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WILLIAM O. JONES

# THE FOOD AND AGRICULTURAL ECONOMIES OF TROPICAL AFRICA: A SUMMARY VIEW

Economic changes now under way and projected in the countries of tropical Africa will inevitably induce stresses to which domestic agriculture must adjust; the way in which the agricultural economy behaves under these stresses can have a profound influence on the rate, even on the presence, of economic growth. If declining rural populations find themselves unable to carry on production at present rates, let alone to increase output to feed the growing cities, a crippling burden may have to be borne by the limited supplies of foreign exchange. To the extent that domestic agriculture can meet increasing total demands for foodstuffs resulting from rising incomes and increasing sophistication of consumers it can contribute directly to raising consumption levels and thereby to economic advance.

Agriculture is the principal occupation of most African producers; foodstuffs account for much the larger part of the income of African consumers. Knowledge of the present nature of African food and agriculture, of the kinds of changes likely to occur in demand for food, and of the probable responses of agriculture, appears critical in appraising tropical Africa's potentialities for economic growth.

In the following pages an attempt is made to set forth some essential characteristics of tropical African food and agricultural economies as they now are, and to suggest their capacity for adjustment to changes that are likely to occur. Quantitative information about African economies is deficient in coverage and in reliability, and detailed qualitative information is not plentiful. The generalized account that follows is based on a variety of sources—ethnographic, economic, nutritional, agronomic, and administrative.<sup>1</sup> It leaves many questions unsolved, and its details are subject to modification, although its generalities probably are not.

## COMPOSITION AND QUALITY OF AFRICAN DIETS

African diets are typical of those commonly consumed by people with low incomes almost everywhere in the world. The bulk of each meal consists of a mass of porridge or paste made from one of the starchy staples—cereals, starchy

<sup>1</sup> Many of the more pertinent sources are cited in 14 and 16.

fruits, or roots—accompanied by a sauce or gravy that adds flavor and contributes fat, protein, minerals, and vitamins. Communities only a few miles apart may rely on quite different staples, although broad zones of cereal dominance or root dominance can be identified.

In the drier grasslands of tropical Africa, including the interior of former French West Africa, Chad, Sudan, Ethiopia, and most of East Africa, the starchy staples are cereals, traditionally millets and sorghums, with some wheat and teff in Ethiopia, and with maize important in some areas. In the moister regions starchy roots usually provide the base for porridge and paste, although rice is the first staple along the Guinea Coast from the Bandama River in the Ivory Coast to Casamance, and banana-plantains are the staple in a few areas, notably southern Uganda, parts of Gabon and the Congo Republic (French), and the eastern part of the Republic of the Congo (Belgian). Maize and rice are also found throughout the moist areas. Of the roots, the most important for the whole region is manioc, although yams, taro, malanga,<sup>2</sup> and sweet potatoes are the first staple in some localities. Manioc is also a major food crop in many parts of the grasslands, notably in the southern part of the Republic of the Congo (Belgian) and western and southeastern Tanganyika; sweet potatoes are a principal staple in parts of eastern Africa. Cattle-keeping people obtain a large part and fishing people living along rivers and the seacoast obtain a substantial part of total calories from animal sources, but these tribes make up only a small fraction of total population. The few quantitative estimates of the composition of African diets that have been made confirm the general impression of heavy reliance on starchy staples as a source of food calories, a characteristic of the diets of low-income populations. Starchy-staple ratios,<sup>3</sup> computed from African diet and expenditure studies, are among the highest in the world.

Proteins in African diets are largely of vegetable origin, coming partly from the starchy staples, but more importantly from legumes—peanuts, beans, and peas—and from green leaves. Approximate diets reported from the region of Thysville in the Republic of the Congo (Belgian), for example, show peanuts supplying 275 calories per day out of a total of about 2,500, and beans supplying 35 calories in one district, 171 in a second, and 684 in a third. Meat and fish, on the other hand, contributed only 6–12 calories per day (5). Oil comes principally from the oil palm in regions where it grows, elsewhere from peanuts, shea butter, and sesame.

Variety in the diet is achieved by altering the content of the sauce, by subtle differences in the way in which the starchy staple itself is prepared, and to a smaller extent by changing the staple. Sauces are seasoned with salt and hot peppers and may contain almost anything that is edible, including rodents, insects, leaves, and fungi. Variations in the sequence in which operations are performed lead to a wide range of dishes all prepared from the same foodstuff. Manioc flour, for example, is considered to be a different product when it is soaked in water before grinding than when it is soaked after grinding; if manioc

<sup>2</sup> *Xanthosoma sagittifolium*, the "new coco-yam" of Ghana, where taro is distinguished as the "old coco-yam," *Colocasia esculentum*. Taro originated in southeast Asia, malanga in the West Indies.

<sup>3</sup> The ratio of calories obtained from starchy staples as defined above to the total amount of calories consumed (see 3).

is crushed before drying, it yields one product; if crushed after drying, another. An African cookbook contains a relatively wide range of dishes made from a restricted number of primary ingredients.

Most often a community relies on only three or four different starchy staples, consumed in turn during the time when they are in plentiful supply. Nicol's studies of diets in three northern Nigerian communities show from 73 to 93 per cent of all calories coming from Guinea corn (sorghum) and bulrush millet, whereas in two southern Nigerian communities from 58 to 75 per cent of all food calories came from yams and manioc (19, 20). Some studies, however, show much greater variety: diet studies conducted by Masseyeff and Cambon in Evodoula, French Cameroons, show manioc, malanga, and plantains to be the dominant staples, but taro, yams, sweet potatoes, rice, bananas, maize, and wheat to be seasonally important (17).<sup>4</sup>

Diets are those of poor people, but they are not necessarily poor diets. The total supply of calories appears to be adequate everywhere, and Africans rarely know hunger in the sense of persisting shortage of food energy. In many areas there are actual surpluses of manioc, taro, and malanga that go unharvested because their value is less than the cost of harvesting and transporting to market. These unused stocks of roots, principally manioc, constitute a valuable reserve in the event of failure of other staples, but it is a reserve that can be drawn on only at high harvesting and transport cost.

The evidence about total calorie supply is fairly clear, but evidence about malnourishment in the sense of quality of diet is not. Dietary standards appropriate for the African population in a tropical environment have not been worked out with precision, the nutritive composition of many African dishes is not known, and the information from dietary studies is meager and unreliable. Clinical evidence appears not to show widespread nutritional deficiency, but the evidence is confused by the prevalence of many endemic diseases that produce symptoms similar to those resulting from malnutrition. The most clearly determined nutritional disease is kwashiorkor, a disease of children caused by severe shortage of proteins in a diet that normally contains adequate calories. Kwashiorkor is known to affect large numbers of children in some localities, but its general incidence throughout the region has not been measured.

The proteins of peanuts, beans, peas, bambarra nuts (*Voandzeia subterranea*), and of green leaves are of high quality, and when consumed in sufficient quantity there is little reason to expect the low consumption of animal proteins to cause trouble. Nevertheless, there appears to be a general craving for meat and fish on the part of most Africans, although some recent studies suggest that the extent of this desire for animal proteins may have been overestimated.<sup>5</sup>

African diets seem most likely to result in underconsumption of some nutritive elements when special circumstances restrict the variety of foods entering into them. In the villages palatability is insured by the inclusion of a wide range of products of farm and bush in the sauces, and by variations in methods of preparation of the staples. Variety of ingredients also tends to produce good diets. But Africans living in towns find their choice much more limited, and

<sup>4</sup> Peculiarly, this is one study that appears to show insufficient calorie intake.

<sup>5</sup> Some urban budget studies in Ghana show no rise in meat consumption with income (see 12).

tend to concentrate on a narrower range of foodstuffs. Restriction of choice also occurs occasionally in rapidly growing, isolated communities located in regions with poor soils. In these circumstances some starchy staples provide a much poorer core for the diet than do others. Students of diets containing only a narrow range of foods sometimes speak of "good" and "bad" staple foods, classifying as "good" most of the whole-grain cereals, as "bad" most of the roots. Manioc, in particular, has been attacked as a bad food because of its very low protein content, and indeed it is a bad food if it constitutes the entire diet—as are many other foods. But, ". . . it is an old adage of nutritionists, or at any rate it should be, that there are no bad foods, only bad diets" (16, p. 273). One of the serious problems resulting from increasing urbanization is to prevent the advantages of higher incomes from being nullified by a contraction in the variety of foods consumed.

Although total annual calorie supplies appear to be adequate, episodic or even periodic food shortage of brief duration may occur. The so-called "hungry gap" believed to occur in rural communities when food stocks have been exhausted and the staple crop is not yet ready for harvest is a concern of administrators in many territories, particularly when the staple is a cereal. It should not occur when manioc, taro, or malanga are grown, because these roots can be harvested over a period of months, even years. The gravity of the problem in the grain-growing areas may also be exaggerated. It is most unlikely that recurrent shortages occur simply because of improvidence of producers. Ample evidence demonstrates the farmer's concern over protecting his stored harvest from damage in crude granaries or in the rafters of dwellings, and the agricultural systems of many tribes include specific measures, such as mixed cropping and staggered planting, to lessen damage caused by drought, disease, and infestation. More probably, hungry gaps occur episodically when unusual conditions combine to prevent adequate carryovers from the preceding seasons and to cause shortfalls of production in the current one (cf. 18). On the other hand, consumers may in fact prefer a seasonal fluctuation in total calorie intake to uniform consumption throughout the year. Certainly our own ancestors relished an occasional feast, when they could eat all their stomachs could hold or more, even though it meant going on short rations for a time to pay for it. An African preference for "feast and famine" shows itself clearly in the savings societies in which each member in turn is permitted to spend all monthly savings of the group; it may also influence food consumption.

Diet studies, however, show a different kind of seasonal adjustment to the availability of supplies of particular staples. In Attitogon, Togo, for example, maize is the principal calorie source as long as it remains in plentiful supply. As stores are reduced, however, and prices rise, manioc is increasingly substituted for maize until manioc accounts for 60 per cent of all calories (21). Similar patterns are reported from western Nigeria (10) and the Cameroons (17). The New World crops, maize and manioc, have played an important part in easing the transition from old crop to new crop, maize because it can be harvested green, semimature, or mature, manioc because it can be harvested continuously. Where these crops are grown, even as supplementary foodstuffs, a hungry gap is unlikely.

True famine, as distinguished from episodic shortages of brief duration, is rare, partly because Africans living under traditional conditions are familiar with a great number of wild plants that can be eaten if necessary. Famines have occurred under European occupation in regions of low and variable rainfall, such as Tanganyika and Kenya, or where density is high, as in Ruanda-Urundi. The transportation net in Africa, although very open, is now good enough so that food supplies can be moved into an area of shortage quickly to prevent serious hunger. But fragmentation of the European colonial empires may make this a serious problem for the succession states if supplies must be moved across new national frontiers.

*Changes in diets.*—African consumers show the usual tendency observed elsewhere in the world to cling to traditional foods and to be reluctant to substitute new staples for the old. Employers find it profitable to inform themselves of the traditional diets of their employees and to insure that the familiar staples are available. It is a mistake, however, to consider these preferences as absolute. The general acceptance of New World crops, now consumed throughout Africa, and in most instances adopted voluntarily, suggests that under appropriate circumstances Africans may be just as willing to adopt new foods as are Europeans. Indeed, they may appear to be more willing to anyone who has seen the stubbornness with which the English in West Africa cling to small, wrinkled potatoes rather than eat easily available and excellent tropical roots, such as yam, taro, and manioc.

Little is known about the conditions under which New World crops were adopted by African communities prior to the European occupation, but enough to indicate that the primary incentives were economic: to reduce costs of growing or to reduce risks of shortages. Cost-price influences are still at work and may cause sudden and dramatic shifts, as was illustrated by a series of expenditure studies conducted in Uganda over the period 1949-57 (15).

African food consumption patterns are changing also as the standard of living is altered by rising income and greater familiarity with European standards. In the cities both of these influences are at work along with new cost relationships among traditional foods. Continued increases in income and in urbanization may be expected to lead to the following changes in diet:

1) Total calories ingested per capita are likely to rise only slightly. If benefits of increased productivity and improved marketing are shared generally, the poorest part of the population may be expected to consume more calories than it does now. At the same time, other members of the population may reduce their output of physical energy as mechanization increases and sedentary employment expands, with a consequent decline in calorie requirement. The increase in calories purchased will probably exceed the increase in calories ingested as higher incomes lead to more kitchen waste.

2) The starchy-staple ratio will undoubtedly decline. The inverse relationship between starchy-staple ratio and income that is found elsewhere in the world also appears in African expenditure and budget studies.

3) Among the starchy staples, cereals and meals and flours will become relatively more important, fresh roots and starchy fruits relatively less important. Meals and flours cost less per thousand calories to transport and are easier to

prepare than the fresh products. The thick pastes or porridges—the forms in which bread grains are most commonly eaten now—will probably be displaced increasingly by leavened breads, at first doughy and only partially cooked, but later more and more like the European type.

4) Consumption of fats and oils will rise, especially in areas where the oil palm does not flourish.

5) Consumption of fish and meat, both fresh and preserved, will rise steadily.

6) Demand for exotic foods, particularly canned goods from Europe, will rise sharply.

7) For a time the variety of foods eaten may actually decline because wild products of the countryside are not available in the city. Eventually, however, increases in the number of new foods eaten will more than offset the decline in number of traditional foods.

8) Similarly, consumption of fresh fruits and vegetables may decline for a time because they are expensive to transport. As incomes continue to rise, however, fresh products will be increasingly in demand.

9) In general, consumption of food in value terms will rise with income and with urbanization, creating a demand that can be met in part by increased domestic production, in part by imports.

The effects of some of these changes are already apparent in African cities. Imports of wheat flour and rice, for example, have increased greatly since World War II in most countries of tropical Africa (13).

#### AGRICULTURE

The principal economic resources of Middle Africa, in terms of use, are its land, sunshine, and water, and the principal economic activity of the African population is the utilization of these resources to feed itself and to produce crops for export. African agriculture supplies almost all the food requirements of the African territories, and, except in the Rhodesias and Katanga Province of the Republic of the Congo (Belgian), is the principal earner of foreign exchange.

*Technology.*—Farming methods in tropical Africa, with certain notable exceptions such as in the Sudanese Gezira, differ little from those pursued centuries ago, and to western eyes appear primitive in the extreme. Fields are small irregular patches in the bush or forest, imperfectly cleared before burning because of the lightness of axes and knives that are the standard implements, cultivated only by hoes and frequently weedy, and containing a mixture of crops planted in what often appears to be completely random disorder. Irrigation and fertilizer use are rare, mechanical or even animal draft power is uncommon, and the area each farm family cultivates is small.

After three or four years in cultivation, the field is usually abandoned to natural growth, and may not be cultivated again for 15 to 20 years. When perennials such as cocoa or coffee are grown the same general practices are engaged in: natural forest trees are left scattered about the clearing so as to provide shade for the economic trees, and food crops are planted among the young trees to provide some return from the land while waiting for cocoa or coffee to come into bearing. Even the experienced observer cannot always distinguish garden plot from bush or abandoned clearing.

It is a mistake, however, to assume that African farming is in fact as crude and inefficient as its casual and unplanned appearance would suggest. African methods are, on the contrary, well adapted to the geographical and cultural environments in which they developed, and changes in them are to be undertaken only after most careful consideration of the ways in which the traditional systems operate. Critics should also be reminded that this "primitive" agriculture supports a rather sizable population, and has done so for many centuries.

Tropical African soils are generally light and relatively low in plant nutrient content even when first brought into cultivation, and unless they are handled with care will rapidly lose fertility through leaching and rapid oxidation of humus content. Heavy rains, even in regions where annual rainfall is low, carry essential minerals down into the subsoil out of the reach of growing plants when they do not wash topsoil itself away. High solar radiation raises soil temperature to the point where the organic content is rapidly consumed. African agricultural methods are designed to deal with these problems in various ways. The most common sort of planting arrangement is to put in three or four crops that will mature at different times but that will maintain a green canopy over the ground until the last is harvested. Mixed and sequential cropping, by maintaining a constant vegetative cover over the soil, reduces the damage of rain and sun. It also provides protection against total crop failure when the mixture is made up of varieties having different moisture and soil requirements and with differing tolerances of drought, wind, and pests. Imperfect clearing of natural cover, and imperfect cultivation of the growing crops, although they may result from the inadequacy of African farm tools, also serve to provide shade and protection to the soil and to assist in re-establishment of bush or forest. The small, isolated fields are more easily recaptured by the natural vegetation than larger ones would be; at the same time spread of plant disease is much slower and more difficult than it is in the vast fields of America and Europe.

Despite all the African farmer can do, however, yields from the light soils will fall below acceptable levels in a relatively short time, and the soil must be allowed to recover its fertility by resting, under natural fallow, for a long period. Protection of the ground surface and the long fallow are the two basic elements of African farming. The African farmer must every year face the necessity of clearing a little more new land to replace that which is allowed to go back into bush, and this is a costly operation. But when uncleared land is plentiful, clearing may be a less costly way of securing fertile fields than would be the addition of organic or mineral fertilizers. Difficulties have arisen only in certain areas where population has increased to the point that land cannot be kept out of cultivation long enough to restore nutrient and humus content to satisfactory levels, but this is not yet a serious problem over most of the area under consideration. As the demand for agricultural products increases, however, because of rising population, rising income, and increasing exports, the problem of maintaining soil fertility at lower cost will become one of the most pressing in African agriculture. When the fallow must be shortened the traditional agriculture can offer no solution. Nor can the problem be solved by indiscriminate introduction of European methods, a lesson now well learned by most agricultural officers in Africa.



Experiences in the Republic of the Congo (Belgian) illustrate what may happen when African environmental restrictions are ignored and farming methods of the temperate zone are applied without modification. In the 1930's Belgian authorities undertook the experimental cultivation of food crops by the most advanced European methods. The forest cover was completely destroyed by cutting, stumping, and burning. The field was then plowed thoroughly so as to remove all roots, and, when brought into fine tilth, planted to a cover crop of legumes. The cover crop was plowed under after one year and the field thoroughly cultivated again, after which it was planted to a rotation of rice, peanuts, manioc, and a leguminous cover crop. The results of this experiment were extremely disappointing. The second crop of rice yielded only one-fifth as much grain as the first had done, the second peanut crop was only one-sixth as large as the first, and even manioc yields were down one-third from the first crop (16, pp. 93-95). After other similar experiences the Belgians concluded that a sound agricultural development program in the Congo could only be built on the firm base of traditional African farming, and it was on this base that their ambitious program of *paysannats indigènes* rested (see below, pp. 11-12).

Although the traditional system with its emphasis on continuous field cover and on long natural fallows appears to be the best so far designed, modifications are clearly necessary if agricultural output is to continue to rise. In regions where rainfall is low or highly variable seasonally or from year to year, irrigation, both regular and standby, could greatly increase average yields. But even in the well watered areas, and they are very large, production could be increased as much as five-fold if only the long fallow could be dispensed with. Under pressure of strong demand for land, either because resident rural populations are large or because market prices for farm produce are unusually attractive, some fields are already being kept under almost continuous cultivation, the high prices received being sufficient to compensate for low yields and consequent high cost of production. But the long range solution must lie in better soil management, using fertilizers and rotation of leguminous pasture to hold soil fertility nearer to economically optimum levels. A great deal of research in soil fertility has been undertaken since World War II, and solutions to most of the technical problems of soil maintenance appear to be near. The principal barrier to their application now is an economic one: the high cost of carrying fertilizers from port to farm, and the high cost of carrying crops from farm to market. With improved lower cost transportation we may look for the gradual spread of fertilizer use, and, when suitable leguminous cover crops are proven, to an expansion of green manuring, with, it is to be hoped, pasturing of livestock (assuming that tsetse-fly-borne infections can be controlled).

*Agricultural development plans.*—The metropolitan governments made numerous attempts, principally after World War II, to improve the productivity of African cultivators. Some failed resoundingly, most were only moderate successes or moderate failures, a few achieved results commensurate with expectations. Two of the ventures that show most promise are the Gezira scheme in the Republic of Sudan, and the *paysannats indigènes* of the Republic of the Congo (Belgian).<sup>9</sup>

<sup>9</sup> An excellent history of the Gezira scheme is given in 9. Belgian agricultural development programs, including *paysannats*, in the Congo and Ruanda-Urundi are reviewed in 2.

The Gezira development is the outgrowth of fifty years of experiment, planning, promotion, and investment in the triangle lying between the Blue and White Niles. In essence it involved the transformation of some 1,000,000 acres of dry-farmed land to the irrigated production of long-staple cotton by tenants farming on a share basis, after patient experiment had demonstrated that the land was admirably suited to this crop. The government leased land from the original proprietors at a price representing its fair value before irrigation, then sublet to operating tenants for a share of the crop. Capital was provided jointly by government and by a private corporation, the Sudan Plantations Syndicate, which also undertook to manage the entire project for a share of the proceeds. When Sudan achieved its independence the Gezira had approximately 25,000 tenants farming irrigated plots of from 20 to 40 acres. Cotton occupied more than 200,000 acres. The Syndicate's concession expired in 1950 and its functions were then transferred to government.

The history of the Gezira scheme presents an interesting example of the sorts of problems involved in transforming low-yielding land supplying only local needs into land of high productivity supplying a world market, and of lifting an impoverished farming population to relative prosperity. But this development was achieved under conditions not likely to be met with again in Africa for several decades: stable and responsible political authority capable of borrowing at favorable terms and of guaranteeing private investors against unlawful seizure or arbitrary administrative changes. Nor is it altogether certain that the Gezira will be able to continue to operate at its previous efficiency under Sudanese management. Neither the Syndicate nor the British government anticipated that the transfer of sovereignty to Sudan would come as quickly as it did, and as a result failed to train adequately a Sudanese staff prior to independence.

The *paysannats indigènes* of the Republic of the Congo (Belgian) were a form of cooperative farming, more or less imposed by government, based on traditional farming methods but attempting to overcome some of the inadequacies of that system and to prepare the way for introduction of modern techniques such as mechanical cultivation, use of pesticides, and more efficient planting of improved plant varieties. They, too, relied on cotton in most areas as their principal cash crop. The essential feature of the *paysannats* was the substitution of rectangular, adjacent holdings, on which all operators followed the same rotations, for the irregular, scattered, individual plots of the traditional system. The lands of a community or tribe were surveyed, with adequate provision for roads, and then reallocated in accordance with the traditional system of rights to land. The orderliness of the new layout, and the complete knowledge of farm holdings that it required, made possible closer supervision of farming practices by agricultural officers. At the very least it was expected to lead to better spacing of plants in the field, and to better compliance with required cultural practices. The large contiguous fields formed by many small plots made possible the use of machines and facilitated the use of dusters and sprayers. Cooperative marketing, storage, and processing associated with *paysannats* were expected to reduce costs between farm and market.

By 1958 the Belgians had settled 180,000 Congolese families on *paysannats* in all parts of the Congo, but reliable appraisals of the achievement in increasing productivity have not been made. Perhaps they cannot be, because of the lack

of knowledge of costs and productivity under the traditional system. Some paysannats claimed substantial increases in returns to proprietors, but it is not certain whether these resulted from increased efficiency or from increased effort called forth by more effective supervision. The fate of the paysannats in an independent Congo is uncertain.

*Extension services.*—Agricultural development schemes such as the Gezira and the Belgian paysannats foster more rapid growth of agricultural production by assigning to government or European corporations responsibility for providing capital and for making general farm management decisions, and by providing a working arrangement between government and farmers whereby farmers can be more easily persuaded, or coerced, into adopting farm practices believed by governmental experts to be beneficial. In their attempts to influence farmers to adopt new cultural methods they represent an extreme form of the much more general system of agricultural extension work that is carried on by government and by religious missions in one form or another in most of tropical Africa.

The avowed purpose of all agricultural extension programs is to acquaint farmers with the advantages to themselves of adopting new methods of farming, including cultural practices, harvesting and handling methods, sales, and record keeping. But extension supervisors and teachers almost inevitably find themselves going beyond the formally prescribed task of informing; especially in countries under paternalistic foreign rule, persuasion, exhortation, and legal sanctions are likely to be invoked in order to compel farmers to adopt methods certified as superior by the departments of agriculture. Reports of the colonial powers on the status of agriculture in their various African territories are replete with accounts of the difficulties encountered in persuading African farmers to do as agricultural officers thought they should.

Administrators were seriously handicapped in many places because they or their predecessors had urged the adoption of methods that did more harm than good, such as deep plowing that led to more rapid soil erosion, or inoculations that killed the cattle they were intended to save. But if the results of agronomic research now under way in many of the African territories are to lead to significant increases in farm output, some sort of agricultural extension service is essential. African farmers are not averse to adoption of new methods once they are persuaded of their efficacy. Extension teachers are apt to face an uphill job, however, until the memory of old failures can be erased by successes confidently to be expected from such proven innovations as improved planting material, insecticides, and fertilizers.

The effectiveness of agricultural extension programs, and of agricultural research, can be greatly increased if extension workers will devote as much effort to learning from African farmers as they do to teaching them. Many past attempts to increase agricultural productivity failed because the officers responsible for them did not study the rationale of African farming systems and did not consult African farmers when new promotions or investigations were being contemplated. Africa has far too few agricultural officers whose understanding of African farmers and farming equals their knowledge of European laboratory

techniques and farming practices. It is just this combination of knowledge, however, that is essential for further agricultural progress.

#### THE ECONOMIC ORDER

Production of crops for export inevitably involves the African producer in the exchange economy, but production of food crops need not and often does not. Growing food crops for market is an important farm activity in many areas, but a large part of food production never enters the market, and another considerable fraction enters only into local markets where the rule of custom is still strong. In order to understand the organization of the largest part of African production, it is necessary to examine the traditional economy in which most productive activities first came into being and which may still be the strongest determinant of their present form. Only then can the conditions for transmuting the existing economic order into one enjoying the advantages of a modern exchange economy be understood.

*The traditional economy.*—The economic organization of African communities prior to the European occupation resembled much more the household economies that were the first objects of study of proto-economists than they did the national or political economies now taken to be the subject matter of economics. In some areas, notably the grasslands of West Africa, long-established trading ties with the Mediterranean had introduced elements of the exchange economy that bound together the economically more advanced states of Europe and Asia, but even in West Africa exchange and trade affected only a small part of economic life. Elsewhere their influence was faint indeed.

The essential characteristic of traditional economic life was that the individual's sphere of economic action was limited almost entirely to the small community in which he lived. Production was carried on by thousands of small, unitary economies, each of which endeavored to satisfy its own needs by its own produce. Members of each settlement were bound to each other and set apart from members of all other settlements by kinship, real or simulated, by customary usages, by oral tradition, by law, and often by language as well as by geography. Political ties among these small communities, when they existed, were apt to be weak and unaccompanied by significant economic ties. The attitude toward members of other communities ranged from tentative probationary acceptance to constant hostility. These were island economies, in some ways more isolated from one another by warfare and by manners than by space. They were small, and they were nearly closed.

In such societies as these the crudest forms of distribution serve to link production to consumption. The steps between wants and satisfactions usually can be easily seen, and even when there is some roundaboutness in the production process, all operations are likely to be carried out by the same individuals, or members of the same family. The smallness of the community and the absence of organized exchange prevent development of any but the simplest sorts of specialization associated with sex or age. Economic determinants on behavior are hard to recognize, either by members of the society or by outsiders, because the members are ruled in all their actions by a complex of relationships

among which the economic ones are only one type. When a member of such a society takes part in a harvesting bee, for example, he may be motivated in varying degrees by his enjoyment of participating in a group activity, by his desire to win praise or status, or by his anticipation of the beer drink that will be held when the task is completed. Sometimes an obligation of friendship, kinship, or law toward the "host" may be the determining factor, sometimes it will be the hope that he may meet his current inamorata in the field. More clearly "economic" motives may also be involved, such as his concern to produce enough food to meet the minimum requirements of the village or to insure a surplus for feasting and drinking or for sale, or by his belief that this is a more efficient way to grow the crop, or by the expectation that his efforts will be repaid in kind. He may take part because he wishes to insure the favor or not to incur the hostility of deities or spirits, because his father, uncle, or headman says to, or because "government" says to (sometimes because it says not to). Perhaps members of western society are governed by equally complex motives in their economic endeavors, but in societies in which every activity and every good has a known value in the market it is possible to form some notion of the working of economic forces as distinct from all others; it is much more difficult to do so in the small unitary economies.

Just as fewness of number tends to inhibit specialization with its consequent savings in cost and increase in real income, so also does it tend to restrict economic innovation and change. Good new ideas occur infrequently in any society and are even more rarely translated into action, but they do appear to be a function of the number of persons available to have ideas and to try them out. They are also more likely in a society that already has access to a large store of technical knowledge. When the society is isolated and so small that the total number of possible innovators is small, the chance of successful innovation is proportionately reduced; if the small society is linked to many others by clear and frequently used channels of communication this may not matter, because each new idea can eventually become the property of all, but when each group lives to itself, the small probability of innovation is not offset by the possibility of borrowing innovations from others.

It is characteristic of the traditional society that group controls depend heavily upon blood relationship, marriage relationship, and age. The individual is led by extra-economic sanctions to actions considered desirable by the community, even though the actions themselves may be intended to achieve purely economic ends. Government of the community typically rests with a group of family heads, or of elders, or of a particular age group, or, perhaps less often, with a chief who governs with the consent of his peers. At the same time there is a strong tendency toward economic egalitarianism and toward mergence of the individual with the community. The over-all pattern, economically, resembles that of a family in which all share more or less equally in consumption, although special delicacies may be reserved for the head of the household. It resembles the family, too, in the way in which attitudes of individuals merge with those of the group, and individual and group welfare are identified. Under such an organization it is difficult for an individual to accumulate property in excess of that held by each of his fellows, and accumulation tends to be achieved only

by the leaders who, in effect, hold property for the total community. Nor does the individual feel a strong need to accumulate property as protection against personal disaster, because just as he is expected to share his surpluses with the group, so is the group expected to assist him when he meets with failure.

All this is not to say that economic forces could not make themselves felt or that economic change could not occur in the traditional society. Rather it meant that economic decisions were made by the leaders of the community and then enforced on its members. The decision might be clearly economic but its implementation might not: the heads of the community might decide to adopt a new crop, for example, because it could be grown at low cost, because its yield per acre was high, or because it would provide insurance against food shortage caused by failure of other crops. This in itself is essentially an economic decision. The individual cultivator, however, was often led to plant and cultivate the crop not by these considerations but because it was ordered by his leaders, because the spirits desired it, because it was lucky, or simply in imitation of the chief.

*Trade.*—The traditional economy has been described so far as if it were completely closed and unitary; in fact there appear always to have been some connections with “outside” and some division of function within. Most African communities required commodities not obtainable within their own territories, and got them through sharing or trading relationships with other communities. Oldest of the traded commodities probably was salt, which could be washed from the ashes of reeds and grasses burnt for this purpose, but could also be obtained in a more satisfactory form by trade with communities having access to salt deposits or to salt-water flats. Iron and copper, too, were objects of long-distance trade at an early date. In some areas special clays that were used as cosmetics or medicines were important trading goods, and intercommunity arrangements may have been made for the exploitation of beds of pottery clay. Disparities in the control of mineral resources led to trade in their products, and in similar fashion groups holding fishing rights in streams, or rights over deposits of sea shells, might trade fish or shells for other products. And some communities also developed special skill in the manufacture and dyeing of textiles, or the making of pots or hewing of canoes, and traded their products for foodstuffs grown by others.

Trading ties between Middle Africa and Eurasia are very old, dating back at least to the time of Christ and probably much earlier. Gold, leather, ivory, ostrich feathers, and slaves travelled across the Sahara from West Africa in exchange for the products of the Mediterranean World, and there was a similar trade between the east coast and Egypt, Arabia, and India.

By the time that Europeans had penetrated the African hinterland, trade and local markets were widespread throughout most of tropical Africa. Today almost all communities participate to some extent in local markets, and a network of long-distance trade routes links the principal regions. But there is a great difference in the degree of participation in the market system. In some of the cocoa-growing areas of West Africa most foodstuffs are purchased and most farmers direct their primary activity to production of crops for market. Some villages, on the other hand, receive only a very small part of their consumption from

outside and obtain almost their total food supply from their own fields. More commonly food and housing are home-supplied, while clothing, some household utensils, farm and household tools, and a very few luxuries are bought with the proceeds of crop sales or wages earned by working outside the traditional society.

One important consequence of the relative isolation of the older communities was that they had few requirements that must be met from outside. Basic wants—food, clothing, and shelter—could be provided by the village except in times of drought, pestilence, or local war. The villager went to market only to obtain those “extras” that he could not himself supply, or to replenish his meager stock of capital goods—such as hoes and knives, that came from the outside. He could only go to market when he had a little “extra” production to sell and buyers to take it.

As communications have improved in Africa, the number of extras available in village and town markets has increased, and the amount of “extra” production for which there was a market has also increased. In most parts of rural Africa this is probably all that has happened; the rural villager still feeds and houses himself by his own efforts, although it has become rare for him to spin and weave his own cloth or to clothe himself in skins.

It is quite otherwise with Africans who work for wages in mining and commercial centers: usually they must buy their food and pay rent on rooms as the older custom of providing rations and living quarters as a part of the wage falls into disuse. When only the man goes to town, however, and wives and children remain at home, the situation may be no more than a perversion of that which prevails in the villages. A man’s wages may be little more than enough to pay the cost of his subsistence, unless he receives food packages from home. When he does, the surplus money income permits him to buy “extras” for himself and for his family. The distinction between essential articles of consumption and extras, between necessities and luxuries, takes on a special significance in societies such as these.

To the extent that necessities are produced in the village, survival is not affected by general economic conditions. On the other hand, complete village self-sufficiency sharply increases the danger of famine and food shortages caused by crop failure. If food crops are thought of as something to be grown exclusively for consumption in the villages where they are produced, and the general food policy of the British government in East Africa has tended this way, food crops may not be regarded as normally exchangeable commodities; in some instances when exchange of food against money does take place it may not be based on economic values (4). In parts of Africa that are little influenced by the market economy, foodstuffs are sold only occasionally and food prices appear to be uninfluenced by supply or demand and to remain unchanged over periods of years. Prices quoted are purely nominal, and the sale of food to travellers under such circumstances is a form of traditional hospitality to visitors, with the “price” either a part of the gift exchange or a token or receipt. In many such cases, however, price may be in line with a sort of stabilized local value that is economic over a longer period even though it does not fluctuate with short-term changes in supply and demand. Short-term adjustments may take the form of fluctuations in amounts offered for sale.

*The money economy.*—From the standpoint of the administrator who wishes to increase output, any tendency to regard foodstuffs as primarily subsistence rather than market commodities can pose a serious problem. It may vitiate the effectiveness of price incentives to increase production. At best it causes the supply of crops brought to market, food crops and export crops alike, to be a function only of the demand for “extra” consumption items, rather than of the demand for total income. A policy of village or regional self-sufficiency in foodstuffs inevitably prevents increases in productivity that would result if each community concentrated on the production of those crops that it could grow least well (cf. 11).

Africans who obtain part of their requirements from the traditional economy, part from the money economy, are most often thought of as being in the process of moving from the old to the new form of economic life. It has been suggested that perhaps they are not moving any place, but instead are permanently fixed half in one system and half in the other.<sup>7</sup> It is possible that when they do change the proportionate contribution of each economy to their income the change may be in the direction of increased reliance on the traditional one. Or they may continue to rely on the older system for food and shelter, and on the newer for less essential consumption, so as to combine the security of the old with some of the higher productivity of the new. From the standpoint of the nation, it is extremely important that the change from the old to new system be carried to the point where at least the major activities are controlled through market-determined prices. It may be helpful therefore to consider briefly the process by which a society can change from a unitary, isolated form to an individualistic one in full communication with the world economy.

*Economic growth.*—The domestic economy can be made to function as a unit, or as an organism, because it is bound together by ties of blood, by tradition, and by residence. A national economy must rely on less personal ties, and its controls are primarily those of cost and price, which manifest themselves through the market place. Over the centuries these economic controls have proven too to be among the most powerful, to whatever end, that the state has at its command.

Reliance on money will increase as the list of extras that are wanted and that are within the reach of the general population lengthens, that is, as the standard of consumption rises. As some of the extras become necessities, the demand for money will be strengthened further. A notable instance of the transformation of luxury into necessity in tropical Africa is the demand for cloth. European cloth was one of the goods eagerly desired by Africans as early as the sixteenth century, but it is probably only within the past 50 years that cloth of European manufacture has come to be regarded as the usual material for clothing and has largely displaced cloth of home manufacture. European-style textiles are now clearly necessities, not extras.

It is sometimes argued that an increase in the number of goods desired, called here a rise in the standard of consumption, may result in a decline in human happiness. This may be true, but there is in fact little that we or anyone else

<sup>7</sup> See summary of remarks by L. A. Fallers and John Reedman in 7.



can do about it. Most peoples of the world, whatever their patterns of consumption before they came into contact with the highly productive economies of Europe and America, now desire the material products of those economies almost as ardently as do westerners themselves. Certainly Africans do, and any policy ignoring the strength of this desire is ill-conceived. On the other hand, it is equally important to realize that unhappiness results not from the increase in desires, but from the difficulties encountered in satisfying them. If standard of consumption stands always just a little above level of consumption, it can be a spur to increased effort and efficiency, and the discomfort resulting from the effort may be more than offset by anticipation of ever-rising consumption. But when standard is too much above level, the consequence may be frustration, misery, and social and economic disorganization. Something of the same sort may follow if imperfections in the range of available consumer goods prevent the would-be customer from finding useful and desired articles at prices he is able to pay. This is undoubtedly part of the explanation of the irrational purchases sometimes made by Africans. When a man goes to a shop with money in his pocket and the desire to spend it, but finds only goods he already has, or things that he wants but which are too expensive, or baubles, he is quite apt to spend his money on baubles, be he African, European, or Asian (cf. 6).

In many parts of tropical Africa the sort of increase in standard of consumption that provokes increased reliance on the market economy is already well under way. It is clearly apparent in the imports of goods of European manufacture, and there is also visual evidence in the villages of increasing consumption of extras, mostly imported, but some of home manufacture. Glass windows, galvanized iron roofs, modern door hardware, lanterns, flashlights, watches, sewing machines, bicycles, and radios are increasingly evident in the more prosperous areas. And even in some rural areas, most notably in western Nigeria, more than half of the food supply, in terms of calories, is obtained by purchase.

The production of crops for sale depends not only upon the producer's demand for purchasing power in the form of money, but also upon the existence of assured regular markets for his products at reasonably remunerative prices. Production by African smallholders has sometimes been inhibited in the past by governmentally administered prices, by licensing of buyers that resulted in restrictive buying practices, and by chartered monopolies. Special privileges for European and Asian concerns may occasionally have served a useful purpose in the early period by introducing modern economic procedures into the traditionally oriented African economies, but they have far too often acted to inhibit the development of just those attitudes and relationships they were intended to foster.

Among the steps that government can take to increase production for market are the familiar ones of improving transport, providing current market information (a much simpler matter now than in the days before the introduction of radio), adopting and enforcing laws requiring performance on contracts, and making available, though not necessarily requiring, government inspection and grading of produce. One of the obstacles to wider use of markets at present is their imperfect interconnection, with the consequence that one market may be glutted while another not too far away may be short. But the capacity of markets

to absorb supplies may be restricted also by the inadequacies of processing industries, and there are undoubtedly numerous points along the market chain where bottlenecks may occur. One of the anomalies of present-day Africa is the widespread existence of surpluses of food and feed calories that go to waste either because marketing and transportation costs are too high or because market and storage capacity are too low.

Increased specialization in production, itself dependent on the organization of economic exchange, will also tend to extend it. In its train, of course, it brings increased risk of bankruptcy and destitution. But the severity of the impact of economic failure can be moderated by society, and competition, of which failure is one consequence, automatically increases the society's productivity by forcing less efficient producers to yield control of resources to those who are able to use them more efficiently.

Modern economies make their greatest contribution to human well-being because, in the words of S. H. Frankel, they free man from the "bonds of space" and from "the bonds of time" (8):

. . . an addition to income implies an expansion of the horizon of individual and social experience. It implies that a subsistence economy, or indeed any microcosmic unit of economic activity, can only escape from territorial, customary, or other limits to its structural growth by integration within a greater whole. . . . To ensure an expansion of future income men must make those changes in their social relations, and form those new personal bonds, which will enable them to make use of, and hence cause them to become dependent on, the income-creating activities of others who can be trusted to make available—in exchange for present benefits—a flow of income in the future. Just as the bursting of customary or physical frontiers releases man from the bonds of space, so too the creation of debt releases him from the bonds of time, and can be regarded as a forcing-house of civilization.

Further expansion of the market economy in tropical Africa will require investment of funds as well as ingenuity, imagination, venturesomeness, and hard work. The possibility of obtaining at least a part of this capital from domestic savings has been more or less overlooked.<sup>8</sup> Studies of the organization of agriculture in a few West African countries, and of the disposition of personal income both in East and West Africa, suggest that the African saver and investor may be able to make a significant contribution. An essential prerequisite of increased African investment, however, as of increased productivity generally, is a further expansion of the outward-looking exchange economy and a withering of the traditional inward-looking unitary economy.

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