

Radio Communication Conference at Lisbon

THE third meeting of the Comité Consultatif International des Radiocommunications (C.C.I.R.) opened at Lisbon on September 22, and will extend over a period of about two weeks. This committee was formed at the Washington Radiotelegraphic Conference in 1927 to provide a means for representatives of those administrations operating radio communication services to meet and discuss various technical matters of mutual interest, with the view of facilitating international radio communication. The previous meeting of the C.C.I.R. was held in Copenhagen in 1931, concurrently with the meeting of the Union Radio Scientifique Internationale, which has just held its plenary congress in London. The Lisbon meeting is considering a number of problems relating to broadcasting, which arose out of the Lucerne conference, in addition to questions of more general interest. The British delegates now at Lisbon include representatives of the Post Office, the British Broadcasting Corporation, the National Physical Laboratory, the Defence Services and the commercial organisations operating radio communication services in Great Britain.

Exploring the Greenland Ice-Sheet

DURING the recent summer, several attempts have been made to explore the mountainous interior of King Christian IX Land on the east coast of Greenland, between Scoresby Sound and Angmagssalik. The coast of this land, though somewhat inaccessible on account of pack-ice, has been explored by Amdrup, Mikkelsen, Watkins, Wager, Rasmussen and others, but penetration to the interior has so far proved to be baffling. Mr. Martin Lindsay has been successful in reaching this unknown area by crossing the Greenland ice-cap from the west coast. The *Times* reported his safe arrival at Angmagssalik on September 8, after a sledge journey of 1,050 miles from Rittenbak near Jakobshavn. He was accompanied by Lieut. A. S. T. Godfrey and Mr. A. Croft, and they took with them dog teams and stores for the entire journey. Details of the work are still lacking, but the plan was to go eastward on the seventieth parallel of north latitude towards the head of Scoresby Sound and then turn south by Mount Forel to Angmagssalik. Apart from the survey work in King Christian IX Land, this expedition will have thrown new light on the ice-sheet, which it crossed in one of its wider parts. The party is returning to Aberdeen in the trawler *Jacinth*, having arrived on the coast too late to take passage in the Danish Government ship *Gertrud Rask*.

Two other attempts on the east coast of Greenland have been less successful. The *Times* reports that an Italian expedition of five, under the leadership of Count L. Bonzi, did some work on the south of Scoresby Sound, but, owing to difficulties with the pack-ice, had to abandon the project of penetrating inland from Cape Brewster. The expedition returned to Iceland on September 16. A French expedition under Dr. P. Victor failed to penetrate the belt of

pack-ice off the Blosseville Coast and was landed by the *Pourquoi Pas?* at Angmagssalik in order to pass the winter in preparation for an attempt next year. Another crossing of the Greenland ice-sheet was made in August by Mr. Grierson, who flew from Angmagssalik to Godthaab in the course of his flight from England to Ottawa. Mr. J. M. Wordie's expedition to Ellesmere Island returned to Aberdeen on September 15, after charting new territory in Baffin Island. Earlier in the season, heavy pack in Melville Bay had held them on the west coast of Greenland and prevented access both to Cape York and to Ellesmere Island. There was in consequence no time to push westward to the Parry Islands and Banks Island, and any hope of making the North-West Passage was frustrated. Valuable work, however, is reported.

Effects Produced by Large Electric Currents

In the *Electrician* of September 21, an account is given of experiments carried out in the high-voltage laboratory of the International General Electric Co. at Pittsfield, Mass., where artificial lightning at ten million volts was first produced. The engineers of the company have observed the effects produced by electric currents up to a quarter of a million amperes, which is much greater than any currents hitherto obtained. The object of the research was to find out the best way of protecting electric equipment against lightning discharges. A copper wire one tenth of an inch in diameter was completely vapourised in the few millionths of a second required for the discharge. When a piece of iron wire was used, it 'exploded', the ends of the wire that were left remaining white hot for several seconds. A section of reinforced concrete placed between the electrodes was broken into bits by the current in the same way that a concrete structure is shattered when struck by natural lightning. Most of a silver-plated tea-spoon vanished in a shower of sparks, but the bowl, discoloured by heat, was left. Metallic armoured cable was in some cases destroyed, and occasionally caught fire. If the arc is confined to a small fibre tube, the tremendous pressure developed blows the tube to pieces even although it has a wall a quarter of an inch thick. In the open air, the pressure produced by the discharge shatters a pane of glass several inches away. When the current is passed through a flat copper strip, the strip is crumpled until its section is nearly round. The high ampere generator is formed by a battery of condensers suitably arranged. The discharges have to be confined within strong protecting cylinders as the explosion is very violent and makes a loud report.

Illuminating Engineering in the United States

AN address on illuminating engineering in the United States given by S. G. Hibben, the director of the Westinghouse Lamp Company, New York, has been published in the *Illuminating Engineer* of September, 1934. For underwater use, the Americans have developed special lamps. They have very strong bulbs, and both the base and the wires are wrapped

in soft rubber which at great depths is highly compressed. By their use, visibility is quite good at a depth of 400 ft. and photographs have been obtained at this depth. They are also used for salvage operations. Lamps at voltages which give them a life of about an hour only are used for photographic work. At still higher pressures we get the 'photoflash' lamp which is only used for instantaneous flashes. When used in a bulb of special blue-coloured glass, the blinding effect is negligible and the photographic effect is little impaired. In Europe, remarkable progress has been made in developing electric discharge lamps. In the United States, sodium and mercury lamps are used; the latter is the more popular for interior lighting. The Statue of Liberty in New York Harbour is flood-lighted, the intensity of the illumination being 30 foot-candles. Golf courses are now being lighted and playing at night is proving popular. A few courses are lighted by filament lamps, the consumption being 5-10 kilowatts per hole. Steam and sailing yachts are sometimes flood-lighted, the canvas and the funnels being illuminated. As well as being decorative, this adds to their safety. One of the chief uses of ultra-violet energy is for the purification of liquids. By means of a cinema film, the purification of water by killing the bacteria with ultra-violet rays was shown.

Steam Tables

WHEN a conference of American engineers and physicists decided in 1921 on a research programme to produce more accurate data on the properties of steam, investigation of the properties of saturated steam was assigned to the National Bureau of Standards. Recent research both in America and in Great Britain has increased the available data, and in the July issue of the *Journal of Research* of the Bureau, Messrs. N. S. Osborne and C. H. Meyers give the results of their examination of it in the form of tables of the saturation pressure and of its rate of change with temperature in both atmospheres and kilograms per square cm. units for each degree Centigrade and Fahrenheit between -5°C . and 374°C ., the critical point being 374.1°C . The results of Holborn, Scheel and Henning of the Reichsanstalt, Egerton and Callendar, Osborne and his colleagues of the Bureau, Keyes and his colleagues of the Massachusetts Institute of Technology have all been utilised. At temperatures below 200°C . they differ very little from each other, and even near the critical temperature the differences are less than 0.1 per cent of the pressure, which is nearly 218 atmospheres. Both saturation pressure and its variation with temperature are expressed in terms of absolute temperature by empirical formulæ modified from those in common use, but it is not intended that for practical purposes the formulæ should replace the tables.

The University in the New Age

MR. MAYCOCK, in a contribution to the *Hibbert Journal* (32, No. 4), hopes that the universities may save us from an anarchic and materialistic society "where all will live for the moment in a chaos of pure

sensation". This salvation will be possible only if the universities have due reverence for the traditions of their past, and for the value and dignity of learning. A survey of their history shows that they have to-day a great opportunity. They are once more as influential as they were in the Middle Ages; all that is wanting is an equivalent of the medieval synthesis. Mr. Maycock sees hope for this in the present-day pre-occupation with the social sciences, since these lead more readily to integration than the nineteenth century development of physical science. Over-specialisation has put learning out of touch with life, and has endangered our social order, and this the universities can remedy, not by becoming technical schools but by teaching an attitude to knowledge; the new age needs to recover the spiritual values of the Middle Ages, and, like Aquinas, to call those men wise "who control things rightly and set them in order".

Nations and the Public Health

INTERNATIONAL co-operation in public health is assuming much importance at the present time, and formed the subject of Sir George Buchanan's Milroy Lectures, delivered before the Royal College of Physicians, London, in February and March last (reprinted from the *Lancet*, April and May, 1934, pp. 879, 935, and 992). After some introductory remarks respecting the Rockefeller Foundation, the Red Cross and League of Red Cross Societies, he proceeds to survey some of the public health activities of the League of Nations, and of the Office International d'Hygiene Publique, Paris. The former have included health missions to various countries, international regulation of opium and drugs of addiction, statistics and radiological treatment of cancer, standardisation of biological products such as therapeutic sera, and inquiries into the laboratory procedures employed in the Wassermann test for syphilis. At the International Office in Paris, a permanent committee of delegates, representing fifty-one Governments, meets in regular half-yearly sessions, and is concerned with the prevention of plague, cholera and some other communicable diseases. It drafted the International Sanitary Convention, 1926, which deals with quarantine and de-ratisation of ships, it co-ordinates the sanitary control of the Mecca Pilgrimage, and it drew up the International Sanitary Convention for Aerial Navigation, 1933, which has already been signed by many nations. These international meetings also serve to establish a personal relationship with fellow-workers overseas and in foreign countries, and are invaluable as a time-saver when dealing with common problems.

Meteorology of India

In a lecture delivered to the Royal Society of Arts on April 13, an account of which appears in the *Journal* of the Society (82, No. 4256), Mr. J. H. Field discussed the meteorology of India. In his lecture, Mr. Field gave interesting accounts of recent developments, such as the detection of cyclones at sea by the indications of seismographs, a subject developed