

OBITUARY

FRANZ SEBASTIAN MÜLLER (1913–2010)

On 22 May 2010, Dr Franz Sebastian Müller (Figure 1) passed away in Pretoria at the grand old age of 97, following medical treatment for mild bladder cancer. His passing went almost unnoticed in botanical circles, although he was one of South Africa's pioneers in the field of plant cytogenetic research. This is perhaps not surprising as he left the field of botany in 1946, shortly after obtaining a Doctor Scientiae (D.Sc.) degree in botany from the University of Pretoria. He then went on to the University of Cape Town to study medicine, and eventually carved out a successful career stretching over 40 years in private medical practice, hospital administration, and provincial health services. Franz's second name has sometimes in error been spelled with two 'a's [Sebastiaan] and at other times with a 'z' replacing the second 's' [Sebazzian], and his surname with a 'u', rather than a 'ü', mainly because in years gone by, standard typewriters did not easily type a 'ü', but correctly, his name was Franz Sebastian Müller.

Franz Sebastian Müller was born on 16 February 1913 in Heilbron, a small town in the Free State Province (then the Orange Free State) of South Africa, the oldest child of Edward Julius Frances Müller and Anna Margaretha Müller (née Swart). As a child he moved with his parents first to Petrus Steyn and later to Frankfort in the Free State. He attended school there and eventually wrote the final matriculation examination in 1930. Interestingly, he initially failed matric because he misread the time that the German examination started. He therefore had to rewrite, and passed the German examination in February 1931. After having completed secondary school, Franz initially did not have sufficient resources to enter university and worked in Frankfort for two years, one year of which was spent working for a law firm in the town.

He eventually managed to afford university tuition and, starting in February 1933, registered for a B.Sc. degree at the then Potchefstroom University for Christian Higher Education (PUCHE) in Potchefstroom, now the Potchefstroom campus of the North-West University. During his first year, as part of the informal initiation process for new and first-year students, he was the 'slave' allocated to senior student Hennie Bredell, who was then reading for a Master of Science (M.Sc.) degree. Although not mentioned in Gunn & Codd (1981), Bredell apparently later worked at the National Herbarium in Pretoria for a short while. While engaged in his undergraduate studies, Müller had more than a passing interest in geology and indicated, at the end of his second study year, that he considered relocating to the then University of the Orange Free State, where this discipline was taught for degree purposes. However, the PUCHE had no intention of allowing Müller, a very promising student, to depart from their campus in Potchefstroom. To retain him, they rather started lectures in geology and, at the beginning of 1935, a course in this

discipline, which resulted in the establishment of the Department of Geology. Müller took botany, geology and zoology as his major final-year subjects, and completed his degree in the first class. Throughout his undergraduate study years at the PUCHE he was awarded merit bursaries for academic achievement, and in 1935 he completed his B.Sc. studies. He was then awarded one of 10 national bursaries available to students who excelled in their undergraduate studies. The bursary, with a value of £80.00, enabled Franz to enroll for a master's degree in botany at the PUCHE in 1935.

For his Masters study, Franz worked on the genus *Sporobolus* R.Br. (Poaceae), on which he conducted systematic studies with emphasis on leaf anatomy. He worked under the tutelage of Prof. A.P. [Antonie Petrus Gerhardus] Goossens, who at the time was attached to the PUCHE. Prof. Goossens is perhaps best known for his Afrikaans text books on botanical terminology (Goossens 1950 and several later editions) and the taxonomy of the southern African flora (Goossens 1963). An M.Sc. degree was awarded to Müller in 1936. During his Masters studies he also did relief teaching in biology (Muller 2005).

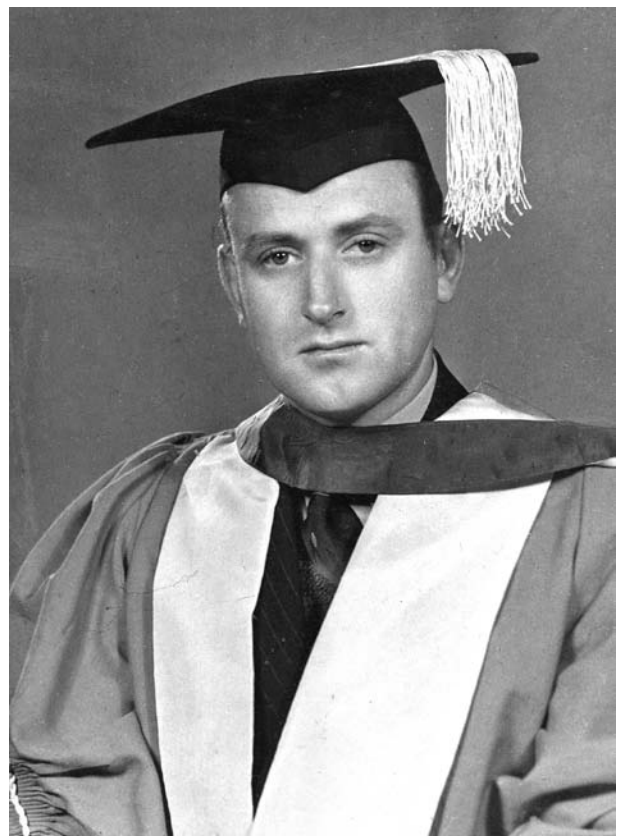


FIGURE 1.—Franz Sebastian Müller (1913–2010) photographed in 1942 at the time of his D.Sc. graduation ceremony at the University of Pretoria.

Based on his academic achievements, Müller was thereafter awarded a Von Humboldt Stipendium by the Deutscher Austausch Dienst, and on 1 March 1937 he departed for Europe on board the steamboat *S.S. Usaramo*, with the intention of doing a doctorate in plant sciences in Germany (Figure 2). However, the looming Second World War resulted in his immediate return to South Africa in April 1937, a few years before hostilities broke out between Nazi Germany and the Allies, on whose side South Africa joined the war effort. On his return to South Africa he obtained work as a clerk of the court in Frankfort. The money he saved during his eight-month employment in Frankfort enabled him to return to the PUCHE where he registered for a diploma in education. After he completed the diploma he took a job as science and accountancy teacher at the secondary school in Zeerust, and from there accepted a similar position at a school in Durban, Natal, now KwaZulu-Natal. However, when he arrived at the school in Durban, he was informed that he would have to teach English to primary school learners, and he immediately turned down the appointment and returned to Frankfort. Some time after his return to South Africa, following his abortive journey to Germany, he realised with dismay that the research he conducted towards his Masters thesis had been published by his supervisor, Prof. Goossens (Goossens 1938). Müller's name was relegated to the terse acknowledgement for '...his willing assistance in carrying out most of the anatomical researches'.

During the course of 1939, while teaching at the Hoërskool Zeerust, he registered for a D.Sc. degree at the University of Pretoria. Müller initially started this doctoral research at the PUCHE at the time that he was registered there for a Teaching Diploma, but was informed by the Registrar of the University that it would not be possible to be registered simultaneously for two academic qualifications. Müller then contacted Prof. B. Elbrecht who was attached to the Department of Botany of the University of Pretoria and informed him that he would like to work on the cytology of the African flagship plant genus, *Aloe* L., for his D.Sc. dissertation. (It should be noted that at that time, the University awarded D.Sc. degrees and not Ph.D. degrees) At the time, the Head of the Department of Botany was Prof. Hans

(H.G.W.J.) Schweickerdt, who is credited as the founder of modern plant systematics at the University of Pretoria (Rourke 1999). Müller's research proposal was accepted and he started collecting material of aloes on the *koppies* around Zeerust and further afield in South Africa. At the time, one of the few books available on aloes (and other monocot groups) was *Flora capensis*, volume VI, Haemodoraceae to Liliaceae (Figure 3). Dr I.B. Pole Evans, an early director of what is now part of the South African National Biodiversity Institute, also had more than a passing interest in the genus, and he collected aloes from various parts of South Africa for cultivation in the garden at the National Herbarium, which at the time was situated just below the Union Buildings in Pretoria. Müller eventually also obtained living material for his cytological work from this garden. The doyen of aloe research at the time was Dr G.W. Reynolds and Müller credits him as having been very supportive of his research, for example through providing research material from his garden. When Müller graduated, Reynolds had projection slides made of some of Müller's chromosome plates for use during lectures, and donated these to Müller.

In August 1940, Müller was contacted by Dr E.P. Phillips, then Chief of the Division of Botany and Plant Pathology in Pretoria, who offered him an appointment in the Department of Agriculture in Pretoria. He resigned his post as teacher in Zeerust and accepted the job offer. While working in the Department, he continued with his doctoral research and it was in the laboratories at the Prinshof Agricultural Research Station, not far from Pretoria's central business district, that he refined the cytogenetic methodologies required to study the chromosomes of *Aloe* species. This work was mostly conducted after hours as his day job was to carry out genetic research on agricultural crops. Here he met and collaborated with fellow geneticist, Dr Leslie [L.E.W.] Codd, who was later to become Director of the Botanical Research Institute (BRI), now also part of the South African National Biodiversity Institute. A search in the Pretoria, National Herbarium (**PRE**) Computerised Information System (PRECIS) for specimens collected by F.S. Müller, did not yield any results. However, in the 1940s, Dr Codd jointly collected several specimens

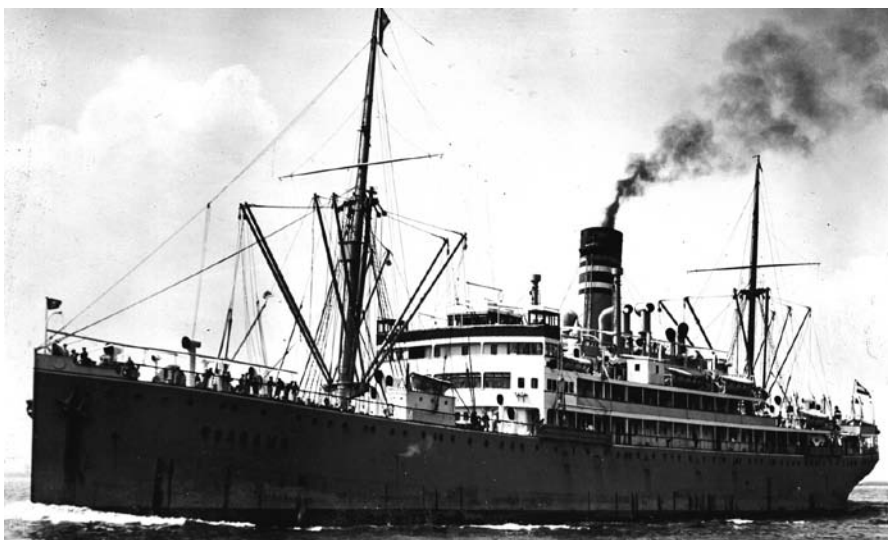


FIGURE 2.—On 1 March 1937 Franz S. Müller departed for Germany aboard the *S.S. Usaramo* to conduct his doctoral studies in Germany.

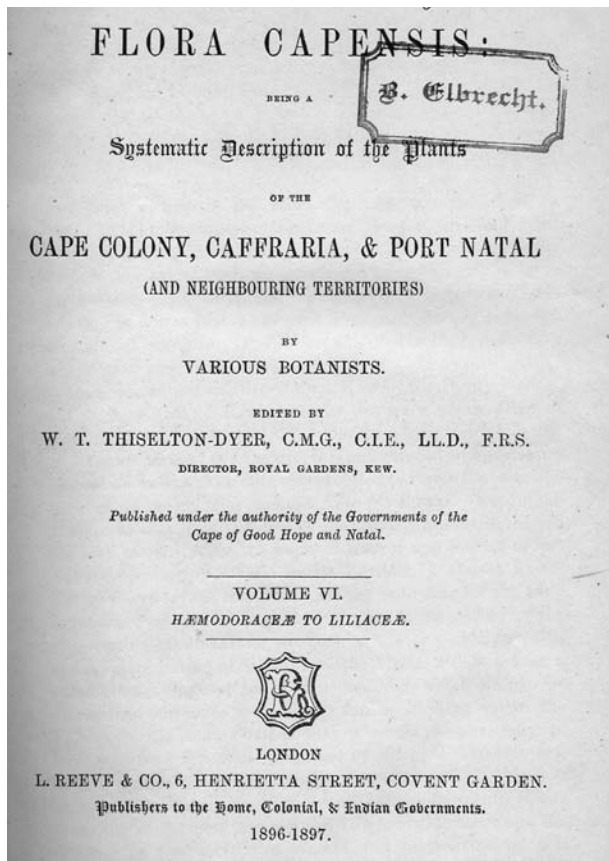


FIGURE 3.—*Flora capensis*, volume VI, Haemodoraceae to Liliaceae, was one of the few books available on *Aloe* (and other monocot groups for that matter) when Franz S. Müller started his work on the cytology of the genus. This copy belonged to and was signed by Müller's D.Sc. supervisor, Prof. B. Elbrecht, at the University of Pretoria, and it is likely that Müller consulted this work.

with an 'F. Muller' and an 'S. Muller' in northern South Africa, the Western Cape and Swaziland. Some of these specimens are of grasses, but none are of aloes. Both these Mullers could well have been F.S. Müller, given that he often accompanied Dr Codd on trips to agricultural research facilities in what was then the Eastern Transvaal [Mpumalanga] and Natal [KwaZulu-Natal] (Müller 2005). However, no specimens collected by Müller could be traced in the H.G.W.J. Schweickerdt Herbarium of the Department of Plant Science of the University of Pretoria.

Four years before Müller's D.Sc. dissertation was published by the University of Pretoria (Müller 1945), the first Afrikaans book on aloes appeared under the authorship of Barend Hermanus (Ben) Groenewald (Groenewald 1941). It was also the first book on the genus published in South Africa, indeed in Africa (Anonymous 2010). In the 1930s and 1940s Groenewald described several new taxa in *Aloe* and had a special interest in the spotted aloes (Verdoorn 1966; Glen *et al.* 1995). Groenewald completed his undergraduate studies at the University of Pretoria, obtaining a B.Sc. in Natural Sciences in 1932. His book on aloes was intended as fulfilling part of the degree requirements for a M.Sc. degree at the University of Pretoria, also under the tutelage of Prof. Elbrecht, a degree that he obtained in 1942, in the same year that Müller obtained his D.Sc. (Figure 1). Significantly, as far as we could ascertain, Müller

does not mention, nor anywhere references, the work of Groenewald in his dissertation (Müller 1945). Müller must have been aware of Groenewald's work, which contained a significant section on the cytology of some representatives of the genus *Aloe*, and it remains a mystery as to why it was not cited. Similarly, Groenewald (1941) does not refer to the cytological work of Müller, which he in turn must have been aware of when he did his research in the same University Department, and under the same supervisor. Nevertheless, it is possible that both were working some distance away from the University and, with little contact with their supervisor, they may well have been unaware of the other's work. In the present age of instant connectivity to virtually any place, or anyone, around the world, through the global electronic ether, such a situation is difficult to fathom.

At the time that Groenewald and Müller conducted their work on the chromosomes of the aloes in South Africa, Prof. Dr Flávio P. de Resende (1907–1967), also a well-known student of the genus in the 1940s, independently conducted his pioneering cytological research on these plants and their relatives, especially haworthias (see for example Resende 1943 and Riley & Majumdar 1979 for references). Resende was a Professor of botany at the University of Lisbon from 1943 to 1967 and Director of this University's Botanical Garden (Smith & Figueiredo 2011).

Resulting from his cytological work on *Aloe*, Müller drew attention to the variation encountered in the chromosome numbers of the morphologically similar-looking *Aloe ciliaris* Haw. and *A. ciliaris* var. *tidmarshii* Schönland. He found that *A. ciliaris* was a hexaploid ($2n = 42$), whereas var. *tidmarshii* was a normal diploid ($2n = 14$). This prompted him to raise *A. tidmarshii* to the rank of species, as *A. tidmarshii* (Schönland) F.S.Mull. Confirmation of the existence of an intermediate tetraploid ($2n = 28$) resulted in the reinstatement of *A. tidmarshii* as a variety, and the establishment of *A. ciliaris* var. *redacta* S.Carter (Brandham & Carter 1990). This classification is widely followed today. Interestingly, Resende (1938) recorded a pentaploid ($2n = 35$), informally referred to as 'forma gigas', in the *A. ciliaris* complex. Müller was, however, unable to obtain fertilization from deliberate crosses he attempted between *A. ciliaris* and *A. tidmarshii*. Well-known botanical artist, Ms Cythna Letty, did a painting of *A. tidmarshii*, and a reproduction appeared in Müller's dissertation.

After completing his botanical studies, Müller applied for a position at the Division of Botany and Plant Pathology of the Department of Agriculture and Forestry, now also part of the South African National Biodiversity Institute. Possibly as a result of lingering anti-German sentiments in South Africa, Müller was not appointed to the Division of Botany. Convinced that he had been rejected in favour of a candidate with less qualifications but whose appointment was politically correct, Müller became disillusioned with the lack of progress in his career as a research botanist. He then registered for medicine at the University of Cape Town and completed the degree MBChB in 1949, so realizing a long-held dream to enter the field of medical practice.

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