

### COMMITTEES ON RADIO-TELEGRAPHIC INVESTIGATIONS.

#### *Organisation of an International Commission.*

A MEETING was held in Brussels at the commencement of last month at which the question of organising an international commission to carry out wireless experiments was further discussed. At the International Time Conference in Paris last October a series of resolutions was passed with reference to the formation of an international organisation for the scientific study of Hertzian waves and their relationship to the medium through which they travel. At this conference Mr. Goldschmidt, of Brussels, placed his high-power station at Brussels and the sum of 1000*l.* for preliminary studies at the disposal of the proposed international commission.

Arising out of these resolutions the representatives of the different countries who were present at Brussels last month drafted a provisional constitution for the international commission and a scheme for its work.

The objects of the commission are:—(1) To carry out experiments on the propagation of electric waves. (2) To make wireless telegraph measurements and the study of the problems related thereto.

The provisional programme of the work of the commission will consist in making measurements in different countries and at different distances and in different directions of the strength of signals sent out from the station at Brussels. These measurements will be repeated from day to day or hour to hour as necessary in order to determine the variation of the strength of the signals both with time, with distance, and with direction, and later the effect of wave-length and decrement will be studied.

It is proposed to set up a receiving station near the transmitting station in Brussels in order accurately to control the strength of the waves sent out so that an allowance can be made for any unavoidable variation in reducing the final results.

The organisation consists of a number of national committees, one in each of the countries taking part. The national committees will send delegates to the international commission, and these delegates, together with the officers, will constitute the international commission. It is proposed that the international commission should meet once a year, or more often if the work is sufficiently advanced.

The Institution of Electrical Engineers has decided to undertake the formation of the national committee for Great Britain, under the scheme for the organisation and encouragement of electrical research which was announced at the institution meeting on December 12, 1912.

#### *The British Association Committee.*

The British Association Committee has now inaugurated an extensive scheme for the making of observations of natural electric waves by means of wireless telegraph receiving apparatus, and is addressing to wireless telegraph experimenters an invitation to cooperate in the making of observations. The records will be collected by the committee and compared and reduced by it.

These natural electric wave trains produce troublesome noises in the telephone receivers of wireless telegraph stations. Some proportion of them are due to lightning strokes within a few hundred miles of the receiving station; but even when there is no thunder weather recorded over the whole continent of Europe and the adjacent seas, they are received continuously by an antenna adjusted to a great wave-length. It has been suggested that some of these wave trains may be due to extraterrestrial causes, and it does not seem unreasonable to suppose that

electrical discharges may occur in the sun and may be the source of a proportion of the natural electric wave trains we receive. There is little likelihood of our gaining a knowledge of the causes at work until organised observations are carried out simultaneously at numerous points of the globe and collated at a single centre, such as the committee now affords.

Another and distinct inquiry which urgently needs pursuing is the action of the earth's atmosphere in causing variations of the electric waves used in transmitting messages over long distances. The laws of these variations, especially in respect of their connection with weather conditions, with position on the earth's surface, and with the time of day would, if unravelled, probably throw light on the electrical conditions of the highest parts of our atmosphere. The committee has undertaken this inquiry also.

In carrying on the work the committee looks very largely to private experimenters for the collection of data. But it has been a matter of extreme gratification to find that the Imperial Navy and the British Post Office were willing to help. The Marconi Company also has, with commendable public spirit, promised to give its powerful assistance to the committee. Thus the committee can already make sure that data will be collected on its behalf in all parts of the world. Meanwhile private experimenters who are willing to assist the committee by making observations should communicate with the secretary, Dr. W. Eccles, University College, Gower Street, London, England.

### APPLIED SCIENCE IN THE UNIVERSITY OF SHEFFIELD.

ON October 25 the completed buildings of the applied science department of Sheffield University were opened by Lord Haldane. These buildings have the largest frontage in Sheffield, being 350 ft. long, the architecture being of the Hampton Court Palace type. The cost of the additions has been approximately 45,000*l.* The central administrative block contains a very fine assembly-room, called the "Mappin Hall," after the late Sir Frederick Thorpe Mappin, first chairman of the applied science committee of Sheffield University, and a handsome departmental library which will house books having reference to applied science and pure science data more immediately bearing upon this subject. There are staff common-rooms, and the metallurgical record office included in this central block, and the department of pure geology is also housed here.

The south-east wing, a considerable portion of the cost of which was defrayed by the Drapers' Company of London, contains four floors; the two lower floors are devoted to non-ferrous metallurgy, the third floor to mining, and the fourth floor to applied chemistry which has particular reference to mining. The new non-ferrous department, which has been organised so as not in any way to overlap the metallurgy of the Royal School of Mines, has been designed to develop scientifically the silver industries of Sheffield. The course here is divided into two sections: first, the basis metal section, in which are produced on a works' scale ingots of German silver, Britannia metal, brass, and bronze, white metals, and other non-ferrous metals in use in Sheffield manufactures (for working these metals into the finished articles, the department has secured the friendly cooperation of silver manufacturers in Sheffield); secondly, the electroplating department, in which all classes of plating operations are carried on on a manufacturing scale. Each student's bench is fitted with a specially combined ammeter and voltmeter, so that the student may make his preliminary studies under exactly known