obituary

Professor Philip Macdonald Sheppard, FRS, died on October 17, 1976. He was an outstanding scientist, an inspiring teacher, a formidable adversary and a very good friend.

Philip Sheppard was born in 1921, the son of a schoolmaster. He was educated at Marlborough College. He joined the Royal Air Force Volunteer Reserve in 1940, and was a prisoner-of-war from 1942 to 1945. Immediately after the war he went up to Worcester College, Oxford, to read Zoology, and in 1948 was awarded a second class Honours Degree. It is said that he could easily have gained a 'first' had it not been for his single-minded devotion to genetics, the subject to which he dedicated the rest of his life.

He studied for the D.Phil. at Oxford under Dr (now Professor) E. B. Ford, and obtained the degree in 1951. From 1951 to 1956 he was Junior Research Officer in the Department of Zoology, taking a year off in 1954 to work with Professor Theodosius Dobzhansky at Columbia University. In 1956 he was appointed Senior Lecturer in Genetics in the Department of Zoology at Liverpool University. He was promoted to Reader in 1959. In 1963 he became the first Professor of Genetics at Liverpool, and remained in this post until his death. He was elected to a Fellowship of the Royal Society in 1965, and to an Honorary Fellowship of the Royal College of Physicians in 1975. In 1974 he was awarded the Darwin Medal of the Royal Society, and in 1975 the Gold Medal of the Linnean Society.

The bare description of a distinguished career shows little of the great impact that Philip Sheppard made on the study of ecological genetics. He had an almost uncanny ability to see the next step in an argument, the next experiment to be done. He applied this ability freely and generously to the work of others, and generated many an idea or experiment that came to be published under another name.

His own work completed the transformation of ecological genetics from a science of observation to a science of experiment. His central interest lay in the mechanics of natural selection and its effects on the genetic constitution of organisms. This interest guided his work with Sir Ronald Fisher and Professor E. B. Ford on polymorphism in the moth *Panaxia dominula*, in which they finally demonstrated that the temporal changes or gene frequency were the consequences of natural selection. It motivated his studies with Professor A. J. Cain on polymorphism in the snail *Cepaea nemoralis*, studies which showed that spatial variations in this species were also due to selection, and which culminated in his beautiful experiments on selective predation by thrushes. It also guided the work with Sir Cyril Clarke on mimicry in butterflies of the genus *Papilio*, demonstrating the evolution of 'supergenes', linked polymorphic complexes of genes maintained in a state of linkage disequilibrium by strong selective interactions. Their interest in such interactions led Sheppard and Clarke to studies of human blood groups, bringing them finally to a method of preventing Rhesus haemolytic disease. Apart from these classic experiments, Sheppard also made important studies on the evolution of dominance, the genetics of industrial melanism in moths, heavy metal tolerance in plants, insecticide resistance in mosquitoes, and schizophrenia, anencephaly and spina bifida in man. In 1958 he published *Natural Selection and Heredity*, and the fourth edition was issued shortly before his death. It is still the best introductory book about ecological genetics, and one of the rare breed of elementary texts that are quoted in the research literature because of the original ideas that they contain.

He was an exceptional teacher. His transparent intellectual honesty, his passion for truth and rigour, and perhaps above all his patent desire that his hearers should understand and enjoy his subject, made an enduring impression on his students. As a colleague and friend he was a delight, and a very good companion. His comments on cherished ideas or manuscripts were sometimes blunt to the point of pain, but they were always given with good humour, never tinged with malice. His friends said that he reversed the normal academic procedure; he stabbed you in the front, and then did you favours by stealth. Hating pomposity, he was marvellously uncorrupted by success. As a distinguished Darwin Medallist he was much the same Philip Sheppard as the Junior Research Officer at Oxford. He bore his three-year illness with quite extraordinary courage and cheerfulness.

His life can be epitomized in the words of one who was also a prisoner-of-war: "To serve his vision, to protect it against all plausible substitutes, reasonable approximations and coward compromises is still, I believe, the knightly duty of contemporary man. He has only to remain steadfast in pursuit of it and his life will achieve something which is greater than happiness and unhappiness: and that is meaning." **B.C.C.**

Sigurd Zienau died on October 18, 1976 at the early age of 55 years. He had been a Reader in Physics at University College London since 1965, following a period from 1954 as a Lecturer, and as ICI Research Fellow at Liverpool.

Dr Zienau was trained in the old school of European physics, being a student of Heitler, Pauli and Fröhlich, after a distinguished period as a mathematics undergraduate at Birkbeck College.

His name is familiar to solid state physicists as a co-author of the theory of the polaron through which, in 1950, field theory was introduced into solid state physics. He will also be remembered in the worldwide community of theoretical physicists for his important revisions of two classic texts in theory: both Heitler's *Quantum Theory of Radiation* (3rd ed.) and Mott and Massey's *The Theory of Atomic Collisions* (3rd ed.) owe much to his labour and insight. He had a phenomenal memory for the literature of theoretical physics and would recall from obscure journals published in the first half of the century the seminal work that could shed light on modern problems. His main research interests lay in scattering theory and electrodynamics, but he had a scholarly interest in a much wider range of subjects.

Dr Zienau's published papers do not, in quantity, do justice to his gifts. However, they are thoughtful contributions and each one represents the distillation of many months hard work, as well as hard argument, with his co-workers. There are three phases of his research represented in these papers. In the early 50s he published work on dielectrics, especially on the motion of

slow electrons in polar materials. Later in the 50s and early 60s he published a series of six papers on electrodynamics including contributions to damping processes, line shapes, intermolecular forces (including retardation and three body interactions) and gauge problems. The final set of papers concern various specialised aspects of field theory.

He trained about ten research students who now teach throughout the world and these will always have that special magic that comes from having worked with and learned from Sigurd.

In recent years he interested himself in the history and philosophy of science and was active in the British Society for Social Responsibility in Science.

He will be sadly missed by his friends, colleagues and students at University College. He leaves a young daughter and son by his second marriage, and one son by his first.

E. A. Power
F. F. Heymann

J. V. Peive, the Soviet soil scientist, died after a long illness on September 13, 1976, aged 70. As well as being one of the leading Soviet agricultural scientists of the post-war era, Dr Peive had been politically active and, according to Tass, his official obituary was signed by Mr Brezhnev and other prominent Soviet politicians and scientists. Of Latvian extraction, he was born in 1906 in the adjoining Toropets district of Russia and, after training as a teacher, graduated in 1929 from the Timiryazev Agricultural Academy in Moscow.

For 13 years from 1931 he worked in the All-Union Flax Research Institute in Torzhok, some 200 km north-east of Moscow, rising to the position of Director. After the war he became Rector of the Latvian Agricultural Academy in Riga, carrying out his own specialist investigations in the Laboratory of Biochemistry of Soils and Trace Elements in the Institute of Biology. He published a text-book on the biochemistry of soils in 1961 but will be best remembered for his work on the effects of trace elements in soils on plants and animals. Several volumes of the Transactions of his laboratory, dealing with different aspects of trace element problems, have been published by the Latvian Academy of Sciences, and he chaired the Co-ordinating Commission on Trace Elements in Soils, Plants, Animals and Human Nutrition in the USSR. Dr Peive's wider interests in soils were recognised by his appointment as Editor-in-chief of *Pochvovodenie*, the Soviet journal of soil science, a post that he had occupied for the past 14 years.

Peive rose to the Presidency of the Latvian Academy of Sciences and, after 13 years as a Corresponding Member, was elected an Academician of the Academy of Sciences of the USSR in 1966, in which he held the post of General Secretary. He was Prime Minister of Latvia from 1959 until 1962 and was one of the three Latvian representatives in the Soviet of Nationalities, one of the two Chambers of the Supreme Soviet of the USSR, and Chairman between 1958 and 1966.

He seldom attended scientific gatherings outside Russia, although only ill-health prevented his participation in the meeting of Commissions II and IV of the International Society of Soil Science in Aberdeen in 1966. In private discussion he talked about his work with much less formality than is the case with many Soviet scientists and often introduced a light-hearted note. His major contribution to Soviet agriculture was in the immediate post-war years when he pointed out the existence of trace element problems in many Russian soils, particularly deficiencies of boron, zinc, manganese, cobalt, copper and molybdenum.

R. L. Mitchell

Professor Leo Pincherle died suddenly on October 25, 1976. I came to know him well during the last years of his life. He regularly attended the Bedford/Westfield College solid state physics seminars. Characteristically, he spoke little at these meetings, but his rare contributions were profound and to the point. He was modest to a fault and abhorred the limelight; yet his colleagues, friends and students know of the innumerable unobtrusive ways in which he served the cause of scholarship in teaching and research.

Leo Pincherle was born in Bologna in 1910. He came from a line of distinguished academics—the mathematician Salvatore Pincherle was a grandfather—but Leo was the first of the family to take up physics as a career. His first publication (1931) reported a calculation of the wavelength of the oscillations in Hull's magnetron; and the interest in the theoretical principles underlying practical devices marked his work to the end. He was with Fermi in Rome, later moved to Padua and came to England shortly before the Second World War as a refugee from Mussolini's Italy. During the difficult years which followed he was befriended by the late H. T. Flint who brought him as a lecturer to King's College, London. Leo's early research, on a variety of topics in spectroscopy, atomic physics and electromagnetic theory, demonstrates the width of his scientific interests. But his great productive period came at the Telecommunications Research Establishment (TRE), Malvern, where he was Principal Scientific Officer from 1948 until 1955. Here he established himself as a leading authority on energy band theory. The 1953 paper on the band structure of lead sulphide (Bell *et al.*), in which the cellular method was first applied to a diatomic semiconductor, is an early classic in the field, and fundamental theoretical work on applications of group theory appeared in the form of TRE Memoranda. Pincherle returned to university life in 1955 when he rejoined Flint, by then head of the physics department at Bedford College, London, as a University Reader; overdue promotion to Professor of Mathematical Physics came in 1969. A fruitful collaboration with P. M. Lee led to further band structure papers in the early 1960s. In the last ten years of his life Leo Pincherle published few research papers. But he continued to be active and fertile in the many other ways a scholar exerts his influence: as supervisor of research students, as a sought-after contributor to summer schools in Italy, as UK editor of the international journal *Solid State Electronics,* and not least as author of the definitive textbook *Electronic Energy Bands in Solids* (1971) which itself contains much original work. Above all Leo Pincherle loved teaching and the contact with his students, a love which was fully returned, and the prospect of retirement from this activity filled him with dismay. Leo's lectures and publications all bear the stamp of his characteristic approach to physics: careful preparation, great clarity and economy of style, the use of the simplest mathematical techniques appropriate to the physics of the problem in hand. He tackled difficult problems but was never a narrow specialist.

The picture of Leo Pincherle the scientist cannot be separated from that of Leo Pincherle the man. He was devoted to his family, for whom his too-early death is a tragic loss. His sense of humour, dry and delicious, showed in his fund of stories about well-known contemporaries — always amusing and never malicious. His quiet demeanour concealed plenty of fire and imagination, as you soon discovered when you partnered him at bridge. He was the most knowledgeable of men on fundamental aspects of European culture and history and wore his learning lightly; his love of music and the arts was intense, his taste discriminating. He was, in the best sense, both very Italian and very English, combining in his person that internationalism in science and that European spirit which it is so necessary to keep alive today. His friends miss him deeply.

Ernst Sondheimer