

## Douglas Mackay Henderson

Douglas Mackay Henderson was born in Blairgowrie on 30 August 1927, the second son of Captain Frank Morrison Henderson and Adine Cornfute Mackay. His father, the son of a bank agent, began training as a banker in Trinity, Edinburgh before he ran away to sea. He became a Master Mariner and held a command for many years with the Ben Line, serving with the Merchant Navy during both World Wars. His mother was the daughter of Charles Gordon Mackay, for forty years medical practitioner in Lochcarron, and former associate of Joseph Lister. Douglas' eldest brother, the late Frank Paterson, became a geologist and his younger brother Andrew Ernest, a zoologist. Douglas' father was at sea for lengthy spells and died when in his fifties and the responsibility for rearing the family devolved therefore upon their able mother and Helen Watt ('En'), her characterful maid from Buchan. Mrs Henderson awakened the boy's love of Wester Ross and Highland culture, including his love for skating. 'En', for whom Douglas had great affection and esteem, led him to value and enjoy the worth of every individual. In later life, when he was privileged to mix with people of every social background, it was characteristic of him to shun humbug and judge everyone on their merits while treating each with equal respect.

At Blairgowrie High School (1932 - 1944) Douglas was influenced by his science teacher, J. Neilson, who encouraged his boyhood interests and showed how science and everyday country life could work together in a wholesome unity. At Edinburgh University he obtained 1<sup>st</sup> class Honours in Botany in 1948. During his studies he was strongly influenced by Sir William Wright Smith, Harold Fletcher and Malcolm Wilson.

An indication of how his future interests would develop was shown by his 3<sup>rd</sup>/4<sup>th</sup> year university project which was on the genus *Sclerotinia*, a group of plant-pathogens. Malcolm Wilson was particularly supportive when Douglas went to train as a plant pathologist with K.M. Smith at Moltens Institute Cambridge, studying methods of plant virology, before joining the Department of Agriculture for Scotland at their research establishment at East Craigs, Edinburgh in 1948. There he met his future wife Julia Margaret Brown.

Margaret was born in Belfast, the daughter of an industrial engineer, but went to school and university in Glasgow before joining the WRENS (1943 - 46). After qualifying from Jordanhill, she taught for a short time in Denmark before joining the staff at East Craigs. They were married at Cawthorne, Yorkshire in May 1952 one year after Douglas had moved to the Royal Botanic Garden Edinburgh as a Scientific Officer. With his bride, Douglas honeymooned in the Pyrenees collecting plants. They accompanied Malcolm Wilson, whose work he admired, and Mrs Wilson, who became life-long friends.

The Royal Botanic Garden Edinburgh was then an internationally important, multifaceted institute encompassing research, curation of herbarium specimens, archival material and living plants. In 1953 Douglas became Senior Scientific Officer and in 1961 Principal Scientific Officer. A year later Douglas was overseeing the expansion of the herbarium and library, and planning a new building, which was completed before the 10th Botanical Congress was held in Edinburgh in 1963. He then took sabbatical leave, sponsored by the US Atomic Authority, to work in Solna, Stockholm with Professor Gunnar Erdtman, one of Europe's foremost palynologists, on pollen structure. His research there introduced him to poppies in the genus *Meconopsis* and not only spawned a seminal paper on the pollen of the constituent members, but also allowed him to apply his new found skills to the morphology and structure of rust fungi spores. Douglas later introduced the first electron microscope to RBGE. This not only allowed him to continue his own work but it created opportunities for other members of staff, which he energetically encouraged. For the Herbarium, he negotiated in 1966 the transfer of the recently-discovered collections of Archibald Menzies from the Free Church College, Edinburgh to add to the Garden's earlier holdings of this important Scottish explorer and collector.

In 1966 he was elected a Fellow of the Royal Society of Edinburgh (proposed by Professors Harold R Fletcher, Robert Brown, J A McDonald and Paul E Weatherley). The following year he was awarded a

Nuffield Fellowship to visit North America, Hong Kong, Singapore, Australia and South and Central Africa. The whole tour of duty took seven months and allowed him to gauge the development of research programmes at other Botanic Gardens. His subsequent career saw him returning to some of these locations and also to new ones in the USA, the USSR, Australasia, Asia and West Africa.

In 1970 he became the 12th Regius Keeper of the Royal Botanic Garden Edinburgh. Who better to follow Harold Fletcher, with whom he had collaborated closely over the years and also shared the same vision for Edinburgh? He commenced his stewardship by recruiting dynamic, new staff and introducing three-year senior and junior Fellowships, the latter on the study of rust fungi. Douglas enhanced the role of the Garden in botanical and horticultural research, attempting to draw the two closer. He introduced new techniques, some from his time as a plant pathologist, and encouraged his staff to explore new ways of looking at their research. He initiated the *Flora of Bhutan* project, the publication of which saw over 6,000 species documented; the present day connections between RBGE and China are firmly rooted in his policies. Peat and rock gardens were developed in newly-constructed research glasshouses, expanding the facilities available to the research staff, especially those returning from plant collecting expeditions. Just as he had found travelling abroad important, he encouraged his staff to do likewise. He also encouraged contact with the public, and broadened the educational remit of the Gardens and the public services. Educational facilities were added at Inverleith, at Logan Botanic Garden, Stranraer and at Younger Botanic Garden, Benmore near Dunoon and, in 1978, Dawyck Garden, Stobo, near Peebles was incorporated into the care of the Garden. This last site extended the climatic range available for growing plants and demonstrated that, with this third regional garden, the RBG Edinburgh was a national and international asset. In 1986 Inverleith House, formerly the Regius Keeper's home, was taken over and opened as a botanical gallery and exhibition centre, replacing the Gallery of Modern Art, which moved to new, larger premises. This expanded the already purpose-built Exhibition Hall facility opened for the Tercentenary Celebrations. All these added to the considerable academic regard in which the Garden was held by the botanical world. Horticulture and science were further brought together during this time in the computerisation of the living plant collection, until that time held on traditional index cards.

Civil Servants were not always as enthusiastic as Douglas about some of his proposals - often delivered in a somewhat robust way - but Douglas was probably admired nonetheless. Certainly he would not suffer fools gladly. He was fair, but spoke his mind, and his diplomatic skills almost always secured him small amounts of extra funding towards the end of the financial year. Soon after becoming Regius Keeper, he administered the Garden's shift from the Ministry of Public Buildings and Works, to the Scottish Office, as a full Civil Service body within the Department of Agriculture and Fisheries for Scotland. In 1986 he negotiated the creation of the RBGE as a non-departmental public body, with Trustees appointed by the Secretary of State for Scotland. The grave doubts felt by many about the transfer to a Board of Trustees were proved wrong because of Douglas's skills and the enlightened choice of Sir Peter Hutchison as Chairman.

In such negotiations, Douglas realised the significance of communication and networked with directors of like institutes, which resulted in the formation of the *Edinburgh 1970s Club*. He was a true natural historian, and had an intellectual curiosity over and above his field and laboratory interests. He became a Fellow of the Linnean Society and, because systematics in his time worked hand-in-hand with books, his experience in archival materials and libraries expanded. Ultimately this led to him becoming involved with the British Library.

In the 1970s, with Harold Fletcher, Douglas helped to unite botanic gardens worldwide and from 1969 to 1981 was Secretary of the newly formed International Association of Botanical Gardens - a fairly onerous duty, as the Association comprised 1,500 or so organisations. This created a platform for the much later Rio Convention and the European Year for Conservation in 1970. A founder member of the Conservation of Plants and Gardens, he was from the 1980s a Trustee of the Grimsthorpe & Drummond Trust and also of the Sibbald Trust (1984-2003). He also set up gardens in Iran and in Vancouver, Canada, and spent a term as a member of the Policy Committee of the New York Botanic Garden. His horticultural activities were recognised by the award of the Patrick Neill Prize of the Royal

Caledonian Horticultural Society in 1971, the Scottish Horticultural Medal in 1981, the Willendow Medal from the Berlin Botanic Garden and the Victoria Medal of Honour in 1985 from the Royal Horticultural Society.

He served on the Council of the Royal Society of Edinburgh (1970-1973) and held office as Curator (1978-1987), for which service he was awarded the Society's Bicentenary Medal (1989). He was awarded a CBE in 1985, and in 1983, an Honorary Professorship of the University of Edinburgh. This recognised not only his botanical skills, but also that he had brought the RBGE and the University closer together through the instigation of a Diploma Course in Plant Taxonomy, now the MSc in Biodiversity and Taxonomy of Plants. After 36 years at RBGE he retired in 1987, the year he became Queen's Botanist in Scotland.

Douglas and Margaret redirected their energies when Douglas took up the post of Administrator at Inverewe Gardens, Wester Ross on behalf of the National Trust for Scotland. This gave them both, to the benefit of the NTS, the opportunity to entertain many visiting botanists and horticulturists, and allowed Douglas to promote the attributes of his beloved West Coast. Their stewardship lasted until 1992 and included a culmination to Douglas' long interest in music, as in nearly every year of their five-year stay, chamber music was played in the House at Inverewe. Another art-form much-loved by Douglas was water-colour painting.

Douglas commenced his duties by critically examining the tree-plantings, which had been made by Osgood Mackenzie during the Garden's inception in 1862, and planned for a new generation of trees. His interest in the mix of archival information and living plants led him to research the origins of the plants in Inverewe. He had been Recorder for Wester Ross for the Botanical Society of the British Isles long before he took up the post at Inverewe, and in all served 44 years, even describing a new variety of *Juncus effusus* (var. *suberectus*), based on material from Big Sand by Gairloch collected in 1968. It was considered subsequently to be a wild population of the cultivar now found in many gardens, viz. f. *spiralis* (McNabb) Praeger.

Prior to his appointment at Inverewe, Douglas already had strong connections with the NTS as Convener of the Gardens' Committee from 1978 to 1981. Latterly, during his period in the West, he had time, from 1995, to be Secretary of the Highland branch of the charity Help the Aged.

Douglas was foremost a natural historian and was active in conservation over many years in the Scottish Committee of the Nature, the Advisory Committee for Scotland of the Nature Conservancy Council, and on the Advisory Committee on Sites of Special Scientific Interest of Scottish Natural Heritage.

He was passionately interested in fungi, especially rust- and smut fungi. Sadly Malcolm Wilson, his long-standing friend, died after completing only the rather more straightforward parts of his proposed book on British rust fungi. Left wanting were those rust fungi found on the composites, sedges and willows, so in 1960 Douglas was working on the harder parts of what would become the standard book for the identification of these British representatives of this group of fungi. It may have been simpler if he had had greater earlier input into the other parts, but felt that it was better to publish and have comments than not to publish. The book was published in 1966 and remains the definitive work today. Along with his later up-dates and his Checklist published by the British Mycological Society in 2000, it is indispensable.

His interests in smut-and rust-fungi led him to common links with several Scandanavian mycologists and visits to Abisko, Ivalo, etc. Authoritative papers were published supporting and expanding the observations outlined in his book on rust fungi as a direct result of his use of techniques learnt in that all-important visit to Stockholm. He made long-standing friendships with many, such as Halvor B Gaerjum of Ås, Norway and the Finnish mycologist, Ikka Kukkonen, possessing a mutual interest with the latter in *Anthracoidea* and *Cintractia*, smut genera on sedges. Douglas' interests in rust-fungi, (they were never rusts !), over time expanded to encompass those species found in China and the Himalayas, in part fuelled by the newly-collected material from plant expeditions and those species from Turkey. The last was stimulated after he had collected bryophytes there with Adam Stainton in

the 1960s, linking up what was to be a long-standing union between the RBGE and the University of Edinburgh, particularly with Peter Davis then spear-heading a study of the Turkish Flora. In virtue of his training in plant pathology, which itself requires an intimate knowledge of host and parasite, Douglas became familiar with both crop plants and ornamentals and their diseases, but in addition, because of host/fungus associations, became well versed in the British vascular plant flora, including native ferns. His search for ways to separate closely related rust species led him to call on his earlier experiences attempting to apply serological techniques to find some of the answers, measures which, necessitating having a rabbit on the premises, left some of his colleagues rather bemused! He was also very encouraging in this author's developmental studies of basidiomes and, with the then Regius Keeper, Harold Fletcher, made it possible to have laboratory facilities tailored for such activities. After the European Mycological Congress in Glasgow in 1963, he acted as the UK representative on the newly proposed European Mapping Scheme. With his assistant Heather Prentice he scoured collections and the literature, and integrated, along with submitted records, information for 100 chosen species of fungi and located their British sites on a 10 Km grid covering much of Europe; this was a long and laborious task. Such devotion to Scottish plants and fungi made him an admirable President of the Botanical Society of Edinburgh (now Scotland) from 1964-1966. His interest in Scottish ferns and the Turkish bryophytes, which had led him to take a greater interest in native mosses and liverworts, culminated in him bringing to our attention many fungi subtly hidden from view amongst moss thalli and hiding amongst fern sori. This was a common feature of Douglas' scholarship that, coming upon a group of unfamiliar plants, he would grasp the nettle and get to know them!

His knowledge and interest in all fungi, especially Scottish taxa, was extensively borne out by the vast collections from all groups of micro- and macro-forms now housed in the herbarium at the RBGE. Douglas was always happy to be outdoors and always took opportunities to collect, even during his Nuffield Fellowship trip. Many of our noteworthy vascular plants in Scotland fall in the montane/alpine category and Douglas was in his element collecting fungi found under these extreme conditions. It was on such visits that he collected and described the new anamorphic genus *Glomopsis*, a genus probably related to the jelly fungi, which he had found growing on *Empetrum* in many montane sites in Scotland. He was one of the first to demonstrate that the lichen thalli classified under *Incertae sedis* in lichen texts were in fact the thalli of basidiolichens, placed then in *Omphalina*; he was very familiar with a whole range of ectomycorrhizal species occurring on the 'tops'. It was from his awareness of the richness of the British macromycota, and the importance of thus having a reliable check-list of agarics and boleti, that he made it possible for P D Orton, a long time friend, to achieve this goal, making available space and resources at the RBGE for its production. This catalysed the deposition in the Edinburgh Herbarium of the hundreds of specimens, including types collected by Orton after 1960. Douglas, Peter Orton and the writer had many happy times collecting together, often in the company of foreign visitors, and it was this three-way friendship, which culminated in the concept and then the production of the first volumes of the *British Fungus Flora; Agarics and Boleti*. Through the basidiolichen link, Douglas' particular interest amongst the agarics was the omphalinoid forms, a group now dissected out of recognition based on DNA sequencing. Douglas had very strong views about such approaches, for although willing to use new methodology he was saddened that these new studies were being often conducted in the absence of robust field observations and authenticated collections. He continued to encourage other researchers who used the mycological facilities then in place in Edinburgh. Many visitors passed through to use the Garden's resources, often staying for relatively long periods to study, including Professor Per Magnus Jørgensen then from Sweden, Professor Douglas Parbery from Melbourne and his long term friend Halvor Gjaerum, to name but a few.

Douglas' mycological achievements were recognised by the British Mycological Society in his nomination as President in 1975. His Presidential Address to the BMS was entitled '*The Living Rust Fungi*', contrasting with his Presidential address to the Botanical Society of Edinburgh, which was '*Fungi as Plants*'.

In his way Douglas upheld the long tradition of scholarship that had been the basis of the Royal Botanic Garden since its foundation. He sustained a life-long interest in fungi and nurtured the study of

mycology. One of his greatest regrets in retirement was that this study, so important as an integral part of any biodiversity and environmental study, has been allowed to lapse in Edinburgh. Latterly Douglas felt it a great disappointment that the long history of mycology at the RBGE, which reaches back through a series of Regius Keepers to the Balfours, was gradually fading, especially when so much headway had been made during his custodianship. It was through his strength of mind that visitors still come to Edinburgh to study the wealth of collections.

Douglas is survived by his wife, Margaret, son Neil and two daughters, Barbara and Jennifer.

Roy Watling and Charles Waterston

*Douglas Mackay Henderson CBE, BSc (Edinburgh), FLS, CBiol, FIBiol, VMH. Born 30 August 1927, Elected 7 March 1966, died 10 November 2007.*