

Survey of ocular disease among the Nama people of South West Africa

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The Department of Ophthalmology of the University of the Witwatersrand undertook to investigate the prevalence of ocular disease amongst the Nama people of South West Africa during the latter part of July, 1971. The survey was undertaken by one ophthalmologist in the periurban indigenous people's suburb at Keetmanshoop, South West Africa (Fig. 1).

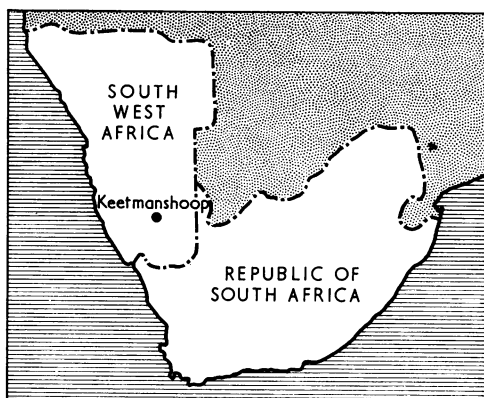


FIG. 1 *Area of survey*

Method

Before the survey, a preliminary house-to-house census had been taken to make contact with potential patients. It was hoped to see a representative sample from each age group. The examinations took place at the Hospital at Keetmanshoop, the patients being transported to the hospital from the surrounding dwellings by the university Landrover.

A full external ocular examination, a slit-lamp examination, and fundoscopy was carried out on each patient. In those above 20 years of age a bilateral applanation ocular tension reading was taken. All the findings were charted on a special proforma.

A total of 680 patients was seen in a period of 12 days; the number in each age group is shown in Table I (overleaf).

The present report deals briefly with external ocular disease, ocular movements, uveal tract disease, cataract, retinal and optic nerve disease, glaucoma, and corneal dystrophy. The most striking condition observed was gelatinous corneal dystrophy, which forms the subject of a more detailed communication (see p. 688: Freedman, 1973).

Clinical findings

(1) EXTERNAL OCULAR DISEASE

There were no obviously active cases of trachoma; the chronic form of the disease was seen as bilateral trichiasis in two patients.

Table I Age and sex of 680 subjects examined

Age group (yrs)	Sex		
	Male	Female	Total
0-4	9	17	26
5-9	27	25	52
10-14	75	87	162
15-19	30	27	57
20-24	22	9	31
25-34	42	27	69
35-44	51	33	84
45-54	35	38	73
55-64	37	30	67
65-74	25	19	44
75-84	7	7	14
85+	1	0	1
Total	361	319	680

A total of eight pterygia were seen, seven of which were bilateral; all occurred in patients between the ages of 35 and 64 years, and five patients were females. At the advancing head of the pterygium, a gelatinous dystrophic change in the cornea was noted in a few cases.

Purulent conjunctivitis was not seen in any of the patients examined. Follicular conjunctivitis occurred in one person aged 65 years. Spring catarrh was seen in three patients, always in the bulbar form: in a 12-year-old boy and an 8-year-old girl the disease was mild, but in the third patient, a 6-year-old boy, it took a more florid form, characterized by heaping and increased pigmentation of the perilimbal conjunctiva (Fig. 2).

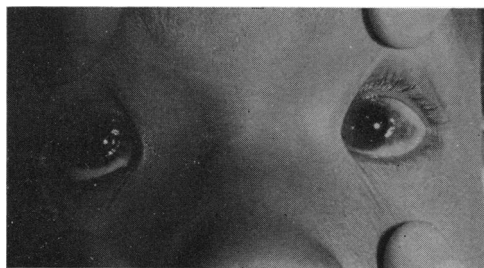


FIG. 2 Conjunctivitis characterized by increased pigmentation in a 6-year-old boy

No presumptive malignant or premalignant lesions of the cornea or conjunctiva were seen. The meibomian ducts were normal. One 10-month-old baby had a blocked tear duct on the left side.

(2) OCULAR MOVEMENTS

There were 240 children below the age of 15 years, but only one constant squint was seen, a right hypertropia in a child aged 8 years. An alternating exotropia was seen in a 38-year-old man and alternating esotropia in a 48-year-old man.

(3) UVEAL TRACT DISEASE

There were no cases of acute uveal tract inflammation, but bilateral occlusio pupillae was seen in a 52-year-old man. An inferior ciliary staphyloma in the right eye of a 39-year-old man could possibly have been due to uveal tract disease. A left-sided interstitial keratitis

with large mutton-fat keratic precipitates was seen in a 13-year-old girl. The appearance suggested a tuberculous origin.

Included under this heading, although not definitely associated, is the group of phthisical eyes. Phthisis occurred in the left eyes of four women over the age of 65 years. A 75-year-old man had phthisical eyes with complete absence of both anterior chambers and grossly vascularized cornea.

(4) CATARACT

Congenital bilateral coralliform cataracts were seen in a 16-year-old girl. A subluxated lens was seen in the left eye of a 71-year-old woman. The distribution of cataract in the various age groups is shown in Table II.

Table II *Distribution of cataracts by age and sex*

Age (yrs)		25-34		35-44		45-54		55-64		65-74		75-84	
Sex		M	F	M	F	M	F	M	F	M	F	M	F
Cataracts	No.	1	0	1	0	0	2	5	5	9	13	3	5
	Per cent. in each age group	1.4		1.1		2.7		15		50		57	

(5) RETINAL AND OPTIC NERVE DISEASE

No obvious diabetic or hypertensive retinopathy, no chorio-retinitis, and no vascular abnormalities or vasculitis were seen.

Optic nerve atrophy was seen in the right eye of a 36-year-old man. A 13-year-old girl had bilateral macular cysts. There were no retinal detachments.

(6) GLAUCOMA

Intraocular pressure readings in percentages per range of pressure for different age groups are shown in Table III.

Table III *Intraocular pressure, by age group and sex, shown as percentages in each age group*

Age group (yrs)		20-24		25-34		35-44		45-54		55-64		65-74		75-84		85
Sex		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Intra-ocular pressure (mm. Hg)	10-14	9	10	19	29	15	33	8	2	29	26	20	15	14	14	100
	15-29	82	90	76	67	72	58	67	82	63	62	64	65	58	58	—
	20-24	9	—	5	4	10	9	20	10	2	6	12	10	28	—	—
	25+	—	—	—	—	3	—	5	2	12	6	4	10	—	28	—

One patient in the 35 to 44-year-old age group had an ocular tension of 28 mm. Hg in both eyes, each of which showed the typical features of pseudocapsular exfoliation. Another patient in this age group had tensions of 34 and 20 mm. Hg.

In the 45 to 54-year age group two men and one woman had tensions greater than 25 mm. Hg. The pressure in the woman's eyes was 26 mm. Hg and in the two men it was above 20 mm. Hg. In one of the three, both discs showed true glaucomatous cupping; this was the only case of primary open-angle glaucoma seen in the survey.

In the 55 to 64-year age group pressures of greater than 30 mm. Hg were recorded in three cases, but the discs were normal.

In the 65 to 74-year age group, one patient had pressures of 40 and 28 mm. Hg but the discs were not visible because of lens opacities. Another patient had a pressure of 60 mm. Hg in the left eye which also showed features of a central venous occlusion, this being therefore a thrombotic glaucoma.

Thus, of the ten who had intraocular pressures greater than 25 mm. Hg, only one was a proven case of primary open-angle glaucoma.

No cases of narrow-angle or congenital glaucoma were seen.

Pseudocapsular exfoliation was seen in sixteen cases, but none had what appeared clinically to be glaucoma. The 55 to 64-year age group contained four cases, the largest number in any group. The youngest patient with pseudocapsular exfoliation was 42 years old. The pseudocapsular material in all sixteen cases presented on the pupillary border and in zones on the anterior surface of the lens. The pigment in the angles did not seem to be excessive.

(7) CORNEAL DYSTROPHY

Gelatinous dystrophy of the cornea, the most striking type of ocular pathology, was found equally in males and females, the highest incidence occurring in the older age groups; 50 per cent. of those over 55 years of age showed some degree of this degeneration. The youngest patient affected was 35 years old. Although in most cases both eyes were involved, there were some cases of unilateral involvement. In bilateral cases the left eye was always more severely involved and in unocular cases the left eye was most frequently involved.

Treatment

No definite programme of treatment was carried out but, as a result of the survey, the Bureau for the Prevention of Blindness of the South African National Council for the Blind will tour the area at a future date to treat the ocular diseases by both medical and surgical means.

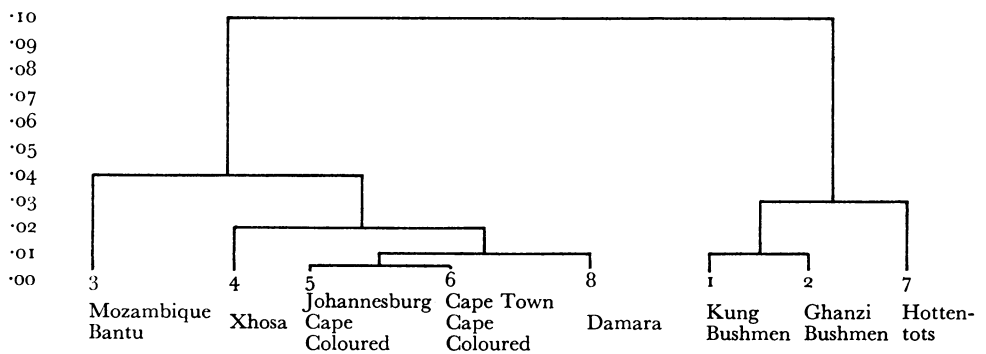
Discussion

This is the first account of the incidence of ocular disease in the Hottentot people in S.W. Africa. The principal areas inhabited by the Nama nation lie in the territory between the Orange and Swakops Rivers. Ethnographically the Nama are Hottentots, once a nomadic people consisting of many tribes which wandered over the broad plains of Southern Africa before the arrival and expansion of the Europeans. The Nama are mostly of medium height, between 1.5 and 1.65 m. They are light-skinned compared to the dark-skinned Negroid races. The prominent cheek bones, flat nose, and receding pointed chin cause the eyelids to seem slanted. The iris is dark brown and characteristically has a lacy pattern with a well-marked collarette. The teeth tend to be mottled owing to the high concentration of fluoride in the water. In young people of both sexes there is an even distribution of fat, but in the middle-aged and elderly there is a marked deposition of fat over the buttocks, causing steatopygia, which to the Nama is the ideal of beauty. The relationship between the Nama peoples and other racial groups of Southern Africa as shown by gene-typing of blood groups is shown in Table IV (opposite).

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Table IV Genetic distances between eight Southern African populations, using the Loci G6PD, 6PGD, PGM₁, PGM₂, and AK

Population	2 Ghanzi Bushmen	3 Mozam- bique Bantu	4 Xhosa	5 Johannes- burg Cape Coloured	6 Cape Town Cape Coloured	7 Hotten- tots	8 Damara
1. Kung Bushmen ..	.01	.09	.06	.05	.05	.03	.04
2. Ghanzi Bushmen09	.06	.04	.04	.02	.03
3. Mozambique Bantu02	.04	.04	.10	.04
4. Xhosa (Cape Ngani)02	.01	.07	.02
5. Johannesburg Cape Coloured04	.01
6. Cape Town Cape Coloured04	.01
7. Hottentots03



Clustering implied by red cell enzyme gene frequencies in eight Southern African populations

Although originally nomadic, the Nama have changed to an industrial and settled way of life. They used to live in domed huts made of thick wooden poles, but nowadays their dwellings are small conventional four-cornered houses. Their dress tends to be colourful and its style is suggestive of German influence.

EXTERNAL OCULAR DISEASE

The low incidence of trachoma as compared with other Bantu-speaking peoples is a surprising feature, which is possibly due to the availability of water and the good standard of hygiene.

The florid form of spring catarrh (rare in Europeans) is identical to that seen in the Bantu-speaking Negroes, and may be due to the greater amount of pigment in the conjunctiva in the dark-skinned races.

The low incidence of pterygium is similar to that in other Bantu peoples. This tends to discount the theory that a dry sunny climate is a prime factor in the causation of this condition.

UVEAL TRACT DISEASE

The absence of acute and chronic uveal tract disease is another respect in which the Nama differ from the Bantu-speaking Negroes. In a survey of uveitis recently begun, drawing on a

population of 3,000,000 Negroes, 200 cases of uveitis have already been seen in a period of 6 months.

LENS PATHOLOGY

The incidence of lens opacities (6 per cent.) is lower than that found in the Bantu-speaking Negroes (18 per cent.) (Mann, 1966a).

RETINAL AND OPTIC NERVE DISEASE

The Bantu-speaking Negroes have also been reported as having a low incidence of retinal detachment (Mann, 1966b), but in recent years the incidence has increased, which may be related to the urbanization of these people. The absence of toxoplasmosis may be associated with the dry climate. Gross hypertensive or diabetic changes are absent in the Nama people, but both retinopathies, particularly the former, occur in the Bantu-speaking Negroes.

GLAUCOMA

This survey differs from other glaucoma surveys, in that the persons examined were unselected and there was no question of excluding known glaucomatous patients. The highest pressure reading in an eye showing no features suggestive of glaucoma was 34 mm. Hg compared with 22.4 mm. Hg in the Oxford survey of Luntz, Sevel, and Lloyd (1965). The intraocular pressures found in the Nama are compared with those found in the Oxford survey in Table V.

Table V *Intraocular pressure in Nama and English surveys*

Age group (yrs)		20-24	35-44	45-54	55-64	65-74	75-84
Intra-ocular pressure (mm. Hg)	Nama Range	15-20	15-20	15-20	15-20	15-20	15-20
	Highest	25	—	over 25	over 25	—	—
	Oxford (mean)	14.22	15.09	16.05	17.04	17.54	17.64

In each age group the intraocular pressures in the Nama are slightly higher than those found in the Oxford survey, and the highest pressure recorded in any group was also higher in the Nama.

The mean pressures were slightly higher in males in all age groups, except in those aged 65 years and above where the levels were slightly higher in the females. The male mean was higher than the female mean in the Oxford survey at all ages.

The absence of narrow angles and of angle-closure glaucoma is not unexpected in a survey of 680 subjects, as only 0.4 per cent. of patients in a series of 2,500 were shown to have critically narrow angles by Becker and Shaffer (1965).

The absence of congenital glaucoma in this survey is of no significance owing to the small number of young children included.

Summary

In an epidemiological survey of the prevalence of ocular disease in the Nama people, the last pure remnant of the Hottentot tribes, 680 patients were examined. The incidence of various ocular diseases is discussed and compared with that in the Bantu-speaking Negroes

of South Africa. The incidence of glaucoma is compared in part with the findings of the Oxford survey.

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References

- BECKER, B., and SHAFFER, R. N. (1965) "Diagnosis and Therapy of the Glaucomas", 2nd ed., p. 149. Mosby, St. Louis
- FREEDMAN, J. (1973) *Brit. J. Ophthalm.*, **57**, 688
- LUNTZ, M. H., SEVEL, D., and LLOYD, J. P. F. (1965) *Ibid.*, **49**, 128
- MANN, I. (1966a) "Culture, Race, Climate and Eye Disease", p. 215. Thomas, Springfield, Ill.
- (1966b) *Idem*, p. 201