

Radium Requirements of Great Britain.

ON July 7, 1928, the chairman of the Committee of Civil Research appointed a sub-committee, with the Right Hon. Lord Rayleigh as chairman, to examine the radium requirements of Great Britain in relation to the present sources of supply and to submit recommendations. The Report of the Radium Sub-Committee (dated Mar. 7, 1929) has now been published (London: H.M. Stationery Office. 6d.). The document is of absorbing interest, for it not only discusses the importance of radium in medical treatment and the amount required for such purposes in Great Britain, but it also presents a valuable survey of the sources of radium production, with special reference to deposits in the British Empire. Among the conclusions reached are the following:

The amount of radium belonging to the Government which is available for medical purposes in England, Scotland, and Wales is 2.2 grams, and the estimated amount believed to be the property of hospitals and private medical practitioners, or likely to be so in (say) three months' time, is approximately 22.7 grams, making a total of 24.9 (or say 25) grams.

The amount required to meet existing needs in Great Britain is probably approximately 49 or 50 grams, that is, an immediate addition of about 24 grams to the existing national stock is required.

Owing to the lack of trained personnel and to the inadequacy of the available hospital accommodation, it is probable that not more than 20 additional grams of radium could be effectively absorbed for medical purposes by the end of 1930.

There exists a pressing need for the establishment of a central stock of radium and the organisation of some systematic method for its distribution.

Until sources of supply at present unproved or unknown are discovered in the Empire or elsewhere, the only source from which additional supplies of radium for medical purposes are obtainable in any quantity is the Belgian Congo.

The following are the chief recommendations submitted:

Steps should be taken at once to ensure the acquisition by instalments of 20 additional grams of radium element for medical purposes.

A body of trustees should be appointed entitled the National Radium Trustees, whose duty it should be to hold the funds provided by Parliament or otherwise, and to purchase therewith and hold radium for use by the Radium Commission referred to below.

The National Radium Trustees should appoint a body to be called "The Radium Commission," who should have the following powers and duties:

Generally to deal with the custody, distribution, and use of all radium held by the trustees, having regard to the advancement of knowledge, the treatment of the sick, and economy of use; and, in particular, to consider and approve plans submitted to them for the use of radium for the purposes of medical treatment and research, and to make the necessary arrangements for the supply of radium for such uses.

As was announced in our issue of April 27, p. 649, the Government has accepted the financial recommendation of the Sub-Committee, and will contribute £1 for every £1 of private subscription up to £100,000 for the purchase of radium. This leaves a sum of £150,000 to be raised by private subscription if the quantity of radium required is to be purchased. A double appeal has now been issued. An anonymous donor has given £100,000 to King Edward's Hospital Fund for London, to form the nucleus of a thank-offering fund for the recovery of His Majesty the King, and the *Times* has undertaken to raise the £150,000 required for the National Radium Fund. The two movements are in close co-operation and have the same treasurer and office organisation. The King has signified his approval of the scheme by sending a cheque for £1000, to be divided equally between the two appeals, and other members of the Royal family have contributed. The eagerness of the public to express its thankfulness for the King's restoration to health has been marked by its swift response to the appeals, nearly £60,000 being subscribed to the National Radium Fund on the day it was opened. Further subscriptions, for either fund, should be addressed "The Treasurer, Thank-offering Fund, 103 Kingsway, W.C.2."

Annual Meeting of the International Council for the Exploration of the Sea.

THE annual meeting of the International Council for the Exploration of the Sea was held in London on April 8-15. The meetings of the area and other committees took place at the House of Lords, and the rooms of the Zoological Society were placed at the disposal of the Council for the scientific meetings held on April 12 and 13. About sixty delegates and experts attended the meetings.

The main work of the Council is organised on a regional basis, and the investigations carried out in each geographical area are reviewed by the area committees, which also lay down the programmes for the ensuing year. Hydrography, plankton, statistics, and the study of salmon and trout are dealt with by special non-area committees.

At the Hydrographical Committee, the main points under discussion were the preparation of mean surface salinity charts for the North Sea, plans for combined work on submarine waves in the Kattegat, and the hydrography of the Faroe-Shetland Channel; regular observations of the surface waters on two additional lines in the North Sea were arranged. Prof. W. Mielec presented a report to the Plankton

Committee on the work he has carried out in testing the comparative catching-power of various types of plankton nets, and Prof. H. H. Gran initiated a discussion on quantitative methods used in the investigation of phytoplankton. In the Atlantic Slope Committee, under the chairmanship of Dr. E. D. le Danois, Prof. A. Ramalho gave an account of the Portuguese hydrographical work in the area, including the Straits of Gibraltar and the adjacent Portuguese, Spanish, and Moroccan coasts, and Dr. Fernando de Buen demonstrated an inverse correlation between the catches of sardines and sprats, as shown by both English and Portuguese statistics. Dr. R. S. Clark gave a detailed account to the Northern North Sea Committee, of the distribution of the young herrings of the northern waters of Great Britain, and Dr. A. Molander contributed notes on the witch fishery of the area. Dr. A. Bowman, the chairman, read a paper on the age determination of the lemon sole by means of scales. In the meetings of the Southern North Sea and Combined North Sea Committees the advisability of continuing the practice of issuing advance proofs of the tables from the *Bulletin Hydro-*

graphique to people concerned, was discussed. It was decided that this procedure was very helpful and should continue.

Prof. A. C. Hardy showed a new model of his continuous plankton recorder, which it is hoped will be of great service in enabling plankton collections to be made from commercial vessels. A question which is becoming of great practical importance, namely, the design of fishing gear which will avoid the wasteful destruction of small fish, was discussed by a special Committee on Savings Gear, in the light of experiments carried out in several countries during the past year.

Special interest attaches to the recommendations of the Whaling Committee, in view of the recent great expansion of the industry, especially in the Antarctic. The Committee expressed the view that, while investigations are not sufficiently advanced to enable definitive and adequate regulations to be framed for the conservation of the stock of whales, there are certain practical steps, for example, for the protection of young and immature whales, which might be taken at once by international agreement, and it asked the Council to impress this point of view upon the governments concerned. It proposed also the organisation of adequate statistics of the catch of whales in all parts of the world.

At last year's meeting the innovation was made of devoting two days to the discussion of subjects of general scientific interest affecting the Council's work, and the same useful plan was adopted at the present meeting. The subjects chosen for discussion on this occasion were "Fluctuations in the Age Classes of Fishes," and "Current Measurements, Direct and Indirect." No fewer than twenty communications were read on the former subject, and as there was no

time for discussion it was arranged that the papers should be published and debated at the next meeting of the Council. The same procedure was adopted for the papers read on current measurements.

On Tuesday and Wednesday, April 16 and 17, a joint meeting of the International Council and the Challenger Society was held at the Laboratory of the Marine Biological Association at Plymouth. Scientific exhibits were arranged by the staff of the Laboratory on the Tuesday, and on the following morning a discussion took place on the subjects considered at the special scientific meetings of last year, namely, "The Estimation of Phosphates and Nitrogenous Compounds in Sea Water" and "Racial Investigations of Fish" (see *Rapports et Procès Verbaux*, vols. 53 and 54; 1929). Prof. H. H. Gran described the results of his work on diatom frequency in relation to phosphates and nitrates. He finds that while these salts decrease in proportion with increased frequency of diatoms, there are indications of some other unknown factor also at work. Dr. W. R. G. Atkins remarked on the necessity for observing the greatest caution in estimating phosphates, as the slightest trace of impurities renders the samples useless.

The discussion on races in fish was then opened by Prof. E. Ehrenbaum. In the discussion which followed, the majority of the speakers inclined to the view that the counting of variable characters such as vertebrae, etc., is more likely to show up the effect of local conditions than to demonstrate the existence of distinct races. Prof. J. Hjort proposed that the meeting should send a message to Prof. F. Heineke as a mark of respect for the great work he originated, many years ago, on the races of herring.

Meteorology in India.

WE have received the first three volumes of a new series of meteorological publications that is being issued by the India Meteorological Department, entitled "Scientific Notes." We suppose that this publication will correspond with the "Professional Notes" of the Meteorological Office, London, and if this be the case it will be valuable in that it will place on permanent record contributions to meteorology which, though not always of the first rank in importance, afford collectively a useful body of information, the reliability of which is to some extent vouched for by the issuing authority—in the case of the series under review, presumably the Director-General of Observatories in India. The only serious drawback of publications of this kind, as compared with similar papers read before a scientific society, appears to be that no discussion of the validity of the conclusions is published with them and the general reader can form little idea, in those cases where novel views are brought forward, as to whether or no a definite advance has been made.

The first 'note' is by Mohammad Ishaque. It is entitled "A Comparison of Upper and Gradient Winds at Agra and Bangalore." Here no novel opinions are put forward, but an unfortunate mistake in the statement of the motion of winds under balanced forces has been made in the introduction—a mistake that would immediately have been pointed out had the paper been read before a scientific audience—namely, that the ordinary 'gradient wind' equation does not hold at the equator, and therefore that the fairly good agreement found in temperate latitudes between the gradient wind and the actual wind at a height of 500 metres can scarcely be expected to hold in such a low latitude as that of Agra (27° N.) or at Bangalore (13° N.). This is no mere verbal slip; the author did not mean 'geostrophic'

wind instead of 'gradient' wind, for he states that in determining his theoretical 'balanced' wind the curvature of the isobars was taken into account.

Mr. Ishaque's results show an astonishingly poor agreement between the computed and observed winds: at Agra the correlation coefficient is only 0.34 for a height of 500 metres, and 0.39 for 1000 metres. Sir Napier Shaw in his "Manual of Meteorology" quotes coefficients of about 0.7 and 0.8 for observations made in England. To an uncritical reader, noting these contradictory results and observing that the Indian meteorologist was careful to deal only with days on which the pressure gradient was apparently determinable, an important fact would appear to have been established, but when it is pointed out that in England, where the difficulties in the way of obtaining a close network of reliable observations of barometric pressure must be less than in India, determination of the pressure gradient, and from it the 'gradient-wind,' is impossible to do accurately, one is tempted to wonder whether the relative magnitude of the correlation coefficients in the two countries are not a measure simply of the point to which accuracy of measurement of barometric pressure has been carried in each case.

The second and third 'notes' are useful contributions of a straightforward kind, dealing respectively with the hourly rainfall of Madras over a long series of years and with an interesting type of thunderstorm—the 'nor'wester' of South Bengal. The nor'wester appears to be a thunderstorm of the line-squall type which yields hailstones of a size fortunately seldom encountered in Europe, but the maximum wind-speeds are more comparable with those of the European line-squall and rarely exceed 50 miles an hour. The storms are most frequent in April and May.