The term oxygen demand has often created misconceptions. The fact that the oxygen is entirely supplied by the nitrate in this method does not mean that the oxygen demand so determined will have to come from the available oxygen in the stream into which the sewage is discharged. On the contrary, while most of the oxygen may be derived from the stream, the rest may come from the air by absorption or from the plankton. No definite rule can be given, for each particular case is a matter of individual study. Whether all of the oxygen must be supplied from the stream or not, the saltpeter method affords a reliable and simple comparison of the strength of a sewage or waste from the deoxygenating standpoint. This and the amount of settling suspended matter are the items most interesting to the sanitary engineer or chemist.

Dr. Lederer asserts that the great advantage of the saltpeter method lies in the fact that the oxygen consumption can be determined after any desired interval in a much more reliable and comparable manner than can be accomplished by methods involving fresh water dilutions. To the sanitary engineer this is a matter of great importance.

BOARD OF ENGINEERS, QUEBEC BRIDGE.

The accompanying reproduction is from a most unique photograph of the Board of Engineers of the new Quebec Bridge, this year's progress on the construction



of which is outlined elsewhere in this issue. The centre figure is Mr. C. N. Monsarrat, chairman of the Board and chief engineer. Mr. Ralph Modjeski is on his right and Mr. C. C. Schneider on his left. They are seen standing at a 45-inch pin hole in the end section of one of the bridge members.

The impurities in many copper ores impair the accuracy of the electrolytic assay, and the tedious operations for their complete removal tend to cause loss. Low's iodide method is one of the most accurate, practical methods yet devised for the assay of copper, although the more simple cyanide assay is also excellent if properly carried out. As a matter of fact, the distinct end-point is the main reason for the usual accuracy of the iodide method compared to the cyanide. Notwithstanding all statements to the contrary, all the copper can be precipitated by boiling with aluminum, taking care that acids other than sulphuric are absent, and that the bulk M solution is as it should be.

VARIOUS USES FOR REROLLED RAIL STEEL.

By C. A. Tupper in "The Iron Age."

THE rerolling or working up of rail steel for industrial purposes has assumed considerable importance. The production of bars for reinforcing concrete is

probably the largest single use for rerolled rail heads, while flats, channels, angles, tees and diamonds can be secured from the rail section as a whole, including the web and flange, together with straight and U-bars of various dimensions. Such bars and shapes now find an extremely varied application, as in the manufacture of agricultural machinery and implements, such as spreaders, plows, harrows, cultivators, mowers, rakes and harvesters. This is, in point of tonnage, the most considerable use and includes all of the material above mentioned, with some special shapes.

The furniture industry affords another important outlet, including bars and angles for metal beds, couches and springs, especially the numerous combination and folding types used in apartment buildings. Likewise metal school and office furniture, store fixtures, show cases, etc., take large quantities. Wagon and carriage builders are naturally among the heaviest consumers. Bars for sleigh shoes and runners and for toe caulk steel also come from rerolled sections. In a similar category are boat keels, angles and clamps. In the manufacture of narrow gauge cars and trucks, wheelbarrows, and other conveying or transfer equipment a rapidly growing use for the material is found. Apparatus for exercise and play, represented to the greatest extent by lawn swings, takes an appreciable quantity of bars and angles, with some minor specialties.

The production of builders' hardware offers a further field, and one fast being extended, for the utilization of rerolled steel, particularly the smaller shapes made from webs and flanges. Angles and bars for telegraph and telephone line material were called for early in this movement, followed by their application to electric power and railroad systems for transmission, feeder and trolley circuits, also as hangers for electric transformers and lightning arresters and as built-up poles or supports for various electric power equipment. Analogous to the last named is the use of bars and angles for power line towers or wind mill towers, where their service in withstanding the shock and strain of storms, vibration from the passage of heavy interurban cars, etc., has been notably good.

With the return of normal prosperity a factor in the situation will be the availability of this material in lots suited to the requirements of the average manufacturer, who is otherwise apt to be placed at a disadvantage compared with larger buyers or those more forehanded in placing orders. Mills rolling bars and angles from rail steel are generally in a position to make quicker shipments of short lengths and varied sizes than other plants, and they naturally have a greater interest in caring for this class of trade.

It is to be noted further that the extension of rerolled rail steel products into so many branches of manufacturing is a matter of congratulation to the entire metal field, because of the impulse it has given to all accessory lines, such as bolts, nuts and screws. Also, by maintaining the scrap value of old rails, it should add to the likelihood of replacements, and in this way exert an influence decidedly beneficial to the industry as a whole.