

sufficiently rapid method for determining oxides in steel? Who will first completely investigate the relation between the chemistry and the chilling properties of cast iron? And who will first give us a study on the form in which nitrogen occurs in this metal, and a sufficiently rapid and accurate method for its determination? Truly the harvest of chemical work before us in connection with iron and steel is bounteous. Will the laborers be forthcoming to gather the harvest?

C. B. DUDLEY.

ALTOONA, PA.

*TORONTO MEETING OF THE BRITISH ASSOCIATION.*

THE local preparations for the meeting of the British Association for the Advancement of Science to be held this year in Toronto, commencing Wednesday, August 18th, have now after a year's work on the part of the various local committees reached a very advanced stage. The finance committee have been promised \$27,500 to meet the expenses of the occasion. The sectional meetings are to take place in the buildings of the University of Toronto, which are centrally situated and which may be reached from all points of the city by means of the electric car system. As the University grounds are adjacent to the Queen's park and in the residential portion of the city, this arrangement will thus be a most agreeable one for the visitors. The Presidential addresses and the evening lectures will be delivered in Massey Hall, which has been recently erected and is capable of holding about four thousand auditors.

Perhaps the most difficult of all the arrangements have been those pertaining to the matter of steamship and railway rates, but in these also very satisfactory progress may be reported. The British visitors will have reduced rates by the Canadian lines from Liverpool. The Ca-

nadian railways have made very important reductions to members of the Association who will travel in Canada between July 1st and September 30th. The Canadian Pacific Railway will give special rates also to members who wish to visit the Northwest, British Columbia and the Pacific coast. A large number of special excursions have been organized, some of them to take place during the meeting, others immediately after its close. They will last from two days to three weeks, and as the weather will be cool, no doubt these trips will be exceedingly pleasant for the members.

The retiring President is Lord Lister, President of the Royal Society. The President-elect is Sir John Evans, K. C. B., Treasurer of the Royal Society, who will deliver the Presidential address on the evening of the opening day. The Council of the Association have chosen Presidents for the majority of the Sections. Those already appointed are: Mathematics and Physics, Professor A. R. Forsyth, M. A. D. Sc., F. R. S.; Chemistry, Professor William Ramsay, Ph. D., F. R. S.; Geology, G. M. Dawson, LL. D., F. R. S.; Zoology, Professor Louis C. Miall, F. L. S., F. R. S.; Economic Science and Statistics, Professor E. C. K. Gonner, M. A., F. S. S.; Anthropology, Professor Sir William Turner, LL. D., D. C. L., F. R. S.; Physiology, Professor Michael Foster, LL. D., Sec. R. S.; Botany, Professor H. Marshall Ward, D. Sc., F. R. S. Professor James Dewar, LL. D., F. R. S., and Mr. J. Milne, F. R. S. (late professor in the Imperial University of Tokyo) have been appointed to deliver the evening lectures.

Amongst those who have promised to attend are Lord Kelvin, Lord Lister, Sir Henry Roscoe, F. R. S.; Sir Robert Ball, Professors Viriamu Jones, LL. D., F. R. S.; G. Carey Foster, F. R. S.; J. S. Burdon-Sanderson, LL. D., F. R. S.; A. W. Rücker,

Sec. R. S.; J. R. Green, F. R. S.; F. O. Bower, F. R. S.; A. C. Haddon, D. Sc., C.; S. Sherrington, F. R. S.; A. H. Miers, F. R. S.; W. A. Herdman, F. R. S.; S. P. Thompson, F. R. S.; S. H. Vines, F. R. S.; A. G. Vernon Harcourt, F. R. S.; C. Le-Neve Foster, F. R. S.; Mr. J. Scott Keltie, W. H. Preece, F. R. S.; W. H. Gaskell, F. R. S.

It is the intention of the Local Secretaries to issue invitations to a large number of representative foreign men of science to attend the meeting, and it is hoped that a number of these will accept. The presence of foreign scientific men has been a special feature of many of the meetings in recent years, and this has greatly increased the interest of the members and public in the Association, while it has given the latter a semi-international character. The Local Committee desire that the Toronto meeting shall be largely an international one, and they have welcomed the provision made by the Council of the Association whereby the fellows and the members of the American Association are given for 1897 the same standing as old members of the British Association, that is, they will on joining be required to pay \$5 only, instead of \$10, the amount exacted for new members. The officers of the American Association also have been made Honorary Members of the British Association. The presence of these and the attendance of from forty to fifty Continental (European) men of science will doubtless do much to realize the hopes of those who advocate the formation of an International Association for the Advancement of Science. In any case it will serve to widen the sympathies of the scientific men of the British Empire and of the Anglo-Saxon Republic. The local committee on the other hand will endeavor to make the meeting an extremely pleasant one for all the visitors.

The provisional program of the daily

agenda of the meeting will be published in *SCIENCE* in a few weeks.

A. B. MACALLUM.

#### *GEOLOGY AT THE BRITISH ASSOCIATION.*

THE address of the President, Mr. J. E. Marr, was an eloquent and powerful appeal for the systematic pursuit of minute stratigraphical investigation. While petrology may be largely claimed by the Germans, paleontology by the French, and physical geology by the Americans, detailed stratigraphy has been much followed in Britain from the days of William Smith to the time of its present exponents, amongst whom we reckon Lapworth, Buckman, and, he might have added, himself.

Apart from the accurate unravelling of physical structure and the consequent correct knowledge of earth history which thus becomes possible, the President referred to a number of almost unforeseen results, which could only have been obtained when the succession of strata was studied in minute detail and the minor divisions of the rocks laid down on maps of sufficient scale. The detection of small faults and their relation to physical features and to denudation, the identity of ancient rocks and modern deposits, the history of coral reefs, the origin of coal seams, the geography of former periods, the distribution of ancient climates, the direction and nature of earth movement and its effect on the position and structure of igneous rocks, even the history of the crystalline schists—all these branches had received or might be expected to receive help from this line of enquiry. Dealing with the more immediate bearing of stratigraphical research on earth history and evolution and the phylogeny of organisms, he referred especially to the work of Barrande, Walcott, and Matthew on trilobites, of Lapworth on graptolites, of Beecher on