the short time available for preparations before the beginning of the International Geophysical Year it was felt most important to start a basic programme which might then gradually be expanded. It is quite clear that most of the observations suggested should continue after the end of the International Geophysical Year, and therefore observations starting during the Geophysical Year would be of great value to future work in this field. Furthermore an Advisory Committee on Nuclear Radiation has been appointed to co-ordinate these efforts. This may be even more necessary here than in other disciplines, partly because of the short time still available for preparations, and partly because the programme covers a number of different fields in geophysics, such as cosmic radiation, meteorology, oceanography and glaciology. The chairman of the Advisory Committee is Dr. W. Bleeker, of the Royal Netherlands Meteorological Institute, de Bilt. It was also considered important to keep in close contact with the United Nations Special Committee and the World Meteorological Organization on this subject.

Essentially four observational programmes were outlined in the recommendations from Utrecht.

Measurements at ground-level of: (*a*) particulate airborne fission products; (*b*) the deposition of fission products in precipitation and as dry deposits; (*c*) the natural radioactivity of the air.

In the first place the programme aims at measurements of the total activity of air and precipitation, which would be of considerable interest, for example, as identifiers of air-masses. Where technical facilities exist for more detailed analyses of the samples the following isotopes were considered as of particular interest to the geophysicist, namely, strontium-89 and 90, cæsium-137, bismuth-210 and polonium-210.

Observations of radioactivity of the air in the free atmosphere. It is clearly realized that one can scarcely expect a fully world-wide network to be established for the International Geophysical Year. A knowledge of the distribution of the radioactivity in the free atmosphere is, however, of fundamental importance for a correct interpretation of the fall-out pattern at ground-level. Even a small number of additional measurements would be of great value in this respect, and would thus supplement the programme of measurements at ground-level. Furthermore one may hope to achieve a more complete network at an earlier date by extending international collaboration at the present stage.

Measurements of the tritium content of water before nuclear weapon detonations, for determination of the natural distribution of tritium. The water cycle in Nature is of great interest from many points of view. Tritium offers an excellent possibility for studying this cycle in more detail. In particular the speed of circulation within and between the different reservoirs may be determined. The natural distribution of tritium is poorly known, since nuclear weapon tests have thrown considerable amounts of tritium into the atmosphere. It should be possible, however, to establish the 'pre-atomic' tritium distribution by analysing glacier ice which has not been contaminated by melting. In middle latitudes wine bottled before 1945 should yield representative figures.

Determination of carbon-14 and tritium in the oceans at the surface and if possible at greater depths. Interesting results have recently been obtained about the circulation of the ocean and the exchange between the ocean and the atmosphere of carbon dioxide and water. These results are based upon very few measurements, and it is doubtful if these are truly representative. A world-wide programme for such measurements would be of very great interest both to oceanographers and meteorologists.

Some of the scientists actively engaged in applying these new techniques to geophysical problems may regard the programme outlined above as too limited. It may, nevertheless, be difficult to achieve even this modest goal during the International Geophysical Year. It is therefore necessary to look upon this programme as a first attempt to arrive at international co-operation among geophysicists in the field of nuclear radiation. Geophysicists would profit greatly from such a development. Equally important, however, is the recognition of the fact that geophysicists are needed for the best utilization and interpretation of the nuclear radiation data that until now have been collected essentially by physicists. We should be looking forward not only to international co-operation but also to interscientific co-operation.

OBITUARY

Lord Clinton, P.C., G.C.V.O.

The age of the great landlords of Britain is passing. Heavy taxation limits their activities during life, and death duties break up their estates after they die. But the countryside, agriculture and forestry owe much to these men for their devotion to their estates and their work to improve methods of farming and management of woods.

Lord Clinton, who died recently in his ninety-fifth year, was one who contributed much. It is true that he does not leave behind him a name such as "Turnip" Townshend or Coke of Norfolk, or possibly even that of his friend and colleague Sir John Stirling Maxwell, who introduced modern methods of tree planting. But he was a great landowner owning very large properties in Devon and with estates in Scotland. He devoted his life to the management of those estates, and, except for an interlude when he served with the Devon Yeomanry during the First World War, all his activities were concerned with the land he loved and understood so well.

His personal interest in his estates was such that in effect he managed them himself, extensive though they were. But forestry was probably his greatest interest in land use, and at a time when there was no great encouragement to private forestry he managed his extensive woodlands in the light of the most modern knowledge at the time. His personal interest may perhaps best be shown by the fact that whenever possible he made a practice of marking his own thinnings.

For a short while after the First World War he was Parliamentary Secretary to the Ministry of Agriculture. But with the passing of the Forestry

Act in 1919 which set up the Forestry Commission, he was an obvious choice as a member of the new body, joining his friends Lord Lovat and Sir John Stirling Maxwell. Starting a new venture like this was a landmark in forestry history, and foresters throughout Britain owe much to the hard and difficult work which these pioneers carried out. To all this Clinton contributed greatly, not only from his knowledge of forestry, but also from his experience in public affairs both local and national. From these efforts has risen an organization which those pioneers can scarcely have imagined.

He remained a member of the Forestry Commission until 1930, becoming chairman in 1927. His interest in forestry persisted to the end, and as recently as 1956 he persuaded the Forestry Commission to take over his woods on his New Pitsligo estate in Aberdeenshire to ensure that neither the effects of good management nor his experimental work there should be lost in the future.

Clinton was Lord Warden of the Stannaries in the Duchy of Cornwall during 1922–33, and to this office he was able to bring his great experience of land management. This office means in effect that he was the principal adviser to the heir of the throne in the management of his estates. It is, however, curious that in that office he never succeeded in arousing much interest in forestry in the Duchy woodlands.

He was also chairman of the Lawes Agricultural Trust Committee, the governing body of Rothamsted Experimental Station, during 1924–37. Here again his profound practical knowledge of agriculture and its needs was of great value to a body of scientists who, in common with scientific endeavour in almost all walks of life, had a tendency to be led astray from any practical aspects by their enthusiasm for theory.

During his very active life, Clinton was able once again to show how much Britain is losing by the passing of great landowners such as he. RADNOR

NEWS and VIEWS

Meteorology at Harvard : Prof. Charles F. Brooks

DR. CHARLES F. BROOKS, professor of meteorology at Harvard and director of the Blue Hill Observatory since 1931, is retiring this month and will be succeeded by Dr. R. M. Goody, at present reader in meteorology in the University of London (Imperial College of Science and Technology). Dr. Brooks, who was born in 1891, is perhaps the best loved figure in present-day American meteorology. He is noted for his integrity, courage and helpfulness to others, and these qualities have been most apparent and appreciated in his work for learned societies. In 1919 he set about re-establishing the American Meteorological Society (a task in which others had previously failed), became its first secretary and later treasurer, and by his personal efforts helped greatly to make it the successful institution which it is to-day. He held the post as secretary continuously until 1953. He has also served as president of the American Geophysical Union. Dr. Brooks is a meteorologist of infectious enthusiasm, occupying himself with observations when travelling on business or pleasure. His research work has covered the wide range of the climatology of North America, long-range weather forecasting and the effect of ocean temperatures on weather, instruments, microclimatology, eclipse meteorology, snowfall and clouds. He showed in the early 19 0's that a downdraught was almost certainly an essential feature in the life-history of a thunderstorm, a finding the importance of which has only come to be generally appreciated in the past decade or so.

Dr. R. M. Goody

DR. R. M. GOODY, who was born in 1921, has been a Fellow and Scholar of St. John's College, Cambridge. He took his degree in physics in 1942 and for the next four years worked in the Ministry of Aircraft Production, first testing aircraft and later as a special duties officer in charge of a German research institute in Göttingen. In the course of this later work he was involved with the Control Commission in the first phases of the creation of the Max Planck Institutes. Dr. Goody took his Ph.D. in 1950 and was appointed Fellow of his College in that year. In 1951 he was awarded a Senior Studentship of the 1851 Exhibition and in 1953 he went to the Imperial College of Science and Technology as reader in meteorology. Since the War, Dr. Goody's interests have mainly been in the field of infra-red spectroscopy and its application to atmospheric problems, which has led him into the whole field of radiative transfer problems. He has done notable research on the stratosphere, and is the author of "The Physics of the Stratosphere" (Camb. Univ. Press, 1954). Recent research on the emission of radiation by atmospheric ozone has led him to a new method of determining the vertical distribution of ozone from observations at the ground. At present he is in charge of a small observatory of the Department of Meteorology, Imperial College, at Silwood Farm, Ascot. Dr. Goody will take up his new appointment in the summer of 1958.

The British Rainfall Organization : Memorial to G. J. Symons, F.R.S.

AN interesting dual ceremony was held in Camden Square, London, N.W., on August 8 under the auspices of the Royal Meteorological Society to honour the memory of George James Symons, pioneer in the scientific study of rainfall, and to mark the re-opening of the Society's historic London weather station on a new site. During the years 1854–58, repeated spells of drought made Symons see the need for assessing Britain's potential water resources by means of accurate and systematic measurements of rainfall. For this purpose he set about recruiting volunteer observers, and by 1860 was able to publish records from 168 gauges—all in England and Wales. Soon he extended the investigations to Scotland and Ireland. Public interest in the work grew so rapidly that the number of collaborating observers rose to two thousand within twenty years and reached 3,500 by the close of the nineteenth century. Thus was formed the British Rainfall Organization—a remarkable example of private enterprise supported mainly by voluntary effort. On Symons's death in 1900 he was replaced first by his chief assistant, H. Sowerby Wallis, and, shortly afterwards, by the late Dr. Hugh Robert