

I wish to add to Prof. Tilley's account a few recollections of my personal relations with V. M. Goldschmidt. When he first came to Göttingen there was a latent tension between us, a mutual doubt regarding our work on ionic crystals: he considered my calculations of lattice energies cumbersome and scarcely worth while, and I had no confidence in his primitive way of adding ionic radii. But we soon discovered that these two methods were complementary, one providing exact values in a few simple cases, the other covering the whole field of crystal chemistry. After clearing the air, we became great friends. He was a remarkable man in many respects. His memory was stupendous. Once I sent an assistant to him to ask about literature on a great number of data. Instead of giving the titles of papers, he just dictated the numerical tables from memory, and a later check proved them essentially correct. He knew by heart not only the properties of atoms and ions, like radii, polarizabilities, etc., but also their occurrence in minerals and the distribution of these minerals in the earth's crust. If he did not know a fact, he had simple ways of deriving it from his radii.

Goldschmidt had a very original mind and a great sense of humour which sometimes found expression in a somewhat caustic manner. One had to take the trouble to look below the surface to discover a gentle and most generous nature which was easily wounded, and had no other defence than to hit out. To those who came to understand this, he was a devoted and most loyal friend, and they now mourn for one who has enriched their lives.

M. BORN

Prof. Ludwig Jost, For.Mem.R.S.

By the death on February 22 of Prof. Ludwig Jost, Germany has lost one of its most respected botanists and science one of the leading plant physiologists. Born in 1865 at Karlsruhe, he was educated at the local *Gymnasium*. In the autumn of 1883 he commenced his studies at the University of Heidelberg, attending particularly the lectures of Büchli and

Pfützer. Afterwards he moved to Strassburg to study under de Bary. In 1887 he took his doctor's degree there, presenting a thesis on the breathing roots of palms. In the same year he was appointed assistant to Prof. Goebel in Marburg, and later returned to Strassburg, where he acted as assistant first to de Bary and after the death of the latter to Count Solms Laubach. In 1894 he was appointed assistant professor, and in 1907 to a full professorship in the University of Strassburg. In 1919, when the French re-entered that town, he had to leave, but was lucky enough to get an appointment to the vacant professorship at Heidelberg, which he held until his retirement in 1934. He was then elected emeritus professor and continued his scientific work privately in the Kaiser Wilhelm Institute at Heidelberg, where he died, having been failing in health for some years. He was always strongly averse to the Nazi regime, and his sufferings were accentuated by the poor nutrition since the end of the War.

His varied training as a student had given him a wide outlook in botany, and his own researches touched the fields of morphology as well as those of physiology. The first edition of his lectures on plant physiology appeared in 1904 and was sufficiently appreciated to be followed by three further editions.

He won for himself a considerable reputation both at home and abroad, and was elected a foreign member both of the Royal Society and the Linnean Society. His personal kindness and his unassuming manner endeared him to all with whom he came in contact.

F. E. WEISS

WE regret to announce the following deaths:

Sir Thomas Holland, K.C.S.I., K.C.I.E., F.R.S., principal and vice-chancellor of the University of Edinburgh during 1929-44, on May 15, aged seventy-eight.

Sir Frederick Gowland Hopkins, O.M., F.R.S., president during 1930-35 of the Royal Society, on May 16, aged eighty-five.

NEWS and VIEWS

Prof. E. Cartan, For.Mem.R.S.

PROF. ELIE CARTAN, who has just been elected a foreign member of the Royal Society, has been in the forefront of French mathematics since 1894, when his doctorate thesis on the structure of continuous groups was first published. In response to continued demand, it was reprinted forty years later. This subject has been Cartan's chief interest throughout his subsequent career as a mathematician. By 1900 Cartan had made fundamental contributions in another field, the problem of Pfaff. Two long memoirs on the subject appeared about this time in the *Annales de l'École Normale*. It was in the first of these (in 1899) that he developed systematically the theory of 'exterior differential forms' which obey the laws of exterior multiplication of Grassmann. Throughout most of his subsequent work Cartan has found the method of 'exterior derivation' an extremely powerful one.

Cartan's chief contributions to the theory of relativity appeared between the years 1922 and 1925 when a systematic study of the gravitational equations of Einstein in the *Journal de Mathématique* was followed

by a series of papers on relativity theory and affinely related spaces in the *Annales de l'École Normale*. These last may be said to mark the beginnings of his major contributions to differential geometry, where he has found the method of the moving trihedron (*repère mobile*) of dominant significance. The essential unity of Cartan's ideas in different branches of mathematics is well illustrated by a tract which he published in the "Actualités" series in 1935, in which he shows that the theory of the moving trihedron has an intimate connexion with the equations of structure of a continuous group, and that the equations of structure of a group G contain in themselves all the differential geometry of the space having G as fundamental group.

Organic Chemistry at Edinburgh: Prof. E. L. Hirst, F.R.S.

PROF. E. L. HIRST, at present Sir Samuel Hall professor and director of the Chemical Laboratories in the University of Manchester, has been appointed to the newly instituted Forbes chair of organic chemistry in the University of Edinburgh. Prof.