

## SOME FALLACIES AND FACTS CONCERNING ENGINEERING WORKS IN GREAT BRITAIN.

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(Continued from last issue.)

### Messrs. Willans and Robinson, Rugby.

A few years ago a visitor to any of the electric power supply stations in the United Kingdom would have expected to find in almost every power house long rows of vertical steam engines, all exactly alike, direct coupled to electric gener-

a source of trouble in steam turbines. Such troubles as were still encountered were due to the excessive unsupported length of the shaft and the admission to the turbine body proper of steam at high temperatures. The firm's latest disc and drum design overcomes these difficulties entirely. It embodies the impulse principle at the high pressure end and retains the reaction principle at the low pressure stages. A further advantage of this design is that it occupies considerably less floor space than the earlier types.

Messrs. Willans and Robinson have recently executed an order for one of their new disc and drum type 8000-kw. turbo generators for the Sheffield corporation electricity department, and through the courtesy of Mr. S. E. Fedden, the city electrical engineer, I was afforded an opportunity

of seeing this plant in operation. It appeared to be running perfectly in every respect, and the engineer in charge spoke very highly of its performance, which, he informs me, was in some respects better than called for in the specifications.

The condensing plant is of the surface type with vacuum augmentor and Edwards type air pump, built by the turbine makers.

A 400-kw. set of the maker's earlier design has been working for a number of years, in the same power station in Sheffield with equally satisfactory results.

Messrs. Willans and Robinson are amongst those who believe that the prime mover of the future is the Diesel oil engine. I saw a number of these interesting engines in course of construction at their works. The firm's great experience in building

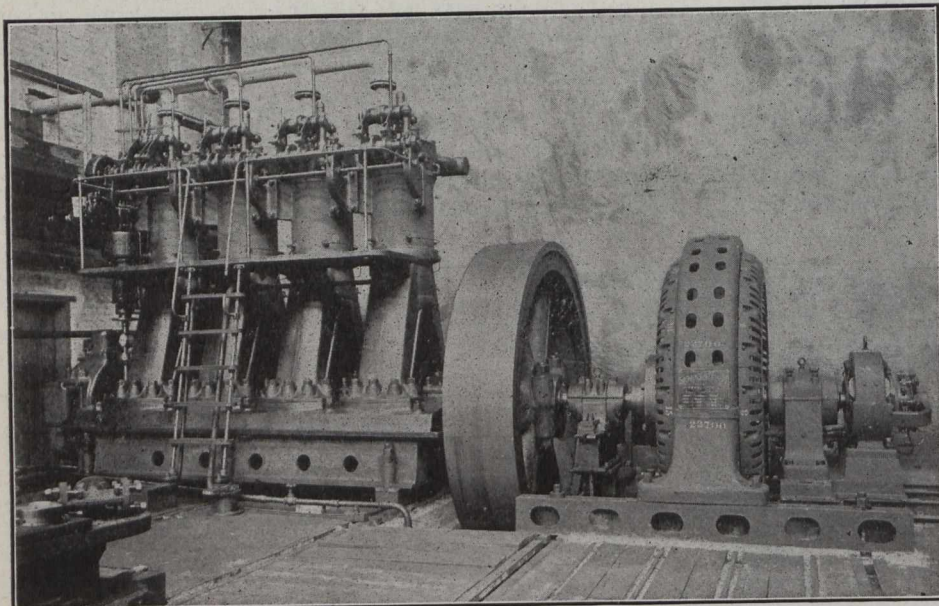


Fig. 6.—200-kw. Diesel Oil Engines Manufactured by Willans & Robinson, Ltd., for the Chilian Oil Fields.

ators. The generators in the different power stations would have been constructed by a number of different makers, but the engines would almost invariably have been the then highly popular Willans central valve high speed vertical engine. The output of each individual unit would generally have been less than 1,000 h.p. and the total power required would have been obtained by running a large number of these units together.

The perfecting of the steam turbine with its higher economy, smaller floor space and lower capital cost, has, however, changed all that, and for the last eight years Messrs. Willans and Robinson have had to compete with the Willans steam turbine for every contract going with a number of other makers of this newer type of prime mover. Their well-equipped works enables them, however, to generally quote prices that compete favorably with other makers, and there are a number of special details in the construction of their turbines that appeal to the engineering buyer. One of these features is the shrouding of the turbine blades, which has practically eliminated the frequent stripping of blades, which was at one time such

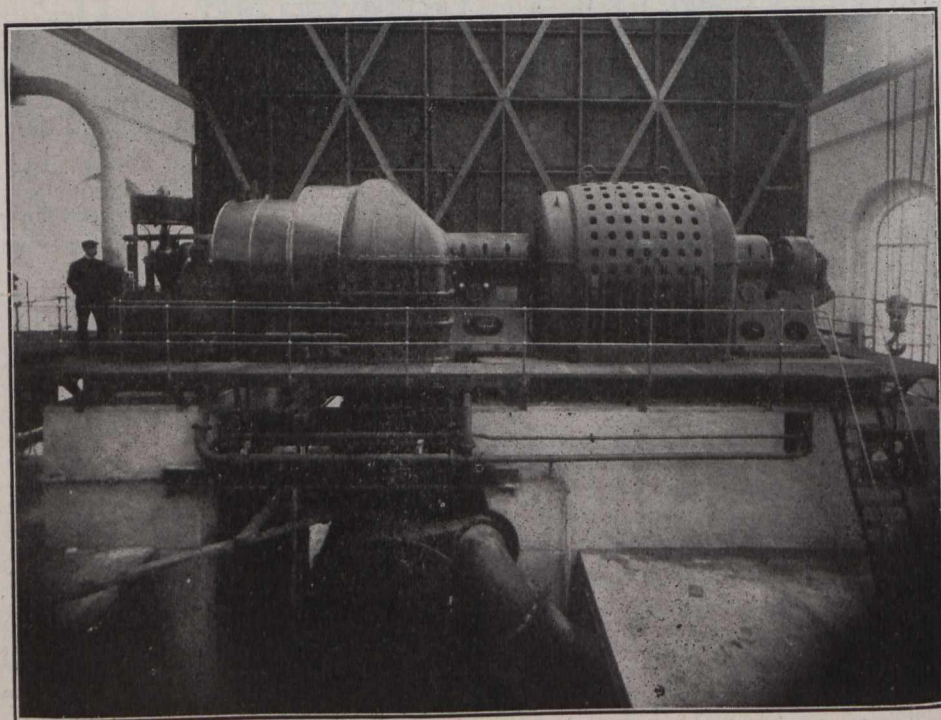


Fig. 7.—8000-kw. Disc and Drum Steam Turbine Built by Willans & Robinson, for the Sheffield Corporation.

high-speed vertical steam engines particularly qualifies them for constructing engines of this type, which calls for specially careful workmanship and the use of the highest