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Source: *Canadian Journal of African Studies / Revue Canadienne des Études Africaines*, Autumn, 1970, Vol. 4, No. 3 (Autumn, 1970), pp. 333-349

Published by: Taylor & Francis, Ltd. on behalf of the Canadian Association of African Studies

Stable URL: https://www.jstor.org/stable/484066

Canadian Journal of African Studies, IV, iii (1970), 333-349
Revue Canadienne des Etudes Africaines.

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D. R. F. Taylor*

Kikuyuland

Kikuyuland lies astride the equator in the highlands of Kenya (Fig. 1). The plateau on which over one million Kikuyu live covers an area of about 2000 square miles on the eastern slopes of the Aberdare mountains.

The plateau is volcanic in nature, the underlying rocks being a series of basalt flows one over the other, and it slopes steeply from over 13000 feet in the Aberdare mountains to under 4000 feet on the Sagana plains; a 9000 feet drop in less than forty miles. This steep slope resulted from a tilting of the plateau during the formation of the Kenya section of the Great Rift Valley, a relatively recent geological process which is still in progress.

Hundreds of streams run eastward from the Aberdare mountains to form part of the headwaters of Kenya's main rivers, the Tana, Athi, and the seasonal Ewaso Nyiro. These streams have deeply dissected the volcanic plateau into a series of parallel ridges and valleys running west-east. The valleys have very steep sides and in places are over four hundred feet deep. In many of these valleys there are numerous waterfalls and rapids.

The soils of Kikuyuland are almost all volcanic in origin although, in the lower areas, these merge with soils derived from basement rocks. These soils lie in varying depths over the basalts and, in some places, are over one hundred feet deep. Soils on the ridge top are thicker and contain more humus than the thinner, valley-side soils. In many of the valley bottoms, there are black, alluvial soils. Slope, which influences drainage, is the chief factor causing soil variation.

The climate of the plateau is a temperate one, largely as a result of altitude. Mean annual temperature varies between 50°F and 60°F, and there is a twelve month growing season. Above 8000 feet, temperatures are lower, but this area is largely uninhabited — being forest reserve. The mountain rain forest of the Aberdares once covered almost all the plateau but was progressively cleared and destroyed as the Kikuyu advanced into this area.

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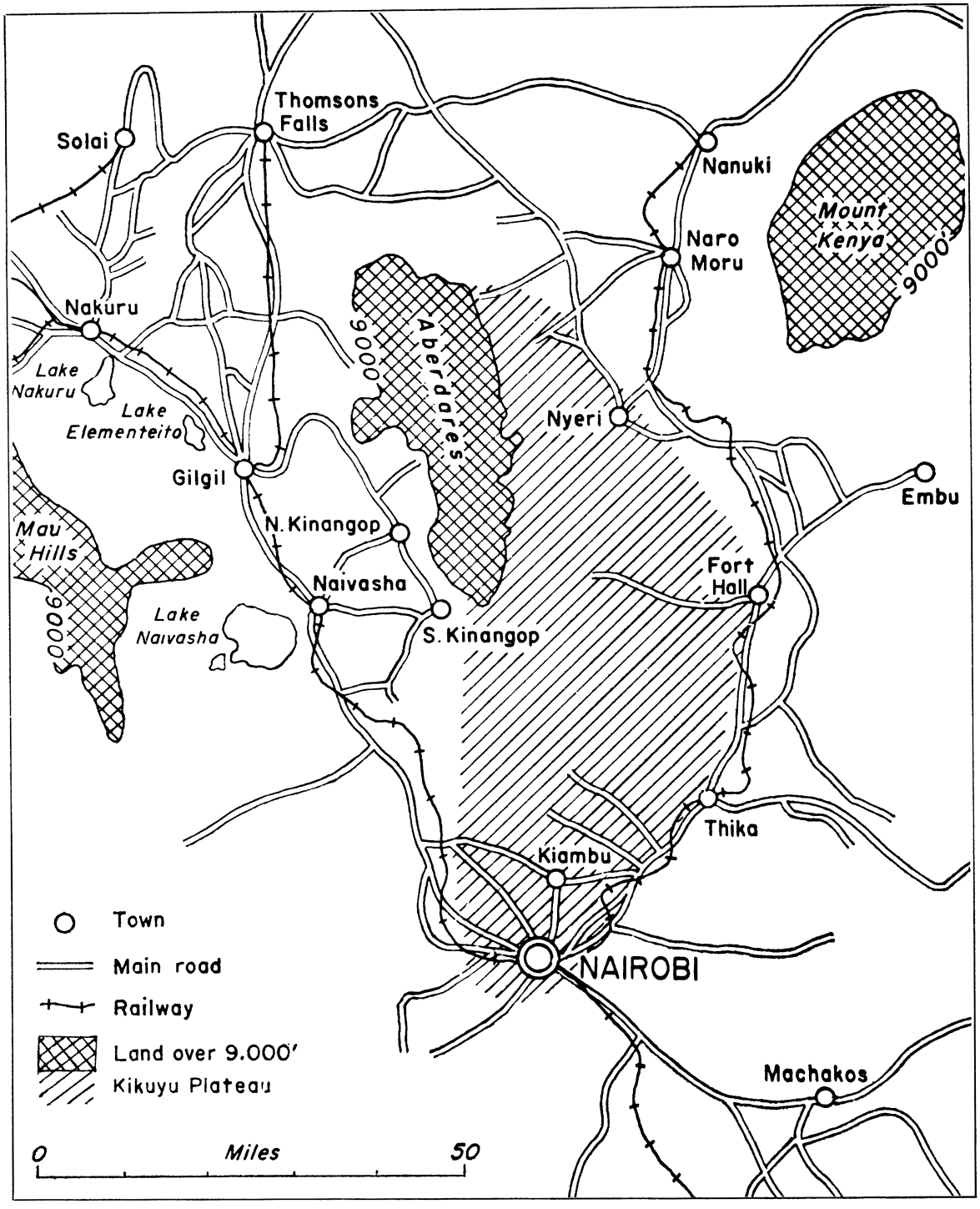

Fig. 1 — THE KIKUYU PLATEAU

Rainfall totals vary from 40 inches per year in the lower areas to over 100 inches per year in the mountains and there are two main rainy seasons: the long rains of March/April/May, and the short rains of October/November. In addition, there is a misty season known as the *gathano* in July and August.

Environmental conditions are broadly similar throughout the plateau but rainfall increases and temperature decreases with altitude. This is reflected in the soils and vegetation and in the crops which can be grown, and allows a division of Kikuyuland into three zones: High Kikuyu, above 6000 feet; Middle Kikuyu, between 5000 and 6000 feet; and Low Kikuyu, below 5000 feet.

According to Kikuyu legend, Muranga District (formerly Fort Hall District) is the original home of the tribe. The progenitor of the tribe — *Gikuyu* — is reputed to have been given land near to the present-day village of Gakuyu by a god who lived on Mt. Kenya. The tribe is traditionally supposed to have descended from this man and his family.

The original home of the Kikuyu is the source of much speculation but the tribe certainly did not originate in what is today Kikuyuland. It appears to have participated in the great series of Bantu migrations which took place somewhere between the 11th and 16th centuries and may well have entered its present homeland from the east, following the valley of the Tana river towards its headwaters. A considerable volume of evidence exists to support this contention, i.e., that the Kikuyu came in from the east, possibly from a coastal area.[1]

The tribal legend of origin may have some basis in fact. The Kikuyu appear to have entered the area in family units and Gikuyu and his wife Muumbi may have been the first Kikuyu family to enter the area. If the Kikuyu followed the Tana river, then Muranga District would have been one of the first areas reached.

When the Kikuyu first entered the plateau they found it occupied by a small light-skinned people who lived by hunting and gathering. In Kikuyu legends, a variety of names is used for these people, the most common being *athi* — hunters. There seems to have been at least two distinct groups — the legendary Wagumba of Muranga and Nyeri and the better known Wanderobo of Kiambu. These people were few in number and were probably assimilated or destroyed by the advancing Kikuyu. Taylor records the recent discovery of archaeological remains associated with these earlier people,[2] but much of the early history remains shrouded in mystery.

The Kikuyu, having entered the plateau in the Muranga area, are then thought to have migrated northwards into Nyeri and southwards into Kiambu

1. H.E. Lambert, *The System of Land Tenure in the Kikuyu Land Unit*, (Communication from the School of African Studies, New Series, xxii, (Cape Town, 1950).

2. D. R. F. Taylor, "The Gumba and Gumba Pits of Fort Hall District; *Azania*, I, i, 111-7.

along the most favourable agricultural zone of Middle Kikuyu. The less favourable areas of High and Low Kikuyu were not fully occupied until much later, probably not before the 20th century. The first European contact with the Kikuyu did not come until the late 19th century but this contact had far reaching effects which are still being felt. One of these effects was a change in food habits: the primary concern of this paper being an analysis of this change.

Changing Food Habits

Many authors such as Mead have pointed out that habits of food consumption and preparation are difficult to change and that changes, especially in the African context, are slow.[3] This is particularly true of agricultural peoples who are generally held to be more conservative than city-dwellers. That food habits change slowly is indubitably true; but in some instances too much has been made of this point and, in terms of planning for improved nutrition, such sloth may often have been used as an excuse for inactivity. In Kikuyuland, over the last seventy years, changes have taken place in food habits, some of them over a relatively short space of time. Most of these changes have been a direct result of Government policy in the agricultural sphere and the main purpose of this paper will be to show how agricultural change has influenced nutrition. As has been pointed out by Gerlach " . . . the nutritional status of a people is seen to be dependent upon their patterns of food production, preservation, distribution, and utilization. These, in turn, are dependent upon a complex web of intertwining social, economic, political, magico-religious, technological, attitudinal and environmental factors. Those who wish to improve food economy and diet must therefore study food-getting and using in its sociocultural matrix, and design development programs accordingly. As has often been said, authorities who do not do this may cause harm to the people they wish to help."[4] In Kikuyuland, Government policy has resulted in nutritional levels which are certainly no better than the Kikuyu had, themselves, attained by the end of the 19th century; and the situation in 1970, in nutritional terms, may be worse than that which prevailed one hundred years before.

The Traditional System

Agriculture has always been the economic mainstay of Kikuyuland — the traditional system of land tenure and agriculture having been known as *githaka*.

3. Margaret Mead, *The Problem of Changing Food Habits*, National Academy of Science, National Research Council Bulletin No. 108, 1943.

4. L.P. Gerlach, "Nutrition in its Sociocultural Matrix: Food Getting and Using Along the East African Coast" in *Ecology and Economic Development*, D. Brokenshaw, ed., Research Series No. 9, Institute of International Studies, (Berkeley, 1965), 245-68.

The system is a fairly complex one and has been more fully described elsewhere.[5] Each extended family or sub-clan group known as an *mbari* had one or more land units known as a *githaka* (plural *ithaka*). These varied in size from about 700 acres to as much as 5000 acres. The *githaka* and its inhabitants were known collectively as an *itura* which loosely translated means village group. Within the *githaka* each male member of the *itura,* after he had come of age, was given a plot of land to cultivate. Traditional agriculture was entirely of a subsistence nature and this involved both the growing of crops and the keeping of livestock. Seasonal and perennial crops were grown and the Kikuyu agricultural year revolved around the two rainy seasons, the long rains of March/April/May and the short rains of October/November. A wide variety of crops was planted, with millets *(Pennisetum typhodium)* and beans *(Phaseolus vulgaris)* the most important seasonal crops and bananas *(Musa sapientum)* and sweet potatoes *(Impomea batatas)* the main perennials. In general, cereal crops were planted during the short rains and legumes during the long rains. Linguistic evidence gives an indication of which crops were considered important, as the short rains are still referred to as the "millet rains" and the long rains are named after the traditional bean *njahi (Dolichos lablab).* Sorghum *(Eleusine coracana),* coloured maize, cow peas *(Vigna catiang)* and pigeon peas *(Cajanus indicus)* were also grown and sugar cane *(Sacchurum officinarum),* and yams *(Dioscorea)* were additional perennial crops.

Seasonal and perennial crops were roughly balanced and an indication of this is given by a quantitative analysis of a map drawn by Meinertzhagen in 1902 (Fig. 2), which shows a small part of Muranga District.[6] Eight holdings, with cultivated areas ranging from 2½ acres to 5 acres, are shown. Of the cultivated area of thirty acres, fifteen are under seasonal crops, with millet occupying about 50% of this area, and fifteen are under perennial crops, with 40% of this acreage under bananas. Areas of uncultivated land appear, together with a market place. Although this map is only for a small area, it illustrates the crop growing pattern and the diversity of crops grown.

Livestock, especially sheep *(Oves)* and goats *(Capri),* were extremely important in the traditional Kikuyu economy. They were herded communally on the common land and provided a source of meat and clothing. They were also a vital part of socio-religious life as has frequently been pointed out.[7] Poultry were not important and cattle, according to Humphrey, became impor-

5. Lambert, *op. cit.;* Jomo Kenyatta, *Facing Mount Kenya* (London, 1938); L.S.B. Leakey, "Kikuyu Land Tenure", *Report of the Kenya Land Commission: Evidence and Memoranda,* (London, 1934), I; Taylor, *op. cit.*

6. R. Meinertzhagen, *Kenya Diary, 1902-06* (London, 1957), 156.

7. C. Cagnolo, *The Akikuyu* (Nyeri, Mission Printing School, 1933), Leakey, *op. cit.;* Kenyatta, *op. cit.*

Fig. 2 — PART OF KIKUYULAND in 1902
(After Meinertzhagen 1957: 156)

tant only slowly; their distribution for a long time having been very uneven.[8] Killing of cattle for meat was rare although their milk was drunk.

From this agricultural base, the Kikuyu obtained their food. Descriptions of the traditional diet are fragmentary and like so much of the description of traditional Kikuyu society, have been written by European observers often writing at a time when the traditional system had been, to some extent, modified by outside influences. Even Kenyatta's account of "traditional society" is comparatively late.[9] The description that follows has been derived from the published works of Lugar, Routledge, Cagnolo, Leakey, Kenyata, Humphrey, Middleton, Lambert, and Meinertzhagen.[10] In addition, extensive use has been made of unpublished sources in the Kenya archives and in the offices of the various District Commissioners.

The Kikuyu diet was mainly a vegetable one with millet, bananas, sweet potatoes and beans being especially important. Millet was pounded into a flour which was used to make porridge or gruel. The various vegetable foods were cooked together in a stew known as *irio ngima*. This included millet, maize, beans, bananas, sweet potatoes, yams and various legumes. It was usually supplemented by a wide variety of wild leafy plants gathered from the uncultivated land, such as *hatha* a type of wild nettle and *terere (Chenopodium opulifolium)*. In times of food shortage, *arrowroot (Maranta arundinacea)* was used as a staple food and flour was sometimes made from it. Certain wild fruits and berries were gathered from the forest.

The socio-religious system demanded the slaughter of many sheep and goats during various rituals and the meat of these animals was eaten. In many instances, the elders appear to have received the largest share of it but there is evidence that meat was consumed by all segments of Kikuyu society. Cattle were rarely slaughtered because of their prestige value but the protein supply was supplemented by hunting in the forest. It is difficult to estimate the amount of meat consumed but it was probably substantial. In evidence presented to the Kenya Land Commission, the following estimate was given by Leakey . . . "I would say that a Kikuyu uses from two to three goats in the course of a year, which would be the natural increase of five or six. Secondly, sir, I would say that goats are always required for a certain number of small transactions, gifts to relatives in law at the birth of a child, and on the naming

8. N. Humphrey, H. Lambert, P. Wynn-Harris, *The Kikuyu Lands* (Nairobi, 1945).

9. Kenyatta, *op. cit.*

10. F.D. Lugard, *The Rise of Our East African Empire* (Edinburgh: N. Blackwood & Sons, 1893); W.S. Routledge, *With a Prehistoric People; the Agikuyu of British East Africa* (London: Edward Arnold, 1910); Cagnolo, *op. cit.;* Leakey, *op. cit.;* Kenyatta, *op. cit.;* Humphrey, *et al, op. cit.;* J. Middleton, "The Kikuyu and Kamba of Kenya", *Ethnographic Survey of Africa, East Central Africa* (London, 1953) V; Lambert, *op. cit.;* Meinertzhagen, *op. cit.*

of the child and so on."[11] The average cold, dressed weight of a goat in Kikuyuland in 1958 was 28 pounds according to Payne, and little significant change in goat husbandry had taken place in Kikuyuland over the previous sixty years.[12] If three goats per person is taken as an average, then each Kikuyu consumed eighty-four pounds of goat meat a year under the traditional system. This intake was supplemented by mutton from the sheep which were also slaughtered, and from a much smaller amount of wild game. Even if the estimate of the cold, dressed weight of a goat is substantially reduced, the average consumption of meat must have been at least one pound per person per week.

Milk, both fresh and sour, was drunk but there is no evidence which will allow even an estimate of quantity. Beer brewed from millet, sugar cane or wild honey was extensively used and wild honey was the principal sweetener. Certain foods, such as fowls and eggs, were not eaten at all.

During pregnancy, women supplemented their diet by sprinkling wood ash from the fire into their food or sometimes used *munyu* which were the salt earths occurring naturally, much valued as cattle licks. Philip suggests that they also used calcium rich beans such as *njahi (Dolichos lablab)* at this time.[13]

The traditional Kikuyu food production system was apparently a very successful one, inasmuch as a considerable population appears to have been supported by it. Much has been made of the apparent emptiness of the southern area of the Kikuyu Plateau towards the end of the 19th century but little has been said of the considerable population densities which were to be found in most other areas of Kikuyuland about the same time. We find Lugard, for example, writing of Kikuyu country around 1890: "The cultivation in Kikuyu is prodigiously extensive; indeed the whole country may be said to be under tillage."[14] Southern Kikuyuland experienced a smallpox epidemic, in 1898, followed by an outbreak of rinder-pest, a serious livestock disease, and a long drought. The subsequent famine was intensified by swarms of locusts which destroyed what few crops survived. Thus, the greatly reduced population moved northwards, back into the Kikuyu homeland area of Fort Hall. This area had also been affected by the above disasters but the drought had been less serious and more of the crops survived.

In 1903, the first attempt at a population estimate was made for Fort Hall District. A hut count was made, 27,000 huts being recorded;[15] using a

11. Leakey, *op. cit.*, 679.
12. W.J.A. Payne, "Relation of Animal Husbandry to Human Nutritional Needs in East Africa", *East African Agricultural and Forestry Journal* (1963) XXIX, i.
13. C.R. Philip, "Nutrition in Kenya; Notes on the State of Nutrition of African Children", *East African Medical Journal* (1943) XX, vii, 227-34.
14. Lugard, *op. cit.*, 328.
15. "History of Fort Hall, 1888-1942" Unpublished Manuscript, Kenya Archives, Nairobi, n. dat.

factor of five persons per dwelling, this would give a population of 135,000. It is most unlikely that this population estimate was accurate, for this would give a population density for the District of 240 persons per square mile. However, if the population was over estimated by 100 per cent, the density would still have been 120 persons per square mile: a considerable figure for what Routledge, a contemporary anthropologist, called a "prehistoric people" who a few years previously had undergone a series of natural disasters which had substantially reduced the group.[16] Population densities of this order suggest strongly that the food production system was more than adequate. No direct evidence is available for the moment of the different types of food eaten, but the diet appears to have contained all the essential nutrients and there is little evidence to suggest that the Kikuyu, prior to European contact, were not well fed.

The Colonial Impact; 1910-1950

British policy had profound effects on Kikuyu food habits, although few of these effects appear to have been premeditated. The overall result appears to have been that, for the average Kikuyu, the diet became increasingly less adequate, a trend which continued virtually unabated till the 1950's. The major factors which brought about these changes were the land, medical and agricultural policies.

Within a few years of contact with Europeans, the tribe had lost at least 100,000 acres of land in Southern Kikuyu. This was alienated to European settlers as a direct result of colonial policy. The Kikuyu were confined to their own area, which was designated as a reserve, and surrounded on all sides by land alienated to Europeans. Within the Kikuyu Reserve, a remarkable increase in population reflected the influence of the British administration in improving health conditions, stopping inter-tribal warfare and importing food in times of famine.

The first result of these policies was that the common land was rapidly brought under cultivation and, by 1930, almost all of Kikuyuland was being cropped. With no new land available, fragmentation of land holdings increased and continuous use of the land led to a decrease in fertility. Soil erosion became an increasingly serious problem as the population density grew because, as land became scarce, even slopes of 30° and more were utilized without adequate precautions being taken. The District Commissioners' reports from all over Kikuyu country abound with references to the seriousness of the situation; " . . . the fertility of the land decreases, the population increases and the fragmentation never ceases so that the economic return gets smaller to the family

16. Routledge, *op. cit.*

each year."[17] " . . . most of the people have no apparent intention of saving themselves and their descendents, and are indeed continually breaking new steeply sloped land as soon as one's back is turned."[18]

Shortage of land had serious effects on the food supply. One of the most immediate was a decrease in the number of livestock, especially sheep and goats. The common land, on which the latter had grazed in the traditional system, had disappeared and, in the face of growing soil erosion problems, the Colonial authorities began forcibly to restrict the numbers of these animals. The amount of meat in the Kikuyu diet was thus progressively reduced. The disappearance of bush and forest land also meant that hunting was no longer possible and the supplies of wild leafy plants used in the traditional diet declined.

Medical facilities all over Kikuyuland were improved by the introduction of health centres, hospitals and medical staff. The result was that more people were being kept alive longer. Medical policy, however, contained no adequate steps to improve nutrition, even after studies such as that by Orr and Gilkes (1931) had revealed dietary deficiencies,[19] and Farnworth-Anderson (1943) reported that at the outbreak of the Second World War a serious nutritional problem was revealed when 90% of African recruits had to be rejected on medical grounds, a fairly high proportion of these on account of malnutrition.[20] An issue of the East African Medical Journal of July 1943 was devoted to the practical problems of human nutrition in East Africa and certain policies were formulated to deal with these problems, however, due to war time conditions, few of the policies were effectively implemented, and things went on very much as before.

Agricultural policy makers were faced with the problem of a rapid increase in population; in 1902, the Kikuyu population was estimated at 451,000;[21] by 1948, it had risen to over 1,000,000,[22] and no new land was available which could be brought into cultivation. Land hunger intensified the problems of fragmentation of land holdings and led to soil erosion. Fragmentation was primarily the result of inheritance customs. On the death of the father his land was divided amongst his sons equally. Each son would of course have his own piece of land in another area of the *githana*. After several generations considerable fragmentation had taken place. Where an *mbari* owned several

17. District Commissioner, 1900-68. Unpublished annual reports for Kiambu, Fort Hall Muranga, and Nyeri (Fort Hall, 1948).

18. *Ibid.*, Kiambu, 1943.

19. J. Orr and J.L. Gilkes, *The Physique and Health of Two African Tribes* (London, 1931), Studies of Nutrition, Medical Research Council Special Report, Series No. 155.

20. T. Farnworth-Anderson, "The Diet of the African Soldier", *East African Medical Journal,* (1943) XX, vii, 207-13.

21. Lambert, *op. cit.*

22. *Taylor, op. cit.*

ithaka an individual might have fragments of land in each *githaka*. Steeply sloping land was brought into cultivation and this, together with continuous cultivation, intensified soil erosion. Attempts were made, therefore, to increase the yields of food crops and to introduce cash cropping. New food crops were also introduced including white maize *(Zea mays)* which rapidly replaced millets *(Pennisetum typhodium, Setaria italica)* as the most important food crop. This was first introduced because of its high yields, around 1920, and soon became the staple food crop being planted in both seasons. The traditional beans such as *njahi* were replaced by higher yielding and commercially more valuable varieties such as the haricot bean *(Phaseolus vulgaris)*. Other crop introduction included European vegetables and potatoes.

The principal cash crop introduced was the wattle tree *(Acacia mollisima)* from which tannen, used mainly in the curing of leather, is obtained and this crop soon rose to a position of great importance in the economy. Land under wattle could not, of course, be used for food crops production; wattle could, however, be grown on the steeper slopes and in the higher areas both of which were less suitable for food production.

All of these changes had a direct effect on food habits and diet. Meat, millet, traditional beans, indigenous coloured maize, and wild leafy vegetables began to disappear from the diet; with white maize, haricot and French beans, and potatoes added, as noted above.

The progressive impact of these changes over time can be seen by comparing the studies of Orr and Gilkes, Anderson, Paterson and Philip.[23] Orr and Gilkes found that white maize was already an important part of the diet although millet was still significant. Traditional beans were still eaten and the diet was supplemented by at least ten varieties of green leaves. They record that the meat of goats and sheep was eaten but only in limited quantities and mainly by the old men. The diet was deficient in both calcium and protein. Paterson reported that the Kikuyu had "chiefly a white maize which, as food for man, is far less satisfactory than the old mixed coloured maize which it has replaced in recent years. So much less satisfactory, in fact, that it has been suggested on occasion that it was a wrong policy to introduce white maize into the reserves, and that the policy should be reversed".[24] Philip, writing of South Nyeri, records that the diet consisted of a maize gruel in the morning which had to sustain the people till the evening when the main meal was eaten. This consisted of a cooked mixture of white maize, unripe bananas, potatoes and beans. Millet no longer appeared in the main meal but Philip

23. Orr and Gilkes, *op. cit.;* T.F. Anderson, "Kikuyu Diet", *East African Medical Journal,* (1937), XIV, 120-31; A.R. Paterson, "Health and Agriculture", *East African Medical Journal,* (1943), XX, vii, 240-7; Philip, *op. cit.*

24. Paterson, *ibid.,* 196.

records that "millet sometimes take the place of maize in the gruel, but the use of this millet is going out of fashion."[25] He also summarized the dietary position as follows: "Meat is so infrequently eaten by the masses that the intake is considered negligible. Indigenous green vegetables, formerly so popular, . . . are being used less and less. The amounts of indigenous greens available have steadily diminished as more intensive cultivation has taken place. European vegetables are being planted up more and more in certain areas, but unfortunately in most areas are looked on only as a cash crop. They have certainly not so far been used by the masses to take the place of the indigenous varieties when these are out of season, or in short supply. The sad lack of green vegetables in the diet has brought about a grave lowering of the intake of vitamins A, B_2, and C, and of the minerals calcium, phosphorus, and iron. White maize has taken the place of coloured varieties, again diminishing the vitamin A intake".[26]

The Kikuyu diet was deficient in calories, calcium, protein and vitamin A in the 1940's. According to the British Government's report on nutrition in the colonial empire "the main causes of malnutrition in the Colonial Empire are in our view, first, that the standard of living is often too low; and secondly, that there exists widespread prejudice both with regard to diet itself and with regard to the use of the land".[27] In Kikuyuland, British policy had led the Kikuyu to grow white maize which had only 1/100th of the calcium content of the traditional millets and had encouraged the replacement of the calcium rich traditional beans with nutritionally inferior varieties;[28] a diminution in the number of livestock effectively reduced the main source of animal protein; pressure on the land had removed the main source of vitamin A, i.e., the wild green vegetables and, due to land policy and increased population, Kikuyuland was supporting nearly three times the population it had carried in the 19th century on a slightly smaller area of land, while inedible cash crops such as wattle occupied a sizeable proportion of that land which was arable. Two other changes are worthy of note: legislation restricting the brewing of native beer and the introduction of small, water-powered maize mills. Farnworth-Anderson[29] write that native beef brewed from millet was an important source of vitamin C which the British had not hesitated to use to supplement the diet of African soldiers; in the Kikuyu Reserve, however, it was restricted, largely as a result of missionary pressure on the Government, thus removing yet another important nutrient source from native diet. It has been pointed out by Culwick

25. Philip, *op. cit.*, 331.

26. *Ibid.*, 231-2.

27. *Report of the Economic Advisory Committee on Nutrition in the Colonial Empire,* (London, 1939), Cmd. 6050-6051, Her Majesty's Stationery Office, 5.

28. Philip, *op. cit., 230.*

29. Farnworth-Anderson, *op. cit.*, 208.

(1944:406) that soaking grain prior to milling it into flour causes important changes to occur in the nutrients by which they are mobilized in a more assimilable form.[30] In the traditional system, Kikuyu women often soaked grain to soften it before pounding it, by hand, into flour. The British Government's encouragement of the introduction of maize mills lessened the physical effort of milling grain but thereby reduced its nutritional value.

The Kikuyu were not undernourished primarily as a result of food taboos as the only interdiction prejudice appears to have been against eggs.[31] They had, on the other hand, accepted a major change from millet to white maize as a staple food without any protest. The inadequate diet in Kikuyuland was more a reflection of a disregard of nutrition in Government planning at all levels.

The Mau Mau Emergency

A state of emergency existed in Kenya from 1952 to 1960 as the Kikuyu rose against their colonial masters. The outbreak of violence during Mau Mau brought much trouble and grief the people of Kenya. Thousands of people died and the economy was dislocated. Thousands of Kikuyu were returned to the Reserve and the strain on existing food producing land was thus further increased. Government reparations for suspected Mau Mau support included fines levied upon livestock and the existing numbers of sheep and goats in Kikuyuland were thus further reduced. There are no studies of diet available for this period but it is extremely unlikely that any improvement in it took place, in fact, conditions probably worsened. The Emergency did, however, bring the problems of the area into sharp focus and made their solution one of immediate and urgent concern. The result was the Swynnerton Plan which has revolutionized agriculture in Kikuyu country. Whether or not funds would have been found for such a plan had Mau Mau not occurred is doubtful.

The Swynnerton Plan

The aim of this plan, introduced in 1954, as stated by its author Swynnerton was "to raise the productivity of the African lands, their human and stock-carrying capacity, the income and standards of living of the people, while at the same time effecting a substantial increase in the resources and economy of the colony".[32] The plan, in theory, dealt with the whole of Kenya but, in fact, most of the funds allocated to the plan were spent in Kikuyuland.

Special attention was to be given to eight main points; the consolidation of land fragments; security of land tenure; technical assistance to develop land

30. G.M. Culwick, "Nutrition in East Africa", *Africa,* XIV, vii, 401-10.
31. Paterson, *op. cit.*
32. R.J.M. Swynnerton, *A Plan to Intensify the Development of African Agriculture in Kenya,* (Nairobi, 1954), 1.

along sound lines; the introduction of highly priced cash crops; ready access to water; the introduction of marketing facilities preferably of a co-operative nature; access to sources of agricultural credit large enough and flexible enough to meet the needs of a large number of small farmers; and, " . . . a bias in favor of agricultural education".[33] Land consolidation was the basis for development under the Swynnerton Plan, as economic farming on a large number of fragmented parcels of land was obviously difficult. Consolidation was completed in most areas of Kikuyuland by 1965 but, in Muranga District, the process was not completed till mid-1969. The Swynnerton Plan aimed at subsistence plus a cash income of at least $300 per year and, by 1965, many farmers had come close to this target.

The Post Colonial Period 1963-70

Kenya became independant in 1963 and the new government continued the policies established by the Swynnerton Plan. But, although considerable agricultural development took place in Kikuyuland, it is interesting to note that this had little positive effect on food crop production. The Plan was oriented towards cash crops such as coffee *(Coffea arabica)*, tea, and pyrethrum *(Pyrethrum cinerariaefolium)*, but few new food crops were introduced as the aim was subsistence, exactly the same situation as existed before its inception. In addition, the planners appeared to take insufficient notice of the fact that the acreage available for crops was limited and was already being utilized. There is an estimated cultivated land area of 380,000 acres on the Kikuyu Plateau and, on the basis of 1969 estimates of population, there is less than half an acre of arable land available per resident. Any expansion of cash crop acreage has to take place on land previously used for food crop production. In 1968, at least 30% of the arable land in the Kikuyu Plateau was under permanent cash crops (District Agricultural Officers 1968): it being Government policy to encourage their expansion.

Nevertheless, the Swynnerton Plan brought about a great increase in the wealth and standard-of-living of the people. Studies in Fort Hall District by Taylor have revealed increases of up to 2,000 per cent in monetary income, but there is little evidence that this has resulted in dietary improvements.[34] Studies by a World Health Organization team in Nyeri and Kiambu (W.H.O. 1962; 1963) have revealed that there has been no significant improvement in nutrition since the studies done by Philip in 1943. There are still serious deficiencies in calcium, vitamin A and animal protein, and large numbers of people appear to be suffering from goitre caused by iodine deficiency. In many

33. *Ibid.*, 6.
34. Taylor, *op. cit.*

instances, calorie intake was inadequate and there was a deficiency in riboflavin (vitamin B).

That the typical Kikuyu diet in the 1960's does differ a little from that of the 1940's is substantiated by W.H.O. and Taylor; some foods have been added and cooking methods have been modified. The morning meal consists of *uji* — a thin, maize gruel to which small quantities of milk are sometimes added during the cooking process. Tea is sometimes drunk and is prepared by sprinkling a few leaves into a mixture of water and milk and boiling over the fire. Sugar is invariably added. Some families eat at midday but, for most, the main meal is in the evening. The most common dish is a stew of maize and beans with animal fat and curry powder added. This dish is called *irio*. The vegetable stew *irio ngima* is still eaten the principal ingredients being maize, English potatoes, haricot beans and cabbage in High Kikuyu, with sweet potatoes and bananas supplementing these in Middle and Low Kikuyu. When meat is eaten, it is added to either of these stews having first been fried in fat. Detailed analysis of the diet of several hundred families by W.H.O. revealed that, although anywhere from 22-44 different foods were eaten, maize, potatoes and beans dominated the diet and provided more than 85% of the total calorie intake; 91% of the protein; 68% of the calcium; and 93% of the iron. Milk and meat were recorded as being eaten by most families but only in small quantities.

Taylor records that between 1960 and 1965 the most significant trend seems to have been the introduction of much more fat into the diet, in the form of cooking fat of both animal and vegetable origin. In addition, some entirely new foods of European origin, such as butter, jam, bread, chocolate, sweets and even certain tinned foods, such as soup and meat, had been added to the diet of some families. Local beer was still brewed but was progressively being replaced by British bottled beer which was brewed locally.

In recent years, the emphasis on growing cash crops has continued and is continuing, although some attention has been paid to improving food crop yields. High yielding hybrid maizes have been introduced and are beginning to gain in popularity over white maize. These former are superior in nutritional terms to white maize although this does not seem to have been considered as a factor in introducing them. It may well be that the introduction of these maizes will lead to a dietary improvement almost as accidentally as the introduction of white maize led to a dietary deterioration at an earlier date.

Improvements in animal husbandry in recent years have also been aimed more at the production of cash than at betterment of the diet with maximum attention being concentrated on cattle and sheep and goats being largely ignored. Dairy cattle quality is being increased by artificial insemenation and considerable progress has been made. The main semen type used is that from

Jersey bulls and it has been found that within two generations the quality of local dairy cattle increases markedly. The farmers, however, are being encouraged to sell milk rather than consume it, numerous dairy cooperatives having been established for this purpose. Some milk is sold within Kikuyuland but the bulk of it is sold to Kenya Cooperative Creameries or retailed in the Nairobi urban area. This policy results in milk being exported from an area where there is a desperate need for more milk in the diet.

It can be argued that increased wealth obtained from cash crops will be used by the people to improve their diet, given adequate nutritional education and this argument has some validity but, in order for it to succeed, the products necessary for dietary improvement must be readily available to the people. This is not always the case in Kikuyuland. For example, the Kikuyu are well aware of the value of meat in the diet, but it is not always obtainable. For example, the District Agricultural Officer for Kiambu district has described the meat supply as " . . . completely inadequate to meet demands . . . " and records that, in 1968, 14,274 sheep and goats were imported for slaughter together with 12,365 cattle.[35] The marketing structure of Kikuyuland is totally geared to the export of agricultural produce which makes imports to meet domestic needs difficult.

There is a great need in Kikuyuland for a re-assessment of the agricultural situation, particularly with regard to the relationship between agriculture and nutrition. A better balance between food crops and cash crops must be established, especially in a situation where population is increasing at approximately 3% per year. There are already indications that the dramatic increases in wealth resulting from the Swynnerton Plan are levelling off and in some areas a decline has set in. Coffee-berry Disease has hit the principal cash crop and figures cited by the D.A.O. (1966, 1967, 1968, 1969) show returns from coffee to have declined from £2,927,132 in 1966 to £1,465,676 in 1968. In Kiambu, the average return per family from coffee dropped from £62 in 1966 to £8 in 1968. In addition, an even more disturbing trend is beginning to appear, the break-up of consolidated holdings. This is the keystone of agricultural improvement in Kikuyuland yet the District Agricultural Officer in Kiambu reports that in 1968 there was large scale buying and selling of small, uneconomical, and scattered holdings. This is, of course, illegal yet the D.A.O. suggests that it "may force the Government to consider reconsolidation sometime in the future. Some measures have been taken to stop subdivision of small pieces of land and the land control board members alerted but no effect has been noticed." [36]

35. District Agricultural Officer. Unpublished annual reports for Kiambu, Fort Hall (Muranga) and Nyeri, 1968.

36. *Ibid.*, 1968.

Conclusion

Nutrition is inadequate in Kikuyuland. This is a direct result of agricultural policy and, if the situation is to improve, agricultural policy will have to be reviewed in the light of the changing political, economic, social and technological situation. Existing food crops should be assessed from a nutritional viewpoint; new varieties and types of food crops should be introduced to improve the dietary situation and a marketing system should be developed to facilitate food importation and distribution. Livestock policy should be reviewed and coordinated with cropping policies, bearing in mind nutritional aspects. These have been virtually ignored in agricultural planning both by the former Colonial government and by the present government of the Republic of Kenya. If progress is to be made, these aspects will have to be part of developmental planning and strategy.