Dr. L. G. M. Baas-Becking

LOURENS GERHARD MARINUS BAAS-BECKING was born on January 4, 1895, in Deventer in the Netherlands. After his secondary schooling in Amersfoort and a preliminary year at the Technical College in Delft, he studied botany in the University of Utrecht, where he received his A.B. and M.A. In 1918 he married Bien Haverman and together they left for California, which provided a better climate for his asthma. Throughout his life, Baas-Becking had a frail constitution, but through his iron will he always remained master over his body and even survived a vicious typhus infection while a German prisoner during the War. In California he completed his botanical study with a thesis on "Studies on Stellar Development" under Douglas Campbell, and in 1924 was appointed professor of biology and later worked in the Hopkins Marine Station in Pacific Grove. During these years in California he developed his full potentialities of imaginative development of basic ideas. In 1921 he also received a doctorate at the University of Utrecht for a thesis on "Radiation and Vital Phenomena". In 1930 Baas-Becking returned to the Netherlands as professor of botany in the University of Leyden, where the botanical laboratory became the centre of unprecedented activity. He succeeded in drawing a large group of graduate students working over a wide range of botanical subjects and he succeeded in the renovation of the botanical garden and its greenhouses. In 1939 Baas-Becking was asked to reorganize the famous botanical garden at Bogor, Java, and in 1940 was appointed its director. While winding up his work in Holland he was caught by the German invasion. Immediately after his liberation and recovery from his prison experiences he moved with the first Dutch groups into Java. There he organized mobile Red Cross teams, and with unlimited energy and courage he travelled through bandit-infested areas and saved numberless people during those troubled times.

With the transfer of the sovereignty over Java to the Indonesian Republic, the Indonesians appointed another director of the Gardens, and Baas-Becking left Java and became director of research of the South Pacific Commission and for some years organized the work of this Commission with headquarters in Noumea. After the tragic death of his wife, Baas-Becking moved to Australia, where he became connected with the Commonwealth Scientific and Industrial Research Organization, first in the Fisheries Station in Cronulla and later in Canberra, where he died on January 6, 1963, after a long illness, depriving him of free communication with his fellow-man, but not impairing his mental alertness. The devoted help of Mrs. Johanna Bombeeck, whom he married in 1961, made those last difficult years more tolerable.

The effect of Baas-Becking on botanical sciences has been largely through his students and collaborators. He, himself, had too mercurial a mind to enter into the details necessary to establish beyond doubt, through tedious research work, the principles which sprouted from his fertile mind. In 1932 he published a most interesting book on *Geobiology*, which did not find a wide audience because it was written in Dutch. During his stay in Australia he worked this into an extensive English manuscript which unfortunately has never been published. A sort of scientific testament of Baas-Becking can be found in *Contributions to Marine Microbiology, Information Series No. 22* of the New Zealand Department of Scientific and Industrial Research.

Baas-Becking's main field of interest was the relationship between organism and environment, and their mutual dependence. He was particularly interested in saline environments, how they developed, and the organisms living in them. He was also one of the pioneers in the field of molecular biology with his early papers on sulphur bacteria and the application of thermodynamics to their

metabolism. He and his students pioneered in the molecular arrangement of chlorophyll in the chloroplast, and the model they developed is still essentially the accepted one. His interest in practical applications of science was evident, when he acted as adviser for Governments and private companies on such diverse subjects as salt production, food quality, herbicides and economic problems. In addition, his interests in historical problems found expression in articles and a delightful book, *Hortus Lugduno Batavus* (1937).

Baas-Becking had a brilliant mind with potentialities of genius. Nothing was more stimulating than a few hours or days with him. He was exceedingly well read and had considerable mathematical training and ability. On every subject, whether biological or other, he had original points of view and approaches. Unfortunately, his intolerance of mediocrity and very sharp and often over-critical tongue alienated a large number of people; for no one could be neutral in his appreciation of Baas-Becking: one was either a great admirer or an enemy. It is certain that through his many admirers and students his adventuresome spirit and his unconventional but deep-probing approach to problems of life and of science will continue to play a part in the progress of science and of mankind.

F. W. WENT

Prof. Bertil Lindquist

PROF. BERTIL LINDQUIST died on February 4, and both Swedish botany and world forestry have lost an outstanding man. He was in his fifty-ninth year and had known for years that he was stricken with a deadly disease; but this did not stop him from travelling widely and continuing to make a most distinguished contribution to botany and forestry.

The outstanding quality of Bertil Lindquist was the breadth of his interest which ranged from forest genetics through ecology and forest entomology to the cultivation of rare orchids. In 1931 he was appointed to a lectureship at the Swedish Royal School of Forestry and his publications in 1932 included studies of the races of elm, the natural regeneration of Norway spruce, the taxonomy of *Juncus alpinus* and the beech forests of Sweden. Lindquist then became interested in the pioneer tree hybridization work of Dengler in Germany and Syrach Larsen in Denmark and saw a great future for the application of genetics in forest practice. The Forest Tree Breeding Association of Sweden began functioning in 1938 and three years later a group of forestry companies joined to form the Society of Practical Forest Improvement with Lindquist as director. He carried on this work concurrently with his teaching post until 1945.

In 1946 Lindquist was appointed professor of silviculture in the Royal School of Forestry and he held this post until 1950. This period saw the publication of a series of important papers on racial and individual tree variation in birch and culminated in the fine work *Genetics in Swedish Forestry Practice* in which he described in detail a programme of practical tree improvement. Lindquist's work during his time at Stockholm has had a great influence on the development of forest genetics and tree breeding. His high standard of writing and presentation has stimulated many people in their first steps in tree breeding.

The next and final step in Bertil Lindquist's career was the move in 1950 to the directorship of the important Botanical Garden in Gothenburg. He continued his interests in forest genetics and tree breeding and made the pages of the handsomely produced *Acta Horti Goto-burgensis* available for a valuable series of papers on seed orchards, clonal trials and racial variation. His own interests became general once more. A journey to Japan in 1954 led to an important account of Japanese larch and a paper of 1959 returned to an earlier theme of forest

vegetation belts in southern Scandinavia. Another interest at Gothenburg was the building up of a fine collection of orchids and the cultivation of the difficult and rare *Disa uniflora*, which he raised with great success.

What of the man himself? He was always elegant in appearance and had a ready wit. In spite of a reputation for imperious behaviour to his botanical colleagues at

home he was to foreigners a most friendly and stimulating companion. He was fond of Britain, and after a tour of English and Scottish forests in 1951 he arranged a visit to Sweden for a small group of British foresters. This was a memorable journey, notable for Lindquist's great knowledge of Swedish botany and forestry and for his fine hospitality.

J. D. MATTHEWS

NEWS and VIEWS

Inorganic Chemistry at Oxford:

Dr. J. S. Anderson, F.R.S.

DR. J. S. ANDERSON, who has been director of the National Chemical Laboratory at Teddington, Middlesex, since 1959, has been appointed to the chair of inorganic chemistry at Oxford as from next October. Dr. Anderson goes to Oxford with a breadth of experience in universities in England and abroad, in research institutes and in Government organizations. His early training at the Imperial College of Science and Technology was followed by several years as a senior lecturer in the University of Melbourne. He came back to Britain in 1945 to the post of deputy chief scientific officer at Harwell, but later returned to Melbourne and was head of the Chemistry Department from 1954 until 1959. Since that time he has been the very active head of an important Government Laboratory at a time when it is passing through a period of considerable change. His outstanding scientific ability and foresight have been of great value to the Laboratory during this period. The research interests of Dr. Anderson have always been wide and have involved an overlap between physical and inorganic chemistry. His earlier work on transition metal carbonyls—which anticipated the widespread developments of the present day—has given place in recent years to a vigorous programme of research in solid-state chemistry. He has made noteworthy contributions to the chemistry of various heavy metal oxide systems; more recently he has developed the use of field emission microscopy for studying atoms on surfaces. Dr. Anderson was elected a Fellow of the Royal Society in 1954. His presence in Oxford will do much to stimulate an already good research school of inorganic chemistry.

Clinical Chemistry at Edinburgh: Prof. L. G. Whitby

DR. L. G. WHITBY, at present University biochemist to Addenbrooke's Hospital, Cambridge, has been appointed to the newly instituted chair of clinical chemistry in the University of Edinburgh. Dr. Whitby was educated at Eton College and at King's College, Cambridge, where he was a Scholar from 1945 until 1948. After graduating in 1948 with honours in both parts of the Natural Sciences Tripos, he proceeded with the aid of a Medical Research Council studentship to a Ph.D. degree in the Department of Biochemistry. In 1951 he was elected to a fellowship of King's College, which he held until 1955. This enabled him to pursue medical studies at the Middlesex Hospital Medical School, where he completed his medical degree course in 1956. Thereafter, Dr. Whitby held various posts in the Middlesex and Hammersmith Hospitals and at the Postgraduate Medical School of London until August 1959, when he was awarded a Rockefeller travelling fellowship in medicine and worked for a year in the laboratory of Dr. J. Axelrod, of the National Institutes of Health, Bethesda. On his return to the United Kingdom in 1960, Dr. Whitby took up his present post. Dr. Whitby's own research interests lie principally in the field of the metabolism of adrenaline and noradrenaline.

Director of the Rhodes-Livingstone Institute:

Prof. A. Heron

DR. ALASTAIR HERON has been appointed director of the Rhodes-Livingstone Institute (University College of Rhodesia and Nyasaland) at Lusaka, with the title and status of professor. He will take up his duties in Lusaka in August. Prof. Heron was born in Edinburgh and received his school education at George Watson's College and the High School of Montreal, Canada. During the Second World War he was in the London Rescue Service, and later did relief and refugee work in Europe for the Friends' Relief Service. He gained in 1949 an M.Sc. in psychology at the University of Manchester, and in 1951 his Ph.D. at the University of London. Since 1949 Prof. Heron has been on the scientific staff of the Medical Research Council in Manchester, London and Liverpool, first in an Occupational Adaptation Research Unit, and lately as director of a Unit on Research in the Occupational Aspects of Ageing at the University of Liverpool. Since April 1962, the Rhodes-Livingstone Institute has been incorporated in the University College of Rhodesia and Nyasaland. Reinforced by the academic resources of the College and under Prof. Heron's direction, the Institute will be able to continue its sociological and anthropological studies and to add to these research into economic, demographic, educational, occupational and other problems within the field of the social sciences.

Marine Nuclear Reactors

REPLYING to a question in the House of Lords on March 19 regarding the characteristics of the *Vulcan* and integral boiling reactor systems which led to the conclusion that research and development in support of nuclear marine propulsion should be concentrated on these two systems, the Minister for Science, Lord Hailsham, said that both these systems produced a compact reactor with several economic advantages. They required a comparatively small amount of the ship's space, could be built on land under workshop conditions, and installed in a ship as a packaged unit. This simplified the building of the vessel and permitted a quicker turn round for refuelling. The control of reactivity by the special methods utilized in these systems gave a longer fuel life and offered a cheaper control system than the more complex control rod arrangement used in other designs. Both systems had useful load following characteristics, and these advantages together offered potentially somewhat lower running costs than the other marine reactor designs so far considered. The feed water would be treated in a purification plant in accordance with standard practice for boiling-water and pressurized-water reactor systems. The measures required to protect the engines and auxiliaries from any possible contamination from radioactive steam were already known from the operation of land-based reactors, and further work was in hand to resolve some remaining problems. Answering further questions on this subject in the House of Commons, also on March 19, the Parliamentary Secretary for Science,