

Aids to Industry

Some Interesting Details Relative to Technical and Industrial Progress in Engineering and Machinery.

FINE CHEMICAL PRODUCTION.

Before 1914 British users of fine chemicals for research work had to depend chiefly upon foreign sources for their supplies. Arrangements have since been made, however, to meet the demand from British works. The Association of British Chemical Manufacturers recently issued a list of about five hundred fine chemicals now made by one or other of twenty-one British Firms. This list is only a preliminary one and extensive additions will shortly be made to it. The Association welcomes inquiries for any rare substances which are not on the list or are difficult to procure. Every effort is being made to establish British production in all sections of this new field.

MUSICAL SOUNDS UNDER WATER.

All the world has learned something of the hydrophone—the instrument which enables the presence of submarines to be detected by the vibrations they set up in the water. Less is known about the wonderful experiments carried out, in connection with this work, in the production of sound under water. The method ultimately adopted was to blow a jet of condensing steam from a nozzle on to a diaphragm under water. This resulted in the production of a soft musical note which could be heard by means of a hydrophone up to a distance of eleven nautical miles. The manner in which the sound is produced is closely akin to the 'singing' of a kettle before it boils; the repeated collapsing of bubbles of steam on coming into contact with cold water sets up vibrations which, under certain conditions, are rapid enough to give a musical note. These experiments are of great scientific interest and may well prove of practical value in commercial navigation as well as in naval operations.

LARGE TRAVELLING FORGE CRANE.

A large overhead travelling electric crane of a special type was recently built by a leading British firm for a British forge. It is capable of hoisting a load of sixty tons at eight feet per minute. When carried sideways, the same load travels at seventy-five feet per minute, and the whole crane moves—again with full load—at one hundred and ninety feet per minute. The suspended cargo in which the operator works is telescopic and is capable of extending to within one foot of the ground. Its purpose is to enable the operator to work the crane from the position which gives the best view of the work in its various positions. Raising and lowering the cage is effected by a small electric motor. Automatic arrangements are provided to put on the brakes as soon as the motors stop and also to prevent the crane being overloaded.

FEWER ELECTRICAL ACCIDENTS.

One of the most remarkable industrial effects of the war, so far as Gt. Britain is concerned, was the doubling of the output of the public electric generating stations. Over ninety-five per cent of the munitions factories erected during the war were electrically driven and many old factories were "converted" from mechanical to electrical working. In spite of this enormous increase in the use of electricity, the latest report of the Electrical Inspector of British factories shows that there were actually fewer accidents during the year following the war than there were in 1913. This is notable tribute to the high standard of quality of modern British electrical machinery and to the skill and care with which it is installed. The report also notes an increase in the number of boys engaged in connection with electrical plant and apparatus. Safety and simplicity have been developed to such a pitch that unskilled hands can control electrical machinery with perfect security.

RESEARCH IN NON-FERROUS METALS.

In the course of an address recently delivered in Sheffield, England, an interesting review was given of the progress of organised British research into the properties of the non-ferrous metals—tin, copper, aluminium and so on, together with their alloys. As far back as 1890 the British Institution of Mechanical Engineers formed an Alloys Research Committee which made a systematic study of the structure and mechanical properties of these metals and alloys. Both metallurgists and practical engineers have taken part in this research. About a year ago a British Non-Ferrous Metals Research Association was formed under the Government Department of Scientific and Industrial Research. Among the subjects treated are the production of sound brass and copper coatings, the atmospheric corrosion of non-ferrous metals, and the changes in properties under heat and mechanical treatment. This Research Association is one of more than a score of co-operative bodies formed under Government auspices by industries to solve problems of prime interest to the progress of British science and engineering.

STEAM TURBINES ON AEROPLANES.

At the first Annual Air Conference held recently in London a suggestion was made that steam turbines might be used in place of petrol engines on aeroplanes. The petrol consumption of aeroplane engines is so large that at the present high prices of petrol there is a natural demand for some alternative means of propulsion. It may seem a daring step to equip an aeroplane with an oil-fired boiler and a steam turbine, but British engineers are quite prepared to make the exper-

iment. Small turbines driven at a very high speed (such as is suitable for driving aeroplane propellers) are very powerful for their weight and very efficient. The boiler will present little difficulty, especially at the high altitudes which so seriously reduce the efficiency of the ordinary aeroplane engine; and the lower temperatures hold out interesting possibilities in condensing. This British proposal shows that although several regular commercial services for passengers and goods have already been established from Great Britain to the Continent and back with aeroplanes closely similar to those used during the war, British designers have their eyes open to radical improvements. Another proof to the same effect is the success achieved by a British firm with a new type of aeroplane wing which gives a much improved lifting effect and enables landing to be safely effected at a lower speed than is possible with the ordinary type.

OPTIMISTIC BRITISH ENGINEERS.

The attitude of British engineers towards recovery from the effects of the war is most interesting and encouraging. While politicians and historians are continually referring to the time which the world took to get straight again after the Napoleonic and other wars, the engineers refuse to believe that nations must go through a similar long period of depression before their industries and trade and finance get into a healthy condition. They believe that the progress of British mechanical invention can, if properly applied as a tonic to production and distribution, quickly restore the strength which was waste during the war. Just as British engineering played a leading part in winning the war, so it may be the dominant factor in winning the peace. Consequently British engineers are pressing forward optimistically with many developments in machinery, invention, transport and the utilisation of fuel.

ALL STEEL FURNITURE.

Now factories are being erected in Great Britain for the manufacture of all-steel office furniture and equipment, over £80,000 has been spent in the equipment of those works and more than half the workers employed are ex-service men.

N. A. LIFE HAS NEW RECORD.

A new record for October business was set up by the field forces of the North American applications being sent in for \$2,162,454, an increase of \$158,426 over October, 1919. The amount the company actually issued in the month is \$2,010,335, making the total issue for 1920 to end of October, \$20,641,310.

PULP MILL AT SOREL.

It has been decided that a large pulp mill will be started at Sorel on the Richelieu River. There will be 6,000 feet of wharf constructed and three hundred men employed until the spring.

Canada at Chicago Fair

Championships in Grain and Live Stock Come to Dominion.

Wednesday last was Canada's day for championships at the International Live Stock show at Chicago. The following are some of the achievements:—

Grand championship for Clydesdale stallions: championship for American-bred Clydesdale mares; reserve senior and reserve grand championship for Clydesdale mares; grand championship for Southdown sheep; sweepstakes grand championship for wheat for the continent of America; sweepstakes grand championship for oats for the continent of America; championship for Durum wheat for America.

Colonel McEwen and Sons, London, Ont., put that province on the map in the matter of Southdown sheep, as, in very strong classes, they secured both male and female championships, first for flock and first for three rams and first for three ewe lambs, four first prizes for individuals and a number of seconds and thirds.

In Clydesdale, G. W. Muir, of Ottawa, got fourth for stallions three-years old and under four; sixth for stallions two years old and under three; fourth for aged mare, fourth for three get of one sire American bred and second for two, produce of dam bred in America.

The province of Quebec was represented by a fine exhibit of Clydesdales from the well-known breeders and importers, Robert Ness and Sons, of Howick, and they got a number of excellent placings. In aged stallions they were second with Royal Master, fourth in stallions two years and under with Jutland, and first for stallions one year and under two in a class of twelve with Iron Cross, sired by the famous Baronet of Ballindallier. They were also successful in some of the female classes.

METAL DEALERS ASSIGN.

Speculated in Foreign Exchange — Liabilities Twenty-Four Millions.

Liabilities of twenty-four millions of dollars, with assets of only \$176,575, were reported to a meeting of creditors of N. Brenner and Company, Toronto, metal dealers, in the office of Osler Wade, assignee, last week. The creditors are chiefly American and European firms with one Canadian firm interested to the amount of \$40,000. The liabilities are five millions in steel futures and nineteen millions of foreign exchange, purchased as a speculation. The market broke, and there is now a deficit of three or four millions on this account. The following inspectors were appointed: Mr. Ochiltree, of the Shawmut Corporation, Boston, U. S. A.; Geo. Edwards, Toronto, to represent English creditors; N. L. Martin, Toronto, to represent Canadian creditors; Harry Edwards, for New York steel interests, and M. Houser, of Zimmerman, Forshay and Company, New York. Mr. Wade was authorized to proceed in the usual way to wind up the estate.