

SOUTHERN AFRICAN SCIENCE IN THE YEAR 1910 –100ⁿ

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A century ago, four British colonies in southern Africa amalgamated to form the Union of South Africa – an event that changed the lives and work of many scientists employed by the four colonial governments

1710

Commander Govert Cnoll, who stayed at the Cape of Good Hope for some time on his way from the Dutch East Indies to the Netherlands, suffered from severe asthma and hoarseness for many years. He was told of the healing effects of hot mineral springs at the southern edge of the Swartberg (where the town of Caledon was later established), and consequently set out, with a guide and several others, to visit the site. After fifteen days of long daily baths, Cnoll's condition was much improved. Other members, who suffered from ailments such as headaches, rheumy eyes, ulcers and sciatica, also found relief. Cnoll's description appears to be the first published account of the medicinal use of the springs. The seven springs, which became increasingly well-known for their medicinal benefits, were later found to be chalybeate (containing iron salts in solution) and radioactive. Recognition of their therapeutic value has continued to this day.

1810

On 1 November 1810, Dr Johann H.F.C.L. Wehr (1764–1854), licensed physician, surgeon and accoucheur (male midwife) in the Cape Colony, was appointed as the first colonial instructor in midwifery. Dismayed at the lack of training in midwifery, he requested the governor's permission to establish a training school for midwives in July 1808. The matter was referred to the Supreme Medical Committee, which supported the proposal. As a result Wehr was appointed and a pamphlet, *Instructions for Dr Wehr, colonial instructor for midwifery*, dated 1 November 1810, was issued by the colonial secretary's office. First, Wehr proceeded to examine all the midwives of Cape Town in an attempt to identify those who could be allowed to practice provisionally. Then he went on to select his first students, for whom he conducted a three month course. Training was conducted at his home in Castle Street, while the practical instruction was done in rented quarters, where slave women were brought to give birth. Ethical issues and rules of conduct were included in the training. In August 1813, the first group of students were licensed to practice. As far as is known, this school was the first professional training institution in southern Africa. Wehr held his appointment until 1828. William J. Burchell (1781–1863), an English naturalist and collector, arrived in Cape Town in November 1810, after spending five years on the island of St Helena. During his stay in southern Africa he travelled extensively, northwards, beyond the Orange River and eastwards, to the mouth of the Fish River, covering some 7 000 km. Burchell, known for his painstaking and accurate work, gathered what was probably the largest natural history collection ever to have been made by one person in Africa. It contained over 60,000 specimens, mostly plants, as well as hundreds of detailed, accurate notes and sketches. After he returned to England in 1815 he wrote *Travels in the interior of southern Africa* (1822–1824), which consisted of two volumes.

1910

The birth of South Africa

Between October 1908 and May 1909, delegates from the Cape Colony, Natal, the Orange River Colony and the Transvaal Colony attended a national convention at which a draft constitution for the Union of South Africa was formulated. The document was submitted to the British parliament for approval and resulted in the promulgation of the South Africa Act of 1909, which came into effect on 31 May 1910. During the next two years the civil services of the four colonies were amalgamated, which meant increased responsibilities for some government scientific and professional staff, while others became smaller fish in the bigger pond.

R.T.A. Innes, Director of the Transvaal Observatory, was appointed as the first Union Astronomer and the observatory was renamed the Union Observatory, without undergoing any change of staff. From this time the observatory's work was purely astronomical. Its meteorological work, together with the weather services of the other colonies, was taken over by the new Union Weather Service. The Union's Department of Mines and Industries was staffed almost entirely with engineers and mining inspectors from the former Mining Department of the Transvaal Colony. Within this department, a Geological Survey of South Africa was created, directed by H. Kynaston (Transvaal) and staffed by the geologists of the Geological Survey of the Transvaal. Their responsibilities were initially extended to include the geology of the Free State and Natal. The Geological Commission of the Cape Colony, directed by A.W. Rogers, continued to function until 1 August 1912, when it became a branch office of the Geological Survey. The unified Department of Agriculture was placed under the direction of F.B. Smith (Transvaal), no doubt owing to the excellent work he had done in creating and directing the Department of Agriculture of the Transvaal Colony after the Anglo-Boer War. Within the new department the Division of Veterinary Research was headed by Sir Arnold Theiler (Transvaal), director of the Veterinary Bacteriological Laboratories at Onderstepoort. The responsibilities of this institution were increased to include veterinary research for the Union as a whole. The department's Principal Veterinary Surgeon was C.E. Gray (Transvaal), while his assistant, J.D. Borthwick, was the former Principal Veterinary Surgeon of the Cape Colony. The Principal Veterinary Surgeons of the other colonies became Senior Veterinary Surgeons in the new department. The Division of Entomology came under the direction of the veteran entomologist C.P. Lounsbury (Cape), with scientific staff from all four former colonies. The Division of Plant Pathology and Botany was headed by I.B. Pole-Evans (Transvaal), and included his assistant, the mycologist, Miss E.M. Doidge (Transvaal).

New societies and institutions

The first meeting of the council of the newly created University College of Natal, later the University of Natal, took place in January. Classes started in a temporary building at Maritzburg College (a high

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school) the following month, under the tuition of the masters of the school. The first two professors arrived from England in April 1910. One of them was Robert B. Denison (1879–1951), Professor of Chemistry, who remained until 1939. More academics arrived in August 1910, including John W. Bews (1884–1938), Professor of Botany, who became an eminent ecologist and, eventually, principal of the college, and W.N. Roseveare, Professor of Pure and Applied Mathematics. Like the other local colleges at this time, the University College of Natal provided tuition, but did not examine. The University of the Cape of Good Hope did all the examining, but did not teach.

By 1909, considerable friction had arisen between the two branches of the Transvaal University College in Johannesburg and Pretoria. In April 1910, largely at the instigation of J.C. Smuts, the Transvaal Parliament decided to incorporate the college at Pretoria and to establish the South African School of Mines and Technology at Johannesburg. This decision dealt a serious blow to ambitions to establish a university in Johannesburg. However, during the next decade the School of Mines extended its tuition to include subjects in the arts and sciences, and in 1922 became the University of the Witwatersrand. The Geological Survey of Southern Rhodesia (now Zimbabwe) was established in September 1910 under the direction of Herbert B. Maufe (1879–1946), formerly of the Geological Survey of Scotland. Maufe headed the institution until his retirement in 1935. Two additional geologists joined the survey in 1911.

The Natal Scientific Society was founded in Durban in August 1910. Its stated objectives were the study of natural science in all its branches;

the arrangement of field excursions, the formation of a library and collection of objects... and the publication of a magazine or journal.

The society's first president was Alfred D. Millar (1858–1911), advocate and naturalist, who died of blood poisoning the following year. The society's *Transactions and Proceedings* for 1910–1912 were published, but it ceased to exist soon afterwards.

Halley's Comet

After an absence of 75 years, Halley's Comet became visible again in southern Africa in April 1910. Public interest in the event had been heightened by the unexpected and spectacular appearance of another comet in January. Public anxiety relating to Halley's Comet as a supposed harbinger of disaster was enhanced by the unexpected death of King Edward VII on 6 May, when the comet was at its most prominent. Despite assurances from both professional and amateur astronomers, the anxiety was focussed mainly on the night of 18–19 May, when the earth passed through the comet's tail. As it turned out, the night passed without incident. Probably the best photographs of Halley's Comet obtained anywhere during its 1910 return were taken by H.E. Wood, Chief Assistant at the Transvaal Observatory, with the newly installed Franklin-Adams telescope. Wood and Professor W.A. Rudge read papers about the comet at the annual congress of the South African Association for the Advancement of Science that year. The enthusiasm for astronomy resulting from the comet's return contributed much to the movement to found the Cape Astronomical Association in 1912.

Some research highlights

A.L. Hall of the Transvaal Geological Survey completed a substantial memoir (the last to be published by this institution) on *The geology of the Pilgrim's Rest gold mining district*. The geologist J.P. Johnson published two books on South African prehistory during 1910: *Geological and archaeological notes on Orangia* and *The prehistoric period in South Africa*. Meanwhile, the taxidermist at the South African Museum, James Drury, started

excavating a cave at the mouth of the Lottering River. He found a remarkable painted gravestone depicting three human figures, with human skeletal remains and stone artefacts.

George A. Boulenger of the British Museum (Natural History), the leading herpetologist of his time, published *A revised list of South African reptiles and batrachians, with synoptic tables, special reference to the specimens in the South African Museum, and descriptions of new species* (1910) in the *Annals of the South African Museum*. In the same journal, Reverend Thomas R.R. Stebbing published his extensive *General catalogue of South African Crustacea* (1910).

Arrivals and departures

Austin Roberts (1883–1948), who became a well-known mammalogist and ornithologist, was appointed as zoological assistant at the Transvaal Museum. He remained at the museum until his death in 1948. At about the same time, John Hewitt (1880–1961), the museum's assistant for invertebrates, left to take up an appointment as Director of the Albany Museum, Grahamstown, where he succeeded Professor Selmar Schönland. Hewitt remained Director of the museum for 48 years. Robert Broom, Professor of Geology and Zoology at Victoria College, Stellenbosch, resigned to return to medical practice and the life of a free-lance scientist, settling in Springs. The zoologist, Ernest C. Chubb (1884–1972), acting Curator of the National Museum of Southern Rhodesia, was appointed Curator of the Durban Natural History Museum. His post was later upgraded to Director of the Durban Museum and Art Gallery, a position he held until his retirement in 1951.

New arrivals at the Veterinary Bacteriological Laboratory at Onderstepoort included Dr Richard Gonder, a protozoologist from the School of Tropical Medicine in Hamburg, Germany, who was seconded to Onderstepoort to study the life cycle of *Theileria parva*, the causal organism of East Coast Fever. His first report on the development of the organism was included in the *Report of the Government Veterinary Bacteriologist* for 1910. Several related papers were submitted for publication before his return to Hamburg in 1911. Another arrival was William H. Andrews (1887–1953). During his thirteen years as a veterinary researcher in South Africa he was awarded a DSc degree by the University of London for his research on staggers (pushing disease) in Natal cattle, a condition caused by plant poisoning. Dr Karl F. Meyer (1884–1974), a Swiss veterinary pathologist who arrived at Onderstepoort in 1908, left in May to take up a post at the School of Veterinary Medicine at the University of Pennsylvania. Dr Walter Frei, who was in charge of the physical chemistry laboratory at Onderstepoort, also left in 1910. He was replaced by Hans Sieber, an accomplished bacteriologist who, like Gonder, came from the School of Tropical Medicine in Hamburg. During his brief stay he worked and published on *Anaplasma marginale* infection (tick-borne gall sickness) in cattle.

Alfred E. Snape (1881–1946), a graduate of Victoria University in Manchester, was appointed Professor of Civil Engineering at the South African College, Cape Town, succeeding Professor Henry Payne. Snape published *Practical notes on tunnelling* in the *Proceedings of the South African Society of Civil Engineers*. He became a pioneer of town planning in South Africa and remained at the college, and its successor, the University of Cape Town, until his death.

The first powered flight

On 1 January 1910, the French pilot Albert Kimmerling (1882–1912) undertook the first publicly witnessed powered flight in southern Africa at the Nahoon racetrack in East London. After arriving by ship on 18 December 1909, he displayed his Voisin biplane to the public for a fee and undertook some test flights. During his first public flight on 1 January, he was unable to clear some telephone lines and, upon landing, damaged the propeller blades. After disassembling and packing his aircraft in crates, he left East London on 15 January for Johannesburg. There, with a locally made new propeller, he flew his plane during February and March. He continued his demonstrations in Durban during April and May. ■



Source: Photograph taken by W. Liller in 1986.

Comet Halley on March 8, 1986