Nevertheless, because of the world-wide distribution of fission products, and the fact that some areas may be subject to effects much above the average, close attention to the dangers should be maintained, especially if tests of bombs which give large radioactive 'fall-out' continue to be made.

The studies of the hazards of test explosions permitted a closer examination to be made of the probable consequences of an unrestricted war with nuclear weapons; this led to the unquestioned conclusion that such a war would represent a disaster of unprecedented magnitude. "In the combatant countries, hundreds of millions of people would be killed outright, by blast, heat and ionizing radiations, at the instant of the explosion, whether the so-called 'clean' or 'dirty' bombs were employed." If 'dirty' bombs were employed, "additional hundreds of millions would die from the delayed effects of radiation from local 'fall-out'—some from direct radiation injury, and some in later generations from genetic effects". Large-scale genetic injury might also follow from global 'fall-out'.

The committee which considered problems of control reached the conclusion that the principal objective of all nations must be the elimination of war, and the threat of war, from the life of mankind. For this purpose, it is necessary to reduce tension among the nations; to promote mutual understanding among the peoples; to strive for the ending of the arms race; and to provide an adequate control system so as to give substantial protection, and permit the development of mutual confidence. "It is unrealistic to depend upon any sudden increase in mutual confidence; it is more likely to grow from small beginnings. In this situation, even small agreements covering limited fields could be of great importance."

The committee which discussed the responsibilities of scientists in the modern world summarized its findings under eleven headings. Among many points of importance, two deserve particular attention: Point 9 states that "Tradition tends to place the emphasis in the education of youth on separate ideals of single nations, including the glorification of war. The atomic age urgently requires a modification of these traditions. Without abandoning loyalty to the national heritage, or to the fundamental principles of the different societies, education must emphasize the fundamental and permanent community of the interests of mankind, in peace and co-operation, irrespective of national boundaries and differences in economic or political systems"; and Point 11, "Science develops most effectively when it is free from interference by any dogma imposed from the outside, and permitted to question all postulates, including its own. Without this freedom of scientific thought, and the freedom to exchange information and ideas, full utilization of the constructive possibilities of science will not be possible".

The conference was unique in that never before had a group of scientists, so widely representative, met to discuss topics of such general importance. It is remarkable that it was possible to issue a statement, with such a measure of agreement, on many issues which might have appeared highly controversial and unlikely to receive general support. The statement concludes by giving expression to the unanimity in the conference on fundamental aims: "We are all convinced that mankind must abolish war or suffer catastrophe; that the dilemma of opposing power groups and the arms race must be broken; and that the establishment of lasting peace will mark the opening of a new and triumphant epoch for the whole of mankind. We earnestly hope that our conference may make a modest contribution to these great aims".

The signatories were: *Australia*, Prof. M. L. E. Oliphant; *Austria*, Prof. H. Thirring; *Canada*, Dr. G. Brock Chisholm; *China*, Prof. Chou Pei Yuan; *France*, Prof. A. M. B. Lacassagne; *Great Britain*, Prof. C. F. Powell, Prof. J. Rotblat; *Japan*, Prof. I. Ogawa, Prof. H. Yukawa, Prof. S. Tomonaga; *Poland*, Prof. M. Danysz; *U.S.A.*, Prof. D. F. Cavers, Prof. H. J. Muller, Prof. P. Doty, Prof. E. Rabinowitch, Prof. W. Selove, Prof. V. Weisskopf; *U.S.S.R.*, Academician A. M. Kuzin, Academician D. F. Skobeltzyn, Academician A. V. Topchiev.

OBITUARY

Mr. R. G. K. Lempfert

METEOROLOGISTS learned with great regret of the sudden death on June 24 of R. G. K. Lempfert, formerly assistant director of the Meteorological Office. Sir Napier Shaw recorded that when he became the effective head of the Meteorological Office nearly sixty years ago, one of its peculiarities was that none of the members of the staff had had any preliminary scientific training. (This does not mean that they lacked ability—far from it. For example, out of a small staff one became Mayor of Camberwell and another Mayor of Fulham.) Shaw's first step to remedy the obvious defect was to appoint Lempfert, who had taken a 'first' at Cambridge in both parts of the Natural Science Tripos, in 1896 and 1898, to a specially created post of scientific assistant. Not surprisingly, this appointment in 1902 has been abundantly justified both by the investigations Lempfert undertook or shared and by the influence he exerted on meteorological administration and operational meteorology for a quarter of a century.

Lempfert's scientific investigations covered a wide field. Many were made in collaboration with others. He began with studies of London fog and of a fall of 'red rain', found to be due to dust the track of which was traced back around the Iberian peninsula to North Africa. Soon he was tackling, with Shaw, the "Life History of Surface Air Currents". Lempfert's part was mainly the critical examination and co-ordination of the records and observations from which the divergent sources and tracks of the air in a number of typical or outstanding meteorological situations could be identified and delineated. But he also made a separate special study of the line-squall, one of the most significant and qualitatively foreseeable meteorological phenomena—the simultaneous occurrence of squalls, sometimes of great violence, along a line which may be hundreds of miles long and which may advance at 5 or at 50 miles per hour. These investigations, revealing as they did unsuspected discontinuities in the earlier simplified structure of 'depressions', paved the way for the

Norwegian development of frontal meteorology, the dominating influence on macro-meteorology in the period between the two World Wars. In fact, the first use of the word 'front' in its present technical sense appears to have been in the second paper on line-squalls (Lempfert and Corless, 1910).

The expansion of the Meteorological Office during and after the First World War and its transference to the Air Ministry involved Lempfert in much administrative work, but he maintained a lively interest in the scientific work both of the Meteorological Office and of the Royal Meteorological Society, of which he was president during 1930–32 and the *Journal* of which he edited for many years.

After his retirement in 1938 he was responsible, as an executor of Sir Napier Shaw's will, for the establishment of the Napier Shaw Meteorological Library in the Cavendish Laboratory at Cambridge; and for the selection and publication in one volume of the "Selected Meteorological Papers of Sir Napier Shaw". This included the "Life History of Surface Air Currents", which had long been out of print. It was a classic, essential to a meteorological library, and many such libraries had been unable to get a copy.

Lempfert was born in Manchester on October 7, 1875, the son of R. B. and Olga (née von Pein) Lempfert. They were both musical and Lempfert's recreation was music; an incident illustrates his love of it. He was the first to give a course of meteorological lectures for airmen—at the Central Flying School, Upavon, when Trenchard was commandant. The honorarium, less the cost of a dinner to celebrate with his friends the successful conclusion of the course, was spent in the purchase of a rare violin. A few years later he married, in 1916, a distinguished violinist, Marjorie Hayward. She predeceased him. Lempfert was practically bilingual, speaking English and German with equal facility, a great asset at international meetings, where he was held, rightly, in the highest esteem. In the Meteorological Office his courtesy was proverbial; loyalty and unselfishness were, with him, innate qualities. E. Gold

NEWS and VIEWS

Mount Wilson and Palomar Observatories : Dr. S. B. Nicholson

Dr. Seth B. Nicholson, of the Mount Wilson and Palomar Observatories, retired on July 1. He obtained his Ph.D. from the University of California in 1915 and in the same year joined the staff of the Mount Wilson Observatory, where he investigated the orbits of several of Jupiter's satellites, the ninth of which he had discovered at the Lick Observatory in 1914. In collaboration with Dr. Edison Pettit, he developed a very sensitive vacuum thermocouple, which they used for measuring the total radiation and surface temperatures of stars, planets and the Moon. Studies of the rate of cooling of the Moon's surface during an eclipse demonstrated its low conductivity; their results suggest the presence of a layer of dust and the absence of an atmosphere, in agreement with optical and radio observations. In the late 1930's, and again in the early 1950's, Dr. Nicholson returned to the observation of Jupiter's satellites; he discovered the tenth, eleventh and twelfth of these and determined the positions necessary to fix their orbits. Dr. Nicholson is also an eminent authority on solar phenomena, and supervised the systematic collection of magnetic and other data on sunspots. He has made detailed studies, in collaboration with Dr. Oliver Wulf, of the California Institute of Technology and the United States Weather Bureau, of solar-terrestrial relations. Dr. Nicholson is a member of the U.S. National Academy of Sciences, the American Astronomical Society and the Astronomical Society of the Pacific.

Dr. M. L. Humason

Dr. Milton L. Humason, secretary of the Mount Wilson and Palomar Observatories since 1948, retired on July 1 after a most remarkable career. He joined the Mount Wilson Observatory in 1917, first as janitor and then as night assistant, and showed such skill as an observer that he was appointed to the staff of investigators in 1922. His unique gift was an unusual proficiency in photographing the spectra of very faint objects. Following the late Dr. Edwin Hubble's discovery in the 1920's of the major part played by the extra-galactic nebulæ in the structure of the universe, Humason turned to the study of these objects and soon accumulated spectra of numerous galaxies at various distances. This material led Hubble to his famous velocity–distance relation and to the observational basis of the concept of the expanding universe. For the following quarter-century, Dr. Humason continued to devote most of his attention to this problem: improvements in photographic emulsions and in spectrograph design, together with the completion of the 200-in. Hale telescope, enabled him to push his observations to much fainter, more distant galaxies, many of them too faint for visual guiding on the spectrograph slit. For these, Dr. Humason had to develop elaborate 'off-set' procedures to keep the invisible images accurately on the slit throughout long exposures. His studies culminated in the publication in 1956, together with Dr. N. Mayall and Dr. Allan Sandage, of the velocities of more than nine hundred galaxies, some being as great as one-fifth the velocity of light. Dr. Humason received his Ph.D., *honoris causa*, from the University of Lund in 1950 and is a member of the American Astronomical Society, the Astronomical Society of the Pacific, and the International Astronomical Union. He was elected an Associate of the Royal Astronomical Society in April 1957.

Chemistry in Manchester : Prof. R. N. Haszeldine

The Councils of the University of Manchester and the Manchester College of Science and Technology have approved the appointment of Dr. R. N. Haszeldine to the chair in chemistry in the Faculty of Technology as from October 1. He succeeds Prof. H. N. Rydon, who is going to the University of Exeter (see *Nature*, April 20, p. 807). Dr. Haszeldine, who is thirty-three years of age, was educated at the Stockport Grammar School, and entered the Univer-