

BAKU.*

The accompanying illustration, from a recent photograph, shows the most important business portion of the principal seat of the Russian petroleum industry, on the Caspian Sea. The town has but lately had a very severe visitation of cholera. The house on the extreme left is that of the Governor of Baku, and the roadway for about fifty yards in front on each side is asphalted. All tramcars must proceed at a walking pace, and not stop to take up or set down passengers while on this stretch of road. Further to the right is the Customs House, beyond which is the "Virgin's tower," an ancient structure now used as one of the harbor lights for ships coming into the port. To the extreme right may be seen the warehouses and works of the Kaucus and Mercurie Company, the largest ship-owners on the Caspian Sea and the Volga. This company has a fleet of nineteen steamers—i. e., thirteen screw steamers, with a total of 5,670 horse power, the largest, the Jandr, being of 1,200 horse power, and six paddle steamers, of 4,656 total horse power. The largest paddle steamer is the Admiral Karnelov, whose dimensions are length, 248 feet, breadth, 30 feet, and depth, 16 feet 8 inches, and fitted with engines of 950 horse power. This company has the contract for conveying the mails over the Caspian Sea. At the opposite end of the bay, the distance being about two miles, are the government dockyards of Bielof. In the old town, which is inclosed by a wall from 12 feet to 16 feet in thickness, some of the streets are very narrow. The artificers may be seen sitting at the front of their shops making shoes, Persian slippers, Astrakhan and Bokhara caps, and articles in gold and silver. The population of Baku at the end of 1890 was about 104,000. Our illustration is from *Industries*, London.

The supply of crude petroleum at Baku is apparently inexhaustible, but until within the last ten years the town has been practically isolated from the rest of Europe, a long and troublesome journey being required to get to it. This has now been changed, and Baku at present has steam communication with all parts of Europe. The Nobel Brothers have borne a prominent part in developing the petroleum industry here, laying the first pipe lines, employing tank steamers for conveying the product, and taking the lead in employing petroleum as fuel for the steamers. There is now not a vessel on the Caspian using wood or coal, liquid fuel being employed exclusively.

* For illustrated description of the "Russian Petroleum Industry at Baku," see SCIENTIFIC AMERICAN SUPPLEMENT, No. 439.

Bitumen Oil and Gas in France.

Certain districts in Auvergne, France, are very rich in deposits of bitumen. There are three varieties equally abundant, the liquid, bituminous limestone, and the bituminous sandstone. The mineral is met with at a few feet from the surface. The seams of bituminous limestone are in some places 200 feet thick. The mines have never been worked beyond 80 or 100 feet. The mineral gives oil and gas by distillation, but as experiments have been made only on the bitumen near the surface, of course it gave but small quantities of light oil. The bitumen extracted by bor-

machinery for the purpose, also the necessary experience in such work. There can now be no doubt about oil existing at a certain depth; it comes up already on the surface of the water. There is an opportunity for experienced capital to test these deposits of bitumen, which, it is believed, would yield good returns for the investment.

Russia the Headquarters of Famine and Disease.

One of the most engrossing things of late in New York has been the cholera and what they are doing at Quarantine to prevent its entrance into the city.

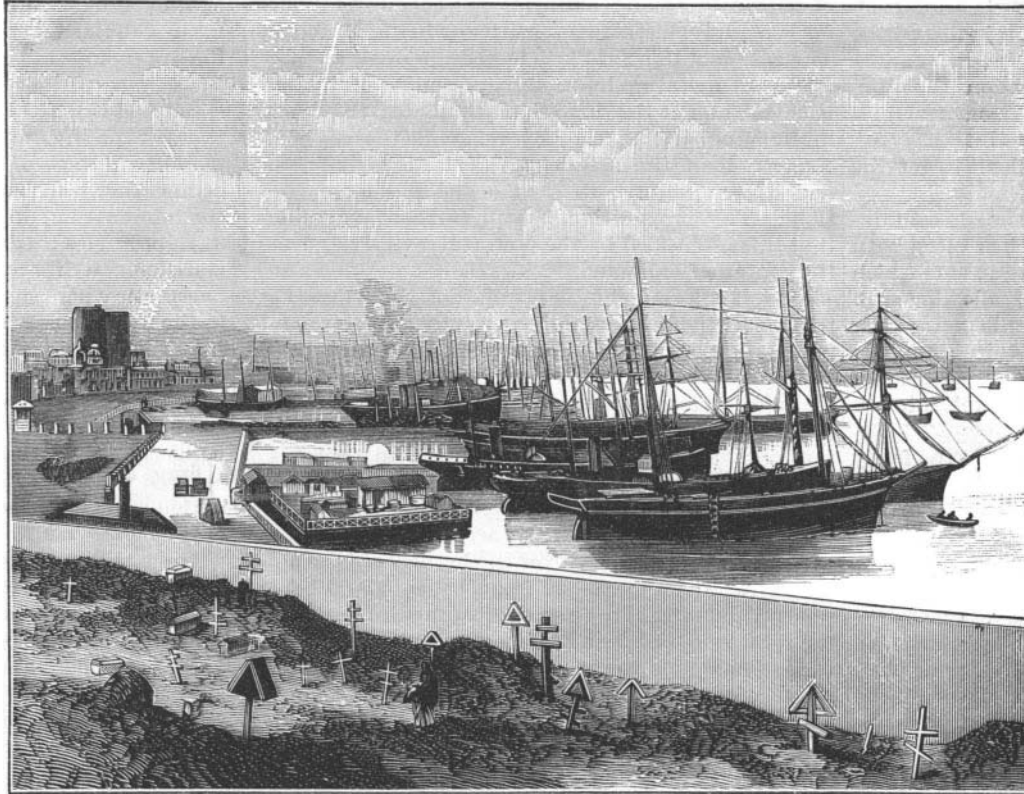
With this dread disease knocking so urgently at our gates, it may be interesting to learn what men known for careful scientific research are disposed to say as to its origin.

Mr. Geo. W. Dunn, president of the Standard Chemical Works, says: "The principal cause of this appalling disease is the failure of the Russian crops last year. Our minister at St. Petersburg, the Hon. Charles Emory Smith, states that there are from fourteen to sixteen millions of people in absolute want of the necessaries of life and dependent upon measures of relief for continued existence." He also says: "The area over which the famine prevails is ten times as large as the State of New York. It contains a population of more than thirty millions. More than one-half are in utter helpless destitution, without food and without means of getting it. There are other millions who are reduced to abject penury and who can sustain themselves only in the most precarious way, and when to this reign of gaunt hunger we add the ravages of disease, the epidemic of typhus, the

suffering from the severities of a specially rigorous winter, the decimation of stock and destruction of material, and the consequent difficulties of recuperation, we have a picture of widespread distress which can hardly be overdrawn."

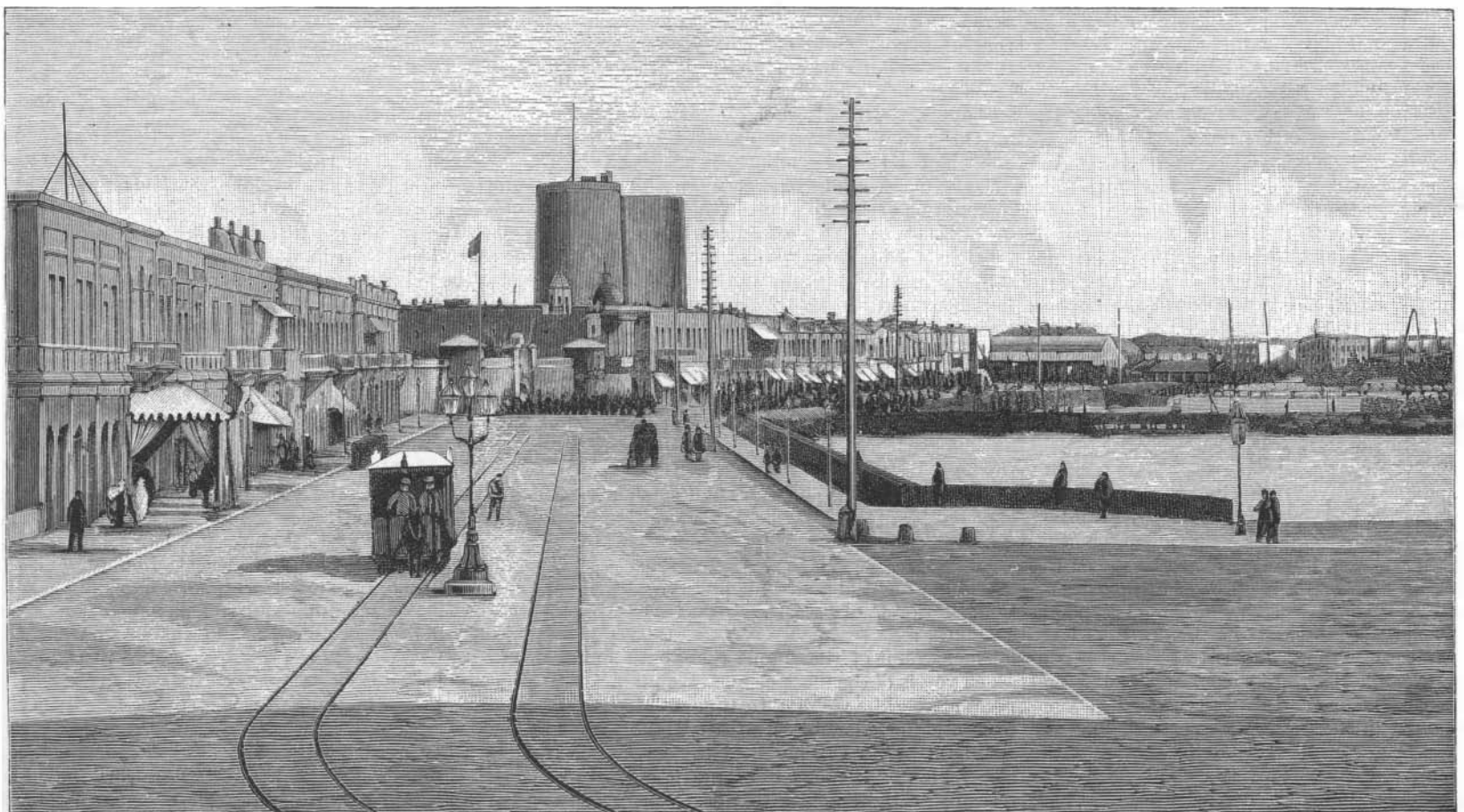
With such a state of things existing in Russia, and added to this the brutal efforts of the Czar to drive those of Jewish religion out of his domains, it is no wonder, says *Architecture and Building*, that this disease is scattered through the ports of Europe and that it is threatening the whole civilized world.

INASMUCH as sewage does not constitute a well-balanced manure, but is relatively deficient in phosphoric acid, sewage farms, unless their soils are specially rich in phosphoric acid, should be manured with bone meal or Thomas slag meal, otherwise the crops raised on them will not be of normal and perfectly sound growth.—*N. A. Pearson.*



THE HARBOR OF BAKU.

ing deeper contains more volatile oil. At a depth of from 500 to 600 feet inflammable gas comes up through the bore. The only use to which the mineral is turned, at present, is for the manufacture of paving blocks. The bituminous limestone is used for this purpose; it is crushed into powder, a small quantity of liquid bitumen and sand added, and then the mixture is put into moulds and submitted to very high hydraulic pressure, and the blocks thus turned out are in the form of bricks or tiles as required. They resist perfectly well the action of heat; the trials made in different towns where they have been employed for paving the streets have turned out most satisfactorily. The work is very neat, and it costs less than the ordinary paving stones. The boring in search of petroleum continues very slowly, on account of the pressure of the gas, which drives up the sand and soil into the tubes to a height of 100 meters and prevents the working of the bores. It is thought they lack the proper



BAKU, THE HEADQUARTERS OF THE RUSSIAN PETROLEUM INDUSTRY.