

have secured most of the orders for transmission and distribution equipment from public-utility and private companies, although in some instances such as high-tension insulators and lightning protective equipment, American equipment is almost standard.

*Poles and masts.*—Owing to favorable climatic conditions, lighter poles and masts are used for aerial transmission work in the Netherland East Indies that are usually found in the United States or Europe. German and Dutch manufacturers have catered to this demand and have practically eliminated other countries from this share of the trade. In 1928, these two countries secured over 90 per cent of the business in poles and masts, most of which are galvanized iron. In 1927 the Posts and Telegraph Department experimented with American steel poles, but the results were not satisfactory and no American poles have been purchased since. American manufacturers of steel poles and masts have little hope of securing a portion of this trade unless their prices are competitive to those that are now being sold in the Netherland East Indies.

*Cables.*—The United States is obtaining a share of the cable trade of the islands chiefly through the popularity of steel-aluminum cable, which is now considered by the majority of public-utility companies and the Government to be more efficient than copper cable. Steel-aluminum cable is used only for high-tension lines, the total amount used being only a small percentage of all copper cable, which is supplied mainly from the Netherlands and Germany. Although price is the determining factor, quality is desired in purchasing cable. All that is sold in the Netherland East Indies must be accompanied by a guaranty.

Conduits are not used for underground transmission work, armored cable being used almost exclusively.

*Insulators.*—Practically all of the low-tension insulators in the Netherland East Indies are of German origin; the United States, however, supplies the majority of insulators for high-tension work. It is reported that the Bureau of Water Power and Electricity has more or less standardized on a certain type of American insulator, which is now considered obsolete in the United States. Numerous attempts have been made by other American manufacturers to secure this Government business, but the type now in use is apparently giving complete satisfaction. As the public-utility companies make further extensions to their transmission lines, the demand for high-tension insulators will increase. American firms interested in securing a portion of this trade should get in touch with the leading public-utility companies.

*Lightning-protective equipment.*—The prevalence of electrical storms in the mountain regions of west Java, where most of the large generating stations in the island are located, results in a steady demand for lightning-protective equipment for transmission line substations and buildings, most of which comes from the United States. The installations are usually simple though some of the larger buildings, particularly in west Java in the vicinity of Bandoeng, have elaborate installations.

High-voltage transmission lines are usually grounded through a reduction coil between the neutral point and the earth at the power plant. The higher primary voltage lines of city distribution systems (300 to 20,000 volts) are usually not grounded, but the lower (con-