felt that latency and activation by an appropriate stimulus were the characteristic features of the behaviour of many, perhaps most, viruses in their natural hosts. He suggested that with some viruses parasitic adaptation to the host might become so perfect that the individuality of the virus was lost in that of the host cell. This might be permanent; but if the change was a reversible one, viruses brought to light would have an apparently heterogenetic origin. There was some evidence, as in insect viruses and *Rickettsia*, of transmission through the egg.

There was less tendency for speculation among the students of plant viruses, exemplified by Dr. F. C. Bawden. He preferred to "wait and see", but clearly had a weakness for heterogenesis. Virus-like proteins might be normal constituents of some plants, but our present methods of detecting them would not be nearly delicate enough—unless the object of our study was self-reproducing in another environment.

Along with speculation on the origins of viruses must go curiosity as to what they look like. The metal-shadowed electron micrographs which Dr. R. W. G. Wyckoff showed (see *Nature* of March 2, p. 263) caused much interest and pleasure. The bean mosaic particles, lining up in orderly array to form a crystal, caused a spontaneous burst of applause; while pictures of influenza virus existing as small spheres or, unless our eyes deceived us, as long filaments, left us in awed wonder.

OBITUARIES

Dr. Arthur W. Rogers, F.R.S.

On June 23 there died at Cape Town, at the age of seventy-four, one to whom South Africa owes much in regard to geological discovery, description and application. A. W. Rogers was born at Bishops Hull, Somerset, and educated at Clifton College and Christ's College, Cambridge—of which he was later elected an honorary fellow—and also studied at the University of Heidelberg. In 1896 he became assistant geologist to the Geological Commission of the Cape of Good Hope, director of the Commission in 1903, and director of the Geological Survey of the Union from 1916 until his retirement in 1932. His thirty-six years of sterling service with the Government were divided equally between the Cape and Transvaal provinces.

Closely associated in the field at first with his colleague, Prof. E. H. L. Schwartz, largely within the picturesque south-western corner of the Cape with its magnificent exposures of folded strata, he was able by 1905 to publish "An Introduction to the Geology of Cape Colony", the first text-book of its kind for southern Africa, and a work of considerable merit. In it were set forth the main tectonic lines, stratigraphy, palaeontology and history of this interesting land with its many pre-Cambrian systems, Carboniferous glacials, prolific Permo-Triassic vertebrates and mesozoic dolerites. During the next decade he carried investigation far to the north—to the border of the Kalahari and German territory—describing little-known pre-Cambrian groups or discovering new ones, such as the crocidolite-bearing jaspers, the Numees tillite, Ongeluk tillite, magmatic copper-bearing eruptives and melillite-basalts.

In the Transvaal his main work lay in the mapping of the Heidelberg gold-fields, during which the glacials of the Witwatersrand beds were first recorded.

Administrative duties greatly interfered with his output of purely scientific work. Under his able direction, however, a high standard was achieved by the Geological Survey, and numerous maps and memoirs issued, not a few of them of high economic importance.

Attracted, like so many others, by the vast Kalahari and its queer siliceous and calcareous rocks, he was able to cross its heart as well as inspect its borders, and contributed two illuminating addresses on the solid and surface geology of that sand-strewn region.

Always interested in the finer structure of substances, he developed upon retiring to the Cape in 1932 a still keener interest in the microscopical and microchemical examination of the sedimentary rocks, a study which he pursued the more constantly after 1938, when cardiac disturbances had debarred him from further field work. To many of us such minuter researches proved helpful indeed.

His writings were numerous and varied: for the most part accounts of regional geology appearing as departmental reports or in yearbooks, or else as papers based thereon, though none was of monographic size. His most important works are "The Geology of the Country around Heidelberg", his contribution to the "Handbuch der Regionalen Geologie: The Union of South Africa" (1929) and his fascinating history of "The Pioneers in South African Geology and their Work" (1937), in which so much interesting geological as well as biographical information was so meticulously recorded for posterity. His presidential addresses cover a wider field and range in their subjects from past climates to the evolution of river systems and 'pans'. Only just recently did he complete a description of the Diatom floras of the diatomaceous deposits of the Union in collaboration with L. E. Kent, intended for Memoir No. 42 of the Geological Survey, a research on which he had been long engaged.

In all, Dr. Rogers contributed both abundantly and nobly to our geological and geographical knowledge of a wide terrain, which the writer indeed regards as one of the key regions of the earth.

Connected with many learned societies, he was elected a fellow of the Royal Society of London (1918), the Geological Society of London (1896) and Royal Society of South Africa, as well as honorary fellow, member or correspondent of others. Rogers was president of the Geological Society of South Africa (1915), of the South African Association for the Advancement of Science (1922), of the International Geological Congress (1929) and of the Royal Society of South Africa (1934–35).

His awards were numerous: the Bigsby Medal (1907) and Wollaston Medal (1931) of the Geological Society; South Africa Medal (1913) of the South African Association for the Advancement of Science; Scott Medal (1931) of the Biological Society of South Africa, and Draper Memorial Medal (1936) of the Geological Society of South Africa.

Rogers will always be remembered for his geniality, readiness to discuss or guide, scrupulous attitude towards the work or views of others, and honesty of purpose. His outlook was, however, coloured by some conservatism. Throughout, he was the scientific worker pursuing his subject for its own sake, and perhaps for that reason the grander problems of the African continent do not seem to have gripped him. Having been closely associated with Arthur Rogers over many years, the writer feels that a noteworthy geologist has been lost to the world.

ALEX. L. DE TOIT