

Individual wells it appears yield supplies for a very limited period; but the sources of petroleum may be like those of coal fields, some of which are so extensive as to have furnished millions of tons for centuries, by boring new mines to reach different portions of the fields. It is stated that the new wells in the valley of Oil Creek do not give out such quantities as those which were bored about eighteen months ago, but the number of wells is much greater and the aggregate yield of petroleum has not diminished. Nearly six hundred wells have been bored in the one narrow valley, which is not over eighty rods in width and only a few miles in length and the adjacent ravines bordering upon it have been neglected. As the space hitherto tapped to obtain the petroleum is exceedingly limited, there are no good grounds for concluding that the quantity now furnished may not be continued for many years to come. Similar wells to those which have been bored may be extended over a very extensive area, as petroleum has been found in pumping wells along the Alleghany and Ohio rivers for a distance of more than one hundred miles.—*Scientific American*.

Young's Paraffin and Paraffin Oil Works.

About fifteen or sixteen years since, a thick dirty-looking oily fluid was observed flowing from the cracks in the sandstone roof of a coal-mine at Alfreton, Derbyshire. The attention of Mr. James Young was directed to the circumstance by Dr. Lyon Playfair, and he made a number of experiments with a view of utilising this liquid. These experiments resulted in the establishment of a factory for the production of lubricating and burning oils. After a short period, however, the supply failed, and the manufacture necessarily came to an end. This untoward termination led Mr. Young to reflect on the causes which had produced this natural petroleum, and to endeavour to ascertain whether it could not be obtained artificially. From its situation in the sandstone above the coal, Mr. Young was led to the conclusion that its production was dependent on the natural distillation of the coal by subterranean heat; and on investigation he found that by distilling coal at a low temperature, he obtained an oily liquid in large quantity. For the protection of this discovery he took out a patent, and immediately proceeded to establish works at Bathgate, Linlithgowshire—this locality having been selected on account of the existence of the Boghead Coal-mines in the immediate neighbourhood. From this small beginning there has rapidly been developed one of the largest chemical factories in the kingdom, with works covering twenty-five acres of ground and furnishing lucrative employment to upwards of 600 men.

The establishment of this factory furnishes a convincing reply to those pseudo-philanthropists who bewail the decline of simple pursuits requiring unskilled labour, and think that the development of the manufacturing over the agricultural system is the bane of the country. When the Paraffin Works were first established at Bathgate, the village was chiefly occupied by hand-loom weavers whose average earnings amounted to about 6s. per week. These weavers have now become the intelligent workmen of the factory, their earnings having been trebled by the change; and even the

unskilled labourers receive more than double the previous average earnings of the district.

A French Ice Machine.

Small machines have lately been made and sold in Paris, for making ice. A late number of *L'Illustration Universelle* gives an illustrated description of one. A cylinder of sheet tin, with a movable cover at one end, to be kept tightly in its place by a screw when shut, with two openings, one at each end, to receive through two funnels the materials used, and a discharge cock at one end to discharge the contents when the cylinder is to be emptied, are all the apparatus required. This cylinder, when properly charged, is placed on a pair of rockers, to convert five hundred French grammes of water into ice (each gramme being nearly seventeen grains avoirdupois) it is necessary to place in this cylinder or well, twelve hundred grammes of sulphate of soda and eight hundred grammes of hydrochloride or muriatic acid. Into this preparation or bath, says the inventor, place a form or vessel containing the water to be frozen. Close the cover fast, and then for seven or eight minutes give the cylinder a see-saw motion on its cradle, and you obtain the desired result. A solid block of ice of five hundred grammes may be produced by this operation. It is well known that ice may be thus produced, by the use of refrigerating mixtures; but at a cost apparently greater than is charged for ice in New York, even at its present exorbitant price. But in warm climates, where ice has to be imported from great distances, a good ice machine may be of great importance. A French ice machine was illustrated on page 256, Vol. V., (new series), *Scientific American*, and an English one on page 72, same volume. This latter machine is the most complete for the purpose, although expensive, that has yet been devised. It was invented in Geelong, Victoria, and large blocks of ice have been made by it.

Caoutchouc.

This gum, usually called Indian Rubber, because it was originally and almost solely employed to rub out black lead pencil-marks, was first sold in England (as Dr. Andrew Wynter reports) for seventy-five cents for a cubical piece of half an inch. This was in 1770, and the vendor was Mr. Maine, mathematical instrument maker, opposite the Royal Exchange, London. Its employment now, in manufacture and art, would require a volume to describe, and it is surmised that its uses may be very largely extended.

Berlin and Vienna.

The chief cities of the two great Powers of Germany, are according to the latest official accounts, very nearly equal in population. The Prussian capital numbers 527,000 inhabitants; the Austrian 530,000. As much as 26,385,000 florins (more than two and-a-half million pounds sterling) is paid annually in Vienna in the way of rent; while in Berlin the amount is 27,382,000 florins. The half million Viennese live in only 9,900 houses, while the Berliners occupy 21,600. The number of persons living in one house in Vienna is therefore no less than fifty-four while in Berlin the number is nearly twenty-five.