America or Great Britain, the rules of both countries being now in agreement on all essentials.

Much also had been accomplished in one of the most difficult of tasks, the standardization of small electric fittings with due regard to liberty of design. This work, in which again the makers' association had been most helpful, had occupied a great deal of time, and the difficulties and prejudices to be overcome had been great. Ordinary household wall-plugs and sockets had at last been standardized as regards interchangeability. A specification to secure interchangeability between any charging plug and any socket of the type recommended by the Electrical Vehicle Committee of the Incorporated Municipal Electrical Association should be of material assistance in promoting the use of electric wagons and runabouts. A specification for electric supply meters had recently been evolved after much labor, and although some modifications might still be required, it was hoped that it might be eventually proved satisfactory to both producer and purchaser alike.

A system of British standard graphical symbols for use in electrical engineering plans was being drawn up, and in this work the committee had the co-operation of the American and Canadian electro-technical committees.

The ramifications of the committee, as would be seen from the cases cited, were extremely widespread, and the commerce of the world, due to the increasing ease of communication, being largely international, one might almost say, in spite of the artificial barriers set up by different nations, it was natural that the committee should be forced to envisage co-operating internationally. The sectional electrical committee, with a different chairman, was *ipso facto* the British committee of the International Electro-technical Commission which had branch committees in fifteen to twenty different countries.

The complex nature of electrical machinery called for different treatment, from the point of view of standardization, than in the case of other engineering materials. Indeed, the problem of the rating of electrical machinery was possibly more intricate than was the standardization of any simple pieces of mechanism, electrical or otherwise. The conductivity of the copper, the permeability of the iron, the mechanical strength of the materials, could be estimated with sufficient accuracy from the results of definite and easily carried out tests on samples. When the question of insulating materials, however, was considered, the problem was, of course, very different, and one could but acknowledge that, owing to their inherent properties, the insulating materials employed at present came into an entirely different category. They were governed by no well-defined laws, as in the case of the copper and iron; their properties were variable and altered largely for very small changes in the conditions of manufacture, as well as those under which they were employed in the completed machine. One of the important problems, therefore, was the settling of the limits which it was considered necessary to impose in order to ensure that the principal causes of destruction of the insulating materials, the heating combined with the time element, should be well kept within safe limits.

A clear distinction existed also between an "international standard of quality" and an "international rating." The international acceptance of the former had already been brought about by the adoption, by the I.E.C. at its Berlin meeting in September, 1913, of certain limits of observable temperature applying to the materials in general use to-day. But these limits did not offer a means of comparing directly machines from various sources, since they would not necessarily have the same temperature rise. The fact, however, that American and British electrical engineers were at one on this point of immense commercial importance would doubtless have a great influence on the electrical industry of the world.

On all sides there were signs of strenuous preparations for meeting conditions after the war; science and industry were coming closer together, the commercial and technical sides inseparably linked together, were being more efficiently organized, research work to assist manufacturers was being co-ordinated, finance was organizing, combinations of commercial organizations were in the air; in fact, everything was being done with a view to strengthen British industry.

The German League of Economic Associations, recently formed out of the six great associations of German engineers, architects, furnace men, chemists, electricians and marine engineers, numbering, so it was said, some 60,000 members, was an indication of what might be expected. Every effort must, therefore, be made to ensure that the British standard specifications were readily available to foreign purchasers as well as to those in the British Empire. A few of the specifications had already been translated into French, and it was hoped that satisfactory arrangements might be made to translate them all into French as well as into Spanish. In regard to Russian, the question was somewhat complicated, but in this case also the matter was being given the most careful consideration.

THE AQUEDUCT FOR THE GREATER WINNIPEG WATER DISTRICT.*

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THE aqueduct structure itself has been designed to be built in two operations, first the invert, and second the arch. Alternate sections of the invert are built in lengths of 15 feet, and after several of these have been placed, the intermediate or closure sections are completed. Steel end forms or "profiles" shaped to the curve of the invert are accurately set to line and grade on 15-foot centres, and the concrete of rather dry consistency is placed between them and then screeded to shape with an angle iron screed. After this operation the surface is floated and surfaced to a smooth, hard finish. Between adjacent 15-foot sections of invert a water-stop consisting of a No. 20 gauge copper strip 6 inches wide and of a length equal to the width of the invert is placed. Each strip has a V-shaped groove one-half inch in depth crimped in the centre of the strip, running its full length, thereby allowing the joints to open without breaking the bond between the concrete and copper.

After the invert concrete has become hard the arch forms are then erected by means of a steel traveller running on a narrow-gauge track placed on the invert. These forms are of the Blaw collapsible type made in lengths of 5 ft. 0 in., bolted together to give a total length of 45 ft. 0 in., which is the standard length of arch poured at one time. Water-stops similar to those in the invert are placed at 45-foot centres in the arch to protect against leakage at the contraction joint. At the horizontal joint between the arch and invert a continuous strip of soft wood 7/8 in. x 1 1/4 in. is placed half in the

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