established place in the markets of the world. This demand is due to the great strides which have recently been made in the applications of electricity, the mineral being used for insulating purposes in the construction of dynamos and other electrical machines. Many phosphate properties which were thus believed to have become valueless have proved to be capable of yielding good returns when worked for the mica, which had formerly been disregarded as a refuse product.

The output of gypsum is steadily increasing. It is largely worked in Nova Scotia, New Brunswick and Ontario. The deposits in these provinces are very large, while others not yet opened up are known to occur in Manitoba and the North-West Territory. The mineral when ground finely is used under the name of "land plaster" as a fertilizer, or dressing for land, and when calcined is converted into "plaster of Paris," which is employed very largely for the production of casts, mouldings, etc., as well as for the interior finishing of houses. Alabastine and other similar products are also made from it. The gypsum beds of the Maritime Provinces are of great thickness, and occur in association with the limestones of the carboniferous system. In the quarry at Hillsborough, N.B., a cliff of gypsum rock 100 feet in height is to be seen, while cliffs of snowy white gypsum 200 feet in height are found in Nova Scotia. The transparent, crystallized variety of this mineral, known from its moon-like lustre as selenite, is found in New Brunswick as great veins cutting the massive deposits. The name plaster of Paris, which is given to gypsum when calcined, is derived from the fact that at Montmartre, near Paris, in France, where there are very extensive deposits, the gypsum was first calcined on a large scale and the so-called plaster of Paris thus obtained. The production of plaster of Paris depends on the fact that the gypsum contains about 20 per cent. of water, which is driven off when the mineral is heated. The anhydrous plaster of Paris so produced, and which looks like flour, has, however, when mixed with water to a pasty mass, the power of taking up this water again, and thus becoming converted into a solid rock-like mass. It is this property which enables the plaster of Paris to be used for the various purposes to which it is put. Last year the Dominion produced 223,601 tons of gypsum, valued at $202,031, as may be seen from the report of the Geological Survey on the Mineral Production of Canada in 1894, published in the July issue of THE CANADIAN ENGINEER.

Canada is also a large producer of petroleum. And here it may be mentioned that the name coal oil is a misnomer, seeing that petroleum is not in any way connected with coal, neither originating from coal, nor being found associated with coal, nor in coal-bearing districts. It occurs in rocks, sometimes older and sometimes newer than the coal measures, and is derived chiefly from bituminous shales or limestones.

Formerly, oil, known as kerosene, was manufactured from these bituminous shales by a process of distillation, but when petroleum was discovered in the great oil wells of Pennsylvania and Russia, the price of oil fell so greatly that the production of kerosene in this manner was no longer profitable, except in a few of the most favorably situated localities, and petroleum or rock oil thus became the great source from which the various illuminating and lubricating oils, as well as a host of other products, paraffine, vaseline, tars, etc., were obtained. It will be remembered that by the discovery of oil on their farms, many poor men were suddenly raised to great wealth, and many remarkable incidents are related as showing the variety of ways in which this wealth, so easily acquired, was as readily squandered. The largest oil-producing districts in Canada are in the County of Lambton, Ontario, and in the vicinity of the town of Petrolia. These oil fields yield, practically, all the oil produced in the Dominion. The oil is met with at a depth of from 370 to 470 feet. The first flowing well was struck on the 19th of February, 1862, and before October in the same year, there were no less than thirty-five flowing wells. As there was no accommodation at that time for the storage of the large quantities of oil flowing from these bore holes, much of it went to waste, and it is calculated that between the dates above mentioned no less than 5,000,000 barrels of oil floated off upon the water of a neighboring creek. This district now produces about a million of barrels of oil annually. The "wells" or holes from which the oil is obtained are about four and a half inches in diameter, and as above mentioned, from 370 to 470 feet deep. The Petrolia drillers are very expert and are in demand all over the world, and much work is done by them even in Asia and Australia. The holes are drilled by means of jump drills in about five or six days, and when completed each is fitted with a pump and a whole series of them are pumped by one engine. The good old days of flowing wells have gone by, all the wells now requiring to be pumped, each yielding an average of about half a barrel per diem. Old wells are constantly abandoned and new ones drilled, and the supply being in this manner kept up. The various oils contained in this crude petroleum are separated from one another by a somewhat complicated process of distillation, known as fractional distillation, the crude oil being heated and the several oils passing off at different temperatures as the heat is raised, and being thus collected separately. The heavy tarry products are further treated and worked up into a variety of useful products, while the coke remaining in the retort at the completion of the process is utilized as fuel.

A volatilization of all the lighter constituents of petroleum in a way similar to that which takes place during its distillation as above described, is observed in certain localities where rocks holding petroleum have for long ages been exposed directly to the air. Heavy black tars are thus produced, and a most remarkable occurrence of this kind is found in the Athabaska region of our North-west territory. The tar here occurs impregnating a soft sandstone of cretaceous age which rests on an older limestone formation. The latter contained immense quantities of petroleum which have escaped into the overlaying sands, and these being exposed to the air, have hardened into tar. These so-called "tar sands" have an area of at least 1,000 square miles, and are from 150 to 225 feet thick, the area being estimated by Mr. McConnell, of the Geological Survey, to contain six and a-half cubic miles of tar of bitumen. The commercial value of this tar sand, owing to its remoteness, is not at present great, but the abundance of the material, and the high percentage of tar which it contains, makes it probable that in the future it may be profitably utilized for many purposes. Its existence proves a flow of petroleum to the surface in this Athabaska region, in times past, unequalled elsewhere in the world, but as above mentioned, the valuable constituents have long since disappeared, and the supply in the