

Directors of Veterinary Services in the Anglo-Egyptian Sudan: Sampson Charles Jenkin Bennett (Assistant Director and Senior Research Officer 1936-1944), 1925-1944

R Trevor Wilson*

Bartridge Partners, Bartridge House, Umberleigh, North Devon EX37 9AS, UK

Abstract

Sampson Charles Jenkin Bennett, known as Charles, was born in Cambridge in the summer of 1894, the son of a Veterinary Surgeon. He spent his early years in Cambridge with his parents and then was elected Member of the Royal College of Veterinary Surgeons (MRCVS) in July 1916 and was appointed Temporary Lieutenant in the Army Veterinary Corps on 25 July 1916. He served in Mesopotamia and was awarded the 1914-1919 Victory and War Medals for service there. During 1920-1922 he worked under Sir John M'Fadyean at Camden Town and then with Sir Arnold Theiler at Ondesterpoort. In 1922 he was elected as one of JT Edwards team at the Imperial Institute of Veterinary Research at Mukteswar in India where he studied preservation of the antibody content of serum and undertook active immunization of cattle against rinderpest. He resigned from his Indian post early in 1925 and took up an appointment with the Egyptian Army to work as Assistant Research Officer in Sudan where he arrived late in 1925. He designed many experiments for the most serious diseases including rinderpest (including preparation of spleen pulp vaccine), Contagious Bovine Pleuro-Pneumonia (for which he developed the broth culture vaccine). He also discovered and recorded several diseases new for Sudan. In 1933 he was awarded a D.Sc. from London University. It was said of him that in addition to be an eminent bacteriologist and pathologist he was also a virologist and protozoologist of the highest order. In 1937 he became Senior Research Officer and Assistant Director of the Sudan Veterinary Service, posts that he held until his retirement in 1944. For his service in Sudan he was appointed to the Order of the Nile (4th Class) by the Khedive of Egypt. He died in Surrey in the summer of 1963 age 68. He published very many papers in the Veterinary Journal and the Journal of Comparative Pathology and Therapeutics between 1927 and 1948. His work in Sudan contributed very considerably to improving the health and welfare of domestic animals and to improved livelihoods for Sudan's people.

Introduction

Power was wrenched from Egypt by a Sudanese nationalist group in 1885. This fanatical cabal ruled the country until 1898 [1,2]. Great Britain and Egypt established a Condominium – the Anglo-Egyptian Sudan – following the reconquest of Sudan by British and Egyptian armed forces in 1898. A veterinary service was established in 1902 whose initial concern was the health of the many thousands of cavalry, pack and transport animals that were required to operate the country [3]. The first Principal Veterinary Offices/Directors of the Sudan Veterinary Service were serving officers of the British Army Veterinary Corps seconded to the Egyptian Army. The British War Office decided in 1924 stop the seconding of its officers to Egypt. Some already in Sudan resigned their commissions and were immediately employed by the Sudan Defence Force which meant that Directors were still serving military officers. By this time the emphasis of veterinary work had moved away from transport to meat- and milk-producing livestock and prophylactic and curative treatments for production diseases were sought and applied. The export trade also became of considerable importance as a means of earning foreign exchange [4,5].

In 1913 the Veterinary Service was reorganized into four Sections, including Veterinary Survey which later became the Research Section. Although nominally charged with research the impossibility of obtaining a bacteriologist meant that the Survey Section could only carry out routine diagnostic work in its early years. Captain Richard

Hall Knowles arrived in Sudan on 28 March 1922 as Veterinary Research Officer, so real research could begin. As a military vet, however, Knowles was still concerned with transport animals and their health and welfare. This is reflected in his scientific output on camel's ad trypanosomosis resulting from his work in Sudan [6-8] although he also did some work on Contagious Bovine Pleuro-Pneumonia (CBPP) [9]¹.

Sampson Charles Jenkin Bennett arrived in Sudan on 18 September 1925 to take up the post of Assistant Veterinary Research Officer where

¹Knowles had previously made observations in 1919 on recurrent ophthalmia when he was located in the bacteriological laboratory attached to No 1 Veterinary hospital in Cremona, Italy. As a Lieutenant Colonel he was subsequently Officer in Charge of the Royal Army Veterinary Corps Laboratory from its establishment in 1938 until 1943 and at the same time was Editor of the Journal of the Royal Army Veterinary Corps

*Correspondence to: R Trevor Wilson, Bartridge Partners, Bartridge House, Umberleigh, North Devon EX37 9AS, UK, E-mail: trevorbart@aol.com

Key words: rinderpest, contagious bovine pleuro-pneumonia, vaccines, trypanosomosis, equines, bovines, one-humped camel

Received: November 01, 2019; **Accepted:** November 11, 2019; **Published:** November 14, 2019;

he started work under Knowles in Khartoum. Knowles did not stay long in Sudan and when he left on 31 March 1927, almost exactly five years after his arrival, Bennett was promoted to Veterinary Research Officer. He served in this capacity, being based in Khartoum throughout except for a short tour of duty to Upper Nile Province at the beginning of 1928, until the beginning of 1936. At that stage he was promoted again to Senior Research Officer and to the more wide-ranging position of Assistant Director of the Sudan Veterinary Service. He remained in these two capacities until he retired from Sudanese service in 1944.

Early life (1894-1916)

Sampson Charles Jenkin Bennett was born in Cambridge in the summer of 1894 [10], probably at 61 Jesus Lane. He was the son of Sampson Bennett and Eva Johns Jenkin and in spite of the string of given names he came to be known in life by the middle of those, Charles. Sampson Bennett, Senior, was a Veterinary Surgeon who practised in partnership with George Amos Banham at premises at 15 Downing Street and Ramyard, Cambridge at the time that Charles Bennett was born. In the spring of 1895, however the partnership was dissolved [11] and Bennett Senior continued in practice on his own.

At the census of 1891 Charles aged 6 was living with his parents (father, a veterinary surgeon aged 35, mother aged 27) both born in Cornwall, at 61 Jesus Lane, Cambridge (Figure 1) ². A younger sister, Eva T aged 1 and a 17-year-old girl domestic servant completed the household [12]. Ten years later in 1911 the family was still in the same house and comprised father Sampson aged 45 a veterinary surgeon working on his own account, mother aged 37 (having been married 18 years and borne six children of whom four were still alive, Sampson Charles Jenkin aged 16 at school, Eva Theresa aged 11 also at school, Mariam Annie aged 8, Horace Claude aged 5 and yet another 18-year-old female domestic servant [13].

In the 1913-1914 Academic Year at the Royal Veterinary College Bennett was in Class B. The distinction in research ability he was to earn in Sudan in later years was already evident here. He won the Centenary Prize; in the Class Prizes he had First Prizes in both Anatomy and Histology and Second Prize in Physiology. In Clinical Prizes he was awarded Third Prize. At this stage Bennett also passed his Second Professional Examination [14] ³. He had similar successes in the 1914-1915 Academic Year.

SCJ Bennett graduated from the Royal Veterinary College and was appointed MRCVS in July 1916. He was then still aged 21 and must have started his college career just after his seventeenth birthday. Immediately on graduation he joined the Army Veterinary Corps and was appointed a Temporary Lieutenant on 25 July 1916 and then Temporary Captain exactly one year later [15,16]:

War Office,
1th August 1916.
REGULAR FORCES.

ARMY VETERINARY SERVICE
A.V.C.
The undermentioned to be temp. Lts.
Sampson Charles Jenkin Bennett. 25th July 1916.

²This property was value at £1,166,000 in 2019 and was in the second highest echelon (based on house value on 1 April 1991) for Council Tax, Band G, for which the annual tax was £3005.

³Classes (A to D) were organized according to the subjects studied

ARMY VETERINARY SERVICE.

A.V.C.—Temp. Lt. S. C. J. Bennett to be temp. Capt. 25th July 1917.

First World War, United Kingdom, South Africa and India (1916-1925)

Shortly after joining the Army Veterinary Corps, Bennett was posted to Mesopotamia [17]. Here the British troops finally defeated the forces of the Ottoman (Turkish) Empire. Britain committed over 200 000 troops to the fighting against much smaller Turkish forces. The cost of the victory was, however, very great. The British had more than 85 000 battle casualties in Mesopotamia and many more men were hospitalized from disease which caused nearly 17 000 deaths. The British Army remained in the region and declared the new state of Iraq which became a British mandate against the wishes of its inhabitants [18]. For his service during World War 1 Bennett was later awarded the British War Medal 1914-1918 and the Allied Victory Medal: his medal index card shows that at sometime during his service his status changed from Temporary Captain (which usually meant that he was in the army only for the duration of the war) to substantive captain (a regular army appointment) (Figure 2) [19].

After leaving the army, Charles set about honing his research skills in two of the most distinguished of all veterinary research institutions. To this end, therefore, he worked under Sir John M'Fadyean at the Royal Veterinary College in Camden Town (London) and then under Sir Arnold Theiler at Ondesterpoort in South Africa [18] ⁴. In the spring of 1920 Sampson Charles Jenkin Bennett was at 61 Jesus Lane Cambridge on the Electoral Roll (by virtue of a residence qualification) in the Bridge Ward of Cambridge Parliamentary Borough along with Eva Johns Bennet (his mother) and Sampson Bennett (his father) [20].

In 1922 Bennett joined the team of Dr JT Edwards as Second Bacteriologist at the then Imperial Bacteriological Laboratory near Poona (now Pune) in the Indian state of Maharashtra. During 1922-1923 he studied the preservation of the antibody content of serum and undertook active immunization of the cattle herd at Pusa against rinderpest. Pusa, in the northeast of the country, was the headquarters and principal production and research farm of the Imperial Agricultural

⁴Reference [18] is the only source that has been found with this information. Sir John M'Fadyean was Principal of the Royal Veterinary College from 1892 until 1927. He founded the *Journal of Comparative Pathology and Therapeutics* in 1888 and managed and edited it almost single-handed until 1940 [this may in part account for Bennett's prolific output in this journal]. He worked in veterinary research when "animal plagues" were causing an extremely high annual mortality in domestic stock. Over the years there was hardly a single important animal disease to which he did not devote study and he made more than just memorable contributions and he introduced the tuberculin test in Britain. He vigorously and correctly contested Koch's view that bovine tuberculosis was not transmissible to man. He wrote on glanders in 1892 and introduced the mallein test in 1896. He wrote on anthrax, joint ill in foals, Johne's disease, contagious abortion, discovered the causative virus of South African horse sickness and made important contributions on parasitic diseases including some studies on what is now known as Jagdsiekte. He appears to have been a superb and most eloquent teacher of veterinary pathology and bacteriology. Sir Arnold Theiler's first success was to produce a vaccine against smallpox which was afflicting the miners of the Witwatersrand. This led (naturally!) to his being appointed as state veterinarian for the Zuid-Afrikaansche Republiek (South African Republic) during the Boer War of 1899-1902. His team developed a vaccine against rinderpest which in part contributed to his international recognition. Theiler was the first Director of the Ondesterpoort Veterinary Research Institute which under his leadership undertook research on African horse sickness, sleeping sickness, malaria, East Coast fever (*Theileria parva*) and tick-borne diseases such as redwater, heartwater and biliary fever.



Figure 1. 61 Jesus Lane, Cambridge; the home of the Bennett family where Charles Bennett spent his formative years

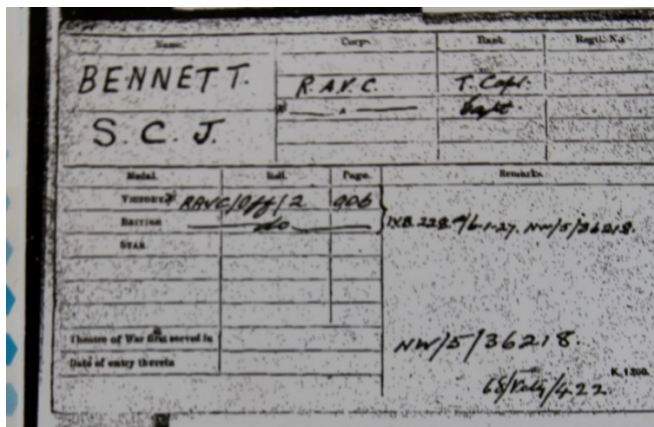


Figure 2. Medal Index Card of Temporary Captain and Captain SCJ Bennett, Royal Army Veterinary Corps and examples of War Medal and Victory Medal

Department of the British Indian government. Bennett participated in the Fifth Entomological Meeting of the Department of Agriculture held at Pusa between 5th and 10th February 1923 (Figure 3). His position then was still Second Bacteriologist but he did not make a presentation [21].

By 1925 Bennett had been redesignated as First Veterinary Research Officer in the newly constituted Imperial Veterinary Research Institute now located at Muktesar [22]. He was not to hold this position for long, however, as he resigned his appointment on the termination of his initial 3-year probationary period on 27 February 1925. He left India almost immediately, travelling First Class on the SS China of the Peninsular and Oriental Steam Navigation Company. He was aged 31, described as a Bacteriologist and going to Glyn Mills and Co, 3 Whitehall Place, London [23] ⁵. In the medium term, however, Samson [sic] Charles J Bennett was again at 61 Jesus Lane, Cambridge on the Electoral Roll (by virtue of a residence qualification) in the Bridge Ward of Cambridge Parliamentary Borough along with Eva

Johns Bennet (his mother) and Sampson Bennett (his father) [24]. He was not to be in Jesus Lane for long, however, as he very shortly left for Sudan.

Sudan (1925-1944)

SCJ Bennett arrived in Sudan on 18 September 1925 to take up a post as Assistant Veterinary Research Officer. According to his Sudan Government service records (Table 1) he was on a tour of duty at the beginning of January 1928 to Upper Nile Province. This was probably to visit the provincial capital at Malakal in connection with the establishment and operations of a laboratory that was to produce serum and vaccines against rinderpest. Other than this visit, he apparently never left Khartoum and thus was one of only two senior staff (the other was Kennedy who had been Director from 1924 to 1934 and had been recruited directly from Kenya) who had no experience of the Sudan in general. In the middle of 1927 Bennett was promoted to Veterinary Research Officer when Knowles quit his post and left Sudan. The position of Assistant Veterinary Research Officer was then vacant for quite a number of years but Bennett worked together with the Wellcome Research Institute and local assistants in the veterinary research laboratory [25,26].

⁵Glynn Mills was a private bank that acted for many Overseas Civil Servants and Military Personnel: Bennett was probably going there to sort out his financial affairs.



Figure 3. Entomologists at the fifth meeting in Pusa 1923 (Bennet is fourth from left in lowest standing row with moustache and striped tie)

Bennett threw himself into his work, looking at various diseases in several species of domestic animal. He is credited with making spectacular discoveries and providing first records of many diseases in Sudan. Almost all of his papers were published in the *Journal of Comparative Pathology and Therapeutics* and no doubt reflects his relationship with Sir John M'Fadyean to which reference has already been made. In all he published 28 research communications, mostly in scientific journals and mostly with himself as sole author. Four technical reports and a contribution to a chapter in a book about Sudan agriculture were invaluable for the development of livestock in Sudan.

His first formal scientific output was published only two years after his arrival in Sudan, one paper being on rabies [28] and another on what he describes as a peculiar Sarcosporidium [a protozoan parasite, *Sarcocystis* sp.] in the Equidae [29]. It was, indeed, a peculiar parasite as it was later found to be *Besnoitia bennetti* (Bennett, 1927) Babudieri, 1932, a species which forms cysts, the disease now being known as besnoitiosis. Some six years after his initial paper on Sarcosporidium Bennett published a partial retraction. Specimens of the parasite sent to London proved to be either *Globidium besnoiti* or a closely allied form. Bennett now considered that three additional identified cases of "Sarcosporidium" justified a second paper on the subject that examined the pathological condition rather than the parasitological one [30].

A personal as well as a professional interest in diseases of the Equidae was shown in several papers published on this family. The first two such were observational rather than experimental and were about cryptococcal pneumonia or epizootic lymphangitis [31,32]. The causal organism, the fungus *Cryptococcus farciminosus* was recorded for the first time in Sudan and was found in aged horses from Blue Nile Province. Several years later, in what was probably an afterthought, Bennett wrote an overview of cryptococcal infections [33].

The next three papers in chronological terms related to drug treatment experiments. The first provided an account of the first recorded case of Equine Cutaneous Leishmaniasis in Sudan which occurred in an 8-year-old native stallion showing typical ulcerative lesions (the cause later being provisionally identified as *Leishmania tropica*) and its treatment with Berberine Sulphate [34]. The next two were aimed at the treatment of equine trypanosomiasis (widely known as 'nagana' but generally referred to as 'souma' in Sudan). This disease caused by *Trypanosoma congolense* was first treated by "Surfen C (Bayer)" (which was not commercially available when Bennett did his experiments) which was very successful and had the added advantage

of the possibility of cure with only a single dose [35,36] ⁶. The final paper concerned the use of 'naganol' (Bayer205) on horses. Usually considered to be a single dose treatment followed by intolerance, Bennett reports on "five horses, living in a station so inaccessible that it is not visited by touring veterinary officers, and where *Glossina morsitans* infestation is so intense that no horse had previously survived there for more than a few weeks" and "in compliance with the request of the present solitary European resident in this station it was decided to make an attempt to keep a few horses alive". One Sudan country-bred stallion, aged 22 years, had lived in a tsetse fly infested area for more than five years and had probably been infected with *T. evansi* the whole time. This horse had been treated at least 180 times with injections of 2 gm 'naganol' and survived with no apparent problems (Figure 4) [37].

Whatever his own proclivities were, however, the veterinary services and national government were concerned with finding prophylactic and curative solutions to the main production diseases of animals that produced food for local consumption and live animals for export. The most problematic diseases were rinderpest (often referred to as cattle plague at that time in Sudan and elsewhere), CBPP and tsetse-transmitted trypanosomiasis (then trypanosomiasis). The first two affected cattle whereas the last was important in both cattle and camels. Fruitful experimental designs mostly conceived and constructed by Bennett for these most serious diseases resulted in their full or partial control. Perhaps the most important results were preparation of spleen pulp rinderpest vaccine and development of CBPP broth culture vaccine [4,5].

No work of any kind was conducted on "cattle plague" (rinderpest, caused by a virus of the family Paramyxoviridae in the genus *Morbillivirus*) in Sudan until 1928. This, according to Bennett, left one in so far as the technique of vaccine preparation was concerned in the fortunate position of a disinterested spectator [38]. He determined, however, to rectify this situation and set about a series of tests and experiments in an attempt to prevent or cure the disease. His first paper on cattle plague considered the argument for "hyperimmune" against "immune" serum. He came down on the side of the former as it could lead to production of a more constantly protective product whereas in the latter potency was rapidly lost [39]. His next two papers [40,41] which concerned vaccine preparation and the dosages to be used, were written together with a colleague, JTR Evans. At that time Evans was an

⁶*Trypanosoma congolense* was then known variously, often with nationalistic connotations as, *T. soudanense*, *T. marocanum*, *T. aegyptum*, and *T. cameli* before the single taxon *T. evansi* was accepted [36].

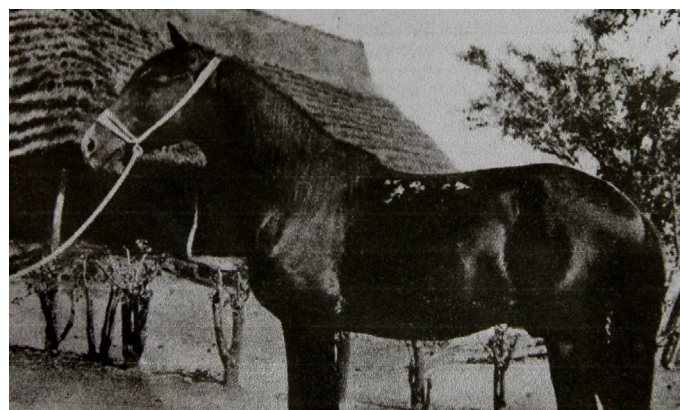


Figure 4. Sudan country-bred stallion aged 22 years who had lived in a tsetse fly infested area for five years and having had at least 180 injections of 2 gm Naganol (Photo by Capt. J K. Maurice, M.B.E., M.C., Sudan Political Service. Source [34])

Table 1. Outline of the career of Sampson Charles Jenkin Bennett in Sudan, 1925-1944

Date	Appointment	Rank and name	Place	Notes
18 September 1925				Arrived in Sudan
1 January 1927	Assistant Veterinary Research Officer	Mr SCJ Bennett B.Sc.	Khartoum	
1 July 1927	Veterinary Research Officer	Mr SCJ Bennett B.Sc.	Khartoum	For leave
1 October 1927	Veterinary Research Officer	Mr SCJ Bennett B.Sc.	Khartoum	From leave 25 October
1 January 1928	Veterinary Research Officer	Mr SCJ Bennett B.Sc.	Khartoum	<i>T.D. Upper Nile Province</i>
1 July 1928	Veterinary Research Officer	Mr SCJ Bennett B.Sc.	Khartoum	For leave
1 July 1929	Veterinary Research Officer	Mr SCJ Bennett B.Sc.	Khartoum	From leave 12 July
1 October 1929	Veterinary Research Officer	Mr SCJ Bennett B.Sc.	Khartoum	
1 July 1930	Veterinary Research Officer	Mr SCJ Bennett B.Sc.	Khartoum	For leave
1 October 1930	Veterinary Research Officer	Mr SCJ Bennett B.Sc.	Khartoum	From leave 6 October
1 January 1931	Veterinary Research Officer	Mr SCJ Bennett MRCVS, B.Sc.	Khartoum	
1 April 1931	Veterinary Research Officer	Mr SCJ Bennett MRCVS, B.Sc.	Khartoum	
1 July 1931	Veterinary Research Officer	Mr SCJ Bennett MRCVS, B.Sc.	Khartoum	For leave 12 July
1 January 1932	Veterinary Research Officer	Mr SCJ Bennett MRCVS, B.Sc.	Khartoum	
1 April 1932	Veterinary Research Officer	Mr SCJ Bennett MRCVS, B.Sc.	Khartoum	
1 July 1932	Veterinary Research Officer	Mr SCJ Bennett MRCVS, B.Sc.	Khartoum	For leave 18 July
1 October 1932	Veterinary Research Officer	Mr SCJ Bennett MRCVS, B.Sc.	Khartoum	From leave 23 October
1 January 1933	Veterinary Research Officer	Mr SCJ Bennett MRCVS, B.Sc.	Khartoum	
1 April 1933	Veterinary Research Officer	Mr SCJ Bennett MRCVS, B.Sc.	Khartoum	For leave 18 July
1 July 1933	Veterinary Research Officer	Dr SCJ Bennett MRCVS, D.Sc.	Khartoum	For leave 23 July
1 October 1933	Veterinary Research Officer	Dr SCJ Bennett MRCVS, D.Sc.	Khartoum	From leave 29 October
1 January 1934	Veterinary Research Officer	Dr SCJ Bennett MRCVS, D.Sc.	Khartoum	
1 April 1934	Veterinary Research Officer	Dr SCJ Bennett MRCVS, D.Sc.	Khartoum	
1 July 1934	Veterinary Research Officer	Dr SCJ Bennett MRCVS, D.Sc.	Khartoum	For leave 22 July
1 October 1934	Veterinary Research Officer	Dr SCJ Bennett MRCVS, D.Sc.	Khartoum	
1 January 1935	Veterinary Research Officer	Dr SCJ Bennett MRCVS, D.Sc.	Khartoum	
1 April 1935	Veterinary Research Officer	Dr SCJ Bennett MRCVS, D.Sc., 4 N	Khartoum	
1 October 1935	Veterinary Research Officer	Dr SCJ Bennett D.Sc., MRCVS, 4 N	Khartoum	Leave expires 27 Oct
1 January 1936	Asst. Director and Senior Research Officer	Dr SCJ Bennett D.Sc., MRCVS, 4 N	Khartoum	
1 July 1936	Asst. Director and Senior Research Officer	Dr SCJ Bennett D.Sc., MRCVS, 4 N	Khartoum	Commence leave 26 July
1 October 1936	Asst. Director and Senior Research Officer	Dr SCJ Bennett D.Sc., MRCVS, 4 N	Khartoum	Leave expires 25 October
1 January 1937	Asst. Director and Senior Research Officer	Dr SCJ Bennett D.Sc., MRCVS, 4 N	Khartoum	
1 July 1937	Asst. Director and Senior Research Officer	Dr SCJ Bennett D.Sc., MRCVS, 4 N	Khartoum	Commence leave 18 July
1 October 1937	Asst. Director and Senior Research Officer	Dr SCJ Bennett D.Sc., MRCVS, 4 N	Khartoum	Leave expires 24 October
1 January 1938	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	
1 April 1938	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	For leave 11 April
1 July 1938	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	Leave expires 1 July
1 January 1939	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	
1 April 1939	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	Commence leave 6 April
1 July 1939	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	Leave expires 12 July
1 October 1939	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	
1 January 1940	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	
1 April 1940	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	Commence leave 8 April
1 July 1940	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	
1 July 1941	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	
1 January 1942	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	
1 April 1943	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	
1 January 1944	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	Retiring
1 July 1944	Asst. Director and Senior Research Officer	Dr SCJ Bennett 4 N., D.Sc., MRCVS	Khartoum	Retiring

Assistant Veterinary Research Officer based at the outlying laboratory at Malakal in Upper Nile Province but who was eventually to become Director of Veterinary Services [42].

In the meantime Bennett had been working on CBPP, a bacterial disease caused by *Mycoplasma mycoides*. His only article on the subject was basically a review of the work undertaken in Sudan in the period 1927 to 1932 [43]. At the beginning of this period “natural lymph”, either from a natural pulmonary infection or from an artificially produced subcutaneous lesion was the most extensively used form of vaccination (and, indeed, was still being used when Bennett wrote his

paper). Bennett’s concern was the adaptation of living artificial cultures of the pleuro-pneumonia bacterium for use as field vaccines. That he only wrote one paper on CBPP is somewhat surprising as he was the main instigator of the broth culture vaccine which is still used in various forms at the present time. He did, however, gain a D.Sc. degree for his work on CBPP from London University, probably in 1933, as indicated in his record in the Sudan Government personnel lists (Table 1).

At the beginning of 1928 Bennett was on a duty tour to Upper Nile Province in the south of the country (Table 1). This was probably mainly to carry out an analysis of the new vaccine production laboratory at

Malakal. As far as can be ascertained this is the only time he was ever in any part of the country outside Khartoum. His scientific interest, however, had at least in part moved way from rinderpest and CBPP to trypanosomosis and especially as the disease affected camels. His next series of papers, therefore, were about camel trypanosomosis, the first three concerning the mercuric chloride test for the disease (one written with a laboratory technician as junior author) and the next two about the disease in general in camels [44-48].

Bennett had, however, other concerns in 1928. He travelled to England on home leave early in July and shortly married Dorothy Elizabeth Webb somewhere in South Devon [49]. She had been born on 26 February 1906 and so was almost 12 years his junior in age. A little time afterwards, on 5 October 1928, Sampson Bennett, a Sudan Civil Servant aged 34 and Dorothy Bennett aged 23 left their home at 61 Jesus Lane, Cambridge and embarked at the Port of London to travel First Class on board the SS Mongolia (Peninsular & Oriental Steam Navigation Co) bound for Port Sudan [50].

Annual home leaves of three months duration for expatriate civil servants were a major perquisite of which they and their spouses and children took full advantage. They travelled in the luxury of First Class in some of the world's finest ocean liners and wives (and children) often travelled separately from their husbands, spending less than a full nine months in the country, avoiding the hot dry and short humid wet seasons in Khartoum but adding to the financial burden of the Sudan Government. Thus, on her first visit to Sudan, Mrs Dorothy E Bennett, a married woman aged 24, spent only four months or so in the country as she travelled First Class from Port Sudan on board the SS Oxfordshire (Bibby Line) arriving at Plymouth on 22 February 1929 and travelling onwards to Capel, Braddon's Hill West, Torquay [51].

Bennett took early leave that year as he was due to resume duty on 12 July (Table 1). He therefore missed the birth of his daughter Dorothy Carol Bennett (later known as Carol) on 12 August 1929 and whose presence in her mother's womb was probably instrumental in Mrs Bennett's early departure from Sudan earlier in the year [52]⁷.

Dorothy Elizabeth Bennett now commenced a peripatetic existence which took full advantage of the annual home leave provision. She sailed from Liverpool aged 24 with infant Dorothy aged 1 November 1929 (less than 12 weeks after the birth of the child) travelling First-Class on-board SS Cheshire (Bibby Line) with her last address being Capel, Braddon's Hill West, Torquay [53]. Mrs Bennett and Miss Bennett made further sea trips without Mr Bennett accompanying them many more times including arriving at Plymouth on 3 April 1931 and again on 17 April 1932 and then departing Liverpool for Port Sudan on 13 October 1933 [54-56]. On the last occasion the family

⁷Dorothy Carol Bennett was a pupil at the private girls' school of Stover in Newton abbot at the outbreak of the Second World War in 1939. She married William R Macdonald in Newton Abbot in the summer of 1952.

travelled altogether in First Class, SCJ Bennett aged 39 described as a Veterinary Surgeon (he was due back in Sudan from home leave on 29 October, Table 1), Wife Dorothy aged 28 and Child Dorothy aged 4: they had now changed their home address to Brook House, Ringmore, Teignmouth, Devon (Figure 5), recently described as "An elegant Grade II Listed Regency house in a sought after village a short drive from Exeter" [57].

Mrs and Miss Bennett again travelled without husband and father in 1934 arriving at Plymouth from Port Sudan on 29 March and going to their former address at Capel and again in 1935 arriving at Plymouth on 31 March and now going again to Brook House [58,59]

In the meantime, in 1934, Mr Bennett had been honoured by the King of Egypt, no doubt for "valuable services rendered to him" in the bestowal of the Order of the Nile, Fourth Class (Table 1, Figure 6)⁸. A year or so later, at the beginning of 1936, he was promoted to Assistant Director of Veterinary Services and Senior Research Officer.

In 1937 and 1938 Bennett was co-author of papers with Dr C A Hoare on the occurrence in camels from different parts of Sudan of strains of *Trypanosoma evansi* devoid of the kinetonucleus [60,61]⁹.

In 1938 and 1939 Charles Bennet departed somewhat from the narrow confines of veterinary science to write technical training manuals for the Sudan Board of Economics and Trade on such diverse subjects as cattle production, hides, sheepskins and clarified butter [62-65]. In the cattle booklet he states there are three types of cattle in Sudan and covers diseases explaining that foot-and-mouth is a milder disease in tropical pastoral countries than in temperate regions and the best procedure is to encourage its spread throughout a herd in order to get it over and reduce the quarantine period. The hides booklet treats only those intended for export and explains the curing methods of dry salting and air-drying. Sheep skins are of two types, northern and southern, the former of which have been described as the best of the world's second-class skins and which are dry salted for export whereas those for internal use are air-dried. Thousands of tons of clarified butter ('semn' in Arabic) were produced annually, mostly for internal consumption but several hundred tons of usually very rancid product, which affected the price received, were exported.

Dr SCJ Bennett 4N(ile), DSc, MRCVS, continued as Assistant Director and Senior Research Officer based in Khartoum from the

⁸This award would normally have been announced in the London Gazette indicating that the King (of the United Kingdom and Colonies) had approved the award and permitting Bennett to wear it on appropriate occasions but such an announcement has not been found.

⁹Note the use of *evansi* and not *congolense* here. This was undoubtedly at Hoare's behest as *T. evansi* was not generally accepted as the universal terminology for this parasite until more than 30 years later in 1972 when Hoare published his seminal book on the trypanosomes of mammals [36].



Figure 5. Brook House, Ringmore, Teignmouth, Devon: "An elegant Grade II Listed Regency house in a sought after village a short drive from Exeter" where the Bennetts lived in 1932, 1933 and 1935



Figure 6. Breast badge of the Order of the Nile, Fourth Class

beginning of the 1939-1945 war until his retirement in the 1944 (Table 1). Unlike many other veterinarians in Sudan he does not appear to have served in the Sudan Defence Force. Towards the very end of his tenure he deviated again from his earlier course to write a paper on the pox diseases of sheep and goats [66]. This long paper with its rather grandiose title arose from the discovery of sheep pox which had not been previously known in Sudan although it had undoubtedly been present. Written together with two other authors who were already producing human smallpox vaccine the discussion centred on the need, or not, to vaccinate and the description of strains resistant to already available anti-pox vaccines.

Bennett's post of Assistant Director was discontinued on his departure, certainly due to the financial and logistical problems engendered by the war but it was reinstated in March 1947 as the veterinary services again began to flourish.

Later life (1944-1963)

The last of Bennett's literary output was a chapter in the iconic book on Sudan agriculture published in 1948 and edited by JD Tohill, a former Director of Gordon Memorial College (later the University of Khartoum) and Director of the Sudan Department of Agriculture and Forests. Bennett was the lead author of three for Chapter XXII Animal Husbandry [67]. This was essentially an expanded recapitulation of the four manuals he wrote for the Department of Economy and Trade in the late 1930s [62-65].

Unlike several of the earlier senior expatriate staff of the Sudan Veterinary Service Dr Bennett did not live to a great age. He died aged 68 on 8 July 1963 at Trimmers Hospital, Farnham in Surrey. His home address was then 1 Broomleaf Corner, Farnham (Figure 7) [68]. Probate of his effects valued at £10 742 1sh was granted at Exeter on 7 October 1963 to Dorothy Evelyn Bennett widow, Dorothy Carol MacDonald daughter and Jim Cooksley Solicitor [69].

In his early years in Sudan Bennett made discoveries of several diseases either not known or very little known in Sudan. His work on vaccines was extremely important in saving the lives of probably millions

of domestic animals over the ninety years that have elapsed since he first arrived in the country. His work in Sudan was appreciated, however, not only by his immediate expatriate colleagues and collaborators but also long after his retirement and by his former (then very young) Sudanese colleagues and subordinates. A celebration to mark the 25th anniversary of the founding of the Sudan Veterinary Association was held in Khartoum on 10 December 1971. On this occasion, votes of thanks were made to three former expatriate Directors of Veterinary Services. The incumbent SVA President, Dr Ga'afar Karrar, President remarked [70]:

He joined the Sudan Veterinary Service in 1925 (September) as an Assistant Veterinary Research Officer and retired in 1944 as Assistant Director and Senior Research Officer.

He was a dedicated, hard working and intelligent researcher. Soon after taking his appointment in the Sudan, he attacked, through his fruitful experimental designs, the most serious diseases in the Sudan, namely Cattle Plague, CBPP and Trypanosomiasis. This type of time-consuming work did not prevent him from investigating other pathological conditions in different animal species and from making spectacular discoveries and first records of fatal diseases in the Sudan.

Some of his major achievements are the development of CBPP broth culture vaccine and the preparation of glycerinated spleen pulp cattle plague vaccine. Between 1927 and 1943 he published 27 scientific, mainly research, articles. In addition, he contributed a Chapter to Tohill's Agriculture in the Sudan and wrote several valuable reports.

During his service he trained several Sudanese, not only in his prime speciality of bacteriology and pathology but also in several branches of animal industry such as hides and skins, ghee and cheese making.

Through his years of work in research, he not only proved to be an eminent bacteriologist and pathologist but also a virologist and protozoologist of the highest order.

He was awarded the D.Sc. in 1933. To do all this between 1925 and 1944 with the little facilities available at that time, the limited funds and minimum of trained staff, Dr Bennett must have been a great man.

Dr Bennett was a sincere man who kept strong human relations and respect for those who worked with him.

The Council of the Sudan Veterinary Association finds great pleasure in acknowledging the excellent service Dr Bennett has given to the fields of diagnosis and disease control and would take this opportunity to offer this humble token of recognition.

His wife, Dorothy Elizabeth Bennett outlived him by sixteen years. She died in Exeter in the spring of 1979 aged 73 years [71].



Figure 7. 1 Broomfield Corner, Farnham, Surrey (the home of Dr and Mrs Bennett in 1961)

References

1. Churchill WS (1899) *The River War* (2 vols). Eyre and Spottiswoode Ltd, London. Available at: <http://www.gutenberg.org/files/4943/4943-h/4943-h.htm>.
2. Colville HE (1889) *History of the Sudan Campaign* (two volumes). Her Majesty's Stationery Office, London.
3. Smith VR (1902) Annual Report: Veterinary Department, 1902. In: *Reports on the Finances, Administration and Condition of the Sudan :1902*. Al-Mokattam Printing Office, Cairo (1905). pp. 202-207.
4. Jack JDM (1961) Part V The Sudan. In: West JP (ed) *A History of the Overseas Veterinary Services Part One*. British Veterinary Association, London, pp. 123-143.
5. Tvedt T (1983) *Colonial Technicians: The Sudan Veterinary Service 1898-1956*. Thesis. University of Bergen, Bergen, Norway.
6. Knowles RH (1924) The Formol-gel Test as applied to camels affected with *Trypanosoma soudanense*. *J Compar Pathol Therap* 37: 37-44.
7. Knowles RH (1925) Treatment of camels affected with *Trypanosoma soudanense* with "Bayer 205", and further observations on the Formol-gel Test. *J Compar Pathol Therap* 38: 42-46.
8. Knowles RH (1927) Trypanosomiasis on camels in the Anglo-Egyptian Sudan: diagnosis, chemotherapy, immunity. *J Compar Pathol Therap* 40: 59-71.
9. Knowles RH (1927) Contagious Bovine Pleuro-Pneumonia immunization. *J Compar Pathol Therap* 40: 230-241.
10. GRO (1894) *England and Wales Civil Registration Indexes; Births*. Cambridge, Jul-Aug-Sep 1894, 3b 466. General Register Office, London.
11. London Gazette (1895) <https://www.thegazette.co.uk/London/issue/26615/page/2215>. 12 April 1895.
12. TNA (1901) *Census Returns of England and Wales, 1901*. Class: RG13; Piece: 1532; Folio: 71; Page: 8. National Archives of the UK, Kew.
13. TNA (1911) *Census Returns of England and Wales, 1911*. Class: RG14; Piece: 9131; Schedule Number: 20. National Archives of the UK, Kew.
14. RVC (1914) *Royal Veterinary College, London. List of Bursaries, Medals, Honour Certificates, Etc., 1913-1914*. Royal Veterinary College, London. Available: <https://kundoc.com/queue/pdf-royal-veterinary-college-london-9c231bc6a04c39df6e9524f046e97cb563061.html>.
15. London Gazette (1916) <https://www.thegazette.co.uk/London/issue/29697/supplement/7761>. 7 August 1916
16. London Gazette (1917) <https://www.thegazette.co.uk/London/issue/30260/supplement/9010/data.pdf>. 30 August 1917.
17. Evans JTR (1963) Obituary: Dr S. C. J. Bennett. *Veterinary Record* 75: 1041.
18. NAM. n.d. World War I: Mesopotamia campaign. <https://www.nam.ac.uk/explore/mesopotamia-campaign>.
19. TNA n.d. War Office: Service Medal and Award Rolls Index, First World War (WO 372/2/104257). National Archives of the UK, Kew.
20. Cambridgeshire Archive (1925) *Cambridgeshire Electoral Registers, Poll Books and Burgess Rolls 1722-1966 (Camb/1920/Spring)*. Cambridgeshire Libraries and Archives, Cambridge.
21. DoA (1923) Report of the Proceedings of the Fifth Entomological Meeting held at Pusa on the 5th to 10th February 1923. Department of Agriculture, Calcutta.
22. IVRI (1926) Report of the Imperial Institute of Veterinary Research, India: Part II. Central Publication Branch, Delhi.
23. TNA (1925) Board of Trade: Commercial and Statistical Department and successors: Inwards Passenger Lists. Series BT26, Piece: 794. National Archives of the UK, Kew.
24. Cambridgeshire Archive (1925) *Cambridgeshire Electoral Registers, Poll Books and Burgess Rolls 1722-1966 (Camb/1925/Autumn)*. Cambridgeshire Libraries and Archives, Cambridge.
25. Abdel-Hameed AA (1997) The Wellcome Tropical Research Laboratories in Khartoum (1903-1934): An experiment in development. *Med Hist* 41: 30-58. [Crossref]
26. Elhadd TA (2015) Sir Henry Solomon Wellcome and Dr Andrew Balfour: an enterprise on the Nile and the early foundation of public health and medical research in the Sudan (1899-1935). *J R Coll Physicians Edinb* 45: 1655172. [Crossref]
27. Sudan Government (1927) Monthly return of senior officials, Sudan government, and British officers temporarily employed in Sudan government service, showing appointments & stations on 1 April 1927 and probable moves during the month [and other monthly, quarterly and half-yearly returns in the same series].
28. Bennett SCJ (1927) A note on the nature of the rabies virus in the Anglo-Egyptian Sudan. *Vet J* 83: 123-126.
29. Bennett SCJ (1927) A peculiar equine Sarcosporidium in the Anglo-Egyptian Sudan. *Vet J* 83: 297-304.
30. Bennett SCJ (1933) *Globidium* infections in the Sudan. *J Compar Pathol Therap* 46: 1-15.
31. Bennett SCJ 1931. Cryptococcus pneumonia in Equidae. *J Compar Pathol Therap* 44: 85-105.
32. Bennett SCJ (1932) Epizootic lymphangitis; Mycelial forms of the parasite in a natural case. *J Compar Pathol Therap* 45: 158-160.
33. Bennett SCJ (1944) Cryptococcus infections in Equidae. *J Royal Army Vet Corps* 16: 108-118.
34. Bennett SCJ (1935) Equine Cutaneous Leishmaniasis: Treatment with Berberine Sulphate. *J Compar Pathol Therap* 48: 241-243.
35. Bennett SCJ (1936) The treatment of Equine *Trypanosoma congolense* infections with Surfen C (Bayer). *J Compar Pathol Therap* 49: 151-159.
36. Hoare CA (1972) *The Trypanosomes of mammals: A zoological monograph*. Blackwell Scientific Publications, Oxford. doi:10.1126/science.179.4068.60.
37. Bennett SCJ (1936) Toleration of Naganol (Bayer 205) by horses. *J Compar Pathol Therap* 49: 304-309.
38. Bennett SCJ (1936) Cattle Plague vaccine. Studies on glycerinated spleen pulp. *J Compar Pathol Therap* 49: 1-48.
39. Bennett SCJ (1934) "Immune" and "Hyperimmune" Cattle Plague anti-serum. *Journal of Comparative Pathology and Therapeutics* 47: 163-180.
40. Bennett SCJ, Evans JTR (1934) Cattle Plague anti-serum prepared by intraruminal hyperimmunisation. *J Compar Pathol Therap* 47: 87-93.
41. Bennett SCJ, Evans JTR (1938) Influence of the dose of virus employed in testing the immunity of cattle vaccinated against cattle plague. *J Compar Pathol Therap* 51: 1-8.
42. Wilson RT in preparation. Directors of Veterinary Services in the Anglo-Egyptian Sudan: Joshua Timothy Richard Evans (Director 1952-1955), 1930-1955.
43. Bennett SCJ (1932) Contagious Bovine Pleuropneumonia: Control by culture vaccines. *J Compar Pathol Therap* 45: 257-292.
44. Bennett SCJ, Kenny PAC (1928) Mercuric Chloride as a diagnostic agent for Trypanosomiasis in camels. *J Compar Pathol Therap* 41: 341-353.
45. Bennett SCJ (1929) The Mercuric Chloride Test for camel trypanosomiasis. *J Compar Pathol Therap* 42: 118-126.
46. Horgan ES, Bennett SCJ (1929) The Mercuric Chloride Test for Trypanosomiasis in Camels. Mechanism of the Reaction. *J Compar Pathol Therap* 42: 188-196.
47. Bennett SCJ (1933) The control of camel trypanosomiasis. *J Compar Pathol Therap* 46: 67-77.
48. Bennett SCJ (1933c) The control of camel trypanosomiasis. *J Compar Pathol Therap* 46: 174-185.
49. GRO (1928) *England and Wales Civil Registration Indexes; Births*. Newton Abbott, Jul-Aug-Sep 1928, 5b 27. General Register Office, London.
50. TNA (1928) Board of Trade: Commercial and Statistical Department and successors: Outwards Passenger Lists. Series BT: 27. National Archives of the UK, Kew.
51. TNA (1929) Board of Trade: Commercial and Statistical Department and successors: Inwards Passenger Lists; Class: BT26; Piece: 902. National Archives of the UK, Kew.
52. GRO (1929) *England and Wales Civil Registration Indexes; births*. Newton Abbott, Jul-Aug-Sep 1929, 5b 202. General Register Office, London.
53. TNA (1929) Board of Trade: Commercial and Statistical Department and successors: Outwards Passenger Lists. Series BT: 27. National Archives of the UK, Kew.
54. TNA (1931) Board of Trade: Commercial and Statistical Department and successors: Inwards Passenger Lists.; Class: BT26; Piece: 962. National Archives of the UK, Kew.

55. TNA (1932) Board of Trade: Commercial and Statistical Department and successors: Inwards Passenger Lists.; Class: BT26; Piece: 990.
56. TNA (1933) Board of Trade: Commercial and Statistical Department and successors: Outwards Passenger Lists. Series BT: 27. National Archives of the UK, Kew.
57. Knight Frank (2019) Brook House, Shaldon, Devon. Knight Frank LLP, Hungerford. https://media.onthemarket.com › properties › doc_0_78.
58. TNA (1934) Board of Trade: Commercial and Statistical Department and successors: Inwards Passenger Lists: Class: BT26; Piece: 1043.
59. TNA (1935) Board of Trade: Commercial and Statistical Department and successors: Inwards Passenger Lists: Class: BT26; Piece: 1069. National Archives of the UK, Kew.
60. Hoare CA, Bennett SCJ (1937) Morphological and taxonomic studies on mammalian trypanosomes: III. Spontaneous occurrence of strains of *Trypanosoma evansi* devoid of the kinetonucleus. *Parasitology* 29: 43-56.
61. Hoare CA, Bennett SCJ (1938) Morphological and taxonomic studies on mammalian trypanosomes: VI. Further observations on the absence of the kinetoplast in *Trypanosoma evansi*. *Parasitology* 30: 529-542.
62. Bennett SCJ (1938) Cattle (Bulletin No 1). Department of Economics and Trade, Sudan Government, Khartoum.
63. Bennett SCJ (1939) Untanned Hides (Bulletin No 7). Department of Economics and Trade, Sudan Government, Khartoum.
64. Bennett SCJ (1939) Sheepskins (Bulletin No 8). Department of Economics and Trade, Sudan Government, Khartoum.
65. Bennett SCJ (1939) Clarified Butter (Bulletin No 9). Department of Economics and Trade, Sudan Government, Khartoum.
66. Bennett SCJ, Horgan ES, Mansur AH (1944) The pox diseases of sheep and goats. *J Compar Pathol Therap* 54: 131-160.
67. Bennett SCJ, John ER, Hewison JW (1948) Chapter 22: Animal Husbandry. In: Tohill JD (editor) *Agriculture in the Sudan, being a handbook of agriculture as practised in the Anglo-Egyptian Sudan*. Oxford University Press, Oxford. 633-667.
68. GRO (1963) England and Wales Civil Registration Indexes; deaths. Surrey South Western, Jul-Aug-Sep 1963, 5g 757. General Register Office, London.
69. PPR (1963) Calendar of the Grants of Probate and Letters of Administration made in the Probate Registries of the High Court of Justice in England: National Probate Calendar (Index of Wills and Administrations), 1861-1995. Principal Probate Registry, London.
70. Karrar G (1971) Speech by Dr. Ga'afar Karrar, President of the Sudan Veterinary Association at its 25th anniversary celebrations. Sudan Archive, Durham University Special Collections, Durham. (SAD.719/5/16-20).
71. GRO (1979) England and Wales Civil Registration Indexes; deaths. Exeter, Apr-May-Jun 1979, 21 973. General Register Office, London.