

SHIPBUILDING IN THE UNITED KINGDOM.

From The Glasgow Herald.

The Naval Commission from Japan visiting Great Britain has, in connection with the strengthening of the navy of Japan, received from the five leading firms of the kingdom tenders for the construction of a battleship. Amongst the firms were Sir William E. Armstrong & Co., J. & G. Thomson (Limited), Clydebank; the Thames Iron-Works and Shipbuilding Company, London; Messrs. Laird, Birkenhead; and Palmer's, of Jarrow. These are the only firms, it will be noted, who have constructed battleships for the British fleet in recent years. The builders were requested to submit competitive designs, the stipulation by the Japanese naval authorities being that the battleship was to be about the size and power of the "Majestic" class, which has a displacement of 14,900 tons. As in her case, the armor is to be of Harveyized steel, the whole broadside being covered with plates of a uniform thickness, instead of having a main armored belt of 16 or 18 inches thickness, with 4-inch armor above this to the main deck as in the two battleships now being built for Japan at Elswick and the Thames Iron-Works respectively. It is also indicated that Belleville water tube boilers may be supplied, and the speed is to be 18 knots at sea. The armament, too, is to be about the same as in the "Majestic" class, special attention being paid to quick-firing guns and their protection. In thus allowing builders free scope, not only have the Japanese navy ensured the best experience, since British builders have done more in the construction of battleships than constructors in any other country, but this will also provide a means of ascertaining the experience which will be brought to bear on the construction of the details.

JAPAN AS A COLONIZING NATION.

A London exchange says: "Japan intends to take a place in the ranks of colonizing nations. She has dispatched a commission to investigate trade conditions on the western coast of South America, in Central America and Mexico, and if the report is favorable new steamship lines will forthwith be established between Japan and the American Pacific ports. Japan, moreover, contemplates the immediate acquisition of about 300,000 acres in the Mexican state of Chiapas, which it is intended to divide into small sections of about twenty acres each, and on each section to settle a Japanese family. The scheme is a large one, but the Mexican Government does not regard it with disfavor, and the Japanese Government, as a mark of its approval of the project and its anxiety to see it carried into practical effect, is willing to pay a substantial subsidy."

ELECTRICITY IN SHIP BUILDING.

From The Railway Review.

The application of electro-motors for the driving of machinery in shipyards and engine works promises to extend rapidly, thus providing an additional factor in the acceleration of the already rapid rate of production in these branches of industry. They have already been adopted to some extent in several of the largest Clyde yards and engine shops, and in one or two on the northeast coast of England. The rapidity of the work which has been done recently on several British battleships has been remarkable, and has been mainly due to the employment of electrically worked drills, slotting machines and other apparatus of a kindred nature. The application of electricity, however, has not in England assumed anything like the dimensions observable in German workshops and shipyards. At the Berlin Machine Works, for example, says the *Marine Review*, the tools and machines employed, which are of the latest patterns, are worked by electro-motors, which receive power from a central station. In the ship and engine works of Messrs. Blohm & Voss, Hamburg, which have been mostly rebuilt and reorganized within the past few years, there are electrically-driven hoists alongside the building berths, electric (combined with hydraulic) power travelling cranes throughout the engine and boiler shops, and clever applications of the principle to various other machine tools. At the present time preparations are going for-

ward for the laying down of a new shipyard at Nikolaiev, Russia, the machinery for which is to be almost entirely electrically driven, and is being made in Germany, Belgium and France.

DIAMOND MARKET CONTROLLED.

The famous De Beer's diamond mines in Kimberley, South Africa, comprise five in number. One is 1,000 feet deep, another 1,200 feet deep, and the third is being worked in the open, and two are not being worked at all. The company employs 1,400 white men and 6,000 natives at the mines. Last year \$8,000,000 in dividends was paid, and this year a similar amount will be paid. Cecil Rhodes is chairman of the company, and Barney Barnato is the life governor of the corporation. Arrangements have been made so that this company now controls the diamond market of the world. This is done through an English syndicate, which was organized for the purpose of buying up the diamonds produced. Members of this syndicate have their agents at Kimberley, and every week a clean-up is made of about 50,000 to 60,000 carats. In this way the market of the world is kept steady.

PRODUCTS OF THE PINE TREE.

Resin or crude turpentine is the material obtained by tapping or bleeding the pine tree. Spirits of turpentine is the liquid obtained by distilling the crude resin. Colophony is the residue after the distillation of the resin. Common pitch is the residue from the dry distillation of resin. Brewers' pitch, which is used for coating the interior of beer kegs and barrels, is obtained by stopping the distillation of resin before all the oil has been distilled. Tar is produced by distilling the wood itself, and oil of tar is obtained by distilling the tar. Each of these articles is also separated commercially into several different grades, and each grade has its own name.

READY TO DO DANGEROUS WORK.

From The London Syren.

The divers who endeavored for some time—and may still be trying, for all we know—to reach the sunken "Drummond Castle" have been unsuccessful. An offer, however, was made to the Castle Packets Company some time ago by Andrew Cameron, of Glasgow, a diver of repute, to undertake the difficult and hazardous task. The wreck, it is believed, lies at a depth of 180 feet, which is beyond the limit to which professional divers as a rule undertake to descend. The English Admiralty limit their seamen divers to a depth of 120 feet, and the best-known London firms limit good divers, as a rule, to 140 feet, although in the memorable case of the "Alphonso XII.," the late Alexander Lambert did brilliant service at a depth of 160 feet. Mr. Cameron is one of the very few professional divers who have ever reached and done practical work at a depth of 200 feet, at which depth he has remained for over half an hour. As the modern diving apparatus is designed to supply air at as great a depth as it is possible for a man to work in, owing to the pressure, it is to be hoped that Cameron, or some one equally strong and courageous, may be the means of informing the shipping and seafaring world exactly how and why the "Drummond Castle" went so swiftly to the bottom.

GERMANY'S NATIONAL DEBT.

From The Journal and Bulletin of Commerce.

Some interesting statistics have just been issued relative to the German Imperial debt. From the information published it would appear that up to the year 1875 the new German Empire found itself in the enviable position of being entirely free of debt. In that same year, however, the Empire borrowed the sum of 10,000,000 marks, or half a million sterling, but it did not really spend this amount until three years later. From 1875 down to the present year the Empire has contracted loans every year without exception, so that on April 1, 1895, twenty years after the first loan was effected, the Imperial debt had attained the respectable total of 2,091,250,000 marks, or £104,562,500 sterling. The sum received amounted to 129,233,550 marks less than the nominal figure. Of

the present debt 450,000,000 marks are at 4 per cent., 780,500,000 at 3½ per cent., and 850,500,000 at 3 per cent. In the current financial year, 1896-97, the German Government has borrowed rather less than 28,000,000 marks, being the smallest loan it has contracted since 1875. In the financial year 1888-89 it borrowed 394,750,000 marks; in 1890-91, 306,250,000 marks; in 1887-88, 222,000,000; in 1893-94, 200,000,000; in 1892-93, 147,250,000, and in 1894-95, 120,300,000 marks. Of the total amount received by way of loans 1,254,500,000 marks have been spent on the army, 278,750,000 on the navy, 262,000,000 on railways and military defences connected therewith, and 62,750,000 on postal and telegraphic service. The Baltic Canal has cost the Empire 105,250,000 marks, while 52,000,000 marks have been expended on bringing the free ports of Bremen and Hamburg into the Imperial Customs Union. It is pointed out that though the German Empire has thus within twenty years run up a national debt of nearly £105,000,000 sterling, nevertheless, it possesses valuable assets as the result of this expenditure. The land and buildings which it has acquired through the loans for the army are estimated to be worth 900,000,000 marks, or £45,000,000. The railways (and property relating thereto) which it has secured, are valued at 700,000,000 marks, and the postal and telegraphic offices at 300,000,000 marks. Apart from this, however, the Imperial Government possesses a war treasure in hard cash amounting to 120,000,000 marks (£6,000,000), besides various other items, including unspent balances and credits amounting to more than double the value of the war treasure.

MUNICIPAL CONTROL OF STREET RAILROADS.

From The Railroad Gazette.

A little over two years ago Glasgow, Scotland, took possession of all the transit lines within its limits, and the details of operating them, according to the latest published reports, are as follows:—

	1894-95.	1895-96.
Miles in operation.....	31	32
Cars.....	305	337
Car mileage.....	5,169,109	6,831,379
Passengers carried....	56,907,519	85,951,230
Receipts.....	\$1,109,400	\$1,633,755
Average per car mile..	20½c.	23c.
Operating expenses ..	\$1,011,045	\$1,255,550
Average per car mile..	18½c.	17c.

The Glasgow fares are arranged on a different scale from those in American cities. Instead of charging one fare for a single ride, long or short, the fares are divided into stages according to the distance, and vary from one cent to three cents. The average fare is only nine-tenths of a penny, as compared with 2.4 penny in Manchester, 1.9 in Liverpool, and 1.34 in Birmingham. The system of half-penny fares adopted in Glasgow has greatly popularized the service. The employees work ten hours a day for six days in a week. The net profit of the municipal exchequer was nearly \$45,000, but, in addition to this, all interest and sinking fund charges were met, and a sum of \$160,000 set aside for permanent way renewal. The tramways department employs a staff of 2,300 people; it has 4,100 horses, 337 cars, and its annual wages bill amounts to £110,000. Successful experiments have been made with compressed air motors, but horses are still used on all lines.

A BRASS BED TRUST.

From The Furniture News.

A movement is on foot among the Birmingham and Midland manufacturers of bedsteads to consolidate the industry into one company. The English makers of bedsteads, which of course are all of the metal sort, in the places named, have been approached by a syndicate which proposes to invest a capital of \$15,000,000 in the business and purchase the sixty factories in Birmingham and Midland, where nearly all the brass and iron beds are made. A trust of that kind will exceed anything dreamt of in this country. Meantime it is notable that the brass and iron manufacturers in this country have not been getting rich very fast, even although there has been relatively a better demand for their goods than for any other class of furniture, if some recent failures in this branch of the business be accepted as evidence.