

News and Views

Sir Gilbert Walker, C.S.I., F.R.S.

THE Royal Meteorological Society has awarded the Symons Gold medal for 1934 to Sir Gilbert T. Walker. The medal is awarded biennially for distinguished work in connexion with meteorological science and will be presented at the annual general meeting of the Society on January 17, 1934. Sir Gilbert was senior wrangler (1889), fellow and lecturer in mathematics at Trinity College, Cambridge, and Adams prizeman in 1900. He is author of many works on dynamical aspects of physics, including problems relating to the electromagnetic field and similar subjects, and meteorology. He has published numerous pioneer papers through many years on correlation as a means of dealing with seasonal variations of weather, and for forecasting the Indian rains. These papers have culminated with contributions on "World Weather" in *Memoirs of the Royal Meteorological Society*. Extracts from his presidential address before Section A (Mathematical and Physical Sciences) of the British Association meeting at Leicester on September 8, appears in this issue of NATURE (p. 805).

FOR twenty-one years, Sir Gilbert Walker was director of one of the chief meteorological services of the world, and in difficult circumstances. Although cut off from ready communication with meteorologists in other parts of the world, the India Meteorological Department, under his direction, made important contributions to the furtherance of weather science. The functional success of a large weather department depends so much upon cordial relations between staff and administrative head, and especially upon a sense of efficient direction, that it may be relevant to quote from a Government of India Report relating to Sir Gilbert's retirement from India:—" . . . For him personally the whole department retains the liveliest affection and regard; his kindly sympathy tided over many a period of depression in work, and his enthusiasm, strong sense of reason, and grasp of the true bearings of emerging results were responsible for the noteworthy advances which marked his regime". Sir Gilbert has been president of the Royal Meteorological Society, and since retirement from India has, as professor of meteorology in the Imperial College, actively carried on his weather researches.

Prof. Emile Borel

PROF. EMILE BOREL, who has just delivered a course of three lectures on applications of statistics to economic and meteorological forecasting at the London School of Economics, is a man of many talents and of distinguished achievements in the fields of mathematics and politics. To mathematicians he is known as a master of the theory of probability and the theory of functions, on which he has written many books, while politicians acknowledge him as one of the prominent deputies of the French Chamber and an enlightened Minister of Marine. Prof. Borel's mathematical genius revealed

itself very early. Born in 1871 at Saint-Affrique, a village in the Aveyron of which he is mayor, he studied at the Ecole Normale Supérieure, Paris, taking his degree of doctor of mathematics in 1894. A few years later, he won successively the four much coveted prizes offered by the Academy of Sciences (Grand Prix des Sciences Mathématiques, Prix Vaillant, Prix Poncelet and Prix Petit d'Ormoy). He was not forty years of age when he entered the Paris Academy of Sciences, of which he will be installed as president in January next. An honorary doctor of Trinity College, Dublin, he has a large number of distinctions from various universities and scientific institutions. He is honorary director of the Ecole Normale Supérieure, and professor of the calculus of probability and mathematical physics in the University of Paris.

Proposed New Ascent into the Stratosphere

DR. M. COSYNS is actively preparing for a new ascent to the stratosphere. He has just completed a short visit to England when he visited Prof. P. M. S. Blackett of Birkbeck College, Prof. W. Wilson of Bedford College and the laboratory of Lord Rutherford in Cambridge for the purpose of discussing some technical details of his venture. Dr. Cosyns went up with Prof. Piccard on the second ascent last year of the latter. A former pupil of the eminent Belgian scholar, Dr. Cosyns is a qualified engineer and is attached to the research laboratory of the "Fondation Medicale Reine Elisabeth" in Brussels. During the twelve hours he spent with Prof. Piccard in the stratosphere, he was in charge of the instruments fixed in the gondola for observational purposes. The results obtained have confirmed those obtained by other methods by Millikan and Regener. The three important conclusions reached were: (1) variation of ionisation with atmospheric pressure has been established with precision up to an altitude of 16,500 metres; (2) the equivalent (in mgm. Ra. m.⁻²) of cosmic radiation is about three times as great when measured by the counter method as that observed when the ionisation method is used; and (3) the counters indicate that the cosmic rays do not come from any specific direction. Incidentally, Prof. Piccard and M. Cosyns carried out some interesting observations in other fields. An account of the main results obtained during Prof. Piccard's two ascents is given in the *Bulletin de l'Académie Royale de Belgique (Classe des Sciences)* under the title "Etude du rayonnement cosmique faite à bord du F.N.R.S. par M. Cosyns, P. Kipfer et A. Piccard" (19, No. 2, 214-240; 1933).

MANY anticipated results, however, were not obtained, so Dr. Cosyns proposes going up again next April. He will be accompanied by an assistant, as Prof. Piccard will not take part in the expedition. The two principal problems will be: (1) to examine the direction and intensity of the cosmic rays and (2) to get some good records of the effects of cosmic

radiation by means of a Wilson chamber. Special instruments have to be designed, not only to suit the experiments, but also to fit into the tiny gondola of the balloon. Dr. Cosyns's visit to England was in connexion with this practical side of the preparations. In other fields, Dr. Cosyns plans to investigate, during his ascent, the energy of the total radiation of the sun, in order to determine the calorimetric intensity and the pressure of light of the sun. He will also collect, at various altitudes, samples of air for subsequent analysis. Another practical problem he has to solve is how to enable his balloon to ascend uniformly and slowly, and how to stabilise it eventually at certain heights, his reason being that taking observations during the rapid ascent of the balloon cannot be accurate enough to allow him to draw any final conclusions. Of course, once the balloon has reached the stratosphere, it is almost perfectly steady.

Anniversary Meeting of the Royal Society

IN connexion with the anniversary meeting of the Royal Society which will be held on November 30, when the medals for the year will be awarded (*NATURE*, November 11, p. 740), it is interesting to note that in the allotments of one hundred years ago, November 30, 1833, the Copley medal was not awarded. The Royal medals bore, for the first time, on the obverse, the effigy of King William IV, his Majesty having confirmed and continued the royal grants of George IV, his predecessor. At this anniversary meeting, however, the ten Royal medals adjudged during the lifetime of George IV were available for distribution to the original recipients, or their representatives, who were able to attend, this curious anomaly being due to the circumstance that the dies had never been completed, for reasons beyond the control of the Royal Mint. The names of the selected men of science in the different periods were: Dalton and Ivory (1826); Davy and Struve (1827); Encke and Wollaston (1828); Charles Bell and Mitscherlich (1829); Brewster and A. J. Balard (1830). Royal medals were not given in 1831 or 1832. The recipients of the Royal medals for 1833 were (1) Prof. A. de Candolle, of Geneva, for his valuable researches and investigations in vegetable physiology, as detailed in his work "*Physiologie Végétale*", and (2) Sir John F. W. Herschel for his paper "On the Investigation of the Orbits of Revolving Double Stars", published in the *Memoirs of the Royal Astronomical Society*. Herschel was at the time at the Cape of Good Hope. The foregoing medals were presented by the president, H.R.H. the Duke of Sussex.

Action of Radium on Malignant Cells

DURING the past year, the Imperial Cancer Research Fund has lost the help of two of its most distinguished officers—Sir Frederic Hallett, who has acted as secretary since the initiation of the scheme, and Sir George Makins, who has for many years been its treasurer and wise counsellor. The report of the director discloses another period of steady progress, mostly, at the moment, in analysing the

ways in which radium affects cancer cells. To some degree the influence of radiation is indirect, and the tumour cells are destroyed by their blood supply being cut off owing to the action of the radium on the vessels of the host. But there is also a direct action on the cells themselves, and Dr. Cramer and Mr. Crabtree have been concerned in attempting to analyse this by finding how far the influence of radium is modified by treating the cells with other reagents. If their results do not solve the problem, they show at any rate that it is of unexpected complexity. Thus hydrocyanic acid and low temperatures increase susceptibility to radium, while absence of oxygen increases resistance. Both hydrocyanic acid and anaerobiosis produce increased glycolysis, whence it appears that radium does not act via the glycolytic mechanism. This is corroborated by the discovery that iodoacetic acid and sodium fluoride, which inhibit glycolysis, have no influence on the resistance to radiation. It is also of interest to note that Dr. Ludford's distinction between normal and malignant cells, based on the inability of the latter to segregate trypan blue, has turned out not to be universally applicable, so that it is still true that no one has defined any criterion by which a cell as such may be known to be malignant.

The Study of Insects

PROF. G. D. H. CARPENTER delivered the first part of his inaugural lecture as Hope professor of zoology in the University of Oxford, on November 17. After speaking of the important part played by the study of insects in the solution of some of the chief problems in biology, he went on to deal with questions of parasitism and symbiosis; pointing out that in some cases of close association, both parties are benefited, while in others the entire advantage is enjoyed by one party at the expense of the other. The case was mentioned of the termites, which are enabled to subsist on nitrogen-free material, for example, cotton-wool, in virtue of the Protozoa inhabiting their intestines; these latter having apparently the power of fixing free nitrogen from the air. The importance of insects as carriers of disease was exemplified with many illustrations; and stress was laid on the necessity of a careful study of the habits of the insects concerned, by engineers and others engaged in the control of such maladies as malaria, sleeping-sickness and plague. Without sufficient knowledge, more harm than good may be done by the efforts of health officers. Further points made by Prof. Carpenter included the evolution of the alleged use of 'tools' by burrowing Hymenoptera; of the 'symbolic marriage gifts' offered by the empid flies; and the function of colours in courtship, as to which some recent views were criticised. Finally, the influence of insects in the production of flowers was adduced as a further illustration of the great part performed by insects in the world of Nature.

Academic Assistance Council

A MEETING of the Academic Assistance Council, under the presidency of Lord Rutherford, recently reviewed the work accomplished during its first six