The Production of British Pig Iron.

Many estimable people surveying the statistical evidence of national progress and retrogression appeared to have made up their minds that the industrial prestige of Great Britain was slowly but surely waning, because we seemed to have lost our supremacy as an iron making nation and to have yielded up our priority of position to the United States and to some extent also to Germany. To such persons it may come as an agreeable surprise to learn that the output of pig iron in Great Britain for the first half of 1896, as ascertained by the British Iron Trade Association, places us once more in the front rank as an iron producing country. Our total make of pig iron for the first half of the past year was 4,328,444 tons, which is a larger output than we have ever before attained in six months. This output, however, is not equal to that reached by the United States in the same period. With the commencement of 1896 the output of pig iron in the United States was at the rate of about 11,000,000 tons a year, but since then the output has fallen month by month, until it is estimated that it does not now exceed a rate of 6,500,000 tons a year, while the output for the twelve months, assuming the continuance of the present rate of production, has been estimated at less than 8,500,000 tons, which would, of course, be less than the British output for the same period, assuming the maintenance of the rate of output during the first six months of the year. As for Germany, which is the next largest iron producing country after Great Britain and the United States, the production up to the present time justifies the belief that the total output of pig for the year will be about 6,000,000 tons, or approximately about 2,500,000 tons under the output of the United Kingdom, from all of which it seems reasonable to expect that at the end of 1896 our own country will have fully reasserted its old supremacy.

The most striking features of the progress that has been achieved in the pig iron industry of the United Kingdom during recent years has been the increased productivity of the plant employed owing to improvements of design and methods of working that almost amount to a revolution. A quarter of a century ago there were 915 blast furnaces erected in this country, of which 688 were in operation. These 688 furnaces produced in 1871 an average output of 8,665 tons per furnace and consumed an average of nearly 2¾ tons of coal per ton of pig iron produced. In 1895 the average production of the 344 furnaces in operation in the United Kingdom was 22,700 tons, and the average consumption of coal per ton of iron produced was 1·97 tons, so that in the interval the average output per furnace had increased by about 165 per cent, and the average consumption of coal per ton of pig iron produced had been reduced by about three-quarters of a ton. Even these figures, however, do not represent the full measure of the advance that has been accomplished during this period. In some districts the progress has been much greater than in others, and the maximum of progress achieved in a few individual cases points to what might have been done in the way of still greater progress and indicates what may be expected.—London Times.

IN a recent number of the SCIENTIFIC AMERICAN a new element lucium was described. It now appears that this element and its application to incandescent gas lighting have been patented. The patentee claims that lucium exists in monazite sand to the extent of 1·80 per cent. Evidently Berzelius, Davy and others, who gave their discoveries to the world, were not alive to their opportunities.

BLOWN GLASS BRICKS FOR BUILDING PURPOSES.

A feature of the recent Stuttgart exhibition which attracted considerable attention was a display of buildings which were constructed of what is known as the Falconnier's blown glass brick, so named after the inventor, a French gentleman. The bricks are blown hollow in the same way as a bottle, the color

FALCONNIER HOLLOW GLASS BRICK.

which is most commonly used being a very light bottle green, bottle glass being the strongest; though yellow brown or other shades of green may be used if desired. The standard brick is 5 inches wide, 8 inches long, and 4 inches thick, and is formed in the shape shown in the accompanying illustration. When it is used for walls, or such structures as have to carry a quiet load, the bricks are laid as shown in our view of an ornamental pavilion, and cement is used in the joints, which are hollow. But when the bricks are used in roof work, or where the finished work will be subjected to bending strains, the cement is assisted by winding stout wire around the joint grooves in such a way that it will pass under one brick and over the next, the course of the next wire being reversed. A similar set of wires is wound in the cross direction, so that the bricks are really set in a wire network into which they are securely cemented.

When large walls or arched roofs are made of these bricks it is necessary to make allowance for expansion, especially if the work has been done in cold weather. For this purpose the edges of the bricks are covered with a thin layer of glue, which is subsequently destroyed by the cement between the bricks and leaves sufficient space for their expansion in hot weather.

It is claimed that they are permanently translucent, and that they have the advantage over double glass windows that they do not admit damp or dusty particles, and never tarnish. The surfaces, exterior and interior, are so ribbed and curved that while abundance of light is admitted, it is impossible to see through them. On this account they may be used where an ordinary window would be objectionable, as in the case of a window that looks into those of a neighboring house. Perhaps the most valuable feature of these bricks is that the air which they contain is an excellent non-conductor of heat, and tends to keep a house cool in summer and warm in winter, and, of course, damp will find it difficult to pass through a wall built of this material. On account of its non-conductivity this material is admirably adapted to the construction of greenhouses, and it lends itself to some remarkably picturesque effects in this class of construction, the roofs being built in arched or dome-like forms. It is also used to advantage in the construction of pavilions, such as the one shown in our engraving, or of city restaurants and places of public resort, where light shall be admitted, but a view of the interior shall be impossible.

PAVILION CONSTRUCTED OF BLOWN GLASS BRICKS.

Messages by Kite Wires.

William A. Eddy, Dr. William H. Mitchell and Henry L. Allen sent the first kite telephone and telegraph message in the world over a midair wire, sustained by three large kites, on the evening of December 6, 1896, in Bayonne. Morse sounder telegraph signals were also sent by means of a battery.

The wire was carried aloft by the kites beyond three lines of trees, two roadways, one line of fire alarm telegraph wires, one line of regular telegraph wires and a house. A red lantern was attached to an end of wire passing through a pulley, held at a height of about five hundred feet, and paid out upward and beyond the intervening obstacles. When the lantern had been carried over the line of Lexington Avenue it was slowly lowered, carrying the wire with it to the earth, where Dr. Mitchell soon established ground connections at each end of the wire, when the first telephone message was received by Mr. Eddy. Dr. Mitchell's voice was heard with perfect clearness. A telegraph signal by the usual Morse sounder was also successfully transmitted. The telephone messages and telegraph signals were continued about an hour and a half. Those using the telephone were William A. Eddy, Mrs. Eddy, Henry L. Allen, George S. Bogert and F. M. Wilson, all of Bayonne. The kites were sent up at 4:30 p. m., the telephone wire at 8 p. m., and both kites and wire were drawn in by 11:30 p. m. Delay was caused by two of the lowering lanterns falling about five hundred feet, the lowering wire having broken owing to a jam in the pulley, and by the wind, which was so light from the southwest that for a time the lifting force was insufficient. Mr. Eddy says the wire can be carried across the Kill von Kull readily, especially with northerly winds.