

THE HISTORY OF SHEEP SCAB IN SOUTH AUSTRALIA

W. Stephen Smith, B.V.Sc., F.A.C.V.Sc.*

(*Formerly Chief Inspector of Stock, Department of Agriculture, South Australia)

(Written in the mid 1970s: typescript scanned in July 2006, formatted and edited lightly, but the content was not corrected.)

Introduction

Psoroptes communis ovis, the sheep scab mite, was introduced into Australia with the earliest importations of sheep, and spread throughout the entire continent. Seddon ('Diseases of Domestic Animals in Australia', Part 3) gives the date of eradication in South Australia as 1866, but the detailed check of the early records referred to in this review shows the correct date for this State to be 1869. The achievements of our predecessors in eradicating scab from the Australia continent are the more remarkable when we consider the primitive medicaments available, lack of fencing, poor communications, lack of scientific knowledge and training, rapid dissemination of flocks into newly available areas for grazing, lack of education of shepherds and overseers, and other difficulties. Their success is even more praiseworthy when we remember that the disease is still present in the USA and that scab was not eradicated from Britain until after World War II, when the organic chlorine insecticides became available.

What were the factors which led to the eradication of this disease? It was a desire to find the answer to this question in respect to South Australia which led to the search of early records of the province. The history which follows was gleaned from the early newspapers, which in those days included full reports of Parliamentary proceedings, and from reports of the Chief Inspectors of Sheep.

Introduction into South Australia

There is little doubt that the sheep scab mite, *Psoroptes communis ovis*, entered South Australia with the earliest introduction of sheep, brought in to stock the land leases taken up in the province which was founded in 1836. The initial introductions were by sea from the Sydney district of New South Wales, Van Diemen's Land (Tasmania) and the Port Phillip district (Victoria). The first sheep to be landed in the colony consisted of six rams of Merino and Leicester breeds ex the *John Pirie* in 1836, followed by 70 head from Van Diemen's Land in the same year. In 1837 there were further introductions from Cape Colony (South Africa) and elsewhere. The *South Australian* newspaper in its issue of 21 July 1838 stated that the sheep introduced over the previous 15 months consisted of 192 rams, 7969 ewes and 4412 wethers. Although the earliest introductions were by sea, the overland routes were soon opened up and there are records of 1000 sheep from New South Wales in April 1839 and 11 000 head from the Port Phillip district in September of the same year.

In evidence given to the Committee of Enquiry into Sheep Scab appointed by the Legislative Council in 1843, George Anstey stated that more than nine-tenths of the diseased sheep in the province had been imported from Van Diemen's Land and New South Wales. He further stated that, to his knowledge, there was only one clean flock in the former colony and that scab was even more prevalent in the Port Phillip district. Scab infected sheep were probably being imported from elsewhere than the Australian colonies. In 1858 a consignment of seven rams imported from England was destroyed because they were found to be infected on arrival, and a further consignment in 1870 was, in the absence of a quarantine station, held on

board ship and then on a launch for two months for treatment before release. Rams imported from Germany in 1861 were found to be badly infected and were prohibited from landing.

Spread and Extent of Infection

As the early settlers moved out from Adelaide, either by land or by sea to ports such as Port Augusta and Port Lincoln, scab was taken to all areas of the province with the possible exception of Kangaroo Island. No record has been found of scab on this island but, in view of its early settlement, it is difficult to see how it could have escaped. The Port Lincoln district was heavily infected and Spilsby Island was the last property in that area to become clean.

There were few fences except for limited areas surrounded by brush or by stone walls and all sheep were shepherded by day and confined in small yards at night. Dingoes were plentiful and shepherds often careless and, therefore, infected sheep were scattered or strayed onto neighbouring properties. It was almost impossible for owners of clean flocks to maintain their freedom from infection. It was even suggested, on very good grounds, that some owners deliberately kept at least part of their flocks infected so that they could encroach on the grazing of neighbouring owners of clean flocks who, in their efforts to avoid infection, kept their sheep well back from their boundaries.

The percentage of infected flocks in South Australia in 1843 was variously estimated by persons giving evidence to the Committee of Enquiry at between 75 and 90. One witness, Joseph Gilbert, doubted whether there were 40 000 clean sheep in the province. In its report, however, the Committee tabled evidence based on a return prepared following closing of its hearings that there were 154 000 clean sheep and about 195 000 infected sheep in a total population of about 349 000 head.

Despite the various Acts which had been in force since 1840 and which will be discussed more fully later, the following statistics given in a Parliamentary report of 2 November 1853 show that scab was still a serious problem.

<u>Total sheep in province</u>	<u>1,400,000</u>
<u>Total freed of scab between December 1852 and October 1853</u>	<u>70,910</u>
<u>Total diseased in province</u>	<u>164,709</u>

The figures for the various districts were:

<u>District</u>	<u>Infected</u>	<u>Freed December 1852–October 1853</u>
<u>Port Lincoln</u>	<u>17,900</u>	<u>5,700</u>
<u>Yorke Peninsula</u>	<u>27,000</u>	<u>6,450</u>
<u>North of Adelaide</u>	<u>51,389</u>	<u>58,760</u>
<u>North-east (north of Murray River)</u>	<u>3,320</u>	<u>N.A.</u>
<u>South-east (south of Murray River)</u>	<u>35,000</u>	<u>N.A.</u>

In November 1854 the Colonial Secretary tabled a report prepared by the Chief Inspector of Sheep, John Hamilton, showing that of a sheep population of 1 245 280 head, only 66 430 were infected and a further 57 000 were classed as doubtful. The number of infected flocks continued to drop rapidly and by 1858 only odd flocks in the South East between Naracoorte and Mount Gambier remained infected. From this time until 1869 scab infected flocks continued to be found only on properties adjacent to the Victorian border. At that time there were few wire fences, and the only demarcation of the border was by brush barriers which

were frequently destroyed by fire allowing infected sheep to stray over the border. Many owners had land on both sides of the border and often brought their sheep into South Australia for washing, shearing and other management practices. In a report to the Chief Secretary in May 1863, Morris, then Chief Inspector of Sheep, stated that scab had recurred in the South East and deplored its re-introduction after South Australia had been free for the past 18 months.

The last multiple occurrence of scab to occur in the province more than 10 miles (16 km) from the Victorian border was in 1867 when at least four and probably more flocks in the Wellington district were found infected. At that time, Wellington was the main crossing place over the Murray River for stock. The origin of this outbreak, which will be discussed in detail later, was never traced.

There is no report of scab in South Australia after 1869, by which date the disease had also been largely eradicated from the western district of Victoria.

The Economic Importance of Sheep Scab in South Australia

No other disease of stock has equalled scab in importance in the eyes of the general public as well as stockowners. For the thirty years it was present in the flocks of the province, and for several years thereafter, scab was regarded as a major threat to the public welfare. In contrast, contagious pleuro-pneumonia of cattle raised scarcely a ripple of public interest. Only catarrh was regarded as seriously, but, fortunately, that mysterious disease did not reach South Australia. In an editorial on the outbreak of scab in the Wellington district, the *Chronicle and Mail* in its issue of 17 August 1867 stated, 'and when the terrible ravages in former days of that fell scourge are remembered people will cease to wonder at the alarm which has been created by its appearance ... The next point is to ascertain who is to blame for letting loose this demon of mischief'. In an editorial of the previous week the same paper stated:

for even if we are absurd enough to let epidemics rage unchecked amongst the human species it is no reason why we should allow contagion to spread amongst our flocks and herds. At all events the appearance of scab at Wellington has aroused the whole country. In and out of Parliament it has been a daily topic of conversation. Dispatches have been sent off by every post, telegrams flashed incessantly along the wires and mounted troopers and sheep inspectors sent galloping hither and thither.

Although the above extract would appear to over-dramatise its importance there is no doubt that in the climate of the times scab was a most serious economic disease. In a letter to George Fife Angas, published in the *Adelaide Observer* in 1853, Henry Evans of Evandale stated that a flock of 3000 sheep had been reduced to 1,891 by scab and the remainder rendered worthless. In evidence given to the Committee of Enquiry in 1843, Campbell, a former Inspector of Sheep, stated that he had seen infected sheep sold for 2/4 compared to 8/- for clean ones. Another owner stated that infected ewes sold for 6/- to 9/- a head as against 10/- for uninfected of similar quality. As the disease neared eradication infected sheep became worthless. Duncan MacFarlane, whose son played a major role in the eradication of the disease, in his evidence stated that he was the owner of clean and infected sheep and he considered the value of the latter to be about half that of those clean. *The Adelaide Examiner* (4 February 1843) in an editorial said:

we are afraid that some of the fleeces sent home will sell badly on account of the ravages of this disorder. Sheep driven into town for sale to butchers we have remarked to be often very much affected and no doubt farmers will get rid of this description of stock at much less price and more readily than sound ones. This must in some degree account for the low price at which some tradesmen offer meat.

As meat had to be eaten immediately fresh or held salted, sheep for human consumption were required for slaughter only to cope with the day-to-day needs of a very limited human population. Wool production was the only real source of income and surplus sheep could be sold for boiling down for tallow. Any disease which reduced wool production was therefore of prime importance. The sale of scabby sheep for human consumption was prohibited under the various *Scab Acts* but was not enforced until 1853 despite strong public protests. Indeed, one butcher over 100 years before his time wrote in a letter to *The Adelaide Examiner* in 1842 that ‘it is better to kill for slaughter a slightly infected scabbing sheep than one recently cured with mercury, corrosive sublimate and a farrago of other poisons’. Another writer stated that it was difficult for the uninitiated to detect scabby mutton from sound but, as scab made its appearance first on the back near the shoulders and caused the skin to adhere to the flesh, the butcher always displayed such carcasses with the back away from the customers and that therefore the buyer should always suspect such carcasses as being scabby.

A major loss to the owners of infected flocks was undoubtedly the cost of treatment. Tobacco wash was the most widely used preparation, and the costs were estimated in evidence given to the Committee of Enquiry in 1843 at £6 per 100 sheep for ingredients only using 50 lb (23 kg) of tobacco plus other chemicals. Imported tobacco leaf carried a duty of 1/6 per pound.

Losses as a direct result of the treatment of scab were often very heavy but no specific details are available. As the *Scab Acts* came to be enforced, particularly after the 1852 Act, licences, i.e. permits to hold sheep for treatment instead of slaughtering them, became very expensive. Such licences cost 6d per head for the first six months with a further 6d per head for each ensuing three months, i.e. 1/-, 1/6, 2/- and so on. Licences to treat could therefore cost up to 3/- per head for the first year and 9/- for the second year.

Treatments for Curing Scab

Tobacco wash came to be accepted as the most effective treatment for scab and by 1855 was virtually the only medicament used, but in the earlier years it was combined with a variety of other drugs. Earlier, mercury had had its strong supporters. In an article in the *South Australian* in January 1840 the following preparation was recommended ‘for the cure and prevention of scab’: 1 lb (454 g) of quicksilver, ½ lb (227 g) of pure Venice turpentine rubbed together in a mortar until the globules disappear, then add 1 lb (454 g) hog’s lard, then ½ pint (237 mL) of oil of turpentine. Apply by parting the wool lengthwise and across the body and rubbing the ointment on with the finger.

In another article on scab the following treatments were detailed:

1. 10 lb (4.5 kg) tobacco boiled in 15 gallons (58 L) of water; add ½ pint (237 mL) each of spirits of tar and spirits of turpentine per gallon (3.8 L) of wash before use. This is rubbed into each sheep by hand using 1–1½ pints (474–710 mL) per sheep.
2. Make an ointment of equal parts of lard and mercury - to each lb (454 g) add 3 lbs (1.3 kg) of lard, ¼ lb (113 g) of flour of sulphur, ½ pint (237 mL) of spirits of turpentine well rubbed together in a mortar. This preparation to be applied with the fingers from the crown of the head to the tip of the tail, well rubbed in, in five lines apart and also on breast. Scarify scabs with knife but don’t cut through the skin. The hurdles should be washed with quick lime and moved to fresh ground.

The Adelaide Examiner (25 March 1843) in an article on the disease of sheep stated: ‘Scab - The most certain Colonial remedy hitherto tried is a strong bath of tobacco water and corrosive sublimate into which all sheep are dipped at least once whether they appear to be affected or not’. One owner who had had heavy losses decided to try lime water and recommended the use of freshly burnt lime made into a heavy mixture by tipping two cartloads into a waterhold, mixing well and then throwing the sheep in. He stated that the only damage was when the lime got into the sheep’s eyes, when the shepherds would wash the eye with clean water or water to which a few drops of diluted vitriolic acid had been added. He claimed that the sheep were cured with two dressings. He was supported by Hamilton, then Chief Inspector of Sheep, who also stated that no damage was done to the wool.

Following the enactment of the *Scab Act 1852* and the appointment of inspectors to enforce its provisions, there was considerable interest expressed in the treatment of scab and the *Adelaide Observer* published an article by John Hamilton, newly appointed Chief Inspector of Sheep, giving a resume of the various treatments used and recommended by sheep owners.

One was Long’s Specific Remedy (no details available); 10 lb (4.5 kg) tobacco, 50 lb (23 kg) salt; 6 lb (2.7 kg) sulphur, 1½ lb (680 g) saltpetre, 50 gallons (189 L) water, corrosive sublimate and spirits of tar (no details available); corrosive sublimate and tobacco water (no details available); arsenic and tobacco water (no details available); arsenic, soap, sulphur and tobacco using ½ oz (14 g) of arsenic to 1 gallon (3.8 L) of water – corrosive sublimate may also be added.

In an editorial in 1866 the *SA Weekly Chronicle* referred to an article by Bruce, Chief Inspector of Sheep in New South Wales, in which he recommended 1 lb (454 g) tobacco, 1 lb (454 g) sulphur, 5 gallons (19 L) of water, and the sheep to be held in the bath for 1–2 minutes at a temperature not less than 100°F (37.8°C), and preferably 110–120°F (43.3–48.9°C) if the sheep could stand it. In his report for quarter ending 30 June 1863, Morris (Chief Inspector of Sheep) refers to an infected flock being dressed with a strong solution of 4 oz (113 g) tobacco, 1 oz (28 g) sulphur to 1 gallon (3.8 L) of water at 125°F (51.7°C). Nowhere was any reference found to the use of lime-sulphur. Tobacco alone or with other chemicals appears to have been the medicament mainly relied on. Imported tobacco carried a duty of 1/6 per pound and this was a subject of major consideration by the Committee of Enquiry in 1843. Despite strong pressure for the removal of this duty on tobacco to be used for the treatment of scab it was agreed that it should be retained as a badly needed source of revenue and to encourage the growing of tobacco locally. Several articles appeared in the papers dealing with its cultivation. Although many owners reported success, failures were common due to climatic conditions and insect attack.

Effect on Intercolonial Sheep Movements

Scab was a cause of strained relations between South Australia, New South Wales and Victoria for many years. The *Scab Act* of 1840 gave the Inspector power to inspect sheep introduced into South Australia reported as being infected, and to report to the Commissioner of Police who could then require the owner to pay 10/- per head on all sheep and lambs in the flock in addition to the normal import duty. As the position of inspector was dispensed with after six months because of financial difficulties, it would appear that this provision was rarely if ever used. The subsequent *Scab Acts* provided penalties for the introduction of scabby sheep. By proclamation under the *Introduction of Stock Act 1861* the introduction of sheep from New South Wales and Victoria was prohibited unless authorised in writing by the

Commissioner of Crown Lands. By amendment to the *Scab Act 1859*, the issuing of such permits was transferred in 1863 to the inspectors in South Australia. A permit could be issued only if the sheep had been in a flock free of scab for at least six months, had not been dipped or dressed in that period and had not been in an area where scab had been present in that period or where scabby sheep had not been present in the past three months. These requirements virtually prohibited the entry of sheep from Victoria and, to a less extent, from New South Wales. In 1866 this prohibition was extended to include Queensland, Western Australia, Tasmania and New Zealand. To enforce the provisions in respect to New South Wales an inspector was stationed on the border at Chowilla to control entry from that colony via Wentworth. This inspector was given orders to go over the border into New South Wales and Victoria to find out where scab existed. Subsequent newspaper reports refer to stopping of sheep from New South Wales entering via Euston. An inspector was also sent to the Barrier Ranges (Silverton–Broken Hill). Following the multiple outbreak in the Wellington area in 1867, New South Wales and Queensland prohibited the entry of sheep from South Australia. As a result of this outbreak a deputation of sheep owners led by Morris (a former Chief Inspector of Sheep) appealed to the Commissioner of Crown Lands to prohibit the entry of sheep from Victoria entirely until that colony had eradicated scab. This request was not met in full, but the conditions of entry were amended to provide that all sheep be branded with the letter V not less than three inches high with pitch, or tar. Patrol officers were authorised to destroy any sheep found straying over the border and feeling ran high on both sides.

The prohibition by New South Wales and Queensland on the introduction of South Australian sheep was strongly debated in the press and in the Legislative Council. The prohibition by these colonies had been imposed because South Australia continued to allow the entry of Victorian sheep although under very restricted conditions. Although the general feeling was against placing a total prohibition on Victorian sheep, this action was taken by proclamation in March 1869. The New South Wales embargo on South Australian sheep continued until 1870 despite strong representations to that colony. Efforts were made by southeastern interests to have the conditions of entry for Victorian sheep extended to allow movement from clean districts, but because of fears of a hostile reaction from New South Wales no action was taken. There was report of a move by Victorian interests to place 1/- per head tax on South Australian sheep entering that colony. In June 1872 the Commissioner of Crown Lands advised that New South Wales had prohibited the entry of South Australian sheep via Chowilla but would allow the continued entry via the Barrier Ranges or other route approved by the local Board and that he (the Commissioner) had instructed the South Australian inspector at Chowilla to stop the entry of all New South Wales sheep into South Australia. This action apparently had the desired effect as, in July, the Chief Secretary announced that New South Wales had removed its restrictions and that South Australia had done likewise. A request in November 1872 by 49 Victorian and South Australian sheep owners seeking removal of the prohibition on sheep from Victoria was refused by the Commissioner of Crown Lands because of fears that New South Wales would react unfavourably, but he advised that he would be prepared to reconsider in respect to sheep from the Wimmera provided he was given a plan of the route to be followed. The prohibition on Victorian sheep continued until 1877, and as late as 1876 an owner in the South East was fined £100 and the sheep forfeited for violation of the proclamation covering the entry of sheep from Victoria.

Personnel Responsible for Scab Control and Eradication

The first person appointed for the control of scab appears to have been William Dumbleton, under the *Scab Act 1840*. The position was listed as Inspector of Diseases in Sheep, and the

salary quoted for the quarter ended 31 December 1841 was £27.12.1. He was formerly a butcher in Hindley Street, Adelaide and his appointment does not appear to have had general approval. One report stated that he was 'disqualified for the office because of previous employment in Van Diemen's Land and his absolute ignorance of diseases of sheep'. The *Adelaide Chronicle* of 19 January 1842 complained of the state of the sheep brought into Adelaide for sale for slaughter and stated, 'they are a mass of disease and yet this is allowed notwithstanding the appointment of an Inspector of Scab (who by the bye does not know a scabby sheep from a clean one)'. The inspector was responsible for supplying a return of diseased sheep to the Inspector of Cattle Brands appointed under the *Slaughtering of Cattle Act 1840*. The latter was a Kenneth Campbell and according to a correspondent in a letter to the *Adelaide Independent* on 18 November 1841, he and his friends induced the Governor to appoint him to both positions. His occupancy was short-lived as both positions were dispensed with after six months by Governor Grey, due to the financial crisis in the Colony. No further appointments appear to have been made until 1853, when John Hamilton, George Field and W.R. Mortlock were appointed under the *Scab Act 1852*. Mortlock resigned the same year.

John Hamilton, who had been manager of Joseph Gilbert's Pewsey Vale run, was the first Chief Inspector of Sheep. The salaries for the positions are quoted in a letter to the *Adelaide Observer* in 1854 as one at £350 and two at £300; c.f. two inspectors of schools at £300 and £250. Mortlock's position was taken by John S. Giles, who also resigned soon after and was replaced by Henry Thomas Morris, who became Chief Inspector in 1855 following Hamilton's death. Morris came to South Australia in 1836 with his uncle, Governor Hindmarsh. He took up land in the South East and later went to the Californian gold diggings, returning to Australia in 1850. Morris played a major role in the eradication of scab and at the time of his resignation in 1865 to become manager of Dutton's Anlaby property at Kapunda, the disease was restricted to odd properties on the Victorian border. In 1863 he was given a purse of 600 sovereigns and a gold watch subscribed to by 82 landowners at a complimentary dinner at the Pier Hotel. In addition to his duties as Chief Inspector Morris was, in 1860, given the task of assessing the carrying capacity of the northern runs under the *Stock Act*. This work took him 13 months to complete and took him eventually to all parts of the colony, visiting over 500 properties. It was a formidable task even with today's facilities.

Another inspector to have some prominence was Allan MacFarlane junior, who was appointed in December 1855 to take charge of the South East district where he carried out his duties with tact and firmness until his resignation in 1858 when he resigned to return to the family property near Wellington. When scab recurred in the area in 1867 his opinion was sought by the owners after the then Chief Inspector of Sheep, C.J. Valentine, and the local inspector had failed to recognise the diseases. He reported his opinion to the Chief Secretary, and drastic action was immediately taken.

Morris was succeeded as Chief Inspector of Sheep in 1865 by Charles Jonas Valentine who filled the position until his retirement in 1905 at the age of 70. In addition to his duties as Chief Inspector of Sheep he was one of the three Commissioners appointed to report on the northern leases. He became Chief Inspector of Stock and Brands under the *Stock Diseases Act 1888* and Chief Inspector of Fisheries in 1893 under the *Protection and Conservation of Fish Act 1878*. Prior to a visit to Europe in 1885 he was presented with a gold watch by some of the graziers. Prior to his retirement in 1905 under the *Septuagenarians Act* a petition signed by over 250 stockowners asked the government to retain his services. His salary at retirement was £500 p.a. and compensation £1200. (Valentine had come under severe

criticism for his failure to recognise scab at the time of the Wellington outbreak and there were demands for his dismissal.)

The stormy petrel of the inspectors was Henry L. Galbraith who had been appointed in 1866 to control the South East district, with headquarters at Penola. His conduct was the subject of complaint by Valentine and he was charged with refusal to furnish returns, furnishing false returns, absence from duty without permission and other matters. His relationship with the Chief Inspector would not have been improved by his secondment to the Wellington area by the government to take charge of the eradication program after Valentine had stated that scab was not present only a few weeks before. Despite friends in high quarters, his salary and expenses were stopped and he was eventually dismissed in 1869. He took legal action against Mr Riddoch MP for libel and received £100 damages. He took similar action against Kent Hughes, then Treasurer, and received £750 damages. He was not without friends and admirers and was given 'a very influentially signed and highly complimentary testimonial to be presented to the Commission of Crown Lands by the stock owners of the district (South-East)'. He was appointed an Inspector of Police and of Licensed Houses in 1870 but was dismissed in 1873 for soliciting money and gifts from the publicans whose premises he inspected.

Other inspectors appointed for the eradication of scab were:

John S. Giles	1854–
James S. Watson	1855 (northern district and later transferred to south-east)
Samuel Mason	1856–57
H.S. Glennie	1857 (initially markets and parklands vice Mason and later transferred to Chowilla)
J.M. Woolley	1858– (vice MacFarlane)
Warriner	1863– (initially town and suburban and then at Wellington where he also failed to recognise scab and was severely reprimanded)
McLeod	1866–
T.A. Wells	1869– (South East)

Problems in Eradication

To any person familiar with the facilities available today for the control of an infectious disease the problems faced by those responsible for the eradication of scab in the years 1838–1868 have the qualities of a nightmare. Roads were scarce, accommodation limited, the available knowledge of the disease was primitive and often wrong, the drugs in use were elementary and their usage empirical. There were few fences, large areas of unsettled land, labour was unskilled and, due to the exodus to the Victorian goldfields, often very scarce and communications were slow. The knowledge of the life cycle of the mite and of the mite itself was limited and often wrong. In evidence before the 1843 Committee of Enquiry the causal organism was referred to by one witness as a virus. Another stated that clean sheep should not move over the ground over which infected sheep had moved for at least three months in wet seasons and six months in dry periods. Another recommended at least four months. Campbell, who had previously been the Inspector of Diseases in Sheep, stated that clean sheep should be separated from those diseased by a mile and he 'would be afraid to put clean sheep on runs over which scabby sheep had crossed before the expiration of a year'. In Parliamentary debates more than one member referred to the spontaneous development of scab under wet conditions. Movement around their districts must have been slow and laborious for the inspectors. Watson (South East) in 1856 reported that in the previous quarter he had inspected 97 183 sheep and travelled 712 miles (1146 km).

Morris's report for September–October 1856 makes interesting reading. He reported having visited the Port Lincoln district and that now all properties were clean except for 800 head on Spilsby Island, whereas three years ago there was hardly a clean flock in the district.

In respect to Spilsby Island he wrote:

Having been informed that the sheep running on Spilsby Island were diseased, I determined to go and inspect them which I had considerable difficulty in doing as the only person who had a boat for hire fit to go out in Spencer's Gulf being a friend of the person in charge of the sheep refused to take me, fearing he might offend him. However that did not prevent me getting there as Mr Murray, the Government Resident, very kindly lent me his boat but it had to be launched from his residence to the Port, a distance of half a mile. I then engaged an old whaler to take charge of it. Mr Hawson and Mr Nichols, two gentlemen residing there, obligingly volunteered to go with me and assist in working it. On arriving at the island which having a fair wind we did the same day we started from Port Lincoln, I found Mr Sawyer who had the sheep on shares, engaged in shearing them. They did not require two minutes inspection to see they were diseased and he expecting me on the island, had got them branded as required by Ordinance 21, 1852. I demanded sixpence per head and penalty £20 which he paid on order of Captain Tapley the owner of the sheep. I then granted him a lease to cure them at the same time explaining to him that none of the sheep could be removed from the island without an order from me which I should not give so long as they remained diseased.

The scope of the inspectors' responsibilities in respect to the recovery of penalties is shown in the report of the Chief Inspector of Sheep for the month of December 1856, when he advised:

Inspector MacFarlane has reported from the South East that Dr Dixon had given him a cheque for £300 (penalty for last month) but not until compelled to do so. As Dr Dixon refused to pay sixpence a head penalty, Inspector MacFarlane proceeded to levy 5/- per head as provided by *Act 29 of 1855/56* on 6,676 of his sheep which would have amounted to £1,669 and that is only a little more than half, as the number of diseased sheep was 12,000 but at the last moment Dr Dixon tendered the sixpence per head on 12,000 which Inspector MacFarlane accepted and stopped proceedings for the larger amount. The cheque was drawn on the Bank of Australasia Melbourne and only ½% added for exchange which should have been 1½%. I forwarded a cheque for £301.10.0 through the Bank of Australasia here for collection and the proceeds handed to me was £297.0.6 being £2.19.6 short the amount due on the diseased sheep. I have instructed Inspector MacFarlane to get the balance from Dr. Dixon without delay. A lease has been granted to him for three months to cure his sheep. Inspector MacFarlane informs me that he Dr. Dixon has sold 6,000 of them to be sent to Victoria as soon as they are fit to travel.

The 1867 Outbreak at Wellington

The recurrence of scab in the Wellington district in 1867 in which several properties were involved was of major concern to the province. This outbreak coming as it did almost immediately after publication of a report by Valentine as Chief Inspector of Sheep that the province was free of scab. This, coupled with the failure of Valentine and Warriner, the local inspector, to recognise the disease, led to demands for their dismissal, and a Select Committee was appointed to investigate the circumstances of the outbreak. The origin was never determined. The last previous occurrence in the area was in 1863, when a mob of 1100 sheep travelling up the Coorong were found to be infected and the entire mob was slaughtered and their carcasses burnt. The Select Committee, in its second report, stated that the evidence indicated that the disease had been present since late in 1866. From contemporary newspaper reports it appears that certain sheep-owners in the Wellington area reported in May 1867 to the local inspector that their sheep were suffering from a skin complaint. After inspection in May and June by Warriner and later by Valentine the condition was diagnosed as 'rash'. The real nature of the disease was identified by Alan MacFarlane, a former inspector, who had been asked by the owners for an opinion.

He immediately notified the Chief Secretary and Inspector Galbraith was despatched to the area with instructions to take all necessary action for eradication. It was probable that Valentine's and Warriner's failure to recognise scab was due to their lack of experience with the disease. Warriner was appointed in 1863 and Valentine in 1865, when scab had been eradicated except for odd outbreaks in the South East. They probably also fell into the old error of thinking that as there had been no disease within 200 miles (320 km) for the past four years, the condition they were looking at could not be scab. This view was also taken by the Select Committee. As late as July Valentine had reported that South Australia was free of scab. Galbraith reported that in his opinion, based on the thickness of the scabs and past experience, the disease had been present for some months. The Select Committee also referred to the presence of 'rash' in many sheep on the affected properties, but there is no evidence on which to base a possible diagnosis as to its true nature.

News having been received immediately after the diagnosis of scab that a mob of lambs was on its way from Wellington to the Adelaide market, a police trooper was sent to stop them. Although there was no evidence of scab, the mob was slaughtered at the request of certain people who provided the necessary compensation. The affected mobs of Messrs Chisholm, Stifling, Mason, Kimber and Hughes were slaughtered and compensation paid. Despite the earlier misdiagnosis by the inspectors, the owners of the affected flocks were prosecuted for breaches of the *Scab Act* including failure to brand and for allowing infected sheep to be depastured without being properly tended. These prosecutions were associated with some embarrassment as one of the defendants was Mr Hughes, who was also the Stipendiary Magistrate at Wellington, and this led to the hearings being transferred from Wellington to Mount Barker. The Select Committee stated in its findings that the prosecutions were injudicious and that in view of the circumstances the penalties should be remitted.

This outbreak resulted in new legislation including the proclamation of Scab Districts. This proposal caused considerable resentment in the Wellington area, and a public meeting to protest was held at the Wellington Inn on 24 August 1867. Despite these protests, the legislation was passed and the movement of sheep out of the area was controlled until 1868, when the Wellington scab districts were finally cancelled by proclamation.

Scab Legislation

The initial Act for the control of scab was passed in 1840 and provided:

1. The inspector could inspect sheep coming into the province reported as being infected with scab and report to the Commissioner of Police and the owner could be compelled to pay 10/- per head for all sheep and lambs in the mob in addition to the normal import duty.
2. The inspector was given power to inspect any flock reported to have scab and to give the owner six months' notice to eradicate and if the flock were then still diseased, the owner to pay penalty of 2/6 for every diseased sheep or lamb unless it appeared to the inspector that treatment had been tried without success, in which case the owner may be given a further six months to treat, but no further extension to be given and owner to pay penalty of 5/- p.a. (Note: Act did not specify 5/- per head.)
3. Details of infected flocks were to be published in the *Government Gazette* and it was illegal to purchase sheep from such flocks.

4. It became an offence to turn out or to drove infected sheep.
5. If they were driven, owner must give public notice.
6. If infected sheep abandoned or set at large and so infected clean sheep, the owner was liable for damages.

As the appointment of the inspector lapsed after six months and there was no further appointment until 1853, this Act and its amendments appeared to be of little value.

In September 1841 a meeting of stockowners was held in the Council Room in Hindley Street to consider the laws relating to scab. The meeting agreed that the existing Act was useless and did not afford sufficient protection to flock-owners, particularly those depasturing their sheep on waste lands. The Act of 1840 was amended in 1841 to provide the inspector with the power to fine any person who, without a licence from him or a magistrate, drove infected sheep, except in the month of February, along a public road on or over any land not belonging to the owner, of the sheep. The penalty for introducing diseased sheep was reduced to 1/- per head. The lack of control under the existing Act led to demands for further legislation and a Select Committee was appointed in October 1843 to examine all aspects. In its review of the existing Act and its amendment the Committee's attention was drawn to several anomalies and injustices, hereunder:

1. Clause 5 of the 1840 Act required owners to affix notices at the end of every road where it entered or left any run upon which scabby sheep were depastured but, as there was no definition of runs and therefore no possibility of determining where the roads entered or left, this requirement could not be compiled with.
2. Clause 6 required the owner to give notice to the inspector but as there was no inspector, this was inoperative.
3. Clause 4 of the amendment prohibited the grazing of scabby sheep on other than purchased land but, as almost all lands were intersected by public roads (unfenced mainly), this restriction could not be complied with in most cases.
4. Clause 5 of the amendment prohibited the movement of infected sheep during the month of February and this rendered efficient management impossible.
5. Clause 7 of the same Act made it compulsory for the owner to move his infected sheep from the place where they were depastured at the time of his conviction, but there was no place to which he could legally take them except to purchased land (without roads) and as any movement was subject to a licence by a magistrate who was not bound to give such licence and as an owner who had been prosecuted could be further fined for every day such sheep continued in his possession unless he moved them under licence, this section was largely unenforceable. If the magistrate did issue a licence, the infected sheep could be moved only at the risk of spreading infection.
6. Under clause 2 of the main Act the initial fine was 2/6 per infected sheep but for any further offences under the same clause the penalty was only 5/- p.a. for the whole flock.

7. The major complaint was that the owner of a clean flock, however small, could keep on lodging complaints against the neighbouring owners of infected flocks and so eventually force them off their runs, which he could then occupy.
8. As all penalties under the Scab Act had to be recovered under another Act which had been disallowed, it was questionable whether any penalties could in fact be recovered.

The Select Committee made recommendations for a new Act for the control of scab and this came into force on 1 May 1844. The provisions of this Act were:

1. A penalty of 1/- per head for importing diseased sheep into the colony. Where the owner could not be found the sheep could be sold to recover the penalties.
2. A penalty of £50 per head for abandoning diseased sheep.
3. A penalty of £10 for driving diseased sheep on a public road without a warrant. Magistrates in Petty Sessions could declare what were public roads in their area.
4. Magistrates were empowered to authorise the removal of diseased sheep on warrant subject to certain conditions, including notice to be given to all owners or overseers of properties en route.
5. Penalty of £10 for depasturing scabby sheep on other owners' runs.
6. Penalty not exceeding £50 for communicating the disease to clean sheep owner by others by trespass, to be awarded by the magistrates for compensation.
7. Justices could grant warrants for the examination of sheep alleged to be diseased.
8. Where a penalty was ordered following lodging of information, one-third was to be paid to the informer and the remainder to the Government for public use.
9. The sale of diseased sheep to butchers and the sale by butchers of carcasses of diseased sheep was prohibited.

This latter clause was quickly shown to be inoperative as the Act gave no power to the Clerk of the Markets to stop the sale of diseased sheep. Three days after the Act was passed, 100 scabby sheep were walked into the Adelaide Cattle Market and sold to butchers. The Clerk could act only as an informer and the cost of laying any information was 10/- with a similar cost of hearing and, while the papers were being obtained, the sheep had been sold and the owner had gone. As no inspectors were appointed under this Act, it, like its predecessors, was largely ineffective. It was amended in 1846 to prohibit the movement of scabby sheep and to provide a penalty of 1/- per head for every run over which scabby sheep had been moved. The reasons for this amendment were that warrants for movement had been carelessly given and it had been shown that sheep could be freed of scab without the necessity to move them from runs where they were depastured.

In 1852 a petition was presented to the Legislative Council, signed by the owners of 500 000 sheep of which 41 000 were diseased, praying that an effective Act for the eradication of scab be passed. As a result a new *Scab Act* was gazetted to come into force on 1 January 1853, and it provided for:

1. The appointment of inspectors.
2. Powers for the inspectors to inspect sheep anywhere.
3. Penalty of £50 for hindering an inspector.
4. Scabby sheep to be legibly branded and kept so branded with the letter S on the rump and initials of the owner. The brand was to be made with pitch or tar.
5. The brand was to be accepted as conclusive evidence of diseases

6. If scab was found in any sheep in a mob being driven for slaughter, the whole mob could be destroyed but the owner had the right to replevy on giving notice, i.e. recover by writ goods wrongly seized on giving security to try the right to them at law.
7. Prohibition of moving infected sheep from their run on penalty of destruction but with the right to replevy. Operation of this clause was deferred until March 1854 to give owners the opportunity to move for the purpose of boiling down subject to a Local Court order.
8. Owners and overseers had the right to examine sheep passing over their runs unless the owner had a court order. If scab was suspected the sheep could be detained until examined by an inspector who could, if scab was found to be present, order their destruction.
9. Inspectors were given the power to enter any land and destroy any diseased sheep.
10. An owner or any employee could destroy any diseased sheep found on his property without a shepherd or approaching near his sheep.
11. As from 1 September 1853 no diseased sheep were to be depastured on waste land or commonage within any hundred.
12. Owners, or persons in charge of diseased sheep to supply to an inspector on demand, a correct account of all scabby sheep in their possession.

This Act marked the beginning of the end of scab in South Australia. Inspectors were appointed immediately. A notice was published in the *Government Gazette* of 15 January 1853 that an inspector would be on duty at the Adelaide Cattle Market to deal with any diseased sheep. Its operations were not without problems in the initial stages. Then, as now, challenges in the courts were upheld and prosecutions dismissed or verdicts quashed on technicalities, and amendments were necessary to remove these difficulties. A private member's and a government Bill were introduced into Parliament in November 1853, but the former was disallowed by the Speaker on the grounds that there could not be two Bills on the same subject before the House and that the government Bill took preference. This amending Bill, passed in December 1853, provided the necessary powers to implement the provisions of the main Act and it also delayed destruction of diseased sheep until March 1855. This latter clause was severely criticised in an editorial in the *Adelaide Observer* of 24 December 1853 in which it deplored the delay and advocated compulsory treatment. In December 1854 a further amendment was passed deferring compulsory slaughter, provided that a fine was paid. This amendment also provided that all owners of infected sheep must notify an inspector by 1 March 1855 and 1 September 1855 of all scab-infected sheep and pay a fine of 9d per head if depastured on waste land and 6d per head on other lands, and must declare their intention to eradicate within six calendar months. If the owner failed to notify or to pay the fine, the scab-infected flocks could be destroyed.

A further amendment was gazetted in May 1856 to provide:

1. Payment by owners of infected sheep of a fee of 6d per head for six months and 6d per head for each three months thereafter for the right to treat.
2. Power for inspectors to withdraw the licence to treat if the owner did not do so.
3. Owners of clean flocks could have an infected flock destroyed on payment of compensation to the owner.

The object of the last clause was to remove small infected flocks which were a danger to surrounding clean flocks. A flock of infected sheep belonging to butchers grazing in the Adelaide parklands was seized under this Act but was replevied with the necessary bond being entered into. Subsequent reports of the Chief Inspector of Sheep show that a number of

flocks were handled under the licence to treat clause. Implementation of the third clause of the amending Act of 1856 resulted in an interesting legal case. In 1858, H.B. and B.H. Hughes imported seven rams from England, which, on arrival at the property, were stated to be scab infected. Three adjoining owners asked that the rams be destroyed and provided the money for compensation. The destruction was supervised by Morris and Watson. Later, Messrs Hughes sued the inspectors and were awarded £175 damages on the grounds that the destruction was illegal as the rams had been held in a shed on arrival at the property and had not been depastured as set out in the Act. The government appealed against the decision, but no reference could be found to the outcome of the appeal.

In 1859 a new Act was passed consolidating the existing Acts of 1852, 1853 and 1855/56. It amended certain clauses and added other provisions for better control. The amended or additional provisions were:

1. The fee for a licence to treat was increased from 6d per head for six months and 6d per head for each ensuing three months to 1/- per head for the ensuing three months and then increasing by a further 6d per head for each ensuing three months, and the licence to be cancelled if the owner failed to treat.
2. Empowering any three owners within 10 miles (16 km) of an infected run to require an inspector to destroy infected sheep notwithstanding the issue of a licence to treat, but these owners to pay compensation not exceeding 7/6 per head.
3. A new clause provided that, where any infected sheep or sheep infected or dressed within the preceding six months were moved without the permission of an inspector from the property along any public road or on to any land not owned by the owner of the infected sheep, all the sheep and those accompanying them or mixed with them may be destroyed or the inspector could exercise an option to fine the owner not less than £100 or more than £500.
4. A further clause provided £50 penalty for introducing infected sheep into the colony.
5. Clause 16 required infected sheep to be watched throughout the day and yarded at night, with a penalty of £25 per day or night for neglect of this requirement.
6. Inspectors were given power to employ assistance and to recover the expenses therefor.

This Act remained in force until repealed by the *Stock Diseases Act Amendment Act 1932*. South Australia was reported to have been free of scab for 18 months in May 1863, when infection was reintroduced, and, as a result, Morris (Chief Inspector of Sheep) requested the issue of a proclamation under the *Introduction of Stock Act 1861* prohibiting the introduction of sheep from New South Wales and Victoria except with the written authority of the Commissioner of Crown Lands. The 1859 Act was amended in 1863 to provide:

1. Prohibition of sheep entering from New South Wales and Victoria without a permit signed by a South Australian inspector, with a penalty of not less than £50 nor more than £200 with imprisonment for up to six months in default.

2. Right of owners, managers and lessees to demand to see the permit and to seize and detain until examined by an inspector if permit not produced.
3. Right of inspector to destroy infected introduced sheep.
4. The conditions under which a permit could be issued by an inspector were:
 - (a) The sheep must have been free of scab for at least six months without dressing or dipping.
 - (b) They must not have been in an area in past six months where scab was present or where scabby sheep had been present in previous three months.

These conditions of introduction were extended by proclamation in 1866 to apply to sheep from the other colonies including New Zealand.

Following the outbreak of scab at Wellington in 1867 the Act of 1859 was further amended in that year to provide for the proclamation of Scab Districts which in effect defined certain areas as quarantine districts and prohibited movement therefrom except with a written permit. Four districts were proclaimed immediately in the Wellington area and a fifth in the Hundred of Mingbool, on the border in the Mount Gambler area, in 1868. In May 1868 these districts were reduced to cover only the crossing places over the Murray River and the eastern boundary of the province in the Hundred of Mingbool. The latter was enlarged in September 1868 to include Kaladbro and the properties of Messrs Sutton, Wehl and Umpherston because of scab in sheep owned by Sutton. Scab districts 1, 2 and 3 were revoked in February 1869 and 4 was also revoked in September of that year, thus freeing the Wellington area of all restrictions. However, new districts were proclaimed in the South East at the same time. The South East districts were not revoked until 1872, and this marked the end of the scab era in South Australia.

Bills introduced into Parliament in 1868 and 1872 to further amend the Act of 1859 were rejected.

Discussion

It is clear from contemporary reports and newspaper articles and editorials that scab was a disease of major importance to the sheep industry. Unchecked it spread rapidly, causing severe wool damage, loss of condition and death. The costs of control, due to labour and equipment required and the value of the medicaments used, were considerable. The presence of an infected flock in any area posed management problems for other owners and was a constant source of worry. Scab infected sheep must have been a repulsive sight, judged by public reaction to their presence in markets where sheep were sold for human consumption. No other stock disease has resulted in such public demand for action nor has any other disease eradication program received such unanimous support. Nowhere in the press of the day was there any suggestion that control was unnecessary or that the strict action taken was unwarranted. The drive for eradication came from the sheep-owners without any support from an organised and trained animal health service. The success of the eradication program in the five years after the passing of the *Scab Act 1852* and the appointment of the inspectors was truly remarkable. Between 1853 and 1858 the number of infected flocks dropped from somewhere near 50% to an odd flock mostly in the South East corner of the Colony. This success is more remarkable when it is remembered that the acaricides available were crude

and there was no measure of the nicotine content of the tobacco leaves and stalks used to make the dipping wash. Directions for use were empirical and operators often persons of very limited education.

It is interesting and perhaps humbling to compare the scab eradication exercise with two South Australian sheep disease control programs of a century later. In 1965 an all out effort was started to control sheep body lice. Backed by the stockowner organisations, subjected to an intensive extension program, implemented by a well organised, trained and enthusiastic animal health staff and with the backing of sophisticated insecticides and equipment, this campaign had failed after eight years of continued effort to reduce significantly the incidence of body lice. The failure was not due to inadequacy of legislative support or the reluctance of the courts to impose heavy penalties. On the contrary, the fines imposed were so heavy that in two cases application was made to the government to have them reduced. The other program, started in 1955, applied to footrot and here there was rapid success; within five years the incidence was reduced from an estimated 1700 flocks in the State, with over 70% incidence in certain areas, to less than 50 flocks. In this program prosecutions were rare. It is felt that the reasons for the success of the scab and footrot efforts and the failure of the lice control campaign rest largely in social reaction to the diseases themselves. Scab and footrot give repulsive clinical evidence of their presence. Immediately the majority of flocks in an area were free of the disease, public opinion and social pressure forced the owners of infected flocks to take the requisite steps for eradication.

Summary

The introduction of sheep scab into South Australia in 1837 and its subsequent spread and its effect on the sheep flocks of the province are reviewed.

The medicaments which were used in the control and eradication of the disease are quoted from contemporary reports, and it is apparent that tobacco wash was the agent mainly relied upon.

The provisions of the various *Scab Acts* have been outlined in some detail in order to record the changes which became necessary from time to time to cover the deficiencies as they became apparent and to meet the needs imposed by the developments of the sheep industry.

Considerable attention has been devoted to the personnel, both sheep-owners and inspectors, who were responsible for the eradication of scab in South Australia and to the problems with which they were faced.

The eradication of sheep scab from South Australia and the Australian continent was a remarkable achievement which we take for granted and for which too little credit appears to have been given to our predecessors. An underlying reason for the success has been suggested but this does not detract from the credit due to those responsible.

Acknowledgements

Sincere appreciation is recorded for the help given by the staff of the State Library of South Australia, who directed attention to the appropriate newspapers of the years concerned, and to the staff of the *Chronicle* weekly newspaper who arranged access to the early issues of that periodical. Thanks are also given to Mark Valentine, grandson of C.J. Valentine (Chief Inspector of Sheep and later first Chief Inspector of Stock for South Australia), who gave access to his grandfather's records and permitted them to be photocopied for holding in the Association Archives.