THE INCIDENCE OF TRACHOMA IN NATAL AND ZULULAND IN ALL RACIAL GROUPS

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In recent years, the comfortable belief that Natal is almost free of trachoma has been widely held in medical and ophthalmological circles in this province. This belief is reflected in notifications to the Union Health Department recorded for the years 1952 - 1959 inclusive (Table I). Of the 2,654 cases from all provinces and of all races only 30 (1·13%) including one White, were from Natal. In notifications to the Durban City Health Department,[1] two White cases which I found while ophthalmic registrar at Addington Hospital in 1953 and 3 Bantu cases in 1956, are the only patients with trachoma recorded in the same years (1952 - 1959).

This complacent assessment of the incidence of trachoma in Natal could not be maintained in the light of the discovery of such cases at the Natal Bantu Blind Society Clinics and through the investigations which followed and are now reported.

Diagnoses of trachoma made before 1963, did not have the confirmation or support of positive virus culture and have not been included in this report (Tables II and III). Because of their numbers, it was not possible to send swabs from the conjunctivae of all cases of trachoma for virus culture.

However, with the exception of Dannhauser, Ixopo and Izingolweni, at least one positive trachoma group virus

TABLE I. NOTIFICATION OF 2,654 TRACHOMA CASES REPORTED TO THE STATE HEALTH DEPARTMENT 1951—1959

Year ended Dec.	*State*					*Cape including Transkei*					*Natal*					*Transvaal*					*OFS*				
Year	*T*	*E*	*N*	*A*	*C*	*T*	*E*	*N*	*A*	*C*	*T*	*E*	*N*	*A*	*C*	*T*	*E*	*N*	*A*	*C*	*T*	*E*	*N*	*A*	*C**
1952	136	7	110	3	16	21	0	7	0	14	7	0	4	2	1	108	7	99	1	1	0	0	0	0	0
1953	311	2	298	7	8	15	2	7	0	6	2	0	2	0	0	293	0	288	3	2	1	0	1	0	0
1954	734	0	725	2	7	7	0	0	0	7	5	0	4	1	0	722	0	721	1	0	0	0	0	0	0
1955	797	1	795	0	1	97	1	95	0	1	2	0	2	0	0	695	0	695	0	0	3	0	3	0	0
1956	279	6	271	0	2	8	5	2	0	1	6	1	5	0	0	265	0	264	0	1	0	0	0	0	0
1957	96	6	88	0	2	4	0	2	0	2	0	0	0	0	0	83	0	83	0	0	9	6	3	0	0
1958	146	3	124	0	19	21	0	3	0	18	2	0	2	0	0	123	3	119	0	1	0	0	0	0	0
1959	155	1	147	0	7	4	0	1	0	3	6	0	6	0	0	120	1	115	0	4	25	0	25	0	0
Total	2,654	26	2,558	12	62	177	8	117	0	52	30	1	25	3	1	2,409	11	2,384	5	9	38	6	32	0	0

*T = total, E = White, N = non-White, A = Asiatic, C = Coloured.

culture has been obtained from every clinic mentioned in Tables II and III. Trachoma group virus has been cultured from non-White patients from the following areas in Natal: Gcilima, Port Shepstone, Ntimbankulu (Dweshula), Assissi Mission, Umzinto, Scottburgh, Umlazi, Durban and environs, Kwa Mashu, Tongaat, Stanger, Ndwedwe, Vryheid, Dundee, Utrecht, Newcastle, Greytown, Kranskop, Weenen, Estcourt, Mooiriver, Creighton and Murchison Mission; and in Zululand from Mandini, Kwamagwaza, Melmoth, Nkandla, Hlabisa, Eshowe, Mahlabatini, Empangeni, Nongoma, Ingwavuma, Ubombo, Mbazwane, Nqutu and Tugela Ferry.

TABLE II. TRACHOMA IN NATAL—NATAL BANTU BLIND SOCIETY CLINICS

Date 1963	*Place*	*No. of patients*	*Trachoma cases*	*% Trachoma*
April	Weenen	108	13	12·0
	Mooiriver	170	5	2·9
	Estcourt	80	3	3·7
October	Port Shepstone	46	–	—
	Ntimbankulu	212	13	6·2
	Assissi Mission	253	5	2·0
	Gcilima	109	9	8·2
	Montebello	86	5	6·9
	Ndwedwe	16	2	—
November	Scottburgh	53	5	9·4
	Total 1963	1,133	60	5·25
1964				
February	Ixopo	68	1	1·5
	Centegow	155	6	3·8
March	Kranskop	157	9	5·7
	Greytown	120	10	8·3
August	Montebello	211	16	7·6
	Ndwedwe	187	7	3·7
September	Scottburgh	127	7	5·5
	Port Shepstone	23	3	—
	Ntimbankulu	67	8	11·9
	Assissi Mission	54	4	7·4
October	Gcilima	58	6	10·3
	Utrecht	84	3	3·6
	Dannhauser	46	2	4·3
	Newcastle	54	6	11·1
November	Dundee	55	8	14·6
	Vryheid	106	8	7·7
	Total 1964	1,572	104	6·6
1965				
February	Kranskop	171	9	5·3
	Greytown	70	4	5·7
	Weenen	175	25	14·5
	Mooiriver	25	5	20·0
	Estcourt	90	14	15·6
	Izingolweni	62	7	11·3
	Paddock	130	11	8·5
May	Scottburgh	44	5	11·4
August	Montebello	19	4	—
October	Port Shepstone	30	3	10·0
	Ntimbankulu	65	10	15.4
	Assissi Mission	102	14	13·2
	Gcilima	48	13	27·5
	Total 1965	1,031	124	12·0
	Total 3 yrs. Natal	3,736	288	7·66

TABLE III. TRACHOMA IN ZULULAND AT NATAL BANTU BLIND SOCIETY CLINICS

Date 1963	*Place*	*No. of patients*	*Trachoma cases*	*% Trachoma*
July	Hlabisa	105	4	3·8
	Ingwavuma	75	8	10·7
	Nongoma	67	5	7·5
	Total 1963	247	17	6·88
1964				
March	Tugela Ferry	75	6	8·0
June	Nkandla	225	50	22·2
	Melmoth (Kwamagwaza)	70	6	8·6
	Mahlabatini	205	74	36·1
	Eshowe	101	12	11·9
July	Ingwavuma	65	8	12·3
	Ubombo	52	2	3·8
	Hlabisa	106	7	6·6
	Nongoma	21	3	—
November	Nqutu	153	22	14·4
	Total 1964	1,073	190	17·71
1965				
February	Tugela Ferry	75	6	8·0
	Eshowe	28	4	14·3
	Nkandla	135	13	9·6
	Mahlabatini	67	21	31·3
July	Mbazwane	8	2	—
	Ubombo	30	4	13·3
	Ingwavuma	77	19	24·7
	Nongoma	72	7	9·7
	Hlabisa	181	29	16·0
	Total 1965	673	105	15·60
	Total 3 yrs., Zululand	1,993	312	15·65
	+Total 3 yrs., Natal	3,736	288	7·66
	Total 3 yrs., Natal and Zululand	5,729	600	10·45

Virus of the trachoma group has been cultured from private patients of the White racial group from the following areas in Natal: Port Edward, Margate, Uvongo, Port Shepstone, Sea Park, Sezela, Ifafa Beach, Umzinto, Umkomaas, Amanzimtoti, Adams Mission, Escombe, Sea View, Rossburgh, Durban, Pinetown, Westville, Kloof, Gillitts, Hillcrest, Verulam, Oakford Priory, Ndwedwe, Shongweni, Tongaat, Darnall, Harding, Pietermaritzburg, New Hanover, Sevenoakes, Rietvlei, Greytown, Estcourt, Ladysmith, Newcastle, and Vryheid; in Zululand: Mandini, Inyoni, Mtunzini, Matubatuba, Riverview, Hluhluwe, Mposa, Eshowe, Nkandla, Melmoth and Mahlangisa; and from other areas and places: Cape Town, Carnarvon, Port Elizabeth, Kokstad, Johannesburg, Vereeniging, Bramley, Transvaal; Tsumeb, S.W.A., Salisbury, Swaziland, Lourenco Marques, Ndola, Kenya, Egypt, Israel, Seychelles Islands, Greece and Italy. In some cases the private patients were no longer resident in the places mentioned, but appeared to have acquired the infection when they were there previously.

These tables and the list of places of residence or infection show that the disease is widespread with an incidence varying from low to moderately high. In no area visited on behalf of the Natal Bantu Blind Society have I failed to find trachoma. This society does not conduct clinics in the vicinity of Durban and Pietermaritzburg as these areas are served by the eye departments of their general hospitals. The Medical Superintendent of the Ladysmith Hospital has not required our services so that Ladysmith and Bergville have not been visited during the period of these reports.

Curious schoolchildren and others hoping to obtain free spectacles attend the clinics in numbers varying from a few to hundreds and affect the percentage incidence of the trachoma cases at the clinics. Generally, however, patients at the clinics complain of ocular symptoms and do not represent the population as a whole. The general incidence of the disease is better estimated by examining unselected schoolchildren. Since 1963, various schools have been visited and the pupils examined for trachoma and the results are shown in Table IV.

Trachoma group virus was isolated in egg culture from conjunctival swabs from at least one child in each of the 21 schools visited, counting the two at Ubombo (49 pupils) as one school. These figures again show a mild to moderate rate of infection by trachoma, but also that the infection is very widespread.

The tables suggest that the incidence of trachoma is increasing, but this I doubt. Starting with little experience and confidence I am certain that I failed to diagnose many cases of trachoma in 1963 that today with some hundreds of positive cultures to confirm the findings, I should now diagnose as trachoma. I have all along been conscious that

I have been reporting a disease whose presence many of my colleagues deny and so the figures generally are conservative and understate the true position.

Nor are the figures presented meant to suggest that Natal is being invaded by a disease from which it was formerly free. Notification of trachoma for the Union in the years 1926 (when this disease become notifiable) to 1949 (for which I am indebted to Dr. N. Murray's thesis)[2] shows that Natal has provided 128 of 1,340 (9·55%) of non-White cases and 39 of 291 (13·4%) of White cases (Table IV). The last figure is comparable with the proportion of the Natal White population to that of the Republic.

TABLE IV. TRACHOMA IN SCHOOLS IN NATAL AND ZULULAND

Date	Area	No. and racial group of schools	No. of patients	Cases of trachoma	% Incidence of trachoma
1963	Kwa Mashu (Durban)	4 Bantu	1,842	27	1·5
1964	Durban	2 Asiatic	1,324	14	1·1
1964	Durban	3 Coloured	1,389	13	0·9
	Durban 9 non-White schools		4,555	54	1·2
1963	Nongoma	1 Bantu	343	9	2·6
1963	Eshowe	1 Coloured	320	6	1·9
1965	Mooiriver	3 Bantu	327	9	2·8
1965	Ubombo	2 Bantu	49	1	2·0
1965	Ingwavuma	3 Bantu	432	30	6·9
1965	Montebello	1 Bantu	159	4	2·5
1965	Stanger	1 Asiatic	350	2	0·6
1965	Mandini	1 White	250	5	2·0
	Country districts (all races)		2,230	66	2·9
	Natal (non-Whites)		5,391	69	1·3
	Zululand (all races)		1,394	51	3·7
	Natal and Zululand (all races)		6,785	120	1·77

Notification of the disease to the Durban City Health Department as supplied to me by Dr. Hilton-Barber[1] shows that trachoma was more frequently reported in Durban in the past (Table V).

TABLE VI. NOTIFICATIONS OF TRACHOMA TO THE CITY HEALTH DEPARTMENT, DURBAN 1928—1961

Year	White	Coloured	Bantu	Asiatic	Total
1928–29	1	–	–	–	1
1930–34	2	–	–	7	9
1935–39	1	–	8	7	16
1940–44	3	2	6	7	18
1945–49	6	1	6	2	15
1950–54	2	–	–	1	3
1955–59	–	–	3	–	3
1960–61	–	–	–	–	–
1928–61	15	3	23	24	65

Of the total of 65, 32 were regarded as having contracted the disease in Durban and 33 in areas other than in the City limits.

An increasing incidence of trachoma in the areas mentioned is suggested in my report on the Weenen, Mooiriver and Estcourt tour of the Natal Bantu Blind Society in January 1966. On this occasion diagnostic criteria based on classical descriptions of the disease were relaxed to include the clinical concepts to be described later.

At Weenen, 60 patients were seen, of whom 19 (31·7%) had trachoma; at Mooiriver, 11 patients of whom 3 had trachoma and at Estcourt, 108 were seen of whom 21 (19·4%) had trachoma. The total for the three clinics was 179 patients, 43 (24%) of whom had trachoma. On this

TABLE V. NOTIFICATIONS OF 1,631 TRACHOMA CASES REPORTED TO THE STATE HEALTH DEPARTMENT, 1926—1949

Year ended June	South Africa			Cape excluding Transkei				Transkei		Natal			OFS		Transvaal	
	Total	E*	NE	E	NE			E	NE	E	NE		E	NE	E	NE
1926	33	10	23	6	21			–	–	2	1		2	–	–	1
1927	28	13	15	6	14			–	–	2	–		1	–	4	1
1928	32	9	23	6	22			–	–	2	1		1	–	–	–
1929	43	11	32	11	30			–	–	–	–		–	1	–	1
1930	83	22	61	20	58			–	–	–	3		2	–	–	–
1931	25	6	19	4	13			–	–	1	5		–	1	1	–
1932	31	16	15	12	10			–	–	3	3		1	–	–	2
1933	36	9	27	9	13			–	–	–	1		–	–	–	13
1934	30	14	16	10	–			2	6	1	3		–	–	1	7
1935	48	15	33	13	25			–	–	–	1		–	1	2	6
1936	66	14	52	6	23			–	–	3	10		–	–	5	19
1937	68	20	48	11	21			1	–	3	6		–	1	5	20
1938	83	14	69	13	25			–	–	–	5		–	–	1	39
1939	85	23	62	16	33			–	2	1	8		–	–	6	19
1940	136	14	122	11	35			–	11	–	7		–	–	3	69
1941	107	18	89	13	52			–	–	3	6		1	1	1	30
1942	87	6	81	5	27			–	1	1	8		–	–	–	45
1943	105	17	88	4	18			–	–	11	15		–	–	2	56
1944	50	6	44	3	9			–	3	–	5		–	1	3	25
			N C A		N C A						N C A					
1945	55	4	51	1	12	11	–	–	–	–	15 –	3	–	–	3	32
1946	80	8	72	1	9	18	1	–	–	4	9 2	2	–	–	3	33
1947	82	7	75	4	2	9	–	–	2	–	4 –	1	–	–	3	57
1948	93	7	72 13 1	5	6	13	–	–	2	–	2 –	1	–	–	2	62
1949	145	8	123 13 1	4	11	13	1	–	5	2	3 –	–	2	1	–	103
Total	1,631	291	1,340	184	553			3	32	39	128		10	7	45	640

*E = White, NE = non-White, N = Bantu, C = Cape Coloured, A = Asiatic.

tour, I sent 30 swabs for TRIC virus culture of which 28, including the first 5 and the first 10 patients diagnosed as trachoma at the Bruntville and Fort Durnford schools respectively were positive. At Bruntville school, 114 children were diagnosed as having 'follicular conjunctivitis'. In these cases, I was not able to diagnose trachoma, but some of them might well have had this disease. The remainder of my report[3] to the Natal Bantu Blind Society follows:

'At Mooiriver, all 494 pupils at the Bruntville school were examined for trachoma and 54 (10·9%) cases of this disease were diagnosed.

'Among the 108 patients seen at Estcourt, were 94 of the pupils of the Fort Durnford school. Trachoma I was diagnosed in 2 cases, trachoma II in 11 cases and trachoma D in 3 cases.

'In April 1962 Prof. Ida Mann[4] found 2 cases of healed trachoma and 7 of trachoma dubium at Fort Durnford school, 2 months after 27 pupils who had been diagnosed as "follicular conjunctivitis" some of whom were suspected of having trachoma—had been treated with sulphacetamide or chlortetracycline eye ointment at the NBBS clinic. Her assessment was that trachoma had occurred at the school in the past and might well return if not guarded against in the future.

'The apparent increase in trachoma incidence at the Fort Durnford and Bruntville schools is due partly to a greater readiness to make the diagnosis on my part, but also in my opinion to a real increase. I was fortunately able to watch Professor Mann at work on that occasion and I am sure I saw more cases of trachoma this time at Estcourt than at her clinic.'

At recent monthly clinics at Eshowe Hospital which I have held for the Natal Provincial Administration, rather less than 20% have had no clinical sign of present or past TRIC virus infection. Many of these patients are trachoma cases under treatment and many are sent from a large part of Zululand by doctors who have thought them to have the disease.

Table VII is an analysis of 750 cases of trachoma in all racial groups to indicate the incidence of the stage and some complications of the disease. The high proportion of cases with scarring in the conjunctiva (stage III and IV) and with pannus, entropion and trichiasis support the statement that this disease is truly trachoma. Less than 100 of these patients were seen at my consulting rooms so that there might have been minor degrees of pannus and scarring that were not seen since a slit-lamp microscope was not available.

TABLE VII. ANALYSIS OF 750 CASES OF TRACHOMA OF ALL RACES AS TO STAGES AND COMPLICATIONS

Total	*Stages*				*Complications*		
	I	*II*	*III*	*IV*	*Pannus*	*Entropion*	*Trichiasis*
750	221	310	177	42	238	62	19
%	29·4%	41·4%	23·6%	5·6%	31·9%	8·3%	2·5%

Except for six months on the staff of Addington Hospital, Durban, during 1965, investigations of trachoma in the White racial group have been limited to private patients.

In 1963, Prof. K. C. Watson cultured TRIC virus from 6 of my White private patients and another 10 in 1964, that with 4 from the SAIMR made a total of 14 for that year. In the first 5 months of 1965, another 25 successful cultures from Durban and Johannesburg were added, so that 45 cases were presented at the South African Medical Congress held in June. In the last 6 months of 1965 more than 100 cultures were obtained from private patients.

The total today is 301 White cases, including 15 from patients at the Addington Hospital. In 4 weeks during January and February 1966, 253 different private patients attended at my consulting rooms. Of these, 47 were under treatment for trachoma and 50 were family contacts of patients from whom the virus had been cultured. Conjunctival swabs were collected from 32 of the contacts and from 21 of these TRIC virus was cultured, representing 42% of the contacts. From the remaining 156, after excluding the known trachoma cases (47) and the family contacts (50), 69 conjunctival swabs were sent for virus culture, from which TRIC virus was isolated in egg-culture in 53 cases, representing 34% of the ordinary patients. Some of these patients had consulted me because they or their medical advisers had thought they might have trachoma, but allowing for this, these figures indicate that the infection is very common indeed among White private patients in ophthalmological practice. Bacterial contamination vitiated attempts to culture TRIC virus in one of the 101 swabs but in the remaining 100, the virus was isolated in egg-culture, 74 times. This indicates an impressive standard of efficiency on the part of the Trachoma Unit of the SAIMR and also that the diagnosis can be made with confidence if the disease is known to exist and its clinical features are appreciated.

Crompton *et al.*[5] have reported clinical evidence of mild active trachoma in a majority of patients in the second, third and fourth decades in Adelaide, Australia. The importance of the slit-lamp microscope in the examination of the cornea and conjunctiva is apparent from his findings. It is interesting that similar findings are being made elsewhere.

Table VIII is an analysis of stages and complications of trachoma in 290 White patients to indicate that this disease is indeed trachoma as shown by the complications.

TABLE VIII. CLASSIFICATION OF 290 WHITE PATIENTS FROM WHOM TRIC VIRUS HAS BEEN CULTURED AS TO STAGES AND SOME COMPLICATIONS OF TRACHOMA

		Stages				*Complications*			
No. of patients	*Total*	*I*	*II*	*III*	*IV*	*Pannus*	*Entropion*	*Trichiasis*	*Symblepharon*
No. of patients	290	92	99	99	0	151	28	9	3
Percentage	100%	31·72%	34·14%	34·14%		52·4%	9·7%	3·1%	1·0%

SUMMARY

The results of investigations for trachoma in schools, Natal Bantu Blind Society Clinics and in private practice are reported. The disease has been found to be very widespread in Natal and to have a surprisingly high incidence in some areas and in some racial groups.

It gives me pleasure to record my grateful appreciation for the help and encouragement I have had from Prof. Ida Mann, Dr. G. Scott, Prof. J. H. S. Gear and Mrs. Cuthbertson and Mrs. Ryan of the Trachoma Unit of the SAIMR, Prof. K. C. Watson, Mrs. Stenhouse and Miss Krogh of the University of Natal Medical School and Mr. R. E. Stevens of the Natal Bantu Blind Society.

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