

MYCOLOGY AND LICHENOLOGY AT THE RIJKSHERBARIUM

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Soon after the foundation of the Rijksherbarium in 1829 King Willem I of the Netherlands presented the herbarium of C. H. Persoon to this institute. The fungi in this famous herbarium, along with some other collections, among which the tropical fungi collected by F. W. Junghuhn and H. Zollinger, formed the basis for the mycological herbarium. But in the early period of the Rijksherbarium, owing to a shortage of funds and the absence of a curator for the cryptogams, the collections of fungi and lichens were badly neglected and remained in disorder for a long time.

It was the third director of the Rijksherbarium, W. F. R. Suringar (director from 1871 to 1898) who became aware of the omissions in the collections of cryptogams and who took measures to fill the gaps. During his period several series of cryptogamic exsiccata were bought. He also acquired the cryptogamic collections of J. K. Hasskarl and L. H. Buse as well as the well-known lichen herbarium of G. W. Körber. But there still was no one to look after these collections.

All mycological research in the Netherlands during the 19th century was concentrated around the person of C. A. J. A. Oudemans, professor of general botany at the University of Amsterdam. He regularly consulted the fungi in the Persoon herbarium. The main part of Oudemans' mycological herbarium later went to Groningen, but recently it has been deposited on permanent loan in the Rijksherbarium. (Cf. Van Steenis-Kruseman's paper in this volume, p. 29).

At the beginning of this century the collections of cryptogams at the Rijksherbarium were almost inaccessible, as the major part had been stored away in sacks and packets. However, the anticipated visit to the Rijksherbarium of the American mycologist C. G. Lloyd made the rearrangement of the fungi, particularly of the herbaria of Junghuhn, Lévillé, and Persoon a necessity.

In 1906 J. P. Lotsy (director from 1906 to 1909) entrusted W. J. Jongmans with the management of the cryptogamic collections as an unsalaried assistant. The latter had the Persoon herbarium mounted on sheets so as to make it accessible. Soon, however, Jongmans was commissioned to do paleobotanical research. But during 1907 and 1908 Lotsy had on average twenty people employed daily mounting and rearranging the cryptogams.

When Lotsy resigned as director of the Rijksherbarium, his plans for the rearrangement of the collections were adopted by his successor J. W. C. Goethart. All the collections still had to be placed in firmly constructed cardboard boxes. When the Government, however, refused to agree to his first order of 1000 herbarium boxes, Goethart bought them privately and gave them on loan to the Rijksherbarium. Further improvement of the collections was then no longer supported by the Government until much later.

It is less than 60 years ago that mycological research became incorporated in the activities of the Rijksherbarium. It is the merit of the Netherlands Mycological Society (founded in 1908) that the first mycologist was appointed to the Rijksherbarium. On 24 September 1910 the Society decided to accommodate its 'Standard Collection' in the Rijksherbarium, and a curator was appointed.

The first temporary and unsalaried curator in 1910 was F. A. des Tombe. Still in the same year H. A. A. van der Lek officially became curator of the Society at an annual fee of Dfl. 205. — (viz. Dfl. 50, — furnished by the Society and Dfl. 155. — from voluntary contributions by a few members). A yearly contribution of Dfl. 800. — by the Government was considered unwarranted by the Board of Trustees of the University. Under these circumstances Van der Lek did not stay long and 1 September 1913 he took up another position.

Both the Society and the Rijksherbarium owe a great debt of gratitude to Des Tombe and Van der Lek, as they preserved many specimens and studied the fungi (mainly macro-fungi) of the 'Netherlands Mycological Standard Collection'. This collection was meant as an authentic catalogue that could be freely consulted. At the same time it served as a kind of check list of fungi for the Netherlands and as a reference collection for later identifications.

From 1 November 1914 to 31 October 1922 Miss Catherina Cool was curator in charge of the Netherlands Mycological Society at a remuneration of Dfl. 50. — a year. During her curatorship all acquisitions were placed in glass jars, mainly in liquid. Great problems arose during the First World War when a shortage of glassware, paper, and chemicals against insects hampered her work.

After unremitting insistence by the Mycological Society Miss Cool was allowed to continue her post from 1 November 1922 onwards as paid assistant at the Rijksherbarium in Government service. In fact, it is on this occasion that the first position as a mycologist was created on the staff of the Rijksherbarium. Miss Cool remained an assistant till her death in 1928.

Christmas 1922 she made a collecting trip of three months to the Canary Islands together with Mrs. A. den Tex-Boissevain.

In 1929 Miss Cool was succeeded by W. J. Lütjeharms, who wrote a thesis on the mycological history of the 18th century. Like his predecessors, he worked on the mycoflora of the Netherlands and provided materials and descriptions for many contributions to the *Flora Batava*. He established international relations. From 15 February to 18 September 1936 he went on a collecting trip to the Dutch East Indies, mainly visiting Java and the Island of Engano. Shortly afterwards, in 1938, he accepted a position as professor of botany at the University of Bloemfontein, South Africa.

From 1938 to 1942 J. S. Zaneveld joined the staff of the Rijksherbarium as curator of the mycological herbarium. He became interested in the *Laboulbeniales* of the Netherlands, but gradually shifted his interest. His thesis dealt with the Charophyta of the Dutch East Indies.

In 1942 R. A. Maas Geesteranus succeeded Zaneveld and was also appointed curator of the collections of the Mycological Society. In the beginning, however, he was mainly interested in lichenology and published as his thesis a work on the *Parmeliaceae* of the Netherlands. From 12 March 1949 to 14 January 1950 he was away on a field trip, collecting more especially phanerogams and lichens in Kenya and South Africa. It was not until his return that fungi became the main subject of his taxonomic studies. He set to work to enlarge the collection of fungi which were

placed in loose wrappers. The space- and time-consuming method of preserving fungi in liquid which moreover was found to be unsatisfactory was abandoned.

The larger Ascomycetes (*Helvellaceae*, *Geoglossaceae*, *Peziza*, *Cordyceps*) and the stipitate hydroid fungi received his special interest. Much of his experience with stipitate hydroid fungi has been compiled in his books 'Hydnaceous fungi of the eastern Old World' (1971) and 'Die terrestrischen Stachelpilze Europas' (1975).

After his retirement in January 1976 he continued his study of hydroid fungi and started a revision of the genus *Mycena* for the Netherlands.

It was a great achievement of H. J. Lam (director from 1933 to 1962) and Maas Geesteranus that in the fifties a centre of taxonomical mycology came into being at the Rijksherbarium when respectively C. Bas (1954), M. A. Donk (1956), and J. van Brummelen (1959) joined the staff of that institute.

Through the efforts of Donk and Lam in 1959 the journal 'Persoonia' mainly devoted to taxonomic mycology was inaugurated.

C. Bas has applied himself to the further enrichment of the collection of *Agaricales* of the Netherlands and surrounding countries. In particular he has studied representatives of *Amanita*, *Marasmius*, *Agrocybe*, *Galerina*, and *Squamanita*. He published a thesis entitled 'Morphology and subdivision of *Amanita* and a monograph on its section *Lepidella*' as part of a world wide taxonomic revision of the genus *Amanita*. In 1963 he made a study-tour of four months in the U.S.A. Together with Maas Geesteranus he took part in a mycological collecting trip in India for 10 weeks in 1964.

In 1955 P. Groenhart and H. S. C. Huijsman became honorary associates of the mycological department. Until his death in 1965 Groenhart worked at the Rijksherbarium, studying Malesian lichens, mainly collected by himself. He laid a base for a monograph of *Cryptothecia*, but the work remained unfinished.

Huijsman has mainly been engaged in the study of European *Agaricales* and published on several genera (e.g. *Lepiota s.l.*, *Inocybe*, *Ripartites*, *Tricholoma*, *Psilocybe*, etc.). He has brought together an important collection of *Agaricales*, particularly during the period he lived in Switzerland. Recently he has taken up the study of the genus *Inocybe* again.

Of great importance to the scientific development of the mycological department has been the period that M. A. Donk was a member of the staff.

On his return to the Netherlands in 1956, after a career in Indonesia, he became head of the mycological department and started giving lectures in mycology to graduate students. More than once he refused to accept a professorship in order to devote all his time to mycological research. From 1969 to 1970 he spent a year at various mycological institutes in the U.S.A. He worked at the Rijksherbarium until his death in 1972.

The amount of Donk's scientific publications totals more than 2300 pages. With his extraordinary knowledge of many groups of fungi, his juridical mind, and his interest in matters of nomenclature he produced a great number of nomenclatural notes and publications on proposed generic names for Basidiomycetes. In the field of taxonomy his conspectus of the families of *Aphylllophorales*, his notes and check lists on Heterobasidiomycetes and on European polypores should be especially mentioned.

K. B. Boedijn became a regular guest of the mycological department after his retirement in 1958 from a position in Indonesia. He continued his mycological studies at his home in The Hague, in close connection with the mycologists in

Leiden, till his death in 1964. During this period he contributed several publications to 'Persoonia'.

When J. van Brummelen joined the staff of the Rijksherbarium, he continued his studies of coprophilous fungi and prepared a world-monograph on the genera *Ascobolus* and *Saccobolus* (*Pezizales*) as a thesis. He introduced cultural methods and microtechniques into the department. The genera of coprophilous Discomycetes (*Ascobolaceae*, *Thelebolaceae*, and *Ascodesmidaceae*) were especially studied by Van Brummelen. In addition he became more and more interested in broad relationships within the Discomycetes. For this purpose he started comparative studies of fruit-body ontogeny, ascospore ornamentation, and ascus structure in the *Pezizales*.

In 1972 Donk, Bas, and Van Brummelen received financial support from the Organization for the Advancement of Pure Research (Z.W.O.) to start a combined project of ultrastructural research to clear up some of the more fundamental problems in the taxonomy of Basidiomycetes and *Pezizales*. Donk would study cross-walls in Basidiomycetes, Bas spore wall structure in pink- and brown-spored agarics, and Van Brummelen ascus tips and spore walls in *Pezizales*.

Because of the death of Donk, and on account of more advanced studies on agaric spores elsewhere, this project was restricted in the end to the study of the *Pezizales*. The support expired at the end of 1975.

In a series of four publications Miss E. Merkus (1972–1976) wrote a thesis on the ultrastructure of the ascospore wall in *Pezizales*. Van Brummelen studied the ascus top in genera of the *Pezizales* with light and electron microscopy.

In 1970 E. Kits van Waveren became a honorary associate of the mycological department. He is interested in the study of European *Agaricales* with special emphasis on the genera *Psathyrella*, *Conocybe*, and *Coprinus*. His critical notes on the genus *Psathyrella* are published in 'Persoonia'.

When W. F. B. Jülich joined the staff of the Rijksherbarium in 1973 to succeed Donk as a curator for the *Aphylllophorales*, he continued his studies of *Tulasnellaceae*, *Corticaceae*, and aquatic fungi. Since 1975 he has taken up the study of *Tomentella*. Recently he started a comparative study of the submicroscopical shapes of spores, cystidia, and hyphae of *Aphylllophorales* with the help of scanning electron microscopy. He is also preparing a biography of C. H. Persoon. In the beginning of 1978 he took part in an expedition to Borneo for five months, and made a collecting trip in Thailand.

The position originally held by Maas Geesteranus at the mycological department was changed into a temporary one to accommodate a graduate student working for his doctor's thesis. Since February 1976 M. E. Noordeloos has occupied this position and studied the Netherlands representatives of the genus '*Rhodophyllus*' (*Agaricales*), with special emphasis on the subgenera *Entoloma* and *Nolanea*.

Over the years several students, mainly of Leiden University, have studied mycological or lichenological themes at the Rijksherbarium, as candidates for the 'doctorandus' degree.

The most successful of these have been:

- A. C. Perdeck (1948–1949). Revision of the *Lycoperdaceae* of the Netherlands.
- C. Bas (1951–1953). The genus *Amanita* in the Netherlands.

- J. van Brummelen (1957–1958). Coprophilous fungi of the Netherlands.
E. Hennipman (1958–1962). The genus *Cladonia* in the Netherlands.
Mrs. B. E. E. de Wilde-Duyfjes (1964). Follicolous lichens in the African tropical rain forest near Yaoundé, Camerouns.
Mrs. J. M. W. V. Luyt-Verhey (1967–1973). The genus *Dasyscyphus* in the Netherlands.
E. J. M. Arnolds (1969–1973). *Hygrophorus* subgenera *Cuphophyllus*, *Hygrotrama* and *Hygrocybe* in the Netherlands.
Miss A. E. Jansen & M. E. Noordeloos (1972–1976). The genera *Marasmius*, *Marasmiellus*, and *Micromphale* in the Netherlands.
L. A. Tjon Sie Fat (1976–1977). Acrophysalides in the tissue of stipe and bulb in *Agaricales*.

Although prospects for mycological research at the Rijksherbarium, with a threatened cutdown of the staff, are less bright than they were in the sixties, there is a wide array of projects in execution and in preparation.

General taxonomic revisions of the following groups are in preparation.

- *Amanita* sect. *Amidella* and sect. *Vaginatae* (Bas).
- *Tulasnella* in Europe and genera of *Corticiaceae* (Jülich).
- *Thelebolaceae* and *Ascodesmidaceae* (Van Brummelen).

Local revisions and treatments of other taxonomic groups for the Netherlands mycoflora are in progress.

- *Rhodophyllus* subgenera *Entoloma* and *Nolanea* (Noordeloos).
- *Agaricus* (W. M. Loerakker, continued by A. M. Brand).
- *Mycena* (Maas Geesteranus).
- *Psathyrella* p.p. (Kits van Waveren).
- *Inocybe* p.p. (Huijsman).
- *Collybia* (Miss A. E. Jansen).

In connection with the taxonomic studies in Basidiomycetes and Ascomycetes, the investigation and the testing of 'new' and 'old' characters and criteria have become of prime importance. Some of these studies, especially those which need great technical skill and availability of expensive instruments, could be regarded as separate projects.

- Studies of spores and asci of *Pezizales* with transmission electron microscopy (Van Brummelen).
- Study of the shape of spores, cystidia, and hyphae of *Aphyllophorales* with scanning electron microscopy (Jülich).
- Fruit-body development in *Pezizales* (Van Brummelen).

With the present shortage of technicians progress of most of these projects is of necessity slow and intermittent.



C. G. J. van Steenis (1901–x)
Director 1962–1972
Photo Ruth van Crevel, Rijksherbarium, 1964