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PAPERS AND COMMUNICATIONS.

The Veterinary Profession in South Africa: (3) Professional Veterinary Medical Societies. (a) Transvaal Veterinary Medical Association. (Inaugural Meeting 16/2/03).

By Dr. H. H. CURSON, F.R.C.V.S., Onderstepoort.

INTRODUCTION.

It is to be regretted that, although ten years have elapsed since the T.V.M.A. ceased to exist, no account of its activities has been written. This, in spite of the loss of all records during the Great War, would not have been difficult, for owing to the foresight of several secretaries, especially Messrs. Chalmers, Bush and Conacher, reports of most of the general meetings were published in the *Veterinary Record*.

Within three months of the appointment of the first veterinarians of the Civil Veterinary Division (Department of Agriculture), a meeting (the inaugural) was held at Long's Hotel, Johannesburg, on 16/2/03 with the object of forming an association. Among those present were Messrs. D. Hutcheon (C.V.S. Cape Colony), A. Theiler (Govt. Vet. Bacteriologist), F. C. Gavin and J. Peddie (Johannesburg Municipality), J. R. R. Hamilton (Repatriation Department), E. Kellett (Veterinarian to the Transvaal Town Police), and J. K. Pilkington and J. M. Robinson (private practitioners). The A.V.D. was represented by Lieut. R. C. Cochrane who, a week later, was seconded to the Transvaal C.V.D., and the S.A.C. by Capts. Irvine-Smith (Acting P.V.O.), Tate, Christy, Bell and Lieut. H. O. Oliver. Letters wishing the movement every success were read from Messrs. S. B. Woollatt (P.V.S. Natal), J. Fairclough⁽¹⁾, and the following: A.V.D., Major Richardson, and Lieuts. Allen and Lane; S.A.C., Messrs. Joyce, Edwards, Hodder, Carraway, and Runciman; C.V.D., Messrs. Chalmers, H. M. Webb, Sturge, Pollard, and Walker; Repatriation Department, Messrs. Jackson and Dunning.

Messrs. Irvine-Smith, Pilkington, and Bell were elected President, Hon. Secretary, and Hon. Treasurer respectively, and a committee, consisting of Messrs. Gavin, Peddie, and Kellett, was appointed to draw up the by-laws, which, incidentally, were published in booklet form the same year along with the names of all members. It was decided to hold meetings every quarter, a plan which was adhered to until midwinter 1911.

Subsequent general meetings are shown in the subjoined tabulated statement:—

(1) Mr. Fairclough, who served as a C.V.S./A.V.D. during the Boer War, apparently remained in Johannesburg for some time afterwards.

Date.	Place.	GENERAL MEETINGS.	Reference.
16/2/03	Long's Hotel, Johannesburg		Vet. Rec. 21/3/03 p. 584.
26/6/03		1st Quarterly Meeting	Rules T.V.M.A., pub. 1910.
14/9/03	Grand Hotel, Pretoria (2)	2nd „	Vet. Rec. 24/10/03, p. 254.
19/3/04	Museum, Boom Street, Pretoria	4th „	Trans. Agr. Jl. II, p. 393.
31/3/06	Pretoria	12th „	Trans. Agr. Jl. IV, p. 920.
30/9/07	Goldfields Hotel, Johannesburg	18th „	Vet. Rec. 11/1/08, p. 489.
28/12/07	Goldfields Hotel, Johannesburg	19th „	Vet. Rec. 28/3/08; p. 697.
21/3/08	Goldfields Hotel, Johannesburg	20th „	Vet. Rec. 18/7/08, p. 53.
27/6/08	Goldfields Hotel, Johannesburg	21st „	Vet. Rec. 10/10/08, p. 222.
		V Annual	
26/9/08	Magistrate's Court, Pretoria	22nd Quarterly Meeting	Vet. Rec. 26/12/08, p. 415.
19/12/08	Goldfields Hotel, Johannesburg	23rd „	Vet. Rec. 30/1/09, p. 508.
12/1/09	Onderstepoort (official opening)	Special Gen. Meeting	Vet. Rec. 30/1/09, p. 512.
27/3/09	Magistrate's Court, Pretoria	24th Quarterly Meeting	Vet. Rec. 17/7/09, p. 49.
26/6/09	Goldfields Hotel, Johannesburg	25th „	Vet. Rec. 18/9/09, p. 186.
		VI Annual Meeting	
25/9/09	Magistrate's Court, Pretoria	26th Quarterly Meeting	Vet. Rec. 1/1/10, p. 444.
31/1/10		27th „	Vet. Rec. 15/4/11, p. 674.
26/3/10	Magistrate's Court, Pretoria	28th „	Vet. Rec. 23/7/10, p. 59.
25/6/10	Goldfields Hotel, Johannesburg	29th „	Vet. Rec. 24/9/10, p. 184.
		VII Annual Meeting	
17/9/10	Magistrate's Court, Pretoria	30th Quarterly Meeting	Vet. Rec. 28/1/11, p. 479.
31/12/10	Goldfields Hotel, Johannesburg	31st „	Vet. Rec. 15/4/11, p. 673.
25/3/11	Onderstepoort	32nd „	Vet. Rec. 15/4/11, p. 674.
8/7/11	Johannesburg	VIII Annual Meeting	Vet. Rec. 26/8/11, p. 137.
1-3/8/12	R.M.'s Court, Pretoria and Onderstepoort	IX „	Vet. Rec. 23/11/12, p. 309.
28-29/7/13	Onderstepoort	X „	Vet. Rec. 11/1/13, p. 421.
August 1914	Onderstepoort	XI „	Minutes.
	Great War (during which all records lost).		See minutes of 30/10/17.
20/10/17	G.V.O.'s Office, Loveday Street, Johannesburg	Special Gen. Meeting	Minutes.
28/2/18	G.V.O.'s Office, Koch and Minnaar Sts., Pretoria	Special Gen. Meeting	Minutes.
10/4/18	G.V.O.'s Office, Loveday Street, Johannesburg	Special Gen. Meeting	Minutes.
12-13/8/18	Onderstepoort	Annual Gen. Meeting	Minutes.
28-29/7/19	Onderstepoort	Annual Gen. Meeting	Minutes.

(*) In the Vet. Rec. 24/10/03 the meeting is stated to have taken place on 18/9/03, but the minutes make mention of 14/9/03! In the same Record it is indicated that the next (December) meeting was held at Potchefstroom.

Until June 1908, the place of meeting was generally Johannesburg, since at that time there were more private practitioners in that town than in the rest of South Africa. Subsequently the meetings, quarterly until July 1911, were held alternately in Johannesburg (June and December) and Pretoria (March and September). The winter general meeting was referred to as **the** annual meeting, at which the election of office-bearers took place. As time went on, however, the centre of the profession moved to Pretoria (owing not only to the increased importance of Onderstepoort, but also to apathy of private practitioners).

At the 31st quarterly meeting it was agreed that, from the winter of 1911, only annual meetings of longer duration should be held, and that Johannesburg and Pretoria should be alternately the venue. Further, the P.V.O. (Union) and the Director of Veterinary Research, realising the advantage of such an assembly annually, arranged with the authorities that veterinarians who could be spared should attend these gatherings at government expense. As a result more scientific papers were read and an improvement in attendance followed.

When necessary, special general meetings were held, viz.: (a) At the official opening of the Veterinary Research Laboratories, Onderstepoort, in January 1909, when the question of a central federated veterinary association for South Africa was discussed. (b) On 20/10/17 to consider the definition of "veterinary surgeon" in Administrator's Notice 259/1917. (c) On 28/2/18 to receive the report of the Committee appointed to interview the Administrator. (d) On 10/4/18 to hear the grievances of Major S. I. Johnston who, although having taken no leave for 12 years, was refused permission by the Departments of Agriculture and Defence to serve in a military capacity.

At the last general meeting of the T.V.M.A. the principle was accepted that two annual gatherings should be held, a business meeting at Johannesburg during the Easter Show chiefly for the benefit of private practitioners, and the usual scientific meeting in the spring (3) at Pretoria for chiefly state veterinarians.

(3) This arrangement has been adopted by the S.A.V.M.A., but it has made little or no difference to improve attendance by private practitioners, who consider their state confreres more as rivals than colleagues.

OFFICE-BEARERS.

	16/2/1903	1904	1905	1906	30/9/1907
President	Smith, J. I.	Smith, J. I.	Christy, J. M.	Christy, J. M.	Dale, T. H.
Vice „					Pilkington, J. K.
Hon. Sec.	Pilkington, J. K.	Pilkington, J. K.		Dale, T. H.	Chalmers, J.
Hon. Treas.	Bell, J. H.	Bell, J. H.			Bell, J. H.
Council	Gavin, F. C.	Stockman, S.			Christy, J. M.
	Peddie, J.	Gavin, F. C.			Gray, C. E.
	Kellett, E.	Christy, J. M.			Kellett, E.
		Peddie, J.			Conacher, P.
		Kellett, E.			Gavin, F. C.
					Runciman, B.

	27/6/1908	26/6/1909	25/6/1910	8/7/1911	1/8/1912
President	Dale, T. H.	Pilkington, J. K.	Theiler, Dr. A.	Gray, C. E.	Gray, C. E.
Vice „	Pilkington, J. K.	Theiler, Dr. A.	Chalmers, J.	Bush, J. G.	Theiler, Dr. A.
Hon. Sec.	Chalmers, J.	Bush, J. G.	Bush, J. G.	Conacher, P.	Conacher, P.
Hon. Treas.	Christy, J. M.	Christy, J. M.	Christy, J. M.	Christy, J. M.	Christy, J. M.
Council	Gray, C. E.	Gray, C. E.	Gray, C. E.		Hollingham, E. A.
	Kellett, E.	Kellett, E.	Kellett, E.		Kellett, E.
	Gavin, F. C.	Gavin, F. C.	Gavin, F. C.		Dale, T. H.
	Runciman, B.	Dale, T. H.	Dale, T. H.		Tate, J. M.
	Edgar, J. I.	Tate, J. M.	Tate, J. M.		Gavin, F. C.
	Hollingham, E. A.	Chalmers, J.	Edgar, J. I.		Bush, J. G.
			Evans, W. G.		
			Hollingham, E. A.		

	28/7/1913	Aug. 1914	20/10/1917	12/8/1918	28/7/1919 (5)
President	Gray, C. E.	Conacher, P.	Conacher, P.	Conacher, P..	Montgomery, R. E.
Vice ,,	Theiler, Dr. A.		Smith, J. I.	Smith, J. I.	Gray, C. E.
Hon. Sec.	Lee, G. W.	Lee, G. W.	Kehoe, D.	Kehoe, D (4)	Mitchell, D. T.
Hon. Treas.	Christy, J. M.	Bush, J. G.	Bush, J. G.	Bush, J. G.	Bush, J. G.
Council	Gavin, F. C.	Kehoe, D.	Kellett, E.	Kellett, E.	Smith, J. I.
	Kellett, E.	Kellett, E.	Walker, J.	Montgomery, R. E.	Viljoen, P .R.
	Tate, J. M.	Walker, J.	Spreull, J.	Spreull, J.	Spreull, J.
	Dale, T. H.		Robinson, E. M.	Robinson, E. M.	Andrews, W. H.
	Bush, J. G.		Runciman, B.	Amos, S. T. A.	Amos, S. T. A.
	McNeil, J.		Johnston, S. I.	Tate, J. M.	Tate, J. M.
					Conacher, P.
					Verney, F. A.

(4) Mr. Kehoe left for Ireland in October 1918, and was succeeded by Mr. D. T. Mitchell.

(5) As Mr. Montgomery had left for B.E.A. early in 1920, Mr. C. E. Gray acted as President of the S.A.V.A. for year 1920/21. Otherwise the office-bearers for the first year (1920/21) of the S.A.V.A. were as given here,

MEMBERS. (6)

1. Although dates of election and resignation of membership can be given with precision in some cases only, yet these dates are fairly obvious in the case of A.V.D. officers or members leaving the country are, of course, definite where death has occurred. A blank space=no record available; R=member resigned and later resumed membership; S=member in 1919 and transferred to S.A.V.M.A.; *=A.V.D.(7)
2. It would appear that after Union and in 1917 some veterinarians were recognised as members although not definitely nominated and elected.
3. In Minutes of T.V.M.A. members from adjoining territories were sometimes referred to as visitors, and vice versa.

Name	Qualification	Period of membership	Further remarks
* Allen, H. Lieut.	M.R.C.V.S. ('99)	1903	
Amos, S. T. A.	M.R.C.V.S. ('97); F. ('09)	1908 S	
Andrews, W. H.	M.R.C.V.S. ('08); B.Sc.	1910 S	
* Appleton, A. F. Col.	M.R.C.V.S. ('81)	1911	
Ascott, W.	M.R.C.V.S. ('85)		
Beckett, A. J.	M.R.C.V.S. ('93)	1908	
Bell, J. H.	M.R.C.V.S. ('89)	1903	Died 24/6/13 Dublin
* Blenkinsop, J. L. Col.	M.R.C.V.S. ('83)	1909	
Buck, J.	M.R.C.V.S. ('95)	S	
* BurrIDGE, T. E. Capt.	M.R.C.V.S. ('04)	1908	
Bush, J. G.	M.R.C.V.S. ('02)	1903 S	
Cannon, G. T.	M.R.C.V.S. ('89)	1903	
Carless, F. J.	M.R.C.V.S. ('90)	1918 S	
Chalmers, J.	M.R.C.V.S. ('00)	1903 S	
Christy, J. M.	M.R.C.V.S. ('89)	1903	Died 29/6/17 Pretoria
Clarke, A.	M.R.C.V.S. ('77)	1912	

- (6) Two rolls of membership (along with Rules) were printed:—(a) In 1903 by the Reliance Ptg. Wks., Heidelberg (see File 2020, Registrar of Companies, Pretoria). (b) Early in 1910 by the Standard Ptg. Wks., Krugersdorp. Neither appears to be entirely correct. In the latter it is stated that the T.V.M.A. was inaugurated 26/6/03!
- (7) In No. 3 Vol. I, p. 77, Jl. S.A.V.M.A. (1929) the letter T. (indicating prior membership of T.V.M.A.) should be placed opposite the following: Messrs. Carless, McNae, Paine, Power, and H. M. Webb.

	Glemow, E. T.	M.R.C.V.S. ('04)	R	S	
*	Cochrane, R. C. Capt.	M.R.C.V.S. ('97)	1903		
	Collyer, J. B.	M.R.C.V.S. ('97)	1918	S	
	Conacher, P.	M.R.C.V.S. ('89)	1903	S	
*	Cooper, J. Major	M.R.C.V.S. ('76)	1903		
	Curson, H. H.	M.R.C.V.S. ('14); F. ('26)	1919	S	
	Cunningham, M.	M.R.C.V.S. ('11)	1919		
	Dale, T. H.	M.R.C.V.S. ('89)	1903	1917	Died 15/7/17 Durban
	de Kock, G. v. d. W.	M.R.C.V.S. ('13)	1917	S	
	Devenish, L. N.	M.R.C.V.S. ('18)	1919	S	Died 10/4/22 Maritzburg
	Donaldson, J.	M.R.C.V.S. ('05)	1908	S	
	Dunning, F. J.	M.R.C.V.S. ('01); F. ('11)	1903	S	
	Dunphy, J. P.	M.R.C.V.S. ('00)	1903	1908	
	Edgar, J. I.	M.R.C.V.S. ('95)	1903	S	
	Edwards, W. W. H.	M.R.C.V.S. ('01)	1903		
	Elder, W. A.	M.R.C.V.S. ('02); F. ('14)	1903	S	
	Elley, S.	M.R.C.V.S. ('03)	1918		
	Evans, W. G.	M.R.C.V.S. ('01)	1903		
	Ewing, S. H.	M.R.C.V.S. ('09)	1911	S	
	Garden, G.	M.R.C.V.S. ('00)	1903		
	Garraway, R. S.	M.R.C.V.S. ('99)	1903	S	
	Gavin, F. C.	M.R.C.V.C. ('89)			
	Goodall, A.	M.R.C.V.S. ('02); F. (21)	1903	S	Died 6/4/30 Wolmaransstad
	Gray, C. E.	M.R.C.V.S. ('90)		S	
	Grist, A. G.	M.R.C.V.S. ('92)		S	
	Hamilton, J. R. R.	M.R.C.V.S. ('94)	1903	S	
*	Head, A. S. Lieut.	M.R.C.V.S. ('97)	1903		
	Henderson, G.	M.R.C.V.C. ('89)	1903		?
	Hill, J. M.	M.R.C.V.S. ('90)	1919		
	Hodder, A.	M.R.C.V.S. ('98)	1920		
	Hollingham, E. A.	M.R.C.V.S. ('81)	1903		Died 20/8/12 Johannesburg
*	Holness, H. J. Capt.	M.R.C.V.S. ('03)		1910	
	Howie, A. M.	M.R.C.V.S. ('10)	1919	S	
	Jackson, A. F. S.	M.R.C.V.S. ('99)	1903	1910	?
	Johnston, S. I.	M.R.C.V.S. ('95)	1903	S	Died 5/8/29 Johannesburg
	Jones, W.	M.R.C.V.S. ('07)			

Name	Qualification	Period of membership	Further remarks
Joyce, J. F.	M.R.C.V.S. ('99)	S	Died 1926 Kroonstad
Kearney, F. J.	M.R.C.V.S. ('04)		
Kehoe, D.	M.R.C.V.S. ('09)	1910 S	Died 6/5/28 Dublin
Kellett, E.	M.R.C.V.S. ('89)	1903 S	
Kirkpatrick, A. C.	M.R.C.V.S. ('10)	1911 S	
Lêe, G. W.	M.R.C.V.S. ('93)	R S	
Lindsay, F.	M.R.C.V.S. ('95)	1903	
Marais, G. F.	M.R.C.V.S. ('13) ; B.A., B.Sc.	1917	Died 4/11/18 Volksrust
May, G.	M.R.C.V.S. ('01)	1903 S	
McCall, D. B. J.	M.R.C.V.S. ('10)	1911	
McCall, G.	M.R.C.V.S. ('05)	1911 S	Died Durban 1930
* McKenzie, K. Capt.	M.R.C.V.S. ('03)	1909	
McKie, W.	M.R.C.V.S. ('87)	S	
McNae, A.	M.R.C.V.S. ('99)	S	
McNeil, J.	M.R.C.V.S. ('96)	1912 S	
Meyer, K. F.	Dr. Med. Vet. (Zurich)	1909	...
Mitchell, D. T.	M.R.C.V.S. ('08)	1909 S	
Montgomery, R. E.	M.R.C.V.S. ('03)	1918 S	
Nicol, J.	M.R.C.V.S. ('10)	1918 S	
Oliver, H. O.	M.R.C.V.S. ('98)	1903	Died 1918 Germany
* Oliver, E. Lieut.	M.R.C.V.S. ()	1903	
Paine, R.	M.R.C.V.S. ('01) ; F. ('07)	R S	
* Pallin, W. A. Lieut.	M.R.C.V.S. ('94)	1903	
Peddie, J.	M.R.C.V.S. ('93)	R S	
Pilkington, J. K.	M.R.C.V.S. ('81)	R	
Pollard, J.	M.R.C.V.S. ('97)	1903	
Power, W. M.	M.R.C.V.S. ('96)	1909 S	
Pye, W.	M.R.C.V.S. ('91)	1903	Died 1904 Pretoria
Quinlan, J. B.	M.R.C.V.S. ('12) ; F. (29)	1913 S	
Revington, T. le B.	M.R.C.V.S. ('11)	1918 S	Died 1928 Perth, Australia
Roberts, H. K.	M.R.C.V.S. ('03)	1908 1913	
Robertson, W.	M.R.C.V.S. ('93)		Died 22/12/18 Grahamstown

Robinson, E. M.	M.R.C.V.S. ('12)	1917	S	
Runciman, B.	M.R.C.V.S. ('00)	1903	S	
Sanderson, C. J.	M.R.C.V.S. ('98)	1903		
* Schofield, W. E. Lieut.	M.R.C.V.S. ('01)	1908		
Scott, J. F.	M.R.C.V.S. ('95)			Died 1925
Sinclair, J. M.	M.R.C.V.S. ('95)		S	
Skues, F. M.	M.R.C.V.S. ('97)	1903	S	Died 18/8/21 Bloemfontein
* Smith, F. Col.	M.R.C.V.S. ('76); F. ('93)	1903		Died 27/7/29 St. Leonards
Smith, J. I.	M.R.C.V.S. ('98)	1903	S	
Spiers, S.	M.R.C.V.S. ('06)	1908		
Spreull, J.	M.R.C.V.S. ('95); F. ('08)	1917	S	
Stirling, R. F.	M.R.C.V.S. ('07)	1908		
Stockman, S.	M.R.C.V.S. ('90)	1903		(Hon. Associate 1908)
Stokes, E. E.	M.R.C.V.S. ('99)	1918		Died 2/6/26 Glasgow
Stokoe, R.	M.R.C.V.S. ('01)	1903		Died 27/11/25 Port Elizabeth
Sturge, H.	M.R.C.V.S. ('94)	1903		
* Tapley, J. J. B. Lieut.	M.R.C.V.S. ('99)		1908	
Tate, J. M.	M.R.C.V.S. ('99)	1903	S	
Theiler, A.	S.E. ('89); Dr. ('01) (8)	1903	S	
Turnbull, H. X.	M.R.C.V.S. ('02)	1903		Died 17/8/10 Barberton
Verney, F. A.	M.R.C.V.S. ('96); F. ('05)		S	
Viljoen, P. R.	M.R.C.V.S. ('12)	1913	S	
Wadlow, C. H.	M.R.C.V.S. ('03)	1908	1918	
Walker, J.	M.R.C.V.S. ('96)	R	S	
Watson, J.	M.R.C.V.S. ('97)	1911		Died Harrismith
Webb, H. M.	M.R.C.V.S. ('98)	R	S	
Webster, G. C.	M.R.C.V.S. ('08)	1911	S	
White, F. F. G.	M.R.C.V.S. ('94)			
Woollatt, S. B.	M.R.C.V.S. ('97); F. ('05)		S	

(8) S.E.=Staats Examen Switzerland, and Dr. =Dr. Med. Vet., Berne.

FINANCIAL.

The minutes of 14/9/03 show that the entrance fee was £5:5:0 and the annual subscription £2:2:0. Members of the R.C.V.S. outside the Orange River Colony and Transvaal were admitted at an annual subscription of £1:1:0. In June 1908, the entrance fee was reduced to £3:3:0 and the annual subscription for Transvaal members was fixed at £1:1:0. Members outside the Transvaal were required to pay 10/6, while the fee for A.V.D. officers was £1:1:0. In 1918 the annual subscription for all members of the Association was raised to £1:1:0, and it would appear that an entrance fee was no longer levied.

In spite of several members failing to realise their obligations, the T.V.M.A. always possessed a good credit balance, varying from £75, six months after its formation, to £443:9:7 on 30/6/13. At the end of its existence, 31/3/20, the T.V.M.A. had a balance of £690:13:2. which was placed to the credit of the S.A.V.A.

The T.V.M.A. made the following grants of money:—

(a) £20 to the Hutcheon Memorial Fund (30/9/07).

(b) £10 to the International Veterinary Congress at the Hague in September 1909 (27/6/08).⁽⁹⁾

(c) £50 to assist a member who had been compelled to return to England on account of ill-health (27/6/08).

(d) £10:10:0 to the Arloing Memorial Fund (1/8/12).

(e) £20:0:0 to the International Veterinary Congress in London in August 1913 (28/7/13).

Presentations were also frequently made to office-bearers, so it is evident that the T.V.M.A. was always generous in any legitimate call for financial assistance.

A CENTRAL VETERINARY ASSOCIATION FOR SOUTH AFRICA.

Towards the end of 1908 it was felt by the T.V.M.A. that some form of central control of veterinary interests in South Africa was desirable, and it was accordingly arranged that on the occasion of the official opening of the Onderstepoort Laboratories (when veterinarians would be present from all colonies) a special general meeting should be held to discuss the formation of a Central Federated V.M.A. "for the whole of South Africa."⁽¹⁰⁾ No records exist of the proceedings.

Just at this time (Jan., 1909), however, the 3rd Pan-African Veterinary Conference had met in Pretoria, and Dr. Theiler, no doubt

⁽⁹⁾ Theiler stated (27/3/09) that every G.V.O. in S. Africa had subscribed a guinea. He represented not only the Transvaal and Natal Governments at the Congress, but also the T.V.M.A. (See Trans. Agr. Jl. VII., p. 183).

⁽¹⁰⁾ A similar movement was in progress in Great Britain at this period, although the National V.M.A. itself was established as far back as 1882 (letter 24/6/30, F. Knight).

struck by the influence which a Pan-African body could exert, favoured the inclusion of other territories such as the Belgian Congo and even Egypt, his chief object apparently being the production of a journal devoted to tropical veterinary science.⁽¹¹⁾ In this way the original object of a purely South African V.M.A. later became a Federated African Veterinary Association, and correspondence was carried out with ten non-South African territories with, however, no result.

A return to the original scheme was agreed to on 26/3/10, by which date the recommendations of a Sub-Committee had already been adopted (31/1/10). The recommendations⁽¹²⁾ were: (a) The central association to be the S.A.V.M.A. which should meet once every third year alternately in the various territories where veterinary associations exist.

(b) The S.A.V.M.A. should consist of the T.V.M.A., Cape V.M.S., N.V.M.A., and "members of the profession who are not members of any of the present Associations but who wish to join the S.A.V.M.A."

(c) If the various colonial associations agreed, then a meeting of delegates was to be called.

It is recorded that the Cape V.M.S. approved "of amalgamating the societies in the British South African States into a federated British Society prior to forming a federated African association,"⁽¹³⁾ and that the Natal V.M.A. was also "in favour of the scheme proposed by the Transvaal Society."⁽¹⁴⁾ Notwithstanding general agreement, nothing was done to foster the movement, for, owing to Union and the consequent rearrangement of staff, there was little or no enthusiasm in veterinary affairs.

It was not until the general meeting of July 1919 that the matter was revived, Mr. Gray, the Principal Veterinary Officer, pointing out that the members of the T.V.M.A. were drawn from all the Provinces, and that he considered the Transvaal society should make way for a central body. The principle was thereupon agreed to and at the subsequent general meeting of 1/4/20 (inauguration of South African Veterinary Association) the following resolution was carried unanimously, "That the T.V.M.A. sacrifice its identity, handing over all funds at its disposal to the new S.A.V.A., with whom all members of the T.V.M.A. shall become affiliated, and that the existing officers of the T.V.M.A. shall become for the time being officers of the S.A.V.A."

⁽¹¹⁾ From 1906 a quarterly journal of Tropical Veterinary Science was published in India, but unfortunately its existence was brief.

⁽¹²⁾ Vet. Rec. 15/4/11, p. 674.

⁽¹³⁾ Vet. Rec. 2/7/10, p. 8.

⁽¹⁴⁾ Vet. Rec. 2/9/11, p. 153.

Just at this time (May 1920) the veterinarians of Southern Rhodesia decided to form a Veterinary Association, "but there was no objection to members . . . becoming individual members of the S.A.V.A. should they desire to do so." (15) The members of the profession in South-West Africa Protectorate (formerly German South-West Africa), however, threw in their lot with the Union of South Africa, with the result that there now exists a strong non-federated National Association of veterinarians south of the Cunene and Limpopo Rivers. (16)

LEGISLATION.

The following measures are of interest in connection with the T.V.M.A.:

(a) Ordinance 56/1903. On 14/9/03 it was agreed that the Association "should be registered under Ordinance No. 56 of 1903, which deals with the incorporation of societies." Since the Registrar of Companies, Pretoria, was not informed when the T.V.M.A. ceased to exist, it still remains on the Register! (17)

(b) Stock Diseases Act 14/1911. This consolidated former colonial legislation. On 26/6/09 the Department of Agriculture was requested to supply private practitioners with "all stock regulations in order that they may be able to assist the Government in locating scheduled diseases." (18) The P.V.S. Transvaal naturally agreed.

(c) Provincial Ordinance 9/1912. (Local Govt. Ordinance). Under this, Col. Irvine-Smith, acting on behalf of the T.V.M.A., succeeded in getting veterinarians approved in regard to meat inspection (Section 191).

(d) In connection with Municipal Pound regulations (formulated under Ord: 9/12), Administrator's Notice 259 dated 15/8/17 (Prov. Gaz: 22/8/17) gave a definition of "veterinary surgeon" not to the satisfaction of the profession. Col. Irvine-Smith protested at once, although the Acting P.V.O. (Union) "whilst agreeing (Min. 3/9/17) . . . from a professional point of view the definition . . . is not desirable," yet officially considered "the definition used is really the only one that can be used." (19) Actually it would appear that the term

(15) Vet. Rec. 12/3/21. The S.R.V.M.A. desired "to become a branch or be affiliated to the S.A.V.A.," but for some unaccountable reason letters dated 17/5/20, 7/8/20 and 26/11/20 to the Hon. Secretary, S.A.V.A., were not answered.

(16) Credit for this is for the most part due to Mr. D. T. Mitchell, Hon. Secretary, T.V.M.A., Oct. 1918-March 1920, and of S.A.V.A., April 1920-March 1921. As time goes on, there will no doubt arise provincial branches of the S.A.V.M.A.

(17) See File 2020, Registrar of Companies, New Govt. Bldgs., Pretoria.

(18) See Govt. Not. 619 of 1909 (Gazette 4/6/09) regarding Stock Disease Regulations.

(19) At the time the P.V.O. (C. E. Gray) was in German East Africa on rinderpest duty. In point of fact the definition of "Government Veterinary Officer" in the Stock Diseases regulations requires amendment.

"veterinary surgeon" was not permissible in that it was not authorised by Act 14/1911. Finally, however, as the result of a deputation decided upon at the meeting of 20/10/17,⁽²⁰⁾ the definition was deleted.

(e) Public Health Act 36/1919. Under this (Section 115), veterinary rights with regard to meat inspection were secured by Colonel Irvine-Smith, who appeared before the Select Committee of Senate on behalf of the Association. Unfortunately no provision was made for veterinary representation on the Public Health Council "but that owing to the constitution of the Council this might still be rectified." This hope was expressed at the July 1919 meeting of the T.V.M.A., and although eleven years have elapsed, nothing has been done in the matter (July 1930).

DEFENCE OF PROFESSIONAL INTERESTS.

Military. (a) As far back as August 1903, the T.V.M.A. made representations to the War Office that compound rank for veterinary officers should be abolished, otherwise it "shall endeavour to persuade the younger members not to enter the Army" (letter 13/8/03). On 5/10/03 a warrant was signed by the King "conferring non-compound rank on all serving officers of the" A.V.D., as well as other rights.⁽²¹⁾ It is noteworthy that compound rank existed in the Transvaal Volunteers until Union.

(b) At the meeting of 20/10/17, the Association urged members "to offer their services . . . for duty overseas in the A.V.C.," on account of the shortage of veterinary officers in Europe. A few months later, when three members, wishing to proceed overseas on leave, were not allowed to do so, a deputation interviewed the P.V.O. (C. E. Gray), apparently with good results.

Private Practitioners. Whereas prior to Easter 1909 private practitioners had officiated at the Rand Show, in 1909 the Witwatersrand Agricultural Society obtained the services of state and municipal veterinarians. As a result of representations by the T.V.M.A., it was agreed that the Association should nominate certain private practitioners to be in attendance at subsequent shows. It may be added that certain members of the T.V.M.A., e.g. Col. Irvine-Smith and Major Gavin, have been of great assistance to the Witwatersrand Agricultural Society, even serving on the Council.⁽²²⁾

(c) **State Veterinarians.** In February 1918, it was considered that the Association should take action regarding the grievances of state veterinarians, in that a Public Service Grievance Commission was

⁽²⁰⁾ At the same meeting, Council (T.V.M.A.) was instructed "to keep closely in touch with all draft legislation which may affect the veterinary profession."

⁽²¹⁾ Smith, F. (1927). A History of the R.A.V.C., p. 209. Baillière, Tindall & Cox, London. Compound rank at no time existed in the Natal Veterinary Corps.

⁽²²⁾ The S.A.V.M.A. has also been compelled to take action regarding veterinary inspection at the Rand Show.

shortly to be appointed. It was felt that a reorganisation of the Department of Agriculture, with amalgamation of the sheep, dairy, and both veterinary divisions under a veterinary director, was necessary. Further, that a regrading of salaries, the suggested scale being £500 (Feb. 1918) to £800 (Aug. 1918), was essential. A deputation was arranged by Council in March 1919, when it had been intimated that such would be received; but it was not until 25/3/1920 that an interview took place. Although the T.V.M.A. had now ceased to exist, for the sake of completeness the details are incorporated here. A combined deputation representing both state veterinarians and the S.A.V.A. presented the following petitions⁽²³⁾ :—

- (1) Regrading of salaries, the scale for a G.V.O. or V.R.O. being £500x25—600x40—800, plus quarters or an allowance in lieu thereof (Col. Irvine-Smith).
- (2) Recognition of degrees and experience in fixing the notch at which an officer should commence (Prof. P. R. Viljoen).
- (3) Reorganisation of Veterinary Department, the head to be responsible direct to the Minister of Agriculture (Mr. F. C. Gavin).
- (4) Veterinary officials to retire at 50 years of age⁽²⁴⁾, (Mr. A. Grist).
- (5) Veterinary representation on Public Health Council (Mr. C. E. Gray).
- (6) Need for Veterinarians' Act (Mr. W. M. Power).

MISCELLANEOUS ITEMS.

Falling under no particular heading but worthy of record are the following :—

(1) As far back as March 1906, the advantage of a library in connection with the Association was recognised. Mr. Chalmers' suggestion being supported by his colleagues, a scheme was to have been submitted at the June meeting, but unfortunately nothing came of it⁽²⁵⁾.

(2) In 1909 the farriers of Johannesburg petitioned the Municipality to make provision for registration. The communication was forwarded to the T.V.M.A. for an expression of opinion, but apart from a definition of "farrier" given by Mr. Christy the reply is not on record. The definition referred to was that a farrier is a "man capable of making, fitting and nailing on a shoe and possessing a know-

⁽²³⁾ See Minutes of Inaugural Meeting, S.A.V.A., 1/4/20.

⁽²⁴⁾ According to Sub-section 3, Section 30, Act 29/12 (Public Service and Pensions Act, 1912) certain officials "continuously occupied for at least ten years" before retirement in certain state institutions (leper and lunacy, etc.) are entitled to retire at 50 years with 5 years added for pension.

⁽²⁵⁾ The want of such a convenience to the S.A.V.M.A. is a great handicap to its activities, but thanks to the Dir. Vet. Services (Dr. P. J. du Toit) it is believed arrangements can be made when the new Library at Onderstepoort is built at the end of 1930.

ledge of anatomy of the foot to the satisfaction of the Examining Board (26/6/09)."

We learn from the minutes of the Cape V.M. Society (May 1910 meeting) that the farriers of Durban also wished to approach the Natal Legislature to make provision for examination or registration before being allowed to practise. Copies of this petition were sent by the N.V.M.A. to the other South African Veterinary Associations, their replies being that it was premature to take this step (Cape), and, in the case of the T.V.M.A., that the information (which is not known) supplied to Johannesburg Municipality was being forwarded (Vet. Rec. 23/7/10).

(3) In December 1909 the Association also investigated two cases of alleged breach of professional etiquette which had been referred to a general meeting by the Council.

(4) At the end of 1919 the Krugersdorp Municipality replaced their veterinarian (Mr. G. Kellett) by a layman, the reason stated being that he resided without the Municipality, but that "should at a later date a certificated veterinary surgeon take up his residence in this town, then the Council will be prepared to reconsider the matter" (Letter 27/2/20, File 508/26966/20, in reply to representations made by the T.V.M.A.) (26).

DEPUTATIONS.

The following deputations have been traced in the meagre records available:

1. (a) Veterinary Bill—Messrs. Gray and Theiler were appointed 9/12/08 to interview Generals Botha and Smuts.
(b) „ „ —Messrs. Conacher and Bush interviewed the Ministers of Interior and Agriculture at Capetown 31/1/18.
(c) „ „ —Messrs. Irvine-Smith, Conacher, and Bush met the Minister of Agriculture 9/10/18.
(d) „ „ —The Minister of Agriculture again met a deputation 9/10/19, this consisting of Messrs. Montgomery, Gray, Irvine-Smith, Bush and Viljoen.
2. Witwatersrand Agricultural Society—Messrs. Pilkington, Gavin, and Johnston interviewed the Secretary on 30/8/09 in regard to Veterinary attendance at shows.

(²⁶) This layman in 1925 was accepted by the P.V.O. (Union) as an "approved veterinary surgeon" under the Public Health Act!!

3. Administrator's Notice 259/1917.—On 3/12/17 Messrs. Conacher, Irvine-Smith, Bush, Kellett, and Sir Arnold Theiler met the Administrator and succeeding in having the offending definition deleted.⁽²⁷⁾
4. Principal Veterinary Officer—Messrs. Irvine-Smith and Kellett were appointed 10/4/18 to see Mr. Gray regarding the release of certain veterinary officers of the C.V.D. for military service.

RECORDS OF T.V.M.A.

It has been explained above that all records of the Association were lost during the Great War. It would appear that on Major G. W. Lee's⁽²⁸⁾ departure for German South-West Africa in 1914, he handed over all papers to the Senior Veterinary Officer Transvaal, Mr. J. M. Christy. In 1916 when Mr. Christy took ill, his wife and his lawyer removed his private belongings from the office of the Senior Vety. Officer. Among these apparently were the T.V.M.A. files, and, their value not being realised, the papers were mislaid or perhaps even destroyed. Had it not been for the reports of the quarterly meetings in the *Veterinary Record*, it would have been impossible to write this brief history. It is intended to bind all remaining documents relating to the T.V.M.A. in one volume and to deposit them in the Library of the S.A. Veterinary Medical Assn., P.O. Onderstepoort, as has already been done with the veterinary bills.

⁽²⁷⁾ Administrator's Minute A. 7061 of 8/1/18.

⁽²⁸⁾ Honorary Secretary, Aug., 1914.

PAPERS.

Meeting	Author.	Title.	Further remarks.
14/9/03	Pilkington, J. K.	Horse Sickness (Minutes). See also contribution by Dr. Theiler, Trans. Agric. Jl. II, 332.	A theory that the <i>Gastrophilus</i> fly is responsible for transmission of the disease.
„	Dale, T. H.	Piroplasmosis of the Donkey (Minutes)	One of several contributions to the subject at the time.
31/3/06	Chalmers, J.	Acariasis, Scab or Mange of Sheep. (See Trans. Agric. Jl. IV, 795).	
30/9/07	Dale, T. H.	Two undescribed diseases of Sheep. (See Vet. Rec. 11/1/08).	These are clearly Gousiekte, due to <i>Vangueria pygmaea</i> (Schielyk Ziekte) and Pulpy Kidney.
28/12/07	Runciman, B.	A case of double median and ulnar neurectomy. (See Vet. Rec. 28/3/08).	
27/6/08	Gray, C. E.	Glanders and its eradication. (See Vet. Rec. 24/10/08 and 31/1/08).	See also Trans. Agr. Jl. IV, V, VI, for papers by Theiler and Gray on "Veterinary hygienic principles applicable to stock in S.A."
19/12/08	Hollingham, E. A.	Obscure lameness of horses and the use of local anaesthesia for diagnostic purposes. (See Vet. Rec. 30/1/09).	
Dec. 1909	Kellett, E.	Tulp poisoning. (Minutes of 26/3/10).	In Sept. 1909 Johannesburg Municipality lost 26 mules which had eaten lucerne hay containing <i>H. pallida</i> .
17/9/10	Theiler, A. Dr.	Presidential Address. (See Vet. Rec. 28/1/11).	A most inspiring address and references made to establishment of Vety. School and to Dr. Gonder's visit to S. Africa.
31/12/10	Ostertag, R. Dr.	Sheep Pox in German S.W. Africa. (See Vet. Rec. 15/4/11).	

Meeting	Author.	Title.	Further remarks.
2-3/8/12	Hollingham, E. A.	Canine distemper. (See Vet. Rec. 23/11/12).	
,,	Andrews, W. H.	Bloedpens in lambs. (See Vet. Rec. 11/1/13).	
,,	Andrews, W. H.	The symptomatology and pathology of snake-bite in domesticated animals. (See Vet. Rec. 11/1/13).	See also 2nd Rpt. Dir. Vet. Res. p. 406.
,,	Dale, T. H.	A bone disease of fowls. (See Vet. Rec. 11/1/13).	An enlargement of the bones accompanied in last stages by chronic diarrhoea.
,,	Kellett, E.	Some of the common diseases of equines of a non-contagious nature. (See Reprint Vet. Rec. undated).	Laryngitis, pneumonia, pleurisy, colics, enteritis, stomach staggers, biliary fever and tetanus are discussed.
,,	Dale, T. H.	Sterility and impotence in male domestic animals. (See Reprint Vet. Rec. undated).	
,,	Mitchell, D. T.	Symptomatology and pathology of lamsiekte.	See 2nd Rpt. Dir. Vet. Res. p. 161.
,,	Theiler, A.	Theories concerning the causes of lamsiekte and styfsiekte in cattle.	See 2nd Rpt. Dir. Vet. Res. p. 7.
,,	Burt-Davy, J. (a visitor)	Sweet and sour veld in South Africa and their compositions.	See 2nd Rpt. Dir. Vet. Res. p. 181.
,,	Kehoe, D.	The sero-diagnosis applicable to diseases of stock in South Africa.	
,,	Bedford, G. A. H. (a visitor)	The common mosquitos of the Transvaal.	See 1st and 2nd Rpts. Dir. Vet. Res. p. 232 and 315 respectively.
,,	Theiler, A.	Discussion of the result of inoculation of horses against horse-sickness in the practice during 1911-12.	

„	Theiler, A.	A demonstration of Jachtziekte in Sheep.	
2-3/7/13	Viljoen, P. R.	Notes on Anthrax.	
„	Rose-Innes, H. (a visitor)	Magisterial control and assistance to the veterinary division in dealing with proclaimed diseases.	
„	Hall, G. N. (a visitor)	Contagious abortion.	
„	Hall, G. N. (a visitor)	The three types of tubercle bacilli as the cause of tuberculosis of hogs in South Africa.	
„	Bedford, G. A. H. (a visitor)	South African ticks.	
„	Robertson, W.	Demonstration in the castration of the ostrich.	
12-13/8/18	Robinson, E. M.	Bovine contagious abortion in South Africa.	See 5th and 6th Rpts. Dir. Vet. Res. p. 335.
„	Green, H. H. (a visitor)	The biochemistry of arsenical dipping tanks.	See 5th and 6th Rpts. Dir. Vet. Res. p. 593.
„	de Kock, G. v.d. W.	The drug treatment of nuttalliosis.	See 7th and 8th Rpts. Dir. Vet. Res. p. 638.
„	Green, H. H.	The fate of ingested and injected arsenic in the sheep.	See 5th and 6th Rpts. Dir. Vet. Res. p. 483.
„	Green, H. H.	The micro-titration of arsenic.	See 5th and 6th Rpts. Dir. Vet. Res. p. 539.

Meeting	Author.	Title.	Further remarks.
„	Kehoe, D.	Vaccination against Anthrax in South Africa.	See 5th and 6th Rpts. Dir. Vet. Res. p. 209.
„	Green, H. H.	The deficiency aspect of maize milling products.	See 5th and 6th Rpts. Dir. Vet. Res. p. 751.
„	de Kock, G. v.d. W.	Intoxication by <i>Gastrophilus</i> larvae.	See 5th and 6th Rpts. Dir. Vet. Res. p. 649.
„	Green, H. H.	The relation between the vitamin content of a diet and the period of healthy survival of animals upon it.	See 5th and 6th Rpts. Dir. Vet. Res. p. 775.
28-29/7/19	Verney, F.	Sterility amongst equines and bovines.	
„	Curson, H. H.	Rinderpest in the New Langenburg Province of G.E.A. in 1917-18.	See Jl. Comp. Path. Ther. XXXII. p. 197.
„	Mitchell, D. T.	Effects produced on cattle by feeding on <i>paspalum</i> lands infected with <i>Clariceps purpurea</i> .	See 7th and 8th Rpts. Dir. Vet. Res. p. 440.
„	Mitchell, D. T.	Cattle poisoning due to <i>diplochia</i> infected maize.	See 7th and 8th Rpts. Dir. Vet. Res. p. 425.
„	Robinson, E. M.	The more common parasitic worms in domestic animals in South Africa.	
„	Viljoen, P. R.	Notes on <i>Lamsiekte</i> .	
„	Andrews, W. H.	Staggers in Cattle.	9th and 10th Rpt. Dir. Vet. Res. p. 121.

In addition, specimens of veterinary interest were often exhibited, one of the most interesting being that by Mr. Chalmers who, on 19/12/10, showed termites infected with strongyles (29)

(29) See Theiler, A. (1919). A new nematode in fowls, having a termite as an intermediary host. *Filaria gallinarum*, 5th and 6th Rpts. Dir. Vet. Res., p. 695.

(To be continued).

Geilsiekte and its Detection in the Field.

By D. G. STEYN, B.Sc., Dr. Med. Vet., Onderstepoort.

The term "Geilsiekte," as used by stock-owners, embraces quite a number of sheep diseases which are characterised by sudden death. As this name is applied mostly to a disease in sheep caused by the ingestion of certain wilted grasses, which contain hydrocyanic acid, it will be employed only in that sense in this article.

As a result of previously conducted experiments,⁽¹⁾ sulphur is being recommended by the Division of Veterinary Services as an efficient preventive for the prussic acid form of "geilsiekte." Experiments to determine the safe dose of sulphur administered to sheep over prolonged periods, are described elsewhere.⁽²⁾ Farmers are advised to allow the animals free access to licks containing sulphur. On farms very deficient in minerals, where the animals daily take large amounts of the lick, the sulphur content should not be higher than 5%, whereas on farms with soil rich in minerals, a lick containing 7½% sulphur is by no means dangerous.

During heavy outbreaks of "geilsiekte" it is, however, advisable to dose the animals with sulphur, as one cannot rely on the animals taking sufficient quantities of the lick. A full-grown sheep or goat could, without any risk of poisoning, receive a moderately heaped teaspoonful of sulphur at intervals of four days, in addition to having access to the above sulphur-containing licks. Sheep and goats under six months old should receive half this dose. Excellent reports in regard to the value of sulphur as a preventive for "geilsiekte" have been and are still being received from a large number of sheep farmers, though a few have reported less favourably.

As the term "geilsiekte" embraces quite a number of diseases, an attempt was made to find a method of ascertaining whether the "geilsiekte," on which sulphur was said to have no beneficial effect as a preventive, was actually the "prussic acid form" of the disease, or some other disease of unknown aetiology. In order to determine this, the following experiments were conducted: "Bietou" (*Dimorphotheca spectabilis*) was used as the source of hydrocyanic acid, as it was found impossible to kill rabbits by drenching them with wilted grass which contained large amounts of hydrocyanic acid. The reason for

(¹) STEYN, D. G.—Recent investigations into the Toxicity of known and unknown poisonous Plants in the Union of South Africa. 15th Report of Director of Veterinary Services, Oct. 1929, pp. 783-786.

(²) STEYN, D. G.—The effects of Sulphur on Merino Sheep. 17th Rep. of Dir. of Veterinary Service and Animal Industry, 1931.

Rab-	Quantity of bit. bietou given.	Period between death of rabbit and collection of gastro-intestinal contents for HCN test.	Part of gastro-intesti- nal tract from which specimen of contents was taken.	Result of HCN Test.
1	5 grams of fresh bietou leaves.			This animal developed pronounced symptoms of poisoning and re- covered within 2 hours after dosage.
2	10 grams of fresh bietou leaves.	Died within 1 hour after dosage. Carcase was left to decompose for 20 hrs. After this period it was in a state of advanced decomposition.	Stomach.	Strongly positive.
3	20 grams of fresh bietou leaves.	Died within 5 minutes after dosage. Specimen of sto- mach contents collected within $\frac{1}{2}$ hour after death.	Stomach.	Strongly positive.
4	1 gram of sun-dried bie- t o u leaves (sublethal dose).	Killed 5 hours after dosage. It developed a transitory dyspnoea and restlessness. Gastro-intestinal contents tested immediately after death.	Stomach. Small intes- tine (middle). Small intestine (caudal por- tion). Caecum (middle) Colon (middle).	All negative after 24 hours.
5	1.5 grams of sun-dried bie- tou leaves.	Died within $\frac{1}{2}$ hour after dosage. Carcase was left to decompose for 48 hours.	Stomach. Small intes- tine (middle), Colon (middle).	All negative after 24 hours.
6	1.5 grams of sun-dried bie- tou leaves.	Died within $\frac{1}{2}$ hour after dosage. Carcase was left to decompose for 48 hours.	Stomach. Small intes- tine (middle), Colon (middle).	All negative after 24 hours.
7	3 grams of sun-dried bie- tou leaves.	Died within $\frac{1}{2}$ hour after dosage. Carcase was left to decompose for 30 hours.	Stomach.	Strongly positive.
8	4.5 grams of sun-dried bie- tou leaves.	Died within $\frac{1}{2}$ hour after dosage. Stomach contents collected $1\frac{1}{2}$ hours after death. (This animal will be referred to later on).	Stomach.	Strongly positive.
9	4.5 grams of sun-dried bie- tou leaves.	Died within $\frac{1}{2}$ hour after dosage. Carcase left to decom- pose for 48 hours.	Stomach. Small intes- tine (middle), Colon (middle).	Strongly positive.

these negative results was obviously due to the fact that during the process of mincing the wilted grass, a large amount of the hydrocyanic acid had escaped into the air. Feeding tests were tried, but both sheep and rabbits bluntly refused to take the wilted grass. The M.L.D. of the fresh "bietou" in the preflowering stage for the rabbit was 7 grams, and of the same material dried in the sun 1.5 grams. The moisture content of the plant was 85%. The ordinary vest-pocket sodium picrate paper test for hydrocyanic acid was employed in testing the gastro-intestinal contents of the rabbits.

From the above table it is evident that when a rabbit (rabbit No. 4) has ingested a sublethal amount of bietou, no hydrocyanic acid is detected in the gastro-intestinal contents five hours afterwards. This information is of value in cases where animals, after having ingested sublethal quantities of cyanogenetic plants, have died from another cause. Had the hydrocyanic acid remained in the gastro-intestinal contents as long as, for example, arsenic, this would have complicated the diagnosis of "geilsiekte."

Rabbit No. 5, which received approximately the M.L.D. of dried bietou (viz. 1.5 grams), showed no hydrocyanic acid in the gastro-intestinal contents, collected forty-eight hours after death. In order to ascertain whether bigger doses of bietou would yield the same results, rabbit No. 9 was dosed with 4.5 grams of dried bietou. Forty-eight hours after death, hydrocyanic acid was detected throughout the gastro-intestinal tract. The result of the hydrocyanic acid test in carcasses depends therefore on the amount of cyanogenetic plants eaten.

It may be stated here that these experiments were conducted during December, 1930, during abnormally hot weather, as a result of which rabbits Nos. 2, 5, 7, and 9 were in a state of advanced decomposition when the gastro-intestinal contents were collected.

In order to test the "keeping qualities" of hydrocyanic acid, as contained in bietou, rabbit No. 8 was given 4.5 grams of dried bietou. It died within 15 minutes after being dosed. 2 ounces of the stomach contents were collected one-and-a-half hours after death and kept in a glass-stoppered bottle. The contents of this bottle were tested for hydrocyanic acid at the following intervals:

Immediately after collection — strongly positive.

5 hours	„	„	—	„	„
20 „	„	„	—	„	„
30 „	„	„	—	„	„
48 „	„	„	—	„	„
72 „	„	„	—	„	„
7 days	„	„	—	„	„
24 „	„	„	—	„	„
44 „	„	„	—	„	„

Up to forty-four days after the stomach contents had been placed in the bottle, there was no sign of putrefaction, the only change noticeable being an increased degree of acidity. It is intended to keep the stomach contents as above, and to continue the periodic tests for hydrocyanic acid.

From the above experiment it appears that gastro-intestinal contents containing hydrocyanic acid can be kept for long periods without any risk of the hydrocyanic acid escaping, provided the vessel in which such contents are placed is air-tight. Furthermore in the light of the foregoing experiments, it is proposed to adopt the following procedure in cases where farmers report unfavourably on the effects of sulphur as a preventive for "geilsiekte": About 4 ounces of the stomach contents of the animals suspected to have died from "geilsiekte" should be collected as soon as possible after death. This must immediately be placed in a container (preferably a fruit jar fitted with an unperished rubber ring) which should be firmly closed so as to prevent the escape of gases. The specimen should then be packed carefully so as to avoid breakage, and be sent addressed to the Director of Veterinary Services, Pretoria North Station. In each case the time which has elapsed between the death of the animal and the taking of the specimen should be stated. In this way it will be possible to ascertain whether a disease called "geilsiekte" by any particular farmer is hydrocyanic acid poisoning or some other disease of unknown aetiology.

In conclusion, it may be added that bietou (various species of *Dimorphotheca*) may cause heavy losses in cattle and sheep. As these plants contain enormous amounts of hydrocyanic acid, it is doubtful whether sulphur would be of any value as a preventive, in cases where considerable amounts are ingested.

SUMMARY.

A method has been evolved to differentiate between the prussic acid form of "geilsiekte" and other forms of the disease. Rabbits drenched with highly toxic amounts of a cyanogenetic plant (*Dimorphotheca spectabilis*), "bietou," show detectable amounts of prussic acid in the stomach and intestinal contents up to forty-eight hours after death. When the M.L.D. of this plant is given, no prussic acid is detected in the stomach and intestinal contents forty-eight hours after death. The rate of disappearance of the prussic acid from the gastro-intestinal tract depends on the amount of cyanogenetic plant given.

The stomach contents of a rabbit killed with "bietou" still contain large amounts of prussic acid after forty-four days storage, provided such contents are kept in a well stoppered bottle.

Trapping Tsetse

As a means for the control of Trypanosomiasis (Nagana).

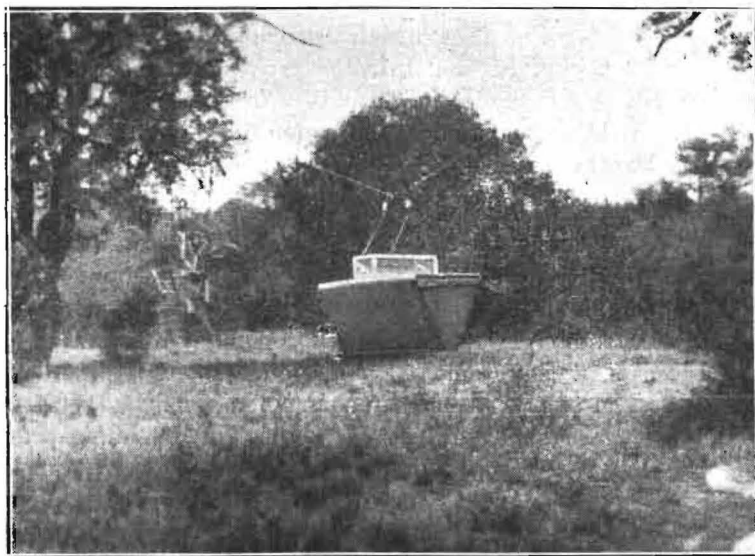
By R. H. T. P. HARRIS, F.E.S.

Director of Tsetse Fly Control in Zululand.

As the question of the control of Trypanosomiasis amongst domestic stock is one of paramount importance to the veterinary profession in all parts of the African Continent, it will be of interest to give a brief account of the trapping methods now being employed in Zululand for the wholesale destruction of *G. pallidipes*, Aust., the predominant tsetse of that Territory. The trap is the invention of the author who has followed a study of the tsetse fly problem in Zululand since 1921.

LIFE HISTORY.

The tsetse fly, unlike most insects, is exceedingly unprolific. The mother fly may produce ten larvae during its lifetime, depositing them at intervals which are usually of about ten days in the hottest and of



Tsetse trap in operation.

twenty-one days in the coldest months. Only one larva is deposited at a time, and it is fully developed in the uterus of the mother fly before being deposited. The maximum number of larvae deposited by a single female fly under laboratory conditions is ten. The production

of offspring depends on the female being fertilized, and one fertilization appears insufficient for the lifetime. The pupal period is approximately from thirty days in the summer to sixty days in the winter. The insect is not gregarious.

FOOD.

As both sexes of the tsetse are voracious blood-suckers, both are capable of transmitting the disease. Food is found by sight, but this sense does not enable the insect to discriminate between an animal and other even remotely similar objects. The insect wanders along the open spaces amidst leafy bush canopy, flying always from shadow to sunlight, and thence to shadow again. It alights to explore masses that at the moment are conspicuous by the tonal contrast with the surroundings, which masses may be animate or inanimate. Horizontal masses are more attractive than vertical ones. The quadruped is more attractive than the biped. The feature of light and shadow which guide the flight is more pronounced along game trails in the bush, and generally where animals are likely to occur, and thus the instincts of the fly lead it to where it is likely to meet with an animal. The adult insect alone is capable of transmitting the disease, and it is believed that a comparatively low percentage of the flies are infected at any one time. It has not yet been demonstrated whether the wild animal might not perhaps through the reaction of its blood be the controlling factor as to the percentage of flies which become infected. The low percentage of flies which become infected makes it appear obvious that the proportion is being controlled in nature by some means. Were this not so, every wild animal and every tsetse fly in the fly zones should by now be showing infection.

This statement implies that the writer suspects that the wild animal might periodically be throwing off infection and as constantly becoming reinfected according to the presence of numerous tsetses as vectors. Should this be so, then it will readily be perceived that heavy mortality amongst the fly population must mean vastly diminished chances of trypanosome transmission and survival.

All control measures hitherto recommended or attempted have had but one object in view, viz., the extermination of the insect vector. Of these the most satisfactory has been either the destruction of wild animals which provide the natural food of the fly, or the destruction of the bush amongst which the fly has its habitat. Neither of these measures are economic from the scientific point of view.

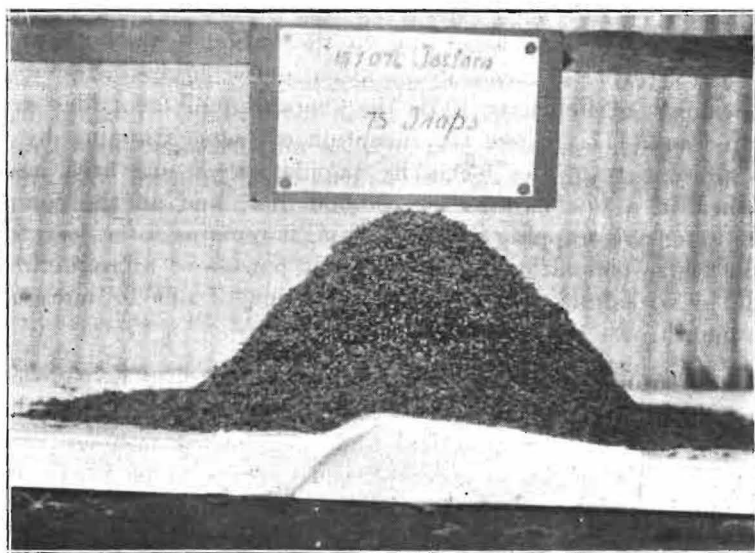
TSETSE FLY TRAP.

The apparatus consists of a platform, six feet by three feet, across which is an opening six inches wide, extending from side to side. Attached to the ends are folding legs which taper from three feet in width at the top to six inches at the bottom. The whole of this table-

like shape is then covered with double hessian forming a hollow bulk. The legs are kept apart by a wooden stretcher inserted between them. Covering the six inch opening in the platform is a cage fitted with a non-return passage through which the flies go, to become entrapped in the cage. The cage is painted white, as is also the platform, in order to give greater sharpness of contrast, and to add to the conspicuousness of the object in the bush. The whole is suspended from a wire, fastened between two trees in a suitable spot. The trap is fixed to this by hanging wires so that it is two or three feet above the ground surface.

THE WORKING OF THE TRAP.

All insects are rigidly adherent to sense impressions and stimuli. Some may have organs for the detection of odours, while others respond to the stimulus of visual impressions and light values. The tsetses belong to the latter group, for they hunt and are guided to their food by sight, in contradistinction to those insects which are guided by scent. When attacking a live animal the tsetse most frequently dives



The world's record catch of tsetse. 157,074 flies caught in 75 traps operating in Zululand during the month of March 1931.

to the lower horizon of an object as constituted by the legs or belly. Such action is believed to be due to a direct response to the attraction of the shadow thrown by the superimposed bulk. When departing after attack, the insect flies from the shadow of the object back into light before being attracted into shadow again. Movement has been recorded as constituting a feature of attraction to tsetses.

The present trap exhibits the horizontal bulk of a quadruped,

whilst movement has been given by the object being suspended on wires. The feature of movement is believed merely to represent a "change in the picture" simulating a form of contrast. In the present trap, movement is not a necessary factor because sufficient contrast to the surroundings already exists. Attacking flies dive for the belly or lower horizon of the trap and enter the shadow of its hollow bulk. This reaction is followed by the stimulus to proceed from shadow to light. The maximum light value being exhibited through the cage above, the flies are drawn from the lesser light below to the greater light above. They enter the cage and become entrapped.

IMPORTANCE OF CANOPY.

The tsetse fly travels extensively, and, responding to the stimulus of conspicuous objects, is drawn to particular types of bush canopy. A trap suspended where the canopy is most attractive will capture the incoming tsetses continuously from day to day at the same spot, draining the surrounding country to an extent which has not yet been determined. The highest catch recorded for one trap in one day is 443 females and 98 males. One trap will capture from one to several thousand flies a month, according to the value of the site at which it has been erected. Practically no attention is required after erection. For the month of February 1931, the average number of flies captured per trap was 2,117. Since the inception of tsetse trapping by means of the present trap, the tsetse fly population of one area has been diminished in a few months by 250,000 flies, and on the completion of more extensive trapping arrangements, it remains to be seen for how long the tsetse population, with its feeble powers of reproduction, will be able to withstand the regular destruction of one or more million flies a month.

In any case it would now seem that the control of trypanosomiasis amongst the wild and domesticated animals in Zululand by the destruction of the tsetses is a practical and inexpensive measure, and the time in which it might be accomplished appears to be in direct ratio to the number of traps employed.

Abattoir Construction.*

By E. H. WAUGH,
City Engineer, Johannesburg.

In acknowledging the courtesy of the Institution in inviting me to read a paper on this "gory" subject, I venture to remark that I do so with some diffidence as it is of such an intricate and extensive nature that it might well be a man's whole business to the exclusion of extraneous matters such as have crowded my own professional life. Moreover literature on the matter is of somewhat scanty extent and not easily come by. It is a subject on which the most extensive knowledge can be gleaned only by great travel, for abattoir builders do not go in much for reading papers and I have never seen one on the subject. Of this travel I have had a small share, having seen a number of the best private and public installations in Australia and South Africa, the former country being one which, from its vast pastoral nature, develops the science of abattoir construction as well as any and probably better than most. In addition, I have been associated with the construction of our own extensive abattoirs "since the word go" in 1907, work which has practically never since then entirely ceased.

From this foreword it is evident that it is impracticable in this country to give more than one's own experience coupled with the associations gained by correspondence and travel.

PUBLIC ABATTOIRS.

Before proceeding, it should be noticed that this country is distinguished by the adoption generally of public abattoirs, i.e., those open to receive the beasts of any owner for killing and dressing. This is in contradistinction to the private killing and packing establishments sometimes seen in Australia and often in America and England. In the first mentioned country these are sometimes in the vicinity of municipal abattoirs and are of large extent, but in other countries the killing trade often falls entirely into the hands of private concerns—with a definite effect on price of meat. Moreover, the health aspect is the predominant one with a municipal council and provision of equipment at cost for the public and veterinary supervision under Government licence is of supreme importance. I remark these points,

(*) Paper read before the South African Institution of Engineers at Johannesburg on January 8th, 1931, and published in The Journal of the South African Institution of Engineers, Feb., 1931, Vol. 29, No. 7, pp. 150-157. Reproduced by courtesy of author.

as they have a definite relation to the planning, and direct my attention mainly to public or municipal abattoirs.

LOCATION OR SITE OF ABATTOIRS.

In Australia, at Sydney and Adelaide the abattoir locations are many miles from the city. At Homebush (Sydney) the Meat Board, set up like our Rand Water Board by Statute, controls the very vast establishment which I believe is one of the largest concerns in the world. It comprises a building at least $\frac{1}{4}$ of a mile long. It is about 10 miles out. At Adelaide the distance must be about 5 to 6 miles. In Melbourne it is 2 miles approximately, and the abattoir belongs to the City of Melbourne, i.e. the central municipality (there are about 26 municipalities in Melbourne and about the same number in Sydney).

In Johannesburg the establishment is not one mile from the centre. The reason for the distant locations chosen in these older Australian centres is no doubt due to the old and now abandoned traditional idea that abattoirs are smelly places and better kept out of the city far from buildings; also to the need for keeping them near the vast stock sale yards, to a wish to provide extensive grazing grounds for resting the cattle (which in Australia sometimes travel by road) and also for isolation of animals from any adjacent infection. At Homebush there is a large area of grass land kept for this purpose. I think it is about 800 acres. The resting of cattle after a journey is no doubt of advantage since a journey in a truck must be tiresome.

The disadvantage of distant location is the expense and time involved in delivering meat to butchers, who must further visit the abattoirs on their business. In Adelaide I found this rather a live question and that it added appreciably to the cost of meat.

The area retained for the abattoir ground should be extensive. It cannot be too large, but may easily be too small in a growing city. For a small town it should be at least 5 acres, with the same area for stock yards, and in a large town 20 acres for each would be a desirable minimum, or 40 in all. To this could be added any area (if procurable) for grazing and resting, though this is not an absolute essential.

The site itself should be on a gentle and dry slope just sufficient to afford drainage for stormwater and fit for building on, situated near a main road but not on it, should have railroad facilities for railing and discharging stock, be adjacent if possible to the public stock sale yards, to an underground sewerage system and to a public water and light, and power and gas supply, if available. Supplementary underground supply of water, if procurable, is desirable. Where site limitations prevail, much space economy could be obtained by two storied stock yards and, if needs be, by multi-storied abattoirs.

PLANNING.*

It will here be emphasized that the layout of the planning is of supreme importance, for, no matter how good the equipment, a poor plan may rob it of much of its value. Planning resolves itself into several main heads arising from the necessities of the subject and so, following a beast in its passage live and dead through the establishment, the following provisions require attention:—

1. Lairage or pens for beasts prior to killing, with possible resting and grazing lands attached.
2. Passage from (1) to killing pens.
3. Killing pens and dressing floors.
4. Bleeding arrangements.
5. Skinning, disembowelling, halving and quartering, generally termed dressing.
6. Hanging arrangements for carcasses with rail weighing *en route*.
7. Arrangement for killing, isolation and inspection of suspected meat requiring special veterinary or meat inspector's examination.
8. Delivery outwards of dressed meat to its owners.
9. Provision for dealing with blood and offal and its digestion into fertilizers, together possibly with digestion of dead animals left on the streets.
10. Provision for tripery and gut cleaning.
11. Provision for manure and partly digested food from carcasses.
12. Provision for change houses and conveniences for slaughtermen and other workers.
13. Storage for loose and other plant and for by-products, and for delivery of last to buyers.
14. Provision of extensive offices and laboratory for administration.
15. Cold storage as ancillary to general works.

Covering all these points is the necessity for a liberal and generous water supply and for a sewerage system if available and, if not, for special treatment for sewage; also for an electric light and power and gas supply and for heating water.

The key note or dominant feature of the plan is the arrangement for killing and hanging the meat. Of late years there has been a very pronounced tendency to build abattoirs in more than one storey. Years ago the planning was on ground plan only. In our own abattoirs this was the plan adopted originally. The slaughter place was separated by an air lane from the hanging hall, i.e. two separate buildings. In older plans these buildings were often combined. The object of separation was to obtain aerial disconnection. The separating lane

(*) Several plans, not included in this reproduction, accompanied the original article and may be consulted in The Journal of the South African Institute of Engineers, Feb., 1931, a copy of which is in the S.A.V.M.A. Library.

was also used for the removal of offal and blood by means of coco-pans. It also permitted a passage for shunting meat from killing halls to ready space in hanging hall not always opposite the killing. The congestion of coco-pans and fresh killed meat crossing at right angles on the overhead and ground rails respectively, led to a subsequent definite plan of a subway for removal of the more offensive and waste products at a lower level. This feature can also be seen at Pretoria and I saw the method for the first time in operation in Melbourne 25 years ago,—since entirely abandoned.

On this ground plan this type of subway is often difficult to light and ventilate, and from its nature, having constantly to be washed down to clean the splashings from coco-pans and chutes, is generally in a damp state. The removal of offal and refuse, and of plucks, tripe, and guts at ground level sideways at the same level as the operations of passing carcasses across to the hanging hall leads to much cross traffic and has caused a development of tier or storied abattoirs.

Recently I had an enquiry from the Shanghai Corporation, China, whether an abattoir should not be on ground level only. The Corporation thought the engineer must be wrong as he had designed more than one storey.

The Johannesburg abattoirs were built on filled ground, mostly dry rubbish and street sweepings of long ago, some 20 feet deep. This gave rise to deep foundations and the building of a basement under the hanging hall. For many years this basement lay unused, until it was turned into a cold store with great success, though at first there were some qualms (which proved groundless) on the propriety of the scheme in such ground.

These deep pillar foundations made the provision of a subway not difficult structurally, but, coming subsequent to the original plan, this made daylighting impracticable. In the Pretoria plan this under-way is open on the top. The Pretoria abattoirs, as also those of Kroonstad, were designed by Messrs. Cowin, Powers, and Ellis, Architects, subsequent to the erection of the Johannesburg abattoirs.

In 1921 an addition was made at Johannesburg at first floor level at the instance of Col. James Irvine Smith, C.B.E., M.R.C.V.S., (the Director of the Abattoir since its inception) to whose creative initiative the whole abattoir establishment is mainly due. This institution exhibits the beginning of a new type plan for this country. It comprises novel features, viz.: small Brecht killing pens with floors to tip out killed beasts; circular section bleeding rail immediately outside the pen for hanging killed beasts head downwards in considerable numbers pending skinning and dressing; the introduction of the Australian "Davey" meat saw. This really wonderful appliance, designed by a slaughterman, will split a beast in a minute. The old, laborious,

heavy chopper probably took five to ten times as long and did not give so clean a job. Further, friction hoists were introduced for raising and lowering the heavy carcasses; also a lowering device or dropper to drop the halved carcasses by gravity to the hanging floor below, the counter weight or another dropper (which is quicker) bringing back the empty dropper on the balancing side.

This plan accelerates slaughtering and dressing greatly and it reduces the floor space necessary by probably at least 60 per cent. The elevation of the floor permits of chutes for the rapid removal of skins, offal, and guts. No great difficulty is found in inducing stock to walk up the inclined way and the height thereby gained is of enormous advantage.

At Adelaide, which has an extremely fine abattoir—the best I have seen, this system is well developed and the celerity and cleanliness of it almost surpasses conception. With sheep the blood, skins, feet, heads, and guts and offal disappear almost like magic down their respective chutes, arranged close to the dresser, and the floor is quickly cleared for the next animal. The elevation enables each by-product to reach its own place of treatment at lower levels without trucking or mess. The dressed carcasses are moved forward on the rails to the hanging room by a kind of endless chain device provided with sprags to catch and push on the hanger to which any carcass is hung. The number of attendants is reduced and cross traffic—the bane of both a street and an abattoir—is eliminated. In short the idea is verticality of transport from killing to treatment, as opposed to horizontality, at any rate as regards the passage of guts, offal, etc.

This plan was designed by Mr. Charles a d'Ebro, C.E., a Melbourne engineer and architect. The principle is illustrated in Henschien's "Packing House and Cold Storage Construction" and the idea can be followed, but would no doubt need adaptation for a public abattoir where the animals are not owned by the controlling body—such as a municipal council. In a packing house, however, the interest is single. Such in America is not a public abattoir, but a private establishment which buys animals on a large scale, turning them into products ready for sale. This includes the pickling of meat, manufacture of sausages, and preparation of lard, hides, etc.

A public abattoir does not so operate, as the meat and other products are taken away by the owners to be sold or worked up in their own establishments. The killing and dressing, in a publicly controlled abattoir, licensed by the authority and paid by the owner of the animals, however, are done, by statutory compulsion, by slaughtermen before removal. The by-products of such a concern comprise diseased or condemned, injured or putrifying animals which are digested and sold as fertilizer, and such other offal as is not able to be removed.

In an American packing house the killing is done on the fourth and top storey of the building, pigs, sheep and cattle all walking up the whole height, which has resting places on the way up. All offal and by-products are sent by chutes, and separated and cleaned for further manufacture in other departments. Tongues, livers, hearts, and brains are sent to the cooler after trimming. Heads and feet are cleaned and trimmed and sent to the digesters or bone cookers. Tripe is washed, cooked, and sent to coolers. Carcases hang till warmth is gone and then go to chilling or freezing rooms worked on mechanical cold storage principles, the condensers for which are placed on the roof as they are at our own abattoir.

COLD STORAGE.

The provision of this adjunct is a great advantage in a public abattoir and reduces the handling of products to a minimum. It provides cold storage for the public as well, and conserves products if for export, shipment, or dispatch) till facilities are available. In Johannesburg this storage takes in fruit and other edibles in addition to meat products. It is impracticable with the time at disposal to make any more than the scantiest reference to this aspect. The work done in this department at the Johannesburg abattoirs would itself take far more space than even a separate paper would permit.

The principle adopted is forced circulation of chilled air over batteries of direct expansion pipes, i.e. anhydrous ammonia is expanded in the pipes. Over these pipes calcium chloride brine is circulated to keep them clear of frost. The compressors are 4 in number—2 double acting horizontal and 2 single acting vertical: the first three are 40 ton machines and the last (recently completed) a 150 ton refrigerator, probably the largest in the country. The last installation of cold storage chambers is above ground and separated from the hanging hall by a wall. The earlier installations are in the basement. For handling, the Americans prefer the separate cooler block with covered-in bridges for communication. The provision of elevators for the necessity of lowering and raising in the under type no doubt gives this plan an advantage, and the main piping system is easier to plan.

DIGESTERS.

These are an essential feature unless good fertilising material is to be buried—a practice which, in addition to being wasteful, requires transport. Digestion or reducing by heat is done at about 312 deg. F. It destroys bacterial life and it also quickly reduces the product to pulp. Paddle stirrers accelerate the process and steam is used for the digestion. Blood and offal meat are kept in separate pots and systems. In each case the hash or pulp has to be dried after cooking. Sometimes this is done by means of a steam jacket in the same pot as the digestion, the steam being cut off from the inside pot and turned

into the jacket. Some plants take out what is termed "hash maganda" or pulp, wrap it in a cloth, squeeze out water in a press, and then send it through a separate dryer, generally a long horizontal heated steel barrel with a worm conveyor inside. The digestion is previously done in vertical, closed pots. In other plants, as at Johannesburg, these pots are horizontal. They are sometimes stationary with stirrers working within, and sometimes the shell revolves, the tumbling action being assisted by fin projections on the shell. Each pot will accommodate a whole carcase.

In Australia I found that the steam was drawn away through a condenser during cooking and was then conveyed into a closed water tank to wash out odours. The off pipe from this tank was discharged under the boiler furnaces to eliminate any remaining odours. This part of an abattoir is the only one likely to cause odours under modern conditions, but with due care these can be prevented. Sometimes digestion is supplemented by the use of a solvent, like benzine, which "scrubs" the pulp free from all fat which is of value. The benzine vapour is led back from the plant to a restifier, from which it is recovered for re-use with very little loss.

CONCLUSION.

Of this extensive subject some salient features only are touched upon, and in a very cursory manner. To do full justice to the various aspects of such a vast problem is of course impossible in a short paper such as this.

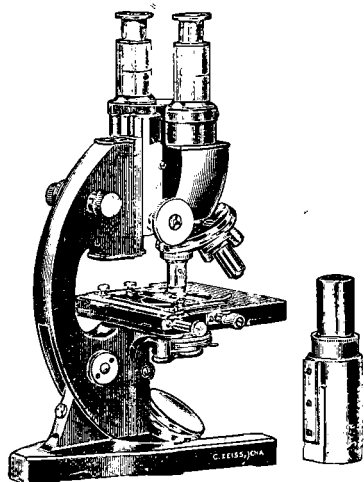
[Note: In a large and progressive establishment such as the Johannesburg abattoirs, it is only to be expected that improvements and innovations are introduced at all possible opportunities. From remarks made by the Director of Abattoirs it would appear that certain appliances mentioned in this article e.g. Brecht killing pens, have been superseded by more efficient means, an example of which is the improved "Stunning pen" designed by Col. Irvine Smith and now in use at Johannesburg. (Editor)].



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A Case of Urea Poisoning in Cattle.

By D. G. STEYN, B.Sc., Dr. Med. Vet., Onderstepoort.

On the 19/2/30 the Government Veterinary Officer stationed at Pietersburg, Transvaal, forwarded to Onderstepoort the stomach contents and livers of some cattle together with specimens of their food and of a product termed "urea fertiliser," with the remark that these animals had probably succumbed to urea poisoning. Three cows had died within half-an-hour of being fed, and one an hour later. The post mortem revealed the following lesions:— tympanites, pronounced hyperaemia of the lungs, heart soft and flabby, with numerous sub-pericardial haemorrhages; acute nephritis with haemorrhages, pronounced hyperaemia of the abomasum, and haemorrhages in the small intestine.

UREA FERTILISER.

The following tests were conducted with the specimens of urea fertiliser forwarded:

One rabbit was drenched with 15.0 grams of the fertiliser dissolved in 100 cc. of tapwater. No untoward symptoms developed in the course of the following week. Another rabbit was drenched with 50 grams of the fertiliser dissolved in 150 cc. of tapwater. Within fifteen minutes after dosage the animal became restless, exhibited accelerated breathing and pulse, and death in convulsions occurred one and three quarter hours after dosage.

Post mortem appearances:— Heart flabby and in diastole, pronounced hyperaemia of lungs and kidneys and of the gastric mucosa.

FOOD MIXTURE.

This specimen was collected from the remains of the food in the manger and forwarded in a fruit jar. When the container was opened its contents emitted a strong smell of ammonia. Fifty grams of this food mixture were shaken with 100 cc. tapwater and a rabbit was drenched with the filtrate. Within five minutes the animal exhibited restlessness, excitability, and accelerated pulse and respiration, dying in severe convulsions within one-and-a-half hours after dosage.

Post mortem appearances:— Heart flabby and in diastole, pronounced hyperaemia of the lungs and kidneys; and hyperaemia of the gastric mucosa with extensive haemorrhages. All the specimens submitted proved to be arsenic free. On investigation it was found that

the boy, who attended to the feeding of the cows, had mistaken for mealie meal a bag of so-called urea fertiliser.

Urea, when ingested, is split up into ammonia and carbon dioxide in the rumen [$\text{CO}(\text{NH}_2)$ plus $\text{H}_2\text{O} - 2\text{NH}_3$ plus CO_2]. Hence the toxic action of urea is to be ascribed to the liberated ammonia.

LITERATURE.

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Multiple Shell Membrane Formation round Ovum.

By F. J. DUNNING, F.R.C.V.S.
Stellenbosch.

A leghorn hen belonging to the Elsenburg School of Agriculture was destroyed because it had developed a very pendulous abdomen, a condition which was thought to be ascitic in nature.

Being present at the time, I made a post mortem examination. On the abdomen being opened, a large body was seen occupying a considerable part of the abdominal cavity. On dissection this was revealed as a diverticulum or pouch connected with an opening into the middle part of the oviduct and which contained a soft oval body of the size, shape, and colour of a duck's egg. Further dissection shewed that this body consisted of layer upon layer of complete shell membranes and in the very centre a dried out yellow, caseous yolk. Unfortunately for record purposes the number of membranes was not counted, but this would be in the neighbourhood of a score.

Remark: It would appear as if a continuous shell membrane formation persisted as long as the ovum remained in the portion of the oviduct responsible for the secretion of that substance.

Common Salt Poisoning.

By D. G. STEYN, B.Sc., Dr. Med. Vet., Onderstepoort.

In the past, numerous specimens of salt and salt licks have been sent to Onderstepoort by stock-owners, with the remark that the salt had caused serious losses among their sheep. All these specimens were tested both biologically and chemically, and in no case were they found to be excessively poisonous or to contain extraneous toxic substances, that is, the salt was found to possess the usual degree of toxicity. On each occasion it was found that the losses had occurred when salt or the licks had been offered to sheep after a long period of salt starvation. The symptoms described coincided with those of salt poisoning.

It is a well known fact that some sheep in a flock which is "salted" at long intervals, will rush the troughs and voraciously ingest the lick, whereas most of the animals will partake of it in a normal manner. It is only natural that such cravers will be the most liable to be poisoned.

Although we were convinced that these losses were due to the taking of too much salt, by the salt starved animals, especially on farms deficient in minerals, it was thought advisable to investigate the condition at Onderstepoort.

For this purpose fifty merino sheep were placed in a kraal and given a salt-free diet. This diet consisted of veld hay *ad lib.* and 1 lb. crushed mealies. After a period of three months had elapsed, twenty-five pounds of common salt was offered. Within the following twenty-four hours the sheep consumed four pounds of the salt without any deleterious effects. Subsequently these animals again received the same salt-free diet for a period of six months and were then offered forty pounds of salt. Within the following twenty four hours they consumed six pounds of salt, with no ill effects whatever.

No importance should be attached to these negative results, as the experimental animals received a daily diet which contained Na and Cl equivalent to approx 2 grams of NaCl, a circumstance which may account for the fact that the animals exhibited no abnormal craving for salt even after a period of salt starvation lasting six months.

It would be advisable to conduct a similar experiment on a farm deficient in minerals, especially during a period of drought and at a time when little or no green vegetation is obtainable.

CONCLUSION.

It has been impossible to produce common salt poisoning in Merino sheep at Onderstepoort by feeding them for periods up to six months on a common salt free diet and then offering them common salt *ad lib*.

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**Is *Euphorbia Genistoides* Responsible for the Disease in Hamels
called "Pisgoed"?**

By F. J. DUNNING, F.R.C.V.S.
Stellenbosch University.

During this last December, January, and February a considerable amount of my spare time was given to an attempt to throw some light on the connection between the plant called *Euphorbia genistoides* and the disease called "pisgoed" occurring in the Western Province. Correspondence carried on with farmers elicited from most the reply that this plant is the cause of the disease. Some farmers responded to the request for plant specimens, and these were identified by the Botanical Departments here and also at the University of Capetown as *Euphorbia genistoides* Berg. There was thus sufficient information to warrant the carrying out of feeding tests with this plant. Further no other plant was sent in (except in one case an *Asclepias* sp.) as suspect.

Requests to farmers to forward sufficient material for feeding experiments being unsuccessful, I scouted round locally and found a few farms where the plant grows and which were reputed unhealthy. It was decided to use two wethers for the experiment because there was no fund to buy oxen and also because there existed a well-founded misgiving that the supply of the suspected plant was too limited for feeding to large animals. Stock-owners informed me that most cases occur in December and January as grazing is then scarce and dry.

The following feeding experiments were carried out:—

Sheep No. I. Consumed from 29.12.30 to 14.1.31 thirty-three ounces of the plant chopped fine and mixed with damp bran. The animal remained perfectly healthy. The experiment was discontinued owing to a shortage of the plant.

Sheep No. II. Consumed from 29.12.30 to 14.1.31 a total of seventy-six ounces. During the last few days it was eating half a pound daily. It remained perfectly healthy. The experiment had to be abandoned as no more material could be obtained. A further effort was made the following month, and it was possible to feed a further thirty-six ounces over a period of 4 days. This again had no effect. This sheep had thus consumed a total of 112 ounces. No further plants could be obtained owing to the dry state of the vegetation here.

Guinea Pigs: As a further test it was decided to feed two male guinea pigs each about an ounce of the plant daily. This was con-

tinued for five days, when, no results accruing, the material was diverted to the sheep.

REMARKS AND OBSERVATIONS.

As there were no previous data* to work upon, it was not known at the start what the toxic dose might be. All owners interviewed by me suggested that it took very little indeed to produce the classical symptoms. As the result of a personal botanical survey of the farms, it was realised that this statement should be correct as the plant was scarce. One might work hard all day and collect only four to five pounds, and this amount seemed in some cases to exhaust the supply. If such a quantity be divided amongst a flock of sheep, the individual portion received is very small. If, therefore, *Euphorbia genistoides* is responsible for "pisgoed," to produce the disease in wethers must certainly take considerably more than the quantity popularly supposed sufficient. If further experiments could be carried out on oxen, some data at least would be obtained regarding the minimum quantity which may be consumed without ill effects. If, however, the ox is no more susceptible in proportion to his size than is the sheep, one could feed him five pounds daily without results, and I do not know from where this quantity could be obtained in the fresh state. It was noticed that sheep are not attracted to the plant and are not partial to it, but when starved they would, however, eat up to a certain amount of the leaves and stem fed whole. The maximum quantity taken voluntarily lies between 2 and 8 ounces, but the sheep is easily satiated.

* The following notes in connection with above subject may be of some interest. (Ed.)

Sparrman (1775) mentioned "pisgras" as early as 1772 causing a stoppage of urine frequently with fatal results. This disease occurred on the northern boundary of the Mossel Bay District and nobody could with any degree of certainty point out the responsible plant. Sparrman suspected "pisgras" to be a *Euphorbia* sp.

Watt (1927) in "The History of Pharmacology in South Africa" states that Tunberg held that *Euphorbia genistoides* contains a milk which causes no trouble in the stomach and bowels of cattle, but which corrodes the bladder and obstructs the urinary passages of the ox and horse, causing strangury.

Crowhurst (1895) claims to have produced a case of "pisgoed" in an ox in the Worcester District, but does not mention the specific name of the plant with which this animal was fed.

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Field Observations on Ovine Pasteurellosis in South West Africa.

By J. A. MAYBIN, M.R.C.V.S.

Grootfontein.

HISTORY.

Professional literature records haemorrhagic septicaemia of sheep, or infectious pneumo-enteritis of sheep as occurring on the continent of Europe and in other parts of the world.

Edmonds, in his book "Diseases of Animals in South Africa," makes a very brief reference to this disease under "Septic Pleuropneumonia in calves. He states that a similar disease exists in sheep, which attacks adult as well as young animals. The disease is also referred to by Rickmann, formerly Veterinary Officer to the German troops in South West Africa. From 1926 onwards, septicaemia haemorrhagica of sheep has been observed by the writer in the following outbreaks in South West Africa:—

"A." About September, 1926 he investigated an outbreak of disease amongst Karakuls at farm Otjihavera in the Windhoek district, where about sixty sheep had died in two days. Here the disease seemed to have swept through the flock, killing off mostly those sheep in poor condition as a result of infestation with internal parasites. Later the mortality gradually decreased and eventually the disease seemed to have spent itself. During this outbreak the writer made careful observations on the symptoms presented by affected animals, and from post-mortem examinations on dead animals, as well as on animals which were slaughtered *in extremis*, and subsequent microscopical examination of smears, he concluded that acute haemorrhagic septicaemia was the cause of the mortality, whilst infestation with internal parasites was considered a predisposing cause. The writer's observations and diagnosis were confirmed by Major Bone, M.R.C.V.S., Windhoek, to whom specimens, smears, reports, etc., were submitted.

"B." The second outbreak of disease involving a high mortality amongst sheep which the writer was called upon to investigate was at the farm Kaliombo in the Karibib district. In this case the mortality was even higher than in outbreak "A" above, but otherwise almost an identical state of affairs existed, and investigations led to a similar diagnosis, namely acute haemorrhagic septicaemia of sheep. In this outbreak, however, some agar-agar culture media were inoculated with blood taken from a natural case of the disease. These, after incubation at summer temperature for thirty-six hours or so, presented numerous bacterial colonies, smears from which on micro-

scopical examination revealed the presence of numerous bacteria identical with or closely resembling *P. ovisepticus*. Here again those members of the flock, irrespective of age, which were down in condition through internal parasitic infestation, seemed to be picked out as the victims of the disease. This outbreak occurred soon after outbreak "A", namely in September or October, 1926.

"C." In October 1928 an outbreak of disease amongst sheep at the farm Awagobib in Grootfontein district was investigated. The manager reported that during September of that year he had lost twenty-five sheep, and in October of the same year fifteen sheep of various ages had died, death being due, in his opinion, to some affection of the lungs. Specimens of affected lung tissue submitted for examination presented lesions indicating a septic pleuro-pneumonia. Smears prepared from these specimens and examined microscopically revealed numerous bi-polar organisms, presumably *P. ovisepticus*. It was concluded that here had been encountered a more chronic form of haemorrhagic septicaemia, in which the outstanding lung lesions were more advanced than in the previous outbreaks. During this outbreak the writer made enquiries as to whether a sero-vaccine could be obtained from the Onderstepoort Laboratory to deal with the disease, but such was not the case. However, a pleuro-pneumonia serum, which had been imported from Germany, was used, and the manager of the farm reported that the results following inoculation therewith were most satisfactory.

"D." In August, 1930 an outbreak of lung disease occurred amongst sheep on the farm Otjikururume in Grootfontein district. The owner of the farm reported that karakul sheep were dying almost daily, at the rate of one, two, or three, from a disease which affected the lungs. From the history, symptoms, and lesions as described by the owner, as well as from examination of lung specimens submitted, the more chronic form of infectious pneumo-enteritis was suspected. A report that lesions were present of a subacute pleuro-pneumonia and a mixed fibrinous catarrhal pneumonia with necrosis, but no organisms could be identified in these lesions, was later received from Onderstepoort. The writer obtained a further specimen and smears of lung from an affected sheep, and forwarded these, together with blood smears, to Onderstepoort, whence he received a reply stating that "the lungs presented lesions of acute haemorrhagic pneumonia, and the smears gave a negative result." The owner had by this time lost about forty sheep, and the writer strongly recommended that he should inoculate his sheep with pleuro-pneumonia serum. This he did, using all the serum in stock, and no further reports of mortality amongst the inoculated sheep have been received.

"E." Early in October, 1930 mortality amongst sheep to the extent of six deaths occurred at the farm Hohentweil. Infectious pneumonia

was diagnosed and material again submitted for examination. A reply was received that "no disease producing organisms were seen" although a special examination for bi-polar organisms had been made.

"F." The day following the above outbreak (E), the writer diagnosed infectious pneumo-enteritis at the farm Auros, where about four sheep had died suddenly and a few others were sick.

"G." On the same day as (F) the writer diagnosed infectious pneumo-enteritis at the farm Wallroda, where about forty sheep and a few goats had died within a few days.

"H." A few days later the writer was urgently requested to investigate the high mortality amongst karakul sheep at the farm Khoresis, where two hundred and fifty sheep had been wiped out in a little over two days. Here again infectious pneumo-enteritis was diagnosed.

"I." The following day the writer was again called out to the farm Schwarzfelde, where 180 sheep and 90 goats had died suddenly within a few days. Again infectious pneumo-enteritis was diagnosed. Since the outbreak enumerated above, the writer has received reports of one or two smaller outbreaks involving a low mortality and evidently of a less virulent nature.

AETIOLOGY.

The microscopical examination of blood and organ smears by the writer and also by the Onderstepoort Laboratory having failed to reveal the presence of a responsible organism in the more recent outbreaks recorded above, the writer obtained a quantity of blood from the jugular of a sheep *in extremis* and inoculated an agar-agar petri-dish. This culture at summer temperature revealed within 24 to 30 hours numerous viscid, iridescent, bacterial colonies, smears from which, on microscopical examination, shewed numerous organisms identical with *P. ovisepiticus*. This was repeated several times with blood taken from the jugular veins of other sheep *in extremis* from infectious pneumo-enteritis, with similar results, smears from each culture being positive for *P. ovisepiticus*. The writer despatched some of these cultures to Onderstepoort for the purpose of having a sero-vaccine produced against the disease. These cultures arrived in a virulent condition and proved pathogenic.

SUSCEPTIBILITY.

In the natural outbreaks of infectious pneumo-enteritis to which reference has been made, the disease was not confined to any particular breed of sheep, nor was it confined exclusively to sheep, for in two outbreaks it spread also to goats which were running with the flocks.

Whilst however the disease affected several breeds and cross-breeds, yet karakuls and their crosses suffered a higher mortality. Sheep of all ages and of both sexes were affected. Comparing the more recent outbreaks with those of 1926, it is remarkable that in the earlier outbreaks the disease was associated with parasitic infestation, namely oesophagostomiasis and haemonchosis, while in the more recent outbreaks internal parasites were almost entirely absent. The majority of flocks affected were in poor, or at best only in fair condition, due in most cases to the effects of prolonged drought. The disease was not entirely confined to flocks in poor or in fair condition, but it certainly ran a more rapid and fatal course in these.

EXPERIMENTAL INOCULATION.

The writer, working under field conditions, had no laboratory animals at his disposal, but obtained two healthy sheep from a farm, free from the disease and distant from the outbreaks. Of these, one was an old and the other a young sheep and will be referred to herein as such. An emulsion was made from the ovisepticus culture referred to above, 5 cc. of which when inoculated into the jugular vein of the young sheep caused death within 12 hours from a peracute infectious pneumo-enteritis, the lesions of which were identical with those occurring in natural, virulent, outbreaks. The old sheep was first inoculated subcutaneously on the inner aspect of one thigh with 5 cc. of blood taken from the jugular of a dying sheep, and simultaneously on the opposite thigh with 5 cc. of blood taken from a sheep which had recently died. After about 12 hours the thigh inoculated with the blood from the **dying** sheep presented a large inflammatory swelling extending down to below the hock, whilst the thigh which received blood from the **dead** sheep remained almost normal.

Furthermore, culture media (two petri-dishes) each inoculated with blood as above, gave corresponding results, namely, that inoculated with blood taken from the **dying** sheep produced bacterial colonies of *P. ovisepticus*, whilst that inoculated with blood taken from the **dead** sheep remained sterile. Some days afterwards, the old sheep received 5 cc. of virulent blood intrajugularly, (the same blood as that from which culture had been produced): little or no constitutional disturbance resulted and the sheep remained alive and evidently in good health until about two weeks afterwards, when it received 5 cc. of ovisepticus culture emulsion intrajugularly. This proved fatal within twelve hours.

Efforts to transmit the disease artificially to poultry, even by the subcutaneous injection of 3 cc. of ovisepticus culture emulsion, proved unsuccessful, as also were efforts to transmit the disease to an old sheep by drenching with oedematous fluid obtained from the bronchi-

of the affected lungs of the young experimental sheep which had died as the result of injection with virulent culture emulsion.

SYMPTOMS.

In the outbreaks enumerated above, the disease was observed in its peracute, acute, subacute, and chronic forms. In those outbreaks associated with a severe infection and a high mortality (as in outbreak "H" above) the course was peracute, death ensuing in most cases within a few hours. Symptoms included high fever at first, but later sub-normal temperature with the approach of death, great weakness and even collapse, accelerated respirations, pulse frequent and feeble, profuse diarrhoea (sometimes haemorrhagic), watery discharge from the eyes, and a frothy discharge from the nostrils.

In this peracute form the history of the outbreaks was often to the effect that the flock had appeared quite healthy when kraaled in the evening and that the next morning the kraal was strewn with dead. In one flock two hundred and fifty animals died within 36 hours. The peracute form affected sheep of all ages, those in quite good condition as well as those in poorer condition, and in two of the outbreaks it extended to goats, causing a mortality amongst the latter of between 90 and 100 animals. In such outbreaks, where at first there was a sudden high mortality, the number of deaths would decrease after a day or two, the disease appearing to have spent itself, and the remaining animals would either escape altogether, or a percentage of them would develop symptoms of a subacute or chronic form.

In the acute form of the disease, the animals at first shewed dullness, anorexia, polydipsia, and separated from their fellows, seeking the shade. The temperature was super-normal, there was a slight watery discharge from nose and eyes, visible mucous membranes were injected, and frothy saliva dribbled from the mouth. Dyspnoea and other general symptoms of pneumonia were present, also muscular tremors, and diarrhoea, at first slight, later usually becoming profuse and haemorrhagic.

In the subacute form, observed in a few instances, the symptoms were a modification of those noted in the more acute forms. The animals remained sick for 7 to 10 days or longer, gradually losing condition and becoming debilitated. Symptoms of pneumonia were present. Although some animals seem to show an improvement at times, yet complete recovery is rare. Death usually supervenes in a week or so, or otherwise the condition becomes chronic.

The chronic form may be present in a flock from the outset. Commencing at first a very low mortality, to which little attention is paid by the owner, it may gradually become more virulent with a corresponding increase in the morbidity and the mortality. On the other

hand, it may develop in a flock following a more acute outbreak. In some of the outbreaks only the chronic form appeared, and had not been associated with the more acute forms. Moreover, whilst the chronic form more usually occurred in older animals, and those in low condition, yet it also affected young sheep and those in fairly good condition. In this chronic form there is dullness, a gradual loss of condition, general unthriftiness accompanied by progressive anaemia, a break in the fleece, respiratory distress on slight exercise, and symptoms of chronic lung affection usually accompanied by a cough. The animals lag behind the flock and not infrequently have to be carried home by the shepherd. There is often a sticky discharge from eyes and nose to which dust adheres. Some sheep recover from this form, but progress is slow, the animals remaining unthrifty for a long time and probably a source of danger to healthy sheep. In the writer's opinion it is more economical to slaughter all such chronic cases in an otherwise healthy flock once the disease has been diagnosed.

ANATOMICAL CHANGES.

Sheep dying from the peracute and acute forms of the disease soon become tympanitic after death through fermentation of vegetable matter in the digestive tract, a circumstance indicating that the animals have been feeding shortly before death. In some instances this gave owners the impression that death was due to slangkop poisoning. A quantity of foam or froth is often present at the nostrils. Examination of anus and breech indicates that there has been diarrhoea, sometimes haemorrhagic. On opening the dead animal, one observes the lesions of a septicaemia. There are small haemorrhages in various tissues and organs, the lymph glands show marked swelling, and the veins present a conspicuous appearance, especially those of the intestines and mesentery, being injected and prominent, even in animals slaughtered and bled prior to autopsy. The spleen, if enlarged, is only slightly so. The kidneys on section appear injected, the gall-bladder is usually distended with dark, green, fluid bile, the liver is enlarged and hyperaemic, there are small haemorrhages on the parietal pleura, the mucosa of the trachea and bronchi is swollen and injected, the bronchi contain a large quantity of foam, the lungs are oedematous and present one, or many, small greyish-purple areas visible through the visceral pleura. In some peracute and acute cases, such as those resulting from artificial transmission of the disease by the injection of culture emulsion, the lungs appear for the greater part purple or greyish-purple, but actual red hepatization is usually absent in this form of the disease. There is a serous infiltration of the interlobular connective tissue of the lungs and a gelatinous infiltration of the mediastinum. Sections of the lung float on water. The pericardium and thoracic cavity may contain a little blood-tinted fluid, but as a rule this is not very marked. There are no adhesions between the visceral and parietal pleurae. The

mucosa of the abomasum and of the intestines is seldom, if ever, very markedly inflamed, as in most cases due to poisoning.

In the subacute cases, most of the lesions indicated above are present, but here the changes in the lungs are considerably more marked and more advanced. Almost invariably at this stage, one finds lesions of an acute haemorrhagic pneumonia with red hepatization, and pleuritis. Here the lung lesions are usually extensive, affecting large areas of one or both lungs, the affected areas being in nearly every case sharply demarcated from the normal lung tissue; sections from the affected areas sink in water. At this stage the affected portion of the lung appears to the naked eye to be uniform throughout; it is livid, slippery to the touch, and in consistency somewhat resembles normal liver tissue. The cut surface has a peculiar rose tint. Adhesions between visceral and parietal pleurae are rare in the subacute cases.

In the chronic cases, lesions of an acute septicaemia are of course absent. There is usually evidence of anaemia, wasting, and general unthriftiness, and the wool may come away easily. The lung lesions are usually marked and extensive, varying from greyish-red hepatization, with thickening and adhesions of the visceral and parietal pleurae, to consolidation of large areas with suppurative pneumonia, characterised by the presence of a granular greyish-yellow pus which may be squeezed from the cut surface.

DIAGNOSIS.

Diagnosis is not always easy, especially when smear examination of blood and affected lung tissue fails to reveal the causal organism. In the outbreaks of 1926 and 1928 referred to above, the writer was able to demonstrate *P. ovisepcticus* both in smears and in cultures. In the recent outbreaks of 1930, however, fairly extensive smear examinations gave a negative result. The writer was therefore somewhat nonplussed until he again succeeded in cultivating the organism and in transmitting the disease to other animals by injection of culture emulsion as already described.

Infectious pneumo-enteritis of sheep might at first sight be mistaken for such diseases as braxy, anthrax, or certain forms of poisoning, as well for pneumonias due to other causes.

PREVENTION.

Vaccines, sero-vaccines, and sera have been used against this disease with variable results. The sero-vaccine imported from Germany to South-West Africa seems to give good results, but in addition to being somewhat expensive it confers an immunity of rather short duration. At the time of writing, a sero-vaccine is being prepared at Onderstepoort Laboratory and should be ready for issue at an early date. The

culture used for the production of this vaccine was obtained by the writer from the outbreaks recorded above in Grootfontein District of South West Africa.

SUMMARY.

Haemorrhagic pneumo-enteritis of sheep would appear to have existed in South West Africa for a considerable number of years, and although the disease had been diagnosed in that country by Rickmann, and no doubt by other veterinarians, yet its economic importance to the sheep farmer seems to have been under-estimated, probably because outbreaks of the disease were of a much less virulent nature than those herein recorded, and also to some extent through the farmer confusing the disease with other conditions such as slang-kop poisoning, and thus failing to have the disease thoroughly investigated. Be this as it may, the fact remains that the disease is of very great economic importance to the sheep industry of this country, and seems to be on the increase. The *P. ovisepticus* seems to occur in nature as a saprophyte in the soil, and may even be present in the animal body without causing any effect, becoming pathogenic only under certain obscure influences or conditions not definitely established.

The writer's almost invariable experience in this country has been that virulent outbreaks of the disease occur in the months of September and October, and most of the chronic outbreaks have been observed about the same time. This perhaps indicates that climatic influences play no small part in bringing about an exalted virulence of the organisms. At this time of the year, the weather is hot and the rainy season has not yet commenced. Whether or not climatic conditions do influence the virulence, the writer is of the opinion that in this country at any rate, the disease is of seasonal occurrence, and that this point is of much practical importance in regard to the prevention of virulent outbreaks, since it determines the most appropriate time of the year for farmers to practise preventive inoculation, more especially if a serum or sero-vaccine be used which confers an immunity of short duration only. In the writer's opinion, such preventive inoculation could most advantageously be carried out annually in about the month of August.

The seasonal or climatic influences may, however, be merely apparent, since this is also the time of the year when sheep are in poorer condition and weaker in respect of natural resistance, owing to drought. This, however, cannot entirely account for the facts, since sheep even in good health and condition contract the acute form of the disease. However, it is possible that the organism, by attacking first the poor-conditioned and less resistant sheep, rapidly increases in virulence on passing through the flock, until it becomes virulent for in-contact sheep irrespective of condition. This "increase of virulence by passage" would in the writer's opinion scarcely account for the simultan-

eous and very virulent outbreaks of very acute forms of the disease on several widely separated farms. The writer does not suggest that the experiments mentioned above (see "Experimental Inoculation") were in any way conclusive, as they were performed under field conditions; but they appear to indicate that soon after death certain changes take place in the animal body which render the organisms inactive. Such experiments might usefully be repeated under laboratory conditions, in order to obtain information regarding the danger of the carcase as a source of infection.

NEW BUILDINGS AT ONDERSTEPSPOORT.

During the course of this year, additions have been made to the buildings at Onderstepoort. A laboratory for the making and storage of the government wire worm remedy has been erected at a cost of £4,000. There are five rooms in it and a big store room. The making of dip testing fluids will be carried out in this building.

An x-ray building is in course of construction. It will contain a room for photography, a dark room and a special dynamo will be installed.

The foundations of the library building, which is being built with money from the Empire Marketing Board, have been commenced. This building will cost £10,000, which is £3,000 short of the original estimate and in consequence the plans have had to be altered accordingly.

There will be large central lecture hall, reading rooms for current periodicals and for reference, librarian's office, store rooms, cloak rooms, etc.

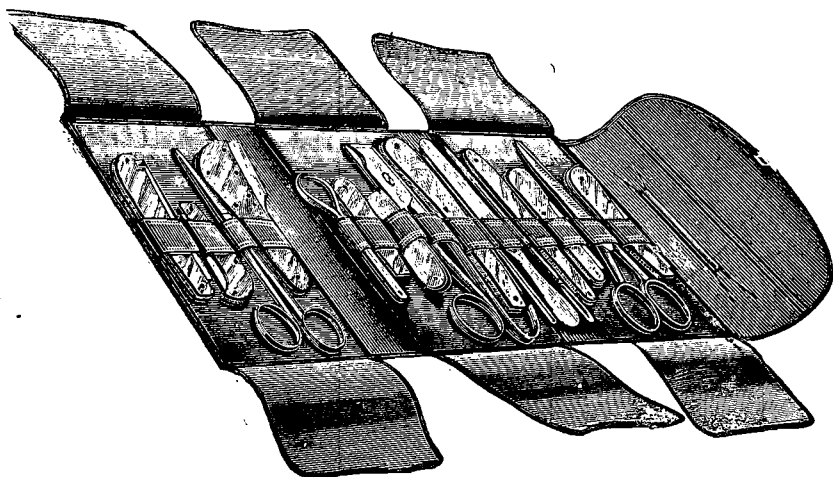
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ABSTRACTS.

The Microscopic Diagnosis of Heartwater: A Preliminary Note on the Value of Intima Smears.* JACKSON, C.

The author has succeeded in demonstrating with great regularity *Rickettsia ruminantium* in sheep dead from heartwater, by examining smears made from scrapings of the vascular endothelium. He suggests that this method may replace to advantage the subinoculation and section cutting hitherto in use. Smears are made from a variety of sources, e.g. the jugular vein, the endocardium (right side), the posterior vena cava, etc.

In such smears were observed, in addition to the coccoid forms of *Rickettsia* made familiar by the discovery of Cowdry (1925), very much larger ring-forms. Further light has thus been thrown on the morphology of these organisms.

A history of the difficulties encountered in the microscopic diagnosis of the disease is given in some detail. The technique for making the intima smears is described, and notes are added on the distribution of *R. ruminantium* in the body. The article is illustrated by photomicrographs.

Anatomical Studies No. 27. An Anomaly of the Flexor Digitorum Pedis Profundus in a Goat.* JACKSON, C.

This is a short note recording a case in which the *M. tibialis posterior* terminated on two tendons which joined respectively the *M. flexor digitorum longus* and the *M. flexor hallucis longus*. In passing, brief references are made to the comparative myology of the deep flexor of the hind limb of ruminants.

(Author's summaries).

Styrylquinoline No. 314 in Trypanosomiasis.* PARKIN, B. S.

The efficacy of Styrylquinoline No. 314, one of various derivatives of Anil and Styryl quinoline introduced for their trypanocidal properties by Browning, Cohen, Ellingworth, and Gulbrandsen, was tested in *T. brucei* infection of horses and *T. congolense* infection of bovines. In the former the drug gave remarkably good results, producing sterilization in doses of .004 gm. per Kg. body weight repeated one or more times at weekly intervals. In the latter, however, the drug had no appreciable effect on the disease or the trypanosome. Styrylquino-

* Of the series of articles abstracted here, those marked with an asterisk will appear in the 17th Report of the Director of Veterinary Services and Animal Industry (1931) now in press. It is therefore impossible at this stage to give page references. (Ed.).

line No. 314 was given subcutaneously (intravenous injections produced toxic symptoms), but the marked irritant properties of the drug when given in this manner to horses and cattle precludes the recommendation of its use.

A Note on the Diagnosis of Bovine Trypanosomiasis.* *Idem.*

This article records the determination of the incubation period in *T. congolense* and *T. vivax* infections of bovines from the examination of stained blood and gland smears, and also the comparison, by actual counts, of the frequency of the appearance of these parasites in stained blood and gland smears respectively. The results obtained demonstrate clearly that the blood smear is the suitable medium for the diagnosis of *T. congolense* infection, while in the case of *T. vivax* infection, gland smears are those of most value.

Antimosan Therapy in Trypanosoma Congolense Infection of Sheep.*

Idem.

Trials of the treatment of sheep infected with *T. congolense* were carried out with doses of the 12% Antimosan varying from 3 cc. to 10 cc., administered singly or repeatedly at intervals of one and four weeks. It was determined that the response to treatment was not as marked as in the case of the same infection of bovines, although sterilization was obtained without any great difficulty. The sheep were infected with ease by the intravenous route and the disease produced was at times acute, but more often chronic in nature.

Antimony Therapy in Trypanosoma Brucei Infection of Horses.*

Idem.

This article is a continuation of the work published by this author in the 16th Report of the Director of Veterinary Services and Animal Industry. Again the results obtained indicate the efficacy of Antimosan in the treatment of *T. brucei* infection of horses, which is rather surprising when one considers that repeated failures have been reported in the treatment of this disease with another trivalent antimony compound, potassium antimony tartrate.

The Antimosan was given subcutaneously in a 7.5% solution, as the 12% solution produced swellings and abscesses. The administration was at intervals of one, two, and three weeks. The indications are that the best results will probably be obtained by the use of fairly large doses (up to 6 gm.) at short intervals.

The methods used for the determination of sterility, namely blood smear examination, temperature curve, complement fixation test, sub-inoculation, and re-infection, are described in detail. Of these, blood smear examinations were of least value.

Treatment of Piroplasmoses with T. 21.* *Idem.*

Theiler (1) recently reported on the use of T.18 and T.19, in the treatment of piroplasmoses. The T-series of drugs are prepared by the Sandoz Laboratories, Basel, Switzerland, and one of them has been placed on the market under the name of "Piroblue." The present article deals with the treatment of piroplasmoses with a further member of the series T.21.

In bovine piroplasmosis caused by *P. bigeminum*, T.21 gives good results when used in doses varying from .5 to 3 gm. Even the first mentioned dose has proved to be useful in adult animals. The indications are that T.21 will probably be given in doses smaller than those of trypan blue.

In equine nuttalliosis only three cases were treated, but in these the good effects resulted immediately and there was a complete recovery in each case. The control animal died. The doses used were 1.5 and 2 gm.

In canine piroplasmosis the drug has not given any exceptional results and no definite advantage over trypan blue is claimed for it. The T.21 was given intravenously, except in a few cases in the dog, when subcutaneous injections were utilised.

(Author's summaries).

Anatomical Studies No. 28. Bilateral Double Ureter and Congenital Hydronephrosis in a Pig.* JACKSON, C.

In a female piglet which lived for 48 hours the author found an interesting combination of malformations of the urinary system associated with hydronephrosis. These anomalies are used as evidence in an embryological discussion which embraces the origin of the kidney parenchyma, the migration of the ureteral orifices, the mode of origin of the Mullerian duct, and the criteria of completeness in double ureters. The article concludes with a short exposition of the pathogenesis of the hydronephrosis.

(Author's summary).

Actinobacillosis and other Complications in Sheep which may arise from Feeding of Prickly Pear.* THOMAS, A. D.

In attempting to analyse the cause of the rather high mortality of sheep in a prickly pear feeding experiment, it was found that actinobacillosis was responsible for a fair percentage of the losses and certainly for extensive lesions, which, however, were not always fatal. Infection with this organism is shown to be due to the prickly pear

(1) See abstract of this article on p. 66 this issue.

spicule, a minute barbed thorn which penetrates the tissues. Caseous lymphadenitis was also more prevalent than usual.

A large proportion of deaths were due, however, to undetermined causes, among which intoxication or poisoning would appear to play a prominent part. In this respect attention is drawn to the very high oxalate content of the fresh prickly pear (0.4-0.7%).

(Author's summary).

The Preparation of Cystine from Wool.* LOUW, J. G.

Details are given of a method for preparing from wool the sulphur-containing amino acid cystine. The yield is quite good, and cheap wool is excellent raw material for the manufacture of cystine.

A. I. M.

Potassium Iodide in Poultry Farming.* MALAN, A. I.

Iodine in the form of potassium iodide was given to ten groups of white leghorn hens and the egg production registered for two periods of 4 months each. Control groups were duly kept and it was found that the egg production of the groups receiving the Potassium iodide was not significantly different from that of those on the basal ration only. Indeed, in several cases the groups receiving KI did not do so well as the control groups.

During the breeding season, egg fertility was studied in the groups receiving KI and in the control groups. No differences were observed. There was no reason for believing that the basal ration was iodine deficient.

(Author's summary).

Inorganic Phosphorus in the Blood of Pregnant Heifers.*

MALAN, A. I., and BEKKER, J. G.

The inorganic phosphorus in the blood of heifers was determined for 12 months during the gestation and part of the lactation period. That of the calves was also determined periodically. Some heifers received no supplementary feed, whereas others were given bone meal daily. High figures were obtained for the inorganic phosphorus in the blood of bone meal fed animals (5 mg. per 100 cc. blood), whereas the control heifers showed about 2 mg. P. in their blood. Again blood analysis could be utilised for diagnosing phosphorus deficiency. It is not certain whether gestation had any effect on the inorganic phosphorus content of the blood. The drain of phosphorus during lactation caused a drop in the blood phosphorus.

Most of the calves showed a low figure for inorganic phosphorus in their blood at birth. These values usually increased rapidly and

remained definitely higher than those for the inorganic phosphorus in the blood of the mothers.

A. I. M.

Studies in Mineral Metabolism XVII. Phosphorus in the Nutrition of Sheep.* DU TOIT, P. J., MALAN, A. I., & GROENEWALD, J. W.

A progress report is given of the experiment, which investigates the effect of varying quantities of phosphorus in the diet on condition, food consumption, the phosphorus content of the blood, reproduction, health, and wool production of sheep. Weight increase, food consumption, and the inorganic phosphorus content of the blood are reported on in detail and it is shown that increasing quantities of phosphorus in the food results in better growth, greater appetite, and more phosphorus in the blood. Blood analysis may be employed for diagnosing aphosphorosis in sheep. Sheep on a diet low in phosphorus continually lost weight, whereas those on the same diet plus a daily dose of sodium phosphate gained 15 lb. per head over the same period. The application is obvious: Sheep in phosphorus deficient areas remain in a comparatively poor condition and consume less food—less than their requirements for good growth—than when a phosphatic supplement is given, e.g., in a lick. Report on the rest of the work will be made at a later date.

In a subsidiary experiment the effect of low calcium in the diet was studied. The sheep on the diet low in calcium have not done so well as those on the sufficient diet, but certainly not so poorly as those on phosphorus deficient diet. The blood phosphorus is apparently not affected by low calcium nor is the blood calcium affected.

A.I.M.

Black Quarter and Malignant Oedema. (A New Method for the Preparation of a Bivalent Vaccine against *B. chauvoei* and *Vibrio septique*.) * SCHEUBER, J.R.

The culture medium, consisting of minced meat 1 part, distilled water 2 parts, peptone 1%, sodium chloride .3%, sodium phosphate .2%, to which 1% glucose is added after sterilisation, is first inoculated with *B. chauvoei*. A good growth is maintained by readjusting the reaction to PH8 and adding .5-1% glucose whenever the growth becomes weak.

After one week the culture is inoculated with the faster growing *V. septique* and a good growth is maintained for another 8-10 days. The organisms are then killed by adding .4% of formalin and incubating for at least one week. The dead culture, freed from all coarser particles, gives sheep a good protection against lethal doses of *B. chauvoei*

and of *V. septique*. Such a vaccine should prove very useful for protection against either disease, where doubt exists as to the diagnosis in the first instance

(Author's summary).

A Rickettsia-like Organism in the Conjunctiva of Sheep.*

COLES, J.D.W.A.

In this article is described "a minute pleomorphic intracellular (and extracellular) bacterium-like organism which is gram negative, not acid-fast, non-motile, stains more faintly than ordinary bacteria with the usual dyes, shows red and blue staining with Giemsa, may form several clumps within one cell and is almost invariably associated with a purulent process." The organism is found in the epithelium of the conjunctiva, and is regarded as a Rickettsia, for which the name *Rickettsia conjunctiva* is proposed.

It is thought possible that this organism may be the cause of so-called infectious or specific ophthalmia of sheep, as it appears to be present in every case of the disease.

The author mentions that the disease is highly infectious, and has an incubation period of two to four days after direct transference of material from eye to eye.

An Unknown Intracellular Organism of the Conjunctival Epithelium of Sheep. * Idem.

An intracellular, gram-negative, non-acid-fast, and apparently harmless organism is described. It is at present regarded as an intracellular symbiont. In the thirty odd sheep in which it was found, no pathological lesions were apparent. It is bigger than *Rickettsia conjunctiva*, stains only blue with Giemsa, is diffusely distributed in the cell cytoplasm, is less pleomorphic, and appears to be essentially intracellular in habitat.

(Author's summaries).

The photosensitizing Influence of Haematoporphyrin on Sheep and Coats.* QUIN, J. I.

Since Geeldikkop in sheep seems to be a disease definitely associated with photosensitization, it was thought that by using a known photosensitizing substance like haematoporphyrin, a similar condition might be produced, which could then be controlled and studied more carefully. From experiments actually carried out with this substance, it appears that oedematous swellings and skin lesions of head and ears, as in Geeldikkop, could be reproduced, but that these were not accompanied by a general icterus.

A. D. T.

Blood Parasites of Game in Zululand.* NEITZ, W. O.

The results are recorded of microscopic examination of blood, spleen, and gland smears from some 440 animals (game) shot in Zululand. *Tryp. congolense* was found in one zebra, one kudu, and one bushbuck and *T. vivax* in one bushbuck. Small piroplasms (*Theileria* sp.) were demonstrated in the zebra, bushbuck, duiker, waterbuck, kudu, blue wildebeest, reedbuck, mountain reedbuck, steenbuck, and antbear. In the last six these parasites are recorded for the first time. Microfilaria were found in one bushbuck and in five warthogs.

A. D. T.

Wild Antelopes as carriers of Nematode Parasites of Domestic

Ruminants.—Part I.* MÖNNIG, H. O.

One new genus, four new species, and one new variety of Trichostrongyloid nematodes are described: *Bigalkea albifrontis* and *Impalaia nudicollis* from the Blesbuck (*Damaliscus albifrons*), *Cooperia serrata* and *C. antidorca* from the Springbuck (*Antidorcas marsupialis*) and the Sheep *Ovis aries*), and *C. fuelleborni hungi* from the Waterbuck (*Kobus ellipsiprymnus*) and the sheep (*Ovis aries*). Experiments on the transmission of worms from antelopes to sheep, and vice versa, are described, followed by a list of antelopes and worms constituting new hosts and new parasites. Besides those mentioned above, the following are new parasites for *Ovis aries*: *Haemonchus bedfordi*, *Cooperia fuelleborni*, *Setaria hornbyi*.

Two new Nematodes from the Suricat (Viverridae).* *Idem.*

Description of *Habronema whitei* n. sp. and *Numidica surricattae* n. sp. from *Suricata suricatta* (Carnivora, Viverridae), Dealesville, Orange Free State.

A second species of the Nematode Genus *Acanthoxyurus*.* *Idem*

Description of *Acanthoxyurus shortridgei* n. sp. from *Petromys cuneatus* and *Petromyscus* sp. (Rodents), Kakaoveld, S.W. Africa.

Two new species of the Nematode Genus *Hartertia*.* *Idem.*

Description of *Hartertia zuluensis* n. sp. and *H. natalensis* n. sp. from a bastard (*Ovis* sp.), Zululand.

The Development of Nematode eggs and larvae in Cattle dung.*

Idem. (Preliminary Note).

The theoretical possibility, that the conditions in heaps of cattle dung may be quite favourable for the development of nematode eggs and larvae, is discussed. Preliminary tests showed that such development does take place and that, as had been expected, the infective larvae tend to collect in the soil and grass around the dung-heap, whence they may be taken up by cattle and sheep.

The specific diagnosis of Nematode infestation in Sheep.* *Idem.*

The differentiation of the gastro-intestinal nematodes of sheep by means of their infective larval stages obtained from faeces cultures forms a sound basis for tests of anthelmintics. For critical tests, this should be coupled with egg counts. The procedure in a test by this method is described. The differentiating characters and illustrations of the following larvae are given: *Strongyloides papillosus*, *Trichostrongylus* spp., *Ostertagia* spp., *Cooperia*, spp., *Haemonchus contortus*, *H. bedfordi*, *Bunostomum trigonocephalum*, *Gaigeria pachyscelis*, *Oesophagostomum columbianum*, *Chabertia ovina*, *Nematodirus spathiger*, and *Dictyocaulus filaria*.

(Author's summaries).

Investigations into the cause and transmission of Lumpy Wool affecting Merino Sheep and its treatment.* STEYN, D. G.

The author was able to transmit this disease (which is identical with the Dermatomycosis of sheep in Australia) by means of both skin scrapings from affected animals and cultures of the causal fungus (*Actinomyces dermatonomus*), providing that the skin was either scarified or kept moist. The fungus was always demonstrable in the lesions produced. Contact experiments gave negative results. In this disease, important predisposing factors are heat and humidity. Therapeutical tests proved the efficacy of a mixture of *O2. lini* and *Tr. iodi* (aa), which possesses striking curative properties. It is recommended that newly introduced sheep be carefully examined for the lesions, so that this treatment may be applied in the early stages of the disease, that the affected animals be isolated, and that advanced cases be slaughtered in order to remove the reservoir of infection.

C. J.

Recent Investigations into the Toxicity of known and unknown Poisonous Plants in the Union of South Africa, 1931.* *Idem.*

Experiments with forty-nine plants are described. No previous records of toxicity exist for nine of the plants which were proved to be poisonous, although some have been suspected. A poisonous *Psilo-caulon* sp. brought from the Willowmore district proved to be non-toxic when tested two months after it had been planted at Onderstepoort. Specimens of *Crotalaria dura* and *Pachystigma pygmaea* Robyn, which had been stored at Onderstepoort for five and six years respectively, proved not to have decreased in toxicity.

The Toxicity of the Pupae of the Moth *Naudralia Cytheria*.* *Idem.*

Pigs were utilised to clear the pine forests near George of the pupae of the moth *Naudralia cytheria*, the caterpillars of which cause enormous damage to these plantations. Mortality occurred in the pigs

and experiments have proved these pupae to be very toxic to pigs and rabbits, in which they cause severe gastro-intestinal irritation. The toxin proved to be soluble in ether, chloroform, and distilled water, and insoluble in absolute alcohol.

Investigations into the cause of Alopecia (Kaalsiekte) in Kids and Lambs.* *Idem.*

A disease in three to fourteen day old lambs and kids is described, in which the most prominent symptom is a complete loss of the hairy coat. Complications are dermatitis, pneumonia, and diarrhoea. The cause of this hairlessness in kids and lambs proved to be the ingestion by the mother sheep and goats of the plant *Chrysocoma tenuifolia* Berg. The toxin responsible for the alopecia is excreted in the milk, whereby it reaches the sucklings. The mothers of lambs and kids affected with hairlessness suffer no ill effects.

The effects of Sulphur on Merino Sheep.* *Idem.*

During the course of one year, three groups of sheep received 5, 15, and 30 gm. sulphur respectively, per head per week. The sheep receiving sulphur showed a much greater increase in weight than did the controls. Further, the wool yield of the former sheep was higher than that of the latter. It has also been found that 45 gm. sulphur per week per sheep caused symptoms of poisoning to appear on the thirty-fifth day after commencement of the experiment. Death occurred from three to ten days after the appearance of symptoms.

(Author's Summaries).

Vibrio foetus* as a cause of Bovine Abortion in South Africa.

SNYMAN, P. S.

Abortion in cattle associated with *Vibrio foetus* has not been encountered in South Africa until quite recently. An outbreak of abortion of an epizootic nature took place towards the end of last year in a dairy herd near Pretoria. The sera of all the aborting cows gave a negative reaction to the routine agglutination test for contagious abortion, and another cause for the abortion was therefore sought. On autopsy of a fresh foetus, all the conditions present were those of a *Brucella* infection. Coverslip preparations of the stomach contents revealed spirillae, both long and short active forms being seen. Attempts at artificial cultivation were successful on serum agar to which defibrinated horse blood had been added. It was found essential to replace with carbon dioxide one fifth of the air in the tube. Sera of the aborting cows, 13 in all, were subjected to the agglutination test, using as antigen an emulsion of the *Vibrio foetus*, and gave positive agglutination reactions in dilutions from 1/20 to 1/80.

It would appear from the literature that the infection is more

widely spread and causes more abortion than is generally accepted, the reason for this probably being that cases of abortion due to *Vibrio foetus* remain undiagnosed owing to the difficulty of obtaining fresh foetuses and artificially cultivating the organism.

(Author's Summary).

Glossina and Nagana in the Ngotshe and Piet Retief Districts.

CURSON, H. H. and PAPERT, J. L.

Trans Roy. Soc. Trop. Med. Hyg. XXIV, pp. 309—312, 1930.

With regard to the much discussed problem of species-distribution of *Glossina* in the eastern lowlands of Transvaal and Natal, the authors record the capture of *G. pallidipes* on Farm Gollel in the Piet Retief district, i.e. west of the Lebombo Range and on eight farms in the Ngotshe district, i.e. between the Pongola and Mkuzi Rivers. Positive Nagana outbreaks in 1928 are also discussed.

H. H. C.

Studies on Blood of Mice.* DE KOCK, G.

In 1930 the author was afforded an opportunity of studying the blood of mice in the mousery (of about 14,000) mice) of the Department of Experimental Surgery (Director Dr. A. Carrel), Rockefeller Institute for Medical Research, New York. It was thought that the study of the blood of mice in these carefully controlled groups might offer an explanation as to why such great variations occur especially in respect of total leucocytic count. Differential counts and morphology were studied in fixed and supravitaly stained preparations. Cultures of the "buffy coat" of the blood of mice were also made. The influence of an anaesthetic and the position of the animal during bleeding were also taken into account.

By eliminating as far as possible various factors e.g. mechanical interferences, disease, age, sex, race, diet, environment, which might have operated, it was not possible to explain the cause of the variations, especially of total leucocytic count, obtained in the study of the blood of mice. In view of these variations it was considered advisable to express total leucocytic count of the mouse in "levels" rather than in averages on account of the great variation, e.g., from 4,000 to 39,000 leucocytes per cubic mm. The counts of the greatest number of mice varied between 11,000 and 18,000 leucocytes per cubic mm. Moreover the total count from the tail was about 1.4 to 5 times as much as that from the aorta, whereas the differential counts closely coincided. 19-20 grams of haemoglobin per 100 c.c. of blood, and 10 million erythrocytes represented fair levels for the blood of Rockefeller and Swiss strains of mice.

The following represent fair levels for the differential counts:

Lymphocytes 70-80%.

Monocytes 1-8%.

Neutrophils 15-20%.

Eosinophiles 1-4%.

Basophiles 1%.

With reference to the cultures from the buffy coat, it was not possible to evolve a method which gave in every instance a regular migration of leucocytes. The presence of large numbers of thrombocytes in the blood of mice seems to play an important part in this connection. In these tissue cultures it was never possible to identify two types of large macrophages (e.g. monocytes and clasmatocytes) and the opinion is held that these two types are most likely only monocytes in different stages of physiological activity.

(Author's summary).

Studies on the Aetiology of Dunsiekte or Enzoitic Liver Disease of Equines in South Africa.*

DE KOCK, G., DU TOIT, P. J. and STEYN, D. G.

It has hitherto been held, especially by Theiler, that *Senecio*, although abundantly present in the so-called Dunsiekte areas of South Africa, is not the cause of Dunsiekte. The following reasons have been advanced for this view:

- (a) there is difference in the pathology of Dunsiekte and *Senecio* poisoning, mainly as regards the lesions observed in the liver;
- (b) that the plant is not eaten by horses; and
- (c) that large quantities of *Senecio* over prolonged periods are necessary to produce *Senecio* poisoning.

It would appear that Winton Disease in New Zealand, walking disease of North Western Nebraska, America, cirrhosis of the liver of horses in Ireland, etc., closely resemble Dunsiekte. Several writers in the countries named maintain that these diseases are caused by *Senecio*.

In view of these uncertainties as regards the true aetiological significance of *Senecio* in Dunsiekte it was decided to commence a number of studies both at Onderstepoort, where the disease does not occur, and on a farm at Kokstad where Dunsiekte is enzootic and where mortality is so high that horsebreeding has been abandoned. The field experiments at Kokstad over a period of two years (1929-1930) revealed many difficulties, e.g., the great distance of Westlands from Onderstepoort and the consequent impossibility of maintaining adequate supervision over the experiments, etc. It was found after a time that some of the muzzled horses had on occasions lost their muzzles, and that some

of the tethered animals had broken loose and grazed with the rest. Nevertheless some valuable data were collected in the course of the Kokstad experiments. Many of the control and experimental horses at Kokstad killed at the termination of the experiment (after 2 years) revealed slight liver lesions microscopically, although during life there had never been the slightest indication of symptoms of Dunsiekte. The appearance of symptoms evidently depends on the destruction of a certain amount of liver parenchyma. The importance of this observation is self evident, since absence of symptoms of Dunsiekte in control and experimental horses is no evidence that damage to the liver parenchyma has not occurred. On the other hand horses which had shown symptoms of Dunsiekte at Kokstad showed no liver lesions when destroyed some time afterwards.

In view of the somewhat unconvincing evidence of some of the field experiments, which was especially brought out by the subsequent pathological studies, it is at present not possible to conclude that Senecio poisoning and Dunsiekte are *aetiologically* one and the same disease. On the other hand it may be stated definitely that *symptomatically* and *pathologically* there is a very close resemblance between these two conditions; indeed by drenching with Senecio cases were produced which could not be distinguished from Dunsiekte. In many instances small quantities (a few pounds) of Senecio in the preflowering stage drenched over short periods (a few days to a few weeks) were sufficient to set up acute fatal cases of Senecio poisoning. Moreover, from the field experiments it could be concluded that dipping did not check the incidence of the disease, neither did the elimination of *gastrophilus* larvae prevent Dunsiekte (both popular beliefs).

G. DE K.

Un Nouveau Medicament Pour le Traitement des Piroplasmoses. (A new Drug for the Treatment of Piroplasmoses).

THEILER, A.

Bulletin de la Société de Pathologie Exotique XXIII, 5, 506—529 1930.

Trypanblue as a curative treatment for (a) natural piroplasm infections, and (b) artificial infections, with a view to pre-immunisation, has been in use for a considerable time. The fact, however, that some of the post-war supplies of this drug seemed inefficacious in this respect led the author to publish the results of some of his trials with other similar preparations known as "Piroblue" from the Sandoz Laboratory—notably T. 18 and T. 19.

Seventeen cases of virulent bovine piroplasmosis, some actually with haemoglobinuria, were successfully treated, although complete sterilization of the blood circulation was not effected. The dose recom-

mended for calves is 100 c.c. of 1% aq. sol. in mild cases, and 100 c.c. of a 2% solution in severe cases.

Four cases of nuttalliosis in horses were also cured. The action of the drugs against this disease was not so rapid, two administrations (100 c.c. of 2% solution each) being sometimes necessary before the desired effects could be obtained. Nevertheless, treatment must be regarded as very satisfactory even in bad cases shewing haemoglobinuria, inasmuch as ordinary trypanblue is little short of valueless for nuttalliosis.

Piroblue is a combination of trypanblue with bile salts. It is explained that the latter, by lowering surface tension, apparently greatly increase the affinity of the dye for the parasite, so that better results are obtained with less danger of shock, and possibly with smaller doses.

A. D. T.

Human Infection with *Actinomyces necrophorus*.

CUNNINGHAM, J. S.

Arch. of Pathology, Vol. 9, No. 4, p. 843 1930.

Familiar as veterinarians are with the many manifestations of the necrosis bacillus infections (among which may be mentioned calf diphtheria, necrotic stomatitis of lambs, calves, and pigs, foot-rot in ruminants, grease-heel, necrotic quitter, the intestinal ulcers of hog cholera, and multiple necrosis in the lungs and liver of cattle and pigs), the condition has been reported in human beings so rarely that the author has found records of but three proved infections, none of which were fatal. To these he now adds two further cases (both of which proved fatal) and mentions one further case which in all probability was due to the same infection.

Of the three previously reported cases the author remarks that infection was in all instances through the skin. They comprised finger abscesses contracted through handling infected rabbits, necrotic vesicles on the hand (of a meat inspector) acquired through dissecting an ulcer on the lip of a sheep, and a lesion of the arm resulting from the bite of a cow.

In neither of the cases described by the author was a history obtained which elucidated the origin of the infection. From the lesions of both (in the one case a retroperitoneal abscess involving the upper part of the leg and the joints, abscessation and necrosis in the lungs, etc.; in the other retropharyngeal abscess with gangrene and extension to the neck, fibrinous epicarditis, etc.) organisms practically identical with *Act. necrophorus* were isolated. Evidence favours the ports of entry as having been an ulceration of the lower ileum in the

first case and the ulcerous opening into the retropharyngeal abscess in the other. A full description of the bacteriology and of the pathogenicity for small animals follows the case reports.

In commenting on the fact that necrobacillosis is probably of more frequent occurrence in man than has hitherto been supposed, the author mentions a third case for which this organism was in all probability responsible; in which the lesions were of the nature of a follicular tonsillitis and empyaema of the thorax.

In conclusion, it is pointed out that on account of the possibly recognisable clinical symptoms of the disease in man, a suspicion of the presence of *Act. necrophorus* may be justified in cases of obscure infections and should be put to the test by making anaerobic cultures.

C. J.

The Incidence and Types of Disease of the Thyroid Gland of Adult Horses. SCHLOTTHAUER, C. F.

Jnl. Amer. Vet. Med. Assn Vol. LXXVIII, N.S. Vol. 31.

No. 2, p. 211 (Feb. 1931).

A systematic study of the gross anatomy and histology of the thyroids was undertaken in 100 horses. The average weight of the gland was found to be .04 gm. per Kg. body weight for normal glands, which constituted only 34% of the total number examined. The following classification could be made, and one may expect to find histological deviations in glands exceeding .66 gm. per Kg. Hyperplastic (20), colloid (9), and adenomatous (37). In the last case the tumours were in all cases benign, but of animals so affected, 40% were in poor general condition, compared with only 17% in the other groups. It is suggested, therefore, that the loss of weight may be referable to the endocrine lesions. Sex has apparently no influence on thyroid abnormality in horses.

C. J.

(1) The Repatriation Departments and the Veterinary Profession.

CURZON, H. H. *Vet. Rec.* X (39) p.p. 906—910, 27/9/30.

From a mass of scattered publications the author has extracted data bearing on the veterinary history of the Orange River Colony and Transvaal from the Peace of Vereeniging (31/5/02) to the establishment of Civil Veterinary Divisions in the two ex-republics. The record therefore may be viewed as a continuation of Sir Frederick Smith's "A Veterinary History of the War in South Africa 1899-1902."

On the Declaration of Peace £3,000,000 was set aside by the Imperial Government for assisting the Boers to resume their farming operations. To administer this grant, Repatriation Departments were

organised in the Orange River Colony and Transvaal, and it is the veterinary aspect of these that have been described.

In concluding, the author is of the opinion that however much the veterinary arrangements might be criticised (e.g. the sale of equines to farmers without mallein testing) "it is clear that the objects for which these organisations were formed were attained." Incidentally it may be added that the veterinary surgeons employed by the Repatriation Departments were in reality the first District Veterinary Surgeons of the two colonies under discussion.

(Author's summary).

Some Pioneers of the Veterinary Profession in South Africa.

CURSON, H. H.

Jnl. R.A.V.C., Vol. II, No. 2, Feb. 1931.

This paper devotes notes of a few lines to each of the more outstanding pioneers up to the year 1881, many others being mentioned by name.

C. J.

BOOK REVIEWS.

Professor O'Connor has performed a service, especially to students, by the improvements and extension he has effected in Dollar's Veterinary Surgery (1) The book is divided into three parts, which cover succinctly general, operative, and regional surgery respectively. Part 1, dealing with general surgery, is entirely new, and supplies a want long felt by teachers of surgery in English speaking institutions. The part on operative surgery presents its contents in a form conveniently summarised for students, and the anatomical descriptions of the previous edition have been omitted as out of place in a work on surgery. The up-to-date practitioner will doubtless find a number of shortcomings in the work. Operations on the thorax are dismissed with an account of thoracocentesis. The section on anaesthesia we consider to be disappointingly conservative. We were unable to find any indication for the employment of non-specific protein therapy, which although perhaps waning in popularity it is dogmatic entirely to ignore. One realises of course the restraint necessary to be exercised lest a textbook should grow into an encyclopaedia, and it is essentially as a textbook that the work is to be most warmly commended.

The second and enlarged edition of Bullock's Handbook for Veterinary Surgeons (2) is a concise compilation of information of the

(1) Dollar's Veterinary Surgery, revised and rewritten by J. J. O'Connor, M.R.C.V.S. 2nd Ed. pp. ix + 953, with 495 test figures. London: Bailliere, Tindall & Cox, 1930. 25/-.

(2) Handbook for Veterinary Surgeons, by Fred Bullock, L.L.D. 2nd Ed., pp. xi + 190. London: Bailliere, Tindall & Cox, 1930. 5/-.

greatest value to members of the profession. The work comprises seven chapters, in addition to a short preface by Sir John M'Fadyean, dealing with administration of the profession, rights and duties, professional conduct, legal responsibilities and duties, post-graduate studies, taxes, etc., and Government services.

Apart from the legal information and other facts presented, the author has been at pains to write a good deal of sound and wholesome advice to practitioners. While much of the material will of course be of interest primarily to those practising in the British Isles, the book should nevertheless prove most useful to veterinarians in other parts, especially in this country, where for the very reason that the legal privileges and responsibilities of practitioners are so doubtful or non-existent, it behoves us to be doubly strict in the maintenance of that honourable etiquette by which alone we can hope to raise the status of our profession.

Under the title "African Horse Sickness" (3) Sir Arnold Theiler has contributed an ably written and concise chapter for Vol. VII of "A system of Bacteriology in Relation to Medicine." Most interest attaches to the paragraphs on Immunity, The immune serum, Immunization, etc., since through his extensive researches into the disease the author is in a position to supply data relative to the efficacy of inoculation covering a period of twenty-six years. In regard to immunization, the article was evidently published a few months too early to admit to the inclusion of the recent results obtained by du Toit and Alexander (1930) with formalized virus. Some interesting points emerge in the paragraph on History and Geographical Distribution, and a complete bibliography is appended. The compilers have been fortunate in obtaining the services of the author for this section of a work which promises to be a monument to the infectious diseases research of our time.

Unlike so many other subjects, veterinary pharmacology and therapeutics can by no means be said to be overburdened with textbooks, and for this reason a book of the quality of Milks' therapeutics (4) will receive a warm welcome from the profession. Covering in concise detail the whole field of materia medica, the value of the work is enhanced through having been written by one in whose mind the subjects of pharmacology and therapeutics are essentially a unity.

- (3) African Horse Sickness, by Sir Arnold Theiler; K.C.M.G., reprinted from "A System of Bacteriology in Relation to Medicine," Vol. VII, Chapt. XXXI, p. 362-375. London: Privy Council Medical Research Council, 1930.
- (4) Veterinary Pharmacology, Materia Medica and Therapeutics, by H. J. Milks, D.V.M., with a chapter on Biological Therapeutics by Adolph Eichorn, D.V.S. 2nd Edition, pp. xi + 539, with 33 plates and illustrations. London: Bailliere, Tindall & Cox, 1930; 28/-.

The tendency to divorce these two branches of science, which derives some justification from the proportions to which our knowledge has of recent years developed, has nevertheless rightly been denounced by more than one teacher, who, like Milks, assesses pharmacology primarily at its therapeutic value.

The system of classifying the remedies on a basis of pharmacological action, preserved from the first addition, is one which cannot be too strongly commended. It adds considerably to the value of any materia medica as a book of handy reference, and, furthermore, from the point of view of the student, it stimulates interest and renders memorization less arduous.

The material included is thoroughly up-to-date. A pleasing feature is the inclusion of many remedies whose therapeutic value is either as yet not fully assessed, or recently discredited. We have found the omission of such from textbooks to be a common and annoying shortcoming, implying a tendency to dogmatise on the basis of limited or personal experience only.

The chapter on biological therapeutics is a welcome addition and has been treated with a commendable restraint which inspires confidence in the author. The practice of giving the doses in both metric and British systems will be found a great convenience.

The drugs listed are of course those of the U.S.P.—a fact which scarcely detracts from the value of the book to practitioners and students in other countries, since this depends to but a very slight measure on the actual names of doses of the preparations.

C. J.

NEWS LETTER SERVICE TO GOVERNMENT VETERINARIANS.

Towards the end of last year the Division of Veterinary Services and Animal Industry inaugurated an intelligence service in the form of monthly "News letters" for its officers, the main object of this being to keep them in touch with those latest developments at Onderstepoort and elsewhere likely to prove of immediate practical application in field work. Through the courtesy of the Director of Veterinary Services (Dr. du Toit), arrangements have been made to reproduce these in this Journal. As some of the letters, however, are concerned more especially with departmental instructions, it is proposed to give merely a resumé of those which are of interest to the profession generally.

No. 1. Feeding Bone Meal to Cattle.

The following may be chosen from to compensate for phosphorus deficiency:

Product.	P2O5	Price per ton.	Dose in oz.		Remarks.
			Dry animals.	Lactating cows.	
Bone meal	22%	£8.10.0	3	5	
		£10.10.0			
Degelatinised bone flour	30%	£7. 5.0	2	3½	
Precipitated Calc. phosph.	40%	£14.10.0	1	1½—2	Price expected to fall to £10
Water-soluble Phosphates	19— 20%	£13.15.0	1½	1½	early next year. Water con- sumption of cattle ea. 6—9 gal. p. day. This product is still the sub- ject of experi- ment.

Rock phosphates and Super phosphates cannot at present be recommended.

No. 2. The effects of sulphur on Merino Sheep.

Experiments were undertaken to determine the dosage of sulphur for sheep, as this drug is now being recommended for the prevention of Geilsiekte. Sheep can take sulphur at the rate of 5 gm. (1¼ dram) daily over prolonged periods with beneficial results, viz. increase of body weight, increased weight of clip, no deterioration in quality of clip. No skin lesions developed in such animals when they were exposed to rain. Sulphur should be obtained from reliable firms only, on account of the dangerous arsenic content of insufficiently purified products.

Geilsiekte. For the prevention of the form of this disease due to prussic acid poisoning, sulphur is giving very satisfactory results. On farms deficient in minerals the sulphur content of the lick should not exceed 5%, elsewhere it may contain 7% without danger. (See article on this subject elsewhere in this issue).

No. 3. Complaints about Anthrax Vaccine.

Veterinarians are again reminded of the necessity for sending full particulars with all complaints, and suggestions are offered regarding the best ways of collecting material for biological examination, e.g.

- (a) material should not be taken from swellings at inoculation site;
- (c) blood cultures should be made on sterile agar slants;
- (d) failing cultures, a thick layer of blood, dried on suitable, sterile objects and placed in a bottle, will serve.

No. 4. Procedure to follow when investigating complaints about Onderstepoort Vaccines and Government Wireworm Remedy.

No. 5. Difficulties with Blackquarter and Allied Infections.

A typical case of blackquarter may cause uncertainty in diagnosis: spongy muscles may be light red in colour, while dark muscles may be moist with little gas. In sheep, after shearing, the lesions most commonly are those of a haemorrhagic oedema of the subcutaneous tissues, the muscle changes often being insignificant.

In South Africa most cases of gas oedema are due to Blackquarter, and it is therefore unwise to diagnose Malignant oedema, etc. without special suspicion.

Clinical diagnosis should always be confirmed by microscopic examination of spleen or affected muscle smears. *B. chauvoei* occurs singly or in pairs, while *V. septique* tends to form filaments. The presence of contaminating organisms being highly undesirable, fresh smears should be obtained. In cases of doubt, fresh muscle (packed in twice its volume of common salt) is sent in for laboratory examination.

NOTES AND NEWS.

Municipal.

Towards the end of 1930 it was decided to carry out a tuberculosis campaign in the Durban Municipality. Mr. W. J. B. Green, Veterinary Research Officer, was put in charge of the tuberculin testing and has shown great energy in carrying out what undoubtedly is a very difficult task. The double intradermal test is being used exclusively and progress reports are being anticipated with great interest. The Durban experiment will to a great extent decide the feasibility of an extension of the campaign to other Municipalities and ultimately to South Africa in general.

Departmental.

Mr. J. Chalmers retired from the Government Service in December of last year. Coming to South Africa in 1901 as a civil veterinary surgeon, he nevertheless saw a considerable amount of service in con-

nection with the military operations of the Boer War. He ultimately joined the Veterinary Department of the Transvaal after having served for some time in the Repatriation Department. Mr. Chalmers was stationed in various parts of the Transvaal, ultimately going to Durban to take charge of the meat export work. In 1920 he went to the Argentine to investigate the conditions of the meat export organization, about which he wrote a valuable report. In 1921 he assumed duty as Government Veterinary Officer, Johannesburg, where he remained until his retirement. Full of energy, he has entered a new sphere of activity and is now Officer in Charge of Quarantine Stock. Mr. Chalmers was a foundation member of the Transvaal Veterinary Medical Association, and has always been a very active and enthusiastic member, keenly alive to our interests and doing much valuable propaganda work. He was Vice-President of the Association for the year 1929-1930.

* * * * *

At the commencement of this year Mr. P. L. le Roux, Veterinary Research Officer at Onderstepoort, resigned and left to take up the position of Veterinary Research Officer in the Mazabuka Laboratory, Northern Rhodesia. Mr. le Roux took his diploma as M.R.C.V.S. at Edinburgh in 1923, at the same time gaining the degree of B.Sc. in Veterinary Science. Subsequently he spent some months at the London School of Tropical Medicine studying helminthology under Professor Leiper. On his return to South Africa, he was appointed Research Officer at Onderstepoort where helminthology was his chief interest. His work was confined in the main to a study of the flat worms, and during his career at Onderstepoort he published many articles of interest, one on the Bilharzia infection of the sheep being a particularly fine study.

His many friends will be glad to hear that he is happy in his new surroundings and is very pleased with his new sphere of activity.

* * * * *

Mr. M. C. Robinson left the Department at the end of last year to commence private practice in Johannesburg in association with his wife, who had already established herself there as a practising veterinary surgeon. She will be remembered as Miss Joan Morice, the first lady student to qualify as a veterinary surgeon at the Veterinary School associated with the Onderstepoort Laboratory.

Defence.

Col. J. G. Bush retired from the Department of Defence in April of this year. Having previously seen service as a volunteer in the South African War, he returned in 1903 as an officer in the Civil Veterinary Department of the Transvaal. Always a keen volunteer, he gave much of his time to the movement, and on the outbreak of the Great War was appointed Deputy Director of Veterinary Services,

later succeeding Col. Irvine-Smith as Director. Col. Bush was the recipient of the D.S.O., 1914-15 Star, British War, and Victory Medals. He relinquished his appointment in 1919, but later was appointed Veterinary Officer to the Defence Department, subsequently combining the office with that of Officer in Charge of Transport.

Col. Bush acted for some years as Treasurer, first to the Transvaal Veterinary Medical Association and later to the South African Veterinary Medical Association. He took an active interest in the affairs of the Association and was always an enthusiastic member. May he be spared for many years to enjoy his well earned retirement.

Staff Movements.

Mr. W. P. Hamblyn, Government Veterinary Officer, Komgha will shortly be transferred to Johannesburg.

* * * * *

Mr. A. S. Canham has been transferred from Bloemfontein to the Veterinary Research Laboratory, Allerton, as Officer in Charge.

* * * * *

Mr. P. J. J. Fourie left in February for Europe on a year's study leave. During this period he will study at the University of Utrecht and may later visit one of the German Universities.

* * * * *

Mr. R. A. Alexander was seconded from the Department in February of this year to allow of his taking up a special Research Fellowship under the Empire Marketing Board, in connection with its research scheme at Onderstepoort. He left at once to spend a year in England studying the application of tissue culture methods to research in diseases due to filterable viruses, with a view to preparing himself for his future work.

We congratulate Mr. Alexander on his appointment, which will give him the enviable opportunity of pursuing his studies unhampered by routine work.

* * * * *

Dr. Curson, who was seconded for service with the Bechuanaland Protectorate Government, returned at the end of February. Dr. Hale-Carpenter and he were appointed members of a commission to investigate conditions in Ngamiland, where Nagana is a serious menace to the cattle industry. Independent reports have been submitted by each to the Resident Commissioner at Mafeking. Dr. Curson's report (dated 19/3/31) gives information regarding the magisterial districts, fly areas, and the cattle industry in general. His recommendations are discussed under (1) General and (2) Nagana, and are now being considered by the Imperial Government. We hope that, as soon as he is

free to do so, Dr. Curson will give us his impressions of the trip in a future number of the Journal.

* * * * *

Dr. J. B. Quinlan, Mr. P. J. Fourie, and Dr. E. M. Robinson were appointed Sub-Directors in the Division of Veterinary Services and Animal Industry from 1st February, 1930.

Faculty of Veterinary Science.

The following appointments were made at the beginning of the first semester of 1931:

- Dr. J. R. Scheuber as Lecturer in Infectious Diseases.
- Mr. C. Jackson as Lecturer in Anatomy.
- Mr. J. D. W. A. Coles as Lecturer in Poultry Diseases.
- Mr. I. P. Marais as Lecturer in Surgery.

General.

In connection with the three research fellowships at Onderstepoort established by the Empire Marketing Board, the following three appointments have been made:—

- (1) Studies on the toxic principles of plants—Mr. Rymington (Imperial College of Science).
- (2) Studies on the intestinal flora of ruminants—Mr. J. H. Mason (Burroughs Wellcome Laboratories, London).
- (3) Studies on the filterable viruses—Mr. R. A. Alexander.

In connection with (1), Dr. D. G. Steyn of the Onderstepoort Laboratory is to receive a special grant for the study of the toxicity of plants.

* * * * *

Dr. P. J. du Toit, Director of Veterinary Services, spent a very strenuous four months in England during the latter part of last year, representing the Union Government at various congresses. In a private capacity he attended the Microbiological Congress in Paris, and he was President of the Agricultural Section of the British Association Meeting at Bristol in September. In his official capacity he attended the Imperial Entomological Conference in June, the International Veterinary Congress in August, and, later, a Wool Conference. With Sir Arnold Theiler and Dr. Bürgi, the Chief Veterinary Surgeon of Switzerland, he made a special tour of that country in connection with the cattle industry.

* * * * *

Abstract from Report of Horse Breeding Committee.

The committee, appointed 30th July, 1930 to recommend measures for assisting and improving horse breeding in this country, presented its report to the April general meeting. In the opinion of this com-

mittee the decline of horse breeding is to be attributed to six causes: (a) the lack of suitable markets, (b) the use of mechanical transport, (c) the lack of suitable sires, (d) horsesickness, (e) exorbitant taxation of horse racing, (f) indiscriminate breeding methods.

Suggestions, mostly lines of action which might be taken up by the Government, are advanced for remedying the position. India, Mauritius, and East African Territories are mentioned as potential markets which should be developed. Improved methods of breeding, subsidised where necessary by using some of the revenue derived from racing, are some of the points which deserve early attention.

It was resolved at this meeting that copies of this report be sent to the Hon. the Minister of Agriculture, the Minister of Defence, the Director of Veterinary Services and Animal Industry, and the Commissioner of Police.

THE ASSOCIATION.

The Veterinary Bill.

Once again we have to record a serious check in our efforts to obtain legal recognition. The Bill for which only a few months ago, such high hopes were entertained, was defeated in the last session of Parliament.

It would be idle at this stage to attempt to analyse the reasons or even to lay the blame for this failure. It seems nevertheless hard to understand why, in the parliament of a country for which Veterinary Science has rendered services almost unique in the annals of the profession, such difficulties should have been experienced. It is wellnigh incredible that once introduced the measure should have found, among the enlightened gentlemen who govern our destiny, so few voices raised in its favour. Be that as it may, the last thing to do now is to give up hope. There should be no room for despondency and this experience should prove a strong force in bringing members of our profession together. Now is the time to redouble our efforts and to avoid past mistakes.

There are many who ask at every possible opportunity, what the S.A.V.M.A. is doing for the profession. If such members would only realise that they themselves form the Association and are, therefore, individually responsible for its failures, as well as for its achievements, they would better appreciate how important it is for each one to do his bit. They should bear in mind that members elected to the executive bodies are men who, if they wish to serve the association well, do so at great personal sacrifice and inconvenience. Once elected the least they can expect is the full and confident support of all members.

**Minutes* of Autumn General Meeting held at Show Grounds,
Johannesburg at 2.15 p.m. 2.4.31.**

Present:

F. J. Carless (President),	J. Quinlan,
W. H. Chase,	J. G. Bush,
E. M. Robinson,	S. van Rensburg,
W. Hay,	W. O. Neitz,
N. Starke,	J. I. Quin,
D. Coles,	A. D. Thomas,
J. Robinson,	G. H. Melck,
M. C. Robinson,	G. Watt,
G. Martinaglia,	J. H. R. Bisschop, and
P. J. du Toit,	H. H. Curson (Hon. Sec. Treas.)

Apologies for absence: Messrs. Dunning, Gavin, de Kock, P. R. Viljoen, Scheuber.

CONFIRMATION OF MINUTES.

1. After the undermentioned corrections had been made, the Minutes of the General Meeting of 30.7.1930 were taken as read:

(a) p. 8: Formation of Natal Veterinary Medical Association instead of Natal Veterinary Board.

(b) p. 9: General 2. to read thus: " Dr. Curson stated that there was no state veterinary organisation to deal with the Public Servants' Association in regard to state veterinary matters, e.g. pensions. The Railways, who were properly organised, had a pension based on the last 7 years of their service, whereas for state veterinarians the period was 25 years! Further the medical men, who worked with leprosy and insanity, retired at 50, and in some countries veterinarians who worked with communicable diseases, e.g. Anthrax, have to be insured by the State." Dr. Curson proposed and Dr. Scheuber seconded " that the Council investigate the desirability of having a State Veterinarians' Association as part and parcel of the Public Service Association."

2. Arising out of the Minutes, Dr. Curson stated that he had been informed by Mr. Kirkpatrick that copies of the paper on Public Health written by Messrs. Chalmers and Goodall, had been sent to all Municipalities in South Africa.

3. It was agreed that as 9 members of Council had been elected instead of a vice-president and 8 members (in accordance with the new constitution), that *on this occasion* the former practice of election of vice-president from the council be approved.

*N.B.—These minutes are subject to confirmation at the next meeting of the Association. Biannual publication of the Journal renders it possible to print them therein, a practice which will henceforth replace roneoed minutes and facilitate filing and reference.

OFFICE BEARERS.

4. The following were elected office-bearers for the year 1931-1932:

President: J. F. Carless; **Vice-President** to be elected later by Council.

Hon. Secretary-Treasurer: H. H. Curson.

Members of Council: A. Kirkpatrick, P. J. du Toit, J. Chalmers, J. Quinlan, W. M. Power, E. M. Robinson, W. H. Chase, P. R. Viljoen, and J. L. Dickson. Since Messrs. Kirkpatrick and Chase were proceeding to England on leave, Messrs. A. D. Thomas and J. G. Bush were elected to deputise for them.

The following Standing Committees were appointed:

Editorial: P. J. du Toit, E. M. Robinson, and A. D. Thomas (convenor).

Finance: J. B. Quinlan, J. L. Dickson, C. Jackson, and Hon. Sec. Treas. (convenor).

Parliamentary: P. R. Viljoen, W. Power, and J. Quin (convenor)

Status: J. G. Bush, J. Chalmers, and J. D. W. A. Coles (convenor).

PRESIDENTIAL ADDRESS:

5. Mr. Carless, in referring to the small attendance, stated that several members were busy in connection with the Show and could not be present. Further, the Easter meeting was looked upon as a business meeting, chiefly for the election of office-bearers for the ensuing year. He regretted the defeat of the Veterinary Bill in the House of Assembly in February, but ascribed it to faulty staff work, as nothing had been done to gain the support of M.P.'s. Again, Mr. Spreull, although asked to act as the S.A.V.M.A. representative in Capetown, had not received authority to allow withdrawal of contentious clauses such as No. 16. Finally there had been a difficulty in obtaining the English version of the Bill.

In regard to the S.A.V.M.A., although a body registered under the Companies Act, yet private practitioners felt it represented more the official state section of the profession than the profession as a whole. In Natal, where this opinion was marked, it was considered that the next general meeting should be held in that Province and the matter was to receive the attention of the Council.

In concluding, the President remarked that it was to be regretted that the profession was still unrepresented on the Public Health Council.

REPORTS OF STANDING COMMITTEES.

6. The Reports of the (a) Finance, (b) Editorial, and (c) Horse Breeding Committees as circulated were adopted, the last appears in abstract in the present Journal, but complete copies to be sent to the Minister of Agriculture, Director of Veterinary Services, Minister of Defence, and Minister of Justice.⁽¹⁾ The Report of the Parliamentary Committee was to be placed before the new Committee. No Status Report was received.

CONSTITUTION.

7. Rule 9 (g) as amended was approved. Provision now exists for the Hon. Secretary-Treasurer to be an ex-officio member of all Committees.

Notice of motion was given as follows:

- (i) Rule 9. Council. “(g) The following shall be standing Committees of Council: (I) Editorial, (II) Finance, (III) Parliamentary, (IV) Status, and (V) State Veterinary.”
 - (ii) Rule 13. Finance. “(a) The financial year shall be 1st April—31st March.”
8. The President thanked Mr. C. Jackson for acting as Librarian and it was agreed that his appointment be confirmed.
9. Certain correspondence was placed before the Association and it was agreed that it be submitted to the various Standing Committees as follows:—

Status Committee:

- (a) B.V.Sc. graduates and colonial appointments.
- (b) R.C.V.S. and reciprocity — Dr. de Kock's report of 2/10/30 and University of Pretoria reply.
- (c) Tuberculosis, Boksburg Abattoir.
- (d) Representation, Public Health Council.
- (e) Mr. van Rensburg's letter and vasectomy.
- (f) Affairs connected with State departments, e.g. Department of Defence V.O.
- (g) D.V.S. and public health gatherings.
- (h) Natal branch S.A.V.M.A.

Parliamentary Committees:

- (a) Col. Irvine Smith's suggestions re Bill.
- (b) Mr. R. Paine's and Mr. W. M. Power's letters re Bill.
- (c) Mr. A. M. Howie's letter re Bill.
- (d) Mr. Carless' letter re Bill.
- (e) Support of M.P.'s
- (f) Mr. Dunning's letter.
- (g) Dr. Viljoen's Report.
- (h) Dr. H. Reitz and Mr. Harm Oost to be thanked for their services.

(1) Actually the Commissioner of Police was stated, but the Hon. Secretary-Treasurer believed that it would be an advantage to send a copy to the Minister of Justice.

10. The following matters were discussed:

GENERAL.

- (a) Minutes of meetings to appear in Journal S.A.V.M.A. and not be roneoed in future.
- (b) Resignation of Mr. R. W. Dixon accepted with regret.
- (c) Question of arrear subscriptions to be left to Hon. Secretary-Treasurer.
- (d) In view of extra expense of two Journals p.a., members asked to get advertisemnets, otherwise the raising of the annual subscription will have to be considered. It was pointed out by the President that the members of the Medical Association of South Africa (B.M.A.) paid £4.4s. 0d. p.a. and that members of the S.A. Trained Nurses Association paid £1.5s. p.a.!
- (e) Articles for next Journal S.A.V.M.A. solicited.
- (f) Next General Meeting (venue and date) to be decided by Council.
- (g) Dr. Quinlan was accorded the thanks of the S.A.V.M.A. for having deputised as Hon. Sec.-Treasurer during Dr. Curson's absence.

FINANCIAL STATEMENT.

PERIOD 1st—30th JUNE, 1930.

To Balance 1929-30 B.F. ...	£80 0 6	By Printing of Constitution	£6 0 0
„ Subscriptions ...	34 17 6	„ Stamps ...	1 1 0
„ Revenue from Journal ...	4 0 0	„ Typing minutes of Council Meeting ...	3 13 0
		„ Typing minutes at Show Ground ...	5 1 3
		„ Sub. N.V.M.A. 1929-31	3 4 0
		„ Bank Charges ...	8 1
		„ Balance ...	99 10 8
	£118 18 0		£118 18 0

PERIOD 1st JULY 1930—31st MARCH 1931.

To Balance B.F. ...	£99 10 8	By Printing of Journal ...	£90 7 6
„ Subscriptions ...	121 12 9	„ Stamps ...	12 14 4
„ Revenue from Journal ...	44 5 9	„ Typing Special Meeting	5 0
„ Interest of Fixed Deposit	49 15 0	„ Auditing of Books ...	1 1 0
„ Stamps on hand ...	4 4	„ Presidential Expenses ...	19 0 0
		„ Editorial Expenses ...	5 0
		„ Honorarium ...	10 0 0
		„ Disbursements ...	6 7 10
		„ Sec.-Treas. Typing and Clerical Expenses ...	25 5 0
		„ Stationery ...	8 11 0
		„ Union Loan Certificates	25 12 0
		„ Building Soc. Deposits...	65 0 0
		„ Sundries ...	4 4 10
		„ Bank Charges ...	3 6 0
		„ Balance ...	43 9 0
	£315 8 6		£315 8 6

To Balance ...	£43 9 0
Fixed Deposit ...	1,000 0 0
U.L. Certificates ...	175 4 0
Goldfields B.S. Deposits ...	65 0 0
	£1,283 13 0

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