

Southern African science in the year 1908

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A century ago, southern Africa was in the grip of an economic depression. Several events nevertheless took place in 1908 whose consequences for the promotion of scientific research in the subcontinent still bring benefits.

The Onderstepoort Veterinary Research Laboratory

The veterinary bacteriologist of the Transvaal Colony, Dr Arnold Theiler (1867–1936), conducted intensive research on stock diseases at his inadequate laboratory at Daspoort, Pretoria, publishing about 55 papers between 1903 and 1908. Suitably impressed by his success in combating east coast fever and horse-sickness, the authorities voted £80 000—an enormous sum at the time, particularly during the prevailing depression—to build a larger and better-equipped laboratory. Theiler selected a site on the farm Onderstepoort, some distance north of Pretoria, where the Onderstepoort Veterinary Research Laboratory was built. The site was next to the railway line to the north, to facilitate the movement of livestock, and there was enough space for grazing and fodder production. The main building contained an operating theatre, post-mortem room, photography room, and laboratories equipped with hot and cold water, gas, steam, electric light and power. The move to the new premises was completed on 8 October 1908. The formal opening was scheduled for 11 January 1909, but was cancelled as a result of torrential rain, which made the roads impassable.

The new facilities made it possible to accommodate more staff and several new appointments were made during 1908. James Walker (1868–1952) became the second assistant veterinary bacteriologist in July, joining Walter Frei. That same month, Dr Lewis H. Gough was transferred from the Transvaal Museum to Theiler's staff to fill the new position of zoologist. The pathologist Karl F. Meyer (1884–1974) took up his post in October. A brochure was issued to mark the opening of the new laboratory. It included papers by Walker (on the diagnosis of piroplasmiasis of cattle in the Transvaal), Frei (on haemolysis in practical veterinary science), Gough (on the anatomy of an intestinal parasite of sheep) and Meyer

(on the pathological anatomy of pleuropneumonia in cattle).

Though the laboratories were large for their time, additional buildings were soon required, owing to an increased work load following the formation of the Union of South Africa in 1910. Onderstepoort became one of the leading veterinary research centres in the world and contributed greatly to the development of stock farming all over Africa. Theiler and his staff also made internationally recognized contributions to fundamental knowledge in bacteriology, protozoology, virology, toxicology, and veterinary pathology.

Enter the Royal Society of South Africa

On 25 January 1908, after several years of behind-the-scenes activity, King Edward VIII of Great Britain granted a Royal Charter to the South African Philosophical Society (founded in 1877). This act created the Royal Society of South Africa, the most prestigious local scientific society during the twentieth century. The general secretary, Dr Louis Péringuey (director of the South African Museum), took a leading part in the negotiations. The president at this time was Sydney S. Hough, director of the Royal Observatory, Cape of Good Hope, who automatically became the first president of the renamed society. Its inaugural meeting was held in Cape Town on 6 April.

The society's constitution, based on that of its counterpart in London, provides for the election of persons who make outstanding contributions to science in South Africa as fellows of the society. There may be no more than 100 fellows at any time (though there is no limit on the number of ordinary members). Initially, forty founding fellows and six honorary fellows were elected, which included most of the top local scientists at the time. The society's chief business was, and remains, the discussion and publication of original research. A new series of its *Transactions* was started, the first volume covering the years 1908–1910.

Introduction of the South Africa Medal

The South African Association for the Advancement of Science held its sixth annual congress in Grahamstown during July and introduced its South Africa Medal (gold), awarded annually to recognize exceptional contributions to science by an eminent South African scientist. The first recipient, not surprisingly, was Arnold Theiler. Dr Selmar Schönland, who awarded the medal as acting president of the association, remarked that Theiler's work 'illustrates in a particularly happy manner the fact that progress in applied science must go hand in hand with progress in pure science'. Theiler delivered a paper on 'Tropical and subtropical diseases in South Africa', repeating it at a meeting of the Orange River Colony Philosophical Society in Bloemfontein on his way back to the Transvaal. He was elected an honorary associate of the Royal College of Veterinary Surgeons this same year.

The McGregor Museum

Maria Wilman (1867–1957), first curator of the Alexander McGregor Memorial Museum (now the McGregor Museum), in Kimberley, took up her duties in March. A museum building was bequeathed to the citizens of Kimberley by the widow of Alexander McGregor, a former mayor and businessman. Owing to various delays in renovating the building and fitting it out, Miss Wilman could occupy her office only in July, but meanwhile good collections of rocks and minerals, stone artefacts, rock engravings and copies of rock art were obtained. Other donations included a collection of 103 mounted heads and horns of South African antelopes by G.A. Ettlting (who died this year), and a large collection of insects from the South African Museum.

The museum's annual government grant was too small to appoint additional scientific staff. Miss Wilman nevertheless gradually built up outstanding geological and botanical collections, as well as a collection relating to the San. She served the museum as curator until 1947. Her most important publication was probably *The rock engravings of Griqualand West and Bechuanaland* (1933).

An American astronomical expedition

A small expedition led by Solon I. Bailey (1854–1931), professor of astronomy at Harvard College, was sent to South Africa to select a suitable site on the interior plateau of the subcontinent for the institution's southern observatory. Bailey inspected the country as far north as Bulawayo and selected three promising sites to conduct observations. The main

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site was near Hanover in the Karoo, where a small observatory was set up in February 1909. Observations were also made at Bloemfontein and Worcester. Bailey wrote a semi-popular account of his investigation for the *Harvard Graduates' Magazine* (December 1908) and the next year read a paper on his findings at the annual congress of the South African Association for the Advancement of Science in Bloemfontein. Though he recommended a site near that city for the observatory, no action was taken at the time, and Harvard's Boyden Observatory southern station was moved there only in 1926.

More new journals and societies

The first two parts of Volume 1 of the *Annals of the Transvaal Museum* were published this year. In addition to a short history of the museum, written by its director, Dr J.W.B. Gunning, nine papers and notes contained reports of research conducted by members of the staff. These included a catalogue of South African snakes by Dr Lewis Gough, compiled just before his transfer to Onderstepoort; a paper on the Amaryllidaceae of the Transvaal by Miss R. Leendertz; and a list of the ticks of South Africa, with descriptions and keys, by C.W. Howard, entomologist in the Department of Agriculture of the Transvaal Colony. Howard left the Transvaal at the end of May this year to take up the post of Government Entomologist in the Department of Agriculture of Mozambique.

The Transvaal Biological Society was inaugurated at a meeting held in Pretoria on 9 December 1907, convened by C.W. Howard and presided over by Arnold Theiler. A constitution was adopted on 13 January 1908 and Theiler elected as president for the first year. The society eventually amalgamated with the South African Ornithologists' Union in 1916 to form the South African Biological Society. During its nine years of existence, 103 papers were read, many of them by well-known scientists such as J. Burt-Davy and I.B. Pole Evans (botany), John Hewitt (zoology), A.J.T. Janse (entomology), and Austin Roberts (ornithology).

Another development this year was the formation in Johannesburg of the South African Engineering Standards Committee, a forerunner of the South African Standards Institution (1934) and the South African Bureau of Standards (1946).

On the origin and extraction of gold

Two important contributions towards understanding the depositional environment of the gold-bearing Witwatersrand conglomerates and carbon seams were

published this year. Professor J. Walter Gregory of Glasgow University, publishing in the *Transactions* of the (British) Institution of Mining and Metallurgy, first recognized that payable gold reefs are associated with breaks in sedimentation. And in the same journal E.G. Spilbury first compared the carbon seams to present-day gold-bearing freshwater algae, found in streams in California.

Alfred Adair, a metallurgist on the Witwatersrand, described his experiments with the 'Adair-Usher process' of gold recovery in the *Journal of the Chemical, Metallurgical and Mining Society of South Africa*. The method depended on the use of umber (a mixture of iron and manganese oxides found in the nearby dolomites) to recover gold from slimes (finely crushed ore). He reported that the process improved gold recovery, reduced the loss of cyanide, and required a relatively short treatment time. By the time the paper was read, in May 1908, the process was already being used by others, who were less impressed by its advantages. The Adair-Usher process was nevertheless patented in Johannesburg in 1909.

Some botanical publications

H.R. Rudolf Marloth completed a comprehensive work on the plant geography of the Cape, *Das Kapland, insonderheit das Reich der Kapflora, das Waldgebiet und die Karoo, pflanzengeographisch dargestellt*, which was published as part of the *Wissenschaftliche Ergebnisse der Deutschen Tiefsee-Expedition 1898-1899* (1908). The botanist of the expedition, A.F.W. Schimpers, died in 1901 and Marloth was asked to describe the phytogeography of the Cape as part of the expedition's report. It was his most important contribution to plant geography and has been described as a pioneer work, remarkable for its breadth and modernity of outlook and the range of knowledge it displays.

C.F.H. Monro completed a monograph, modestly entitled *Some Indigenous Trees of Southern Rhodesia*, with short descriptions and vernacular names. It was the first substantial work on the trees of the territory and was published as part of the *Proceedings* of the Rhodesia (now Zimbabwe) Scientific Association this year. Monro had already contributed a comprehensive paper on the grasses of the territory two years earlier.

Palaeontology in Namibia

The German palaeontologist H. Schröder described the ancient marine fauna of the *Eurydesma* beds of the Dwyka Formation in Namibia—the first scientific description of fossils from that territory. The specimens had been collected by the geologist Paul

Range (1879–1952) near Tses, north of Keetmanshoop. Range meanwhile discovered the now-famous Ediacarian fauna in the rocks of the Nama Group this year, but the specimens he collected were described only in 1930.

The SA Medical Congress

The South African Medical Congress met in East London from 31 August to 5 September, presided over by Dr Robert J. Roulston of that city. Some 30 papers were read, in the categories of Surgery, Medicine, Gynaecology and Obstetrics, Public Health, Ophthalmology, and Special Subjects. Congress considered two of the papers on public health so important that it was decided 'to invite the lay Press to publish them'. The two papers were 'Tuberculosis', by Dr J. Barcroft Anderson, and a comprehensive review of 'Hygiene in South Africa', the presidential address of Dr W. Watkins-Pitchford.

Some arrivals and departures

The Department of Agriculture of the Orange River Colony (now the Free State) lost two senior scientific members of staff this year. Stewart Galbraith, the department's agronomist, resigned at the end of the year to return to Canada, where he started large-scale commercial seed production. Hendrik (Harry) Neethling, chief of the department's Biological Division, retired at the end of the year and took up farming in the Senekal district. He was succeeded by C.P. van der Merwe, trained at Hawkesbury Agricultural College in Australia, who had joined the division in March this year and remained until 1952, when he became 72.

Ethel M. Doidge, a future eminent South African mycologist and bacteriologist, was this year appointed assistant to I.B. Pole Evans, mycologist and plant pathologist of the Transvaal Department of Agriculture. She was awarded the M.A. degree in botany by the University of the Cape of Good Hope in 1909 and a D.Sc. in 1914.

Academia in depression

Mainly as a result of the continuing economic depression, the South African College, forerunner of the University of Cape Town, was forced to cut staff salaries for 1908 by ten per cent. Furthermore, the allowances for laboratory assistants and apparatus were greatly reduced, grants for periodicals and stationery were suspended, development plans shelved, and various other methods of economy introduced. Fortunately, the college's financial position improved dramatically the next year, when the government paid arrears, and various legacies and benefactions were received. □