akkumulation zu beobachten, die aber temporär ist und heute noch erfolgt (SEMMEL 1963, 178).

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## *TOBACCO GROWING IN NIGERIA*[1])

With 5 figures

J. T. COPPOCK


*Zusammenfassung: Tabakanbau in Nigeria.*

Obwohl Tabak nur eine relativ kleine Anbaufläche einnimmt, hat seine Produktion dennoch die Agrarlandschaft einiger Gebiete Nigerias in erheblichem Maße geprägt. Tabak war schon lange für den Eigenverbrauch angebaut worden, aber alle früheren Versuche, die Tabakkultur auf eine kommerzielle Basis zu bringen, scheiterten. Bis vor kurzem wurde die Entwicklung des Tabaks zum Handelsgewächs fast ausschließlich durch eine einzige Organisation, die Nigerian Tobacco Company, gefördert. Es war ihr seit 1934 gelungen, eine zunehmende Zahl von bäuerlichen Betrieben sowohl in West- als auch in Nordnigeria dazu zu bringen, luftgetrockneten Tabak zum Verkauf an die Gesellschaft zu produzieren. Seit 1942 wird in der Provinz Oyo – wenn auch in geringen Mengen – heißluftgetrockneter Tabak erzeugt. Die Tabakproduktion ist stark angestiegen und deckt nun den Bedarf der Nigerian Tobacco Company zu 80 %. Der Tabakanbau erfolgt in vielfältiger Weise in starker Abhängigkeit von der Niederschlagshöhe. Er ist nach wie vor in den Händen bäuerlicher Betriebe; die Gesellschaft selbst beschränkt sich auf Beratung, Lieferung des Saatgutes, Gewährung von Anleihen sowie Garantie des Absatzes. Den meisten Tabak erzeugen immer noch die kleinen individuell bewirtschafteten Betriebe. Die Aufzucht der Pflänzchen erfolgt jedoch in der Regel gemeinschaftlich. Eine Ausnahme hiervon bildet Südnigeria, wo sich die Bauern zu Erzeugergruppen zusammenschlossen, in deren Händen auch der Verkauf des Tabaks an die Gesellschaft liegt. In der Provinz Oyo besitzen diese Genossenschaften jetzt auch die Trockenöfen. Darüber hinaus haben dort die Bauern ihre Anbauflächen zusammengelegt, und in einigen Dörfern wird die Bodenbearbeitung bereits maschinell durchgeführt. Es ist sowohl aus politischen als auch aus wirtschaftlichen Gründen wahrscheinlich, daß sich die Tabakkultur in den Anbaugebieten weiter ausdehnen und auch auf neue Räume übergreifen wird.


Although tobacco is a tropical crop, the main centres of production now lie in the sub-tropics or in tropical lands where the climate is considerably modified by elevation. The chief reason is that although the rate of growth is highest in the humid tropics, a better quality leaf is obtained in areas where the crop matures more slowly; in the United States and in Southern Rhodesia, the principal areas of commercial production, some 90 days elapse between planting out and picking, compared with 50 days in southern Nigeria. Nevertheless, minor modifications of this pattern of production are taking place as the growing of tobacco as a peasant cash crop develops in newly independent tropical countries in response to an expanding home market, to government policy of developing and expanding indigenous industries and to

[1]) This paper is based largely on field observation and enquiry in 1964 and on information kindly supplied by past and present officers of the tobacco companies, to whom the author is most grateful. Thanks are especially due to Mr. M. V. MARTINEAU and his colleagues. Factual statements, for which no reference is given are attributable to these sources, but all opinions expressed about policy and all judgments are those of the author. The maps have been drawn by T. ALLAN and K. WASS at University College London.

the need to conserve foreign exchange. High customs duties on imported cigarettes and tobacco (now 55/- and 15/3 per pound respectively in Nigeria) have stimulated makers of cigarettes to manufacture locally and to promote the cultivation of suitable tobacco. Consequently, there has been a quite rapid expansion of commercial tobacco production in a number of countries, although the quantities grown remain small by world standards. This paper examines some geographical aspects of the spread of commercial tobacco growing in Nigeria, where it is now an important source of revenue to nearly 60,000 farmers in various parts of the country. This development is of interest to the geographer for three reasons. Firstly, tobacco has had a marked impact on the landscape and economies of the areas in which it is now grown commercially: secondly, there are major regional differences in the organisation of production which are closely linked with features of the human and physical geography: and thirdly, its successful introduction has important implications for the improvement of peasant agriculture.

Official statistical data for the examination of changes in the geography of crop production in Nigeria are very inadequate. Statistics in this paper are therefore based largely on information supplied by the Nigerian Tobacco Company, whose parent company, the British-American Tobacco Company, played the major role in pioneering the commercial production of tobacco in Nigeria and which was long the sole outlet in the country for commercial producers of cigarette tobacco. It is true that their records do not provide a complete picture for two other companies have recently been founded. In 1961 the Premier Tobacco Company was formed jointly by the Western Nigeria Development Corporation and the Falls City Tobacco Company with the aim of encouraging the production for export of fire-cured and Burley tobacco[2]. Its activities, which were confined to the Western Region, have now ceased and, although much less is known about its production, it certainly represented only a small proportion of that of the Nigerian Tobacco Company. A third firm, the Kwara Tobacco Company, a subsidiary of the United Africa Company and Northern Nigeria Investments, has recently been formed to manufacture cigarettes in a factory at Ilorin, but it has not so far promoted any tobacco growing[3]). Data from that company accordingly give a very fair picture of the areal spread in Nigeria of commercial tobacco grown for the factory production of cigarettes.

### *The Development of Commercial Tobacco Growing*

Tobacco is not a new crop in Nigeria. It has long been and still is widely grown throughout the country, especially in the savannah lands, as a minor crop both for domestic use and for local trade. Before the introduction of imported varieties of Virginia tobacco for cigarette manufacture small plots of local tobaccos could be found in most villages in Northern Nigeria; for example, an estimated 500 acres were grown in Niger Province in the early 1920s[4]). This leaf was used for snuff, for chewing, for pipe smoking and for the making of "bookies", hand-made cigarettes, while the flowers were widely used for staining the teeth. DARYLL FORDE has described tobacco as a universal luxury among the peoples of northern Nigeria[6]) and even today native tobaccos are more widely grown than the Virginia types used for cigarette manufacture. Tobacco growing was said to be increasing in the early 1950s among the Tiv, for whom native tobacco is a minor cash crop[7], and the crop has been recorded in agricultural surveys of Adamawa, Daura, Igala, Kabba and elsewhere and has been noted as particularly important on the Jos Plateau[8]). While there are no records of the acreage grown, one estimate gives a total of ten million pounds, but this is thought to be a considerable underestimate[9]). It was probably grown chiefly as a compound crop and was usually manured heavily with ashes and house sweepings and even cow dung; it was also widely reported to be grown under irrigation in northern Nigeria[10]). The leaves were dried in the sun on mats or on sand and then either twisted into ropes and plaits or pounded up.

The first interest in the commercial production of tobacco appears to have been shown by the Agricultural Department, which began experiments with imported varieties as early as 1915 with the intention of developing an export trade in bright Virginia tobacco[11]). The quality of the crop grown at Ilorin was said to be "distinctly promising" and it was chiefly the method of curing which produced poor quality tobacco; flue curing was thought to be the answer but this was regarded as impracticable for peasant producers[12]). For several years up till 1926 the Department held annual shows and sales at which it was prepared to buy, at something above its true market value, any tobacco offered which was consid-

[2]) Western Nigeria Development Corporation: Annual Report, 1961–62, Ibadan, 1963, 20–21.

[3]) Information from the United Africa Company.

[1]) E. C. DUFF (Revised W. HAMILTON-BROWNE): Gazetteer of Niger Province, 1921, 36. 'Tobacco from Northern Nigeria', Bulletin of the Imperial Institute 15, 1917, 32–34; C. K. MEEK: The Northern Tribes of Nigeria I, 1925, 139.

[6]) D. FORDE and R. SCOTT: The Native Economies of Nigeria (ed. M. PERHAM), London, 1946, 161.

[7]) P. BOHANNAN: Tiv Farm and Settlement, H. M. S. O., London, 1954, 20; A. T. GROVE: The Benue Valley, Kaduna, n. d., 17.

[8]) Various authors: Agricultural Notebooks, Ministry of Agriculture, Northern Nigeria, unpublished, from 1957; Department of Agriculture Northern Nigeria, Annual Report for the year 1955–56, Kaduna, 1959, 4.

[9]) Barclays Bank DCO Ltd., Nigeria: an Economic Survay, 1963, 20.

[10]) G. C. DUDGEON: The Agricultural and Forest Resources of British West Africa, Imperial Institute Handbooks, 2nd edn., London, 1922, 161. T. THORNTON: 'The growing of tobacco in the Ilorin Province', Annual Bulletin of the Agricultural Department, 1, 1922, 64.

[11]) 'Tobacco from Northern Nigeria', loc. cit., 32.

[12]) 'Report of recent investigations at the Imperial Institute', Bulletin of the Imperial Institute, 24, 1926, 197, and 200.

ered suitable for export. Attempts were made in a succession of villages to grow the crop, but, although the farmers were assisted by an instructor, they all abandoned the attempt and the Agricultural Department concluded that tobacco was not then sufficiently attractive to the peasant farmer to warrant any further effort for the time being[13]).

Interest in the production of tobacco leaf for cigarette manufacture revived in 1933 when a pilot cigarette factory was established in a disused cotton ginnery at Oshogbo. In the same year an American tobacco expert made a survey of likely areas and the British-American Tobacco Company undertook experiments to find suitable variations. As a result of these enquiries, peasant farmers were encouraged to grow Virginia tobacco, the Company distributing the seeds free; 83 acres of tobacco were grown in southern Nigeria in 1934 and in the north three farmers grew a quarter of an acre[14]).

Production was at first mainly concentrated around Ogbomosho in Ibadan Province where the quantity of leaf produced expanded rapidly, doubling in 1935 and again in 1936[15]). This progress and the success of the pilot plant led to the opening of a modern factory at Ibadan in 1937[16]). However, the company was soon facing a problem that it was to meet again, for production of leaf expanded more rapidly than capacity to use it, which was then limited to a maximum of 300,000 pounds of Nigerian leaf a year[17]). Largely through the activities of the Agricultural Department, production in northern Nigeria also increased rapidly, although on a smaller scale. Until 1942 the north accounted for only about a tenth of the leaf bought; in 1938, for example, 398,000 pounds of leaf were produced in southern Nigeria, compared with 52,000 pounds in the north. Production declined during the later war years but thereafter began to expand rapidly once again, reaching nearly one and a half million pounds in 1950, nearly two million in 1951 and nearly three million in 1952[18]); moreover, while both northern and southern areas shared in the rise, Northern Nigeria came to have a larger share of the total, accounting for more than half the crop by value from 1945 onwards and for more than half the leaf produced from 1950 (Fig. 1). To meet rising demand and to spread the benefits of tobacco manufacture more widely a second factory was opened in Port Harcourt in 1956 and a third in Zaria in 1959[19]). Production fell back from the peak in 1958 and 1959, when more leaf than the Company required was grown, but has begun to rise again since, and the 1964 crop is expected to supply 16½ million pounds

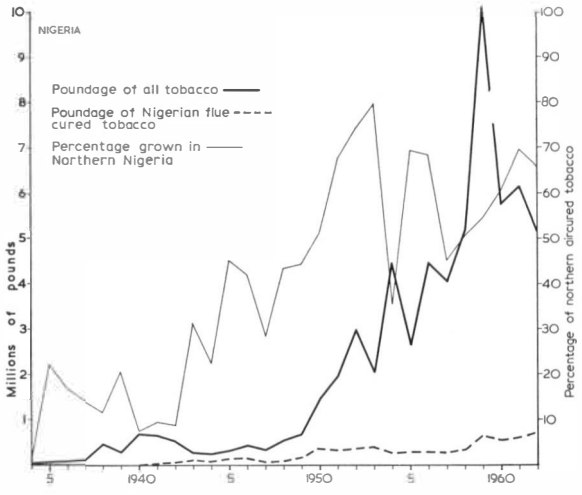


*Fig. 1:* Trends in Tobacco Production 1934–1962.
This graph shows the poundage of cured leaf purchased by the Nigerian Tobacco Co. Ltd. and the proportion produced in Northern Nigeria.

of cured leaf. There are considerable annual variations which are due to changes in the acreage grown and in the yield of leaf obtained. Differences in the weather from year to year, especially the timing and severity of the rains, are the principal cause, but disease, especially leaf curl, changes in price and in the attitude of farmers have also played a part. Data for acreages and yield are less reliable than those of production; but, if the decline during the Second World War and the great expansion in 1958 and 1959 are disregarded, the general trend of graphs of yield, acreage and production has been upwards. Thus, the three-year mean of the acreage grown rose from 935 acres in 1944–6 to 11,235 acres in 1960–2, the average yield from 349 lbs/acre to 519 lbs/acre and the production of cured leaf from 326,500 pounds to 5,829,000 pounds.

There have also been changes in the distribution and relative importance of the different producing areas (Fig. 2). Tobacco production in southern Nigeria was at first concerned with the growing of an air-cured crop in the Ogbomosho area, but in 1940 the Company began to produce flue-cured tobacco in north-western Oyo, buying the green leaf from farmers whom they encouraged to grow tobacco[20]). This area was chosen largely on account of its light soils and the abundance of wood. Two barns were built that year at the villages of Okaka and Ago-Are and the number of barns has gradually increased to 167; production has expanded in villages between Iseyin and Shaki and more recently has extended into the area southwest of Iseyin. The practice of growing a second crop was introduced in 1948 to make fuller use of the barns and production, though fluctuating, doubled between 1949–51 and 1959–61 and

[13]) Ibid., 197–198.
[14]) Department of Agriculture, Annual Report for the year 1938, Lagos, 1940, 35. According to D. H. Baker: 'Cigarette tobacco in Northern Nigeria', Farm and Forest, 6, 1945, 61–2, experiments were also undertaken at Katsina and Sokoto.
[15]) Department of Agriculture Report, 1938, op. cit., 36.
[16]) 'The tobacco industry', Nigerian Trade Journal, 11, 1962, 119.
[17]) Department of Agriculture Report, 1938, op. cit., 36.
[18]) Department of Agriculture, Annual Report for the year 1943, Sessional Paper 12 of 1944, 30.
[19]) Nigerian Trade Journal, 11, 1962, 121.
[20]) F. H. Cooper: 'Some notes on flue-cured tobacco production, with particular reference to Nigeria', Farm and Forest, 3, 1942, 178–184.

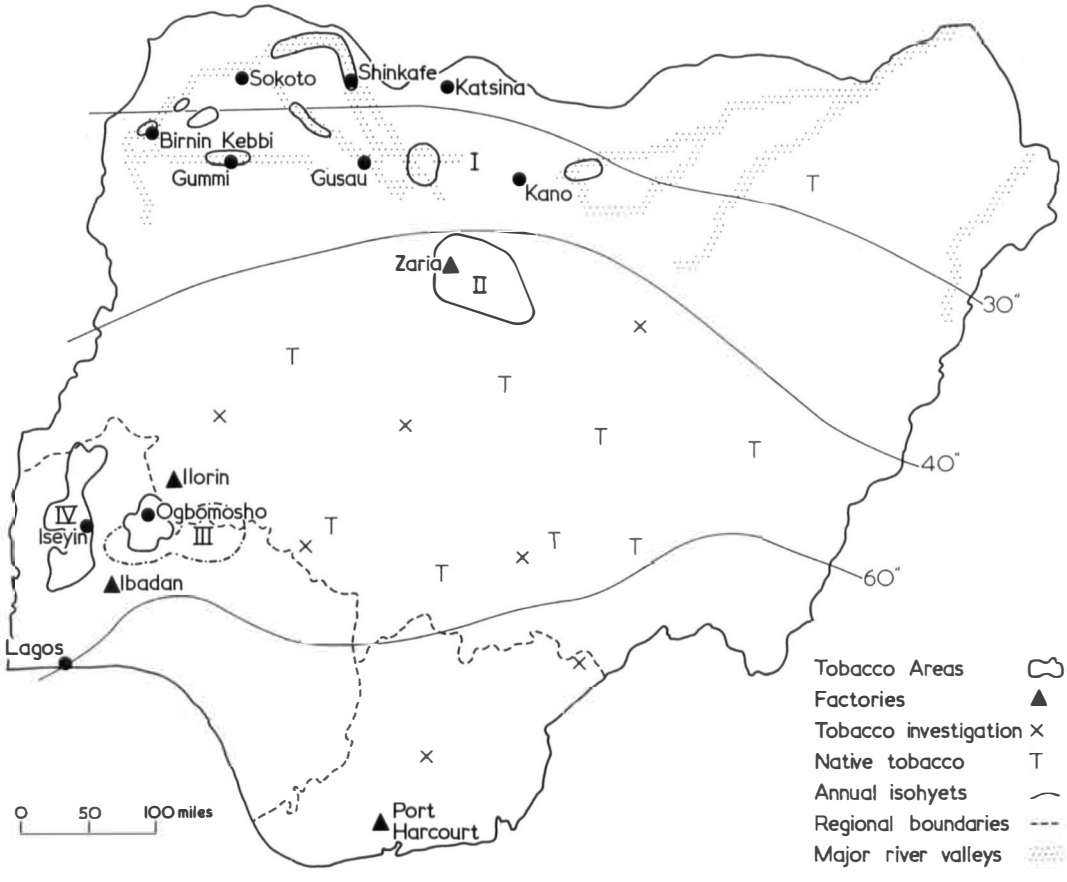


*Fig. 2:* Tobacco Growing Areas in Nigeria.

Only those areas producing tobacco for the Nigerian Tobacco Co. Ltd., are identified: the Roman numerals refer to I, Northern Air-cured Tobacco, grown mainly on the fadamas; II, Northern Air-cured Tobacco, mainly rain-grown; III, Southern Air-cured Tobacco (major and minor areas being separately distinguished); IV, Nigerian Flue-cured Tobacco. Only the major valleys in north Northern Nigeria are shown. The Ilorin factory is that of the Kwara Tobacco Co. Ltd.

has been increasing rapidly since. Production has also been rising in the air-cured area around Ogbomosho, which has accounted for more than two-thirds of the cured leaf produced in southern Nigeria in most years. Here, too, attempts were made in 1953 and 1954 to grow two crops a year, but this dangerously extended the growing season and the 1954 crop was almost entirely destroyed by leaf curl virus. Nevertheless, the tobacco-growing area has expanded, a development which was greatly helped by the establishment of local buying centres; for prior to 1957 it had been necessary for farmers to take their leaf to a central buying station at Ogbomosho. So successful was the Company in expanding production in 1958 und 1959 that the supply of leaf again exceeded their requirements and it became necessary to impose restrictions – subsequently lifted – on the acreage which individual farmers could grow.

Production in the northern provinces has also expanded and new areas have come into being. Until 1948 commercial cigarette tobacco was grown only as a wet season crop in Zaria Province, but subsequently an increasing proportion of the leaf produced has been grown in the dry season on the fadamas, the seasonally flooded valleys of Northern Nigeria, particularly those of the Rima, Sokoto and Zamfara rivers. Until the post-war period, when there was a general shortage of leaf, the company did not directly promote the growing of tobacco here, although it did provide seed and buy the leaf that farmers offered. But in 1946 a representative of the leaf department was installed in the area and, with the help of the agricultural department, further planting was encouraged, the Company providing supervision and technical advice on growing and curing. Production of leaf began on the fadamas near Shinkafe and Gusau in 1948, at Birnin Kebbi and Kano in 1950, at Hadeija in 1953 and at Sokoto in 1957. The rain-fed crop has thus declined in relative importance and the Zaria area averaged only 23 % of the total leaf production between 1960 and 1962. For a while it also declined absolutely, production falling from an average of 1,169,000 pounds in 1951–53 to 882,000 pounds in 1960–62; but there has since been some expansion.

*Flue-cured Tobacco*

Although all these areas produce leaf for cigarette tobacco, there are marked regional differences in the crop, in the way in which it is produced and in the agricultural landscapes with which it is associated. Flue-cured tobacco is necessary for the blending of cigarette tobacco and large quantities are still imported, mainly from North American. The flue-cured crop, which produces a bright tobacco used as a filler, is the most highly organised, the most distinctive and, for those farmers concerned with curing as well as growing, the most profitable. Flue-curing is an art requiring considerable skill, for not only should the leaf be correctly picked, but it must be heated in barns at specified temperatures for varying carefully defined periods, a task requiring constant attention under wood firing. It also requires capital, for a single barn (which cannot be operated economically by itself), costs approximately £ 200 and an average barn-site comprising four barns and ancillary buildings represents an investment of some £ 1,300, a considerable sum for Nigerian farmers. For these reasons it would appear not as well suited to peasant production as the less demanding air-cured crop. Indeed, in the 1920s, the Agricultural Department had thought that flue-cured tobacco was out of the question for peasant farmers and the Nigerian Tobacco Company originally undertook the curing of the leaf, building and operating its own curing barns; it also provided the farmer with plants grown in Company nurseries and supervised his cultivation. Yet since 1954 the Company has gradually transferred responsibility for both leaf production and curing to the farmers themselves and has reverted to its original role as a buyer and manufacturer of tobacco. This has been done by promoting a kind of group farming. Farmers have been encouraged to form either co-operatives or business companies which are registered with the Ministry of Co-operatives and Industry. The Nigerian Tobacco Company will then lend money to such a group for the construction of barns, repayable over a ten year period, and will also provide annual credits, repayable within that crop year, for purchase of seed, fertiliser and additional supplies of leaf. For the members of the group, who are usually the more enterprising villagers and may not even be farmers, are generally not sufficiently numerous to grow all the required acreage themselves and arrange for the balance, which is generally more than half the tobacco needed, to be grown by non-members, known as green leaf growers; these sell uncured leaf to the group at a fixed rate irrespective of quality. In addition to financing new barns, which are now largely built by the Flue Cured Producers (as the groups are known) on plans supplied by the Nigerian Tobacco Company, the Company has transferred to producers the barns which it had built and operated itself, so that the groups now undertake all curing. They contract with the Company to grow a certain acreage of tobacco, so that there is some control over production, and this is in turn allocated to individual members and to green leaf growers. The Company trains staff for the groups and is continuing to advise and to supervise growing and curing, at least in the early stages of a group's existence. The leaf is cured, graded and baled, usually by hired labour under the supervision of group members, and the baled leaf is bought by the Nigerian Tobacco Company, whose officers check all purchases in the presence of group representatives and, if necessary, either regrade bales or, if agreement is not possible, return them to the group.

A barn-site may contain up to fifteen barns, although the average is little more than three, and these tall buildings, which are normally colour-washed, are now a very distinctive feature of each of the tobacco growing villages. The agricultural landscape has also been transformed by the spread of tobacco production. In place of the fragmented plots and inter-mixed crops typical of peasant agriculture elsewhere in the region, the tobacco is grown as a sole crop in relatively large blocks, comprising as much as 60 acres. This practice has been made possible by the relative abundance of land in this area which has allowed chiefs to make a large acreage of land available to a group and its associated leaf producers without hardship to the rest of the community. This land is generally cleared of all but the largest trees and then cultivated and ridged. About 15 % is currently ploughed by tractor, a task originally undertaken by the Nigerian Tobacco Company, but now done either by the groups themselves, who own three tractors, or on contract by the Ministry of Agriculture and Natural Resources; but there is clearly scope, in view of the favourable layout, for a considerable increase in this proportion. The tobacco fields, which ideally consist of multiples of six acres for a first crop and seven for the second (these being the acreages which will feed a single barn) are then divided among the individual farmers who plant, cultivate and reap their own tobacco. The individual plots are in multiples of one third of an acre (40 x 40 yards) and it is generally felt that an acre of tobacco is the maximum practicable for an individual farmer, who is also cultivating food crops elsewhere in the village territory.

The first crop is sown in nurseries in February and is therefore wholly dependent on watering for its supply of moisture during the critical early stages of growth. It is transplanted in April at the beginning of the rains and is then reaped in June and July. The second crop, which, owing to heavy leaching by the first rains, is not as good as the first, is sown in the nurseries in May. It is transplanted to the fields in June and harvested in August and September. Virtually all field activity thus takes place in the wet season and therefore conflicts at many points with the requirements of food crops.

The transformation of the agricultural scene which results from the cultivation of tobacco is only temporary, for once the crop has been reaped the 'field' either reverts to a grass fallow or is re-cultivated in irregular patches of food crops by its original occupants. But the clearing has, of course, a long-term effect and it is to be hoped that in due course the benefits of mechanical cultivation and sole cropping will encourage farmers to grow other crops in the same way as tobacco and to follow a regular rotation.

Figure 3 shows the layout of the tobacco 'fields' in a sample village, Offiki, some five miles to the north-

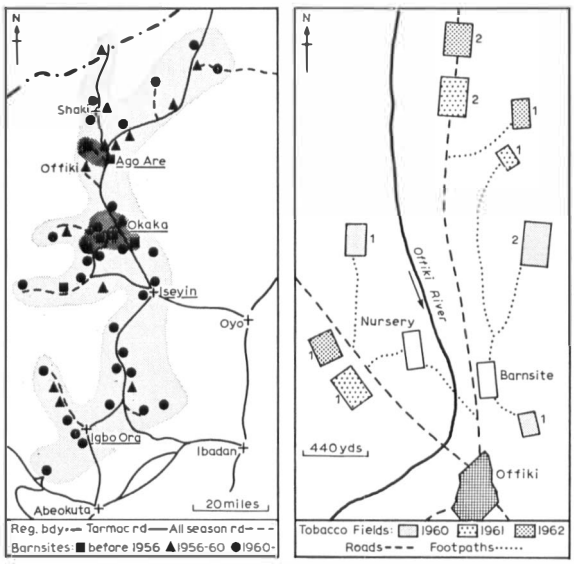


*Fig. 3:* Nigerian Flue-cured Tobacco Areas, Oyo Province.

The left hand map shows the approximate area within which flue-cured tobacco was being grown in 1964 (light stipple) and the areas in which it was first grown (heavy stipple). The towns underlined are those where the buying stores are located. The right hand map is based on a field sketch of one village and is essentially diagrammatic; 1 and 2 indicate first and second respectively.

west of Ago-Are along a laterite road. The nurseries, where a large number of girls is employed, are placed near the river, so that the young plants can be regularly watered, water being either pumped from the river or carried by hand. The barn-site containing three barns and associated buildings such as stringing and grading sheds, is on the outskirts of the village, for a large labour force of men, women and children is required for handling and curing the leaf. The tobacco 'fields', which vary considerably in size, are usually at no great distance from the barn-site; in this example, the largest single field was fifteen acres and the smallest six acres.

Since most tobacco is grown within a mile of the barn-sites, their distribution defines the area in which the crop is cultivated (Fig. 3). Their location shows the importance of good communications, both directly, through the greater ease of disposing of cured leaf to the buying stores at Ago-Are, Iseyin, Igbo Ora and Okoko and indirectly, through their effect on the size of villages; for in this relatively sparsely-populated area the larger villages all lie on tarmac or other all-weather roads, while the smaller villages are generally less accessible and have too few inhabitants for the successful operation of a barn-site. Abundant supplies of fuel have probably been the most important single factor in locating production in this area, much of which is in Forest Reserve; for a single acre of tobacco requires about four cords of wood per annum. Fuel shortage is likely to be a major handicap to future expansion, for supplies are already being depleted and wood is being transported up to fourteen miles to barn-sites. Fuel plantations are being encouraged at all sites and other fuels are being tried, such as bottled gas, which would have the added advantage of giving better control over curing; but at present they are several times as expensive as wood. The other major determinant of this regional location has been the presence of a sandy loam, for a light soil is required for flue-cured tobacco. An adequate labour force, availability of water throughout the year, particularly for the nurseries in the critical months at the end of the dry season, accessibility and the wishes of the inhabitants are other important factors controlling the location of villages growing tobacco. There is considerable local interest in expanding tobacco production and a further fifteen barn-sites, comprising 80 barns, were being established in 1964. It is thought that the output of the area might be doubled, although the requirements of the factories represent the chief control over production.

### *Southern Air-cured Tobacco*

The southern air-cured crop grown in the Ogbomosho area is a strong dark tobacco and the organisation of production and the pattern of cultivation of this crop are very different from those in the flue-cured areas, although here too a kind of group farming has emerged. Air-curing requires less skill than flue-curing, for the tobacco leaves are merely hung on strings under the roof or on the verandah of farmers' houses or in simple, easily-constructed drying sheds; the quality of the leaf in the air-cured crop depends primarily on the care and skill with which the farmers grow tobacco rather than on the curing process, so that the elaborate organisation characteristic of the flue-curing groups is not so necessary. The individual farmer both grows and cures the crop and no system of mechanical cultivation or pooling of tobacco lands has developed; but, following experience in 1958 and 1959, when more tobacco was grown than the factories required and there was great dissatisfaction when the Company imposed limitations on the acreage grown, farmers have been encouraged to group themselves into business groups or co-operatives. Each of these groups, which number 28 and form a growers' association, contracts with the Nigerian Tobacco Company to grow tobacco up to a maximum specified acreage; it then allocates individual quotes to its members, who grow and cure the leaf and sell it to the group. The group organises the grading and baling of the leaf for sale to the Nigeria Tobacco Combany, for which it receives a handling charge. As in the flue-cured area, the Company provides credit to cover the cost of fertilisers and sprays and also gives advice in the field on the growing of tobacco. A second association was formed in 1964 and the associations buy the crop at a number of buying stores and then sell it to the Company at four centres.

This crop is sown in June in communal nurseries, which number about 600 and which similarly need to be near streams so that the seedlings can be adequately watered. The plants are transferred to the fields in September and are then harvested in the dry season

from late October until Christmas. In this area, therefore, tobacco does not conflict to any marked extent with the requirements of food crop production.

The landscape of the air-cured crop is much less distinctive than that of the flue-curing area, partly because growing is more widely dispersed among the lands of some 25,000 formers and partly because less money is invested in large specialised buildings. The buying stores, which are found in the larger villages, and the drying sheds, in which about a fifth of the crop is cured, are much less imposing than the flue-curing barns, although the sheds are much more numerous and the tobacco leaves drying on many verandahs are a striking, if temporary, feature of the village scene. The crop is grown in much the same way as any other field crop, i. e., in small scattered patches throughout the village territory, the chief differences being that the seedlings are grown in communal nurseries located near permanent streams and that the tobacco is grown as a sole crop. As in northwest Oyo, sowings are generally in units of one-third of an acre, although even this small acreage may not be grown in a single block; total tobacco sowings by an individual may total as much as five acres, but the average is less than one. There is tendency for the tobacco to be grown in the more accessible areas near the villages and so to displace food crops to more distant farmlands, for tobacco demands considerable attention both during growth and when the leaves are being harvested[21]). The distribution of buying centres less accurately defines the area of production than does that of barn-sites for the flue-curing area, for the land under tobacco is much more widely dispersed around these centres and tends to vary considerably from year to year as some farmers take up tobacco growing and others abandon it (Fig. 4); there is quite a large area south and east of Ogbomosho where tobacco is of relatively minor importance and where the pattern of production fluctuates considerably. The extent of this producing area has also been affected by the activities of the Premier Tobacco Company which encouraged the growing of tobacco by many farmers who had previously been unable to do so and was then unable to meet its commitments, so that many farmers subsequently declined to grow tobacco.

There is room for expansion in this area also and it is thought that production of this tobacco, which although dark and thin, has good manufacturing qualities, could be doubled. There would appear to be no agronomic reason why production should not expand into Ilorin Province, where some of the early experiments were undertaken; but supplies from the present areas are sufficient for present needs of this kind of tobacco. Burley tobacco and flue-cured tobacco have both been grown in this area where a flue curing barn was erected in 1963. Production of either could be expanded to replace the present crop if demand made this necessary, although fuel supplies are less favourable.

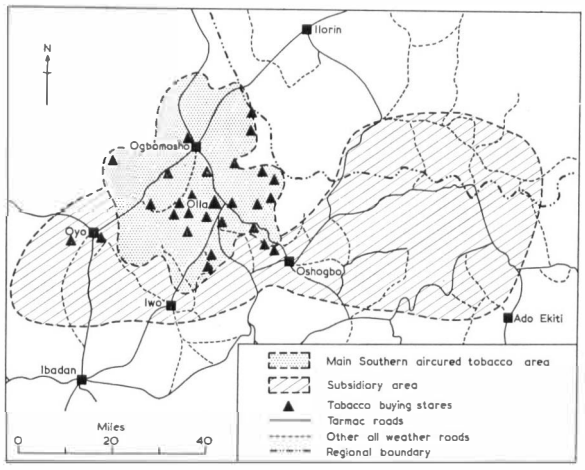


*Fig. 4:* Southern Air-cured Tobacco Areas.

*Northern Air-cured Tobacco*

The much drier climate of the northern part of Northern Nigeria and the inadequacy of fuel supplies make it impossible to produce a flue-cured crop economically[22]). The air-cured crop grown here shares certain features with that produced around Ogbomosho, notably the fact that the tobacco is grown in irregular patches and is cured by the individual farmer; but there are many contrasts, arising partly from the shorter and less certain rainy season and the much lower humidity during the dry season, partly from the predominance of fadama cultivation and partly from differences in social and economic organisation. As a result of the dryness of the atmosphere during the harmattan the leaves cure very rapidly in three or four days and produce a bright filler tobacco. The organisation of production is very different from that in the Western Region; when the British-American Tobacco Company began to buy leaf in Northern Nigeria, its purchases were made from individual farmers and, although a farmer may still sell his crop to the Company directly, purchases since 1959 have been made increasingly through the medium of master farmers, tobacco farmers on a comparatively large scale, i.e., with about five acres under tobacco, who organise the production by individual farmers and buy their cured leaf from them. This difference of approach is said to be necessary because of the more individualistic approach of the Hausa farmer and the less developed commercial organisation in Northern Nigeria.

As has been noted, northern air-cured tobacco is grown under a variety of conditions (Fig. 5). Around Zaria, which is the oldest established area of commercial tobacco growing in Northern Nigeria, about 60 % of the crop is grown during the rains on the 'upland', that is, the land between the river valleys, the remainder being grown as a semi-fadama crop on land which is inundated but where the water does not stand. The

[21]) For an example of such a farm see, A. FANIRAN: 'Tobacco growing in Olla', The University Geographer, 5, 1964, 28–33.

[22]) Sir Alexander Gibb & Partners and Industrial & Precision Engineering Consultants, Industrial and Economic Survey of Northern Nigeria, Kaduna, 1962, 106.

rain-fed crop is sown in nurseries in early July and planted out in the last two weeks in August. It is harvested in October and November and is then hung up to dry in temporary curing barns or rumfas, where it must be left until the rising humidity of the first rains makes it possible to handle the leaves again; a little of the leaf is also cured inside houses. The crop is bought at local centres, where it is baled and sent to Zaria.

This crop is a more difficult one to grow and to some extent conflicts in both its labour requirements and in land use with the demands of food crops. The tobacco is grown in small individual plots and perhaps 20–50 acres will be grown around a single village; there have been experiments in mechanised cultivation but the layout of plots is unfavourable[23]). Although the crop is widely grown throughout the village territory, there is again some tendency for production to be concentrated around villages where the crop is more accessible[24]). Tobacco is frequently preceded by an early crop of millet and is often sown on the same land for a number of years, ideally not more than two, until the crops become unprofitable, when the land is fallowed and a new plot is cultivated; this repeated cultivation has led to heavy eel-worm infestation. Competition with food and other crops and the limited extent of land with suitable soils and climate both restrict the area in which the crop can be grown, but it is thought that production might ultimately be doubled. For although this crop is more difficult to grow than that on the fadamas, it does provide a form of insurance against vagaries of the weather, conditions which are unfavourable for a good fadama crop being generally favourable for a rain-fed crop and vice versa.

[23]) Department of Agriculture, Annual Report for the year 1950–51, Sessional Paper 3 of 1953, 25.

[24]) R. M. PROTHERO: 'Land use at Soba, Zaria Province, Northern Nigeria', Economic Geography 33, 1957, Figure 7: 50 % of the tobacco was grown within the town walls.

*Tobacco Growing on the Fadamas*

Further north the rainfall is too low for a rain-fed crop and the bulk of the tobacco is grown on the fadamas, although there is also a limited acreage under a semi-fadama crop, and there is considerable variety in the way in which this dry season crop is grown (Fig. 5). Land on the fadamas will usually be cultivated in March and April before the floods and the plots will again be cultivated once or twice after the floods recede. The crop will then be planted out from nurseries which have been constructed on higher land overlooking the fadama near villages and near supplies of water; these large nurseries give the Nigerian Tobacco Company some control over production, but individual farmers may also have their own. Several sowings take place in nurseries from August 10th to September 20th and there is then a succession of plantings in the fields from mid-September until mid-November, as the floods recede and lower land is exposed, although some of the earlier plantings may be lost through subsequent flooding. Some small scale planting of farmers' own seedlings may continue until February, but its contribution is very small. When the crop is mature the leaf is harvested and cured in rumfas, as in the Zaria area, purchases being made at convenient buying centres the following June when the leaves are moist enough to handle.

The tobacco acreage is made up of small, irregular parcels, but, as these are concentrated in the fadamas,

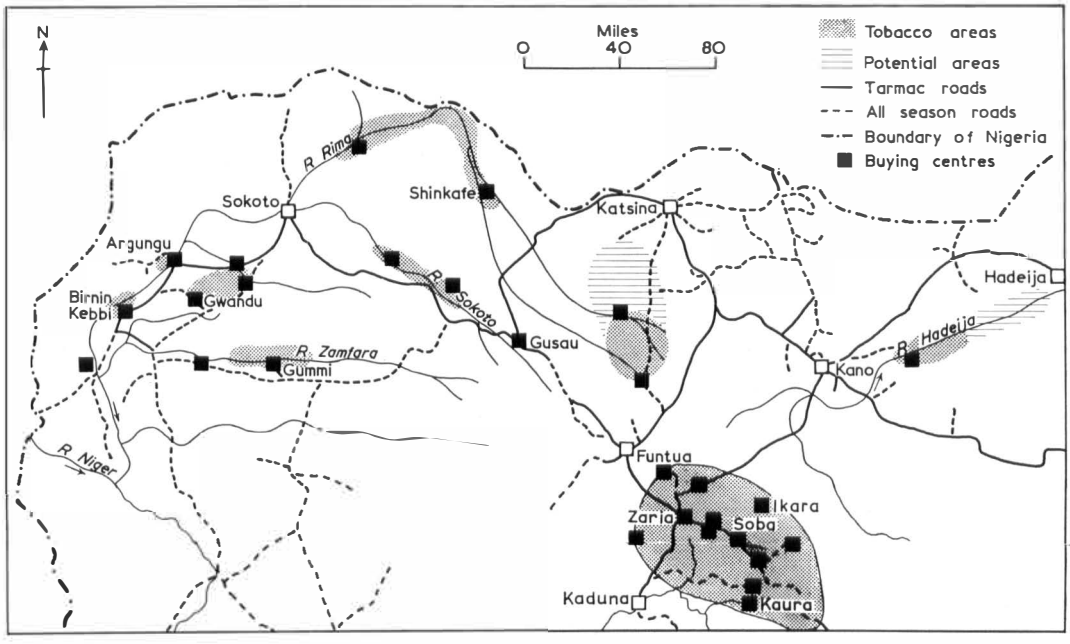


*Fig. 5:* Northern Air-cured Tobacco Areas.

The Zaria Area, where the tobacco is mainly rain-fed, is distinguished by a boundary around the stipple.

they may give the impression that there are substantial blocks of land under the crop. This is particularly the case north of Shinkafe, the most important single area for the fadama crop, where there may be blocks of individual parcels totalling as much as 400 acres; some mechanical cultivation of land for tobacco is undertaken here before the floods, but it is not as well developed as in northwest Oyo. Unfortunately, soil erosion is a hazard on the flanks of the fadamas during the rains.

The size and quality of the crop is likely to vary considerably with the severity and timing of the floods. Tobacco also encounters some competition from other crops and land uses. Certain fadamas in the Shinkafe area, otherwise suitable for tobacco growing, are set aside for grazing by the nomadic Fulani, and in Zaria Province, land which might be used for tobacco is devoted to sugar cane, a profitable crop which can be sold as soon as harvested. So far the crop is grown under controlled irrigation only on a limited area in Gwandu town where water is laboriously supplied from wells (Fig. 5). Ironically this crop, which might produce some of the best tobacco, suffers from over-watering.

Whatever the system of cultivation, the acreage grown by each individual farmer is generally small, although it shows a considerable range from a few hundred plants to ten acres. The average for the 30,000 farmers is less than half an acre, but, as elsewhere, this land is additional to any on which food crops are grown. Such a small acreage may arise from the absence of any desire to grow more. It may also be due to lack of suitable land and some farmers grow tobacco on the same patch year after year because this is the only fadama land they possess; fortunately eelworm is not a risk on flooded land. Nevertheless, production is capable of considerable expansion, particularly in the Shinkafe area, and may ultimately be doubled.

*Conclusions*

Since 1934, tobacco has been successfully introduced as a peasant cash crop both in areas where there were already important alternative cash crops, as with cotton and ground-nuts in Northern Nigeria, and in others where no major cash crop was formerly grown, as in northwest Oyo. Moreover, this has been done largely through the initiative of a commercial firm without benefit of marketing boards and with little help from agricultural departments save in variety testing and fertiliser experiments. It is true that standard of growing and curing could certainly be higher; at Ikonifin Group Farm, for example, only two-thirds of the crop was harvested in 1954 and grading was neglected, while as much as a quarter of the value of flue-cured tobacco may be lost through careless handling and firing[25]). Nevertheless, peasant farmers, many without previous experience of tobacco production, have succeeded in growing an exacting crop at acceptable standards. The reasons for this success are four-fold. First, the crop has proved financially attractive to farmers who have had the unique advantage of knowing the season's prices in advance and have had clear financial incentives through price differentials for different grades to produce a good quality crop. The net return per acre ranges from £30 to £80, the lower figure being the return to green leaf growers and the higher to those who also cure the crop in flue-curing barns; the air-curing areas produce returns somewhere between the two (compared with £5 per acre in 1934)[26]). Secondly, the Nigerian Tobacco Company has made available to growers advice, supervision and both long- and short-term credit on a far more generous scale than government departments have been able to provide for other crops, as well as the continuity of management and personnel which is so desirable when a crop is being introduced to a conservative, peasant community. Although responsibility for growing and curing the crop has increasingly been transferred from the Company to the farmers, the Company has continued to supply seed and to provide fertilisers and sprays on credit, as well as training the staff of the business groups and continuing advice and supervision in the field. Thirdly, the crop has generally fitted in with the requirements of existing crops and in many areas has helped to smooth out the seasonal inequalities in the demand for labour by providing additional employment in the dry season. Lastly, the Nigerian Tobacco Company has been careful to pave the way for future expansion by experimental work and by field investigation of suitable areas.

The principal difficulties have been those of maintaining the quality of leaf required and of ensuring that production does not out-strip demand. Quality is best maintained by price differentials[27]); conditions vary, but there are generally six grades, top and bottom prices differing by as much as a factor of ten. It has been much more difficult to obtain control over the quantity produced, especially as climatic conditions vary so widely; the organisation in the flue-cured area seems to be the most effective and that in the north, where farmers are most numerous, climate least reliable and production and marketing the most individualistic, the least.

Commercial tobacco, which now occupies some 40,000 acres, is never likely to become a major crop in Nigeria, for the acreage is limited by the demand of the home market. Nevertheless, its importance as a revenue earner for both farmers and governments gives it a significance out of all proportion to its acreage; in 1963, tobacco used by the Nigerian Tobacco Company, 80 % of which is now home grown, produced revenue totalling £ 6¾ million for the Federal and Regional Governments[28]). Moreover, the acreage under tobacco is likely to increase considerably. Nigerians already spend some £14 million on Nigerian-made cigarettes, with a further £4 million on

[25]) Department of Agriculture, Western Region of Nigeria, op. cit., 14.

[26]) S. D. Ross: 'Samaru experimental and stock farm', 3rd West African Agricultural Conference, Lagos, 1938, 474.

[27]) The Economic Development of Nigeria, Baltimore, 1958, 258.

[28]) Nigerian Tobacco Co. Ltd., Highlights from the Annual Report, 1963.

imported cigarettes and tobacco, and it is estimated that consumption is likely to rise by some 10 % per annum during the next decade[29]). In view of the difficulty of growing best quality leaf in Nigeria, it is doubtful if all leaf imports can be replaced by home production, but import replacement will certainly add to the demand for home-grown leaf; imports were halved between 1951 and 1959 and the promotion of brands with a higher proportion of home-produced leaf is helping to reduce requirements from abroad[30]).

The geography of leaf production is also likely to change. The acreage under tobacco in the existing areas will continue to rise and the Nigerian Tobacco Company envisages a doubling of production. But there will also be pressures to develop tobacco growing elsewhere to diversify the industrial structure of tobacco manufacture and to extend the benefits of a profitable crop. The Northern Region seems the most likely area for a considerable increase in production, for the Kwara Tobacco Company seems certain to promote leaf growing in the Region and there has also been surveys of likely areas for the growing of cigar tobacco[31]). The fact that so much of the leaf from Northern Nigeria is sent to factories outside the Region is also likely to stimulate an increase in manufacturing capacity there and Sokoto has been suggested as a possible area for a factory; this in turn might lead to a further increase in tobacco growing[32]). The Government of the Eastern Region, where there were earlier abortive experiments at Umuahia and Obudu[32], also wishes to encourage tobacco growing, although suitable land seem limited in extent[33], and the Western Region Development Plan similarly envisages expansion of tobacco production, although no firm proposals are made[34]). Such expansion, particularly in Northern Nigeria, seems likely to lead to a further decline in the growing of native tobaccos, which have virtually disappeared from many areas where the Nigerian Tobacco Company has encouraged tobacco production. It must not, of course, be assumed that all areas where tobacco will grow are suitable, for the quality of the leaf produced is the important consideration; nevertheless, commercial production of tobacco seems likely to become more widespread.

Such expansion is to be welcomed on economic and agricultural grounds, for a profitable crop which has stimulated the development of mechanised cultivation, promoted the consolidation of farmland into compact units (if only temporarily) and shown the benefits of co-operation in both buying and selling, has much to offer the Nigerian peasant farmer as a way of escape from his traditional subsistence agriculture into the scientific farming and market economy of the 20th century.

[29]) United States Department of Agriculture, Economic Research Services, Foreign Agriculture Services, Determinants of Projected Levels of Supply, Demand and Imports of Farm Products in 1965 and 1975, Washington, 1962, 92; and Sir Alexander Gibb & c., op. cit., 107. Another report has suggested an increase of 20 % during the 1960s. Report on the Agricultural Survey of the Northern Region of Nigeria by the FAO/ICA team, Kaduna, 1960, 14.

[30]) United States Department of Agriculture, op. cit., 93.

[31]) Ministry of Agriculture, Northern Nigeria, Triennial Report for the years 1959–62, Kaduna, 1963, 6.

[32]) United States Department of Agriculture, op. cit., 93.

[33]) Department of Agriculture, Eastern Region of Nigeria, Annual Report for the year 1955–56, Enugu, 1957, 12–13; and Eastern Nigeria Development Plan, Official Document 8 of 1962, Enugu, 23.

[34]) Western Nigeria Development Plan, Official Document 8 of 1962, Ibadan, 7.

## THE CHINESE IN SABAH (NORTH BORNEO) *)

With 4 figures

Y. L. Lee

*Zusammenfassung: Die Chinesen in Sabah (Nordborneo).*

Chinesische Beziehungen mit Nordborneo erstrecken sich über einen Zeitraum von über tausend Jahren. Die meisten der frühen Beziehungen waren in erster Linie dem Handel gewidmet, und auch die frühe Siedlungstätigkeit aus der Zeit vor dem 19. Jahrhundert hat im gegenwärtigen Landschaftsbild keine Spuren hinterlassen.

Erst im späten 19. Jahrhundert kamen chinesische Einwanderer in großer Zahl nach Sabah, um dort in den Tabakpflanzungen der Ostküste und am Bahnbau an der Westküste zu arbeiten; später kamen sie auch zur Arbeit in den Kautschukplantagen. Eine große Zahl weiterer Einwanderer kam im 20. Jahrhundert aus eigener Initiative als bäuerliche Siedler.

Die Zahl der Chinesen hat in den letzten vierzig Jahren rapide zugenommen, und ihre hohe Zuwachsrate läßt eine noch wesentlich größere Zahl für die Zukunft voraussehen. Der Anteil der Chinesen an der gesamten Bevölkerung hat ebenfalls ständig zugenommen; sie bilden heute mit 23 % die zweitstärkste ethnische Gruppe in Sabah. Die meisten der Chinesen sind in den Küstenbezirken konzentriert, fast die Hälfte von ihnen wohnt in den zwei Bezirken von Jesselton und Sandakan.

Obwohl viele Chinesen im sekundären und tertiären Sektor beschäftigt sind (11,5 bzw. 48,7 % der im Arbeitsprozeß stehenden Chinesen), so ist doch eine große Zahl von ihnen, nämlich 39,8 %, noch in der Primärproduktion beschäftigt. Die meisten dieser Beschäftigungen des tertiären und sekundären Sektors finden die günstigsten Standorte in den Küstenstädten von Sabah, in denen die Chinesen die bei weitem stärkste ethnische Gruppe bilden. Auf dem Lande bauen die chinesischen Bauern, deren Höfe meist nur klein sind, die einträglicheren Verkaufsprodukte, wie z. B. Kautschuk und Kokosnüsse, an. Obwohl Plantagen und andere kommerzielle Unternehmen auch neue Siedlungsformen ins Land gebracht haben, so stammt doch der größte Beitrag einer Bevölkerungsgruppe zur Veränderung der Siedlung von den Chinesen. Es wird auch angedeutet, daß die Chinesen infolge ihrer wirtschaftlichen Stärke, ihrer Überzahl in allen Städten und ihrer im Vergleich mit der einheimischen Bevölkerung besseren Bildung mit der Unabhängigkeit des Landes und der Bildung von Malaysia eine wichtige Rolle in der Politik des Landes spielen werden, wie es im Handel bereits jetzt der Fall ist.

### *Introduction*

The population of Borneo has never received much attention from anybody except anthropologists [1]).

*) Mr. Tom Harrisson, Curator, Sarawak Museum, kindly read pp. 13–16 and made many helpful suggestions.

[1]) (a) For an account of the population up to 1947/1951, see Lee, Y. L., 'The Population of British Borneo', Population Studies, Vol. 15, No. 3 (March, 1962) 226–243.

(b) Lee, Y. L., 'Historical aspects of settlement in British Borneo', Pacific Viewpoint, Vol. 2, No. 2 (Sept. 1961) 187–212.