

raphy, who as yet lack a text-book devoted to Uganda, will be particularly grateful for the material brought together under the handsome covers of the Atlas, which effectively summarizes all major aspects of the physical and cultural landscape of Uganda. As a work of reference, the Atlas should be within easy reach of all who concern themselves with the affairs of Uganda, and the Department of Lands and Surveys is to be congratulated on making the Atlas available at the time when Uganda needs it most.

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FOOD CROP PRODUCTION IN AFRICAN AGRICULTURE: A GEOGRAPHICAL CASE-STUDY AND ITS IMPLICATIONS

A SUBSISTENCE CROP GEOGRAPHY OF UGANDA. D.N. McMASTER.
The World Land Use Survey, Occasional Papers, No.2. Edited by L. Dudley Stamp.
xi, 111 pp. Geographical Publications Ltd., Bude. 1962. U.K. price 27s. 6d.

The author of this valuable contribution to the study of Uganda's agriculture section is currently teaching in the African Studies Centre of the University of Edinburgh and probably needs little introduction to East African readers, having been the staff of the Department of Geography at Makerere University College from 1952 until the middle of last year. This monograph embodies and summarises much of the material submitted by the author for the degree of Doctor of Philosophy in the University of London. It should be recorded that Dr. McMaster's project was supported by the Colonial Research Committee — one of the lamentably few pieces of research which that body was able to support. The main objectives of this study were the mapping, description and analysis of the contemporary pattern of African subsistence production in its physical and human setting. As with Caesar's Gaul, a tripartite division may render the geography in question more readily comprehensible to the observer. The first section may be viewed as extending to p.39; it contains a brief methodological discussion, a concise and logically ordered account of the physical and social environment within which the pattern of agriculture has evolved, and an assessment of the total areas cultivated and available for agricultural use.

Of the three main approaches to the geographical study of subsistence agriculture — the ecological, the land-use and the statistical — Dr. McMaster chose the last, since it permitted a country-wide approach based on the existence of detailed official estimates of crop acreages. This corpus of statistical data is unique in the

larly gratefully, which effectively and Central Africa, and little comparative or analytical use had been made of of Uganda. Obviously, apart from their primary official purpose in assessing export crop and concern the supply prospects. However, the value of this statistical treasure-trove is re- is to be considered somewhat by the fact that, 'by comparison with the competence of modern most. pling techniques for less advanced areas, the present Uganda acreage statistics are deficient' (p.x), and further by the serious discontinuities in acreage series as result of formal or improvisory re-assessment. Consequently, the study of trends made hazardous. Nevertheless, for the author's purpose - the broad delimitation BANAGE crop distribution patterns in one crop year (1958) - the degree of accuracy is probably sufficient, although the argument that this is so, based on banana acreages, seems to be overstated in view of the later difficulties arising from the inaccuracy of the banana estimates in the Western Province (p.x, cf. pp.71 and 100).

Following this introductory discussion, Dr. McMaster relates the agricultural pattern to carefully delineated physiographical regions and to climatic and social factors. Thus, the influence of climate on the timing and pattern of agricultural work, and therefore the cropping system, is convincingly demonstrated in Figure 9, the long-standing correlation of sown crops (e.g. finger millet, sorghum) with Nilotic and Nilo-Hamitic peoples and of planted crops (e.g. bananas, sweet- potatoes) with Bantu groups, is indicated in Figure 12. However, some minor criticisms are necessary; it is unfortunate, for instance, that in a work published in McMaster's 1962 the meteorological data used was published in 1953, especially when the re- Dudley Stamp : 27s. 6d. y. A mean total cloud amount of 6/10 does not warrant the deduction that 'over of the sky is generally cloud-covered at the times of observations' (p.12), unless a bimodal distribution of cloudiness at the time of observation is also demonstrated. The reviewer would quarrel with the uncritical acceptance of the official view of the inviolability of all forest reserves for agricultural use (pp.10 and 32). An alternative conclusion may be drawn in some areas when one takes into account the dis- ses much of unted returns to either activity the relationship between price, consumption of hy in the Unber and use of timber substitutes, and the complementarity of certain agricultural was supported systems to forest management. Whatever the outcome, the problem is essentially ces of research and-use one and is one of several conflicts in land use policy in Uganda which idy were the should merit further study by geographers.

In his interesting discussion of the future availability of land in different l, a tripartite ble to the obstructs of Uganda Dr. McMaster makes a courageous voyage of exploration into brief method charted regions. Whilst his conclusions concerning the relative population pres- and social entes on land resources are probably broadly correct, this section may have greater essment of the ue in indicating how very inadequate the available data really is. The areas of d made unavailable for cultivation by laterite or rock outcrops, or steepness of pe, are unknown. Although the areas covered by the various soil types are sistence agricown, the fallow requirements of different cropping systems on them are not. When aster chose the ask what effect increasing population pressure has had on agricultural output per ice of detailed vita and levels of consumption we are in the field of speculation. To what extent is unique in s declining soil fertility in the densely populated areas of Teso and Bukedi, for

example, been offset by the switch from grains to higher yielding root crops, the effective control of locusts, improvement in crop varieties and higher cash income coupled with improvements in trade and transport? Certainly for Uganda as a whole Dr. McMaster's study points to a significant improvement in rural levels of consumption over the last fifteen years (e.g. pp.96-97). Even in these problem areas of Eastern Province the fact that such simple soil-improving techniques as the night paddocking of cattle are just beginning to be adopted may indicate that these offset factors have offset the effects of the decline in soil fertility, at least until very recently.

The second section, pp.40-87, contains the core of the work - a crop-by-crop account of present distributions and future trends. The distributions of nine major crops are mapped and discussed in detail - viz: bananas, finger millet, sorghum, maize, cassava, sweet potatoes, groundnuts, simsim (sesame) and pulses. Some ten other minor crops receive mention. The maps are clearly drawn, and the discussion is well ordered and illuminating. A few points only appear to call for comment. The postulated over expansion of bananas into marginal areas (p.49) is discussed primarily in physical terms. Clearly, the attraction of bananas in areas giving low yields depends on the relative attractions of alternative food crops. If these compare badly, the area may still be well within the economic margin of banana cultivation, even though the crop may fail partially or entirely in the worst years.

The use of the term 'supplementary crop' in the sense of supplementary to the diet conflicts with its specialised meaning in agriculture, where it describes a crop utilising resources which would otherwise remain unused. Perhaps 'supplementary food' would retain the intended meaning and avoid possible confusion. A more important point is the effect of the Kenya and Uganda Governments' restrictions on inter-territorial trade in maize, which should be mentioned in any assessment of the future of that crop. In 1961, for example, had there been no restrictions, considerable export of maize into the famine areas of Kenya and Tanganyika would have occurred, resulting in higher food prices and subsequent increases in the food crop acreage in Uganda. With a real Common Market, growing food crops in the more reliable areas of Uganda would almost certainly be a profitable speculative enterprise, leading to a larger total acreage under cultivation.

The third and final section (pp.87-108) contains a discussion of the factors shaping the agricultural pattern, especially the impact of the exchange economy. It is a summary of the observed crop distribution patterns through the demarcation of 'staple food crop zones'; and what amounts to an appendix on nutrition in Uganda. In these pages, Dr. McMaster confirms and consolidates the picture of Uganda's rural economy which has been emerging progressively as the text proceeds. It is a picture which differs considerably from the oversimplified two-sector or 'dual economy' model which is too often applied to Uganda and similar developing economies by visiting experts, frequently with the connivance of arm-chair administrators in the capital cities. In particular, three widely and uncritically held views are challenged; firstly, that the agricultural pattern is set in a rigid, traditional mould, modified only to the extent that cash crop production has been grafted on to

secondly, that the standard of living has been, and can only be, raised through the expansion of export crops and non-agricultural activities; and, thirdly, the view that the money economy impinges on the countryside only *via* export crops or in the vicinity of the main towns.

The spontaneous response by peasant farmers in Uganda to new *cash crop* opportunities, often in the face of official opposition, e.g. maize, or indifference, e.g. coffee, are well recorded, if sometimes forgotten. What Dr. McMaster makes clear is the equally striking manner in which *food crop* production has adapted itself to obtain the various advantages of crops unknown in the traditions patterns. Some major changes include the westward expansion of the banana; the spectacular rise of cassava mainly at the expense of finger millet during this century, a process still continuing in Teso and Toro, the replacement of finger millet by sorghum in Kigezi, and the expansion of groundnuts at the expense of simsim in the eastern and central areas of the country.

These widespread changes themselves hint at the possibility of a substantial increase in the rural standard of living, a suspicion strengthened by the unexpectedly high rate of population growth revealed by the 1959 census. The increasing *per capita* consumption of groundnuts and maize-meal points in the same direction, as does the lessening of the 'hungry-gap' problem through the extension of cassava and sweet potatoes. Finally, we may note that famine conditions last prevailed in 1944-45 (in Eastern Province only) and were associated with the 'disrupted production patterns' of the war period and Mosaic disease attack on the then widely grown non-resistant varieties of cassava. Such seasonal and local food shortages as do occur today appear to be met successfully by internal trade from surplus areas. These considerations suggest that current official food export and inter-district sales policies are excessively cautious, and that they hinder, rather than advance, the rate of rural economic development.

The third view of the rural economy was stated in extreme form by the recent World Bank Mission to Uganda - "with almost every family a self-sufficient unit, there is little incentive to enter into trade relations with other units and, to the extent that domestic trade does take place, it is largely on a barter basis."¹ Dr. McMaster's work strongly challenges this view. Quite apart from urban trade in meat, bananas, grains and vegetables, there is evidence of regular rural trade in meat, fish, maize, sorghum and, on an important scale, in native beers. Thus an estimate that 75% of cash earnings in one part of Ankole is derived from beer is reinforced by a recent official statement that beer bananas are the most profitable crop in Toro. The author alludes to preliminary studies of rural trade which he has made (p.99). Further study of this subject would seem an appropriate task for geographers, and one which could co-ordinate original material with the existing fragmentary knowledge of a most important aspect of Uganda's economy.

It is also apparent, reading this study, that these so-called 'subsistence crops' - in the sense of production of food for consumption by the producing family alone - perform, in addition, a number of quite different ancillary or even primary roles. As

food, they may be sold locally, or destined for urban markets in Uganda, for legal or illegal export to Kenya, Tanganyika or the Congo, or for export to overseas markets (the official statistics are reliable only for the last category). Most food crops can be easily made into beer, or, at greater cost, into spirits. As such, they may be sold locally, either legally or illegally, or proceed into the urban markets. As either food or drink, a food crop may be used as a wage good, often to pay labour to increase the area and yield of cash crops. Other roles too, such as the purchase of prestige and popularity through hospitality, depart from the concept of pure subsistence. Although the residual total which is directly consumed is undoubtedly large in most cases, one may wonder whether the use of the word subsistence in the title and elsewhere is more confusing than illuminating, particularly in an analytical study such as this.

Finally, the size of the initial printing – one thousand copies – and the resulting high cost are both causes for regret; the former because it will hamper the circulation of this study amongst a wide range of specialists working in the field of economic development for whom it has important implications, the latter because it precludes recommending it as an essential undergraduate text, at least for non-geographical subjects such as agriculture and economics. It is to be hoped that a second printing will allow a reduction in price, and also the correction of an excessive number of printer's errors.

None of these criticisms should be allowed to detract from Dr. McMaster's achievement, which is substantial both in the strictly geographical sphere and in its wider implications. This 'grass-roots' study of African agriculture is in the best traditions of applied geography, and should encourage geographers to further endeavours in this field.

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