

= Meinhard Michael Moser =

Meinhard Michael Moser (13 March 1924 ? 30 September 2002) was an Austrian mycologist . His life 's work principally concerned the taxonomy , chemistry and toxicity of the gilled mushrooms (Agaricales) , especially those of the genus *Cortinarius* , and the ecology of ectomycorrhiza . His contributions to the *Kleine Kryptogamenflora Mitteleuropas* series of mycological guidebooks were well @-@ regarded and widely used . In particular , his 1953 *Blätter- und Bauchpilze* (Agaricales und Gastromycetes) , which became known as simply " Moser " , saw several editions in both the original German and in translation .

After showing interest in natural sciences in his youth , he studied at the University of Innsbruck . However , his university career was interrupted by the need to complete military service . He was stationed as a translator in eastern Europe during World War II , before being captured and placed in a prisoner of war camp . He was released in 1948 , subsequently returning to Innsbruck to complete his studies . After completing his doctorate in 1950 , Moser worked in England for six months , researching the symbiotic relationships between plants and fungi . Upon his return to Austria , he took up a position with the Federal Forestry Research Institute , where he remained until 1968 , taking part in influential research on the use of mycorrhizal fungi in reforestation . He began lecturing at the University of Innsbruck in 1956 , and in 1972 he became the inaugural head of the first Institute of Microbiology in Austria . He remained with the Institute until his retirement in 1991 . His studies continued until his death in 2002 . An influential mycologist , he received a number of awards throughout his life , and numerous fungal taxa have been named in his honour .

= = Life and career = =

= = = Early life , university and military service = = =

Moser was born on 13 March 1924 in Innsbruck , Austria , to parents Margaretha and Josef Moser . His father was a teacher at a technical college in the city , while his mother was the daughter of noted botanist Emil Johann Lambert Heinricher . Moser attended primary school and grammar school in the city , and showed an interest in natural sciences from a young age . His interest was cultivated by Heinricher , and Moser 's earliest paintings of mushrooms date to 1935 when he was 11 years old .

In 1942 , Moser enrolled at the University of Innsbruck , taking classes in botany , zoology , geology , physics and chemistry . At this time , Austria was under the control of Nazi Germany and did not exist as an independent state . Moser became an authorised mushroom controller and instructor , and it was officially requested that he attend mycological seminars around Germany and Austria . At these seminars , he met a number of prominent mycologists , including Ernst Thirring . Thirring showed Moser some of the issues surrounding the large genus *Cortinarius* , which remained an interest for the rest of his life . In 1943 , aged 19 and after only three terms at Innsbruck , his studies were interrupted so he could perform military service . Having shown earlier promise in languages , he was trained as an interpreter , then sent to the Balkan Peninsula . He continued to show an active interest in mycology , collecting and identifying mushrooms and reading Rolf Singer 's *Das System der Agaricales* .

In 1945 , when Moser was 21 years old and still carrying out active military service , he was captured in Czechoslovakia by Soviet soldiers and made a prisoner of war . He was imprisoned in a labour camp in Crimea , in the Ukraine . While a prisoner , he was involved in repairing the Institute of Biology of the Southern Seas , Sevastopol . His time at the camp was not easy ; working in construction , he had to work to his physical limits , and was involved in a serious crash that killed several other prisoners . Moser was released in 1948 , and chose to return to his studies at the University of Innsbruck . His first publication came in 1949 ; " Über das Massenaufreten von Formen der Gattung *Morchella* auf Waldbrandflächen " [" Mass @-@ fruiting of forms of the genus *Morchella* on forest @-@ ?re areas "] was published in the journal *Sydowia* . In 1950 , under the

supervision of Arthur Pisek , Moser completed his doctoral thesis , " Zur Wasserökologie der höheren Pilze , mit besonderer Berücksichtigung von Waldbrandflächen " [" Water relations in higher fungi with special emphasis on forest @-@ ?re areas "] . During his time at university , he became a member of both the Société mycologique de France and the British Mycological Society . Having become friends with prominent German mycologists during the War , he was keen to re @-@ establish academic relationships throughout Europe in the years following the conflict .

= = = England and the Federal Institute for Forestry Research = = =

Due to the quality of his doctoral work , Moser received a grant from the British Council and , in 1951 , he moved to England , where he stayed for six months . There , he performed research in the laboratory of Jack Harley in Oxford , looking into the symbiosis between fungi and forest trees , and spent some time performing taxonomic studies at the Royal Botanic Gardens , Kew . After his return to Austria , he was , in 1952 , offered a post at the Federal Institute for Forestry Research at Imst , which he accepted . There , he applied what he had learnt about the symbiosis of fungi and trees to the practical issue of reforestation in the Alps , and developed a method for the use of ectomycorrhizal fungi for the " inoculation " of trees , which later became standard practice around the world . Moser remained with the institute until 1968 .

In his time with the institute , Moser continued his taxonomic studies . In 1953 , he published the first edition of his *Die Blätter und Bauchpilze (Agaricales und Gastromycetes)* , a monograph of the Agaricales and Gastromycetes of central Europe , containing 3150 taxa . The work served as an update on Adalbert Ricken 's *Vademecum für Pilzfreunde (1918)* , though reflecting Moser 's taxonomic views , which were highly influenced by Singer . The book was part of a series named *Kleine Kryptogamen?ora Mitteleuropa* , edited by Helmut Gams . The work , which became known simply as " Moser " , was updated and republished numerous times over the following decades , and translated into both Italian and English , with the latter translation being sponsored by Roger Phillips . His monograph on the Agaricales was also published separately from this work . René Pomerleau described a 1967 reprint of the Agaricales monograph , containing descriptions of 2547 species , as " probably the most complete and up @-@ to @-@ date descriptive flora of this group of fungi for central Europe " . *Die Blätter und Bauchpilze (Agaricales und Gastromycetes)* became important for the study of biodiversity in and out of Europe , and was a " much used and appreciated field manual " . The work continued to be used as an authoritative reference for several decades ; in 1981 , it was still being called " the most @-@ used and most authoritative handbook on larger European fleshy fungi " .

= = = University of Innsbruck = = =

In 1956 , while still a researcher at the Federal Institute , Moser began lecturing on microbiology at the University of Innsbruck , with the title of " Privatdozent " . During this time , he continued to publish . His monograph on the genus *Phlegmacium* , a taxon now considered to be part of *Cortinarius* , was published in 1960 as part of *Die Pilze Mitteleuropas* series . Unlike the previous three books in the series , which were all written by German authors , the work addressed mushrooms that were of less interest to amateur mycologists ; for instance , the genus was not considered to contain any significant edible species . The book drew upon Moser 's expertise concerning mycorrhizal relationships . It listed 166 species , including some " exotic " taxa . Some of the listed species were described for the first time in that volume . The illustrations , which came in the form of a number of coloured plates , were mostly Moser 's own work ; Singer described these in a review of the book as " both in original execution and reproduction among the best that have been published " . Discussing the book as a whole , Singer said that the volume , " outstanding for its good print , attractive appearance , and interesting contents , should be present in every mycological library " .

In 1963 , Moser published a second work in the *Kleine Kryptogamen?ora von Mitteleuropa* series , *Ascomyceten (Schlauchpilze)* . This work was a monograph on the Ascomycetes , focussing on the

Discomycetes . Though not as well known as his earlier book , it was well received in the mycological community . The mycologist Richard Korf , reviewing the work in an article published in *Mycologia* , said that " the book belongs on the shelf of every mycological library in Europe " , praising the " [e] xcellent , workable keys to the orders , families , genera , and European species " . Korf wrote that , " [i] f a single fault can be found , it is surely the lack of documentation provided " . However , a combination of a lack of time and Moser 's comparative lack of expertise in Ascomycetes prevented subsequent editions of the work .

Moser was promoted to Associate University Professor in 1964 . Two years later , the Faculty of Science of the University of Innsbruck recommended that a chair of microbiology should be created at the Botanical Institute in Innsbruck . The Federal Ministry of Education accepted the recommendation . Moser was the only candidate for the position , and was unanimously named by a number of leading European botanists and mycologists for the post in 1967 . Subsequently , in 1968 , Moser was promoted to full professor , and , in 1972 , Moser became the head of the newly established Institute of Microbiology , the first of its kind in Austria . He remained in charge of the Institute until his retirement . He taught on a wide range of subjects , including the taxonomy of fungi , ecology of fungi , mycogeography , bacteria , viruses , chemotaxonomy , molecular genetics , microbial toxicology , immunology and symbiosis . During his career at the university , he oversaw over 60 doctoral theses , in addition to a number of diploma theses . In 1970 , Moser became the president of the Austrian Mycological Society , taking over after the death of the previous post holder , Kurt Lohwag . Lohwag , in turn , had taken up the position after the death of his predecessor , Thirring , earlier that year . Moser remained the society 's president for 21 years .

Moser published *Cortinarius Fr. und nahe verwandte Gattungen in Südamerika* in 1975 , which was coauthored by Egon Horak . The work , along with his earlier monograph on " *Phlegmacium* " , proved to be some of Moser 's most important , serving to encourage others to engage with *Cortinarius* in a meaningful way . *Cortinarius Fr. und nahe verwandte Gattungen in Südamerika* was a study of *Cortinarius* , *Dermocybe* and *Stephanopus* , a new genus first described in that work , in South America , and was dedicated to Singer . The work contained descriptions of 276 new species . Alexander H. Smith stressed the significance of the work , saying " Anyone who has not worked in the systematics of *Cortinarius* cannot fully appreciate the magnitude and importance of this work to the general subject of the distribution and speciation of the higher fungi . "

In 1983 , in recognition of his forthcoming 60th birthday , an article dedicated to Moser was published in *Sydowia* . The piece , compiled by Franz Schinner , C. Furrer @-@ Siogas and Egon Horak , contained a detailed biography and a full bibliography of the 116 research publications Moser had authored or co @-@ authored between 1949 and 1983 . Moser , writing with Walter Jülich , published the first volume of the book series *Farbatlas der Basidiomyceten* in 1985 , presenting specimens of various Basidiomycota taxa . By the time of Moser 's death , 19 volumes had been published ; some subsequently published volumes have listed Moser as an author .

= = = Retirement and death = = =

In 1991 , at the earliest possible date , Moser retired from his teaching position to avoid the administrative burden and to focus on his research into *Cortinarius* and related genera . After his retirement , he continued to work heavily , typically beginning at 5 am . In 1992 , he researched the presence of Agaricales in the Crimean Mountains , identifying 70 previously undocumented species , including some new to science . In 1995 , in celebration of Moser 's 70th birthday , a supplement of *Sydowia* was published in his honour .

Moser died on 30 September 2002 . After returning from 7th International Congress in Oslo , Norway , he suffered a series of heart attacks . After being admitted to hospital , his condition rapidly declined before his death . Obituaries were published in a variety of academic journals , including *Mycological Progress* , *Mycological Research* , *Sydowia* , *Österreichische Zeitschrift für Pilzkunde* , and *Berichte des Naturwissenschaftlichen @-@ medizinischen Verein Innsbruck* . Horak and colleagues , writing for the journal *Mycological Research* , described Moser 's death as " an irreplaceable loss to the international community of mycological science " , and , writing in *Sydowia* ,

they said that the " mycological world has lost one of its pillars of taxonomy for agarics and boletes . His former students , assistants and collaborators at the Microbiological Institute at the University of Innsbruck , his professional colleagues in the mycological community worldwide and his many friends will deeply regret the loss of a distinguished researcher , teacher , leader and mentor . " In a short obituary of Moser as part of their report on the Eighth International Symposium on Arctic @-@ Alpine Mycology , mycologists Cathy Cripps and Joe Ammirati called him a " gentlemanly scholar " who " led us in his quiet way across the tundra and down many dichotomous paths " .

= = Research = =

Over the course of his career , Moser collected over 25 @,@ 000 mycological specimens . He first described around 420 Cortinarius species and around 80 other species , including both agarics and boletes . He circumscribed three new genera : Singeromyces (1966) , Stephanopus (1975) and Anamika (2002) . Much of his research covered four key areas : the taxonomy of Agaricales ? including the classical morphotaxonomy and the chemotaxonomy of the order ? the toxicity of the chemical constituents of members of the same order , and the ecology of ectomycorrhiza .

In the early decades of his careers , Moser sought to clarify the taxonomic identity of European fungi by collecting specimens to be described as neotypes in the localities studied by Elias Magnus Fries , but this was no longer necessary after changes to nomenclatural rules that took effect in 1981 . Among the Agaricales , Moser 's interest was primarily in the complex genus Cortinarius . He published book @-@ length works addressing Cortinarius taxa found in Europe and , co @-@ writing with Horak , South America . Moser , working with Joe Ammirati , contributed to research on the genus in North America , and also examined Asian and Australasian taxa . He had a particular interest in Arctic ? alpine habitats , and he documented , painted and published on his collections in these and other sites around the world . Moser initially doubted the usefulness of molecular phylogenetic analysis of the Agaricales , but later contributed to research in this area .

Cortinarius mushrooms are often highly colourful . Moser " made the first successful steps " towards studying the pigments in these mushrooms , hoping to find criteria for separating taxa , and some of his PhD students studied these elements in depth . Cooperating with biochemists , he produced important work on the biosynthesis of pigments . Moser was also interested in the toxicity of the Agaricales , and was ? with his students ? involved with research on the toxin orellanine .

Moser 's work on ectomycorrhiza , though perhaps unknown to many researchers familiar with his taxonomic work , was notable due to its focus on the fungal partners in the relationship . He engaged in a large amount of research on woodland in the transitional zone between subalpine and alpine habitats . His published results included the description of new taxa . In 1960 , Singer referred to Moser as " one of the pioneers of mycorrhiza research , both basic and applied " .

= = Personal life = =

At the end of his life , Moser lived in the village of Vill , near Innsbruck . According to some of his colleagues , " Moser was rather shy , taciturn , formal and constrained in public or in official functions . In a relaxed atmosphere among students , collaborators or friends , he became extrovert and surprised many by his sense of humour and ready wit . " He had a commitment to both mycological research and mycological education , and was fluent in several languages . He was known as an intellectual and a wide @-@ reader , with interests in fine art , classical music , literature , exploration , geography and botany . In addition to reading and walking , he enjoyed stamp collecting and growing plants from seeds he had collected on his research trips . He was a capable cook , often creating mushroom @-@ based dishes for guests , though was on one occasion poisoned during " gastronomic experiments with Phaeolepiota and Agaricus " . He was also known to make chanterelle schnapps , drinking it with his students and sharing his recipe with colleagues .

= = Recognition = =

Throughout his life , Moser received a number of awards , including the Clusius Medal (Budapest 1978) and the Kardinal Innitzer Preis (Vienna 1985) . In 1986 , he was made a member of the Austrian Academy of Sciences . Having already been elected as an honorary member of the Ukrainian Botanical Society , he became a foreign member of the Ukrainian Academy of Sciences in 1992 , the first mycologist to be elected . He was recognised by a number of mycological societies , including becoming an honorary member of the Mycological Society of America in 1987 , and Centenary Fellow of the British Mycological Society in 1996 . He also received an honorary doctorate from the University of Lyon in 1984 , and in 1990 was awarded honorary citizenship of Borgotaro , Italy .

The genera Moserella (Pöder & Scheuer , 1994) and Chromosera (Redhead , Ammirati & Norvell , 1995) were named in Moser 's honour , as were the species *Acariniola moseri* (T. Majewsky & J. Wisn .) , *Conocybe moseri* (Watling) , *Cortinarius moseri* ((E. Horak) E. Horak) , *Cortinarius moserianus* (Bohus) , *Cortinarius meinhardii* (Bon) , *Entoloma moserianum* (Noordel .) , *Gerronema moseri* (Singer) , *Gymnopus moseri* (Antonín & Noordel .) , *Hebeloma moseri* (Singer) , *Hydropus moserianus* (Bas) , *Hygrocybe moseri* (Bon) , *Lactarius moseri* (Harmaja) , *Lasiosphaeria moseri* (O. Hilber) , *Leucoagaricus moseri* (Wasser) , *Peziza moseri* (Aviz.-Hersh. & Nemlich) , *Phaeocollybia moseri* (Band.-Muñoz & Guzmán) , *Psathyrella moseri* (Singer) , *Psilocybe moseri* (Guzmán) , *Thaxteriola moseri* (T. Majewsky & J. Wisn .) , *Tricholoma moseri* (Singer) , *Tricholoma moserianum* (Bon) , *Tubaria moseri* (Raithelh .) , and *Wardomyces moseri* (W. Gams) .