

**Concentration of Sulphuric Acid.**

For many purposes sulphuric acid is required of greater density than 1.750, as it is obtained by concentration in lead pans. In South Lancashire not less than 700 tons of concentrated acid is made weekly. The use of glass vessels for this purpose has been largely superseded by the use of platinum retorts. The enormous cost of these vessels is partly due to the unjust and unenlightened monopoly exercised by the Russian Government, and to the circumstance that the manufacture of platinum is in the hands of few persons.

Experience has shown that under the influence of boiling sulphuric acid, platinum is gradually acted upon, particularly in the presence of nitric or nitrous acids. To obviate these disadvantages, cast iron retorts, partly filled with sand or gypsum, have been tried, but not very generally. The proposal recently made by M. Keller, to evaporate by exhaustion, has not been more favourably received, though it would admit of vessels being used for the purpose that could not otherwise be used. This plan was proposed by M. Kuhlmann several years ago.

In America, Mr. Clough has obtained a patent for a method of concentration based on the fact that lead is not acted upon by sulphuric acid, even when concentrated, at the ordinary temperature. It consists in heating the surface of the acid in a leaden pan contained in a cast-iron case, with a current of cold water between them. Mr. Shanks and others have, for some time, adopted similar plans, but they have not become general.

In 1850, Mr. Gossage, jun., obtained a patent for the concentration of sulphuric acid by means of a current of heated air passed through a column of flints in a lead cylinder, against a shower of the acid. He found that the concentration could be effected in this way at a much lower temperature than any other way, but unfortunately the acid was also evaporated with the water to a great extent.

In many factories, especially in Lancashire, platinum vessels are no longer used, and glass retorts of a larger size than were formerly used are being substituted in their place. These glass retorts are heated either by the bare fire or in a sand bath, and the temperature of the retort-house is kept very high, in order to protect the upper parts of the retorts from sudden cooling. The retorts are filled with hot acid, and the concentrated acid is drawn off by a syphon. In France platinum retorts are still used generally.

**Monhaden Oil.**

In the Peconic Bay there are no less than six manufactories, consuming, in the aggregate about 2,000,000 fish weekly. The fish are caught in Gardiner's Bay mostly, where they abound in great quantities. They are taken by what we call purse seines, and can be caught in any depth of water. The seine is made (as its name indicates) like an old fashioned purse; after rowing around the fish, the bottom is closed by a purse line, and the fish are secure. There are four companies of fishermen from Rhode Island here at this time, having from four to five large boats apiece, and from eight to nine men. The fish are bought for

\$1 per thousand. These seines some days catch 150,000 each, which you see makes a paying business of it. The manufactories are nearly all on different plans. Some use large tanks, in which the fish are placed, and into which steam is forced. A portion of the oil is extracted, coming on the surface of the water, and is skimmed off; the water is then drained off, and the refuse is pressed by hydraulic presses or powerful levers. In another way of working, used by one manufactory, the fish are placed in a large iron cylinder, similar to a boiler, and steam is let in at a given pressure, while the cylinder is made to rotate by a steam-engine. The fish are steamed from twelve to fifteen minutes, then turned out and subjected to hydraulic pressure, which, of course, extracts oil and water together. This runs off through pipes into tanks, where the oil rises to the top and is taken off. There is a patent for this cylinder style, as it is called. The fish, after being pressed, are dried on large platforms (some of them covering half an acre of ground), and, after being thoroughly dried, the mass is ground into what is called fish guano, ranging in price from \$25 to \$35 per ton, and is considered an excellent fertilizer. These manufactories employ from fifteen to sixty men each, and consume an enormous quantity of fish. That it is a paying business I have no doubt, considering the amount invested, which is considerable, the manufactories costing from \$10,000 to \$60,000 each.—*W. Hill, Greenport, L. I.*

**Opening of the Bhoze Ghaut Railway Incline.**

Such events as the celebration of the opening of the Bhoze Ghaut incline of the Great Indian Railway, present a refreshing contrast with the sad records of daily intestine strife which Indian papers but too lately presented. We hail the increased development of railway communication in our Indian dependencies as an assurance of peace and tranquility not likely to be easily disturbed. The active part taken by the Government in the promotion of this line goes far to prove, that England at least understands that the civilization of India should be one of her first objects. Little doubt remains that to her we may in future look for the greater proportion of our cotton supply; and the success which has attended the working of the heavy inclines on this line proves, plainly enough, that there will be no difficulty whatever in supplying a means of transit by which the precious material may easily be brought to convenient shipping ports. The *Bombay Saturday Review* says:—

"The Incline reaches at one long lift the height of 1,832 ft., the highest elevation yet attained by any railway incline. It is 15½ miles long, and its average gradient consequently 1 in 46.39. The highest gradient is 1 in 37, and the sharpest curve 15 chains radius. The tunnels are 25 in number, the greatest length of any of them being 341½ yards. There are eight viaducts, one consisting of eight arches of 50 ft., and being 129 ft. high, and another with a like number of arches with a maximum height of 143 ft. The quantity of cutting amounts to 2,067,738 cubic yards, and of embankments to 2,452,308 cubic yards; and there are 22 bridges of various spans, and 74 culverts. The total cost of the works has been £1,000,000, or £68,750 a mile.