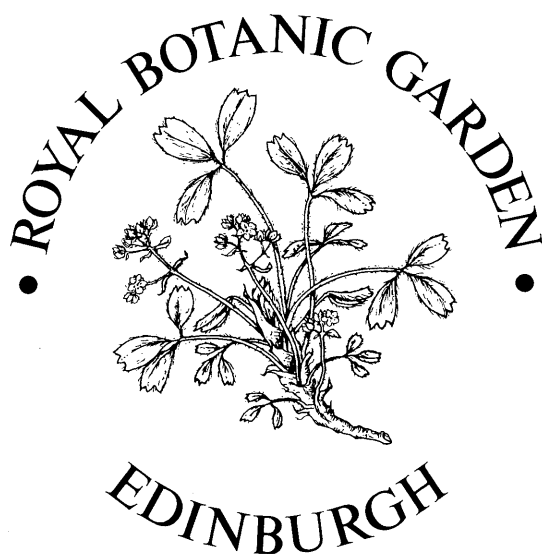
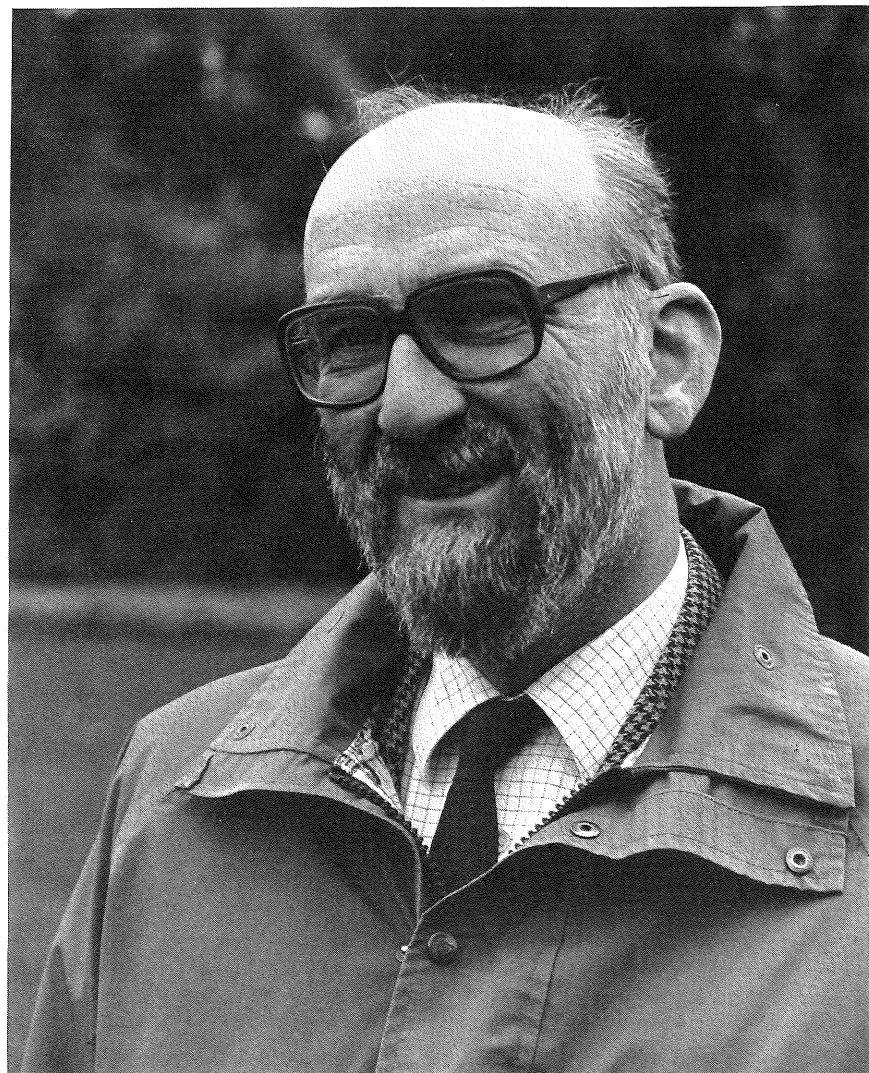


NOTES FROM THE
ROYAL BOTANIC GARDEN
EDINBURGH

VOLUME XLIV · NO 3 · 1987



*Dedicated to
Professor Douglas M. Henderson
on the occasion of his
sixtieth birthday*



PREFACE

Douglas Henderson is perhaps best known to most mycologists and plant pathologists as co-author of Wilson and Henderson's *British Rust Fungi*. For many years Dr Malcolm Wilson had been working on a replacement for the invaluable, but dated, book of the same name by W. B. Grove published in 1913. Douglas Henderson persuaded Malcolm Wilson that the new book should be published as soon as possible, though revision of some major rust groups was incomplete. After Wilson's death early in 1960, Douglas Henderson undertook to complete the text. The resulting book has stood the test of time since its publication in 1966: subsequent amendments of substance required have been few, and mostly due to the arrival in Britain of rusts such as *Puccinia pelargonii-zonalis* Doidge, *P. oxalidis* (Lév.) Diet. & Ellis and *P. longicornis* Pat. & Hariot. The species concept applied in *British Rust Fungi* is essentially that of Jørstad, in which specific rank is only given to entities which are clearly distinct on morphological grounds. Where two forms occur on different host genera or species in the same family and morphological differences are slight or absent, subspecific categories such as variety or forma specialis are used. This concept, as applied to such rusts as the brown rusts of cereals and grasses of the *Puccinia recondita* complex has been widely accepted since the publication of *British Rust Fungi*. The publication of this book also stimulated interest in British rusts, so that much material has been sent to Edinburgh, providing scope for further work.

However, *British Rust Fungi* represents only one part of Douglas Henderson's contribution to the study of rust fungi. For many years he has been interested in spore morphology and spore development as taxonomic criteria. The advent of scanning and transmission electron microscopy has meant that much greater precision than hitherto can be attached to such terms as spinulose and verruculose, and that the mode of development of such structures may be taken into account, adding significantly to the range of rust characters which may be used to determine the affinities of rust taxa. This approach has provided a valuable link between the older generation of uredinologists who could, through long experience, distinguish between closely related taxa, and recent workers who, concentrating on a few taxa, have used modern techniques to define such differences with precision. It may be hoped that in the not too distant future further advances will enable the newer methods to be applied routinely to a much wider range of material.

Douglas Henderson has always been aware that the study of spore morphology and development should be regarded not as an end in itself, but as a contribution to our knowledge of the biology of the fungus. He stated in his Presidential Address to the British Mycological Society in 1975, 'I must put in a plea that we regard the basic taxonomic work as only a background for research into the biology of the group'. Elsewhere in his address he gives numerous examples, many from his own work, of the way in which taxonomic and anatomical studies on rusts can and should be linked with the biology of rust and host. Several papers in this

volume illustrate that approach: there have been too few links between classical uredinologists and recent workers primarily concerned with the ultrastructure, physiology or genetics of the rusts, and such collaboration has much to contribute.

For a proper appreciation of the nature of the diversity within a group of related taxa, it is necessary to study not only the situation in one country, but also the position in the world as a whole, and in particular in the centre of evolution of both host and pathogen. For example, the picture obtained of diversity within the *Erysiphe graminis* complex of powdery mildews on cereals by examining the situation in Israel sheds a new light on that in NW Europe where cereals are grown in monoculture and closely related wild grasses infrequent. Douglas Henderson has taken full advantage of the long-standing interest at the Edinburgh Royal Botanic Garden in the flora of the Near East, especially Turkey, and of the Himalayan region. His wide ranging travels and numerous international contacts are reflected in the international nature of this collection of papers.

In addition to his work on rusts, Douglas Henderson has been concerned with groups as diverse as the higher basidiomycetes, the smuts, the ascomycetes and the flowering plants, and there are few plant groups of which he does not have a good working knowledge. The wide diversity of natural and semi-natural habitats in Scotland, many of them still incompletely explored mycologically, has provided many opportunities for investigation by both amateurs and professionals. The Edinburgh Garden has formed a focus for such studies, and several of the contributions to this volume, especially those on agarics and lichens, illustrate the progress that has been made. There is still much to be done and it is to be hoped that this tradition of fostering links between the amateur and the professional will continue: the professional can contribute modern techniques, often requiring sophisticated equipment, the amateur, experience of fungi in the field and much painstaking detailed study using conventional methods.

Despite his heavy administrative load as Regius Keeper in recent years, Douglas Henderson has retained his close contact with mycological research as indicated by several recent papers published in conjunction with colleagues at the Garden, several of whom are contributors to this volume. He has also retained his human touch and approachability to anyone with a specimen requiring identification or a problem on which he could advise, and his recent appointment as the Queen's Botanist in Scotland has been widely welcomed.

J. G. MANNERS