WORLD HEALTH ORGANIZATION MONOGRAPH SERIES No. 17

THE AFRICAN MIND IN HEALTH AND DISEASE A Study in Ethnopsychiatry



THE AFRICAN MIND IN HEALTH AND DISEASE A Study in Ethnopsychiatry

J. C. CAROTHERS, M.B., B.S., D.P.M.

Consultant in Mental Health, World Health Organization Psychiatrist, St. James' Hospital, Portsmouth, England Late medical officer in charge of Mathari Mental Hospital, Kenya, Africa

WORLD HEALTH ORGANIZATION

PALAIS DES NATIONS

GENEVA

1953

First impression, June 1953 Second impression, August 1953

NOTE

Authors alone are responsible for views expressed in the Monograph Series of the World Health Organization

CONTENTS

	Page
Preface	7
PART I. THE PHYSICAL BACKGROUND OF THE AFRICAN	
1. Physical anthropology	13
2. The African environment	21
3. Physical disease	57
PART II. THE MIND OF THE AFRICAN	
4. The problem	71
5. The brain and its functioning	75
6. Psychology	85
7. Psychology in relation to environment	95
8. Psychology of the Negro in the USA	115
9. Psychiatry	119
10. Psychiatry of the Negro in the USA	163
PART III. DISCUSSION	
11. Evolution and culture	167
References	173

- 5 -

On pourrait s'étonner de la persistance de certaines conduites magiques, dont la bizarrerie ou la cruauté paraissent inconcevables. Il ne faut pas oublier, suivant la juste remarque de Luquet, que « ce système de restrictions et d'ordonnancement de la vie a présenté, au début des sociétés, bien des avantages. Il a discipliné les individus, refréné les appétits, tempéré l'égoisme, fixé le langage et la mémoire, permis la sélection des choses, régularisé la production, permis la cohésion du groupe et fait passer les nécessités de l'ordre collectif avant le caprice individuel ».

Nées des premières expériences de l'enfance, nourries des apparences qui, pour le primitif, tiennent lieu de réalité, profondément imprégnées de stimuli affectifs, elles se fixent par l'imitation et les traditions dans les sociétés peu évolutives. Elles s'estompent sous l'influence de la pensée rationnelle ou survivent sous formes dégradées (superstitions, rites sociaux divers). Elles reparaissent et s'organisent d'une manière plus ou moins durable dans les états émotionnels et surtout dans les structures névrotiques et psychotiques.

> H. AUBIN L'Homme et la Magie

PREFACE

The production of this monograph arose out of an appreciation that much work had been done in recent years, in several diverse scientific fields and in several countries, which was all relevant to psychology and psychiatry in Africans and which needed to be brought together.

Some explanation is required at the outset for the wording of the title. It may well be questioned whether one can legitimately discuss "the African mind". The writer wishes to insist that, provided one defines "the African" on certain lines, it is not only legitimate but valuable to discuss the African mind. It is an axiom of psychology, when this word is used in its usual sense of the study of human mental functioning, that individual mentation depends largely on experience. Individuals vary in their experience and vary, accordingly, in their patterns of thinking and behaviour; and Africans are no exception to this rule. But experience does not vary on haphazard lines; the background of human life has certain constancies in various times and places. We know, for instance, that malaria never afflicts some human groups, and never fails to afflict others, and that turning one's back on people is as rude in certain areas as it is polite in others. Especially in regard to cultural experience, the boundaries are fairly well defined. "Africa" is admittedly too large a unit, and the opportunity is taken (in chapter 1) to endeavour to define what one really means by "African "-on geographical and "racial" lines. Even within the area delineated-trans-Saharan Africa-experience varies, and individuals and tribes have ever some uniqueness. Moreover, times change and alien influences ride roughshod over tidy tribal boundaries. Nevertheless, through all the local variations, there run some general themes which are both strange and fundamental. The section of this monograph on cultural factors (page 41), to mention only one subject under the heading of environment, describes conditions which are true, to some extent, of most African societies; and, although this section covers many pages, the conditions described are largely alien to, say, European cultures.

It can be questioned whether the uniformity observed is not itself illusory. The visitor to foreign lands is always most impressed by the general peculiarities of peoples, whereas in his homeland, or in the new

- 7 -

THE AFRICAN MIND IN HEALTH AND DISEASE

land if he stays long enough, he notices only the individual divergencies. The truth of this, however, is no denial of the existence of the general element; and its general truth is not relevant to this element's extent. Finally, it can be questioned whether the uniformities observed are not merely superficial—a reaction to the stranger or an expression of transition not corresponding to any basic uniformities in tribal life. This question is important, but it rests on issues which can best be dealt with at a later stage.

In general, it seems that there is room for both approaches—the particular and the general. There is a crying need, before it is too late, for detailed ethnographic surveys, such as those conducted by the International African Institute. There is also a need for some broad comprehensive outline; and it will be argued in the chapter on psychology that African mentality—East, West, and South—is, for certain reasons, more uniform than that of literate cultures, such as that of Europe. This argument is indeed the chief justification for the writing of this monograph.

It must be emphasized, however, that in all that follows the discussion centres on the untouched rural African, and that this "person" is nowadays, at least on paper, a somewhat hypothetical abstraction. Few Africans now are quite untouched by alien influences of one sort or another, and those who are untouched are not amenable to scrutiny. This monograph is not concerned with the Christian, the Mohammedan, the urban, or the "educated" African as such, nor even with those groups (such as the Yoruba) who have developed cultures that diverge from the usual rural patterns in so far as they diverge. Yet, although many, if not most, Africans today diverge in some degree from the model as defined, the ancient cultural modes are a far more vital force than these remarks imply. Few Africans are wholly free from tribal custom, and few indeed are not constrained in some degree by the influence of close relations (parents, wives, etc.) whose belief in the time-honoured ways is still unquestioning. Such beliefs, in fact, still permeate the lives of many people who at first sight seem totally detribalized, and some knowledge of this background is as necessary for the understanding of these people as it is for understanding obviously rural Africans.

Although the title of this monograph may, in one sense, be too broad, it may, in another sense, be too narrow. It may well be that the psychology and psychiatry described have some relevance for most preliterate groups, in and out of Africa. Of this the present writer cannot speak, for his experience is confined to Africa and Europe.

The writer's background cannot be ignored, for in a study of this type it cannot fail to colour his assessment of the situation. It is therefore appropriate to say a few words here about the present writer's history.

PREFACE

He was born and lived in early childhood in South Africa. He went to school and medical school in England and, after qualification in medicine, returned to Africa and served for nine years as a Medical Officer of the Government in the British Crown Colony of Kenya, and subsequently for twelve years was in medical charge of the Mathari Mental Hospital and of HM Prison at Nairobi. He also acted as Psychiatric Consultant to the East African Command throughout World War II. On retirement from Colonial service, he worked for 18 months as a psychiatrist at St. James' Hospital, Portsmouth, in the employ of the South West Metropolitan Regional Board of the British Health Service. Finally, on the basis of a nine-month appointment as Medical Consultant to the World Health Organization, he made the particular studies required for the writing of this monograph.

This last appointment entailed, apart from studies of the literature at Geneva, visits to Belgium, England, France, the USA, and many parts of Africa—East, West, and South. During the course of these travels he met many experts in diverse fields of science and from all of these received much personal kindness and much essential information. Therefore, although the writer accepts full personal responsibility for any views expressed, he sees himself as one who dived into a river and was swept along by many unexpected currents; and the only merit he may hope to claim is that he had the wit to choose a river that did not peter out in sand. The monograph, which was written in its present order, may therefore show signs of an evolution of approach which reflects an evolution in the writer.

Most of the experts he consulted receive references to their writings in the text, but the writer begs to take this opportunity of thanking in particular some of those who gave him something more than technical advice. For their personal kindness and hospitality, he wishes to thank Dr. H. Aubin, Chief of the Clinique Médico-Psychologique Infantile, Clermont-Ferrand; Dr. T. F. Anderson, Hon. Director of Medical Services, Kenya Colony; Dr. S. Biesheuvel, Director of the Institute for Personnel Research, Johannesburg; Dr. W. M. Cobb, Head of the Department of Anatomy, Howard University, Washington, D.C.; Dr. B. de Bunsen, Principal of Makerere College, Kampala; Médecin Colonel P. Gallais, Professeur de Clinique Neuro-Psychiatrique à l'Ecole d'Application du S.S.T.C., Marseille; Dr. K. Mellanby, Principal of University College, Ibadan; Dr. W. D. Silvero, Pathologist of Mulago Hospital, Kampala; and Dr. H. C. Trowell, Medical Specialist of Mulago Hospital, Kampala. He also desires to pay tribute to his wife, for her translation of many passages of French and for her constant encouragement of the writer in this undertaking.

10

Thanks are due to the South West Metropolitan Regional Hospital Board and the Management Committee responsible for St. James' Hospital, Portsmouth, for the granting of special leave for the purpose of this study.

Finally, the writer begs to express his deep appreciation of the helpfulness of Dr. F. Daubenton, Director of the WHO Regional Office for Africa, and of Dr. G. R. Hargreaves, Chief of the Mental Health Section of the Organization, who was not only the instigator of this project but also the chief source of inspiration throughout its course.

J. C. CAROTHERS

THE PHYSICAL BACKGROUND OF THE AFRICAN

Part I



CHAPTER 1

PHYSICAL ANTHROPOLOGY

Ultimate interest in this monograph centres on the question of how far the distinctive mental attributes of Africans are due to genetic factors and how far to environmental factors. But one cannot embark on such a study till certain other questions have been asked and answered. One has to ask: What does one mean by "The African"? Who is he? Where does he come from? What are his affinities? Where does he now live? To try to answer these questions is the object of this chapter; and a short discussion of racial origins and of the physical anthropology of Africa is therefore required, mainly with a view to distinguishing the chief racial elements and to defining the field of further study.

Archaeological Evidence

As to the origins of the modern races of Homo sapiens, archaeological evidence is still meagre and theories are insecure. There are too many missing links, and this is especially true of Africans.

Thus Fleure ⁶⁷ believes that the regions of the world now covered by the Saharan and Arabian Deserts were "the cradle of modern man" at a time when they had a temperate climate and that, with the passing of the last glacial period and when these regions gradually reverted to desert, man was forced outwards into Europe, Asia, and Africa and the main races came into being.

Howells,⁹⁰ on the other hand, though admitting the possibility of an African origin, believes the original home of humanity was southern Asia, and that from there the White race invaded Europe when the last glacial recession began, about 50,000 years ago. In regard to the races south of the Sahara, he states that "the Bushmen are almost certainly Africa's oldest living inhabitants" and maintains tentatively that the Negritoes (or Pygmies) and the Negroes derived from a common stock in southern Asia and then spread, later than the White invasion of Europe, to Africa and the Pacific—the Negro following the Negrito. In the Pacific, however, the Melanesians, though basically Negro, are now so mixed with Negrito, Polynesian, Indonesian, and Australian elements that they can henceforward be disregarded in this survey.

— 13 —

"The archaeological evidence", according to Jeffreys,⁹⁸ "decides that Africa is the cradle of mankind. Only in Africa is there evidence of man as an animal whose tool-making activities can be traced back without a break for nearly a million years. Only in Africa do stone-age tools blend without a gap into those of the modern metal age. In other words, Africa is the only continent that shows a continuous occupation by man for about a million years." He infers that the Negro began to diverge from the primitive Caucasian stock between the last two ice-ages of 72,000 and 25,000 years ago and is, apart from skin colour, the latest-developed type of man.

Dart ⁴³ says that "if Africa is the homeland of the Brown race it has given birth to at least four of the living races of mankind" (i.e., the Brown or Mediterranean, the Bush or Pygmy, the Boskop or Hottentot, and the Negro) and that "these four human racial types seem to form the principal stocks from which the living inhabitants of Central and Southern Africa are derived".

From the archaeological evidence, only one fairly certain conclusion relevant to this study can be made: the separation of the main racial stocks, Caucasian and Negro, is an ancient one. Both races were in existence by Upper Palaeolithic times and probably began to separate not less than 30,000 years ago.

The Concept of Race

One can now proceed to a survey of the modern races of Africa, but it is first necessary to emphasize certain fallacies and limitations of the whole concept of race when this concept is applied to man.

In the case of most animals, the members of a species living in different areas often develop distinctive features. When these features become so marked that the individuals can be identified as coming from particular areas, the species is said to have developed "geographical races". These races, although mutually fertile under laboratory conditions, do not, in fact, intermingle; and in time the differentiation becomes so great that there is mutual infertility and there are two species in place of one. Now, although it must be assumed that various human populations have been separated from each other for long enough to have acquired strikingly different characteristics, yet they have never remained completely isolated; further migrations and inter-crossings have occurred. For instance, Dart 44 on the perhaps inadequate foundation of modern blood-group distributions, has inferred that there were at least four principal migrations into Africa from Europe and from Asia between 7,000 B.C. and A.D. 100. Mutual infertility has not arisen, man remains one species and, to use Huxley's 94 words, evolution has been "reticulate" rather than "divergent".

There are certain important implications of this peculiar type of evolution. A race, when one refers to human populations, and as defined by Dunn,⁵⁹ " is a group of related intermarrying individuals, a population, that is, which differs from other populations in the relative commonness of certain hereditary traits". The words "relative commonness" must be stressed, for differences in human populations are never absolute; and though, for instance, Negroid peoples have, on the average, darker skins than Caucasoid peoples, yet some Negroes can be found with lighter skins than have some Caucasoids. In other words, and provided the samples have been large enough, there is always a range of variation of each measurable character within each race and always some overlapping of this range among races; indeed, the range of variation for any character is often much greater for the individuals of a race than is the range of inter-racial means. Moreover, evidence obtained in regard to any one character cannot be generalized; each character must be independently assessed; and groupings made solely on the basis of one character are always different from those made on the basis of any other. Nevertheless, where significant mean differences of several characters are shared by a population (as compared with other populations), some affinity of race may be assumed. On this assumption classifications have been made; and, on the whole, their reality has received support from later evidence of blood-group distributions.

The physical characters that have been used in such classifications vary in genetic value; almost all characters can change on moving to new environments, but within as-yet-undefined, gene-determined limits. Stature is highly plastic and iris colour very fixed, and most other characters lie between these two extremes. Diseases such as sicklaemia are a promising field of study; and Beet,⁹ for example, has already used this character as evidence of tribal migrations in Rhodesia.

Races in Modern Africa

In the following classification a few obvious physical characters are used since this chapter is merely definitive. The more detailed study of the African, and especially of his brain, is deferred to later chapters. The classification used here follows in general that of Seligman,¹⁵⁶ but with reservations explicit in the text. The population figures are rough approximations, and the chief "races" are as follows.

The Bushman

The Bushman race, in a relatively pure form, is now reduced in numbers to about 8,000 persons and is confined to the Kalahari Desert and the

THE AFRICAN MIND IN HEALTH AND DISEASE

northern part of South-west Africa. The Bushman is very short; his skin is yellowish-brown and wrinkles easily; his hair is rolled into small tangles described as "peppercorn"; his cranium is small in all dimensions, with a bulging forehead; his face and nose are flat and cheek bones prominent; his eyes are narrow and slightly oblique; and his body hair is sparse. There is often in the women a peculiar accumulation of fat on the buttocks and thighs to which is given the name of "steatopygy".

The Pygmy

These people, who number about 100,000, are confined to the forests of the Belgian Congo. They are the shortest people in the world. Their skin is brown and covered with light-downy hair, their noses are broad and flat, and their faces are short and usually prognathous. There is no general agreement as to their affinities. Dart ⁴³ groups them with the Bushmen, whereas Gusinde, who has lived among them, and Howells ⁹⁰ maintain that these two races are distinct.

The Hottentot

The Hottentots now number only about 15,000 persons and are confined to the southern part of South-west Africa. They are slightly taller than the Bushmen, their skin is brown and their head hair "peppercorn", their craniums are large and dolichocephalic, and prognathism is marked. Seligman ¹⁵⁶ believes that they arose mainly by crossing the Bushman with the Hamite, whereas Dart ⁴³ would regard them as the last pure remnants of the ancient Boskop race, and Howells ⁹⁰ believes they are Bushmen mixed with Negroes.

The Negro

The Negro people, numbering some 50,000,000, inhabit all the country south of the Sahara from the Senegal River to the Cameroons. The Negro is of medium stature, with skin dark brown to black and with little body hair. His head hair is dull-black and woolly, and he has a flat broad nose, an upright narrow forehead, slight brow ridges, thick lips, often everted, and prognathism. His head shape varies from mesocephaly to moderate dolichocephaly.

The Hamite

The Hamites number about 60,000,000 persons and inhabit all the country north of the Sahara and west of the Nile down to the Northern Frontier Province of Kenya Colony. They are fairly tall, with a brown skin, dolichocephaly, wavy hair, straight narrow nose and narrow face, with lips that are often thick but not everted and with no prognathism. These people are a branch of the Caucasian race and have infiltrated southwards in prehistoric times and left their physical mark in varying degrees on most Africans south of the Sahara.

The Half-Hamite

These people number perhaps 500,000 and occupy a strip of country running down the centre of east Africa. The Half-Hamites are probably the result of a relatively recent southward invasion of Hamitic people, and they show the physical characters of the latter, slightly modified by Negro characters.

The Nilotic Negro

The Nilotes number about 10,000,000 persons and occupy the Sudan and the country southwards to Lake Victoria and westwards to the Cameroons. Here again the Hamite and the Negro have mingled to produce a population with, on the whole, more predominantly Negroid features than are seen among Half-Hamites.

The Bantu Negro

The people commonly described as Bantu Negroes number about 50,000,000 persons and inhabit most of Africa south of the "Bantu line", which runs irregularly from the mouth of the Rio del Rey in western Africa to the Juba River in the east. The title "Bantu" is primarily a linguistic one, and all the Bantu peoples speak kindred languages. The Bantu are predominantly Negro, but with varying admixtures of Hamitic blood and other elements. It seems, however, that too much importance was formerly attached to the linguistic aspect and that, in fact, there is little basic difference between the Negro and the Bantu from a racial point of view. Hamitic infiltration into western Africa was also far from negligible; and, although Africans vary very greatly, as individuals and as tribes from both the East and the West, it is the present writer's surmise that no broad separation of Africans into Negro and Bantu is likely to prove justifiable on other than linguistic grounds.

The Semite

The Semites (or Arabs) are closely related to the Hamites. Unlike the latter, however, they are comparatively recent immigrants into Africa and have played little part in its physical anthropology, though their cultural influence has been vast.

17

. * :

These, then, are the chief races of Africa. The Bushman, the Hottentot, and the Pygmy are now insignificant in number and unlikely to play an important part in the world of the future if, indeed, they even survive as races for long. The Hamite, the Semite, and the small group of Half-Hamites are essentially of Caucasoid extraction and are non-Negroid. So there remains the Negro, the Nilote, and the Bantu, all of whom are essentially Negroid, who number, all told, about 110,000,000 persons, and who form the vast bulk of the native population south of the Sahara. Therefore, whenever the word African (or Negro) is used in this monograph, it may be taken to refer to these three groups.

The African in the Americas

The African, however, is not confined to Africa. He has found his way in historic times, usually through no wish of his own, into most corners of the globe. In the Old World, apart from Portugal, his influence has been slight. In the Americas, on the other hand, where his progeny now number at least 28,000,000, he has become one of the chief ingredients of the population. So there he must be followed to complete this survey.

Columbus discovered America in 1492, and the first importation of slaves (into Spanish America) followed nine years later. From then until the last importation (into Cuba and Brazil) in the 1880's, it is likely that several million Africans were transported to America though, since estimates vary very widely, it is impossible to be more precise. Of these the vast majority came from the country lying between the Senegal and Congo Rivers. In origin, therefore, the Negro in America is mainly of Negro extraction with a large element of Bantu.

Negro slavery in Portugal and Spain was nothing new even in 1502, and it is highly pertinent to later anthropological development in the Americas to record that, under the flags of Spain and Portugal, it was essentially humane. Thus Davie 4^7 records :

"The better treatment of slaves in Latin America than elsewhere in the New World had its roots in the custom and law respecting slaves in the Iberian Peninsula, running back to the Justinian Code and supported by church as well as state ... Under this law slavery was in effect a contractual arrangement between the master and his bondsman. It had nothing to do with colour or race. The church upheld this and maintained that slave and master were equal in the sight of God. The state protected the slave from a harsh master, provided for his marrying, and prescribed the circumstances in which he might be freed. These Iberian laws and customs were carried overseas and governed the relation between master and slave there as in the homeland. Thus the element of human personality was not lost in the transition to slavery from Africa to the Spanish or Portuguese dominions, and this served as a preparation for moral and other responsibilities characteristic of freedom. Abolition of slavery was achieved in Latin America without violence. Today the Negro, south of the Rio Grande, is a respected citizen to whom most doors are open."

These facts account in large measure for the very different course from that further north that Negro history has since followed in Latin America.

The importation of slaves into North America lasted from 1619, when there came to Virginia "a dutch man of warre that sold us twenty Negers", till 1862, when the last slave-ship ran the Federal blockade during the Civil War and landed a boatload of slaves in Mobile, Alabama. In regard to the treatment accorded to the slave in North America, it is sufficient here to record that it was in all respects the opposite from that described by Davie as applying to Latin America, and that this circumstance has laid the foundation for the present difficult position of the North American Negro.

Partly for the reasons described, miscegenation and segregation have occurred in very varying degrees throughout the Americas, and generalizations have little truth outside specific areas. Even the title "Negro" carries different connotations in various parts of the country. Thus in the US Census of 1940 the instructions to enumerators read: "A person of mixed white and Negro blood should be returned as a Negro, no matter how small the percentage of Negro blood" so that, as Myrdal ¹²⁹ says, "the concept of the American Negro is a social concept and not a biological one". Whereas in some parts of the country the title implies some purity of Negro ancestry, in others the word is not used at all, or Negro figures are included with those for other races. Therefore, for a variety of reasons, statements about racial populations can only be rough estimates.

So far as North America is concerned, miscegenation was frequent in the days of slavery but is now on the decline. Segregation is the order of the day; and Herskovits, as quoted by Davie,⁴⁷ concludes that the "American Negro" is tending to become a homogeneous population group—a conclusion which seems likely enough, but is not undisputed. The present "Negro" population is about 15,000,000; and Herskovits has calculated that, of these, only 22% are pure Negro, the remaining 78% being mixed with White and, to lesser degree, with American-Indian blood.

In South and Central America, on the other hand, "colour" plays a much smaller direct part in social development; and class distinctions are based on other factors. The problem is complex, however, and is made still more so there by the occurrence of Negro slave revolts at various times. Some of these—in Haiti, Jamaica, and Dutch Guiana—were successful and have led to the survival of relatively pure Negro groups which have even retained elements of African language and culture. On the whole, however, there has been little segregation; in Brazil, in particular, there is a very complete racial equality. The total Negro population is probably about 13,000,000 in all these countries, but this figure is not at all strictly comparable with those of the USA since it refers to relatively pure Negroes who (on Herskovits' calculation) would number only about 3,300,000 in the USA.

CHAPTER 2

THE AFRICAN ENVIRONMENT

Wherever populations exist and hold their own, it must be assumed that some viable equilibrium is achieved among all the hereditary and environmental factors, that all these factors are interrelated in a fashion to make life both livable and worth while, and that ill-considered alteration of any single item, no matter how evil it may seem from the standpoint of another culture, is likely to upset that equilibrium.

These remarks apply in the environmental field to geography and climate, to infection and nutrition, and to culture. These five items must therefore be considered seriatim in this chapter. Their relevance to African psychology will, it is hoped, emerge in later chapters.

Geographical Factors

Lord Hailey,⁸³ in the opening chapter of An African survey, says, "The history of every continent is written clearly in its geographical features, but of no continent is this more true than of Africa. That it should have remained the 'dark continent' until so late a period of history finds a ready explanation in its physical characteristics."

Opinions differ as to the part played by geographical factors in the development of cultures. Jacobs & Stern,⁹⁶ for instance, find that variations in geography or climate are not adequate explanations of technological backwardness, whereas Keary¹⁰² writes: "The creed of a people is always greatly dependent upon their position on this earth, upon the scenery amid which their life is passed and the natural phenomena to which they become habituated." No doubt the geographical factor is never the whole story. Indeed, its influence is usually highly indirect and acts mainly through the other factors described later in this monograph. Nevertheless, this factor cannot be ignored, or, in fact, regarded as other than fundamental.

The African continent, with an area three times that of Europe, has a coastline only about three-fourths as long. Africa south of the Sahara is strikingly devoid of natural harbours and of rivers that are navigable from the sea. Cut off on the north by desert and in all other directions by its inaccessibility from the sea, the vast interior of Negro Africa has

. — 21 —

stood until recently in an isolation from contact with foreign cultures which has few parallels in history. In sharp contradistinction to its inaccessibility from the rest of the world, the African hinterland itself contains few natural barriers to the movements of peoples, so that south of the Sahara there has been little security, or opportunity for such prolonged peaceful development as occurred in Crete, in Egypt, and indeed in most early civilizations. Highland Kenya, which is comparable in many ways to Peru and might therefore be expected to have become the cradle of an ancient civilization, stands, unfortunately, upon the very highway of Hamitic infiltration into southern Africa. Finally, these very movements of peoples have often derived from the necessity for "shifting cultivation"—a necessity arising from the poverty of a soil which is alternately baked by the tropic sun and lashed by torrential rain.

The lack of river communication within the continent can also not be ignored. Whitbeck & Thomas ¹⁸⁶ maintain that "Probably no other geographic factor, except the rhythm of the seasons ... has been so great a stimulus to man's early progress as has the rhythm of the river". When one reflects on the part played in history by the Nile, it is clear that they have made no overstatement.

No summary of the geographical factors would be complete without a passing reference to the hazards resulting from African wild-life (lions, crocodiles, snakes, locusts, bees, and ants). Even the plants are often armoured, and the visitor from Europe is inevitably struck by the essential hostility of the countryside.

Highly characteristic also is monotony of scene. Whether it be the open immensity of the East or South or the forest country of the West, a march of many days takes one through lands which remain substantially the same—constantly reminding one of personal insignificance—and it is fair to surmise that this may play its part in African attitudes towards life.

Finally, the density of population in Africa south of the Sahara is about 15 persons per square mile (2.59 km^2) —one of the lowest in a world which averages 40 per square mile—and one may well conclude this section with another quotation from *An African survey*: "We are driven to the conclusion that the low density of population over many parts of Africa is a symptom of a physical configuration which is unfavourable to the rapid growth of the human race."

Climatic Factors

Many writers have expressed the view that certain supposedly African traits—indolence, lack of initiative and of foresight—are directly attribut-able to climatic factors.

Huntington,⁹³ on the basis of his studies of the working and mental efficiency of several groups of Americans, concluded that frequent changes of temperature and humidity are stimulating. He writes : "Taking the year as a whole, uniformity of temperature causes low energy" and, elsewhere, "On the basis of both work and health, the best climate would apparently be one in which the mean temperature rarely falls below the mental optimum of 38° or rises above the physical optimum of about 64° ." He further develops the theme that higher civilizations have developed in, and followed the northward trend of, the zone of temperate winds.

It is clear that the optimal conditions described by Huntington do not obtain in Africa, as will be shown later in this section. Moreover, solar radiation may play an important part in salt loss and in the symptomatology of pellagra. However, while Huntington's findings are in manifest accord with everyday experience among Europeans and are doubtless true for them, it does not seem legitimate to apply these conclusions to the African without qualification. Although some "racial" differences may well be based solely on the perpetuation of random differences in early ancestors, yet it remains most likely that others (such as skin colour and the number of sweat glands) are adaptive, and that the direct effects of tropic climate are at least partly compensated for in Africans. However this may be, one has to remember that the body of the African, when untouched by foreign influence, is often almost wholly exposed to the elements and is thereby sensitive to much subtler variations than would otherwise be the case. However debatable may be the influence of the direct effects of climate, there can be no question of the fundamental importance of indirect effects. There follows a brief summary of the salient features of the African climate.

As Kendrew ¹⁰³ says, "Africa may truly be described as the hottest of the continents". The isotherms range for all parts of the country south of the Sahara roughly between 60° and 90°F, and in this continent alone is the 50° isotherm not seen (at least when corrected to sea-level). Near the Equator there is little variation throughout the year but with two maxima in April and October. As one proceeds away from the Equator, the seasonal change becomes greater, with maximum heat in July in the north and in January in the south, with relatively cool spells intervening. A sharp distinction must be made between the coast and the interior: whereas, at the former, temperatures are more uniform at all times, in the latter there is not only a seasonal change, but also a very striking diurnal one, especially in highland areas. In East Africa, for instance, the nights are often quite cold, and the climate is at times exhilarating. Humidity is at all times high at the coast, but shows wide diurnal variations in the interior. The rains follow closely upon the periods of maximal heat, and these in turn are followed by several months of relative drought.

The mean annual rainfall over the great bulk of the populated areas south of the Sahara lies roughly within the range of 20-80 inches (508-2,032 mm). Below 20 inches (508 mm), in the South-West and North, the country is little better than desert; above 60 inches (1,524 mm), in the Congo and the Guinea Coast, it is covered with evergreen forest; and where the rainfall is between these figures, there are grasslands—the most extensive in the world. Partly as a result of these climatic factors, the soil in general is poor, deficient in calcium and phosphorus, and may be further depleted by the practices of shifting cultivation and bush-burning.

These, in short, are the climatic factors. The classical idea of Africa as a Garden of Eden where man can take what the gods offer and live in carefree idleness is clearly the converse of the truth. Richards & Widdowson ¹⁵¹ say, "Seasonal changes in the food supply determine the whole character of social activities". All African economy and the rhythm of life are closely identified with the coming of the rains. Their delay gives rise to an anxiety which is met by every means that preliterate imagination can devise, and their failure (relative or complete) is an unmitigated disaster. From a European point of view, an annual rainfall between 20 and 60 inches (508-1,524 mm) may seem highly adequate; but in Africa evaporation is rapid, and too often the rain is ill-spaced and falls in deluges which rapidly reach the rivers, carrying the good earth with them.

This is the hazardous background of African life, and it is fair to speculate whether any conceivable type of man (unless well organized in civilized communities) could find life tolerable if he were not highly resilient and in some degree fatalistic. Foresight is in many ways not lacking, but it can be of little avail in the face of a failure of the rains.

Infective Factors

This monograph does not aim to be a textbook on African psychiatry, but it does attempt in a broad way to elucidate the peculiarities of African mentality and mental disturbance as compared with European. As such it cannot fail to include infections as an important environmental factor. Infections are, of course, an important factor in European psychiatry. But in Africa they occur with such variety and ubiquity as not only to cause much frank illness (with psychiatric concomitants) but, in chronic forms, also to be apt to promote a continuing background of ill health which must increase the liability to mental breakdown from other causes, and which may indeed be one factor in the mental attributes of the socalled "normal" African.

Multiplicity of causation is particularly striking in African hospital practice and has been well expressed by Gelfand,⁷⁵ who says that "whilst

the European medical student is taught, as a rule, not to diagnose more than one disease, he must forget this instruction when he is dealing with a Native ". Infection of one sort or another is seldom absent in the African, sane or insane, so that, although its psychiatric importance in general is undoubtedly large, the role it plays in particular cases is often quite obscure.

Infectious disease was considered by Carothers ³⁰ to be the chief cause of mental derangement in 15% of African first-admissions to the mental hospital of Kenya. Tooth ¹⁷⁰ arrived, surprisingly, at the same figure among the subjects of mental illness he saw on the Gold Coast, though the infections concerned were very different.

In the following short summary, infections which show no striking peculiarities either in incidence or effect (such as enteric diseases, chickenpox, and gonorrhoea), and infections which, for genetic or environmental reasons, are rare or mild in the African (such as diphtheria and scarlet fever) will not be further discussed. In addition, there are a number of infections which, though of particular medical importance in Africa, have little relevance to the subject of this monograph. The list would comprise plague (though meningeal and cerebral forms occasionally occur, as described by Wright ¹⁹¹), smallpox (with occasional cerebral complications), undulant fever, leprosy, kala-azar, filariasis, climatic bubo (in which meningo-encephalitis has been described), granuloma inguinale, idiopathic thrombophlebitis (though cavernous sinus thrombosis may occur), tropical myositis, infective hepatitis, and yaws (since it is now the general consensus of informed opinion that yaws is an infection distinct from syphilis and does not have neurological complications).

There remain the following infections, arranged as far as possible in the order of their importance for African psychiatry.

Syphilis

The incidence of acquired syphilis among African peoples varies greatly from place to place and depends largely on local sexual customs. It is, for instance, within the present writer's knowledge that syphilis was (at least until recently) as rare among the Bantu tribes of Kavirondo as it was common among the neighbouring Nilotes. Congenital syphilis has been described as infrequent by Jelliffe,⁹⁹ working in the Southern Sudan and West Nigeria, whereas Gelfand,⁷⁵ working in Southern Rhodesia, found it frequent. Syphilis, both congenital and acquired, is common enough in American Negroes; and there is clearly no effective genetic immunity to this disease in the African. It seems that yaws confers some immunity to syphilis; but, on the whole, the evidence of the present distribution of the latter disease strongly supports the view that syphilis is of recent introduction into Africa and that its belated (neurological) effects will become increasingly apparent with the passage of time.

Attempts to measure the extent of syphilization by blood tests are somewhat vitiated in Africa by the existence of certain other endemic diseases (especially yaws, leprosy, and malaria) which sometimes give a positive reaction. However, blood tests are not without value. Gelfand,⁷⁵ for instance, found the Wassermann reaction positive in 16% of admissions to a general hospital in Southern Rhodesia; and the present writer found the Kahn reaction positive in 14% of 700 consecutive new admissions to the mental hospital of Kenya (or in 11% after excluding those admitted with neurosyphilitic mental disturbance).

In accordance with the very varying syphilization of the population, it is not surprising to find that infection of the central nervous system is equally variable from place to place. Thus, in Uganda, Muwazi & Trowell ¹²⁸ found that syphilis " accounts for about 30% of all certified cases of insanity"; and, in a series of 269 neurological cases, they found that 51% were due to syphilis. In Kenya, Carothers ³⁰ found among 609 first admissions to the mental hospital that only 4.6% were due to syphilis. In the American Negro, neural syphilis is common. Lewis ¹¹⁴ believes it is on the increase in Negroes, on the decrease in Whites, and of little occurrence in American Indians and, partly on this account, that severity of involvement of the central nervous system bears a direct relation to recency of introduction of and lack of immunity to, this infection. It therefore seems as though syphilis will be of increasing importance in African psychiatry. Theories of the prophylactic effect of endemic malaria are being outmoded.

As regards the types of neural syphilis, early meningovascular (sometimes with mental confusion), cerebral thrombosis, and myelitis are frequent, and gummata large enough to cause the symptoms of a space-occupying lesion are relatively common. Tabes is mysteriously rare, though Muwazi & Trowell ¹²⁸ saw one case in their neurological series, and Billington ¹⁸ (also in Uganda) has described a case. General paralysis is frequent in Uganda and not uncommon in Kenya and Tanganyika, but appears to be rare in Southern Rhodesia and in the Gold Coast. Its appearance ---clinical, serological, and at autopsy---is in most respects typical of this disease as described elsewhere. Carothers,³¹ however, has drawn attention to the high proportion of markedly expansive cases (26 among 35 cases) as compared with those seen in England and has suggested that expansive symptoms may be a belated feature of this disease—such late cases being now more seldom seen in England. The observation by Davies⁴⁸ that " atrophy of the brain is common and often extreme" accords well with this hypothesis.

Trypanosomiasis

This infection, like syphilis, is by no means universal in Africa. It is, in fact, limited to tropical Africa, especially on its western side (where in the Gold Coast in 1941, for instance, it accounted for 7.3% of the recorded deaths), and occurs very locally in eastern and central Africa. It exists in two forms, Gambian and Rhodesian, the former not being found south of Northern Rhodesia.

Although this disease, wherever it occurs, is highly variable in its clinical manifestations, it may in general be said that the Rhodesian is a much more acute and fatal disease than the Gambian. So true is this that the three stages of trypanosomiasis commonly described—the febrile and toxaemic, anaemic and debilitated, and encephalitic stages—are often not seen in the former as the patient commonly succumbs to intercurrent infections before the encephalitic stage is reached.

However, the encephalitic stage, which is the main concern here, may occur in the Rhodesian form and is the chief and often very chronic stage seen in the Gambian. Tooth,¹⁷⁰ who has written a valuable study of this disease as it occurs in the Gold Coast, states that "it is probably the commonest cause of mental derangement throughout large areas of West Africa", and that it is a not uncommon cause of child delinquency, adult crime, and beggary there.

In view of the uncertainty of finding trypanosomes in the blood, glands, and cerebrospinal fluid, and of the great variability of the physical signs (especially in the Gambian form and in the field), Tooth's description of the mental symptoms are of especial value to psychiatry and are therefore quoted at some length. He states that "among Tryps. patients attending treatment centres throughout the Gold Coast, gross lunacy occurs in approximately 8 per cent "-most often, in late cases, a euphoric dementia with impulsive behaviour, and next most often, a chronic overactivity. In the differential diagnosis from other organic psychoses, he found such patients were seldom more restless by night than by day. He examined 232 trypanosomiasis patients in the field and found minor mental symptoms (not amounting to frank psychosis) in 194, or 83.6%. This figure does not include abnormal sleeping as a symptom; of this he found 62.9% in the series. An analysis of the mental symptoms in the 194 patients mentioned disclosed the following as the main symptoms, in order of frequency: bad temper, 54%; dull, forgetful, and dysphasic, 53%; weeping, 41%; vivid dreaming, 37%; overtalkative and talking nonsense, 30%; hallucinosis, 22%; and dirty and incontinent, 11%. In this series he also found some neurological abnormality in 50%, the commonest being tremors of the lips and tongue, increased deep tendon reflexes, and signs of cerebellar ataxia.

Tooth observes that "In general, there is some justification for describing the clinical picture of Tryps. as a combination of typically organic, and schizophrenic components". He notes a resemblance to all types of schizophrenia—simple, katatonic, and paranoid—in mental, vasomotor, and endocrine symptoms, refers to the possibility of testicular atrophy in trypanosomiasis (due to increased pressure in the tunica vaginalis), and discusses this in relation to Mott's observations on the testicle in schizophrenia.

Malaria

Malaria, usually of the subtertian variety, is endemic or hyperendemic throughout tropical Africa at all levels below about 5,500 feet (1,675 m) and occurs at many places above.

In the first six months of life there is probably some transplacental immunity, at least to local parasites. The next 18 months are the most dangerous but, provided exposure to the same strain of subtertian malaria continues uninterruptedly, malaria is not usually a cause of severe ill-health in later childhood. Where high endemicity is only seasonal, there are apt to be repeated bouts of fever, enlargement of the spleen, and some anaemia and general cachexia.

In adults the clinical manifestations of malaria depend largely on other factors. In immunized natives of good general health and nutrition, the infection is of little significance, whereas in non-immunes, and especially where the general health and nutrition are poor, the disease is dangerous to life. In chronic forms, it gives rise to loss of appetite and weight, low irregular fever, general debility, and a varying anaemia. Malaria is important in tropical psychiatry, and Carothers, for instance, found it accounted for 3.4% of first admissions to the mental hospital of Kenya. Its psychiatric importance depends on the facts that mental illness is more likely to supervene on a background of general debility, that confusional states may arise (as in other infections) from the bouts of fever, and that the subtertian form is apt to be complicated by cerebral malaria—a condition which requires some further discussion.

Although cerebral malaria is generally not very common in the African (it accounted for only 9 in a series of 2,000 autopsies seen by Gelfand,⁷⁵ and for only 4.5% of the neurological series described by Muwazi & Trowell ¹²⁸), yet it is the most frequent severe complication of malaria. Wright,¹⁹⁰ in a valuable article on cerebral malaria, draws attention to two main types of this illness. In the first, the capillaries of the brain may in heavy infections be blocked with the developing forms of *Plasmodium falciparum*—a condition usually associated with the gradual onset of coma; in the second, an embolism of malarial parasites occurs and the onset of coma is sudden. He describes a number of cases to

illustrate the protean manifestations of this disease, namely, confusion with excitement, stuporose conditions, meningeal symptoms, sudden coma, epileptiform attacks, carpopedal spasms, epilepsy partialis continua, hemiplegia, a tetanus-like syndrome, and cases with predominantly psychotic symptoms. Gelfand,⁷⁵ in describing the pathology of cerebral malaria, draws attention to blocking of subcortical capillaries with parasites, areas of focal necrosis, and later patches of sclerosis. It seems quite likely, therefore, that some permanent mental impairment may at times follow cerebral malaria.

Pneumonia

Pneumonia is exceedingly common and severe in the African and is a frequent cause of delirious states which may so dominate the clinical picture that the pulmonary disease is not recognized. Gelfand⁷⁵ states, "The two main types of pneumonia—lobar and broncho-pneumonia—together form perhaps the most common cause of sickness and death in tropical Africa". Elsewhere he says, "Delirium and other cerebral disturbances may be marked, the case resembling a mental disorder or even an acute meningitis". Carothers ³⁰ found that pneumonia accounted for 2.5% of first admissions to the mental hospital of Kenya.

Pneumococcal meningitis is also relatively common in the African but will be discussed with other forms of meningitis.

Tuberculosis

In Africa the human type of tuberculosis is much the commoner, infection with the bovine type being comparatively rare.

The role that tuberculosis plays in African life is in dispute. While the old idea that this infection was uniformly and swiftly fatal in the African is now outmoded, there seems little doubt that it contains much more than a germ of truth. Gelfand ⁷⁵ says, "It may be said that tuberculosis in the native carries with it a very high mortality, that it is acute and shows little tendency to healing by fibrosis. Caseation and exudative lesions are the chief features, with a strong tendency to miliary dissemination." Tuberculosis is also a relatively serious disease in the American Negro, and Lewis ¹¹⁴ thinks it likely that racial immunity in persons of African extraction is poor. It is possible, however, that living conditions in both continents are an important factor, and that in Africa other debilitating conditions, especially pulmonary bilharziasis, may predispose to tuberculosis.

Phthisis is not often a direct cause of insanity but plays its part in the background of general ill-health. Moreover, it is a constant threat in mental hospitals.

Tuberculous meningitis is not uncommon and, as elsewhere, its onset is insidious and it is apt to masquerade as mental disease.

Tuberculomas of the brain large enough to dominate the clinical picture are rare in Europeans but are probably the commonest brain tumour in Africans. Gelfand ⁷⁵ saw 4 in 1,000 consecutive autopsies; and Muwazi & Trowell,¹²⁸ in discussing primary intracranial tumours, say, "In our experience gummata and tuberculomata should be suspected first, since these have been demonstrated to be present in most of the cases in which we had diagnosed an intracranial mass". West African experience is similar. Tuberculomas may occur at any age and give rise to the usual symptoms of intracranial tumours, or may be silent until a tuberculous meningitis supervenes.

Encephalitis

Encephalitis of virus origin is diagnosed from time to time, and doubtless more often misdiagnosed as cerebral malaria, mania, etc. Whether the virus usually concerned is of the lethargica variety or not remains obscure.

Muwazi & Trowell,¹²⁸ in their series of 269 neurological cases, considered that there was strong evidence of a virus encephalitis in 11 cases and that 5 others were possibly of the same nature. The chief symptoms seen in this series were fever, headache, limb and back pains, coarse tremors of face and hands, and mental confusion with aphasia, apathy, somnolence, and resistiveness. The cerebrospinal fluid showed an excess of globulin and of cells.

Carothers ³⁰ found Parkinsonian symptoms in 1.6% of all first admissions to the Kenya mental hospital and believed that all of these were postencephalitic. Ages of the patients ranged from 8 to 40 years, with an average of 25 years. Physically, these patients showed slow, rigid movements, mask-like staring expression, and monotonous speech; oculogyric crises were seen in three cases. Mentally, the adults were retarded and apathetic, and the children, excessively restless and mischievous.

Cerebral sepsis

The common pyogenic organisms in Africa are the pneumococcus and the staphylococcus, while the streptococcus plays a much smaller part than in Europe. According to Davies,⁴⁸ " septicaemia seems to be chiefly a pneumococcal condition while pyaemia is chiefly a staphylococcal lesion". Meningitis is frequent and, apart from epidemics of cerebrospinal fever, is most often due to the pneumococcus, both in primary and secondary types. Abscess of the brain occurs occasionally; and Davies⁴⁸ has found, as a not infrequent complication of pneumonia, a pneumococcal encephalitis which could probably not be distinguished in life from a virus encephalitis.

Bilharziasis

Previously the ill-effects of bilharziasis were attributed mainly to the anaemia resulting from the constant drain of blood from the bladder and rectum. This aspect remains important, of course, but it is likely that constitutional effects due to the involvement of various viscera (notably the kidneys, gonads, lungs, and liver) are the most debilitating factor. The disease is widespread throughout tropical Africa, and Gelfand ⁷⁵ finds that the more obvious classical symptoms referable to the bowel or bladder are absent in about 55% of cases. He also states that "it has been encountered ... on occasions in the brain".

Bilharziasis not only is probably one of the most important general debilitating factors in tropical Africa, but also may possibly give rise to epilepsy and other symptoms of cerebral involvement.

Hookworms

Infestation with the hookworm *Necator americanus* is widespread in tropical Africa, but it is probable that the anaemia for which this infection is responsible is usually slight if not complicated by one of the many other causes of anaemia in Africa. The more severe infection with *Ancylostoma duodenale* is thus far only a local problem south of the Sahara.

Dysentery

This occurs in two forms—amoebic and bacillary. The chief psychiatric importance of these infections is that the former, in its more chronic forms, may give rise to an anaemic debilitated state with concomitant symptoms of dietary deficiency and, rarely, to an amoebic abscess of the brain, and that the latter is prone to occur in epidemic form in mental hospitals.

Ascariasis and taeniasis

Infestations with Ascaris lumbricoides or Taenia saginata (both of which are widespread) or with T. solium (which is local) are not often so serious in themselves, but add a few more straws to the already heavy African load. However, if the larval forms of T. solium invade the brain, they produce the condition known as cerebral cysticercosis, with epileptic, space-occupying, or predominantly mental symptoms. As this condition can occur only where pigs are kept, it constitutes a very local problem

in Africa as yet; but the general introduction of the pig would be fraught with menace for the future. *Ascaris* larvae have also recently been demonstrated in the human brain, so that this infection may also have a relevance, not hitherto suspected, for African psychiatry.

Relapsing fever

Relapsing fever in Africans south of the Sahara is usually, though by no means always, a mild disease. The spirochaete has, however, a tendency to invade the central nervous system and to produce symptoms of encephalitis, meningitis, or cranial nerve palsies. The disease is clinically much like malaria, and the diagnosis is commonly made only by accident on finding the spirochaete in the blood.

Typhus fever

The severer cases of this disease in Africans are usually of the epidemic type conveyed by lice. Delirious states are common, and dementia has been said to occur. Typhus, however, is not strikingly common in the African, and its mental effects do not constitute an important psychiatric problem.

Yellow fever

This infection occurs in a belt south of the Sahara from West Africa to the Sudan, and southwards to the Congo and Northern Rhodesia. It is probable that the West African native has some racial immunity, and the disease in him is usually mild. However, this is not true of the Sudan, where a severe outbreak, with a mortality of about 11%, occurred in 1940. Its psychiatric importance is slight, though, as with most feverish illnesses, a confused or delirious mental state may complicate the picture.

Lung abscess

This condition is included merely to sound a warning note, since it is within the present writer's knowledge that abscesses of the lung are particularly prone to follow the electro-convulsive treatment of Africans, probably from inhalation of pus from the septic gums which are so common in them.

*

These are the infections of major importance for psychiatry—a mixed bag, with little in common other than their insidiously debilitating effects, which may be ephemeral but are often life-long. Few Africans are free from all of these, and it would be easy to find examples of persons infected concurrently with malaria, hookworm, bilharziasis, ascariasis, and taeniasis, with a haemoglobin level of about 30%, and yet not complaining of ill health. "Normality" in the African, even from the standpoint of infection alone, is a rather meaningless abstraction.

Nutritional Factors

From a background of general medicine and psychiatry, the present writer approaches the subject of modern dietetics with some diffidence —a diffidence which is not mitigated by the reflexion that he must adhere to psychiatric aspects since, if anything is clear in the dietetic field, it is that no food factor acts in isolation and all have interactions with each other and repercussions throughout body and mind. The science of dietetics is a rapidly growing one. There remain many gaps and many obscurities, even in Europe and America, where the constituents of foodstuffs are fairly well known and the habits of the people are familiar. Very different is the case in Africa.

Nevertheless, the problem must be squarely faced since malnutrition is almost universal in Africa and is being increasingly recognized as fundamental in African psychiatry. Sherman & Lanford ¹⁶¹ say,

"That differences which are really nutritional have doubtless sometimes been attributed to racial factors was emphasized by Hopkins ... in 1931. A community, he explained, may be found in equilibrium with an environment which includes its food supply, and the fact of such equilibrium has hitherto been taken as evidence that the environment supplies everything needed. Hence any inferiority was taken to be racial, whereas actually a racial potentiality of higher development may become manifest with an improvement in the food."

Dietetics in Africa is complicated in several ways :

1. Analyses of foodstuffs have been made only here and there, yet food constituents vary greatly, as does the soil, in all areas.

2. In each area there is usually one staple foodstuff which forms the bulk of the diet and may differ from the staple foodstuff in contiguous areas.

3. The diet is highly dependent on the seasons and, though found adequate at one time, may, at other times and over all the year, be the reverse.

4. It is uncertain to what extent tropical conditions modify dietetic needs.

5. In places where certain items appear to be in good supply, these sources may not be tapped. Where cows are plentiful, the milk may not be drunk. Culwick & Culwick,⁴¹ for instance, have shown that in Ulanga

THE AFRICAN MIND IN HEALTH AND DISEASE

(in Tanganyika) there is a remarkable neglect of fruit and green vegetables though these would be easy to obtain; and chickens, though kept, are used (with their eggs) only for guests and invalids. Forde & Jones⁶⁸ say that fishing is forbidden in many areas of Ibo country in Nigeria as "fishes are believed to embody the souls of ancestors".

6. The best food may be kept for the men, though it is a recognized principle of modern dietetics that the relative need for many items is greatest in pregnant and lactating women and in children.

7. A diet which may appear adequate may not, in fact, be so on account of liver disease, of infestation with worms, or of other intestinal diseases which interfere with absorption or storage.

8. Finally, the whole science of dietetics in other parts of the world was based on fairly well-defined clinical entities—rickets, scurvy, etc.—in populations which were, in the main, well fed but which lacked some essential item. It is different in Africa, where deficiencies are usually multiple and are further obscured by infectious diseases.

Having taken note of these difficulties, some general survey of the African diet must be made.

With certain notable exceptions, the great bulk of the African population south of the Sahara is mainly vegetable-eating. A few tribes, such as the Masai of East Africa, live largely on meat and milk. Other East African tribes keep cattle and goats mainly for purposes of currency and occasionally eat the meat, though they rarely use the milk. Other tribes living by the sea, the great lakes, or the few rivers consume much fish. For the rest, any sort of animal food (in the form of wild game, insects, etc.) is a rarity. As far as vegetables are concerned, the main staple foods in various parts are maize, millets, rice, cassava, sweet potatoes, yams, and plantains. Legumes are eaten in various areas, but little greenleaf vegetable or fruit is consumed. Since vegetable food contains mainly potassium salts, sodium salts are usually deficient but are often made up by the use of salt or of salt-containing earths. Various condiments are added in small quantities. Native beer, made from fermented grain, and, in the West, palm wine, are widely consumed.

In regard to infancy, the African mother commonly receives no special food, yet breast-feeding is universal and continues for up to two or three years or even longer. Information concerning the quality of the milk is conflicting, but there is no doubt that the milk must be progressively deficient in quantity throughout the long period of breast-feeding and in relation to the needs of the growing child. Supplementary feeding is the rule from early months but is almost entirely carbohydrate in type. After weaning, the diet is gradually improved to adult standards.

34 -

These are the broad outlines of African feeding habits, and one must now turn to a consideration of each of the food constituents in turn.

Proteins

The proteins supply energy, but their main function is for the growth and maintenance of the tissues themselves. There is a great variety of proteins, and their value in nutrition depends on their amino-acids. There are about 22 of these, of which 8 are indispensable in the diet since they cannot be synthesized in the body and yet (like the others) are required for tissue maintenance. Proteins are therefore called "complete" if they contain the eight essential amino-acids and otherwise are called "incomplete". The proteins in many plant foods, for instance, lack some particular essential amino-acid such as lysine, tryptophane, or methionine. The concept of "completeness", however, is apt to be misleading since (a) no food consisting exclusively of the eight essential items would, in fact, be adequate; (b) incomplete proteins given in suitable combinations may recompense each other's deficiencies and be complete in effect; and (c) energy from carbohydrates and fats is also essential in protein synthesis in the tissues, as are certain vitamins and minerals.

From the point of view of practical adequacy, the best protein foods are eggs, meat, fish, and milk, while vegetable foods are inferior, though a suitable combination of cereals and legumes may rectify the deficiencies of each. Animal proteins therefore hold first place and, in the words of the British Committee on Nutrition in the Colonial Empire,⁸² "it is at least desirable, if not essential, especially in the diet of the young, to include a certain proportion of protein of animal origin such as that contained in milk". In general, the need for such high-class protein is relatively great in the infant and growing child and in the pregnant and lactating mother.

It is clear from the above-mentioned report and from a host of other sources that an inadequacy of animal protein in the native diet is the rule throughout tropical and southern Africa, except among a relatively few pastoral and fishing peoples. Moreover, this inadequacy is most apparent in the child. The baby, as Jelliffe⁹⁹ has pointed out, is probably at a nutritional disadvantage from the start since his mother did not obtain a sufficiency of protein during pregnancy; and the progressive relative deficiency in the breast milk in the later periods of lactation is not remedied by the supplementary feeding with carbohydrates.

This lack of protein, either alone or in combination with other lacks, results in a general malnutrition—notably the condition known as "kwashiorkor", which will be discussed in a later chapter (page 60).

Fats and carbohydrates.

These two food constituents can be dealt with together since their functions are in some ways interchangeable and are largely concerned with the energy requirements of the body.

Fat is primarily a fuel storage material and, in the words of Soskin & Levine,¹⁶⁷ "When food is ingested in excess of calorie expenditure (whether taken in the form of carbohydrate, protein, or fat), the equivalent of the excess calories is deposited as fat in the adipose tissues". Fats supply about nine, and carbohydrates about four, calories per gramme so that by volume the former are more economical. Dietetics in Europe and America tends to furnish between a quarter and a third of the total calories in the form of fat. There is a gross lack of fats, both animal and vegetable, in most African diets; and the British Committee on Nutrition in the Colonial Empire⁸² wrote: "By Western standards an unusually high proportion of the energy value of the diet is derived from carbohydrates. This is at the expense of the amount of fat in the diets, which is usually low ... Since it is necessary to consume two and a quarter times as much carbohydrate in weight to obtain the same amount of energy as from one unit of fat, it follows that the diets are also bulky relative to their nutritive value."

In regard to carbohydrates, Soskin & Levine ¹⁶⁷ say, "Carbohydrate resembles fat in being a fuel material but differs from fat in that it is an indispensable one. The tissues of the body constantly require and use carbohydrate under all physiologic conditions. Even a temporary fall in the blood sugar below certain critical levels is accompanied by serious disability. Nevertheless, the amount of carbohydrate present in the body at any one time is very small. This amount, if it were not replaced as used, could sustain life for only a fraction of one day." Elsewhere they say, "If carbohydrate is not available in foods, it must be made by the body from those materials which are in the diet in order to satisfy the fuel requirements of the active tissues. The eating of adequate amounts of carbohydrate therefore spares the body the work of making its own fuel." In effect, in view of the slight possibility of carbohydrate storage in the body, and especially when there is little development of adipose tissue, the carbohydrate acts as a sparer of protein and, in the presence of a carbohydrate deficiency, an excessive break-down of tissue protein must occur. Moreover, most of such carbohydrate as is stored in the bodythe liver glycogen—exists in the form of a complex with protein. The metabolism of carbohydrate in general is closely linked with that of protein.

The basal metabolic rate of inhabitants of the tropics, indigenous or immigrant, is about minus 10% to 15%; and, on the basis of the League of Nations scale, calorie requirements in the tropics are about four-fifths
of those in the temperate zone. By and large, it seems that calorie requirements are usually met, but with little to spare. Few Africans are fat, and the great majority are decidedly lean. There is little reserve and, having regard to the above observations, it seems that energy must often be borrowed from a source—the tissue proteins—which can ill afford to lend it, thus adding a further straw to the burden of protein deficiency.

Minerals

Calcium and phosphorus, ingested in a suitable ratio, and in the presence of vitamin D, are largely concerned in the metabolism of bone, though they have other less obvious functions. Calcium needs are especially high in later pregnancy and lactation, and in infancy. Since the chief sources of calcium are animal foods and vegetable leaves, most of the foodstuffs richest in calcium are lacking in Africa. However, Snapper ¹⁶⁵ states that primary calcium deficiency is extremely rare and that there is scarcely a diet which does not contain a sufficiency of calcium. The chief sources of phosphorus are animal foods and vegetable seeds. In general, the intake is probably adequate ; and, where the staple diet is grain, it may even be excessive in relation to calcium. Richards & Widdowson ¹⁵¹ found an adequacy of both elements in the diet of two tribes of Northern Rhodesia. The subject of rickets will be discussed under the heading of vitamin D.

Iron is largely concerned in the formation of haemoglobin, and its lack results in anaemia. Tissue iron is well conserved, excretion is slight, and bodily needs are met by controlled absorption, so that in health, apart from pregnancy, lactation, growth, and menstruation, little iron is required. African foodstuffs therefore probably contain a sufficiency of iron for most purposes; but, as will be shown later, they are inadequate for the needs of the breast-fed infant. It seems that the low haemoglobin levels almost constantly encountered in the rural African at all ages are, except in infancy, due mainly to concomitant infections, protein lack, and liver disease, iron inadequacy being only relative to these.

Sodium is lacking in most vegetable foods, where its place is taken by potassium. The deficiency of salt in African diets is, however, usually compensated by access to salt-containing earths or by the buying of salt. Excessive sweating is common in the tropics and, in the unacclimatized, 30 g of salt may be lost through the skin daily. If this loss is not compensated, symptoms varying from a mild lassitude to heat cramps, heat exhaustion, and heat stroke will ensue. However, as Sherman & Lanford ¹⁶¹ have said, " It has been shown that after acclimatization persons produce sweat that contains only about 0.5 gram to the litre in contrast with a content of 2 to 3 grams for sweat of the unacclimatized person. Consequently after acclimatization, need for increase of salt beyond that of ordinary

food disappears." No doubt a similarly effective adjustment occurs in the African, and the severer symptoms of salt depletion are seen in him only in special circumstances.

Other minerals need not be discussed at length. There is plenty of potassium and magnesium. Iodine lack is not a general problem in Africa though goitre occurs sporadically and in many endemic foci. The other essential bodily minerals are apparently not dietetic problems in Africa.

Vitamins

Vitamin A is defined by Clausen³⁵ as "a constituent of the diet ... needed to maintain the structure and function of certain of the specialized epithelial and glandular tissues, the visual functions of the retina, and the growth of the body". The specific manifestations of vitamin A deficiency in man are night blindness, xerophthalmia, and phrynoderma; other manifestations, which may in a particular case arise from a variety of other causes, are retardation of growth and lowered resistance to infection. The vitamin itself occurs only in animal foods, but its precursors, which are converted to vitamin A in the body, are abundant in green leaves, tubers, and fruits and are deficient in cereals. On the Guinea Coast, where much palm oil is consumed, a deficiency is not to be expected; but it is clear that, over large areas of the rest of the continent, African diets contain little enough of vitamin A or its precursors. The British Committee on Nutrition in the Colonial Empire⁸² recorded a widespread deficiency in African territories; and among the 500 railway workers examined by Trowell,¹⁷³ 101 showed a severe follicular keratosis, probably due to this lack.

Vitamin D regulates the metabolism of calcium and phosphorus in the body, and in its absence the supply of these elements to the skeleton falls short of requirements and rickets or osteomalacia results. Vitamin D occurs principally in animal fats and, as its precursors, in a variety of vegetable foods. The precursors are converted to vitamin D in the body by the action of ultra-violet light on the skin. Vitamin D is grossly deficient in most African foodstuffs (as was found by Richards & Widdowson¹⁵¹ in Northern Rhodesia), but this deficiency is remedied by the tropical sunlight. Rickets has been described in Tanganyika and is common among the schoolchildren of Sierra Leone. On the whole, however, rickets is rare in tropical Africa though, if the day comes when African children go fully clothed, it is not likely to remain so, especially in view of their deep pigmentation.

Vitamin C has, as its best-established function, the maintenance of collagen formation—collagen being the intercellular substance of connective tissue, osteoid tissue, and dentine. Vitamin C also plays a part in the metabolism of certain amino-acids and in resistance to infections.

Its lack results in lassitude, irritability, and bodily weakness, and later in gingivitis and a variety of haemorrhagic manifestations. In infancy, bony lesions also occur. Vitamin C is found especially in fruits and green vegetables, and there are probably appreciable amounts in most native condiments and beers. Grain foods are deficient and, except in areas (such as Uganda) where the staple food is plantains or bananas, the consumption of this vitamin must be relatively low throughout Africa. The British Committee on Nutrition in the Colonial Empire⁸² concluded that there is likely to be a widespread deficiency of this vitamin but added that "Scurvy ... is reported only very occasionally in its classical form, chiefly from those few territories in which there is periodically a famine period". It is seen most often in children, and Trowell ¹⁷³ in his examinations of 500 adults "considered that there was no clinical evidence of ascorbic acid deficiency".

Vitamin B complex consists of several known factors and others which have not yet been isolated. Even the precise role of some of the known factors in human dietetics (especially in the tropics) and human metabolism is still too uncertain for discussion in a work of this scope. However, there remain three factors—thiamine, riboflavine, and niacin whose role is sufficiently clear and of obvious importance for this study. Regarding these three especially, and before proceeding to their separate description, it is, however, pertinent to record Soskin & Levine's ¹⁶⁷ reference to "the fallacy of regarding any single factor of the B complex as more important than another, for the normal chain of events [in carbohydrate metabolism] can be broken by a lack of any one of them ".

Thiamine (with riboflavine and niacin) plays an essential part in the metabolism of carbohydrate, so that it must be consumed in quantities related to the carbohydrate intake. Signs of its deficiency are most manifest in those tissues which have a high rate of energy exchange (myocardium and striated muscle) or are most dependent on a constant carbohydrate supply by the blood-stream (central nervous system). In human subjects experimentally deprived of this factor alone, there develop gastro-intestinal symptoms (anorexia, nausea, constipation), signs of myocardial weakness, polyneuritic syndromes, and symptoms of organic neurasthenia or even mild confusional or paranoid states. Nicholls ¹³¹ says, "The vitamin is so widely distributed in naturally occurring foods that there is never likely to be a shortage of it in diets unless it has been removed by artificial means." Bodily deficiency, however, may also arise from failure of absorption (in intestinal disease) or of storage (in liver disease). Beri-beri (which is only in part due to thiamine deficiency) is seen at times in Africa, as in Nigeria and Tanganyika, but is not generally frequent; polyneuritis is seldom recorded. Trowell ¹⁷³ saw no indication of thiamine lack in his survey of railway employees.

Riboflavine is a constituent of a number of enzyme systems associated with the intermediate metabolism of food, particularly of carbohydrates, and is probably also intimately concerned in protein metabolism. Its deficiency in man is characterized by soreness and fissuring of the lips (cheilosis), angular stomatitis, a dermatitis around nose and scrotum, glossitis, and a variety of eye lesions and visual disturbances. In animals there is also a reduction in the liver's ability to inactivate oestradiol; and a similar effect, of importance for endocrinology, may occur in human deficiency. Signs of riboflavine deficiency are often associated with those of pellagra and were thought in the past to be part of the essential syndrome of the latter disease. Riboflavine is widely distributed in animal and vegetable foodstuffs but lacking in cereals, and a marked deficiency of riboflavine is therefore to be expected in many African diets. Signs of ariboflavinosis are, in fact, common in Africans.

Niacin, like riboflavine, plays an essential part in human carbohydrate and protein metabolism. Indeed their distinguishing roles are not precisely defined ; and Sherman & Lanford ¹⁶¹ say, "The typical pellagrin is usually a sufferer from shortage not only of niacin but also of riboflavin". In niacin deficiency there occurs a variety of symptoms in the skin (with a characteristic rash), the alimentary tract (with glossitis, stomatitis, nausea, and perhaps diarrhoea), and the nervous system (with tremors, rigidity, and symptoms of polyneuritis, organic neurasthenia or more serious mental disturbances). In the words of Spies,¹⁶⁸ "These three systems are not necessarily all involved nor are they affected in any regular order", so that mental symptoms may dominate the clinical picture. Niacin occurs in many animal and vegetable foodstuffs, but is especially lacking in maize. Moreover, gastro-intestinal or liver disease may interfere with its assimilation. Classical pellagra has been reported from most African territories, though not with great frequency and chiefly from areas where the staple is maize. In circumstances where the energy needs of the body are increased (as in infectious fevers, hard labour, or mania), however, it is apt to declare itself; and it is likely that a large part of the population lives on the brink of its development.

Before leaving the subject of vitamin B it is needful to emphasize that a nutritional supply is no stronger than its weakest link in the B-complex chain, and a thiamine adequacy, for instance, cannot compensate for a lack of other elements.

In summary, African diets are lacking in a variety of constituents necessary for physical and mental health. These deficiencies are most widespread and prominent in regard to protein, vitamin A, and certain

40

members of the vitamin B complex. The chief sufferers are the infants and young children, but no age is immune. The classical deficiency diseases are seldom seen, but the bulk of the population lives on the verge of their development, and in periods of stringency they promptly appear. The British Committee on Nutrition in the Colonial Empire⁸² expressed the general situation thoroughly by saying that "diets are very often far below what is necessary for optimum nutrition. This must result not only in the prevalence of specific deficiency diseases but in a great deal of ill health, lowered resistance to other diseases, and a general impairment of well-being and efficiency".

Finally, in that large section of the population which is without obvious physical symptoms of nutritional disease and yet is undernourished, the "impairment of efficiency" is often likely to be predominantly mental. Keys et al. ¹⁰⁶ conclude from their experiments in human starvation that "the psychological changes induced by under-nutrition, though more difficult to measure, seem to be just as typical as are the physical changes"; and elsewhere they say, "Profound changes in behaviour and personality are noted if the semi-starvation is prolonged".

The disease kwashiorkor and the personality changes that accrue from undernutrition are matters for study in later chapters.

Cultural Factors

A fundamental fact of human life is that man is a social animal and is, in the words of Mead,¹²² " submitted throughout his entire individual existence to systematic cultural pressures" which elaborate, ignore, or suppress his developmental potentialities on different lines in different cultures.

The time-honoured difficulty of deciding which came first, the hen or the egg, applies most forcibly here. The infant is born into a particular cultural environment and in the course of his development acquires that culture and ultimately becomes a source of its transmission to others. One wonders where to begin. In fact, of course, there were eggs before there were hens, and it seems right to take the hint by starting with the infant. There are also three other, and better, reasons for dealing with culture on chronological lines. Firstly, it is a convenient way of assembling the facts; secondly, it is doubtless generally true that the environment plays a diminishing role with advancing age in the moulding of the personality; and thirdly, the various facets of culture impinge most effectively on the growing mind at different periods of life. A few items, such as ethics and magic, are not wholly amenable to this discipline and are therefore described under what seems to be their most appropriate heading—" The adult". With these exceptions, however, this procedure is a practicable one, and the attempt is therefore made in the rest of this section to deal with African culture on the lines of its chronological relevance for the developing individual.

In the first place, one must dispose of certain difficulties in the whole study of "African culture". There are in Africa not one, but many, cultures. Herskovits⁸⁶ has tentatively divided the continent into nine "culture areas". Each tribe that has been studied exhibits its own peculiarities, and there are large differences between, say, the Kikuyu of Kenya and the Nankanse of the Gold Coast. Nevertheless, among the welter of detail there is much in common, and it is this highest common factor which the writer has endeavoured to extract from many sources. As will be seen, this factor is both large and fundamental.

African life is rapidly changing. The rising generation is adopting alien ways with alacrity and is as rapidly losing its own. The picture that emerges in this monograph is therefore often not typical. However, in so far as African culture does still exist and does differ from European, it differs on the lines described. The problem of "transition" is a thorny one and of so much wider application than is often recognized that it requires some separate consideration. This problem is therefore discussed, under the heading of "The African in transition", at the end of this chapter.

The subsequent description may give the impression that African culture is entirely odd, alien to anything one knows in the Western world. Such an impression would be false, for much of African life is just like life elsewhere. But in a monograph of this nature, it is relevant to describe only peculiarities, and it must in general be assumed that life is otherwise much like that in rural Europe. Indeed, some of the peculiarities themselves would not be recognized as alien by certain elements in Europe.

The infant

Prenatal life, and birth, need not detain us since cultural factors are not effectively different till after the baby is born.

Children are much desired by African parents. Anything savouring of "rejection" must be rare; and, for a variety of reasons which will appear later, the mother is deeply attached to her baby and more likely to err at first in the direction of excessive affection and indulgence.

From birth onwards breast-feeding is universal. It is always "on demand", and the time-schedule does not exist. Whatever the mother's other duties, the infant, almost from the start, is carried on her back—often in contact with her body—and, at the least whimper, is put to the breast. A little later he may be carried astraddle on the hip. The mother's

handling of the baby is fearless and confident, and he lives from birth in touch with a smooth, warm, rhythmic world not far removed from his prenatal one. By day he hears his mother's voice, talking or crooning to him, and by night he lies by her side and is sung to sleep by such lullabies as that described by Kidd.¹⁰⁷

No attempt is made in early months to control excretory activities. The mother is, however, quick to notice and encourage her baby's developing faculties, so that he is not forced to constrain himself in matters of excretion before such time as this is easy for him. By experience the child gradually comes to realize that the fields, and not the house, are the place for the exercise of these functions; and when he can toddle he is encouraged to go there. Similarly, in regard to crawling, walking, and talking, his developing powers are recognized and encouraged in due course. Discipline and punishment are hardly encountered at this stage of life.

There is, however, another side to the picture. Supplementary feeding is commonly begun within a few weeks of birth, and the child is often forced to imbibe a variety of unsuitable foods, much against his will and sometimes with serious consequences. Moreover, when several months old, he may be left at home in charge of a little sister who may be quite unfitted for this responsibility. In these circumstances it is common in some areas for the crawling infant to fall into the fire and be severely burned. The general indulgence and lack of restraint is often reflected in a high degree of childish waywardness.

The time of weaning is governed by local custom, but may be modified by the development of the child or by recurrence of pregnancy. It is seldom accomplished, however, within 18 months of birth and is commonly delayed to 36 months or even more. Weaning in these extended cases is, in regard to relative milk supply, of necessity a rather gradual process; and the child in later years of breast-feeding is receiving a large proportion of his diet from other sources. Whenever a new baby is obviously on the way, however, weaning is abruptly concluded since, as Porteus ¹⁴³ has said, there is an implicit belief among the Bantu (and probably indeed among all Africans) that the total life force is limited and that new life must always compete with old.

Weaning, as Ritchie ¹⁵² has emphasized, must be a ruder shock for the African child than for children who are fed on a time schedule and in whom weaning, in some sense, may be said to begin at birth. Although the child in the later months was receiving little enough in the way of nourishment at the breast, he was never denied and had come to regard his mother as his ever-devoted slave. This background is now rudely shattered and he experiences henceforth some relative emotional neglect. Sexual intercourse between the parents during the period of pregnancy and lactation is, in theory, debarred. But in practice, and especially in households which are not, or are not yet, polygamous, some form of intercourse is common in early months of pregnancy and, provided that pregnancy does not recur within some locally stipulated time, it is practised again in later periods of breast-feeding.

As soon as she is obviously pregnant again, the mother often returns to her parents' home until such time as the next baby is born, or even longer. Her attention is now concentrated on the coming event and largely withdrawn from the toddler, who is often indeed subjected at this period to some teasing to cure him of his babyish ways.

The child

A word must first be said about African relationships since they govern so much of childish behaviour from an early age. Kenyatta,¹⁰⁴ referring to the Kikuyu says, "First and foremost he is several people's relative and several people's contemporary", and elsewhere, "It is with personal relations, rather than with natural phenomena, that the Kikuyu education is concerned right from the very beginning". His remarks would be equally applicable to most parts of Africa.

In the main, African societies are patrilineal and patrilocal, though all other possibilities occur. When a man marries, however, his wife does not lose contact with her own family. Although a variety of exogamous rules apply in different areas, the wife's family is seldom geographically remote and maintains an interest in her affairs and supports her in quarrels with her husband; she, in turn, complies with certain obligations to her parents. In fact, the married woman often has her personal plot of land, or conducts some trading on her own, and in general maintains a high degree of economic independence. If, as is likely, her husband marries again, similar circumstances apply with the new wife; and ultimately each child has relationships not only with his father and the latter's relations, but also with his mother and her relations and with the families of his father's other wives. Grades of seniority are recognized, modes of address are varied appropriately, and the child's behaviour is governed in the presence of, say, his father's sister, not so much on the basis of her own unique personality as by her peculiar relationship to himself. The matter is still further complicated by the fact that, when a man dies, his wife becomes attached to the household of some male relation of the deceased. The child's life thus becomes increasingly one of reciprocal relationships within an expanding community.

To return to the child, by the time he is weaned he can, of course, run about; and, during the day, he is left very much to his own devices and to the company of his siblings and half-siblings and various cousins. If the child is the first-born, a neighbour's little daughter may be employed to look after him; but with subsequent children their elder siblings usually assume the role of nurse. The child at this time often falls much under the influence of his grandparents and of aunts and uncles who tend to spoil him; he also acquires much of his knowledge and behaviour patterns from the children, little older than himself, with whom he plays. Thus, as Kidd ¹⁰⁷ says, the "children, when very small learn from their mother; when they cut the second teeth they ask the bigger boys questions; and the bigger boys ask the young men, and the young men ask the old men. In this way knowledge and information filter down through successive strata". Personal parental influence is much less exclusive and continuous than it is among Europeans.

Playtime and games are not organized by the parents and take the form, as one might expect, of imitation of adult activities, of songs and dances. In regard to sexual play, masturbation is considered proper at this age for boys, or at least is winked at; and the lack of adult supervision at this time is likely to entail, as Kidd ¹⁰⁷ has hinted, much experimentation of a "sexual" nature. It is possible that the rarity of all sex perversions in later periods of life is partly due to this.

African women are the conservators of tradition, and it is from them that the more serious instruction of the younger children derives. There are no set lessons nor any formal education in the European sense of the words; but, at various times, and especially when the family sits round the fire at night, the mother tells tales, largely of the history and traditions of her people, and is led by interested questions to relate their names and complicated relationships. Raum 149 says, "Nothing in the choice of subjects suggests that the pupils are children from the age of six onward." Tales with a moral are common; they emphasize the success of virtue and the defeat of vice, and inculcate pride in the ancestors and the clan. Proverbs, riddles, and leg-pulling are common, and each tribe has its repertoire of fairy-tales. Above all, instruction is directed to the learning of proper manners and deportment in the presence of one's elders. Thus, in Raum's 149 words, "the child becomes conditioned to a morality whose demands become less stringent the remoter they are from the 'initial situation' of the family"; and, as Kidd 107 says, "not a little of their reputation for lying arises from their excessive desire to avoid rudeness or discourtesy in speech ".

There is, of course, no reading or writing. Toys other than those crudely made by the children are conspicuous by their absence, and the child is highly dependent for his amusement and his learning on the spoken word. When the child is a little older, but still quite small, the girl learns much about household affairs from her mother. Reference to her future status as a wife is a constant theme in the instruction of the girl, and she must learn to fetch the firewood and water and probably to take charge of the baby. The father, though important as a figure-head, on the whole plays little part until the children are about seven years old, when he removes the boy from the tutelage of his mother, takes him to the fields, and teaches him the rudiments of agriculture and the names of many plants and animals. The father may even give the boy a little plot of his own on which to practise.

Coercion is little used. Discipline is maintained by threats, by tales of bogey-men and beasts which devour miscreants, and by warnings of the curse of some relative or ancestor. The withholding of food is commonly resorted to and beatings are not rare. Praise and rewards for good behaviour play their part, and the child's own curiosity and faculty for imitation are encouraged. Punishments for offences punctuate the general indulgence and are usually immediate and inflicted by any member of the parental generation who happens to be handy.

In general it can be said that, although a variety of persons play several roles in the education of the child, these roles are never mutually contradictory. As in all homogeneous, slowly changing cultures, each instructor be he a grandfather, an uncle, or an elder brother—carries, as Mead¹²¹ has emphasized, the same cultural assumptions. Each new piece of learning, no matter from whom it is received, is part of a comprehensive pattern in which the child's past, his present, and his future are all familiar and assumed.

Surprisingly early the children are expected to contribute to the life of the family, and the Westerner is often astonished to see little girls carrying babies on their backs and little boys, spear in hand, guarding their flocks. Childhood, in African theory, is a period of complete irresponsibility; and offences committed at this age are commuted by the parents. Yet, by European standards, African children are highly responsible. Indeed they may often be seen, by the age of 10 years or so, sitting with their elders and even taking part in the conversation with confidence and effect.

The adolescent

Puberty is an obvious milestone in the life of humanity everywhere.

In Western and other literate cultures, distinctions among social groups often depend upon class, occupation, or wealth. In Africa, except in a few highly organized communities, these distinctions play relatively little part. Age, however, is an inescapable fact of life, and in all societies some sort of age-grading is recognized. In Africa age-grading often becomes a highly formalized institution, and at no time is this more clearly seen than at puberty.

The initiation ceremonies, which are so universal in Africa, mark both explicitly and symbolically the transition from childhood to maturity and, for the boys, the final detachment from maternal apron-strings and admission to the company of men. They form for the initiates the most dramatic and memorable experience of their lives. The details as described by Rattray¹⁴⁸ in the Gold Coast, Krige¹¹⁰ in South Africa, and by many others, vary greatly in different areas. In general, however, the rites are symbolic of death and rebirth, and the period is one of intense education in which chosen elders instruct the initiates in the tribal folklore, traditions, magical beliefs and practices, moral codes, and sex-life. Tests of knowledge are included. During initiation the pupils are kept in a state of excitement by the drama of the ritual; much of the language used in speech and song is bizarre and mystical; and the manner of their instruction counts for far more than its matter. The ceremonies are often characterized by circumcision of the boys and by an operation on the girls which varies from a slight scratch to a total excision of the labia minora and clitoris. Among other things, as Raum 149 has emphasized, these ceremonies function as a final firm reminder that the initiate's advancement is only partial and that he must still remain subordinate in status to the parental generation.

Since, as Blanchard ¹⁹ says, "the changes in the physiological organism that take place at puberty result in reinforcement of hetero-sexual drives", this seems to be the place to discuss this aspect of the sex-life of the African. Whereas, prior to initiation, masturbation was considered right and proper (at least for boys), thereafter it is regarded as childish and intercourse between the sexes as correct. Even children are familiar with the "facts of life"; but, at the time of initiation, instruction to both sexes is explicit and detailed. Thereafter, sex-intercourse between members of the same age-group, though restricted and incomplete (since conception is to be avoided), is encouraged, and the man, especially, is expected to have many lovers. He thus learns to feel affection for more than one woman and acquires a large experience of the other sex in general.

Contemporary initiates form thereafter a sort of club, often with similar dress and occupation. Dependent on this, the members of one age-group regard each other as in a special relationship within which they must, among other things, love and marry. This relationship is grafted horizontally on the vertical lineage relationships, unites the tribe, and makes of the individual henceforth a person with affiliations throughout his country.

The adult

The ambition felt by most people everywhere to wed and rear a family is enhanced in Africans by the concept that their own spirit's future after " death " is closely linked with the future of their offspring. Therefore, sooner or later, a man eschews philandering, and one woman is chosen as his wife. The choice is seldom his, however; and, as Laubscher¹¹¹ says of a South African tribe, "Romance has its place in the love life of the Tembu but not in relation to marriage. Young men and girls have their love-affairs but these seldom, if ever, end in matrimony". For the purpose of marriage a "bride-price" (lobolo) must be paid. This institution, far from being a mere "buying" of, and humiliation to, the woman, is a stabilizing influence in African marriage and contributes to the respect in which the bride is held by the husband and his group. The attitude towards marriage is rather different from that which prevails among Europeans, since in Africa this institution is based more frankly on motives of economy and succession. Jeffreys 97 says, " there is ample evidence to show that marriage among the Negro is not so much a personal affair as an inter-family or group affair", and elsewhere, "the fundamental conception behind all lobolo transactions is that lobolo is the child-price", and is thereby a means of ensuring rights in forthcoming children to the husband. Marriage is thus a civil contract in which both parties commit themselves to certain obligations in regard to the other, but in which they both also maintain a considerable economic autonomy. In religious matters also they are largely independent; and, according to Westermann, 184 the illness of a child resulting in both parents' visiting the shrine of the husband's god is almost the only religious occasion which husband and wife share in common.

Polygamy is the rule. Far from being jealous of other wives, the first wife welcomes and often even chooses them. Prestige attaches to being the wife of a man with many wives, and jealousy is likely to arise only in a woman who is barren; for barrenness is the final calamity that can happen in the life of an African woman and is often regarded as good grounds for divorce.

In regard to sexual intercourse, the husband is expected to pay attention to each wife on certain days related to her monthly periods and to be wholly or partly abstinent during pregnancy and until weaning, on the lines described before. Thanks to polygamy and the inheritance of widows, prostitution is uncommon. Adultery, especially by the woman, is regarded as serious (as breaking certain taboos); but it has to be remembered that a certain licence is often permitted for wives in various circumstances, so that the word "adultery" carries a connotation which is different from that among Europeans. Illegitimacy has little meaning for the child in Africa, and children born out of wedlock "always belong", in Laubscher's ¹¹¹ words, "to some male, either the man who procreated them or the mother's father". Sex perversions, apart from juvenile experiments, seem to be uniformly rare, as noted by Laubscher ¹¹¹ in South Africa and by Tooth ¹⁷⁰ in the Gold Coast.

There is a considerable specialization of labour as between the sexes, the men doing the bush clearing and cattle herding (if cattle are kept), among other activities, while the women hoe the fields, collect the firewood, cook the food and, in the West, indulge in commerce. In view of this and of the high degree of economic and religious independence, the institution of polygamy, the limitations to marital intercourse, and the licensed occasions for extra-marital relations, it is clear that the opportunity for a close and sustained emotional bond between husband and wife is hardly provided. Indeed the wife, especially in polygamous households, tends to regard her sons, not her husband, as the potential prop of her old age. Moreover, it is also likely in many cases that the operation of clitoridectomy may diminish, or even abolish, any physical pleasure which the woman might otherwise derive from sexual intercourse. Small wonder it is, in these circumstances, that the mother lavishes her affection with so whole a heart upon her baby.

In the paragraphs which follow, it must be recorded that the subjects dealt with are not uniquely applicable to the adult. But the patterns of thinking and behaviour that are associated with these subjects are most peculiar at this age-level since, as in magic, such patterns may hardly be abnormal in, say, the child in any land.

On account of the slight degree of specialization, there is a high general level of knowledge. Everyone knows almost the whole culture of his group, and participation in all fields of knowledge and behaviour is the rule. There is a wide understanding of agricultural phenomena, many names of natural objects are memorized, and the average man's vocabulary is extensive. The African loves conversation and discussion, and his powers of expression are often so dramatic as to disguise the essential triviality, inconsequence, or even falsity of his theme. He is often a gifted linguist. Music and the dance also play a large part in his life and, thanks to the general participation, powers of extemporization in these arts are not limited to the few. Gorer, ⁸¹ who had a unique opportunity to witness many dances in West Africa and to compare them with those of various southern Asian peoples, said of the latter that they "dance more subtly, more dramatically; but as far as I have seen their range is limited and their invention small compared with the Negroes". Musical rhythms are complex and frequently changing; choral singing occurs; and, when the drums are beaten, the audience can often understand their "message". Song and dance, though they also have their set times and places, are not confined to these but form a frequent background to African life and are even regarded as a stimulus for labour. Indeed, it is nothing rare to see a line of carriers, at the end of an exhausting march, enter the camp leaping and singing as though this were the gladsome dawn of day and not the nightfall.

Thanks perhaps to the large parts played by sound (in speech and song), the visual arts (plastic and graphic) have played a minor role. These arts are highly formal; and it has seldom been the conscious aim of the African craftsman to express himself in his art, but rather to express concepts (of a magical and religious type) by symbols that were comprehensible to all his group. As in other fields, therefore, African art is social and impersonal. Indeed, the statuettes, masks, and decorations that have so inspired certain European schools of art seem really to be "agglutinations" in the Kretschmerian sense, and to represent perhaps the first step on the road to writing.

Westermann 184 says, "The world of the primitive African is characterized by its unity and coherence. No sharply defined aspect exists by itself; wish and reality, the possible and the impossible, knowledge and belief, thought and imagination, the realms of secular and religious life are interwoven and fundamentally one." These remarks apply with equal force to thoughts and dreams; to present, past, and future; to here and there; and, especially, to the personal life within the community, for each activity of a person's life is also the concern of some stipulated relation who must be consulted or placated. Such thinking lies at the root of "magical" principles, wherein superficial similarities are assumed to imply profounder ones, the part is regarded as having the qualities of the whole, and the substances used in magical practice have qualities similar to the hoped-for effects, so that one might injure one's enemy by burning his effigy and ensure his end by attaching his hair clippings to its head. Magical practices in general are based partly on a failure to make fundamental distinctions and partly on "animism"—the belief that all natural objects are imbued with a spirit like that seen in man. Natural events occur by reason of these unseen spirits, and the intrinsic nature of cause and effect is not recognized. Magic thus provides in crises of life both an explanation and an appropriate course of action. It is not, however, merely rudimentary science since it is never subject to verification or revision, but is fixed and ritualized, and everywhere has its professional exponents. It can be used for good or evil; the fear of bewitchment lies as a constant sinister background to African life. Protective charms are sold in every market. Finally, the "unity and coherence" described by Westermann¹⁸⁴ ride roughshod over the unities that Europeans recognize, and cannot fail to split the fundamental ones. Thus a Yoruba man may, on occasions, make

sacrifices to his head (that it may think well), his stomach, or even his big toe (that it may run well).

Religion, like other sections of the cultural background, has boundaries which are obscure and difficult for Europeans to appreciate. Gorer, ⁸¹ referring to West African Negroes, says, "Religion is for us a thing apart, for the Negroes their whole existence" and, elsewhere, "primitive Negroes *know* that the world is entirely spiritual; what we treat as the physical universe, whether animate or inanimate, bound by certain laws and producing certain predictable effects, is to them nothing but clots of matter entirely neutral in themselves and only taking on the qualities of the spirit, whether human or inhuman, which inhabits them". His remarks express the situation well not only for the West but for Africans through out the continent. Religion has its priests as elsewhere, but only rarely (as in Dahomey) do these form a separate society; and, as Gorer says, "in the small and more primitive communities religion is everybody's business; although there are priests their knowledge and power differ only in degree, not in quality".

Throughout the fabric of African culture there runs the thread of participation in the life of the community. This thread is not broken by death, and the remembered ancestors are conceived as continuing for a time to play the part they played in life. Among the Nilotic Jaluo, for instance, as described by Carman & Roberts,²⁹ the ancestral spirits are even provided with a little hut within the family compound. In times of family crisis, these ancestors may be approached and supplication made for their assistance. As grown men have more "power" than boys, and old people than grown men, so the spirits of the deceased have still more power and may be assumed to wish to use it in the unseen world for the succour of their progeny. The attitude towards the ancestors is often described as worship, but it seems to be more in the nature of an approach to a family patriarch, with the added deference due to his further advancement by death, so that the approach must be made by the group and not by a lone individual. Complex polytheistic religions have developed in certain West Coast areas, as described in detail for the Akan by Meyerowitz.¹²⁵ Belief in a Supreme Being is also often found in Africa; but, although as Parrinder ¹³⁶ says, "Africans have often a richer idea of God than the deism which is the unspoken creed of many Europeans", this idea is rather a philosophy than a living faith and has but little influence on thinking and behaviour.

Jacobs & Stern ⁹⁶ say, "An adhesion of rules of right and wrong social behaviour to the supernatural is a distinctive feature of the Mediterranean-European heritage." Certainly there is little link in Africa between ethics and religion, and morality is simply a question of the application or contravention of the traditionally correct rules of social behaviour. Enforcement of morality depends on public opinion and the fact that everyone knows everyone else in the group; and the aim of justice is not so much punishment as compensation for, or exclusion from, the community—by death or banishment. Intent is of little importance, or rather is implicit and assumed.

The culture described is a functional unit, each rite part of a working whole, as Driberg ⁵⁸ has emphasized. This unit cannot develop in a geographical vacuum but must be attached to particular areas of land, to which all customs, myths, history, and religion refer; which give all life; and which nurse the ancestral spirits. No study such as this would therefore be complete without this final emphasis on the land, for when African culture loses its roots in the soil, it loses all.

The aged

For the elders and the aged there is an honoured place. The elders confer in all matters affecting the welfare of the group; and the aged, who are considered as having one foot in the grave, are regarded as the highest authority in affairs of the spirits and the fittest intermediaries in approaches to the ancestors.

This section may suitably close with the subject of death. The death of anyone is the occasion for an orgy of grief on the part of the nearest relations, and the omission of this would give rise to suspicions that the latter had poisoned the deceased. When a man dies his wives express their grief dramatically in ways required by local custom and, having done so, they resume the tenor of their lives as though there had been no bereavement.

> ۰۳ ۱

This concludes the description of what seem to be the fundamental and distinctive features of African culture, and a short summary of those features most relevant for psychology may now be made.

In infancy, from birth and for two or three years, the mother's affection (for reasons described) is whole-heartedly concentrated on the child, which is treated with the utmost indulgence. He meets no restraint, his wants are met at all times, and his developing functions are encouraged at their proper time. The comfort of his prenatal life is projected into his infancy as nearly as this is possible. This blissful period is brought to an end at the time of his weaning with, from a psychological point of view, a disturbing abruptness.

In childhood there is a thorough and very detailed teaching of family connexions and of deportment in the presence of particular relations,

of local myths and family traditions; and, in general and always, "the emphasis lies on a particular act of behaviour in a concrete situation". This teaching derives from several sources which are yet mutually consistent and assume the child's past, his present, and his future in a comprehensive pattern. Teaching is entirely by example and by the spoken word and is relatively personal and dramatic. General principles are taught only in particular social contexts; and truth, justice, and right and wrong, in any general sense, are unrecognized. Logic is distorted, cause and effect are confused, and the question "Why?" must always be answered in magical and animistic terms which do not permit of further speculation. Childish curiosity is thus effectively stifled at a much more immediate level than obtains with European children. Lack of building blocks, balls, and mechanical toys leaves little opportunity for the development of manipulative skill and solid-form perception. On the other hand, social deport-ment is highly mature; and the child is treated as a responsible person from a surprisingly early age. In general, it would seem that instruction on the lines described may be excellently suited to the needs of little children; but that it fails most signally to pave the way for further individual development will be shown later.

At adolescence, by the age-grade system, the subject's social horizon is enlarged; but there is a further emphasis on the need for his personal development to be wholly contained within the rigid social framework. There is little real advance from childish teaching, and this becomes even more dramatic and emotional than before. The adolescent's naturally enhanced interest in matters of sex is strongly encouraged by society, free outlet is provided, and teaching is shameless and detailed. But the encouragement is in the direction of a restless philandering, and sexual emotion is expected to be superficial and ephemeral. Once again, the type of education seems in many ways to be well suited to the adolescent, but it holds no promise for any versatility of personal development.

In regard to the adult, little remains to be said: the seeds are sown. Life is governed by rules and taboos which remain as before, meticulous and anchored to the land. Since, as in rural societies everywhere, everyone knows everyone else's business as well as he knows his own, public opinion is dominant; and, since everyone knows virtually the whole culture of the group, infringement of rules implies unsocial motives. Conformity is the rule, and even solitary or outstandingly successful people are suspect. Logic, speculation, and the search for true causes are supplanted by magic and animism, which supply the answers and the lines of action. When these lines fail, only the witch-doctor or the ancestral spirits can help, and the latter can be approached only by the group, not by a lone individual. In the face of the final calamity—death—emotion is expressed according to prescribed patterns, and the bereavement is shared by the group. There

remain in African culture a few outlets, and a few only, for free creative expression—oratory, music, the dance, and the weaving of fairy-tales.

The African in transition

The effective impingement of Western cultures on the African continent, apart from the coast, is relatively recent. Few Africans of the interior can boast of literate grandparents, and in many areas the appearance of a white man is still a novelty. The subject of transition, however, is not a simple, all or none, phenomenon. It might indeed be argued that whenever a white man meets an African, even in a place where no white man has ever been before, that African is in transition, for his own cultural machinery is not fully competent to deal with this event. Therefore, in theory at least, one can never study populations quite untouched by foreign influence. This example is, of course, extreme and perhaps a triffe academic; but, in the far more common cases—of servants, labourers, and others who have come straight from rural areas—the question of transition assumes much more importance than is often recognized.

Although dealing with a rather different subject—Pidgin English— Bateson's ⁸ remarks are highly applicable here. He says:

"It is, like the rudimentary culture which develops between passengers on a ship, a rather gay, rather irresponsible and meaningless world. Both white man and native have put aside many of the fundamentals of life. The indentured native has left his kin behind in the village and is embarked on an adventure which he knows will one day end, ... for the time being he is suspended in an interim period of life ... and the complexities and responsibilities of his normal background are in abeyance."

No cultures are quite static; they could not be so and survive. But, unlike modern Western cultures, all preliterate cultures are relatively static; and their survival depends on gradualness of change. Each item of the culture forms such an integral part of the culture as a whole, and this in turn is so dependent on family relationships and tribal law that any swift dramatic change upsets the whole machinery. The "raw" African one meets is, nine times out of ten, not really in his aboriginal state but is an "African in transition".

The matter is still further complicated by European diversity. Shelley & Watson ¹⁶⁰ say: "When it is remembered that Europeans do not present a united front in matters concerning the treatment of natives, and that the native has to expect one kind of treatment from missionaries, another from officials, and another from those engaged in commerce, it is small wonder that his sense of values is confused, and often completely distorted."

And what of the landless, who drift into the towns? African culture is based on the land. Faris ⁶⁴ has something to say about this. In discussing behaviour disorders in the industrial cities of America, he says:

54

"Such research of a scientific character as has dealt with the relation between ecology and behaviour has mainly been concerned with social disorganization and the consequent forms of personal disorganization. This disorganization is for the most part a phenomenon of a great transition ... Such movements break up the social systems that control and integrate the behaviour of persons, so that new, unconventional and abnormal types of behaviour appear. These abnormalities are not essentially aspects of city life, or civilized society, but rather of the populations which are changing from one system to another."

These facts must be clearly borne in mind when one comes to study African psychology.

CHAPTER 3

PHYSICAL DISEASE

Pathological conditions will be discussed only in so far as they have any peculiar interest for African psychiatry and (since in Africa it is not easy, as was previously shown, to disentangle physiology from pathology) for African psychology.

Genetic Disease

Sicklaemia

Trowell ¹⁷² says, "Sickle cell anaemia and sickle cell trait are probably the commonest hereditary disability of certain Bantu tribes." Sicklaemia is essentially a hereditary abnormality of the blood of Africans and, when found in other continents, may always indicate some African heredity, recent or remote.

In American Negroes, according to Lewis's ¹¹⁴ figures, approximately 7.5% show the sickling phenomenon. In Africa, where several large surveys have been made (as by Beet,¹⁰ Altmann,¹ Evans,⁶² Jelliffe & Humphreys,¹⁰⁰ and others), the incidence varies greatly in different areas; but, on the whole, the figures, especially in tropical Africa, are much higher than those in America. The condition is common in the Negro, the Nilote, and the Bantu and perhaps most frequent among the Pygmy group of the Bemba (as mentioned by Gallais & Charlopain⁷¹), where a figure of 45% was obtained. There seems to be no striking difference in sex incidence in Africa, but the trait is most frequent in small children; Beet,¹⁰ for instance, found a rate of 17.3% in 283 children below the age of six years, as compared with 11.5% in 1,821 persons above this age.

A sharp distinction must be made between sickle cell trait and sickle cell anaemia. According to Foy, Kondi & Brass,⁶⁹ the condition as a whole is inherited as a Mendelian dominant, the heterozygotes showing only the trait while the homozygotes develop the anaemia. In regard to the sickle cell phenomenon itself, the heterozygotes show a sickling of red cells under a sealed cover-slip maintained at 37°C and beginning after some hours, whereas the homozygotes show in the same circumstances an immediate sickling with the production of long terminal filaments not seen in the heterozygotes. From the works of Beet ¹⁰ and of Foy, Kondi & Brass,⁶⁹ it would seem that the rarity of the anaemia in the adult population

is due to a high death-rate of homozygotes in infancy, and that, if early childhood is survived, the prospects of life are less seriously impaired. These explanations, however, are not accepted universally; and the relatively high ratio of anaemia to trait as seen, for instance, in America and in Jamaica may result in some way from miscegenation.

Whether the trait alone is a cause of anaemia or whether it increases the liability to other diseases is disputed. Beet's ¹⁰ valuable investigation of 259 sicklers suggests that its general importance in the production of other diseases (with the possible exceptions of enteritis, abscesses, and tuberculosis) is slight; and Lehmann & Milne's ¹¹² work showed that "no correlation between the incidence of anaemia and the sickle-cell trait was found in 567 East Africans". Brain's ²⁵ study of the clinical significance of the trait in Africans from a wide area of south Central Africa supports Beet's finding and is well worth reading in its entirety by those who are interested in this subject.

Sickle cell anaemia, on the other hand, is a serious affliction, with significance for psychiatry. In sickle cell anaemia, on the basis of a continuing anaemia, there occur haemolytic crises, with fever, limb pains, discomfort over liver and spleen, and other less constant symptoms. Connel³⁹ states that the essential pathology of the disease is thrombosis, and adds, "It may therefore involve any organ, particularly any organ with a terminal circulation.... In the light of these basic facts, lesions of the central nervous system are probably not uncommon." Hughes, Diggs & Gillespie 91 found a frequent involvement of the central nervous system and state that lesions are multiple and widespread, but mainly localized in the cortex and meninges. They consider that the lesions are primarily due to thrombosis, following which there are haemorrhagic, degenerative, and atrophic changes. French writers have been especially interested in the neurological manifestations of this disease, and Gallais & Charlopain⁷¹ have recently summarized these. Their list includes various pains and paraesthesiae, vertigo, convulsions, cranial nerve palsies, aphasia, meningeal syndromes, hemiplegias, mental confusion, and sudden death.

Fortunately, sickle cell anaemia is not common, at least in adults; but, as a cause of mental deficiency and mental disturbance, it has doubtless often not been recognized.

Colour blindness

Among 537 Bantu males (Baganda), Simon ¹⁶⁴ found only 10 (or 1.86%) who were red-green colour-blind, and no cases of yellow-blue or complete colour blindness. Among American Negroes, the average incidence as given by Lewis ¹¹⁴ is 3.75%, and this writer quotes the average

figure for Whites in America as 8.22%, and in Europe as 7.95%.

The lack of words connoting colours in African languages has often given rise to speculations as to whether there were differences at the sensory level. This can hardly be the case, and the explanation seems to be that Africans are seldom interested in colour as such.

Haemolytic disease of the newborn

This condition is rare in tropical Africa—a fact no doubt related to the low incidence of the Rh-negative factor in Africans (about 4%) as compared with Whites (about 15%).

Infectious Disease

In the interests of conciseness, the infections of relevance to this study were discussed, in conjunction with the diseases to which they give rise, in an earlier chapter (page 24). It will be recalled that many of them were apt to produce a chronic ill-health which must predispose to mental disturbance, and that in several (as with all toxaemias), states of mental confusion often arise. These aspects will be referred to again in the chapter on mental disorder (page 119). Except in so far as they require to be dealt with under the heading of neurological disease, infectious diseases therefore need no further discussion in this chapter.

Deficiency Disease

The classical deficiency diseases described in European textbooks are, with the exception of pellagra, not frequently seen. Anaemia due entirely to a dietetic deficiency of iron is probably not common; anaemia in the tropics is usually due in greater degree to protein deficiency, liver disease, and a variety of infections. Endemic goitre occurs locally, as in parts of South Africa, Nigeria, Sierra Leone, and the Sudan. Rickets is rare, though described in Tanganyika and, more often, in Sierra Leone. Classical beri-beri is equally rare. Scurvy occurs sporadically and in occasional outbreaks. Signs of vitamin A deficiency are not infrequent; signs of riboflavin deficiency are common and are often associated with those of pellagra. Pantothenic acid deficiency, with "burning feet" symptoms, occurs especially in West Africa; and the ubiquitous tropical ulcers of the leg may well be related to dietetic deficiency. There remain two conditions of relevance to this study—pellagra and kwashiorkor.

Pellagra

Pellagra is seen from time to time in most areas, and the cases are apt to find their way into mental hospitals. The classical triad of symptoms—dermatitis, diarrhoea, and dementia—occur in varying degrees; and diagnosis, if the rash is seen, is not difficult. Many Africans must live on the brink of pellagrous developments; and, in times of stress, such as famine, the onset of feverish illness, or the occurrence of mania, the full-fledged disease is apt to declare itself.

Kwashiorkor

The condition called "kwashiorkor" is being increasingly recognized as of fundamental importance in African life. Trowell, as quoted by Brock & Autret,²⁸ says, "in certain parts of Africa it is probable that the majority of the children in the second and third years of life suffer from kwashiorkor". Quite apart from the immediate symptoms, kwashiorkor and the subclinical deficiency states which underlie it give rise to such a variety of visceral lesions which may be permanent and irreversible, and so far-reaching in their effects on the body and mind of many apparently "normal" Africans, that kwashiorkor must be described at some length.

African babies, though small at birth, are in general apparently fit and for several months remain so. They put on weight in the same way as European babies and are happy and lively. In many areas, as shown specifically by Welbourn¹⁸² at Kampala, after six months they fail to increase in weight satisfactorily, by European standards. Indeed, they fail to increase satisfactorily by American Negro standards, since Scott et al,¹⁵⁵ in an examination of growth records of 654 Negro infants for the first year of life, found "no significant difference between the growth curves of Negro and white infants from comparable economic levels". This failure continues for the next eighteen months, and they may gradually become poorly and peevish and, in extreme cases, develop frank kwashjorkor.

The outstanding features of kwashiorkor, as described by Brock & Autret,²⁸ are: (1) retarded growth, which is maximal in the second to the fourth year of life; (2) dyspigmentation of the hair and skin (which is possibly the result of pantothenic acid deficiency); (3) oedema with hypo-albuminaemia; (4) pathological changes in the liver, which include fatty infiltration, cellular necrosis, and fibrosis (the first being perhaps inessential and due to excessive carbohydrate consumption); (5) a heavy mortality, never less than 30% in non-treated or incorrectly treated cases; (6) a variety of dermatoses; (7) gastro-intestinal disorders; (8) an apathetic but peevish mentality; (9) a moderate anaemia; (10) atrophy and fibrosis

of pancreatic acini; and, perhaps, (11) lesions of the kidneys, heart, testes, and other organs.

Kwashiorkor seldom, if ever, occurs among the Masai and the Batussi, who consume much cow's milk, or among the bean-eating section of the Bahutu, or on the shores of certain great lakes or by rivers where much fish is consumed. Elsewhere it is common, and it is always recorded in areas where little or none of these foodstuffs is consumed. Brock & Autret ²⁸ say, "there seems little doubt that the syndrome is due to deficiency in the diet of some factor or factors which are ordinarily supplied by foods containing animal protein or certain of the vegetable proteins of higher biological value. The most obvious protein factors to be considered are certain of the amino-acids, particularly methionine." They proceed to point out, however, that protein deficiency may not be the sole cause since African diets, particularly those of the child, are never deficient in only one nutrient, and that deficiency of minerals and of various vitamins may play a part. Brock & Autret's main conclusion is strongly supported by Dean's ⁵² account of the successful treatment of kwashiorkor with diets containing large amounts of animal or vegetable protein. Silvera & Jelliffe ¹⁶² have observed an abnormal fatty infiltration of the liver in Nigerian infants of a few weeks old, and even in the newborn, and are thus led to infer that the pathological process begins with malnutrition of the pregnant woman.

It seems likely that, until recent years, most sufferers from the fullfledged disease—kwashiorkor—died and left no aftermath. But it is here appropriate to recall a general comment, made by the British Committee on Nutrition in the Colonial Empire,⁸² to the effect that "for every recorded case of a specific deficiency disease there are hundreds of cases of absence of full health due in part at least to malnutrition". Most of the latter survive, but it seems that many common abnormalities of the African adult may well be sequels of subclinical kwashiorkor. There follows a description of these abnormalities in so far as they are relevant to this monograph.

Cirrhosis of the liver, of a fine monolobular type almost unknown in Europe, was the rule in African livers seen at autopsy by Vint¹⁷⁸ in Kenya, and Davies⁴⁸ in Uganda. Cirrhosis of the liver is also common in Rhodesia, Nigeria, and South Africa. Primary carcinoma of the liver, though rare in Europe, is notoriously common throughout Africa and, according to Gelfand,⁷⁵ almost always occurs on a basis of cirrhosis. Brock & Autret²⁸ say, "it seems reasonable to conclude that dietary deficiency is the most important cause of adult cirrhosis and therefore of primary carcinoma of the liver. This conclusion cannot be regarded as final, but there seems a considerable weight of evidence in its favour." They believe that liver cirrhosis may be a direct sequel of kwashiorkor, but that it is more likely that both conditions are results of prolonged protein deficiency, and that protein deficiency, even if confined to the weaning and post-weaning phases of life, could produce irreversible liver damage.

Chronic pancreatitis appears to be a common autopsy finding in adults and, in view of the pancreatic changes observed in kwashiorkor and of the failure of pancreatic enzyme activity observed by Thompson & Trowell ¹⁶⁹ in the latter disease, may also well be a late sequel of malnutrition. Indeed, Davies ⁵⁰ believes that atrophy of the pancreatic exocrine enzyme-forming glands is the basic pathology of kwashiorkor, and suggests that this is due to an inadequacy of proteins (which are needed for enzyme formation) plus an excess of carbohydrates (with a corresponding high demand for enzymes).

Lesions of the heart and kidneys of types not seen in Europeans are also frequent findings and may arise from malnutrition.

Finally, though more hypothetically, endocrine disturbance and gynaecomastia may ensue, but these aspects can best be discussed under the heading of endocrine disease.

Endocrine Disease

Vint,¹⁸¹ referring to the African, was able to say in 1949 that "no researches have been carried out on his endocrine organs". The position is little changed today, although, as Gillman & Gillman⁷⁷ wisely say, "Diet and environment ... impose patterns of metabolism and therefore determine the functional relationship between the components of the organism. Diet and environment therefore directly or indirectly modify the functions of the endocrine and of all the other glands." As in the case of nutritional disease, most of the common endocrine diseases met with in Europe are seldom seen.

Pituitary disease

Pituitary disease in obvious clinical forms is quite infrequent. Raper & Ladkin¹⁴⁷ have reported particulars of a focus of endemic dwarfism in the Mabira Forest area of Uganda. This condition appears to be one of pituitary hypofunction, but whether basically genetic or due to environmental factors such as onchocerciasis remains obscure.

Thyroid disease

Myxoedema and cretinism are seldom seen. The general basal metabolic rate is low; but, as Lewis¹¹⁴ has indicated, this is a function of climate

rather than race, and Negroes and Whites in tropical Brazil, for instance, have an equally low rate, of about minus 20%. Sherman & Lanford ¹⁶¹ say of the basal metabolic rate that "if a truly racial factor exists it must be a vanishingly small one". Graves' disease is a rarity in Africans, and Gillman & Gillman ⁷⁷ regard this as a natural outcome of the altered metabolism which must follow malnutrition. It is apparently not so rare in American Negroes.

Adrenal disease

Adrenal tuberculosis is, according to Davies,⁴⁸ exceedingly rare at autopsy. To the best of the present writer's knowledge, Addison's disease has not been described in an African; but the diagnosis would, of course, be very difficult in dark-skinned persons, though Selye¹⁵⁸ states that "many authentic cases have been described as occurring in coloured people", presumably in America. Adrenal abnormality is, however, a common finding at autopsy; and Gillman & Gillman⁷⁷ say, "Atrophic and fibrotic adrenals, like the cytosiderotic or fibrotic liver, for the present at least, are to be regarded as another of the permanent stigmata of chronic malnutrition."

Feminization

Atrophic changes in the testicles are common findings and may, or may not, be malnutritional. However this may be, gynaecomastia is of frequent occurrence. This condition was diagnosed by Trowell 173 in no less than 5% of 500 railway workers examined by him. That malnutrition may be influential here is evidenced by the common occurrence of gynaecomastia in certain prisoner-of-war camps, as mentioned by Keys et al.¹⁰⁶ Moreover, carcinoma of the male breast, though a rarity in Europeans, is far from rare in Africans. It has also often been remarked that many African males show feminine physical attributes-slender build, soft skin, knock-knees, flexible joints, etc. Corroboration of this was found by Dean 53 who, in x-ray studies of the skeletal development of African adolescents, observed that the pattern of bony development in the boys followed patterns unlike those of European boys but closely similar to those which obtain in girls. Moreover, Vint's 181 valuable research on the African pituitary gland showed that the latter in the male has a ratio of acidophil to basophil cells closely similar to that which obtains in European females. Davies 49 says, "The hormonal effects seen in liver disease-gynaecomastia, testicular atrophy, alterations in hair distribution, and other changes-imply feminization and correspond broadly with the changes produced by administration of estrogens. The explanation appears to lie in the inability of the liver to inactivate endogenous estrogens."

63

From whatever cause, physical feminization, though far from universal, is an undeniable fact in the life of many African men. The psychological aspects of this will be discussed in a later chapter.

Neurological Disease

Meningitis takes the usual forms, the chief noteworthy points being the relative frequency of the primary pneumococcal type, and the fact that tuberculous meningitis is by no means limited to childhood. In view of this latter fact and of its insidious onset, tuberculous meningitis is apt to be missed and its subjects believed to be suffering from functional psychoses.

Encephalitis may occur in various tropical illnesses. In tick-borne relapsing fever, encephalitic syndromes are common; pneumococcal infections may also give rise to them (as shown by Davies⁴⁸). The whole field of virus encephalitis in Africa is still largely unexplored. Cerebral abscesses are occasional and sometimes due to amoebiasis.

Syphilis, trypanosomiasis and malaria are potent sources of neurological disease in the African, but have been discussed in a previous chapter (page 24) and will be referred to again at appropriate points.

Vascular disorders affecting the brain are important and most often take the form of syphilitic thrombosis, malarial embolism, and vascular accidents associated with nephritis, while (as mentioned by Davies ⁴⁸) "the vascular accidents due to atheroma that figure so prominently in European pathology are relatively rare".

Intracranial tumours are uncommon, and the gliomas frequently observed in European neurology are rarely seen in Africa. Gliomas do occur, but the top place in the list of space-occupying lesions in Africa is taken by tuberculomas and, in lesser degree, by gummas.

Parkinsonism, whether arising fairly early in life from preceding encephalitis or later in life as paralysis agitans, is quite frequent and shows the usual features of this condition.

Epilepsy is common in Africans. In some areas cysticercosis plays a part, and many other infections are at times responsible, but its general frequency is not explained thereby, and most cases fall into the class labelled "idiopathic". This problem is bound up with that of cerebral dysrhythmia in general and will require further discussion in another chapter.

Narcolepsy has attracted little notice in Africa, and the present writer cannot recall any cases. Solomon,¹⁶⁶ in a neuropsychiatric screening of 10,000 American Negro recruits, found no less than 19 cases of narcolepsy.

This represents a rate over 60 times greater than that in American Whites. He found that a significantly larger proportion of these came from the deep South than from the North and, having shown that climatic, dietetic, and organic factors could not be wholly responsible, suggested that the social environment of the southern Negro was of such a generally inhibitory nature for him that (on Pavlovian principles) it predisposed to sleep ! Records of the occurrence of narcolepsy in Africa would be interesting.

It remains to be mentioned that Sydenham's chorea appears to be rare, and that subacute combined degeneration of the cord and disseminated sclerosis may be absent.

Other Conditions

Arteriosclerosis and hypertension

There is little unanimity of opinion in regard to the general incidence of arteriosclerosis in tropical Africa, and the position is complicated by the prevalence of syphilitic cardiovascular disease and the low average age at death of the Africans seen at autopsy. Arteriosclerosis is quite common among the southern Bantu; it is only a little less common among American Negroes than among American Whites. Coronary thrombosis (other than syphilitic), however, seems to be rare throughout Africa; and this probably also applies to true angina pectoris, though cardiac neuroses, with precordial pain, palpitations, and breathlessness are seen from time to time. Meltzer ¹²⁴ has recently described three probable cases of coronary thrombosis with infarction in South Africa. Coronary thrombosis and angina are also rare in American Negroes; and it is possible, in view of Brink's ²⁷ studies of the coronary arterial pattern in southern Bantus, that the African has, here, a genetic advantage.

Hypertension and hypertensive heart disease are quite common, at least in many areas (South Africa, Rhodesia, and Uganda); but it is of much interest to note that in tropical Africa in general its chief causes are nephritis and renal obstruction, and that primary hypertension is rare; in South Africa, the exact opposite is the case. In America, where hypertension is widespread in all races, it is even more marked in Negroes than Whites. Finally, both in South African Bantus and American Negroes, the blood pressure tends to rise steadily with advancing age, whereas in tropical Africa, as shown by Donnison ⁵⁶ and by Williams,¹⁸⁷ it does not.

Keys ¹⁰⁵ has observed in Europe and in America a close association between serum cholesterol levels and arteriosclerotic developments and has shown that a progressive increase of both of these after about the age of 35 years occurs in societies where the caloric intake, and especially the fat consumption, is high; in other societies, no such increase was observed.

Anaemia

Welbourn ¹⁸³ has shown at Kampala that haemoglobin levels in the first two months of life are similar to those seen in England but that thereafter they are low. Some degree of anaemia, by English standards, is the rule in tropical Africa. Moreover, considering the high altitudes which obtain throughout much of the interior, this anaemia is often more marked than appears at first sight, since it has been shown by Holmes et al.⁸⁹ that healthy, well-nourished Africans living at an altitude of 4,000 feet (1,218 m) show a mean haemoglobin level about 6% higher than obtains in England.

Apart from the commoner causes of anaemia as seen in Europe, and a variety of genetic diseases and tropical infections, described in previous pages, the chief causes in Africa are malnutrition and cirrhosis of the liver. The causes are usually multiple.

Brief mention should also be made of onyalai, an acute thrombocytopenia of unknown origin and of sporadic occurrence. It is seen most often in young adults; is associated with haemorrhages into the mouth, nose, skin, and other parts of the body, and sometimes into the brain; and results in an anaemia of varying severity (and sometimes in a coma due to cerebral haemorrhage).

Finally, pernicious anaemia is so rare in Africans that Trowell,¹⁷⁴ during 20 years of medical service in Uganda, saw only one typical case. It occurs in American Negroes but seems to be less frequent in them than in American Whites.

Alcohol and other drugs

Alcohol is widely consumed, mainly in the form of beer made by the fermentation of millets or, in West Africa, of palm wine. Indeed, its consumption plays an integral part in most of the many ceremonial occasions that punctuate indigenous life. Drunkenness is common and a cause of much crime; in fact, in a series of 100 consecutive cases of capital crime seen by the present writer in Kenya, it headed the list of causes; it was the main cause in 23 cases and played a conspicuous part in others. Secret drinking is probably rare, and the drinking of spirits is confined to the townships. Alcoholic polyneuritis is not frequent, and delirium tremens is seen only in detribalized people.

Stramonium poisoning occurs occasionally from the eating of seeds of *Datura stramonium*. The symptoms are similar to those of belladonna poisoning, and a delirious or comatose state may ensue.

Miraa—the leaf of *Catha edulis*—is chewed by some Africans for its stimulant effects. A few persons acquire such a liking for miraa that they

PHYSICAL DISEASE

will chew it to the exclusion of other food and, in these circumstances, sometimes develop psychotic symptoms, as observed by Carothers.³⁰ It is likely, however, on general principles, that miraa merely discloses latent psychotic tendencies in these patients. Dr. T. F. Anderson has drawn the present writer's attention to the fact that miraa is widely consumed in British Somaliland without any serious consequences.

Peptic ulcer

Peptic ulcer has rarely been recorded in the past but is now being diagnosed more frequently. In America the incidence seems to vary from place to place. Steigman, according to Lewis,¹¹⁴ related the occurrence of peptic ulcer in an interesting fashion to change of environment, and found that the symptoms in Negro patients commenced on the average six years after moving from the agricultural South to the industrial towns of the North—a finding which can clearly be linked with Faris's ⁶⁴ study of populations in transition, as quoted previously (page 55).

This chapter on physical diseases in the African may well conclude with a penetrating reference by Trowell¹⁷⁴ to the general question of the "diseases of stress". He says:

"It would be wrong to suggest that diseases of stress do not occur among Africans in Uganda, but it is almost certainly true that many of these diseases are far less common among them than among Asians and Europeans living under similar climatic environment but having a different genetic background, a different incidence of tropical and other infections, and a different diet. The following diseases are far less common in Africans : rheumatoid arthritis, psoriasis, essential hypertension, coronary-artery disease, hypertensive cerebral haemorrhage, thyrotoxicosis, and peptic ulcer ... Professor Selye seems to have grouped together under his title of 'diseases of the general adaptation syndrome ' the large majority, but not all, of the diseases which are uncommon among Africans. This is more than a coincidence : it is a fact of overwhelming importance. Probably, however, none of these diseases is totally absent ; and my clinical impression is that they are commoner among upper-class Africans, who are better fed and less exposed to certain infections. At present the African appears able to prevent these diseases to an extent which those who regard themselves as advanced can only envy." Part II

THE MIND OF THE AFRICAN

CHAPTER 4

THE PROBLEM

The previous chapters have dealt with environment and with physical disease. It has been shown, on the physical plane, that disease is the rule and not the exception. Malnutrition and infectious disease are so rife that the average African is probably both undernourished and infected with more than one type of parasite. Apart from the immediately obvious effects of malnutrition and disease in infancy, it is likely that these result in permanent scars which must often stultify investigations of adults who seem at first sight to be reasonably healthy. So what of the African himself —his physique and personality in a state of good health?

In England it is often said that a man is as old as his arteries. In tropical Africa it would seem to be more true to say that a man is as old as his liver. A pathologist whose experience was wholly limited to Africans might be excused for thinking that a certain type of fibrosis was part of the normal structure of the liver and that persons who did not show this pattern were aberrant. It seems that sooner or later a man must die; but, as Mead ¹²² has emphasized, the manner of his dying is a function of the interplay of hereditary and environmental factors. There is no generally "normal" way of growing old and dying, and disease is often just a name for divergencies from usual patterns seen at various ages in existing populations. In a world of many cultures there is not, nor can there be, one general standard of good health, bodily or mental; there are only local standards.

Many investigations of blood chemistry, basal metabolism, etc. have been made in Africa, but bodily metabolism and endocrinology are so inextricably linked with diet and disease that such surveys have usually failed to shed light on the nature-nurture issue. Unless it is clear that the subjects conform to European environmental standards, variations from European patterns may not be racial; yet few African studies have come near to this ideal, and indeed few could do so.

Where can one find Africans who conform to European environmental standards—physical and cultural? Hardly in Africa. On the physical side, there are some rural areas where environmental factors seem by European standards to be satisfactory; but in these areas the cultural elements are divergent on the lines described. On the mental side, some Africans can be found in townships who have lost their tribal culture and

-- 71 ---

conform to European standards. But, by and large, these are exceptional people and even then are seldom more than one remove, by generations, from preliteracy. Can American evidence help? The American Negro, however, is seldom of pure Negro ancestry and even less often can prove it. Moreover, those who are relatively pure live mostly, for historical reasons, at a low economic level; so the study of these is vitiated in the same way as are most studies of rural Africans in Africa. American evidence is therefore of limited value.

Is there any merit in pursuing a study, the aim of which, as previously defined, is "to disentangle the parts that constitutional and environmental factors play in producing the distinctive characters of African psychology and psychiatry"? One has to ask, in fact, two questions. Firstly, is there any likelihood that African mentality is in any way basically different from European; and, secondly, is there any possibility of discovering that difference, if it exists?

In regard to the first question, it seems to the present writer that it is very unlikely that there will not be some differences. The African stock diverged from the European at least 30,000 years ago. Their common ancestors could be described as grandfathers at least a thousand times removed. It would be surprising if no divergent evolution had occurred in so many generations. Although human evolution in general has been "reticulate", and although African and European evolution in particular has been no exception to this rule, as shown before, yet this is not incompatible with some divergence too. We know, in fact, on the physical plane, that there has been some divergence. No one maintains that the colour of the African's skin, or his numerous sweat glands, or his more striking facial characteristics are due (in the individual) to environmental factors.

On the mental plane, however, there is divergence of opinion. Myrdal¹²⁹ says:

"The presumption has been—and still is, among most students—that, because there are certain physical differences between Negroes and whites, there may also be expected to be certain psychological differences. This does not necessarily follow ... Everything we know ... about development in the individual indicates that specific psychic traits, especially personality traits, but also the components of intelligence, are not present at birth and do not 'maturate' but actually develop through experience. Specific psychological traits, therefore, cannot be compared with specific physical traits in respect to their hereditary determination. Whether underlying capacities and the most general personality traits—speed of reaction, for example—differ in average between the two races is not known, but it should not be forgotten that they are never subject to direct observation in the same sense that physical traits are. Thus, even if there were some hereditary differences in psychic traits and capacities, it would still not be necessary for empirically observable traits and capacities to differ at all between the two races."

These observations are doubtless wholly true; but, although the psychic traits referred to are not present at birth, their potentialities of develop-
ment through experience are surely limited or governed by genetic factors. Biesheuvel,¹⁶ referring to a publication by UNESCO, says:

"As the declaration recognizes that variations in mental endowment between individuals have, other things being equal, a genetic basis, we must conclude that they believe the processes whereby populations become biologically differentiated ... to have affected only the basis of physical characteristics, and that the genes determining mental characteristics were excluded from their operation. Yet in view of the importance of mental and temperamental qualities for successful adjustment to the environment, one would have expected the same processes to have played some part in determining the psychological characteristics of races living for centuries under particular environmental conditions."

The problem, in all its intricacy, is discussed with incomparable lucidity by Morant.¹²⁶ Having regard to the facts that physical variation within groups is always associated with physical variation between groups and that there is admitted mental variation within groups, he says:

"There seems to be no reason why the general rule regarding variation within and between groups should not apply to mental, as well as to physical, characters. If variable characters of the former kind showed identical distributions for all racial populations that would be a situation unparalleled, as far as is known, as regards any physical character in man or in any other animal. It seems to be impossible to evade the conclusion that some racial differences in mental characters must be expected. Existing evidence may not be extensive and cogent enough to reveal them, but it must be inferred that some exist."

Morant then discusses possible associations between physical and mental differences and says, "Even if characters of mind and body were entirely independent, it would still be legitimate to infer that the conditions responsible for variation within and between groups for the one class must be expected to have effects of like kind for the other class."

Finally, although it is quite possible that no physical characters correlate significantly with mental, it does seem here appropriate to quote a few words from the writings of a distinguished dermatologist—Sequeira ¹⁵⁹— who said : "Both the cerebral cortex and the epidermis are derived from the same elementary embryonic layer—the epiblast. Ethnologists tell us that the characters of the skin and the hair afford better criteria for the differentiation of the various races of mankind than any other feature. It should therefore not be surprising on embryological grounds to find differences in the characters of the cerebral cortex in different races."

In regard to the questions posed above, there does seem to be merit in proceeding with this inquiry; but, to determine whether any answers can be found, one can only see what studies have been made and assess their merits in the light of this discussion. What follows is therefore largely concerned with the African's brain and its functions.

CHAPTER 5

THE BRAIN AND ITS FUNCTIONING

Brain Morphology

A variety of studies have been made of the African brain. Some of these, such as those by Cutore ⁴² and by Castaldi,³² refer to so few cases that no generalizations would be justified. Others, such as that by Erhart ⁶¹ on the olfactory and parolfactory regions, and that by Schepers ¹⁵⁴ on the corpus callosum, though clearly of much interest to the comparative anatomist, cannot yet be profitably used by the psychologist.

It is, of course, notoriously doubtful how far any morphological features of the brain are essential for mental functioning; and the readjustments that can be made by man in the face of cerebral destruction are a notable discovery of recent years. Nevertheless, it does seem that the brain is the physical seat of mind in man, and scientific interest in this organ is largely concerned with the role it plays in this regard.

Studies of the brain in different races have mainly dealt with total size, general shape, patterns of fissuration, and cortical histology. These aspects will therefore be discussed in that order.

Total size

Bennington¹¹ measured 193 African skulls from the Congo and Gaboon and found the mean cranial capacity of the 112 males to be 1,375 cc and of the 81 females to be 1,227 cc.

Vint ¹⁸⁰ published the results of an examination of 389 African brains which included the measuring of their weights. These brains were collected in Kenya Colony and were those of male adults who had died in the native hospitals of Nairobi, not in the prison or the mental hospital. The brains were fresh and appeared to be normal. Apart from these criteria there was no selection. Most of the subjects were Bantu Negro, a few were Nilotic Negro, and the subjects were mainly, if not entirely, without formal education of European type. The brains were weighed with their arachnoid and pia mater membranes complete and their ventricles full. Vint found the average weight to be 1,276 g, with extremes of 1,006 and 1,644 g, and, by assuming the density of fresh brain to be 1.037 (as stated by Matthews and as confirmed in some cases by himself), assessed their average volume at 1,230 cc. Finally, on the basis of Shennan's figure of 1,428 g for the average European male brain, he observed that the African brains were 152 g lighter, with a weight only 89.4% of that of the European brain. The reduction affected the fore-, mid-, and hind-brain proportionately.

Gordon 78 in the same year published findings based on a large number of cranial measurements made by himself on African males seen at the Native Labour Registration Office in Nairobi. About half of these had received some European education, and the other half had not. The great majority of the subjects were Bantu, a few were Nilotic, and a very few were Hamitic or Half-Hamitic. The Africans were of all ages from nine years upwards, and Gordon divided them into age-groups and made certain deductions about the development of the African brain during childhood and adolescence. It would seem unsafe, however, to attach too much importance to this aspect of his study : the African practically never knows his age, and estimates made by Europeans are often grossly faulty. Therefore, only those regarded by Gordon as fully adult (of 20 years or more) will be considered here. Gordon's assessments of brain capacity were based on Berry's formula for deriving this from certain head measurements, according to which 11 mm are subtracted from each measurement to allow for the thickness of the scalp and skull. But Vint had shown that 11 mm were inadequate, owing to a greater thickness of the soft tissues in Africans, so that the African capacities were slightly overestimated. Examinations of 1,290 adults were made, and their average brain-capacity was assessed at 1,316 cc. By comparison with the figure of 1,481 cc as given by Berry for European brains, Gordon deduced that the African brains were smaller by 165 cc and that their capacity was only 88.9% that of the European brain. Finally, Gordon examined 51 " educated " Africans and found that their brain volume lay about half-way between the African and European means; but, since a large proportion of these were not Bantu, the significance of this finding is quite ambiguous.

The average capacity of European brains as given in Martin's ¹¹⁹ standard textbook is 1,450 cc for men and 1,300 cc for women. If Vint and Gordon had compared their figures with those of Martin they would have arrived at proportions of 85% and 91%, respectively; and Bennington's proportion for males would be 95%.

In regard to the Negro in America, many studies of brain weight and volume have been undertaken, such as those by Todd (as quoted by Cobb ³⁶), Pearl, ¹³⁸ Simmons, ¹⁶³ and Connolly.⁴⁰ The results vary considerably among themselves; but, by and large, they tend to point in one direction and to show a volume rather less than that obtained in Whites. A notable exception to the rule is Herskovits' study, of which Cobb ³⁷ says that it is " more representative of the general Negro population than any other available". It consisted of 5,659 Negro subjects and showed an average cephalic module

value of 1,606 cc—a figure higher than that found in most European populations. This method of assessment, obtained as it is from the means of cranial length, breadth, and height, is, however, a very indirect approach; and it would seem from Connolly's 40 study of cerebral modules and brain weights in male Negroes and miscellaneous male Whites that this method of assessment (due to a difference in brain shape) is not always fair to the latter.

Speaking generally, however, of inter-racial assessments in America, Myrdal ¹²⁹ says: "It is no exaggeration to say that no physical difference between the average American Negro and the average American white, not even difference in color, has yet been measured quantitatively by research methods which conform to the rigid standards of statistics ... At the maximum we are justified in drawing from available studies only rather qualitative statements concerning average differences ... so that words and not figures are their more appropriate expressions."

The position in regard to the study of brain size in American Negroes remains, in fact, little altered today and, in general, can hardly be better expressed than it was by Cobb³⁷ when he said : "Summation of available data on brain weight suggests that the average brain of the Negro who comes to the dissecting or necropsy table is slightly smaller than that of the fairly comparable white, as indicated by studies of weight direct and of cranial capacity."

The significance of all these African and American findings is obscure. As far as the former are concerned, their importance stands or falls with the value one attaches to Vint's histological work—to be described in later pages.

In regard to brains in general, their weight is related to total bodyweight and there is, for instance, no difference in the average intelligence of European men and women, although the latter's brain capacity is, on the average, only nine-tenths that of men. Gross divergencies from the mean in any race are often associated with mental defect; but, within the normal range, the positive correlation of intelligence and head size is very slight and of the order of + 0.1 to + 0.2, according to figures published by Penrose.¹⁴⁰

When one comes to study the problem on an inter-racial plane, the obscurity is even greater, and the last word here may well be left to Connolly,⁴⁰ who says :

"The fact that Eskimos, according to Spitzka's (1902) estimate of a few specimens and the Buriat Mongols, according to Bushmakin (1928), have greater brain weight than the average of Europeans though their stature is lower, indicates that brain weight has little relation to the cultural level of a race. It might, however, have some relation to intelligence, though there are so many factors involved here that one cannot make any precise statement in the present state of our knowledge. It is apparent that brain weight is a racial character and hence any comparison of brain weight with less tangible qualities should be made within the race."

General shape

As in the case of brain size, differences in shape are statistical, never absolute. The Negro brain, both in Africa and America, and according to many writers (e.g., Bianchi,^{12, 13} Bork-Feltkamp,²⁰ Connolly,⁴⁰ Gordon,⁷⁸ Simmons,¹⁶³ and Vint ¹⁸⁰) is relatively long and narrow as compared with the European mean, and the cranial index (which approximates to 75 in many estimates) thus often becomes the variable showing the most significant racial difference. However, an index of this order, though significantly different from that, for instance, of the white populations with whom Simmons ¹⁶³ and Connolly ⁴⁰ compare it (i.e., Americans and Germans, respectively) would not differ in the same degree or even in the same direction from various other European groups. In any case, the cranial index is a figure of much greater interest to anthropologists than to psychologists.

According to Connolly,⁴⁰ the frontal and occipital regions occupy a slightly smaller proportion of the brain, and the parietal region a slightly greater in the Negro. His assessments are based, however, on the position of certain verticals which are of value for descriptive purposes but have little meaning in regard to function. The question is of some interest, partly in view of Carothers' ³¹ suggestion that many of the peculiarities of African psychology and psychiatry could be seen (in terms of physiology) as frontal idleness; but the data on Negro brains in Africa are not expressible in terms of frontal volume, relative or absolute.

Several writers have attached particular importance to the dimension of brain height. Thus Todd, as quoted by Cobb,³⁶ found that variations in brain volume were mainly and directly related to variations in the height dimension; and Vint ¹⁸⁰ said: "The reduction in size of the native brain, as compared with the European, seems to be accounted for mainly by a failure in the development of height." But Cobb records that Hrdlicka's findings showed that head height went with social factors and that Hrdlicka's Negro series had a high head height. Todd also found, in Whites and Negroes, that low head height was a "corollary of social status".

Both Vint¹⁸⁰ and Connolly⁴⁰ have commented on the shape of the temporal lobes; but, whereas the former described them as narrow, blunted, and turned inwards anteriorly, the latter described them as relatively narrow and tapering anteriorly.

In summary, although the brain shape of the Negro is somewhat characteristic, the existing data are of a type which can throw little light on function.

Fissuration

The outstanding recent work on the fissuration of the Negro brain is that by Connolly.⁴⁰ Admittedly the number of brains was limited—30 Negro being compared with 30 White—but a larger survey could hardly have been made without some sacrifice of the meticulous precision which characterizes this eminent monograph. The White brains were of Germans from Berlin, while the Negro brains derived from 28 American Negroes (regarded as full-blooded Negroes according to anthropological tests applied by Hrdlicka) and two Zulus. Four of the Whites and five of the Negroes were females.

Connolly found that no morphological features were exclusively characteristic of either the White or the Negro brain, but that various features occurred with different frequencies in these two populations. Among a great multiplicity of details, perhaps his most interesting observation from the point of view of the present monograph was the existence of a greater degree of fissuration and of anastomosis between the fissures in the Whites. Connolly admits that these features show some positive correlation with brain size, and that the White brains were, on the average, larger than the Negro brains; but he evidently considers that the fissural difference is not wholly accounted for on these grounds. The form of the sulci was probably also related in some measure to the general difference in brain shape. Bork-Feltkamp,²⁰ in an earlier study of six African brains, observed a predominantly longitudinal direction of the fissures which he related to the elongated brain. If any criticism could be fairly levelled at Connolly's monograph, it would be on the grounds that it was unfortunate that his Negro series was not compared with some more dolichocephalic group of Europeans than a German group is apt to be.

Some observers have attached importance to exposure of the insula—a common finding in the Negro—but, according to Connolly, "It is probable that the difference in frequencies [of various forms of the anterior limbs of the lateral fissure] is due to the shape of the brain in the two races, the White (German) brain being shorter than that of the Negro. This would tend to offer resistance to the downward growth of the frontal operculum and bring the orbital and parieto-frontal opercula together, thus more frequently covering the insula."

Importance has also been attached by various writers, including Gordon,⁷⁹ to the more frequent presence of the supposedly "primitive" lunate sulcus in Africans as compared with Europeans; but, according to Connolly, the lunate sulcus is present in most human brains, though in the Negro it is more commonly of a typical crescentic form whereas in the European it is more often irregular and wavy.

In general, it seems that the study of sulcal patterns, at least in the present state of our knowledge of brain function, fails to illuminate the psychological field. It is likely that mental capacity is related in some degree to the extent of the surface of the cortex, and clearly complexity of fissuration gives some evidence of this extent. But this evidence is only approximate and, in present forms, is too dependent on subjective estimates. Moreover, these estimates ignore the sulcal depth. This aspect cannot be ignored and gives rise to other questions. It is known, for instance, that certain groups of prehistoric men, such as the Neanderthals, had larger mean cranial capacities than have modern populations; and it is open to speculation, since fossil evidence gives no clue to sulcal depth, that economy of cerebral volume may have followed on the heels of overgrowth, and that a small and deeply fissured brain might be an upward step. However this may be, some objective method of assessment of total cortical surface area is clearly needed; and, until some such method is devised, little value for psychology can attach to estimates of total fissuration.

Cortical histology

In regard to the histology of the African brain, Vint's work,^{179, 180} published in two short articles, stands in an isolation as complete as it is surprising. Since Vint's observations could be most pertinent to the subject of this monograph, the articles must be described in some detail.

The field of study was slightly different in the two articles in that the former was based on a study of the prefrontal cortex of 35 brains whereas, in the latter, samples were examined from various parts of the cortex of 100 brains. The technique employed was also slightly different in that, in the first study, Vint examined sections taken from five different spots in the prefrontal cortex of each of the 35 subjects and at each spot he took four sections in relation to the convolution, i.e., at the crown, angle, and side of the gyrus, and at the bottom of the sulcus; therefore, 20 sections were examined in each subject. In the second study, specimens were taken from the crowns of the gyri only, since it had become clear that this was the thickest part which could be accurately measured; and sections were taken from eight areas-the fronto-polaris, frontalis agranularis, pre-centralis, post-centralis, temporalis superior, pars triangularis, area striata, and area peristriata. The latter study, however, includes the material gathered in the first, and the two clearly lend themselves to summarizing as a whole, as will be done in the following description.

The brains concerned formed part of the series described under the heading of "total size" in this monograph (page 75), so there is no need to recapitulate the circumstances of their collection.

Vint measured the thickness of the several laminae of the cortex and compared the averages for each of the eight areas with those given for the corresponding areas of European brains as measured by Von Economo. His findings can be expressed as follows:

Laminae					Pe	rcentage difference as compared with Europ e ans
L. zonalis						+ 9
L. supragranularis						- 16
L. granularis int	•					-17
L. infragranularis .						- 8
Total cortex				•		- 15

The figures for each area correspond fairly closely to the above average figures for the laminae as a whole, except that the infragranular layer in the area striata showed a figure of + 14%.

Vint reminded his readers that the supragranular layer is the last to be evolved, and pointed out that in his Africans it attained to only 84%of European development, and that the difference (of 15%) in total cortical thickness was mainly accounted for by the narrowness of this lamina. He stated that "for the whole brain the average ratio of the supragranular layer to the infragranular layer is 5:8. The average ratio of the figures of Von Economo for the same areas is 6:8".

In regard to the cortical neurones, Vint 180 says : " Cell counts carried out on sections from the different portions of the brains examined failed to show a diminution in the number per unit area, as compared with the brain of the European. Any apparent reduction assumed from inspection of photographs is attributable to the cells being smaller in the native brain, and by the fact that many of the cells are only slightly differentiated Cell counts per unit area are the same in the African and European brains." Vint ¹⁷⁹ drew attention to the facts that increase in cortical thickness after birth (in Europeans) is due almost entirely to the conversion of neuroblasts into adult neurones, mainly in the supragranular layer, and that postnatal increase in the weight and size of the brain as a whole is due mainly to myelination of the nerve axons from the neurones of the supragranular layer in association areas, since other neurones become mature and their axons become myelinated mainly before birth-statements which are in accord with later observations, as is clear from Conel's ³⁸ work. Vint concluded his first article with the words : "Thus from both the average weight of the native brain and from measurements of its pre-frontal cortex I have arrived, in this preliminary investigation, at the conclusion that the stage of cerebral development reached by the average native is that of the average European boy of between 7 and 8 years of age." He emphasized, however, that there were these immature cells and that it was "impossible to say how many would mature under conditions of life and education different to those which normally obtain today".

It is very clear that Vint's work deserves most serious attention. It has been criticized on several grounds. It has been said that the material derived from patients dead from unspecified diseases was compared with that from normal Europeans. But it seems to the present writer, who happens to be familiar with the quality of Vint's work in general, that the latter's criteria of normality may not be lightly challenged, and that, although the "normal" European brains came presumably from persons who had died from "specified" conditions, the distinction is not very meaningful. It has been said that the subjects of these examinations were likely to have been chronically unfit in life since, as Vint himself has shown elsewhere, about 70% of the African subjects who came to autopsy at Nairobi were suffering from cirrhosis of the liver (to mention but one common African disability), and these were not excluded. However, if Vint had waited for persons who were physically normal by European standards, he would be waiting yet. There remains one major criticism. Comparative assessments of cerebral histology are notoriously difficult and require special knowledge of this type of work, and they are of little value unless the preparation of material and the techniques that are used are virtually identical for the two groups. These requirements were not convincingly fulfilled.

There are other minor criticisms but, when all is said, the chief pity is that this fine piece of pioneer research did not inspire something more than criticism. There is a crying need for more work along these lines. Studies of the brains of infants and young children, of neurone maturation and of myelination in relation to age (and having regard to the nutritional state), are also badly needed and might well supply the answers to several outstanding problems of Africa today.

Electrophysiology

To French workers belongs the credit for first attempting to explore the hitherto uncharted sea of "normal" African brain waves. Prior to 1949, it seems to have been tacitly assumed that EEGs in African populations coincided with the patterns seen in Europe—an assumption which is no doubt justified in regard to the Negro in America (as the present writer has been informed by Dr. D. J. Simons of the New York Hospital), but which cannot be assumed in Africa without experimental evidence, especially in view of Vint's work on African cerebral histology. In that year, however, there appeared an article by Gallais, Corriol & Bert ⁷² of arresting interest on this subject; and this article was followed by another, from the pens of Gallais, Miletto, Corriol & Bert,⁷³ which included the material of the first and in the main corroborated its findings. These two articles can be summarized together. In all, 100 apparently normal and healthy African soldiers from several parts of the Guinea Coast of Africa were examined with six leads covering the frontal, temporal, precentral, and occipital areas on both sides and coupled with an automatic frequency analyser. Spontaneous rhythms and reactions to hyperventilation and the stroboscope were studied.

The writers compared their findings with those of Gibbs who, in a study of 3,000 apparently normal European subjects, regarded 13.8% of these as electro-encephalographically abnormal by various criteria which the French writers also apply to their own data. By these standards they found 58% of the African subjects' records were abnormal.

The anomalous findings were as follows :

(1) 8 showed delta waves at rest.

(2) 78 showed visible theta waves in the primary tracing; in 31 of these it was the dominant rhythm in at least one area, and in 11 it was the only basic rhythm.

(3) 20 showed spontaneous hypersynchronous bursts.

(4) 46 showed paroxysmal anomalies on hyperventilation.

(5) 36 showed no response to stroboscopic stimulation.

(6) There was a relatively wide diffusion of the alpha rhythm over the cortical surface.

(7) There was a relatively large occurrence of low-volt poorly-reacting tracings.

In the earlier article, Gallais and his colleagues regarded these findings as evidence of neurone immaturity with a tendency to paroxysmal manifestations; and in the latter article, they inferred a predominance in cerebral functioning of basal nuclei, with a lability of higher centres favouring paroxysmal manifestations, and which might be due to organic cerebral disturbance from genetic causes (e.g., sicklaemia), from malnutrition, or from endemic infectious diseases.

These findings are, of course, profoundly interesting; but it would have been unsafe to theorize about their meaning for African psychiatry unless they were confirmed by other workers. With a view, therefore, to discovering whether the French results had general validity, Dr. A. C. Mundy-Castle, of the National Institute for Personnel Research, Johannesburg, was approached; and his report, as summarized below, is the result of his helpful co-operation in this inquiry.

Mundy-Castle, in a hitherto unpublished study, examined 66 normal adult Bantu-speaking Africans, comprising 53 men and 13 women, and used a six-channel electro-encephalograph and automatic frequency analyser. The educational level of the subjects was, on the average, a low one. Most of them derived from rural districts, but had worked in Johannesburg for several years in unskilled domestic or garden work. The records covered the frontal, temporal, parietal, and occipital areas on both sides and were made at rest, during hyperpnoea, and (in 63 subjects) with photic stimulation. As control he used a group of 72 normal European adults, comprising 21 men and 51 women, who had been recorded and analysed in a comparable manner. The European group was, on the average, several years younger and was of a considerably higher educational standard than the African. Criteria of abnormality in the resting and hyperventilating records were in accordance with those laid down by the British EEG Society, and in the stroboscopic records were in accordance with those previously suggested by Mundy-Castle himself.

The results, as far as they are of interest to this inquiry, were as follows. There was no significant difference in the incidence of abnormality or questionable normality between the two groups, neither in the resting record—during hyperpnoea, or during photic stimulation—nor in the incidence of low-voltage fast records. Within the normal range, however, there were several differences that reached statistical significance and, in regard to these, the African group showed

(a) a lower incidence of beta rhythm in the resting record;

(b) a higher incidence of little or no response to flicker;

(c) a lower mean amplitude of flicker response in the theta band, apparently due to the fact that only 13% of the Africans (as compared with 33% of the Europeans) showed any response;

(d) a lower incidence of 3rd subharmonics to flicker; and

(e) significant differences in the distribution of alpha rhythm, suggesting a more anterior origin of this activity among Africans than Europeans.

Mundy-Castle concluded that "the determination of a normal EEG pattern is largely heredito-constitutional" and discussed the hypothesis that most of the significant differences he found "might be attributable to the greater complexity of the Europeans' social, intellectual and cultural background".

No sweeping conclusions in regard to African mentality can be arrived at on the basis of these data. But, although the French findings are confirmed in only two particulars, and although it seems unlikely that any gross differences between Africans and Europeans are generally true, yet it is clear that electrophysiology has emerged into a promising field, and that the study of groups of grossly different background by this method may ultimately throw much light on the relation of cerebral activity to mental.

CHAPTER 6

PSYCHOLOGY

Preliminary Survey

Many attempts have been made to describe African mentality but, in recent years at least, have usually been made apologetically—saying, for example "This is the classical conception", "This is the popular stereo-type", or "It has been said". Such apologies are not so necessary; these "classical conceptions" are largely true today. Their meaning is another story.

What has been said?

Westermann¹⁸⁴ is well worth quoting at some length. He writes :

"With the Negro emotional, momentary and explosive thinking predominates ... dependence on excitement, on external influences and stimuli, is a characteristic sign of primitive mentality. Primitive man's energy is unstable and spasmodic. He is easily fired with enthusiasm for an undertaking and begins his work with great zest; but his interest dies down quickly and the work is abandoned ... Where the stimulus of emotion is lacking the Negro shows little spontaneity and is passive. He waits for what is coming to him and evades what is inconvenient, or adapts himself to it, instead of bravely confronting the obstacles of life and mastering them... The Negro has but few gifts for work which aims at a distant goal and requires tenacity, independence, and foresight.

"The interest which the African takes in things is not an academic one. They concern him in so far as they are useful to him or can do him harm ... observation is often superficial; conclusions have been drawn from it in a most uncritical way; and instead of further thought on the matter, word spinning has seemed sufficient ... knowledge mixed with a child-like play of the imagination.

"Within his own circle he is never in a position where he does not know how to behave or what to do ... work is not specialized in the same way as with us and therefore the non-expert 'layman'... does not exist. The African is able to enlarge with ease on any subject ... he does not suffer from social disabilities, for there is hardly any economic dependence, nor is there a distinction between servant and master, rich and poor. Hence nobody suffers from an inferiority complex ... It is natural for him to express his real personality, for everybody knows everybody else, and no-one can therefore permanently conceal his nature.

"A man does not plan, set himself an aim and exercise his strength in attaining it. The individual as such has no aim in life if his task is to become exactly like the rest ... The motives for his actions are predominantly social, not individual, and are deeply influenced by public opinion ... Personal responsibility is avoided wherever possible."

The French neuropsychiatrists Gallais & Planques ⁷⁴ record as classical notions of the African, with especial reference to the population of French overseas possessions in Central and West Africa, that

"The best known traits of the normal psychology of the African are, above all, the importance of physical needs (nutrition, sexuality); and a liveliness of the emotions which is counter-balanced by their poor duration. Sensations and movements comprise the chief part of his existence. Intellectual life, evocation of the past, and projects for the future preoccupy him but little. Separated from these regulating influences, he lives essentially in the present (in this sense like a child), and his conduct submits to influences and impulses of the passing moment and thus appears ' explosive and chaotic ' as Spencer says.

"Characteristic of this emotional lability are such facts as the following which each of us has witnessed many times in Africa. Two Africans have engaged in argument (an unrepaid loan, an unfaithful wife, an uncompleted bride price, a stolen kid, etc.). Beginning with bargaining, the discussion merely animated, becomes vehement, the tone rises, insults and abuse are exchanged in Homeric fashion, shouting is accompanied by frenzied gesticulation and staring eyes, and at the summit of their fury the two are about to come to blows. In a few moments a ferocious battle will begin. If at that moment someone makes a joke, the fury is instantly dissipated in an immense roar of laughter, the appearance of anger gives place to that of exuberant mirth, and our two antagonists comment merrily on the jest which has produced this surprising volte face, giving each other great thumps on the back and calling the bystanders to witness the full flavour of the joke."

Another French writer, Barbé,⁶ summarizes current stereotypes on African mentality thus :

"(1) Priority of functions closely related to physiological activity, especially sensory, whence derives a superiority of concrete memory, ability to acquire vocabularies and the niceties of grammar, verbal fecundity and a pronounced taste for conversation.

"(2) From the affective point of view, impulsivity violent but unsustained, inconstancy, recklessness—to borrow a word from modern characterologies, an 'immaturity' ('primarity') which prevents complexity and integration in the emotional life.

"(3) In the field of intelligence, an inaptitude for that which appears to be its essential function: co-ordinating the parts of a whole, perceiving abstract relations particularly mathematical.

"(4) At the level of action, sociability, love of routine, lack of persistent effort, passive obedience to events. In general, a submission of integrative and creative power to the profit of automatisms and instincts."

Carman & Roberts²⁹ described the Jaluo—a Nilotic tribe—as optimistic, cheerful, ready to forget wrongs, happy-go-lucky, irresponsible, and living for the day.

Cicely Williams,¹⁸⁸ writing about Africans of the Gold Coast, said :

"Compared with the white races he seems to lack initiative and constructive ideas, although he may be a shrewd judge of the attainments of others. He has a childlike gift for distinguishing the sincere from the false, the shepherd from the hireling. He is almost invariably dishonest. He wishes to attain wealth without expending too much energy. He does not consider that there is any obligation to honesty beyond the members of his own family. For them he will give up anything he has and steal anything he has not. Outsiders are fair game and are treated with the utmost callousness. He is conventional and loves talking. He will invent all manner of fabricated excuses out of politeness combined with a facile verbosity. Power of observation is astonishingly defective ... They seem to be incapable of sustained effort ... An African has little imagination and little humility. His self-esteem is often ludicrous. And yet he is willing to shelter behind 'You can't expect better from a poor African'... I have seen enough of the excellent qualities of the Africans—their good nature and cheerfulness, their astuteness, their uncomplaining fidelity, their patience in very great trials—to know that they are worth educating. The qualities most in need of education are observation, imagination and judgment."

Various writers have drawn attention to the African's constant tendency to regard himself as faultless and to blame the outer world for his misfortunes. Ritchie ¹⁵² writes, "He introjects all good from without and projects all bad from within."

These are the European conceptions of the African. Examples could be multiplied indefinitely, but it would be a pointless pastime, for these are representative; and it is clear that, as African life impinges on European observers these conceptions represent the truth. However completely they may, and can, be explained away, these attributes are apparent to most observers and are worth summarizing. The African accordingly has been described as conventional; highly dependent on physical and emotional stimulation; lacking in spontaneity, foresight, tenacity, judgment and humility; inapt for sound abstraction and for logic; given to phantasy and fabrication; and, in general, as unstable, impulsive, unreliable, irresponsible, and living in the present without reflection or ambition, or regard for the rights of people outside his own circle. To counteract these ruderies, he has also been described as cheerful, stoical, self-confident, sociable, loyal, emotionally intuitive, and eloquent, and as bearing no grudges and having an excellent memory, a large vocabulary, and an aptitude for music and the dance.

Temperament

No attempt was made in the preliminary survey to separate various faculties of mind; but, for the purpose of description of the work that has been done, some separation must be made.

The views of Biesheuvel on temperament must, in view of the eminence of his work on African intelligence, command most serious attention. Biesheuvel has found in practice that the Heymans theory of temperament is the most useful. On this theory it is held that there are three basic factors which act in combination to produce the diverse temperaments seen in various people. There is, firstly, a factor of primary and secondary function. This title is an expression of the fact that mental events govern behaviour both when they are actually present in consciousness and after they have ceased to be present in consciousness, and that behaviour depends on the relative dominance in each person of these two types of reaction. Those who tend to react immediately to present experience show "primary function" and are more impulsive, restless, lively, distractible, inconsistent, and irritable; the others, who show "secondary function", are more cautious, calm, consistent, and emotionally sustained. There is, secondly, a factor of activity, which implies a drive to action, mental or physical, a capacity to persevere in spite of obstacles, and a desire for occupation for its own sake. "Inactives", unlike "actives", are not prepared to exert themselves unduly but take an easier road. Finally, there is the factor of emotionality. "Emotionals" experience emotional states more frequently or strongly and are more enthusiastic, sensitive, sympathetic, irritable, and labile; whereas "non-emotionals" are more matter-of-fact, placid, prosaic, and level-headed and less capable of being deeply moved.

That this theory has value for psychology is supported by the fact that a remarkably similar scheme was developed independently by Pfahler,¹⁴¹ and Biesheuvel has found some further confirmation of its fundamental application from electro-encephalography. Biesheuvel ¹⁴ suggests quite tentatively that Africans show more tendency to "primary function" and to "inaction" than do Europeans, whereas "emotionality" is much the same in both. He considers, however, that it is impossible to say whether the tendency towards "inactivity" among Africans is real, or merely apparent.

The present writer has no criticism of the theory, nor of Biesheuvel's assessment of Africans on this basis and, indeed, as will be shown, regards "primary and secondary function" as a fundamental issue. He has much doubt, however, as to the extent to which any of these traits are constitutional and as to how far the electro-encephalography of adults does distinguish between genetic and acquired factors. The psychology of Africans, as described in later sections of this chapter, seems to show that all these temperamental factors can be explained on other than hereditary grounds.

Intelligence

In the hope that light would be thrown on the knotty question as to whether there are genetic differences in general intelligence between the Negro and the White races, many attempts have been made to assess intelligence in Africa by tests. The most prominent of these studies are described below in chronological order, since this order is highly relevant to their content.

1. Fick (1929) ⁶⁵ tested 293 Zulu schoolchildren between the ages of 10 and 14 years inclusive, using the American Army Beta Test—a group test devised for the assessment of non-English-speaking recruits to the

PSYCHOLOGY

American Army. He compared the results with those obtained from 10,000 White South African children (and with groups of poor-White, Coloured, and Indian schoolchildren). He found that the African medians were considerably lower than those of any of the other groups and almost tallied with those of educable defectives, and that an average of only 1.2% reached or exceeded the medians of similar ages of White children. He carefully stressed, however, that, as regards the African children, their education was inferior, pictures and diagrams as used in the test were strange for them, the group test situation was itself strange, their ages were doubtful and that, in general, the European tests might not be fair to them.

2. Oliver (1932)¹³⁴ performed intelligence tests on 124 European schoolboys and 93 African schoolboys, both groups in Kenya Colony. The average age of the European boys was 15 years and of the African, 191/2 years; assuming that adult mental age is reached at 15 years, 43.5% of the former and 99% of the latter were of full adult intelligence. He used a battery of non-verbal group tests comprising problems dealing with pictures, numbers, letters, and other symbols. He found that the African mean was 85% of the European mean and that only 14% of the Africans reached or exceeded the European mean. He admitted that the quality of the schooling, and familiarity with visual symbols, with pencil and paper, with the need for speed, and with the test situation itself were all in favour of the European group, and that sampling was not ideal, but summarized these aspects in the following words : "the samples of the races tested were far from being identical apart from race, yet were probably as nearly comparable as could at present be obtained; while the tests used were probably fairer to both groups than any others available".

The present writer is familiar with the background of the groups concerned in Oliver's study and can bear witness to the general justness of this summary. It might be argued that Oliver should have used performance tests; but, in the present writer's experience, as expressed elsewhere, these (in orthodox forms) are at least as unfair to the sophisticated African as are tests by visual symbols. Oliver's conclusion, which was based partly on his tests and partly on an anatomical article by Vint,¹⁷⁹ was as follows:

"(i) There are not sufficient data to establish definitely how the abilities of natives of East Africa compare with those of Europeans. As far as the data go, however, they seem to suggest

(ii) that the average cerebral and mental development of natives of East Africa is in the neighbourhood of 85% of that of Europeans; and

(iii) that a certain percentage of East African natives equal or excel the average European in cerebral and mental development."

3. Gordon (1934) ⁷⁸ recorded an important study of the brain capacity of East Africans. The main study is described elsewhere in the present monograph (page 76), but other portions of his article are relevant here. He refers to the general opinion that native children are bright but that after adolescence the promise is not fulfilled. In full accord with this, he found that measures of hand-grip and of vital capacity showed a superiority of African children over European up to the age of 15 years, but that thereafter there was little increase in Africans, whereas such European measures failed to increase only after 20 years. He also conducted mental performance tests on Africans, both educated and uneducated, and found both categories inferior (in a degree which is not recorded) to European means; but he concluded that all such tests in Africa are quite misleading.

4. Fick (1939),⁶⁶ in a monograph entitled *The educability of the South African Native*, arrived at the following main conclusions :

"(a) A survey of the existing work on the educability of Natives reveals a paucity of experimental and objective data.

(b) The unanimity of these data compensates for their fewness. Around the ages of 13 and 14 Native children are from 4 to 5 years inferior to European children in educability as gauged by the results of intelligence tests.

(c) Additional data presented in the present study and based on a variety of tests and on a considerable number of cases confirm previous findings.

(d) Although all the facts regarding the educability of the Native may not be in, the available objective data point to a marked inferiority on the part of the Native in comparison with Europeans. This inferiority occurring in certain tests in which learning or environmental conditions are equalized for the Native and European groups does not appear to be of a temporary nature."

5. Biesheuvel (1943),¹⁴ in a monograph entitled *African intelligence*, set out (a) to discover to what extent the growth of intelligence can be determined by factors other than heredity, i.e., by cultural, home, school, nutritional, and temperamental factors; (b) to study the situation of the South African population in regard to each of these factors; and (c) to assess the validity of Professor Fick's data and interpretations in the light of these findings. He proceeded to show that intelligence can surely be influenced by all the factors mentioned, and that the total decrement from these factors in the African might well be 30 points of I.Q. He concluded that African but that, if one insists on doing so, one should add 30 points to African I.Q.'s to allow for these factors and that, if one does this, the retardation described by Fick is entirely accounted for.

It has indeed become abundantly clear in recent years that there is no present possibility of assessing the comparative general intelligence of Europeans and Africans in Africa; environmental differences are too many and too great and have profound effects on traits (such as speed)

PSYCHOLOGY

and motives that influence the test achievement. Although, as Biesheuvel ¹⁶ says elsewhere, "the effective intelligence of Africans, in terms of ability to reason, to make adjustment to the needs of Western technological society and to profit by higher education, is appreciably below the mean of European communities", yet "the culture-free intelligence test is, in fact, a contradiction in terms, as intelligence is itself a culturally determined phenomenon". Moreover, as Anastasi & Foley² say: "' Intelligence' tests measure certain abilities required for success in the particular culture in which they were developed. Cultures differ in the specific activities which they encourage, stimulate, and value. The higher mental processes of one culture may be the relatively useless 'stunts' of another." The conception of total intelligence is therefore one of little value for comparing peoples of grossly different background. Whether or not the search for a total quantitative difference of innate potential is theoretically legitimate, it is at present unprofitable in Africa; and, since the publication of Biesheuvel's masterly monograph of 1943, no one in Africa has had the temerity to plunge into seas which are so inviting, yet have such treacherous undercurrents; and "the rest is silence".

Aptitudes

Interest in African ability is undiminished, but research has developed on more particular lines. Notcutt¹³³ says, "Analysis of qualitative differences has received comparatively little attention" and by "factorial analysis, it should be an important task to find out whether the factors that appear in the intellect of Africans are the same as those isolated in America and Britain".

Northcott ¹³² says : "Scientific investigations in the field of psychology have shown that the question of aptitude, that is, of fitness for the tasks to be done, is of more significance for industry than intelligence."

The approach has thus become more frankly utilitarian; and Biesheuvel,¹⁷ for instance, has developed a battery of group tests for the occupational classification of African recruits to the gold mines. About 50 to 100 subjects are dealt with at a time. Prior instruction of the subjects is achieved with cinematograph films; and, by means of subsequent performance tests and tests of the "leaderless group" type, the recruits are classified into supervisory (boss-boys), mechanical, and non-mechanical categories. These tests have proved exceedingly successful and have reduced the training wastage to 3.6%, as compared with 26% for (expected) chance selection or 17% for the older types of selection.

This work is clearly of the utmost value but does not throw light on African abilities as compared with European. There has, however, been some work of greater relevance for this purpose. Biesheuvel,¹⁵ in a series of tests of 125 White and 125 African children between the ages of 12 and 15 years, found no significant difference in the means of the Passalong, Maze, and Match tests; but the means of the Koh's Blocks and Cube Construction tests were low in the African children. These findings suggest a low ability to manipulate spatial relations, especially in three dimensions, and accord entirely with the present writer's experience, as described elsewhere.³¹ They can, however, be explained on cultural grounds, as will be shown.

Bourdel²¹ published the results of the study of a variety of mental faculties among the Oubangien people Sudan. Here it was found that subjects who were classed among the poorest in all the tests (and who lay in the 8th decile) showed similar achievements to those of average Europeans (i.e., of the 5th decile) in tests of long-term verbal memory. In tests of immediate memory, the advantage lay still more markedly with the Oubangiens. In regard to the general level of concentrated attention, the reverse held good, and Oubangiens of high achievement in all the tests (of the 2nd decile) scarcely attained the level of average Europeans. It was found in general that the best Oubangiens on each test attained the same levels as the best Europeans (metropolitan French), but that below this élite, who comprised some 6% of the total tested, achievement fell rapidly away to the general mediocre and low level of the bulk of the subjects. It was concluded that the conception of overall intelligence is rather meaningless here and that, for practical purposes, it is the best-developed faculties that count, but that among the Oubangien élite these higher efficiencies are ill-integrated in their total personalities.

The italicized sentence is especially interesting; and, though such experience with Africans has not often been recounted, it has been a frequent observation both in tests and real-life situations. Mr. A. Laird, psychologist at Kampala, has informed the present writer that, in the application of the Vigotsky test to about 50 Africans, the mean achievement was much inferior to the European mean but that three Africans completed the test in times equivalent to, or better than, the best recorded European times.

Of the more mysterious mental powers that have often been attributed to Africans, little that can pass as "scientific" has been written, nor would they be so "mysterious" if it had. If intuition means an ability for swift and just assessment of people's characters and wishes without apparent clues, then many Africans possess this power in a high degree; and Laubscher's¹¹¹ tales of telepathic powers in a witch-doctor are as convincing as such anecdotes can be.

The field of special aptitudes and profiles is thus full of buried treasure, and is largely unexplored.

PSYCHOLOGY

Total Personality

Attempts to assess African personality in any way approaching statistical and scientific lines have been notable for their paucity. Such an attempt was, however, made by Carothers,³¹ who described 33 examples of unreliable behaviour in Africans. The examples were collected by several Europeans from among the latter's employees and others, and the Africans concerned were of all degrees of sophistication and "were not feebleminded or evil, but fair samples of their race". The failures were of the usual kinds met with in Africa; and the writer said that, although such failures "occur from time to time, of course, in experience of European employees ... they would only occur frequently in western European civilization in persons who would be considered thoroughly irresponsible, whereas Africans who do not frequently default in ways like these are rather exceptional people".

Carothers ³¹ attempted to discover the common bases of these failures, and his findings were as follows :

"The first and most striking point is a failure to see an event as an element in a total situation, and as having a variety of relevant relationships. Only 3 or 4 of the examples do not show evidence of this failure. The relationships that were most frequently ignored in this series were the causal, functional and temporal, which are hardly separable, and of which at least 25 of the 33 examples show evidence. Examples of other ignored relationships, e.g., spatial, ethical and occupational, occurred, but less commonly. The inability to attend to two things at once, or at least to keep the second near to the threshold of consciousness while attending to the first, and which frequently accounts for a lack of distractibility, is clearly seen in 4 examples and is part and parcel of the same phenomenon.

"The second point is a continual tendency to follow routine procedures in an unreasoning fashion, and of which there were at least 9 examples in this series. This point is closely linked with the first.

"The third point is a lack of interest and attention unless the situation appeals in a directly personal and emotional fashion. Of this again there were at least 9 examples.

"A number of minor points arise but, since they were each seen in only one or two examples, it is not proposed to discuss them further. It is worth while noting, however, that there is evidence in at least two examples that the African seems to feel little sense of a continuing personality."

The writer emphasized that the first point mentioned did not apply in the world of sound and quoted Biesheuvel ¹⁴ to the effect " that at least in the auditory sphere, the African's ability to grasp, work out, remember, and create intricate new relations of a most abstract kind is by no means inferior to that displayed by the European in the visual or conceptual sphere ". He then proceeded to consider whether the African's failure to appreciate the total relevant situation from the European point of view was (a) a mental disability in him, or (b) merely apparent to the European and due to the fact that matters which are important from the latter's point of view are really unimportant from the African's. The writer said : "No doubt the second possibility is often true, but it is by no means the whole truth. Among the 33 examples there were only two in which the requirements of the two cultures definitely conflicted. In all the other examples the failures were not directly due to environmental factors although, of course, such factors may explain the mentality that underlay them. Even if the European work is undertaken solely with a view to supporting life in the reserve, which is by no means always true, it should still be an important part of his total situation, and demands a sustained attention which it would receive from more sophisticated people in a like case. Many Europeans, after all, are employed on strange and uncongenial work, yet are efficient. Moreover, the European must and does often adapt himself to very new conditions of life, as when the boy is first sent to boarding school, the youth from the country drifts into the town, or the grown man emigrates."

Carothers therefore concluded that these three fundamental tendencies were not illusory but represented some real difference from the European.

A study of quite a different nature was undertaken by Nadel ¹³⁰ concerning the personalities of the peoples of two cultural groups within Africa. The Yoruba and the Nupe are two Nigerian tribes of, presumably, very similar genetic constitution; but, whereas the former have developed a highly complex religious system (with a complicated and well-rationalized hierarchy of deities-each with his specific function) and more elaborate graphic and plastic arts, the latter retain the generalized "mana" concept and their art forms are quite crude. Nadel examined a number of youths whom he had collected from several parts of each tribal area and whom he considered to be fair representative samples of each group. A story, regarded as equally comprehensible in both cultures, was chosen and was recounted to all the boys, who were required to repeat the story four hours after it was told and again a week later. Six pictures were similarly chosen, and all the boys were required to write descriptions of each picture forthwith and again at the end of a week. It was found, in general, that the Yoruba boys tended to stress the logical and rational elements in the story and the meaning in the pictures, and even to amplify the rational connexions on later repetition. The Nupe, on the other hand, showed more appreciation of the situational facts and of the connexions of time and place in the story, and their response to the pictures was essentially enumerative and appreciative of spatial arrangements and, on repetition, drama and circumstantiality were increased. Therefore, on the whole, the Yoruba accounts became more meaningful and the Nupe accounts became more circumstantial and dramatic.

This study has an interest which goes far beyond that which attaches to comparison of tribal attributes. It relates mental functioning to cultural background and even shows, as Nadel noted, that this relation may itself be clearly meaningful. More variations on this theme might well be profitable.