Chairman, C. H. Mitchell; Secretary, T. C. Irving, Jr., Traders Bank Building. Regular monthly meeting, October 29th.

MANITOBA BRANCH OF THE CANADIAN SOCIETY OF CIVIL ENGINEERS.—Chairman, H. N. Ruttan; Secretary, E. Brydone Jack. Meets first and third Friday of each month, October to April, in University of Manitoba.

ENGINEERS' CLUB OF TORONTO.—96 King Street West. President, J. G. Sing; Secretary, R. B. Wolsey. Meeting every Thursday evening during the fall and winter months. Union meeting with the Canadian Society Civil Engineers.

CANADIAN ELECTRICAL ASSOCIATION.—President, N. W. Ryerson, Niagara Falls; Secretary, T. S. Young, Canadian Electrical News, Toronto.

CANADIAN MINING INSTITUTE.—413 Dorchester Street West, Montreal. President, W. G. Miller, Toronto; Secretary, H. Mortimer-Lamb, Montreal.

CANADIAN CEMENT AND CONCRETE ASSOCIATION.—President, Peter Gillespie, Toronto, Ont.; Vice-President, C. T. Pulfer, London, Ont.; Secretary-Treasurer, Alfred E. Uren, 62 Church Street, Toronto.

NOVA SCOTIA SOCIETY OF ENGINEERS, HALIFAX.—President, J. H. Winfield; Secretary, S. Fenn, Bedford Row, Halifax, N.S.

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS (TORONTO BRANCH).—W. G. Chace, Secretary, Confederation Life Building, Toronto.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—29 West 39th Street, New York. President, H. L. Holman; Secretary, Calvin W. Rice.

SOCIETY NOTES.

American Society of Mechanical Engineers.

The November meeting of the American Society of Mechanical Engineers will be held in the Engineering Societies Building, 29 West 39th Street on Tuesday evening, November 10th. Mr. Franklin Phillips, president of the Hewes & Phillips Iron Works, Newark, N.J., will make an address on "The High-powered Rifle and its Ammunition: Instruments of Precision," illustrated by lantern slides.

Mr. Phillips is an expert marksman, and in 1903 won the position as first alternate on the International Rifle Team to England. He was for many years chairman of the Committee on Rifle and Pistol Practice in the National Guard of New Jersey, and is now ordnance officer of the Second Infantry of that State.

Tests of rifles and ammunition at Sea Girt, N.J., by men connected with the New Jersey National Guard have led to marked improvement in arms and ammunition and to an entire change in the powder used by the Government, thereby greatly increasing the accuracy of the shot. The improvement has been extended to large guns, and instead of 2 per cent. hits, which were made at Santiago, 80 per cent. is now the average in some ships.

Mr. Phillips has actively participated in this work, and, as he is primarily a mechanical engineer as well as a marksman, he will explain to his audience the practical bearing of his investigations upon the construction of arms and the elements entering into ammunition.

Undergraduates' Society, McGill.

A meeting of the Undergraduates' Society Applied Science was held in the Chemistry Theatre on Wednesday, October 14th. The meeting was small in numbers, but those present were amply repaid, for it was one of the most interesting and profitable lectures given before the Society.

Dr. Klotz, of the Department of the Interior, was the speaker of the evening, his subject being "The Datum Plane." He divided it into two parts, the intellectual and the physical. He defined the former as the basis from which we set out, having completed our university course. He dwelt on the importance of absolute accuracy in mathematics, and stated that a misplaced decimal meant nothing in college life except marks, but in actual life it meant failure.

The physical datum plane is the surface of water, at rest or in equilibrium.

Dr. Klotz then outlined the work of the Boundaries Commission and the difficulties experienced in establishing monuments along the forty-ninth.

Dr. Adams, Prof. McLeod and Dr. Barnes were present and spoke briefly in appreciation of the excellent address delivered by Dr. Klotz.

After the addresses business was returned to, and Dr. Adams was unanimously elected honorary president for the ensuing year.

WELDING CONCRETE REINFORCING RODS.

A fair example of the efficiency of the Thermit weld was demonstrated in the construction of the test syphons for New York City's new water supply at Peekskill, N.Y.

These syphons are 11 feet inside diameter and are constructed of concrete, reinforced with steel rings formed of twisted rods bent in the form of a circle with the ends welded together.

Two forms of reinforcement were used, as shown in the drawings.

In figure 1, two rows of 1-in. x 1-in. rings were inserted at longitudinal centres of 4 in.

The contract covering the joining together of the ends of these rods called for a joint efficiency of 75 per cent., but as the material was high carbon steel with a tensile strength of 70,000 pounds, it was found impossible to obtain such a high efficiency by any method until the Thermit process was called upon. This process was finally adopted after a number of test welds had been made and subjected to tensile tests which in most cases proved an efficiency equal to the rod itself.

The method of procedure used in the field was rather crude, owing to the short space of time allowed for preparation, but it proved sufficient to keep well in advance of the construction work. The method employed was as follows:

The rods, after being cut to the proper length, were bent

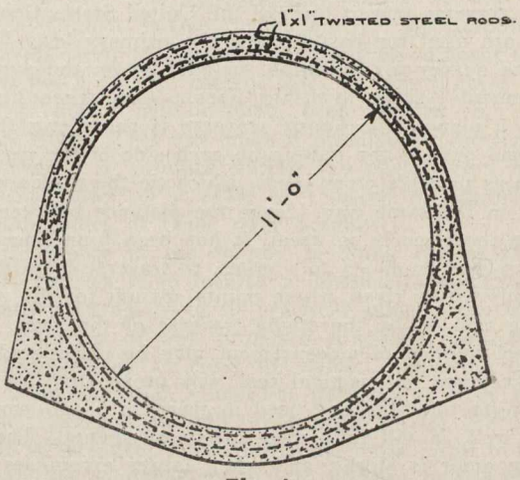

Fig. 1.

around a wooden form, allowing ½-in. between butt ends. The ends were then brought to a bright red heat in a forge and a set of flour and sand moulds, baked in two parts ready for use, clamped around them. In the meantime an automatic crucible containing the proper quantity of Thermit was placed in position, and as soon as the moulds had been made ready the Thermit in the crucible was ignited and the Thermit steel poured about the ends of the rods. It will be noted that this procedure differs considerably from the method in use for butt-welding rods, where the slag is poured into the mould first and serves to bring the ends of the rods to welding heat, at which time they are drawn together by clamps to effect a weld. On the Aqueduct, however, a butt-weld would not have fulfilled the conditions of test, owing to the fact that it would have been impossible to leave a reinforcement of Thermit steel around the weld. By the method adopted it was possible to leave a considerable reinforcement, which added very greatly to the strength of the joint and contributed in a marked degree to the success with which the process was used on the work.