

and the spleen usually becomes bigger. The pressure in the portal vein and its radicles may rise from the normal 8 to 11 mm. Saline to as much as 50 mm. Saline. Anastomotic channels between the portal and the systemic systems open up. The veins round the lower end of the oesophagus are the most important of these anastomotic channels and become enormously dilated. They bleed readily and massively. The majority of these patients eventually die as a result of haemorrhage.

Ascites may occur. This too is the direct result of the obstruction.

#### INDICATIONS FOR OPERATION

There can be no doubt that a type of porto-systemic venous anastomosis should be advised for all patients suffering from the extra-hepatic type of obstruction with gastro-intestinal haemorrhages in whom radiological examination has demonstrated dilated oesophageal veins. In these the liver function tests are normal. If at laparotomy it should be found that the obstruction is located in the splenic vein distal to the entrance of the left gastric vein, it would suffice to do a splenectomy only. In other cases splenectomy should be done and an end to side anastomosis of the splenic vein to the left renal vein performed with preservation of the kidney. In cases where the spleen has been previously removed an anastomosis between the portal vein and inferior vena cava is performed. Operative details can be found in the original articles of Blakemore and Lord (1945),

Blakemore (1947), Satinsky (1948), Whipple (1945) and Linton (1948).

Secondly we have to consider operative interference in cases of intra-hepatic obstructions. In these cases there may be no demonstrable splenomegaly. Haemorrhage and ascites, requiring frequent paracentesis, are the indications for operation. But very careful selection of cases is required. Two types of cases must particularly be detected and eliminated:

In the first place there is the early case of intra-hepatic obstruction following an attack of infectious hepatitis. Many of these cases will clear up entirely on a diet rich in proteins and glucose, and operation will be unnecessary.

Secondly liver function tests may indicate an advanced state of liver failure. These patients can barely be expected to survive such a formidable surgical procedure. But even if they should survive the operation, the prognosis remains hopeless as they will die of liver failure and not as the result of portal hypertension.

The intermediate type of case, however, will greatly benefit by surgical treatment.

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## THE CAPE COLOURED PEOPLE\*

### THEIR PATTERN OF HEALTH AND DISEASE

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It is fitting that at a Medical Congress at Cape Town, some reference should be made to the medical problems of the Cape Coloured people, since Cape Town is the place of their origin and since it still numbers within its Municipal boundaries 157,000 out of 900,000 Coloured people enumerated in the last Union census. The racial origin of the Cape Coloured people has been summarized in J. S. Marais' *The Cape Coloured People, 1652-1937*. They originate from four principal stocks, viz. slaves brought to the Cape in the early days, Hottentots, Bushmen and Europeans, of which the first two have made the greatest contribution. In very recent times there has in addition been almost certainly considerable admixture with the Bantu.

The Coloured people of Cape Town must be regarded as a distinct racial stock which has been evolving over

a period of 250 years. It is still being modified by outside influences, but has become relatively stabilized and distinct. For many generations they have lived in small, relatively distinct residential areas scattered between European areas throughout the Cape Peninsula. They are exposed to the same climatic influences, but differ from the Europeans principally in their inferior social and economic position. All vital statistics show a very great difference between them and the European residents of the Cape Peninsula and the differences are nowhere more apparent than in those diseases which are coming to be called, in modern days, the 'social diseases', including tuberculosis in all its forms, venereal disease, the effects of alcoholism, bronchitis and pneumonia, and infantile diarrhoea and vomiting. It is possible that these differences are due in part to differences of genetic inheritance, but it seems far more likely that they are due in the main to differences in social and economic position.

\* This paper was read at the Medical Congress of the Association held at Cape Town in September 1949.

The existence of these two distinct communities, living in such close geographic and climatic association, and differing largely in their social and economic background, constitutes a unique natural experiment, which can be exploited in order to determine the respective contribution of genetic inheritance and of social and economic environmental factors in the production of disease. This has been adopted as the programme for a research unit at Cape Town under the direction of the author, and with the financial support of the Council for Scientific and Industrial Research. This programme is already under way, but unfortunately it has not been working long enough to justify us in making any report at this stage. The present paper constitutes an introduction to the research, in which it is hoped to marshal all the knowledge at present available.

Apart from the annual reports of the Medical Officer of Health for Cape Town, it is surprising how little has been published on this subject in the last few generations. The available publications are reviewed below. Anyone who has practised medicine for any length of time in Cape Town must have formed a number of impressions on this subject, but very frequently the impressions have never been supported by statistical evidence.

The subject will be discussed under five headings:

1. Life expectation, as revealed by the tables of the principal life insurance companies.
2. Mortality and population changes, as revealed by the Reports of the Medical Officer of Health for Cape Town.
3. Morbidity.
4. Physique and physical efficiency.
5. Socio-economic position, as revealed by the reports of the Cape Town Social Survey.

SOUTH AFRICAN LITERATURE

As stated in the introduction, there is surprisingly little literature in South Africa on this subject. The bibliography has been reviewed by searching the *Journal* of the Medical Association of South Africa, and its predecessors, for articles which directly or indirectly contribute to our knowledge on the subject. The *Journal* of the Medical Association of South Africa was started in 1927, by fusion of the *South African Medical Record*, which started in 1903, and the *Medical Journal of South Africa*, which, in 1913, succeeded the *Transvaal Medical Journal* (1905). A full bibliography is being prepared and may be published.

The principal contributors in the Cape have been Dr. T. Shadick Higgins—for many years Medical Officer of Health to the City of Cape Town; Prof. E. C. Crichton, for many years Professor of Obstetrics and Gynaecology in the University of Cape Town; and Dr. A. Simpson Wells, lecturer in Clinical Obstetrics at the University of Cape Town, Honorary Obstetrician to St. Monica's Home and Consulting Obstetrician to the New Somerset Hospital. Dr. Shadick Higgins' experience was summarized in 1942 in the official report of the Social Survey Conference of Cape Town. Professor Crichton's experience has been summarized in a recent personal communication to the writer.

In addition, there have been some important contributions from Johannesburg on the subject of the pattern of disease in the Bantu people, which have

included reference to Eurafricans or the Coloured people of the Transvaal. Important reports under this heading are those by B. J. P. Becker (1946) on cardiovascular disease, P. C. Eagle and J. Gillman (1938) on peptic ulcer, and J. F. P. Erasmus (1939) on appendicitis. Among the useful general publications on the subject of the Cape Coloured people should be mentioned J. S. Marais' *The Cape Coloured People 1652-1937*, I. D. du Plessis' *The Cape Malays*, and the very important report (1937) of the *Commission of Inquiry Regarding the Cape Coloured Population of the Union*.

LIFE EXPECTATION

Life expectation tables were prepared from the sixth census of 1936, for 'Coloured Persons'. There are separate tables for males and females (Fig. 1). These

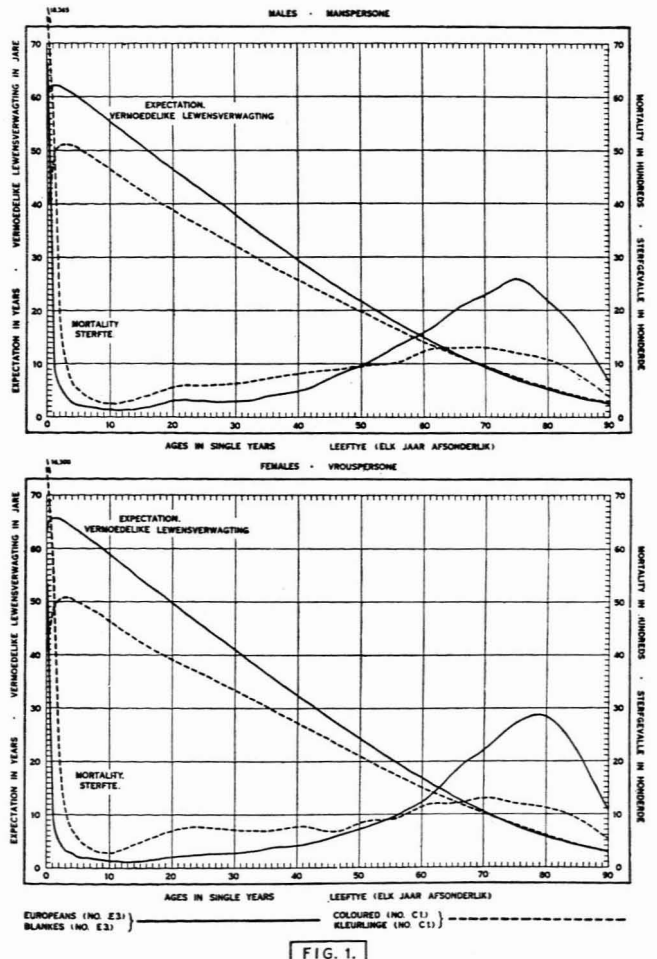


FIG. 1.

Fig. 1. Expectation of life and mortality of males and females at each year of age. (South African life tables, 1936.)

figures are drawn from the whole Union and do not necessarily reflect exactly the life expectation of the Cape Coloured people of the Cape Peninsula, but they will give a very close indication. Fig. 1 gives graphs for Europeans and Coloured (males and females separately) which show the comparative expectation of

life at different ages and also the comparative mortality. Specimen figures from the graphs are:

FIG. 2—EXPECTATION OF LIFE

Age	Males.		Females.	
	European.	Coloured.	European.	Coloured.
	(Years)	(Years)	(Years)	(Years)
Age 0 .. ..	58.95	40.18	63.06	40.86
Age 2 .. ..	62.04	50.77	65.53	50.33
Age 20 .. ..	46.43	38.78	49.72	39.13
Age 40 .. ..	29.45	25.69	32.44	27.29

The greatest difference between the figures for European and Coloured appears in the life expectation at birth, being 18.77 years in the case of males and 22.20 years in the case of females. The difference, although still very great, is less at age 2 (11.27 years and 15.20 years) indicating the very high death rate amongst Coloured infants between birth and that age.

The following figures show the comparative probabilities of death at various ages:

FIG. 3—PROBABILITY OF DYING WITHIN ONE YEAR

Age	Males.		Females.	
	European.	Coloured.	European.	Coloured.
	(Per 1000)	(Per 1000)	(Per 1000)	(Per 1000)
Age 0 .. ..	66	184	53	163
Age 2 .. ..	6	25	6	28
Age 20 .. ..	3	8	2	10
Age 40 .. ..	6	15	5	15

From these figures it will be seen that the probability of death within a year from birth is three times as great for Coloured children as for European children; and four to five times as great at age two. In the case of adults, the Coloured death rate at age 20 averages about four times the European rate and at age 40 nearly three times.

2. MORTALITY AND POPULATION CHANGES

The 1945-1946 vital statistics for Cape Town are extracted in Fig. 4, from the annual report of the

FIG. 4: VITAL STATISTICS, CAPE TOWN. 1945-1946

	European.	Non-European.	All Races.
Population excluding Langa Native Township ..	161,660	178,680	340,340
Birth rate (per 1,000 population) .. .. .	21.67	44.26	33.56
Death rate (per 1,000 population) .. .. .	10.62	19.30	15.20
Infant mortality rate (per 1,000 births) .. .. .	37.49	102.83	83.41
Maternal mortality rate (per 1,000 live births) .. .. .	2.00	2.66	2.46

Medical Officer of Health for Cape Town. The figures refer to the Cape Town Municipal area, excluding Langa location. Non-Europeans are slightly in excess of Europeans, but a deduction must be made of a small number of Asiatics and of Bantu people resident in the Municipal area, leaving a Cape Coloured population which must be very close to the Europeans numerically. The figures show up the well-known and large discrepancy between the two populations in respect of birth rate, general death rate and infant mortality rates.

In Fig. 5 is shown the distribution of deaths in age groups for the two populations. The trend of the

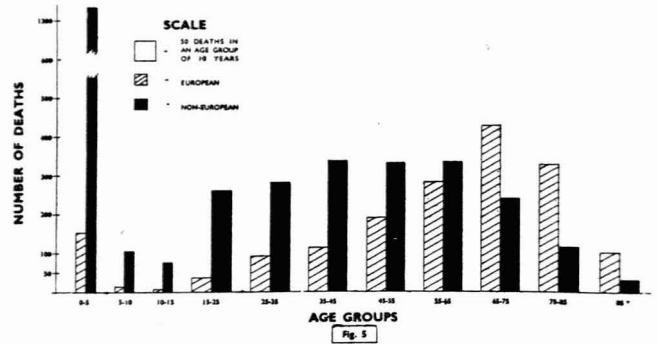


Fig. 5. Graph showing the distribution of deaths in age groups for the E. and N.E. population of the Cape Town Municipality for 1945-1946.

curves is entirely different. The greatest difference lies in infant mortality, but for other age groups the rise in mortality starts much earlier in the non-Europeans and reaches its peak in the 35-45 age group, whereas that for the Europeans reaches its peak only in the 65-75 age group.

FIG. 6: DEATH RATE PER 1,000 POPULATION. 1945-1946.

	Europeans.
Cardiac diseases .. .. .	2.83
Cancer .. .. .	1.56
Arterial diseases .. .. .	1.47
Tuberculosis .. .. .	0.84
Violence .. .. .	0.51
Congenital malformations and diseases of early infancy .. .. .	0.49
Nephritis .. .. .	0.43
Bronchitis and Pneumonia .. .. .	0.41
Diabetes .. .. .	0.25
Diarrhoea and Enteritis .. .. .	0.19
	Non-European.
Tuberculosis .. .. .	5.72
Bronchitis and Pneumonia .. .. .	2.37
Cardiac diseases .. .. .	2.18
Diarrhoea and Enteritis .. .. .	1.64
Congenital malformations and diseases of early infancy .. .. .	1.63
Arterial diseases .. .. .	0.97
Cancer .. .. .	0.76
Violence .. .. .	0.70
Syphilis, G. P. I., tabes and aneurysm of the aorta .. .. .	0.48
Nephritis .. .. .	0.46

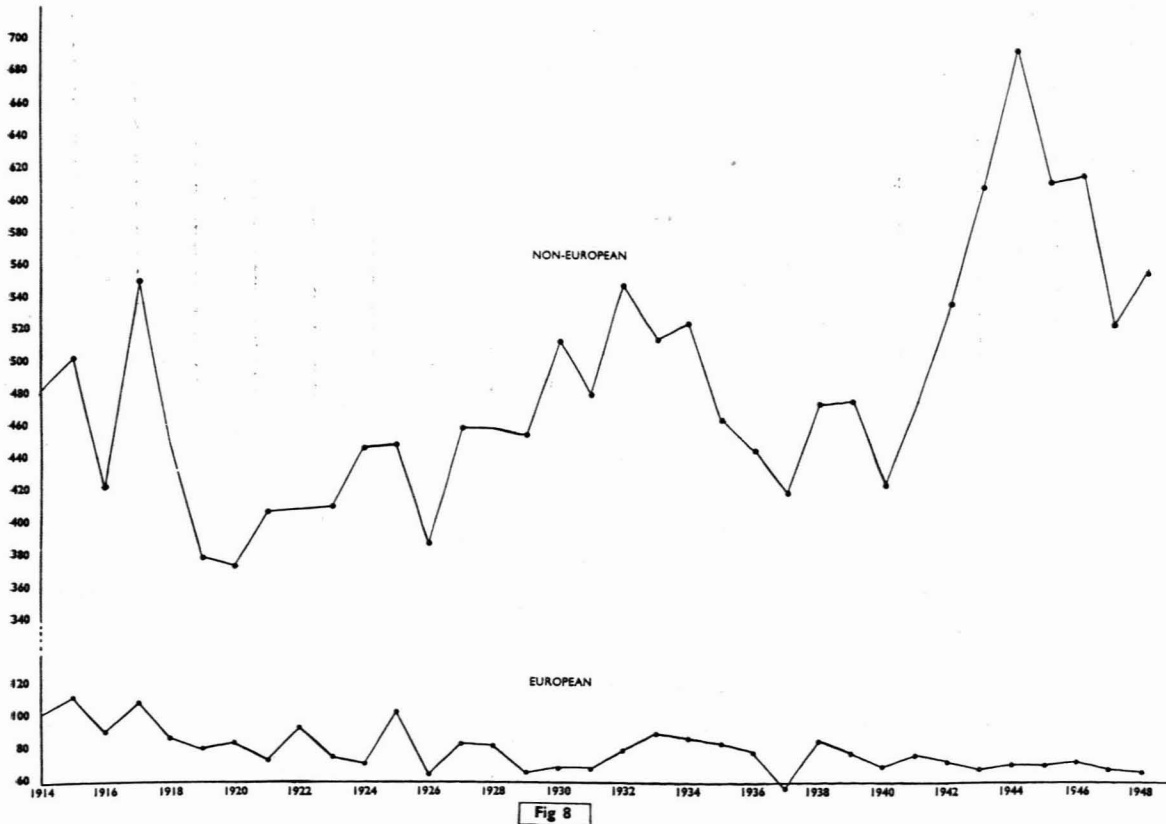
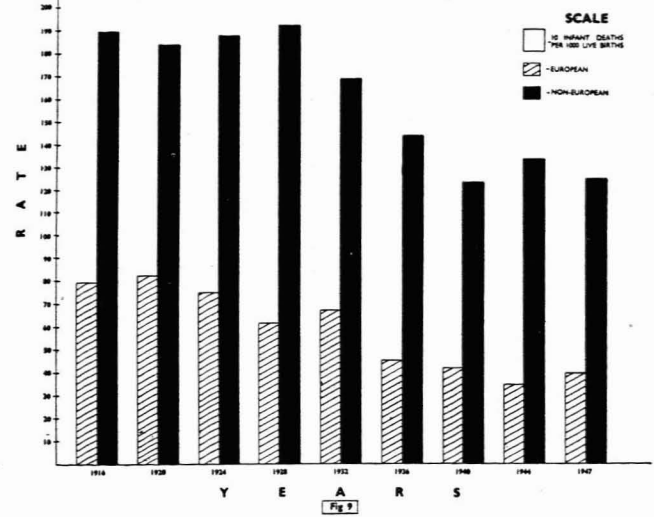
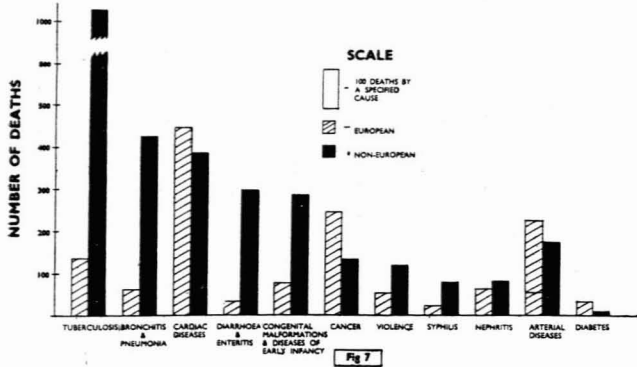
In Fig. 6 are shown the principal causes of death in the two groups and this is graphically expressed in Fig. 7. This chart epitomises the great difference between the two races in mortality from the social diseases. Among the European the three principal causes of death are the diseases of old age, cardiac and arterial diseases, and cancer, and tuberculosis stands only fourth. Among the non-Europeans on the other hand, tuberculosis stands first with a figure nearly seven times that encountered in the European, while bronchitis and pneumonia and diarrhoea and enteritis stand second and fourth. These three headings are notoriously linked with poor social conditions and hygiene. Arterial disease and cancer, which stand respectively third and second on the European list, are respectively

sixth and seventh on the non-European list, with figures about half those of the European. This is to be expected from the poorer life expectation of the non-European. Fewer non-Europeans reach an age when these degene-

GRAPH SHOWING THE INFANT MORTALITY RATES OF THE E.&N.E. POPULATION OF THE CAPETOWN MUNICIPALITY AT 4 YEARLY INTERVALS FROM 1916 - 1947

Fig. 7. Graph showing the deaths by specified causes of the E. and N.E. population of the Cape Town Municipality for 1945-1946.

Fig. 8. Tuberculosis mortality rates per 100,000 population, 1914-1948.



erative diseases are likely to occur. The four disease groups which killed the non-European (10.21 per 1,000 in 1945-1946), mostly at an early age, and from which the European is relatively immune (1.44 per 1,000) are the social diseases tuberculosis, bronchitis and pneumonia, diarrhoea and enteritis, and syphilis. If one adds to this list the non-European preponderance in

(1) congenital malformations and diseases of early infancy, which will include congenital syphilis, prematurity and exposure, and (2) violence, which will include assault as distinguished from accident, and if one remembers that a proportion of cardiac deaths occur in the non-European at an early age from syphilis, it is clear that the poorer life expectation of

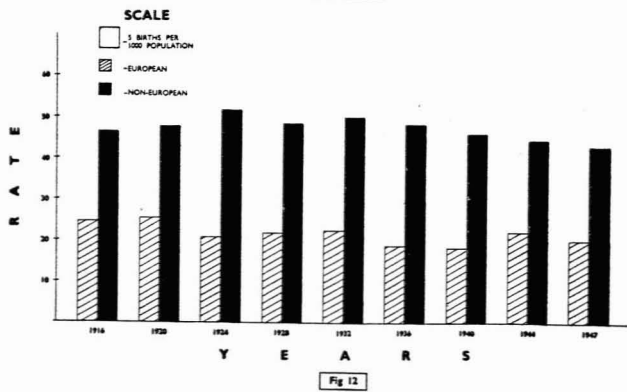
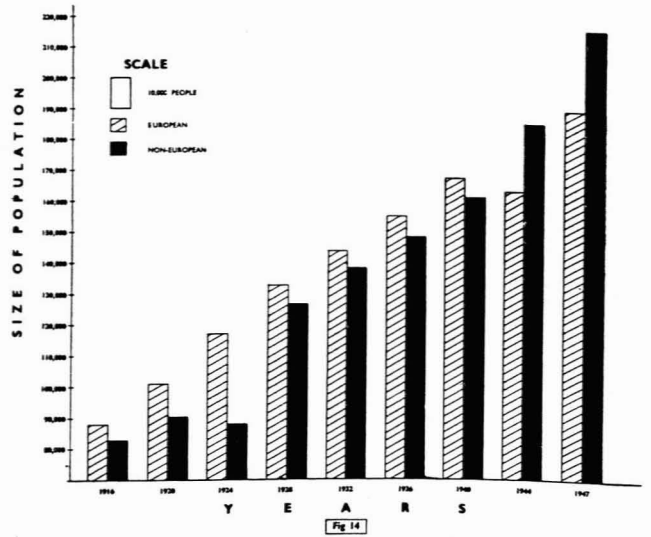
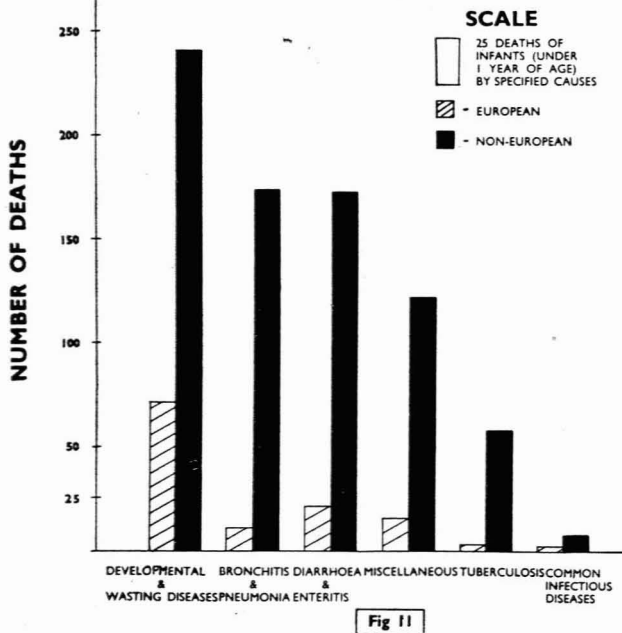
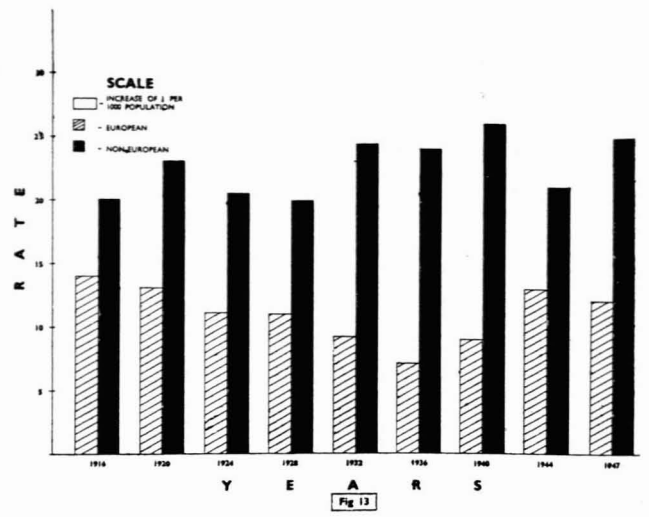
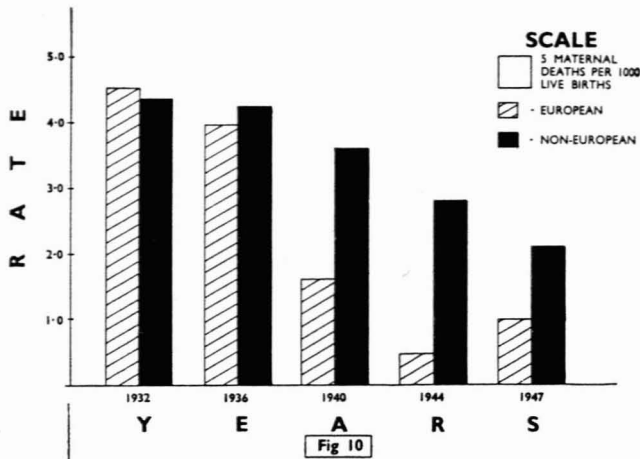


Fig. 10. Graphs showing the maternal mortality rates of the E. and N.E. population of the Cape Town Municipality at 4-yearly intervals from 1932-1947.  
 Fig. 11. Graph showing the deaths by specified causes of infants under 1 year of age of the E. and N.E. population of the Cape Town Municipality for 1945-1946.  
 Fig. 12. Graph showing the birthrates of the E. and N.E. Population of the Cape Town Municipality at 4-yearly intervals from 1916-1947.  
 Fig. 13. Graph showing the natural increase rates of the E. and N.E. populations of the Cape Town Municipality at 4-yearly intervals from 1916-1947.  
 Fig. 14. Graph showing the growth of the E. and N.E. population of the Cape Town Municipality at 4-yearly intervals from 1916-1947.

the non-European is due almost wholly to the social diseases.

The term 'social diseases' has not, I think, ever been defined accurately, but has been used to indicate those diseases which are particularly prevalent in sections of a population at the lower end of the socio-economic

scale. They might be defined as those diseases in which the most important aetiological factors are deficiency of the health-promotive factors, particularly food, exercise, sleep, warmth, air and cleanliness (Brock, 1948).

*Trend of Tuberculosis Mortality.* It has been



difficult to get a clear picture of the trend of tuberculosis mortality in the Cape Town area. In 1934 Dr. Shadick Higgins, then Medical Officer of Health for the City of Cape Town, wrote: 'Tuberculosis, though still one of the chief causes of invalidism and premature death, is of less magnitude than in past years. In Cape Town the white death-rate in 1927 to 1931 was less than one-third of the rate from 1895 to 1899, but the Coloured rate was only reduced by 25%.' In 1936, on the other hand, Dr. D. P. Marais showed in his Fig. 4 a mortality chart for tuberculosis which had been progressively rising from 1921 to 1931. I am indebted to Dr. W. L. Hoole, Tuberculosis Officer for the City of Cape Town, for annual figures for mortality in the two races separately, from the years 1914 to 1947. These figures show (Fig. 8) a steady slight fall over the whole period in the European mortality, from 102 per 100,000 in 1914, to 64 per 100,000 in 1947. Over the same period there has been considerable fluctuation in the Cape Coloured death rate. The lowest figure recorded was in 1922, when it fell to 344 per 100,000. In that year the fall, which had been occurring since 1914, was checked and there was a steady rise to 425 in the year 1940. During the war years there was a steep rise to 695 in the year 1944. Since then there has been a fall to 524 in 1947, with a rise again in 1948 to 559.

In Fig. 9 is shown the infant mortality rates in both races. The trend is downwards, but there is still a very great discrepancy between the two races. The same applies to maternal mortality rates (Fig. 10). In Fig. 11 the infant mortality rate is analysed according to causes. Again it will be seen that the principal causes of infant mortality in the Cape Coloured people are the social diseases. In Fig. 12 is shown the trend of birth rates. In both rates this is declining slightly. Fig. 13 indicates the natural increase which has in recent years shown a tendency upwards in the European, but in the non-European has fluctuated around a more or less steady level.

The increase in population is seen in Fig. 14. The population trend is upwards in both groups, but the total population of the Cape Coloured people has now passed that of the European. It is difficult to say how far the population changes are influenced by immigration and emigration, but there can be no reasonable doubt that apart from immigration and emigration, decreasing mortality in the Cape Coloured people is likely to lead to a further gain on the Europeans in total population. When it is remembered, from the section on life expectation, that the average age of the Cape Coloured population must be very considerably less than that of the European population, it must be apparent that the Cape Coloured population will be likely to increase over the European population steadily and for a long time to come.

### 3. MORBIDITY

A certain limited number of statistics are available in the reports of the Medical Officer of Health for Cape Town, which give a picture of the pattern of morbidity among the Cape Coloured people of Cape Town, and a comparison of this pattern with that of the European.

Such statistics as appear to be relevant to this subject are quoted or summarized below (Fig. 15).

FIG. 15: INFECTIOUS DISEASES NOTIFIED.  
1945—1946.

	European.	Non-European.	All Races.
Tuberculosis, pulmonary ..	250	1,656	1,886
Tuberculosis, other forms ..	26	281	307
Diphtheria .. .. .	91	84	175
Scarlet fever .. .. .	321	41	362
Puerperal fever .. .. .	14	57	71
Erysipelas .. .. .	28	37	65
Enteric fever .. .. .	22	85	107
Cerebrospinal fever .. .. .	16	58	74
Acute poliomyelitis .. .. .	10	4	14
Infective encephalitis .. .. .	1	—	1
Typhus fever .. .. .	2	2	4
Smallpox .. .. .	—	—	—
Leprosy .. .. .	—	2	2
Anthrax .. .. .	—	—	—
Ophthalmia neonatorum .. .. .	28	213	241
Gonorrhoeal ophthalmia .. .. .	2	14	16
Trachoma .. .. .	—	9	9
Acute primary pneumonia .. .. .	60	313	373
Influenzal pneumonia .. .. .	8	18	26
Total .. .. .	859	2,874	3,733

How far these notifications can be regarded as accurate is a moot point. Certainly the tendency will be for notification to be less complete among the non-Europeans since they less frequently call in a doctor when ill. As far as the figures can be accepted, certain trends are interesting. The most striking feature is the high relative incidence of tuberculosis, acute primary pneumonia, ophthalmia neonatorum and puerperal fever among the non-Europeans. These are all obviously attributable to relatively defective nutrition, housing, clothing and personal hygiene. In interesting contrast stands poliomyelitis with equal incidence. This conforms to modern ideas on the epidemiology of this disease, in that poor social and economic conditions do not predispose to it. The far higher notifications of scarlet fever among the Europeans is an interesting point. It is possible that the difference is due in part to lack of notification among the non-Europeans. This will be due in part to lack of medical attendance and in part to difficulty in detecting the rash in the darker skin. Dr. Wicht, however (1949), is of opinion that the rash is easily visible in the pigmented skin and that the disease is definitely less common in Cape Coloured and Bantu than in the European.

*Syphilis.* The figures given by the Medical Officer of Health for attendance at venereal disease clinics probably reflect a very much greater incidence of venereal disease among the Cape Coloured people, even when allowance is made for treatment of some Europeans by private practitioners.

1945-1946	European	Non-European
New cases .. .. .	668	4,485
Total attendance .. .. .	9,853	65,376

It is difficult to get figures for the incidence of positive Wassermann reactions in representative samples of European and Coloured people. The nearest approach to a representative sample are the figures kindly supplied by Dr. Broome from the City Health Department, for pregnant women attending the City Ante-natal Departments. The combined figures for

positive and doubtful results for the year 1945-1946 are given below:

Europeans ... ..	9.75%
Non-Europeans ... ..	22.68%

Lamont (1948) quotes the following relevant figures for deaths from syphilis per million of population:

England and Wales	10 year ended 1938	32
Union of South Africa	5 years ended 1937	60 (Europeans)
City of Cape Town	10 years ended 1938	70 (Europeans)
City of Cape Town	10 years ended 1938	720 (non-Europeans)

I understand that a thesis by R. McDonald, on the subject of *Syphilis in Pregnancy in the Cape Coloured People*, for the degree of D.M. was submitted to and accepted by the University of Oxford. This thesis is not available to me.

**Mental Disorder.** The available facts and impressions about mental disorder in the Cape Coloured people have recently been comprehensively surveyed by Lamont (1948). It appears that there can be no definite statement about the relative incidence of total certifiable mental disease as between European and Cape Coloured served by the Valkenberg Mental Hospital, but certain general impressions are drawn. The incidence of cerebral syphilis appears to be higher among the Coloured people. This impression is in line with the evidence already quoted for a greater incidence of syphilis generally and is discussed further later on. The incidence of senile and arteriosclerotic psychoses appears to be lower. This is readily to be understood in terms of the information already quoted about the age of death and life expectation of the Coloured people. There is a great admission under the heading of schizophrenia at the Valkenberg Hospital among the Coloureds, but this is probably due to the lower average age of the Coloured people, determined by their poorer life expectation. According to Lamont, age is the most important single determining factor in the incidence of mental disease.

It appears that the Coloured community is less prone to alcoholic psychoses, true paranoia and depressed forms of manic depressive psychoses. Lamont finds it difficult to conceive how socio-economic factors alone could produce this discrepancy, and he puts forward three possible explanations:

1. In the Coloured people's cultural background there is less likelihood of the formation of anxiety due to repressed feelings of guilt over sexual and other topics.
2. That people constitutionally predisposed to these illnesses are rarer in the Coloured race;
3. That people suffering from these illnesses remain adjusted outside a mental hospital.

He thinks that the possibilities are in that order of probability. The low incidence of alcoholic psychosis is very interesting in view of the fact that the Cape Coloured people are far more prone to alcoholism than the Europeans. This subject is discussed later on.

**Pregnancy Toxaemia.** There is a strong impression generally held by those who have experience of the Cape Coloured people in obstetric hospitals, that the incidence of pregnancy toxaemia and of eclampsia is very much higher among the Cape Coloured people than among the Europeans. The reliability of this impression is vouched for by Prof. E. C. Crichton (1949), after 25 years of continuous experience. On the other hand, it is not supported by the reports of the Peninsula Maternity Hospital, as shown below:

1946:	11.5% European admissions had toxaemia.
	5% non-European admissions had toxaemia.
1947:	12% European admissions had toxaemia.
	6% non-European admissions had toxaemia.
1948:	12.4% European admissions had toxaemia.
	8.05% non-European admissions had toxaemia.

This failure of the records of the Peninsula Maternity Hospital to confirm a very widely-held impression is probably due to differential ease of admission to the Hospital between the two races.

**General Impressions on Morbidity.** Apart from the figures for morbidity given in the reports of the Medical Officer of Health for Cape Town, and other reports quoted above, it might be legitimate to put certain general impressions on record. The writer takes personal responsibility for these opinions, but they can be regarded in no sense as original. They are the result of 11 years practice as a physician in the Groote Schuur Hospital, and consulting physician in Cape Town. Most of the opinions are the result not only of personal observation, but of frequent contact and consultation with medical colleagues, and particularly staff discussions in the Groote Schuur Hospital.

1. In general, the pattern of disease among the Cape Coloured people is far closer to that of the European than to that of the Bantu. One's approach as a physician to the sick Cape Coloured person is in no way different from one's approach to a European person of comparable social and educational status. On the other hand, one's approach to the Bantu patient, even when he is educated and of good social status, must of necessity be different. The different approach is necessitated, in my opinion, in the first place by the knowledge that the Bantu physical reaction to disease is different from the reaction of the European to similar disease, while at the same time there is a great difference in the background and mental attitude of the Bantu.

2. Alcoholism is rife among the Coloured people. This subject has been fully reported in paragraphs 81-101 of the *Report of the Commission of Inquiry Regarding Cape Coloured Population of the Union (1937)*. One's impression as a physician is that this alcoholism is at one and the same time a result and a cause of the poor socio-economic status of the Cape Coloured people. It obviously acts as a vicious circle. It affects the temperament and attitude of mind of the Cape Coloured people, both in respect of health and disease. How far is there evidence that it affects the morbidity or the mortality rates? Obviously, it affects mortality rates very severely through deaths from syphilis and from exposure and violence. How far it is responsible for the greater morbidity, it is difficult to say with any certainty. Its effects cannot be clearly differentiated from the effects of other unsatisfactory social and economic environmental factors with which it is inextricably associated. That it contributes to a vicious circle there can be no doubt.

Alcoholic polyneuritis is quite common among the Cape Coloured people, but I have no definite evidence that it is more common than among Europeans. My impression is that it is so. Very surprisingly, the reports of the Medical Officer of Health for Cape Town show that deaths from cirrhosis of the liver are commoner among Europeans than among Cape Coloured.

Perhaps it would be better to say 'registered deaths'. This is of great interest in that cirrhosis of the liver, with primary carcinoma of the liver resulting therefrom, is so high in its incidence among the Bantu people. However, all the evidence suggests that Bantu cirrhosis is due to nutritional deficiency and not in any important degree to alcohol. Another surprising fact is the low incidence of alcoholic psychosis (Lamont, 1948) which is discussed elsewhere.

3. In addition to the figures which have been quoted on the morbidity and mortality of the Cape Coloured people from syphilis, certain impressions about the pattern of this infection are worth recording. The most obvious is the high incidence of florid meningo-vascular syphilis, such as is seldom if ever seen among European people to-day. Acute syphilitic meningitis, with epileptiform attacks and with confusion and mania, are very common in the Coloured wards of the Groote Schuur Hospital. Chronic syphilitic basal meningitis producing multiple cranial nerve palsies is also very common. Transverse myelitis and Erb's syphilitic paraplegia are common. When I have visiting physicians from Great Britain and want to show them something of unusual interest, outside their experience, it is my custom to take them to the Coloured wards and show them examples of florid meningo-vascular syphilis. My impression is that this difference in pattern cannot be explained solely on the much greater incidence of syphilis, but I must emphasize that this is only an impression.

4. On the whole, the reaction of the Cape Coloured people to tuberculosis is much nearer to that of the European than to that of the Bantu. Considering their poor economic and nutritional status, they appear to have quite a fair degree of resistance. Dr. J. F. Wicht, who has had great experience in this subject as Superintendent of the City Hospital for Infectious Diseases, reports (1949): 'In my opinion differences between Coloured and European are environmental and not racial. Coloured children admitted to hospital with post-primary complexes often do extremely well, apparently as the result of improved nutrition. Non-Europeans respond well to pneumothorax treatment, but tend (a) to apply for treatment at too advanced a stage, (b) to relapse under home conditions. There is a preponderance of Coloured children with phthisis in comparison with European children.' In my experience, they present in two respects a pattern of tuberculosis different from that ordinarily seen in the European. One is in the picture of generalized tuberculous adenopathy with splenomegaly and often hepatomegaly (Berk, 1943). Of Berk's seven cases seen in the Groote Schuur Hospital, two were in Bantu, five in Cape Coloured people, and none in Europeans. Secondly, it is my impression that tuberculous pericarditis is more common among the Cape Coloured people than among Europeans.

5. Obesity and hypertension is very obvious among middle-aged Cape Coloured females. I have not yet any statistics, but it is my impression that hypertension is much more common among Cape Coloured than among European females in the menopausal age group, and that it is very frequently associated with obesity. It seems not unreasonable to correlate this high inci-

dence of hypertension with two aetiological factors. The first is the high incidence of pregnancy toxæmia already referred to and the second is obesity. The association of hypertension and obesity in all races may be due solely to the fact that both conditions have a genetic background, and that therefore they may have a common genetic background; or the association may be more truly causal. In middle-aged Cape Coloured woman the obesity may be due in part to the steatopygic influence of their Bushmen inheritance, but it is probably far more closely related to their eating habits. Cape Coloured women are very fond of starches such as rice, bread and sugar, and are very fond of fatty stews. They are also very fond of between-meal snacks and seem to have an impression that they will get weak unless they eat a great deal. The result is that they fail to observe the principle of steady dietary restriction after the age of 40 years, which is necessary if menopausal obesity is to be avoided.

6. It is my impression that the rheumatic diseases affect the Cape Coloured people certainly as commonly as and possibly more commonly than they affect the Europeans. Rheumatic heart disease is certainly very prevalent in the Coloured wards of the Groote Schuur Hospital. It does not appear to differ in pattern from this group of diseases as seen in the European. M. Horwitz (1948) comes to this considered conclusion in relation to rheumatoid arthritis. His impression also was that the incidence of rheumatoid arthritis was very similar in the two racial groups.

7. There are many clinical problems of pigmentation in the Cape Coloured people, to which I have at present no answer. A study of pigmentation and depigmentation in the Cape Coloured people would, in my opinion, constitute a most interesting thesis. Pigmentation of the buccal mucosa is so common that in the Cape Coloured people it is of no value in the diagnosis of Addison's disease, and whenever Addison's disease is considered in the differential diagnosis of European cases, the possibility of racial miscegenation has first to be considered. S. Matus (1941) has made a very interesting study of the Mongol spot in the Cape Coloured people. Its incidence in Europeans is only 2 per 1,000 and then only in brunettes. In the Cape Coloured people it is found in 75 out of a 100 at birth, but disappears subsequently, rarely persisting to adult life.

#### 4. PHYSIQUE AND PHYSICAL EFFICIENCY

There is a very general impression that the Cape Coloured people are smaller and lighter in build than the Europeans. Lamont (1948) says: 'Physically, they are smaller, and more delicately built.' The report of the Cape Coloured Commission says 'the Coloureds as a group are not physically as robust as Europeans' and, speaking of children, 'as indicated by the statistics available, the average Coloured child is probably a little lighter at birth than the European child'.

With regard to physical efficiency, the report of the Coloured Commission shows considerable difference of opinion. It is well known that malnourished populations may remain quite efficient at purely physical labour, although this physical efficiency is almost always associated with poor initiative and with



decreased life expectation. This is probably true of unskilled Cape Coloured labour. When it comes to the potentialities of the Cape Coloured people as skilled labourers and artisans, one has only to point to the historic houses of the Cape.

Cluver, de Jongh and Jokl (1942-1943) compared the physical efficiency standards of Bantu, Chinese, Coloured, European and Indian school children. The comparative findings are summarized in charts 1, 2 and 3 of their paper, for respectively 100 yards running race, 600 yards running race, and shot put. According to the authors, the results express respectively skill, endurance and strength. In practically all results the Coloured children fell in a position intermediate between the European and Bantu at the head, and the Indian and Chinese at the bottom. The only exception to this usual finding was that in shot put among boys, for some unexplained reason, Bantu performance fell below the Coloured performance.

##### 5. SOCIO-ECONOMIC POSITION

The Cape Town Social Survey of 1938-1939 established in great detail the socio-economic position of the Cape Coloured people of Cape Town. Although comparable figures for 1948-1949 are not at present available, Batson (1949) is of opinion that there is no reason to believe that the position has altered to any large extent in the last 10 years.

The Poverty Datum Line (P.D.L.) is an estimate of the minimum income upon which a household of any given composition can purchase in the ordinary markets, those supplies of food, clothing, fuel, lighting and cleaning materials that are necessary for health and decency. Of every 10 Cape Town households below the P.D.L. eight were Cape Coloured, one Native, and one European. Of every 10 Coloured households in the Cape Town municipal area, five were found to be below the P.D.L., whereas the figure for European households was less than one of every 10. A tabular summary of the extent of poverty among the two main racial groups is as follows:—

FIG. 16: COMPARATIVE EXTENT OF POVERTY AMONGST THE EUROPEAN AND NON-EUROPEAN POPULATION OF THE CAPE TOWN MUNICIPAL AREA (BATSON, 1938—1939).

	Europeans.	Non-Europeans.
Below P.D.L.	Destitution ..	Less than 2%
	Acute poverty ..	Less than 2%
	Need ..	4%
Not below P.D.L.	95%	47%

The Cape Coloured people have for generations tried to live according to Western customs in respect of housing, clothing, meals, etc. In fact, they have, unlike the Bantu, never known any other customs. Their poverty is conditioned largely by low income. Compared with the European, their occupational status is such that it can roughly be stated that skilled jobs are mainly performed by Europeans and unskilled chiefly by Coloureds. The occupational status of the two races was tabulated by the Cape Town Social Survey as follows:—

FIG. 17: OCCUPATIONAL DISTRIBUTION OF EUROPEAN AND COLOURED MALE ADULTS IN CAPE TOWN, 1938—1939.

General Nature of Occupation.	Male Adults— Percentage Distribution.	
	Europeans.	Coloured.
Professional .. ..	8	0
Business .. ..	20	4
Clerical .. ..	19	1
	47	5
Supervisory manual ..	5	1
Skilled manual .. ..	17	12
	22	13
Semi-skilled manual ..	16	26
Unskilled manual .. ..	5	42
	21	68
Non-earners .. ..	10	8
Unemployed .. ..	1	6

The racial occupational distribution will not of itself account for the very high incidence of poverty among the Coloured. Whereas, e.g. in British social surveys, 12% of the urban households were found to be below the P.D.L. in Cape Town, the figure was 6% for European households and 53% for Cape Coloured. The answer lies in the low wage rates generally applicable to unskilled labour in Cape Town. These low rates are due in part to low efficiency arising from poor health and educational standards, but in part to discriminatory legislation.

Such absolute bars as the 'White Labour Policy' employed by the South African Railways, which operates against all non-Europeans, and the underlying policy in the Apprenticeship Act prevent the Cape Coloured from increasing his ability, becoming a skilled labourer and therefore from raising his available income and eventually from raising his plane of living, however willing and able he might be. Again, the 'Civilized Labour Policy' adopted by the State in 1924 restricts their opportunities. These restrictions were employed to safeguard the European, but as long as there is a shortage of skilled labour this appears unnecessary. Being forced to accept low paid jobs, the Coloured father is restricted in the education of his children, as he cannot afford to have non-earning members of his household. Whereas the minimum standard of education is laid down by the State for European children, there is only compulsory education for the non-European child where schools are available. This leads to over-crowding in the schools and difficulty in obtaining education, and again acts as a further restriction to the opportunities of the Cape Coloured. They are not only in the unfortunate position of being restricted by the European, but also are undercut by Native labour. To-day much of the skilled trade that was done by Coloured people, e.g. tailoring, is gradually being taken over by the factories—often employing Cape Coloured, but not as skilled workmen.

Cape Coloured housing is in a stage of transition in Cape Town. Until the last decade most of the Coloureds lived in the usual type of urban slum. This is increasingly being corrected by energetic subsidized housing policy on the part of the Cape Town Municipality. A district such as Q Town is a credit to Cape Town. Modern housing with proper sanitation is being provided at reasonable rates. Vision and determination will, however, be needed to correct the cost and inconvenience of transport which result from

the greater distance from work. There is still also a great lag between requirement and fulfilment and a considerable proportion of the Coloured people still live in improvised 'pondokkies' which are flooded in winter and at all times a source of filth and its attendant diseases.

The poor socio-economic position of the Cape Coloured people is related by a vicious circle mechanism to their high morbidity rate. Overcrowded and insanitary homes, and defective nutrition are the root causes of the 'social diseases' in every part of the world, and the high morbidity resulting from these diseases further impairs earning capacity. Alcoholism and venereal disease are linked also in many parts of the world as a vicious circle with poverty and ignorance.

In most parts of the world these vicious circles tend to be broken by expanding industrialization; but the natural corrective may be prevented from operating by discriminatory custom such as the caste system of India, or discriminatory legislation of South Africa.

#### DISCUSSION

In the foregoing sections the statistical evidence has been marshalled which shows that the Cape Coloured people have (1) a considerably less life expectation, and (2) a greater and earlier mortality, from a considerable number of diseases, when compared with Europeans living in the Cape Town Municipal area. Further, evidence and impressions are assembled which point to the conclusion that the heavier mortality is matched by a heavier morbidity. It is shown that the reduced life expectation and greater mortality and probably the greater morbidity are due to 'social diseases'. Information about the physique and physical efficiency is fragmentary but suggests that the Cape Coloured people probably do not reach the same standards as the European. Finally, it is shown that the socio-economic status of the Cape Coloured people as expressed by their position in relation to a poverty datum line, is very much inferior to that of the European.

The question at once arises whether this inferior socio-economic position is the whole or major cause of the inferior life expectation, mortality, morbidity and physique. Probably no one would quibble with the view that it is an important cause, but the view might quite legitimately be held that there was something inferior in the genetic make-up of the Cape Coloured people, which made an important contribution to their less satisfactory health experience. At present there is no scientific evidence of such a genetic inferiority. The answer to this question is important because if the inferior socio-economic position of the Cape Coloured people is the sole or major cause of their poorer life experience, then other possibilities in respect of health can be relatively easily corrected.

The relation between genetic inheritance and favourable and unfavourable environmental factors has been fully discussed (Brock, 1948) in relation to the aetiology of disease. In this discussion the stress laid by Ryle (1942) on multiple aetiology in the common diseases is elaborated. It is stressed that from the point of view

of aetiology, there are usually three groups of contributory factors:

1. Constitutional trends established at the moment of conception in the genotype;
2. Negative environmental factors, i.e. deficiency of health promotive factors;
3. Positive environmental factors, i.e. the agents of disease.

Disease may occasionally be due to only one of these three contributory factors. For example, hereditary telangiectasis and some other diseases appear to be determined solely by the genotype; scurvy and some other nutritional deficiency diseases may occasionally be due solely to deficient dietary intake, although commonly there are many other contributory factors; some of the external agents of disease are so virulent, e.g. *Bacillus pestis*, that they may invade and kill the most robust constitution. These examples of disease of single aetiology constitute, however, only the minority of disease. In the great majority there is a complex inter-relationship between the three groups of contributory factors. In tuberculosis, e.g. although the tubercle bacillus is the ultimate aetiological factor, we know that vast numbers of people harbour the tubercle bacillus without having tuberculosis, and that the difference between harbouring the tubercle bacillus and having tuberculosis is usually determined by lack of favourable health promotive factors such as food, housing, sleep, etc. In benign hypertension the genotype appears to be very important indeed (Platt, 1948), but it is clear that many environmental factors must enter into determining whether the individual who has a familial disposition to the disease does or does not in the end suffer from it.

The 'social diseases' have been defined in this paper as those in which the most important aetiological factors are deficiency of certain health promotive factors, particularly food, sleep, warmth, air and exercise. If this view is correct, then mortality and morbidity from the social diseases will be closely correlated with socio-economic status in the community. It is suggested that the four disease groups which kill the non-European, mostly at an early age, and from which the European is relatively immune, are in this sense social diseases, viz. tuberculosis, bronchitis and pneumonia, diarrhoea and enteritis, and syphilis.

There are many gaps in the chain of evidence required to substantiate the view put forward. The present paper summarizes merely those links in the chain which are already recognizable. It is hoped that the programme of research envisaged may contribute some further links to complete the chain of evidence. In the meantime, it seems reasonable to accept the view put forward, because it forms the basis for a remedial programme. It cannot be denied that there may be an important contribution in an inferior genotype. One can only record at this stage that no convincing evidence can at present be found to support this theory.

The basis for a programme of remedial action must be the improvement of the socio-economic status of the Cape Coloured people. To some extent this programme lies in the hands of the European. To a further extent, it must lie in the hands of the Cape

Coloured people themselves. I have not attempted to express any opinion on the character and personality traits which distinguish the Cape Coloured people, but it seems legitimate to quote from the report of the Cape Coloured Commission on this subject. On the one hand the potentialities of the Cape Coloured people can be quoted in the following terms: 'The better class of Cape Coloured parents show an estimable sense of their parental duty towards their offspring, take a pride in their physical and moral well-being and strive often, at great sacrifice, to obtain the best education available for their children. The children are disciplined, show respect and obedience to their parents, and in other ways reveal the effects of a favourable home life and training.' On the other hand, some of the weaknesses can be quoted which undoubtedly contribute to the inferior socio-economic status: 'One of the factors militating against the uplift of the lower sections of the Cape Coloured is the comparative dearth of common effort and organization among them. Taking the size of the Cape Coloured population into account, one is struck by the relative paucity and limited size of organized effort among them, and Cape Coloured themselves complain of the difficulty of getting their people to co-operate with one another, especially in larger organizations.' These unfavourable aspects may be inherent in the Cape Coloured people from their genotype but nobody has produced any evidence that this is so, and of what European race could the same not have been said at an earlier stage of their development?

#### SUMMARY

The pattern of health and disease in the Cape Coloured people of the Cape Town Municipal area has been discussed under five headings:

1. Life expectation, as revealed by the tables of the principal life insurance companies.
2. Mortality and population changes, as revealed by the Reports of the Medical Officer of Health for Cape Town.
3. Morbidity.
4. Physique and physical efficiency.
5. Socio-economic position, as revealed by the reports of the Cape Town Social Survey.

From the figures presented, the conclusions are drawn:

1. That the overall morbidity and mortality of the

Cape Coloured people is considerably greater than that of European residents in the Cape Peninsula.

2. That life expectation is considerably less at all ages, with the greatest discrepancy in infancy.

3. That the high morbidity and mortality are due particularly to the 'social diseases'.

4. There is no evidence that differences in the genotype play any important part in determining the observed differences in morbidity and mortality.

5. It follows that the differences could probably be abolished or greatly reduced by improving the social, economic and educational status of the Cape Coloured people.

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## MALIGNANCY IN THE AFRICAN

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A fair amount has been written on this subject from the Union and East and West Africa. This paper analyses experience of this disease both at autopsy and in the histological laboratory.

Recently there has been a change in opinion about the incidence of malignant disease in Africans. About

25 years ago many believed that, on the whole, it was uncommon and that the African rarely died from it. For example, Watkins-Pitchford (1925) found malignant disease infrequent in the Zulu, but encountered sarcoma almost as often as carcinoma. To-day there is a swing to the opposite view that malignant