

Pillars of Plant Pathology

Illyd Buller Pole Evans

Illyd Buller Pole Evans was born in 1879 in the small town of Llanmaes near Cardiff, Wales, the son of an Anglican clergyman, Rev. Daniel Evans M.A. and Caroline Jane Pole. Pole Evans received a BSc. from the University College of South Wales and Monmouthshire, and then studied at Cambridge specialising in mycology and plant pathology and gaining his M.A. in 1905. The same year, Pole Evans was appointed to the post of Mycologist and Plant Pathologist in the Transvaal Dept. of Agriculture, where he worked with the botanist J. Burt Davy. Fourie (1998) implies that there may have been a personality clash between these two men, and that communication in their cramped office was sometimes reduced to the passing of notes over the partition that separated their desks. It was Pole Evans who made the vital decision to appoint Ethel Doidge as an assistant in 1908 (initially on probation!).

Despite starting with no facilities, research was soon underway and a consequence of these initial studies was the realisation by Pole Evans of the value of a centralised and uniform system of disease control throughout South Africa. This aim was assisted with the proclamation of the Union in 1910. Subsequently, in 1912 Pole Evans was put in charge of the newly formed Division of Mycology and Plant Pathology and in 1913, after the retirement of Burt Davy, it was merged with the Division of Botany, under that name, with Pole Evans as chief. The situation of poor facilities was relieved that year also with the move to Vredehuis, where the phytopathological laboratory was established, and subsequently a herbarium was built. This soon assumed a national character and was formerly referred to as the National Herbarium in 1918.

Pole Evans was evidently a man of great energy and vision. His determined nature was demonstrated by his decisive actions during the Citrus canker outbreak in "Transvaal" during 1917-1918. The disease could have severely impacted the Citrus industry were it not for the drastic action taken by Pole Evans. During a lengthy campaign, involving systematic survey of all citrus orchards, and then complete destruction of infected nurseries and orchards, the disease was eradicated.

Not only was Pole Evans a noteworthy plant pathologist but also a great botanist. Once he was able to devote more time to Botany, he sort to achieve is aim, which was to carry out a botanical survey of South Africa. He travelled throughout South Africa and S.W. Africa, observing, recording and photographing the different vegetation types. In those days, the conditions for carrying out such work would have been fairly primitive. Furthermore, Pole Evans carried out expeditions which took him throughout most of southern Africa and as far north as Kenya. He was sometimes accompanied on his safaris and expeditions by his friend General Jan Smuts, who was also a great amateur botanist. Aside from carrying out vegetation surveys and undertaking botanical collections, his particular interests were collecting grasses, which could be utilised as grazing grasses, and collecting aloes. During all of this time (approximately 1918-1938), a constant output of scientific papers was maintained, and his duties as chief of the Division of Botany continued from strength to strength.

In 1919, Pole Evans led a study on the serious wastage experienced in shipments of citrus and other fruits. His findings on the cold storage conditions for export fruit were published in 1920 and 1921, and led to the creation of a Low Temperature Research Laboratory in his Division at Cape Town in 1925. In 1923, the ever-increasing herbarium collection was moved into a new larger National Herbarium building, which was again expanded in 1933. In 1927, the Division of Botany itself enlarged to encompass Entomology and Horticulture and, with the inclusion of a Field Husbandry section in 1929, the title of the organisation was changed to the Division of Plant Industry. Thus, by 1929 Pole Evans was in charge of a division which comprised a staggering 10 different fields. It is pointed out by Fourie (1998) that his work would not have been accomplished were it not for the dedication of his staff, and he was apparently adored by the female staff members !! Pole Evans established a further section in the Division of Plant Industry in 1934 with the formation of a Pasture Research and Veld Management Section, where he sort to implement sound principles of veld management. This research came at a crucial time and had a great impact on the subsequent attitudes towards conservation in South Africa and beyond its borders. After the retirement of Pole Evans in 1939, the various sections of the Division of Plant Industry each became independent divisions.

During his career, Pole Evans was responsible for the expansion of the National Herbarium from Burt Davy's small collection to the largest and most active herbarium in the country. This was a result of the Botanical Survey and through the addition of private herbaria acquired by Pole Evans. The botanical library, was also enlarged, and a post for a botanical Liaison Officer at the Royal Botanic Gardens, Kew was also created providing greater stimulus for taxonomic research in South Africa. In addition, Pole Evans established the Dongola Reserve in northern Transvaal in 1920, which was unfortunately scrapped in 1948, under the new government.

In 1955 he moved to Umtali, Rhodesia, (now known as the Eastern Highlands, Zimbabwe) where he continued to collect indigenous plants, especially Dioscorea and Asclepiadaceae for a number of years. Pole Evans married Miss Mary R.H. Thompson in 1922, who had joined his staff as Mycologist in 1919. They had a daughter and a son. Pole Evans died in 1968. As a footnote, it seems that exploring was in the blood of the Pole Evans family with members living as far afield as the Falkland Islands today.

Awards and Achievements

- Fellow of the Linnaean Society (1907).
- Fellow of the Royal Society of South Africa
- Founder member of the S.A. Biological Society, President in 1911 (then the Transvaal Biological Society), received their major award, the Senior Capt. Scott Medal in 1919, and was again President in 1926.
- South African Association for the Advancement of Science, Pole Evans was President of Section C in 1916, President of the Association in 1920 and received their South African Medal and Grant for outstanding scientific achievements in 1922.
- The Companion of the Order of Saint Michael and St. George was conferred on him in 1921. In 1933, Witwatersrand University awarded him an honorary Doctor of Laws degree.

Major publications

- Several new species of Aloes described in the Trans. Roy. Soc. S. Afr. in 1915 and 1917.
- The Plant Geography of South Africa (1917). This paper was enlarged for his Presidential address of the S. Afr. Assoc. for the Adv. of Sci., under the title 'The veld, its resources and dangers' S. Afr. J. Sci. 17: 1-34, (1920).
- Vegetation in South Africa, in Science in South Africa. Published for the visit of the British Association for the Advancement of Science, to South Africa in 1929. This was the forerunner of the 1: 3 000 000 map published in Mem. Bot. Surv. S. Afr. 15 (1936).
- Pole Evans was a member of the editorial board of the Empire Journal of Experimental Agriculture and contributed articles on African grasses and pastures in Vol. 1 (1933), Vol. 4 (1936) and Vol. 18 (1950).
- After his retirement, Pole Evans published accounts of his expeditions in Botanical Survey Memoirs on eastern Botswana and Ngamiland in Mem. No. 21 (1948) and an east and central Africa in Mem. No. 22 (1948).
- Pole Evans initiated three journals:
 - Botanical Survey Memoirs in 1919
 - Flowering Plants of South Africa (Later named Flowering plants of Africa) in 1920.
 - Bothalia in 1921. Ethel Mary Doidge

Ethel Mary Doidge: a pioneer in South African mycology (1887-1965). Ethel Doidge was born in Nottingham England on 31st May 1887, and passed away at Anerley, South Coast Natal, on 22nd September 1965. During her career that spanned close to forty years, she occupied a leading place in plant pathology, mycology and bacteriology.

Her father, an analytical chemist, died early, and her mother immigrated to South Africa and settled in Pietermaritzburg in 1897. Dr Doidge was educated at Epworth High School, Pietermaritzburg, and later at the Huguenot College, Wellington, Cape Province, where she received her early botanical training under Dr Bertha Stoneman, graduating with distinction in 1907. In 1908 she was appointed as assistant to the then only government mycologist and plant pathologist, a Welshman, Iltyd Buller Pole Evans. Records show that this appointment was initially on probation, chiefly because no candidates could be found that were suitably qualified. This appointment, however, had far-reaching consequences. In 1909 she obtained her M.A. degree in botany, with special reference to mycology from the University of the Cape of Good Hope. The University also awarded her the Cornwall & York Prize for this research. In 1912 she became professional assistant in the division of Botany and Mycology and in 1914 obtained her D.Sc. degree from the University of the Cape of Good Hope. Her dissertation was titled "A bacterial disease of Mango, *Bacillus mangiferae*, n. sp.", a previously undescribed disease that had for some years been causing considerable loss to mango growers in the country.

Dr. G.J.M.A. Gorter, who as a young mycologist had some interaction with Dr Doidge, fondly remembers that she was very helpful, but conscientious with her time. Once when he stormed into her office for a book, she asked him "Do you know what time it is? Its lunch time!", indicating that she did not want to be disturbed over lunch. She bred Pekinese dogs (champagne colour), which usually accompanied her to work. She stayed in Brooklyn in a double story house (long since flattened according to Dr C. Roux). She was an accomplished singer and pianist, and on Sundays gave special performances. On Sunday afternoons Dr Pole Evans, Sir Arnold Tyler and General Smuts used to come for picnics to the gardens outside the Herbarium, below the Union Buildings, and then Dr Doidge used to appear with freshly baked cake for the picnics (Dr Roux, pers. comm.).

Dr. Doidge was elected a Fellow of the Linnean Society in 1912, and actively supported the main South African scientific associations. She was a founder member of the S.A. Biological Society, and received its major award, the senior Capt. Scott Memorial Medal in 1922 for her research in plant pathology. She also joined the Royal Society of South Africa, of which she became fellow in 1915, and the S.A. Association for the Advancement of Science, of which she became President of Section C in 1918. She was also appointed as member of the first council of the University of South Africa. In 1929 she was appointed Principal Plant Pathologist, a post that she held until her retirement in 1942 at the age of 55.

During the next four years she completed her monumental work of 1094 pages "The South African Fungi and Lichens to the end of 1945", published as *Bothalia* vol. 5 (1950), and commonly referred to as the bible of South African fungi. In the preface to this publication, her former chief, Dr I.B. Pole Evans writes that she has left a record for which younger workers in years to come will never cease to thank her. She has tirelessly paved the way and truly laid the foundation on which mycology in Southern Africa will be built. Out of this monumental work, a smaller book dealing with the plant pathogens was published (Doidge et al., 1953), which later also formed the basis for a series of three scientific bulletins

published by Gorter (1977, 1981, 1982), and the recent book by Crous et al. (2000). No attempt has yet been made, however, to update the records of saprobes and lichens as listed by Doidge (1950).

Based on this immense contribution to plant pathology in South Africa, the annual Ethel Mary Doidge Memorial Lecture was proposed at the annual SASPP Congress in 2001 to commemorate the accomplishments of this remarkable scientist.

As scientist she is commemorated by several botanical names:

Plants:

- *Aplanodes doidgeana* Marais
- *Crotalaria doidgeae* Verdoorn
- *Nitella doidgeae* J. Gr. & Stephens

Fungi:

- *Eutypella doidgeae* Syd.
- *Hypoxyton doidgeae* J.H. Miller
- *Hysterostomina doidgeae* Batista & Vital
- *Meliola doidgeae* Petrak
- *Numulariola doidgeae* (Miller) P. Martin
- *Periconia doidgeae* Hansf.
- *Phyllachora doidgeae* Syd.
- *Pleospora doidgeae* Petrak
- *Podosporium etheldoidgeae* Crous, M.J. Wingf. & Kendrick
- *Polyporus doidgeae* Wakefield
- *Schiffnerula doidgeae* Hansf.
- *Schroeteriaster doidgeae* Syd.
- *Sphacelotheca doidgeae* Zundel
- *Sporisorium doidgeae* (Zundel) Langdon & Fullerton
- *Titaea doidgeae* Hansf.

Selected Scientific Publications of E.M. Doidge

- 1909. The flora of certain kaffir beers. Transv. Dept. Agric. Sci. Bull. No. 8. 1915a. A bacteria disease of the mango, *Bacillus mangiferae*, n. sp. Ann. Appl. Biol. 2: 1-45.
- 1915b. Some notes on the South African Erysiphaceae. Trans. Roy. Soc. S. Afr. 5: 237-245.
- 1916a. On the occurrence of *Bacterium campestre* in South Africa. S. Afr. J. Sci. 11: 401-409.
- 1916b. The origin and cause of citrus canker in South Africa. Union Dept. Agric. Sci. Bull. No. 8.
- 1917a. The bacterial blight of pear blossoms occurring in South Africa. Ann. Appl. Biol. 4: 50-74.
- 1917b. A bacterial spot of citrus. Ann. Appl. Biol. 3: 52-80.
- 1917c. The Perisporiaceae. Trans. Roy. Soc. S. Afr. 5: 713-750.
- 1919a. The role of plant diseases. S. Afr. J. Sci. 16: 65-92.
- 1919b. The bacterial blight of beans. *Bacterium phaseoli*. S. Afr. J. Sci. 15: 503-505.
- 1919c. Walnut bacteriosis. S. Afr. J. Sci. 15: 407-412.
- 1919d. Revisional notes. Trans. Roy. Soc. S. Afr. 7: 193-198.
- 1920a. Notes on four species of *Meliola* hitherto unrecorded from South Africa. . Trans. Roy. Soc. S. Afr. 8: 107-110.
- 1920b. Notes on an interesting collection from Natal. . Trans. Roy. Soc. S. Afr. 2: 137-144.
- 1920c. *Meliolaster*. A new genus of the Microthyriaceae. . Trans. Roy. Soc. S. Afr. 8: 121-124.
- 1920d. Mycological notes. I. Trans. Roy. Soc. S. Afr. 8: 117-120.
- 1920e. Some changes in the nomenclature of South African Ascomycetes. S. Afr. J. Nat. Hist. 2: 39-41.
- 1920f. South African Microthyriaceae. Trans. Roy. Soc. S. Afr. 8: 235-282.
- 1921a. A tomato canker. Ann. Appl. Biol. 7: 407-430.
- 1921b. The haustoria of the genera *Meliola* and *Irene*. Trans. Roy. Soc. S. Afr. 9: 117-127.
- 1921c. South African Ascomycetes in the National Herbarium. I. *Bothalia* 1: 5-32.
- 1922a. South African Ascomycetes in the National Herbarium. II. *Bothalia* 1: 65-82.
- 1922b. A fungus of economic importance on the avocado. *Bothalia* 1: 179-186.
- 1924a. South African Ascomycetes in the National Herbarium. III. *Bothalia* 1: 195-221.
- 1924b. A preliminary check list of plant diseases occurring in South Africa. Mem. Bot. Surv. S. Afr. No. 6, pp.56.
- 1924c. The cause of citrus scab. Trans. Brit. Mycol. Soc. 10: 119-121. (With E. J. Butler).
- 1927a. South African Ascomycetes in the National Herbarium. IV. *Bothalia* 2: 229-241.
- 1927b. A preliminary study of the South African rust fungi. *Bothalia* 2: 1-228.
- 1928a. The South African species of the Meliolineae. *Bothalia* 2: 372-424. (with H. Sydow).
- 1928b. South African rust fungi. II. *Bothalia* 2: 473-474.
- 1929. A study of some *Alternarias* affecting citrus in South Africa. Union Dept. Agric. Sci. Bull. No. 69, pp. 27.

- 1931. A revised list of plant diseases occurring in South Africa. Mem. Bot. Surv. S. Afr. No. 11, pp. 78. (With A.M. Bottomley).
- 1936. The fungi which cause rots in stored citrus fruits in South Africa. Union Dept. Agric. & For. Sci. Bull. No. 162, pp.23. (With J.E. van der Plank).
- 1938. Some South African Fusaria. Bothalia 3: 331-483.
- 1939. South African rust fungi. III. Bothalia 3: 487-512.
- 1941a. South African rust fungi. IV. Bothalia 4: 229-236.
- 1941b. Some South African Valsaceae. Bothalia 4: 47-74.
- 1941c. South African Ascomycetes in the National Herbarium. V. Bothalia 4: 193-217.
- 1942a. A revision of South African Microthyriaceae. Bothalia 4: 273-420.
- 1942b. Revised descriptions of Phyllachora and related genera. Bothalia 4: 421-463.
- 1948a. South African rust fungi. V. Bothalia 4: 895-918.
- 1948b. South African rust fungi. VI. The species of Uromyces on Iridaceae. Bothalia 4: 919-937.
- 1948c. Cercospora species recorded from Southern Africa. Bothalia 4: 881-937. (With C. Chupp).
- 1950. The South African fungi and lichens to the end of 1945. Bothalia 5: 1-1094.

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- Gorter, G.J.M.A. 1981. Index of plant pathogens (II) and the diseases they cause in wild growing plants in South Africa. Republic of South Africa, Department of Agriculture and Fisheries, Science Bulletin No. 398: 1-83.
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- Gunn, M.D. & Codd, L.E. 1981. Botanical Exploration of Southern Africa. Botanical Research Institute, Pretoria. 400 p.

Paul Andries van der Bijl

Paul van der Bijl was born, on 25 May 1888 at Nattevlei, Stellenbosch, Western Cape Province, and died in Stellenbosch on 25 July 1939. He matriculated in 1906, and enrolled at the Victoria College, Stellenbosch, from where he graduated as a B.A. student in 1908. In 1913 he received his M.A. degree (Botany) at the University of the Cape of Good Hope, and his D.Sc. in 1915. The topic of his dissertation was "A study on the dry rot disease of maize caused by *Diplodia zaeae*".

For a short period in his career Van der Bijl was a teacher in Bethlehem (Orange Free State). After teaching in Bethlehem, he joined the staff of the Division of Plant Pathology in Pretoria and in 1915 made an extensive collection of fungi in the Knysna area with J.D. Keet. In 1918 he was transferred to Durban as officer in charge of the Botanic Station and Natal Herbarium, to work on diseases of sugar-cane and other tropical crops.

In 1921 he was appointed Professor of Phytopathology in the newly formed Agricultural Faculty of Stellenbosch University, the first professor in this subject in South Africa, and built his department up from scratch to a leading place for teaching and research in phytopathology and mycology. He was the first professor of plant pathology in South Africa, and his department was also the first department of plant pathology in the British Commonwealth. In 1928 he became principal of the Stellenbosch Elsenburg Agricultural College, a post he held until his death.

During his career he established one of the most extensive lichen collections ever obtained in South Africa, and after his death, the P.A. Van Der Bijl Herbarium was merged with the National Collection of Fungi (PREM). In 1928 he also published the first South African book dealing with diseases of plants.

He is commemorated by several fungal names:

Acarospora bylii H. Magn.
Byliana halleriae Dippen.
Cercospora byliana Syd. & P. Syd.
Heterochaete byliana Talbot
Lecanora bylii Zahlbr.
Mycosphaerella byliana Syd.
Physalospora bylii Du Plessis
Puccinia byliana Dippen.
Septoria byliana Syd.
Uromyces bylianus Doidge etc.
Parmelia bylii (lichen)

Tylophoron bylii (lichen)

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- Nel, G.C. 1942. Genera et Species Fungorum ex Herb. P.A. van der Byl. Annale van die Universiteit van Stellenbosch 20A, 2: 1-7. James Edward Vanderplank

JE Vanderplank was born in Eshowe, Natal, on 14 Aug. 1908, and died on his estate in Pretoria at the age of 88 on June 2, 1997. He received his education at the Natal University College 1925-28, graduating M.Sc. (Botany); Rhodes University College, M.Sc. (Chemistry) 1932; London University 1933-35, Ph.D. (Plant Physiology) and Diploma from the Imperial College of Science; D.Sc. (Chemistry) University of South Africa 1944. Appointed as Mycologist in Division of Plant Industry, Pretoria, Dec. 1928; as Plant Physiologist, Low Temperature Laboratory, Cape Town, Dec. 1935-41. Returned to Pretoria as Senior Mycologist, Division of Botany and Plant Pathology, 1941 and made Chief of the Division of Plant Pathology 1951-62; Director, Plant Protection Research Institute 1962 until his retirement in 1973, after which his services were retained in an advisory capacity. He received the Junior (1928) and Senior (1948) Captain Scott Medals of the South African Biological Society; South African Medal by the South African Association for the Advancement of Science 1964; Honorary D.Sc.(Agric.) from Natal University 1978; Havenga prize from the South African Academy for Science and Art 1978; Ruth Allen Award from the American Phytopathological Society 1978; C.H. Persoon Medal from South African Society for Plant Pathology and Microbiology 1979; Honorary D.Sc. from Justus-Liebig University, Giessen 1979; Elvin Charles Stakman Award of the University of Minnesota 1985. During his career he published in excess of 60 scientific articles and 6 books (one of which was translated into Russian).

Reference

Gunn, M. & Codd, L.E. 1981. Botanical Exploration of Southern Africa. Botanical Research Institute, Pretoria. 400 p.

The following text is abbreviated from Zadoks & Schein (Ann. Rev. Phytopathol. 1988. 26:31-36)

James E. Vanderplank took no degrees in plant pathology, and in fact never attended a formal lecture in plant pathology. For some years he worked in low-temperature research. He came into touch with plant pathology through necessity as he developed a most successful potato-breeding programme in South Africa. His work was known largely to insiders in potato research until the late 1950s, when his as-yet-unpolished theory on the increase in pathogen populations was published in Volume 3 of Horsfall's & Dimond's Plant Pathology (1).

By 1963, he had polished, prepared, and published his pioneering work Plant Diseases: Epidemics and Control (2), and the science of plant pathology was never to be the same. He gave us not only a set of theories and calculations, but also, and most importantly, a different point of view. From 1963 onward, epidemiologists and those conversant with the field have approached research and the interpretation of its findings in a way different from that of the usual plant pathologist, to the enormous benefit of the science and practice of plant pathology. As Vanderplank declared: "Epidemiological analysis has come to stay" (2).

Vanderplank's views on resistance, be it vertical or horizontal, achieved their full effect after the publication of his 1968 book (4), which made his arguments accessible to the plant breeders. He triggered a discussion that became intense, ferocious at times, and not always without intrigues; and, after twenty years, the discussion has not yet died down. New lines of research were initiated to either prove or disprove Vanderplank's theses. FAO organized an International Program of Horizontal Resistance, and horizontal resistance became a respectable theme in plant-breeding research. Indeed, Vanderplank changed the faces of two sciences, plant pathology and plant breeding.

He has altered both plant pathology and plant breeding, interweaving them into a whole fabric. After the first outline of his ideas in the 1960 paper "Analysis of Epidemics" (1) and his 1963 book (2), he published Disease Resistance in Plants (1968) (4), which elaborated on the 1963 ideas, and Principles of Plant Infection (1975) (5), rather a collection of capita selecta. In 1978 came Genetic and Molecular Basis of Pathogenesis (6), in which the large, final chapter of 1975 was reworked, extended, and improved. Host-Pathogen Interactions in Plant Disease (1982) (7) extends and elaborates on some of Vanderplank's basic ideas, re-arguing the bases of resistance and of epidemic development after he had analyzed more papers and done more thinking.

Vanderplank prided himself on never using an example from his own work. He saw himself as a "re-viewer of evidence" (3). His pleasure was to analyze published data and reconsider graphs and tables to find new and deeper truths in them. This is really "desk-research" at its very best. Without doubt the 1963 book is the most important. It came at exactly the right time. It used the notion of the "apparent infection rate" as a unifying concept to link together a great number of seemingly unrelated topics. Vanderplank's ideas have been tested, rejected by some, accepted by others, and applied to the field. Now they are part of the general store of knowledge and way of thinking of both pathologists and breeders. Logistic growth has proved to be the exception rather than the rule, but the equations remain useful. The antithesis between vertical and horizontal resistance has generated much research that has enabled us to see a spectrum of possibilities lying between the two extremes as well as continuing controversy about whether the hypersensitive reaction actually occurs. The hypothesis of stabilizing selection is questioned by leading authorities, as is the idea that large fields

have a repressive effect on disease development. But the equivalence theorem is still a valid axiom. Indeed, the fact that several of his ideas were objected to after critical examination detracts not at all from the greatness of the man behind those views. The value of innovative theory is, after all, often in the way it stimulates new research that generates novel ideas and facts.

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- Vanderplank, J. E. 1978. Genetic and molecular basis of plant pathogenesis. Adv. Series Agric. Sci. 6. Berlin: Springer. 167 p.
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Peter Sidney Knox-Davies (1929 - 1999). Professor Knox-Davies passed away on 25 March 1999 in Stellenbosch, South Africa, after a long illness. He is survived by his wife Laetitia, sons John and Evan, and daughter Ula. Peter was born on 7 December 1929 at Elandsputte in the Lichtenburg District, Transvaal (now North-West province). In October 1938 the family moved to Pietermaritzburg in Natal where he completed his schooling. He received a 4-year B.Sc.Agric. degree (with distinction in Horticulture) from the University of Natal at age 20. While occupying a post as Lecturer in horticulture, he followed courses in plant pathology under Dr. Susarah J. Truter. He was appointed Lecturer in plant pathology and microbiology at the University of Natal in 1952.

In 1956 he undertook postgraduate studies at the University of Wisconsin. He returned to South Africa in 1959 when, after a period of 2 years and 9 months, he had obtained M.S. and Ph.D. degrees with A-symbols in all subjects. His Ph.D. thesis was entitled: "The cytology and genetics of *Helminthosporium turcicum* and its ascigerous stage, *Trichometasphaeria turcica*". He resumed his post as Lecturer in plant pathology and microbiology at the University of Natal, and was later promoted to the post of Senior Lecturer. In July 1962 he was appointed to the post of Senior Lecturer in the department of plant pathology at the Stellenbosch-Eisenburg Agricultural College of the University of Stellenbosch. He became Professor and Head of the Department of Plant Pathology in 1970, a post he held for over 20 years until his retirement on 31 March 1991.

Internationally, the cytological studies that he published with Professor Dickson (*Amer. J. Bot.* 47: 328-339, 1960) were favorably received. Luttrell (*Amer. J. Bot.* 51: 213-219, 1964) wrote: "Nelson worked out the inheritance of bipolar sexuality in this species, and Knox-Davies and Dickson (1960) presented an excellent account of the cytology of both the conidia and the asci". The occurrence of charcoal rot (*Macrophomina phaseolina*) as an important problem in the South-Western Cape province gave Peter the opportunity to continue his work on fungal cytology. He published two papers on spore formation by the fungus (*S.Afr. J. Agr. Sci.* 8: 205-218, 9: 595-600). Booth (1971: *Fungal culture media*. pp. 49-94 in C. Booth ed. *Methods in Microbiology*, Academic Press, London & New York) described the culture medium that Peter developed as the Knox-Davies Agar, and his proposed method of irradiation as "....a most effective method". Burnett (1968, 1976: *Fundamentals of Mycology*. Edward Arnold Ltd., London) used several of Knox-Davies's figures to discuss nuclear division in *Macrophomina*. A further paper by Knox-Davies dealing with mitosis and aneuploidy in *M. phaseolina* (*Amer. J. Bot.* 54: 1290-1295) received considerable attention, and was quoted extensively by Tinline & MacNeill (*Ann. Rev. Phytopath.* 7: 147-170), and Tolmsoff (*Ann. Rev. Phytopath.* 21: 317-340).

After this period of intensive research Prof. Knox-Davies became involved in the training of numerous postgraduate students, many of who would later hold influential positions at various South African universities and agricultural research institutes. Prof. Knox-Davies was the South African representative at the inaugural meeting of the International Society for Plant Pathology in London, England (1968), and remained a council member until 1983.

He was a founder member of the South African Society for Plant Pathology (and Microbiology) in 1962, and acted as President in 1968, 1969 and again from 1977 to 1979. During his term of office he laid the groundwork for the formation (1980) of two societies: The South African (now Southern African) Society for Plant Pathology (SASPP) and the South African Society for Microbiology. In 1985 he was also the first person to be elected a "Fellow" of the SASPP, and in 1993 was elected an Honorary member.

During his career he refereed innumerable papers for various journals, reviewed several books, and served on the editorial committee of the journal *Phytophylactica* (now *African Plant Protection*) for 15 years. He published more than 70 research papers in peer reviewed journals, and was the promoter of 32 postgraduate students.

He is remembered by his students and colleagues as being highly energetic, sharp of wit and great of mind. His enthusiasm for plant pathology impressed all those who passed through his hands. Professor Knox-Davies contributed significantly to plant pathology as a whole, and to him we pay tribute.

Walter Friedrich Otto Marasas

Walter Friedrich Otto Marasas (1941-) was born in Boksburg, South Africa on 25 October 1941. He spent his youth in Boksburg and matriculated from the Voortrekker High School in 1958. After school, he enrolled for a degree at the University of Pretoria and completed his B.Sc. (Agric) in Plant Pathology and Botany in 1962. Wally (as he is affectionately known) married Rika in 1965 and the couple had two children, Carissa and Walter Jr.

After his undergraduate degree, he enrolled for a M.Sc. under the supervision of Dr. Chris Rabie. He completed his thesis, "Parasitic Ascomycetes and Deuteromycetes from the Transvaal" in 1965 and moved to Wisconsin to start on his PhD. His thesis entitled Moldy Corn: Nutritive Value, Toxicity and Mycoflora with Special Reference to *Fusarium tricinatum* (Corda) Snyder & Hansen was completed under the supervision of Prof. EB Smalley and MP Backus.

After completion of his PhD, Wally Marasas, returned to South Africa in 1969 and started his professional career as a mycologist at the Plant Protection Research Institute, Department of Agriculture in Pretoria. Several papers appeared from his pen during this time on various South African fungi. He worked for the Department until 1975 when he moved to the Medical Research Council as Chief Specialist Scientist.

During this period, Prof. Marasas excelled as scientist and received several awards for his work on mycotoxins and their effect on humans and animals. He is particularly known for the groundbreaking work on the fumonisins. This toxin is produced by the fungus *Fusarium verticillioides* (=F. moniliforme). His group linked the high incidence of esophageal cancer with the presence of fumonisins on maize in rural communities in Transkei. In 1992, Prof. Marasas was promoted to Director of the Programme on Mycotoxins and Experimental Carcinogenesis (PROMEC) at the MRC, a position he held until his retirement in 2006. In addition to his position at the MRC, Prof. Marasas has been appointed as Extraordinary Professor in the Forestry and Agricultural Biotechnology Institute (FABI) at the University of Pretoria since 1998.

During the course of his career, Prof. Marasas authored or co-authored 270 papers in peer-reviewed journals, 53 chapters in books and 3 books. He also presented his work in 189 papers at International conferences and numerous others at national conferences. He served as a supervisor or examiner on a total of 63 theses. Prof Marasas served on the editorial board of several international peer-reviewed journals including African Plant Protection and Applied and Environmental Microbiology. He is also a member of several professional societies.

Prof Marasas received numerous awards throughout his productive career. These include being appointed as Honorary Members of the South African Veterinary Association (1984) and the Southern African Society for Plant Pathology (2001). He received the Christiaan Hendrik Persoon Gold Medal for Scientific Excellence and Outstanding Achievements in Plant Pathology (1987), Wellcome Gold Medal and Award for Medical Research (1993), MRC Silver Medal for Excellence in Research (1997) and the MT Steyn Gold Medal for Natural Sciences from the SA Academy for Science and Art (1998). Various academic departments also bestowed honors upon him. Among these are two DSc honoris causa degrees from the University of the Free State (1996) and the University of Pretoria (2005), respectively as well as the Distinguished Service Award for International Agriculture, Kansas State University (2003). He also received the African Academy of Sciences/CIBA Prize for Agricultural Biosciences in 1995. In 2002 he was recognized as one of the most highly cited researchers world-wide in the categories Agriculture as well as Plant and Animal Sciences. In 2005 he was elected as a Fellow of the American Phytopathological Society, only the second South African to receive this honor.

During his long and illustrious career Wally Marasas not only excelled as a scientist, but also contributed to the advancement of science in South Africa. His contribution to Plant Pathology is without doubt invaluable and he is, therefore, recognized as a pillar of Plant Pathology in South Africa.