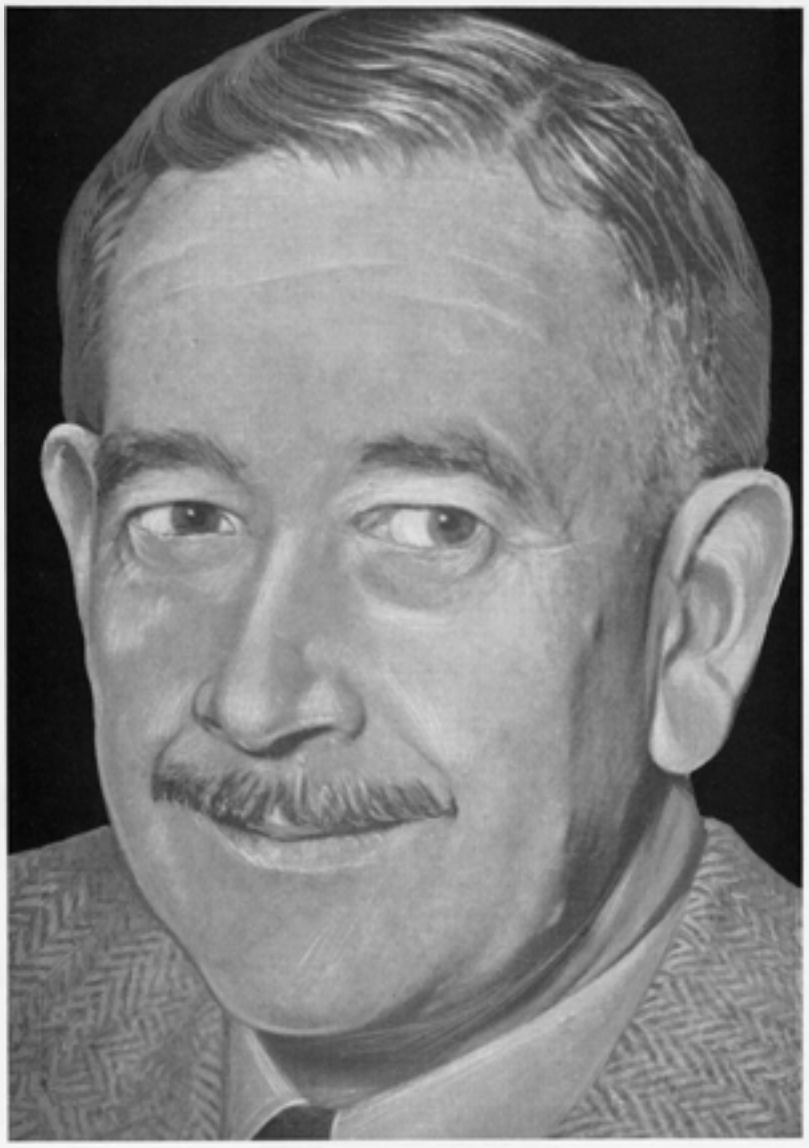

JOSEPH GARNETT WOOD

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Joseph Garnett Wood was born on 2 September, 1900 at Mitcham, South Australia, and died suddenly on 8 December, 1959. He was educated at Unley High School, and from there he went to the School of Mines in the Assay Department, where, at the age of 16, he passed first year Chemistry at the University of Adelaide with high honours. He went on to take his degree, and although, in his first year, he won the John Bagot Scholarship and Medal in Botany, he majored in Chemistry and his ancillary subjects were Physics, Mathematics, Assaying and Metallurgy. His first post in the University was as a junior demonstrator in Chemistry, when he did some research on the gum of the Yacca. At that time the Chair of Botany was occupied by Professor T. G. B. Osborn, who was always active in the encouragement of young people, and whose inspiring lectures and ecological interests were responsible for Wood's migration to the Botany Department. Osborn invited him to become a demonstrator in the first year work and to assist him in the chemical side of his research. Wood read further in the subject under Osborn, and his subsequent career fully justified the confidence reposed in him. He immediately began work on the ecology of the arid parts of South Australia, a field of research which had been opened by Osborn, and by Cannon of the Carnegie Institute of Washington. Wood's lifelong interests were already foreshadowed in his first two collaborative papers in 1923, and they were strengthened as he worked with Osborn in the establishment of the Koonamore Vegetation Reserve. At the age of 25, when he had published five papers, dealing mainly with the transpiration and structure of xerophytic plants, Wood was awarded an 1851 Research Scholarship and was accepted as a student of Caius College, Cambridge, where he worked on photosynthesis under G. E. Briggs. He returned to Adelaide as a lecturer, and when Osborn went to Sydney he was placed in charge of the Department. He was appointed Professor in 1935 (he was the first native-born Professor of the subject in Australia), and he remained in that post for 25 years. He was awarded the Ph.D. degree of Cambridge, and the D.Sc. of Adelaide in 1933.

Wood's most original work was done independently when he was a young man working in a very small department. With Osborn he showed that although the saltbush, *Atriplex vesicari*, was rich in the chloride ion, it was not a halophyte in the ordinary sense of that term. His interest in problems of drought resistance, already aroused by Osborn and Cannon, was greatly increased by the publication of Maximov's book "The Plant in relation to Water" in 1929. Yapp in England in 1912 had begun to throw doubt on the morphologists' concept of the xerophyte, and the Russian work revolutionised thinking on this subject. Wood realised that the Australian environment and native plants provided an almost untouched field for research into this subject. He repeated and ex-

tended much of Maximov's work, and showed that many of the first far-reaching conclusions could not be substantiated. From the first he was an experimentalist, and his chemical training led him into a study of the carbohydrate metabolism of plants living under water stress. All but one of Wood's 22 ecological papers were published in local Australian journals. Throughout his life he supported Australian publications and local societies, realising no doubt that much of his work would, as a result, remain unnoticed overseas. His reputation abroad undoubtedly suffered from this idealism. He made substantial contributions to the subject of drought resistance, and had he persisted in this field there is little doubt that he would have become one of its leaders.

By 1937 he had gained an unusually thorough grasp of the ecology of his native state, and he was ready to publish a book on the vegetation of South Australia. He had been quick to benefit from the discoveries and ideas of his colleagues at the Waite Institute, Prescott, Davidson and Trumble, who were actively engaged in research on climate and soils. Wood built on their experience and his own, and wrote the first account by an Australian of the ecology of an important area of the Continent. His book was a single-handed effort as far as the description of the plant communities and the correlation of these with soils and climate are concerned, and it reflects enormous credit on his energy and capacity. No similar account exists for any other State of Australia.

After 1939 Wood published only four more ecological papers. The most well-known of these was written in collaboration with R. L. Crocker, one of his students—"The historical influences on the development of South Australian vegetation communities and their bearing on concepts, classification and ecology." Wood's own contribution was largely that dealing with the concepts and classification. His wide knowledge of this field was recognised when he was asked to write a chapter in "The Australian Environment", and another on Phytogeography in "Ecological Research in Australia" edited by Bodenheimer.

Wood's interest in ecological theory led him to propose briefly several novel ideas, which were lost in the literature. By 1947 he foreshadowed the concept of the "continuum", developed by Whittaker in the fifties, and he was active in pointing out that soil fertility was an ecological factor of greater importance than climate in many Australian plant communities. He accepted the classical idea of biotic succession, but was among the first to criticise the undue attention given to the succession concept in ecology.

After 1935 Wood began collaborative work with Dr. A. K. Petrie, of the Waite Institute, on the nitrogen metabolism of the leaves of pasture plants. His department was still very small, and he gave most of the lectures in all the undergraduate courses. He was able to attract a series of able research students and after 1939 he withdrew from active field work and directed laboratory work in a fine new building of his own design. Both he and Petrie had been in-

fluenced by G. E. Briggs at Cambridge, and they now attempted the very difficult task of studying the dynamics of protein metabolism, not by measuring momentary rates, but by placing treated plants under constant environment and comparing the amounts of various components present in an equilibrium state. Together they published five papers on this work, and after Petrie's early death, Wood compiled and published much of the work that Petrie had directed on the physiological ontogeny of the tobacco plant. In collaboration with his own students, a further group of 18 papers on nitrogen and sulphur compounds established Wood's reputation with men like Chibnall, Mothes, Yemm and Vickery, who had pioneered the field of protein metabolism overseas. Although this type of work is now somewhat out of fashion, there is no doubt that his papers will be quoted and utilised for many years to come. Perhaps more important, it was the medium by which he trained a large group of post-graduate students, many of whom now occupy responsible positions in the Commonwealth.

In his later years Wood took up the subject of trace-element nutrition and contributed to our knowledge of the role of copper, zinc and molybdenum in plants. In his last published paper, with P. F. Brownell, he extended the work of Allen and Arnon, showing for the first time that sodium was an essential micronutrient for a higher plant.

Just before his death he had resumed field work in collaboration with Professor Alderman of the Geology School, who had discovered dolomite precipitation in the Coorong. It was thought that this was due to biological activity, and Wood was planning to bring the diverse resources of his enlarged department into a study of this problem.

It has been said that a University professor can properly carry out only two of the three duties that fall to his lot—teaching, research and administration. Wood proved to be an exception, and he was successful in all three fields. He was an extremely energetic and highly-strung individual with a degree of underlying nervousness, which perhaps kept him somewhat aloof from his elementary students. His senior and post-graduate students held him in great affection, and several of them have expressed sincere appreciation of the training they received in his department. As a lecturer he had many nervous mannerisms and little showmanship or perceptive control of his audience. He lectured rapidly and largely from notes. He was always up to date, but wisely made no attempt to cover the whole of the subject at a uniform level. With his research students he expected and usually obtained independence of attitude. "I cannot entirely explain how he was such a good teacher and why he was so effective at encouraging students to go on and do research. One came out of an experience of a course of Joe's with a strong feeling for the significance of personalities in science, of how tremendously important it was and how very good he was". (R. L. Crocker). He was also able to communicate his enthusiasm to older

people. Professor Baas-Becking, one of his oldest friends, has said, "My excursions in South Australia inspired me to follow a more ecological course in my work, and this was due in large part to the influence of Wood."

In middle life he began to play an increasing part in administration, and by the time of his death he was regarded as the University's "elder statesman". He was a gifted chairman of great integrity, and his services were sought on all hands. He was twice Dean of the Faculty of Science, he was Chairman of the Research Executive Committee and of the Board of Research Studies from 1956-1959. He played an important part in introducing the subject of Biology into schools and universities. He was a member for 20 years of the Board of the Commonwealth Forestry School, twice a member of the Advisory Council of the C.S.I.R.O., and a member of the Council of the Australian National University. For 10 years he was on the Editorial Board and later Chairman of the Board of Standards of the Australian Journals of Scientific Research, founded by the C.S.I.R.O. and the Academy of Science. It was generally recognised that his work in this field was of great importance in setting the high standards which these journals now enjoy. He was elected a Fellow of the Australian Academy of Science in 1954, and was a member of the Council from 1956 to 1958. When Wood graduated there was hardly a professional plant physiologist in Australia. In 1958 he became the first President of the Society of Plant Physiologists with 120 members. There is no doubt that he personally contributed very largely to the growth of this field of plant science.

In 1930 Wood married Miss Joan Hazel. They had three daughters, and together they built a happy family life. They were an active, vital, sociable pair, perennially young in spirit, and they had many close friends in three States. In Adelaide, Wood was one of the leaders of a group interested in painting, and he himself had a considerable collection of contemporary works. He was widely travelled in Europe and the Far East, and he retained an abiding interest in South Australia and especially in the history of its rural areas. He was a magnificent host, himself a good cook and epicure, and something of an authority on South Australian wines. Some three years before his death he developed another interest, when he and his wife together constructed one of the most beautiful gardens in Adelaide. His former students and University colleagues, his many friends in the C.S.I.R.O. and the Academy and in many other walks of life will mourn his sudden death and remember him with respect and, above all, with great affection. To many of them I am indebted for help in the preparation of this memoir.

J. S. Turner

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