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PRINCIPAL CONTENTS

WORLD'S MOST POWERFUL PRIME MOVER

WHEN reading the heading, "The World's Most Powerful Prime Mover," which appears upon another page of this issue, the reader must bear in mind that the unit described is of the cross-compound type, and not a single generator and single turbine.

From an operating standpoint, however, this type of unit is as much a single unit as if but one generator were employed. All the steam passes through a single high pressure cylinder and the entire unit is controlled by one main throttle. The generators are started up and operated electrically as a single unit. Regardless of these facts, however, it is questioned by many engineers whether it is entirely proper to refer to a unit of this character as a "unit" unless the term be distinctly qualified in every case by the word "compound."

As a single unit, of course, no one of the three generators in the Interborough's 60,000 k.w. compound unit would compare in output with any one of a considerable number of other generators that have been built: For example, the 50,000 k.v.a., 187 r.p.m., vertical, water-turbine-driven generators that are being built by the Westinghouse Co. for the Hydro-Electric Power Commission's proposed Queenston plant; the 50,000 k.v.a., steam-turbine-driven unit which was installed about a year ago by the General Electric Co. in the plant of the Detroit Edison Co.; the 40,000 k.v.a. generator now under construction by the Westinghouse Co. for a United States Navy battle cruiser, to be steam-turbine-driven at 1,500 r.p.m.; the 38,889 k.v.a., steam-turbine-driven generator installed by the General Electric Co. in the plant of the Buffalo General Electric Co.; the 35,000 k.v.a., steam-turbine-driven generator operated by the Commonwealth Edison Co., of Chicago; or the 32,500 k.w., water-turbine-driven generator (at 80% power factor) which has been built by the General Electric Co. for the Cliff Electrical Distributing Co., of Niagara Falls, N.Y., but which has not yet been installed.

Although the generators which are in the Interborough Rapid Transit Co.'s plant are not of extraordinary size compared to those above mentioned, these cross-compound units are remarkable in their output, and from an operating standpoint can really be called "units," so that the title of "World's Most Powerful Prime Mover" is no doubt fully justified.

Among the other large cross-compound units that have been installed recently or are now under construction, is a 60,000 k.v.a. unit, with three cylinders and three generators, for the United States Navy's nitrate plant at Muscele Shoals, Ala.; also a 47,000 k.v.a. unit, with two cylinders and two generators, for the Duquesne Light Co., of Pittsburgh, Pa. A unit similar to the Duquesne one has been built for the Narragansett Electric Light Co., of Providence, R.I., and one similar to the Muscele Shoals unit is now under construction for the Duquesne Light Co.

LAYING WATER MAINS IN ALLEYS

ALTHOUGH the plan of laying water, gas and steam mains, sewers, telephone conduits and other public services in alleys instead of in streets, has been frequently advocated and sometimes tried, Chas. R. Henderson, manager of the Davenport Water Co., of Davenport, Iowa, writing editorially in the journal of the American Water Works Association, contends that for reasons applying to safety and economy, water mains had best be laid in the streets, although he is willing to concede that the alleys can be utilized for some utilities.

The principal objection to the alleys in cities is that they are not wide enough to accommodate all of the underground work, and, as usually laid out, are not continuous, nor do they run in both directions.

A few years ago Mr. Henderson tried to lay a small water main in an alley because it was desirable to avoid cutting a new pavement. In this alley there were several conduits, used by telephone, telegraph and power companies, and at the entrance of the alley were three manholes of considerable size. The pipe could not be laid between the manholes because they overlapped; it could not be laid through them because the companies owning them objected; it could not be laid under them because the ground was solid rock and blasting would disturb the conduit system. As a result, the new pavement was cut and the pipe was laid in the street.

In an Iowa city the principal main in the commercial district was laid in alleys. Fire hydrants at street intersections are supplied by long branches of smaller pipe. These long hydrant branches add to the loss of head between the main and the hydrant, and, as there is no flow in the pipe between the main and the hydrant, the danger of freezing is greater than in a normal installation.

Shut-off cocks and curb boxes for outside control are best located on sidewalks, says Mr. Henderson, if they are to be accessible when needed. They should always be located on public property. When in alleys, heavy vehicles are likely to pass over and break them. Moreover, it is desirable to place curb boxes in such positions that they will not be covered by ash barrels, manure heaps or any other hindrances to their accessibility.

Mr. Henderson tried the laying of water mains in alleys in a new residential suburb at Davenport, with unfortunate results. The growth of the suburb necessitated the construction of mains in some streets, so now he has some parallel mains one-half block apart.

For the above-mentioned reasons, and on account of the difficulty of providing sufficient hydrants for proper fire protection when mains are in alleys, Mr. Henderson is firmly in favor of keeping all water mains in the streets, regardless of the effect upon pavement construction.