

between the sea and some internal volcanic vents, whence this substance is ejected.

In the vicinity of the Caspian, the Bakoo has yielded large quantities of oil, and is highly celebrated. Some of the Persians have furnished fifteen hundred barrels a day, and throughout this region this material, the name of Naphtha, is very generally in vogue.

Rangoon, in Burmah, petroleum has been known for many years, and at this time there are five hundred wells, which annually afford hundred thousand hogsheads. The oil occurs in a stratum of blue clay; wells about sixty fathoms are dug, into which the petroleum oozes. It is sometimes used in its natural state, but frequently it is first purified by distillation from steam. The raw material is also mixed with sand and used as fuel.

In Europe there are a few abundant springs. One of the Ionian Islands there is an oil fountain which has flowed for over two thousand years, and the oracular fires of ancient Greece have been attributed to similar sources. Oil also occurs in Bavaria, in the Grand Duchy of Modena, at Neufchatel, at Clermont in France, and near Amiano in Italy. Petroleum procured from the last named locality was used for lighting the city of Genoa, but elsewhere in Europe it is not employed, to any extent, as an illuminator.

On this side of the ocean there is an enormous quantity of this substance. Upon the Island of Cuba, one of the West Indies, at a distance of thirty miles from the sea, is a lake of asphaltum three miles in circumference. Near this the asphaltum is hard and cold, but as one approaches the centre the softness and the quantity increase, until finally it is liquid and bubbling. From the bubbling mass proceeds a sulphurous odour, which is perceptible at a distance of ten miles. Between the banks of the lake and the shore of the island is an electric current of land, covered with hardened asphaltum, upon which vegetation flourishes. This explanation put forward in connection with the Dead Sea, is equally applicable in this case.

Others of the West Indies petroleum has been obtained, as well as at several places in Central and South America; but it is in the Eastern portion of this continent that the great reservoirs of this substance are located; and it is truly wonderful that their extent and value should not have been discovered at an earlier period. For many years the Seneca Indians collected petroleum, and, under the name of "oil," sold it as a remedy for rheumatic affections. At numerous places in the Middle West was found in salt borings, and was collected and burnt by the farmers, but it was not until 1859, that it was obtained in noticeable quantities. At this time oil was "struck" in the Greek, Venango County, Pennsylvania,

by sinking an Artesian well to the depth of seventy feet, and for many weeks a thousand gallons a day were pumped from it. The news of this discovery spread far and wide, and gave rise to an "oil fever." Thousands flocked to this vicinity in the hope of making their fortune. Before the close of 1860 there had been over a thousand wells bored, many of which were productive, but a large proportion returned nothing. Some of the adventurers have been very successful, and have made large amounts of money; but, as in all commercial "fevers," a large number of persons have been utterly impoverished by their speculations. The mere sinking a well by no means insures a bountiful supply of oil. The petroleum is stored in fissures formed by the upheaving of the earth's crust by volcanic action; and these fissures are perpendicular rather than horizontal in tendency, as is proved by the fact that at wells but a few rods apart, the oil is "struck" at very different depths. The lowest parts of the fissures contain water, above which is oil, while in the highest portion there is a quantity of gas. If, therefore, the well strikes the fissure at the lowest part, the water will be forced up by the pressure of the supernatant oil, and gas. Persons ignorant of the formation sink a well at random, and perhaps strike a fissure; but obtaining nothing but water, they abandon the spot as worthless, whereas after removing the water by pumping, a large quantity of oil might be obtained.

In some localities in Ohio, as is the case in Burmah, the ground is saturated with the oil, and wells several feet in diameter are dug, into which the oil oozes. Porous limestone, containing petroleum, is found in some sections of the West, and has been subjected to distillation with profitable results.

In regard to the origin of petroleum, scientific authorities differ; but the theory most generally favoured is, that it is the product of the slow distillation, at low temperatures, of organic matter in the interior of the earth; the vapours being condensed in the previously-mentioned fissures and the surrounding soil. The lake of Trinidad and the bituminous matter of the Dead Sea may also be referred to a similar source. But for how many centuries must this operation have been going on to have effected such enormous results?

Of the many uses to which petroleum and its derivatives are applied, that of illumination is the most important; and the process of refining is extremely simple. The crude material is put into a large iron retort, connected with a coil of iron pipes, surrounded by cold water, called the condenser. Heat is applied to the retort, and from the open extremity of the condenser, a light coloured liquid of strong odour soon flows. This is naphtha, and is very volatile and very explosive. Some refiners mix it with the burning oil, and numerous accidents have resulted from such mer-