manufactures. No less than 1,365 exhibitors are already enrolled from Italy in the Paris Exposition

METALLIC ZINC PAINT.—English papers notice a novel preparation of metallic zinc which is easily pulverized and applied with oil as a paint for ships' bottoms, to prevent fouling.

OBITUARY.

Science in the United States has lost one of its brightest stars by the death of Prof. ALEXANDER BACHE, which occurred at Newport, R. I., on the 17th of February. A more extended notice will be given next week.

Tunnel, Tunnel, Tunnel.

A number of Pittsburgh capitalists have under consideration the construction of a tripartite tunnel from Saw Mill Run to Pittsburgh, Alleghany and Manchester, under the Ohio and Monongahela rivers. A bridge of like character was contemplated some years ago. The impression now is that a tunnel will not cost more than the bridge while the advantages are with the former.

Another tunnel is talked of to pass the trains of the Great Western and Michigan Central Railways under the Detroit River, over which they are now carried by the new iron ice boat. Borings are said to have shown a favorable stratum of clay.

A bill has been passed by Congress authorizing the construction of a tunnel under the Mississippi River at St. Louis

THE MARKETS.

We noticed in our last report the prosperity of the European manufacturing in crests, and with the consequent cotton demand of Great Britain and the Continent. It may not be uninteresting to note in this place from whence the supply for the year may be reasonably expected.

It is now generally conceded that neither India nor Brazil are to be relied on the present season for meeting this demand on anything like the scale of last year; in the former country the falling away from the unprecedented crop of the past season must be very heavy. Egypt was expected at one time to furnish thrice as much as last year, but this estimate is now materially reduced. Too much has also been expected from Turkey and the neighboring states, and though some slight increase may be realized both from these quarters and the West Indies, the main supply must still be from the United States. Last season there were shipped from this country to Europe 1,555,000 bales of cotton, of which amount Great Britain absorbed 1,263,000. Estimating the crop of this season at 2,000,000 bales, allowing three-eighths of it for home consumption, there will then be 250,000 for shipment to the Continent, and 1,000,000 for Great Britain, a falling off in the latter's supply of 262,000 bales, and when this is added to the probable deficiency from India and Brazil, it is evident a demand will be created which must make prices correspondingly and quite uniformly high.

PETROLEUM.—Total foreign exports from the United States from the beginning of the year to the 9th of this month was 4,141,237 gallons, showing a falling off from shipments of the same time last year of 2,923,005 gallons, and an increase from 1865 of 2,473,533 gallons. The market at date is weak, with a fair demand for crude.

COTTON.—A continued falling off in receipts from the interior has had the effect of stimulating exporters and speculators to purchase freely at full prices, in anticipation of an improvement in the Liverpool market.

METALS.—The demand for ingot copper is still very limited, but prices are firm, with very little offering at present rates. The iron market continues dull. Some improvement is at length noted in pig lead. The demand for foreign spelter is light, but the advanced price is well sustained, Silesian selling at 6½ cents gold. The anticipation of a higher tariff on steel has had the effect of creating considerable activity on the part of purchasers. Pig tin is offered quite freely, and a slight decrease in prices is noted. Zinc continues dull.