

SOPHIE CHARLOTTE DUCKER: A MYCOLOGICAL APPRECIATION

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The death of Sophie Charlotte Ducker (1909–2004) brings to a close a remarkable career which spanned six decades. Sophie was born in Berlin and grew up in Dresden. Fleeing from antisemitism in Germany, she arrived in Australia in 1941. Her distinguished career in Mycology, Phycology, Botany and Botanical History was recognised by the award of Doctor of Science and an honorary Doctor of Laws from the University of Melbourne, the 1996 ANZAAS Mueller Medal and an AM (see obituary by Klaus Ducker, *The Age, Melbourne*, 7 July 2004).

An appreciation of Sophie's phycological career appeared on the occasion of her 75th Birthday [K.S. Rowan (1984), A tribute to Dr Sophie C. Ducker, *Phycologia* 23: 1 & 2]. An appreciation of her contributions to the History of Botany, along with a comprehensive bibliography of her more than 100 publications has been published in the *Australian Systematic Botany Society Newsletter* [120: 20–25]. Sophie's main mycological contributions occurred during a relatively short spell during her long career as a Botanist at the University of Melbourne, but her enduring interest in botanical history and in book collecting also have mycological facets.

Sophie joined the staff of the School of Botany at the University of Melbourne in 1944. Her position, as Research Assistant to Assoc. Prof. Ethel McLennan ('Dr Mac'), was funded by the National Health and Medical Research Council. One of Sophie's first tasks was to unpack and maintain a set of about 150 *Penicillium* cultures which were duplicates of strains held at the Northern Regional Research Laboratory (NRRL) at Peoria, Illinois, United States of America. In 1943, research at Peoria on improving yields of penicillin had led to the discovery of strains of *Penicillium* which grew well in submerged culture, a breakthrough that allowed further increases in yield through selection of mutants, leading to mass production of the antibiotic. The Peoria cultures were sent to different centres for safekeeping during World War II (another set was maintained at the Commonwealth Serum Laboratories). As part of wartime research efforts in the Botany School, Sophie also assisted in the collection and identification of macro- and microfungi which were being investigated as potential sources of novel antibiotics.

The antibiotic work led to questions about the mycoflora of Australian soils, which were little known at the time. Ethel McLennan had a particular interest in the mineral deficient podsols of the Victorian heathlands, and Sophie collaborated with Ethel and L.B. (Peter) Thrower on five papers on heathland soil fungi in the period 1951–1957, in which novel species of *Penicillium*, *Aspergillus* and *Spegazzinia* were described, and the distribution and abundance of various microfungi in such soils were investigated. Sophie's research on soil fungi (along with her first algal research project) led to the award of a M.Sc. in 1957, and she was appointed Lecturer in the Botany School in the same year. In addition to establishing her own career as a scientist, Sophie's collaboration with Ethel McLennan was important in re-activating Dr Mac's publishing activities. Despite supervising a very successful stream of students in mycology and plant pathology, McLennan had published little under her own name since 1938, perhaps as a result of disappointment from being passed over for the position of Chair of the Botany School at that time by the much younger John Turner (whom she nevertheless supported on his appointment).

On the retirement of Ethel McLennan in 1957, Sophie focussed all her efforts on a topic which had interested her since childhood—the algae. In 1958 she published her first phycological paper (describing a new species of *Basycladia* from the shell of a freshwater turtle) and over the next three decades published widely on algae, in relation to morphology, taxonomy and nomenclature, pigment chemistry and ecology, including an early application of numerical taxonomic methods to algae (with Williams & Lance in *Austral. J. Bot.* 13: 389–399). Sophie's influence was not only through her publications; she supervised more than 20 post-graduate students, many of whom have gone on to become leaders in their own fields. The School of Botany became a centre for

marine botany research, demonstrating how critically important a single academic can be in fostering a non-mainstream field such as phycology.

After 'retirement' in 1974, Sophie engaged in a productive collaboration with Prof. Bruce Knox (School of Botany), centred around the pollination of seagrasses. She also took up with gusto an interest in the history of botany, to which she had been led to by curiosity about collections encountered in her taxonomic research. Sophie published a landmark paper on 'the significance of early French exploration' in Australian phycology (*Brunonia* 2: 19–42). Further papers on the German and Austrian contributions to Australian phycology and botany followed, along with numerous articles on individuals and institutions, from the point of view of phycology but also dealing with topics such as gardening and botanical illustration. Her major work in historical botany was *The Contented Botanist*, a collection of the letters of the Irish phycologist W.H. Harvey relating to his visit to Australia and the Pacific in the 1850s. Sophie's publications on botanical history are based on much archival research and use of original manuscripts and documents. Her attention to detail is epitomised by the summary tables which featured in a number of her papers. These tables will be of use to anyone needing to disentangle the often confusing links between different voyages, and among their commanders, scientists and published accounts. Most fungi described in the 19th century came from land-based collectors, and there are few mycological collections from the early expeditions originating from continental Europe, which were largely sea-based. However, Sophie's papers are nevertheless useful for mycologists seeking information about less familiar collectors of fungi.

Decades after her mycological research, Sophie retained an interest in fungi and was an enthusiastic contributor to the inaugural meeting of the Australasian Mycological Society in Melbourne in 1996, presenting the first paper at that meeting (on 'Ethel Irene McLennan, an Australian mycological pioneer'). Sophie was an active participant in scientific meetings and forays until only a few months before her death, and many will remember her *sotto voce* comments about illegible overheads and speakers going over their allotted time (terrifying or amusing depending upon whether one was the speaker or in the audience).

The Sophie Ducker Postgraduate Scholarship was established by the School of Botany in 1995, marking Sophie's 50 years continuous association with the University of Melbourne. This scholarship is awarded annually to a Ph.D. student carrying out research on Australian flora (which Sophie always took to include fungi), and has already benefited several students undertaking mycological projects. Sophie also left an enduring legacy resulting from her love of books. She was an active member of the Friends of the Baillieu Library (University of Melbourne), and encouraged the Friends to present to the University Library works by the French botanist Pierre Bulliard, including *Histoire des Champignons de la France ...*, *Dictionnaire Elementaire de la Botanique ...* and *Herbier de la France ...* (one of the first colour printed botanical works). The *Histoire des Champignons* is an important mycological work because it includes numerous coloured illustrations of fungi, many of which are cited in later taxonomic works such as the *Systema Mycologicum* of Elias Fries. Sophie was an inveterate book collector, who delighted in visitors consulting the often rare and precious tomes that lined a floor to ceiling bookcase in her sitting room. She made generous donations from her personal collection over the years to the libraries of the University of Melbourne and the Royal Botanic Gardens Melbourne, particularly of books relating to phycology and cryptogamic botany. The Ducker collection of more than 1,000 volumes is held in the special collections of the University of Melbourne library.

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