

plished under the editorship of Messrs. William McInnes and D. B. Dowling, and is a credit to the country.

The excursions will, no doubt, be the leading feature of the Congress and every effort is being made to make them attractive both to geologists and mining engineers. The itineraries of the excursions are contained in circulars distributed by the secretary. The guide books consist of fifteen volumes comprising a total of more than 1,600 pages and 140 maps.

The preparation of guide books for use on excursions has proven to be one of the most useful features of the sessions. By this means a great deal of information concerning the structural geology and ore deposits of the countries visited has been made available. The set of guide books prepared for the Canadian meeting covers practically all through railway lines and steamboat routes from Sydney in Cape Breton to Dawson in Yukon. They consist in all of 1,600 pages, contain well arranged notes, are of convenient size, are accompanied by geologically coloured maps and sections and make a notable contribution to the literature treating of the geology of the country. Their attractive appearance, the fine quality of the material entering into their make up, and the excellent typography reflect great credit upon the Government Printing Bureau by whom the printing was done.

### OBJECT AND WORK

Geology is defined as the science treating of the earth's history, and it includes the study of its mineral deposits and the floras and faunas which have successively clothed and peopled the earth's surface. The direct value of geological work is now fully recognized, especially by those connected with mining, civil and hydraulic engineering, it being daily applied not only to mining problems, but to many others, such as water supplies, foundations for bridges and large buildings, dams, road construction, etc. In fact, in the recognition of the commercial importance of geology there is danger that some branches of the science may be overlooked or slighted. It is well, therefore, to point out that in many cases the application of geology to engineering and commercial work has been made possible only by the study of problems which appear to be solely of scientific interest. The International Geological Congress takes care that all aspects of geology receive adequate consideration in its sessions.

The object of the International Geological Congress is, briefly, the advancement of knowledge concerning the earth both in the field of pure geological science and in its application to the arts and industries, through the association and co-operation of leading geologists and engineers of all nations.

The more important methods by which it endeavours to accomplish its aim are as follows:—

Meetings, publications, international committees, excursions and prizes.

Meetings.—The meetings are held every three years in different countries, and each session lasts from seven to ten days. The meetings are attended by members from every civilized country. The leading countries, societies and universities are represented by specially appointed delegates. Papers bearing on questions of general interest are read and discussed. As main topics for discussion subjects of scientific or economic importance are selected in advance so that every member who can contribute knowledge on the subject may be prepared to do so. In this way, the exact state of present knowledge on these topics is put forth and made known.

Publications.—The transactions of the Congress are published as soon after the session as possible. They contain the more important papers and discussions, and a general report on the business and work of the Congress. The transactions of the eleventh Congress form two volumes totaling 1,413 pages. In addition, a quarto volume of papers on "Changes of Climate since the Maximum of the Last Period of Glaciation," and two quarto volumes and a large atlas on "The Iron Ore Resources of the World" stand to the credit of the eleventh Congress.

International Committees.—Committees are formed to deal with questions requiring international or concerted action.

Such subjects as the standardization of geological colours and signs employed on maps, the standardization of geological nomenclature, and the planning of general geological maps covering an entire continent have been dealt with by these committees.

Excursions.—Excursions have become an outstanding feature of the sessions, special facilities being provided in the country in which the meeting is held to enable the delegates coming from every portion of the world to make, at small expense and under expert guidance, a personal study of its geological structure and mineral resources.

The value of the excursions is not confined to what is seen and learned. They afford the best opportunity for the members to fraternize and to become acquainted with each other and with each others' work and ideas. The informal discussions of the geological problems presented in the field and the information that is thus brought out concerning the methods employed in the various parts of the world in attacking and solving similar problems: and the use that has been found for neglected or little-known substances; these and similar discussions are perhaps the most instructive and valuable features of the Congress.

Prizes.—The Congress affords the necessary machinery for awarding prizes for special achievement in the science or application of geology. The Spendiarow prize, founded by a Mr. Spendiarow of St. Petersburg, Russia, in memory of his son, is awarded at each session for the most important work accomplished by an individual since the preceding session. Special prizes have been awarded at various sessions.

### Value of the Congress.

From even such a brief recital of the object and work of the Congress, its importance is evident, but a few other points may be touched upon. It has secured the co-operation of the governments of various countries, as well as of men of science that has resulted in the magnificent geological map of Europe now approaching completion. A similar geological map of the whole world will be undertaken. As an example of valuable international studies may be mentioned the very careful investigation into the iron ore resources of the world, the results of which are embodied in a series of magnificent volumes, in which the extent, quality and mode of occurrence of the iron ore resources of every country of the world are set forth, and illustrated by means of maps and plans. A similar plan of study is now in progress to determine the coal resources of the world, a full report of which will be issued in 1913 before the meeting of the Congress in Canada. The Congress serves, in a sense, as an international clearing house for geology. These great gatherings of distinguished scholars of all nationalities have aroused greater interest in geology on the part of private individuals, corporations and