

adolescence would eventually disappear, whilst an increased resistance to tuberculosis, which exerts its heaviest toll between the ages of 17 - 25, would result.

Infant mortality remains amazingly high. One puts it at 40 per cent. for the first six months of life. It is aggravated by a growing tendency to artificial feeding and assigning children to the tender mercies of their grandparents whilst the mothers seek work. Enteritis is the main cause of death."

Idutywa (1937) Comparatively progressive area. Good sheep rearing to detriment of cattle ranching and hence a shortage of milk for infant feeding. Natives have suffered a great deal in recent years as a result of locusts and drought; they are now realizing 5/- to 6/- per bag for mealies and will have to buy back at at least double.

Tuberculosis has been on the increase, due no doubt to the Natives having been semi-starved.

Herschel (1937) General health better than usual undoubtedly due to seasonal rains, good crops and the improved economic conditions.

Tuberculosis is not common and is not apparently increasing. Deficiency diseases are conspicuous by their rarity.

#### PERSONAL IMPRESSIONS.

(4) It is difficult briefly to convey our impressions regarding the present state of Native health and nutrition in the Territories. On the one hand there is ample evidence of the existence on a fairly large scale of malnutrition and the diseases associated with inadequate or defective diets, whilst there are also many indications of vitality and a fair measure of good health. The best explanation of this state of affairs lies in the narrow margin of safety that separates the very simple though inadequate diet, which is in normal use, from one which is bound to lead to ill health, if long continued.

However, when all allowances have been made that we can think of it does not seem possible wholly to reconcile the measure of health usually attained by the Native people with the current conceptions of orthodox dietetics, and, as previously mentioned, it seems well to bear in mind that we still do not know sufficient about the

.../ physiology



physiology of the African to be too dogmatic about his minimum requirements.

Neither of us had ever been to the Transkei before; we came away with the impression that the people were a somewhat small but generally well developed race of good, even of sleek, appearance and often showing a noticeable degree of high spirits and good humour. Though naturally on the look out for such evidence it was only occasionally amongst the groups of children that we met or questioned that we came across the pinched and apathetic appearance so frequently seen amongst the European poor in this country.

It is necessary to remember, however, that our visit was towards the close of an exceptionally favourable year and we were of course told of the terrible conditions that occurred during the previous drought.

#### Physique.

It may be helpful first to attempt to compare the present with the past. Naturally there are only the barest records available as to the physique of the inhabitants in bygone years, but we repeatedly asked both Europeans and Natives what their personal opinion was as to any change that had taken place.

After putting these questions to a wide variety of individuals some of whom we feel should be in a position to speak with authority, we have no hesitation in saying that the consensus of opinion all over the Territories is that the standard of Native physique has deteriorated even within living memory, and that this process is continuing. Some said that they felt unable to express an opinion, but there were very few who were prepared to say that past physique was being maintained.

There are many possible explanations for this deterioration including the discontinuance of hunting and fighting, overcrowding, the effect of clothes, changes in food, more especially the decrease in the amount of milk, and the increase in such diseases as tuberculosis and syphilis. One recruiter was most emphatic as to the effect upon the children of spending so much of their time indoors



creeping over desks instead of being out in the open all day herding the cattle and defying the weather. He went so far as to say that he was able easily to pick out the school from the non-school recruits at the medical examination.

Those taking the opposite view would probably argue that such changes only seriously affect the more civilized minority, whilst any lack of physique due to insufficient exercise is soon made good in an otherwise healthy lad by a spell at the mines; moreover the money earned there actually tends to reduce the evil effects of the shortage of food during times of drought, which have, after all been occurring for many generations.

Whether such changes are real, or are based on a somewhat idealized picture of the past, we must say that what impresses us is the relatively high percentage of the male population who are sufficiently fit to be accepted for underground service on the mines.

This aspect is considered in detail elsewhere in our report (see Table 24 p.228) but it may be of interest here to include data which are of some comparative value for Europeans.

In the following table we have given the rejection rates for young European males for service in the Active Citizen Force, kindly supplied to us by Col. E. Cluver. Taking the year 1937-8 as being typical for the last few returns we have the following figures:-

Table 3.

**Medical Examination for Service in the Active Citizen Force (South African), 1937-8.**

MILITARY COMMANDS	Number of Recruits Examined			Percentage Found			
	Fit	Perm. Unfit	Temp. Unfit	Total	Fit	Perm. Unfit	Temp. Unfit
Cape Town	1520	405	146	2071	73.30	19.56	7.05
East London	1175	195	111	1471	79.88	12.58	7.54
Natal	939	140	54	1133	82.87	12.36	4.71
Johannesburg	1413	207	101	1721	82.10	12.03	5.87
Pretoria	274	130	66	1170	83.24	11.12	5.64
D. F. State	772	45	42	857	90.03	5.02	4.90
<b>TOTALS</b>	<b>6793</b>	<b>1110</b>	<b>520</b>	<b>8423</b>	<b>81.93</b>	<b>12.11</b>	<b>6.96</b>

.../ The



The ratio per thousand of those examined for the most frequent causes of rejection as permanently unfit on medical grounds were:-

Diseases of the Generative System	4.3
Organs of Locomotion	22.7
Defective Eyesight	35.14
Cardiac Abnormalities	19.92
Poor Development	9.14
Dentally Defective	4.51

The rejections were mainly for minor ailments

Another group of figures covering a wider range of ages are those for English Recruits during the Great War.

Table 10.

GRADING OF RECRUITS IN ENGLAND IN GREAT WAR.

		<u>Percentage</u>
Grade 1	Normal in health and strength	36
Grade 2	Some partial disability	22 - 23
Grade 3	Unable to undergo full physical Exertion	31 - 32
Grade 4	Entirely unfit for military service	10
	Number of men of military age examined	2,500,000

Whilst comparisons of this sort are very approximate and perhaps not very fair it does seem to us that the level of health in Native males of recruitable age must be regarded as fairly good. Comparison of the physique of different tribes.

It is disappointing to have to report that we failed to gather any precise information on this interesting subject. Except the merest generalizations, such as that the Zulus are better than the Xosas, or the Fondeos than the Bouvanas, no one seemed to have made any study of the material passing through their hands; this seems to us to be a mistake as well as a pity, for no doubt tribal customs must play some part in the differences that undoubtedly exist.

.../ Dr. W. Wood



Dr. W. Wood has, however, forwarded us the following note regarding the tribes in his, the Bizana, district.

There are four tribes that number their followers in thousands, these are:-

- (1) Amangutyana, commonly called Langasiko.  
These are a big muscular people.
- (2) Amapondo.  
These are thin and wiry.
- (3) Imisizi.  
These are of poor physique.
- (4) Amadiba.  
These are of very poor physique.

In addition there are six other tribes represented here, who number their followers by a few hundreds only. These are our most backward, "Red", uneducated Natives. They are of poor physique, ochre and wear the pure animal. Their names are:- Izilango, Amajali, Amantshangase, Amanikwe, Amanpose and Amankhanyayo.

#### Health of Males and Females.

Another question we invariably asked was whether doctors were of the opinion that boys or girls, men or women were the healthier. We particularly wanted to gain some information on this matter since so many of the adult males are medically examined owing to the organization of the Native Recruiting Corporation, but the health of the women is an unknown quantity.

Many of those questioned were not prepared to draw any distinction between the health of the two sexes, but those who did were unanimous that the health of the 'Red' women and girls was superior to that of the men. Amongst the Tembu this is apparently recognized by the Natives themselves, who tease their women folk, accusing them of having secret medicines which protect them from sickness. We cannot help wondering whether the Tembu men may not be right in this and that the 'protective' medicines are the mfino, which the man so despises.

Whilst some doctors stated that they saw more girls than boys as patients this may be due to the fact that the former are more under their mothers eyes than the boys, who spend so much of their time



away herding; moreover, it was suggested that the boys must be very poorly before anyone will bother to take them to see a doctor. There seemed to be a fairly general opinion that it is the younger children and the adults who are most seen in medical practice and that apart from minor ailments the older girls particularly are on the whole remarkably healthy. The wife of a trader in Pondoland went so far as to say that 'she never remembered seeing a really delicate adolescent girl'. Other observers did not, however, recognize any such distinctions and stated that their patients were of all ages and both sexes.

For the years just preceding marriage a Native girl tends to lead a somewhat easy life and is not expected to take her home duties very seriously. After marriage the very opposite is the case and it was suggested from more than one source that the comparatively rapid falling off in the health of the older women was partly to be accounted for by the excessive labours that are often expected of them.

#### Health in later life.

Like infant mortality so health in later life may be regarded as a valuable criterion of the condition of a people.

More than one witness at the Native Economic Commission remarked that Natives age more quickly than Europeans, that they 'wear out' sooner, and that on the whole they do not live so long. Chief Foto, of Eastern Pondoland, expressed the same opinion quite recently when speaking at the Native Representative Council, regarding the health of his own people.

The striking increase in the expectation of life that has been noticed amongst Europeans during the last half century is generally admitted to be partially due to better nutrition, whilst experiments with animals as well as observations amongst other peoples indicate that the effect of an inadequate or unsuitable diet continued over a long period leads to a reduction in the life span.

On the other hand it would be possible to argue that the uneventful, almost vegetable nature of the life of a typical kraal

.../ Native



Native might be conducive to prolonged old age. We sought for evidence on this very difficult point, but few medical men were prepared to express any very definite opinion and further information would be required before any conclusion could be arrived at. The wife of a trader living in Pondoland is convinced that Native women age very quickly, but on the other hand two particularly experienced medical men, one of whom happens also to live in Pondoland, were emphatic that Natives do not, on the whole, age or 'wear out' more rapidly than Europeans. No doubt some evidence on this matter could be obtained from a study of tax exemption records.

#### Vitality.

One of the first things to be noticed about an underfed person is a decrease in 'vitality'. Output of energy is automatically and quite unconsciously reduced in an endeavour to balance expenditure with income. Animals vary greatly in their power to adjust in this way; the extreme case is seen in the hibernating animal, who can starve for long periods by reducing his output to a very low level. Some adjustment of this kind always takes place provided the individual is healthy. However, should he be suffering from an overactive thyroid gland for example, he may be unable to control his output of energy, and so becomes thin and emaciated even on the best diet.

As already mentioned, the Native people in the Territories, did not on the whole give us the impression of being lacking in vitality; indeed the reverse was often the case with the younger people, including many of the children. This is, in our opinion, fairly good evidence that extensive malnourishment was not very common at the time of our visit. However, we did see exceptions to this generalization and during the droughts such conditions must be very much in evidence.

Moreover, we believe that a good deal of the spathy and laziness which is met with amongst Native labourers (and which is so very common amongst the Poor Whites) must be partly nutritional in origin, though of course such malnutrition may often be indirect, as for

.../ example



example when due to the 'sharing' of food with tape-worms, amoebae, malarial, bilharzial and other parasites. Adverse nutritional circumstances in childhood also tend to establish a lazy element in the character which may remain, even when the original cause has been remedied.

Another indication of the fundamental and indeed startling vitality of these people is the high degree of resistance they show to many ordinary infections and to this may be added their rapid convalescence from illness. There was scarcely a doctor who did not volunteer stories of the way in which wounds, often of a serious character and grossly contaminated with dirt will heal up in a truly remarkable manner, whilst resistance to cold and damp, combined with fatigue are also of a high order. Such observations are of scientific interest in view of the low intake of vitamin A in the usual diet.

Observation and inquiry at the various schools and training colleges we visited, led us to conclude that the pupils were on the whole a very healthy lot, seldom suffering from anything more serious than the usual minor ailments; almost undoubtedly they are healthier than a corresponding school population of European school children. Whilst it is true that the type of child that attends such institutions may be expected to come from the better class Native homes, it is also true that such homes are just those who may be economizing in other directions, including the provision of good food.

We made a point of inquiring whether much change was noticed in the general condition of the pupils at the beginning and at the end of term i.e. when living on the home and the school diets. Perhaps it was natural to hear that they generally improved on the school regime, though at any rate in one case we were able to check this by inspecting the well kept weight records; however, even those who emphasized the improvement that occurred themselves suggested that it might partly be due to the much harder physical work that is done during the holidays, e.g. ploughing, etc.

So little is known about the normal heights and weights of the Native races that live in these areas that it is impossible to



apply any standards to individual groups. In Appendix 4, Table A, we have reproduced the only available data that we are aware of regarding Native adults males, collected many years ago by Dr. Turner. It is a great pity that the exceptional opportunities for the study of the physique of the mine recruits, afforded by the N. R. C., is not utilized.

The position with regard to Native children is even less well ascertained, since, as far as we are aware, no data at all are available. Doubtless the forthcoming sample survey that are to be carried out by the Department of Public Health in several districts in the Transvaal will to some extent remedy this defect.

In the meantime we were fortunate in securing a few useful figures from Mr. Kahane, the Principal of Lovedale Practising School, regarding the average weights and heights of his pupils. Some similar data were also collected at our suggestion by Rev. D. Sample from scholars near Butterworth; these were classified into children coming from homes where milk was probably abundant, available and non-available. (See Appendix 4)

We feel that this subject would most certainly repay further study, more especially because of the low normal weights for adult Native males. It is possible that the remarkable disclosures made by McCay in 1912, and more recently by McCarrison (1932) for Indian races, might be found to have some counterpart in South Africa.

#### Infantile Mortality.

The infantile mortality rate of a community is always a valuable index of its standards as regards health, but unfortunately the more backward the people the less reliable such information becomes. We were specially asked to report on this matter, but soon found that there was nothing to go upon save the vague estimates of individual doctors. One doctor said that there was hardly any loss of life before the beginning of the second year, whilst another put the Infantile Mortality Rate at 60 to 75 per cent. We therefore decided to collect such data as we could by direct questioning and, after one or two experiments, adopted the form to be found in Appendix 5,



Annexure 1. We found a number of doctors and others willing to co-operate and in this way obtained the information summarized below and given in fuller detail in Appendix 5, Table A.

Table 11.

Infant and Child Mortality in the Ciskei and Transkei, 1957.

<u>Number of mothers questioned.</u>					
Ciskei	295	Under "45" years	1,533	'Red' Natives	552
Transkei	1,432	Over "45" years	284	'Dressed' Natives	707
Basutoland	153	Age unspecified	63	Unspecified	621
	<u>1,880</u>		<u>1,880</u>		<u>1,880</u>

<u>Live births per mother.</u>			
Age when questioned	Under "45" Years.	Over "45" Years.	Mean for all Questioned.
Ciskei	4.22	7.78	5.25
Transkei	4.29	7.74	4.84
Basutoland	2.52	6.30	3.22
Mean..	<u>4.15</u>	<u>7.67</u>	<u>4.55</u>

Miscarriages, including still-births, per 100 live births.

	Under "45" Years.	Over "45" Years.	Mean for all Questioned
Ciskei	9.26	4.09	7.06
Transkei	8.10	8.01	8.03
Basutoland	16.06	9.80	14.62
Mean..	<u>8.74</u>	<u>6.90</u>	<u>8.27</u>

Survivors as percentage of children born.

	Under "45" Years.	Over "45" Years.	Mean for all Questioned
Ciskei	62.8	52.3	58.5
Transkei	50.3	49.9	51.7
Basutoland	71.5	68.8	70.6
Mean..	<u>65.0</u>	<u>51.8</u>	<u>64.0</u>

Child mortality per 1000 live births.

	1 year or under.	2 years or under.	18 years or under
Ciskei	164	244	374
Transkei	284	379	557
Basutoland	140	189	290
Mean..	<u>242</u>	<u>327</u>	<u>508</u>

.../ Surviving



Surviving children per mother.

Clakol	3.84	4.07	3.00
Trankol	2.24	3.86	2.32
Dautoland	0.00	4.30	0.28
Mean.	<u>2.03</u>	<u>3.75</u>	<u>2.45</u>

Notes on the Table.

(1) Accuracy of the method. The conclusion we came to was that if reasonably accurate results were to be obtained the most essential condition was that the natural suspicion aroused as to the object of the questions should be allayed by confidence in the inquirer; this was best obtained when he was already known to the mother. Hence we deliberately aimed at obtaining records from several types of observer and actually succeeded in securing them from doctors at mission and other hospitals, district surgeons, private practitioners, the wives of one or two traders, the wife of the principal of a training college and several Native teachers working under European supervision. It will be seen that there is a reasonable amount of agreement between the individual records.

(2) Particularly with 'Red' women it was impossible to do more than estimate the ages of the mothers. It was thought desirable to classify them into those below and above the child-bearing age. In actual practice we found that the added value of obtaining records from women over 45 was partially counteracted by the fact that they were apt to be somewhat vague as to events which happened many years ago, and which in any case they preferred to forget.

(3) It was found difficult to decide whether a child was under or over one year when it died, but far less frequently was there any doubt as to the second year and hence we have recorded data for both categories.

(4) Obviously the statement regarding the cause of death was extremely approximate and we have made no attempt to analyze the answers given.

(5) The number of miscarriages, which also includes stillbirths, is also probably inaccurate. Some observers were even suspected of

.../ collecting



collecting the information with a view to punishing those whose children had died.

(6) The classification into 'Beds' and 'Dressed' must also be regarded as merely approximate, since some 'Dressed' women were to all intents and purposes 'Beds', whilst others were of course quite Europeanized.

(7) Our 'infantile mortality rate' is per 1,000 live births in the families questioned and hence cannot be strictly compared with the standard rate calculated per 1,000 live births occurring in the community at the time the record is being taken.

(8) We have received several offers of further assistance from those who helped collect this information, and if it was thought desirable to pursue the inquiry further it should be possible with the experience gained, to improve on the methods adopted.

Comments.

(9) Taking the results as a whole it will be seen that the mortality during the first year is approximately 25 per cent; this rises to about 33 per cent. by the end of the second year and reaches 50 per cent. by the time the child has attained adult life.

(10) Judged by modern standards for Europeans in South Africa, these figures are appallingly high. The average annual infantile mortality rate for Europeans in South Africa for the years 1933-5 was 52 per thousand or approximately one quarter of that indicated for the Native infants in the Territories. The Native Rate is, however, considerably lower than the estimates given us by several of the doctors with whom we discussed the position and is of course very much lower than that which is commonly said to occur in urban locations where rates of 60 or even 70 per cent. are quoted.

It is well to try and get the position into proper perspective and to remember that the low rates now obtaining amongst Europeans are the result of the very great deal of attention which has been paid to the matter in recent years. Writing in the 17th Century Graunt (1620-1674), who was the first to devise a 'life' table, estimated that of one hundred conceived there remained alive:-

.../ at the



at the end of 6 years 64  
at the end of 16 years 40.

Similarly Farr (1906) quoting from the 'London Bills of Mortality' gives the following startling figures for conditions in England only 100 years ago.

Deaths PER CENT under 6 years	<u>Child Mortality.</u>				
	1730-49	1750-69	1770-89	1790-1809	1810-29
	74.5	63.0	51.5	41.3	31.8

Infantile Mortality was also as high as 153 per 1,000 for the whole of England in 1873-5.

Coming down to recent years it appears from a memorandum on the subject submitted to the League of Nations (1930), that there are still rural districts in Europe where the infantile mortality rates remain at a very high level, as will be seen below:-

Infant Mortality in certain rural districts.

			Death rate per 1,000 live births.
<u>France</u>	Pays de Bray, in Normandy.	A dairying district	106
<u>Germany</u>	Mecklenburg-Strelitz.	Agricultural district	117
<u>Austria</u>	Gmundan	Mainly agricultural	122
	Scharding	Mainly agricultural	123

Hence, when allowance is made for the extremely unfavourable conditions with which many of these Native infants have to contend, it will be agreed that the high mortality is only what might be expected and indeed one is almost surprised that it is not higher still. We could not help being impressed with the instances where a mother had successfully reared a family of 6 or even 8 children without a single death. However, the fact remains that the rate is an exceedingly high one and the enormous wastage of life that occurs needs no emphasis.

It will be noticed that the average number of live births for women over the child-bearing age was just under 3. We only came

.../ across



across a few instances of exceptionally large families, though we heard of one case where a woman had 21 children and 16 had died!

(11) Doctors were unanimous as to the causes of the deaths, namely ignorance leading to unsuitable feeding, overfeeding and forcible feeding; gastric and intestinal disturbances resulting from the above and from the use of unboiled water; and respiratory diseases, particularly bronchitis and pneumonia. Whooping cough also caused many deaths.

(12) The shortage of cow's milk was repeatedly commented on when we were discussing the problems of infant nutrition. Doctors are commonly faced with the problem of what to say to a mother who through ill nourishment or other causes is no longer able to feed her child. As already mentioned, there are areas where milk is almost unobtainable for long periods, whilst in times of drought the position becomes desperate. The usual Native substitute is 'inembe' a thin porridge made from mealie meal, thoroughly cooked and strained. Undoubtedly this resembles milk in appearance, but of course has little of its nutritional value and would be regarded as most unsuitable by the orthodox paediatrician. It is a tribute to the Native baby that he so often survives on such fare.

At the hospitals some use is made of dried and condensed milk preparations and of various infant foods, but expense is the obstacle and in our opinion there is an urgent need for the invention and popularisation of a suitable infant food that would be within the purchasing power of the average rural Native family.

(13) In Appendix 5, Annexure 2, we have reproduced some data kindly sent to us by Dr. G.W. Gale concerning the records he obtained from 500 Zulu women past the child-bearing age. It will be seen that the average number of children per mother was 5.07, whilst the infant mortality rate was 311 per thousand. Only three women had given birth to more than 10 children.

Some data from other sources is given in the same Appendix.

#### Malnutrition.

With the very simple diet commonly used by the bulk of the

.../ Native



Native people it might at first sight be almost assumed that malnutrition and the appearance of deficiency diseases would be exceedingly common.

As already mentioned, however, the traditional diet of manias, milk, meat and maize is in actual fact quite capable of supporting a healthy population always provided adequate supplies of each are continuously available. Moreover, the more thrifty 'Red' Natives supplement the above main articles with beans, pumpkins and other foods as indicated elsewhere in this report. The better type of 'Dressed' Native appreciates the value of a mixed diet, and is also less dependant upon chance for his supplies. Moreover, the race seems to possess a remarkable power of adjusting to temporary shortage and making speedy recovery when better times arrive.

What impressed us was the narrow margin that exists between good nutrition, as judged by such standards as those already mentioned and a state of serious malnutrition due to the inability to maintain the basic diet.

Hence alongside the excellent health enjoyed by those who can keep on the right side of this margin there exists a very considerable number of men, women and children who are on or below the borderline. This is clear from the evidence of the District Surgeon already quoted, and from what we learnt and saw during our visit.

Doctors were emphatic as to the remarkable improvement that occurs to many of their patients merely through the more adequate diet they receive whilst in hospital, while it was obvious to us, even towards the end of a good season such as 1937, that some of the people we met, particularly the children, were definitely under-nourished.

Naturally the position varies greatly in different districts. Thus in the Middledrift area matters appeared to be at their worst and a large proportion of the population are literally saved from starvation owing to the Government scheme for the eradication of jointed cactus. Parts of Eastern Pondoland and some of the more fertile coastal areas were immeasurably better off as far as

.../ supplies



supplies of food were concerned, though of course other factors inimical to good health were sometimes in evidence. It was also noticeable that even in the same district a less fortunate area might be surrounded by others which, owing to better rainfall or more fertile soil, were more prosperous.

In some districts the supplies of food must have often become deplorably low. Although we are aware that to many Natives an adequate diet means being 'full to capacity' and that they use the word 'starvation' rather loosely, often when we should talk of shortage, there can be no doubt at all that in recent droughts the privations undergone must have been extreme and fully justify the use of the word starvation in the ordinary sense. Doubtless such times of famine have been periodically experienced for generations, but that does not alter the seriousness of the effect that such privations must have upon their nutritional life; the effects upon the children and adolescents must be particularly severe. However, we know of no means of ascertaining the extent or severity of such distress.

Malnutrition amongst school children.

It might be expected that Native school teachers would be a valuable source of information regarding the nutritional problems of their pupils. After questioning a number of them and meeting them in conference at Engoobo, we definitely came to the conclusion that, as with so many European teachers, the importance of this aspect of their work, and the opportunities which it offers, has not yet dawned upon them.

Nevertheless, during the severe drought of 1935-6, conditions were so bad amongst some of the Ciskei schools that the Native teachers decided to take action and towards the end of 1935 a petition signed by no less than 10 school principals was sent to the Native Commissioner at Keiskama Hoek, appealing for rations 'as there is universal distress amongst our school children, owing to the prevailing starvation'.

The report was supported by the Inspector of Schools. Nothing was done, but in the following June the position was still so bad  
.../ that



that a further appeal over a wider area, supported this time by several school teachers was made, again, without result.

Dealing with the subject of the nutrition of Native school children, Dr. Macvicar, in a personal letter wrote to us as follows:-

"The truth seems to be that the elementary school child is at a period of his life when he possesses exceptional toughness. He survives the acute infections, such as measles and whooping cough, that carry off the sub-school child. He resists tuberculosis better in these years than at any other period of his life.

So it seems that though he has the same food as the other members of the family he does not show the gross signs of deficiency diseases that they not infrequently show. But school children do show signs of malnutrition especially in times of drought. These are:-

- (a) They become thin. Their legs are spindly and there is very little superficial fat about them.
- (b) Their eyes show xerosis conjunctivae, due to deficiency of vitamin A.
- (c) Their gums are sometimes spongy, and even if they are not actually spongy, they are swollen so as to encroach upon the teeth. The teeth look short. Vitamin C deficiency.
- (d) I think I am right in adding that they lose their nerve. As a rule a Native boy of 8 or 10 will be ashamed to cry when getting a wound stitched or the like. But in the last great drought I noticed that boys of that age were unable to maintain their stoicism. They tried but broke down.

I imagine that dullness in school should be added to this list. At any rate both Lovedale and our neighbour Institution of Healdtown have found it necessary to feed a certain proportion of the village scholars who were found to be coming to school without having had food. The number varies with the season.

One thing is certain. There are many country Native school children who get little or no milk or fruit and who get vegetables only in the form of pumpkin and green molasses in their season. They may share with the women the wild green shoots when these are obtainable, but in a bad drought these wild green things are not to be got.

Quite apart from such droughts, which may be taken as normal occurrences in these parts, there is the seasonal shortage towards the end of the Calendar year, which also must commonly lead to a period of semi-starvation as far as the children are concerned."

It is of course true that children show an amazing power of recovery from adverse circumstances once they are over, but at the same time many fall by the way, and this constant succession of periods of inadequate feeding must share some of the responsibility for the heavy toll of life which continues even after the more dangerous early years have been safely negotiated.

.../ We made



We made two attempts to collect some information regarding the actual effect of diet upon the physical condition of native school children.

(a) With the help of Mr. Hobart Houghton, Inspector of Schools under the Cape Education Department, we weighed and measured two small groups of children, one of which lived in an area where milk was plentiful, whilst in the other it was very much less easily obtainable. The data obtained are summarized in Appendix 4, Table B.

On examination of our results it was disappointing to find that the number of children of equal ages was insufficient to make any satisfactory comparison possible; moreover, as usual with Native children, the actual age is a most uncertain quantity. We can only state that the impression we gained of the groups was definitely in favour of those receiving the better diet.

(b) A somewhat more satisfactory series of records have been obtained from children attending school near Butterworth through the kindness of the Rev. D.W. Sample, of Cunningham, in that district. In this case all the children came from the same area, but estimates were made by the teacher, who knew the home conditions fairly well, as to whether the child had access to a poor, fair or good supply of milk. Heights and weights for boys and girls have been classified according to the above information in Appendix 4, Table B. Here again the numbers in each group are very small; they seem to indicate that whilst the boys are not much affected the girls are somewhat taller and heavier when more milk is available.

We are indebted to the same source for the data obtained in Appendix 4, Table C.

It is tempting to draw inferences from these two small experiments (for instance it is easy to suppose that the boys in experiment (b) might be obtaining milk when out herding), but this would be most unwise in view of the well known individual variations that are known to occur amongst small samples of children. If similar studies on larger groups of children could be repeated elsewhere, but with a careful check on the dietary side, some interesting and perhaps

.../ unexpected



unexpected conclusions might be reached.

Deficiency Diseases i.e. those directly attributable to a lack of some particular constituent of the diet.

Calories.

There is less likelihood of a shortage of calories than of any other requirement, owing to the very high proportion of cereals in the diet, yet such a shortage undoubtedly occurs in many homes, particularly towards the turn of the year, when the old supplies are almost finished and the new supplies are not ready. On the other hand at this period of the year there may be a good supply of vitamins and mineral salts.

Protein.

Nutritional oedema, is usually considered to be due to an inadequate supply of suitable protein. It is commonly met with amongst Native babies and smaller children, especially those who have been unable to obtain any milk. It rapidly clears up on a diet suitable for the age of the child and reappears as easily if the former partial starvation is resumed. In this way many lives are saved in the wards of Transkeian hospitals only to be lost when the children return to their homes.

Fat.

Fat is apt to be deficient in the typical diet now that milk has become so much scarcer. However, those who have access to meat are probably not so seriously deprived of this constituent, whilst others can make good the Vitamin A provided from such a source by eating kaffir. We were unable to discover any very marked craving for fat amongst Native people and indeed when available it is as often as not set aside for making soap or for anointing the body. There is, however, a strong craving for sugar, presumably on the grounds of taste, since carbohydrate requirements are fully met by the starch consumed. If, as is sometimes claimed, a lack of fat, especially of animal fat, is associated with the development of tuberculosis the Natives are indeed badly off. No doubt, however, whether this association is really due so much to the absence of true fat, as with the fat-soluble vitamins, which are usually found in animal fat.

.../ Calcium



### Calcium.

Except for those who consume mfino the Native diet is singularly low in this element and hence the importance of the milk supply for growing boys and young men who do not eat these green leaves. The supplies of calcium available in the drinking water needs to be taken into account in this connection, whilst some types of millet, notably 'finger millet', are said to be rich in this element; however, we are not certain that this particular variety is grown in the Transkei. We were unable to trace any evidence of disease such as osteoporosis and osteomalacia, which might be accounted for by such a shortage, and one can only make the usual unsatisfactory comment that the sunshine provides optimal amounts of Vitamin D, and so leads to the greatest economy in calcium metabolism. One doctor was definite that a common urticarial condition improves quickly when the patient is treated with calcium.

### Iron.

Only two doctors reported finding very low haemoglobin values in children they had examined, and which responded to the giving of iron, but such simple observations do not appear to have been made elsewhere as far as we are aware.

Low values have been commonly reported in other parts of Africa for Native children and one common cause is the inadequate supply of iron available in the diet. Here again mfino is a very rich and inexpensive source, if available, and if the individual can be persuaded to eat it regularly. Needless to say the older patient will generally refuse to listen to such simple advice, but prefers a medicine containing the iron instead.

### Vitamin Deficiencies.

Although the diet is so restricted and so liable to fall below what may be termed the safety margin it is evidently more satisfactory than that used in parts of India. Presumably one reason for this is the superiority of the staple cereal maize, over the staple Indian cereal rice, and polished rice at that.

More than one doctor went so far as to comment on the comparative absence of disease attributable to gross vitamin deficiencies, which



form such a distressing feature of the health of some races; even scurvy, which is usually the most widespread and commonest deficiency disease in the Territories is hardly as common as might be expected under the circumstances; however, such statements have to be at once qualified by the fact that the doctors see such a small fraction of the populace apart from labour recruits. The amount of ill-health due to partial or temporary shortage of adequate supplies of the vitamins, more particularly A and C, must, however, be very considerable. This is really the important fact, though the absence of gross symptoms leads to its being overlooked or ignored. It is also possible to explain away the absence of the grosser symptoms by dwelling on the fairly easy-going life of the Maoris and more particularly the absence of continuous physical exertion. Whilst this may apply to many of the men it can hardly do so for the women, or even for the children. We have already pointed out, however, that their diet happens to contain far more of these protective substances, owing to the amount of green leaves usually eaten. Minimum requirements for the vitamins under various conditions is a subject that is receiving much attention at the present time, but it is early to apply the tentative findings to the Native people, who in any case may show racial differences. The only wise plan is to aim at a generous supply, which shall ensure that requirements are being fully met.

That vitamin deficiency diseases do occur and are common enough in some areas at any rate, may be seen from the records given for the Victoria Hospital, Lovedale, in Table 1E. p. 203.

Vitamin A. Night blindness is occasionally met with and we were shown one or two early cases of xerophthalmia, but on the whole these conditions, and others recognized as being characteristic of vitamin A deficiency were not much in evidence. It is significant, however, that so many doctors and nurses stressed the rapid improvement in condition observed in children who are given cod liver oil. Presumably vitamin D can be excluded as the factor responsible.

A possible exception is the condition known as Phrynoderma, or toad skin described by several writers in various parts of the world



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