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### The Introduction of Cocoa in the Gold Coast: A Study in the Relations Between African Farmers and Colonial Agricultural Experts

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CENTER DISCUSSION PAPER NO. 1

THE INTRODUCTION OF COCOA IN THE GOLD COAST:

A STUDY IN THE RELATIONS

BETWEEN AFRICAN FARMERS AND COLONIAL AGRICULTURAL EXPERTS

R. H. Green

S. H. Hymer

February 18, 1966

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THE INTRODUCTION OF COCOA IN THE GOLD COAST: A STUDY IN THE RELATIONS  
BETWEEN AFRICAN FARMERS AND COLONIAL AGRICULTURAL EXPERTS

By

R. H. Green  
S. H. Hymer\*

\*The authors wish to express their debt to Miss Polly Hill, then of the University of Ghana--for extensive comments, and suggestions, to Mr. G.B. Kay, then of the University of Ghana--for comments and references, to Mr. W. H. Beckett--formerly of the Gold Coast Department of Agriculture--for his criticisms of an earlier draft and to Dr. Clifton Wharton--then with the Council on Cultural and Economic Affairs in Kuala Lumpur for his comments on the nature and causes of relationships between small cash farmers and agricultural services.

ERRATA

P. 3 Footnote 3.

instead of: in Herskovitz and Harwitz, op. cit.  
should be: Economic Transition in Africa, M. J. Herskovitz and M.  
Harwitz (editors), Routledge and Kegan Paul, London,  
1964.

P. 5 Second Para.

instead of: four propositions  
should be: three propositions

P. 7 Second Para.

instead of: by official bodies despite its major  
should be: by official bodies. Despite its...

P. 9 Third Para.

instead of: a seed farm, is clearly oversimplified  
should be: a seed farm.

P. 14 Second Para.

instead of: "expressed in a ....1930 ....to find out if....  
should be: expressed in.....to find out "if a ....

P. 26 First Para.

instead of: test of the efficiency of the economic efficiency  
should be: test of the economic efficiency

P. 36 Footnote 1.

The footnote should read as follows:  
....were academic in a number of colonies. Ceylon and Malaya in  
particular sought to reduce.....

"The resource in shortest supply, in most backward but developing countries, is officials who can argue ordinary people into forsaking tradition and risking new ways."

ENKE, Economics for Development, p. 125.

"Agriculture as a modern science developed in the Temperate Zone ... from our experiences ... with the (relatively simple) agricultural problems of Europe and North America. When the average scientific agriculturalist goes to the tropics, he has more to unlearn than to teach; but he frequently seems to be unaware of that fact."

Edgar Anderson, Plants, Men and Life

"When they (agricultural officers) talk, they seem to be young men of good sense but nothing they tell us to do works out well."

African farmer's comment  
quoted in Melville  
Herskovitz. The Human  
Factor in Changing Africa  
(italics added)

## I.

"The peasant" is consistently cited as an obstacle to economic development in Africa. It is argued that he is unwilling to alter traditional methods and institutions and unable to take advantage of opportunities for increasing productivity. In Professor E. S. Mason's view, the central question to be answered in rural Africa is "how can a group of tribally organized and self-sufficient peasants, sowing and reaping in accordance with age old traditions and possessing limited and easily satisfied wants, become a collection of risk-taking individuals, responsive to price and income incentives, and interested in conserving

their land and improving their productivity?"<sup>1</sup>

Against this view are the numerous instances where African farmers have rapidly accepted new crops and new techniques demonstrating a high propensity to innovate, accept risk and invest well in advance of returns. On the surface at least these seem entirely incompatible with the case of stagnant inertia implied in the quotation by Mason and made so often and so forcefully by colonial officers, World Bank Missions, foreign agriculturalists and even many African intellectuals.<sup>2</sup> The most notable examples are the radical increases in the production of cash crops for export that have taken place in this century. For example, between 1919 and 1959, exports of Ghana (Gold Coast) rose 838%, those of Nigeria 955%, and those of (former) French West Africa 1,031%<sup>3</sup> to cite three cases of African grown agricultural products all of which involved radical shifts in crop pattern and the learning of new techniques of cultivation and new timing of planting and harvesting. One can also cite the earlier important and sometimes drastic changes of output patterns of domestic food supplies involved in the rapid and widespread diffusion of maize, millet, rice and citrus brought to Africa from South Asia and the Western Hemisphere.<sup>4</sup> Equally noteworthy, there

<sup>1</sup> Preface to Montague Yudelman Africans on the Land, Harvard University Press, Cambridge, 1964.

<sup>2</sup> Cf., e.g., S. Ngcobo's review of Yudelman, op. cit., Journal of Modern African Studies, Vol. 2, No. 4.

<sup>3</sup> P. Lamartine Yates, Forty Years of Foreign Trade, Allen and Unwin, London, 1958, p. 238. cf. also M. Harwitz "Subsaharan Africa As A Growing Economic System" in Herskovitz and Harwitz, op. cit.

<sup>4</sup> Cf. Sylvia Harrop, "The Economy of the West African Coast in the Sixteenth Century," Economic Bulletin of Ghana, 1964, #3; P.A. Talbot, The Peoples of Southern Nigeria, Oxford University Press, 1962, Vol. I, Passim. W. O. Jones, "Manioc: An Example of Innovation in African Economies," Economic Development and Cultural Change V (January, 1957), 99. The growth of production for African urban markets has also been substantial and--at least since 1945--very rapid but less evidence for analysis is available. However, for data on large scale domestic food farms in Ghana, cf. Frank F. Bray, Yam Farming in North Mampong-Ashanti, Department of Agriculture, University College of Ghana, Legon, 1958.

is substantial evidence that African food farmers have been willing and able to meet growing urban food demands without sharp increases in the price of domestic food relative to other products. Such bottlenecks as have developed are far more often related to transport and marketing deficiencies than to producer failure to respond to economic incentives.

On the other hand, the fact remains that African response to the proposals of agricultural experts and extension workers has, in the majority of instances, been typified by indifference, rejection, and even open hostility. This pattern is not limited to the widely known mechanized farming debacles such as the Tanganyika Groundnut Scheme or to cases in which political oppression and European land control are linked to the Agricultural service in a way that distorts both policies and African responses, e.g. the Southern Rhodesian Land Husbandry Act. Even in West African territories in which European settlers were few and promotion of African agricultural production, the specific goal, the work of the agricultural department has had little impact on farming practice, and annual reports regularly condemn the stubborn, stupid "peasants," who resist the advice offered them.

In this essay, we wish to examine the introduction of cocoa into Ghana for the light it sheds on this apparent paradox. Side by side with the rapid growth of cocoa production since 1900, we find continuous and vociferous complaints on the part of the Gold Coast Agricultural Department about the inefficiencies of peasant cocoa production. The explanation in this case seems to be that the Agricultural Department was offering wrong advice. The rejection by farmers was a proof of their good sense rather than conservatism.

The findings are of more than local or purely historical interest in that the attitudes and approaches and mistakes of the Gold Coast Colonial Agricultural Department appear to be common to colonial "peasant" agricultural policy in general and to a considerable extent have persisted in independent African state agricultural outlook and programming.<sup>1</sup>

Four propositions can be demonstrated in the context of Colonial Agricultural Officer--African farmer relations in the Gold Coast Cocoa industry between 1890 and 1940:

1. The government made no systematic attempt to collect and analyze basic statistical data; and official assessments of the cocoa industry's structure and prospects were grossly inaccurate;
2. The Agriculture Department's proposed techniques of production and disease control were, by and large, inferior to those developed by African farmers;
3. Technical efficiency was consistently confused with economic efficiency. The Agriculture Department ignored economic incentives or even viewed them as undesirable; their criticisms of African farmers very often boiled down to charging them with maximizing net income.

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<sup>1</sup>See J.S. Furnivall, Colonial Policy and Practice, (Cambridge University Press, 1948, pp. 323-334) for a discussion of parallel policies in Malaya concentrating on transferring "peasant" production from the more profitable rubber to the less profitable rice. Furnivall's material also shows the significantly greater and more effective attention paid to European plantation agriculture as opposed to local farmer production as does Bauer's in The Rubber Industry, *op.cit.*

We might also note two other studies in Africa showing that the farmers pattern of acceptance or rejection is based not on conservatism but on good judgment.

A detailed study of Ugandan farmers by D.G. Belshaw and T. Othieno illustrates that Agricultural Service proposals were often rejected because either the technical conditions for applying them or the working capital for meeting the extra cash production costs they involved were simply not present. "Technical Innovation in Two Systems of Peasant Agriculture in Bukedi District", East African Institute of Social Research, Conference Papers, 1965, Kampala, 1965.

[Footnote continued on page 6]



The Ghanaian "peasant" farmers, like his counterpart in other parts of the world, was able and anxious to take advantage of economic opportunities and make certain technical and institutional changes readily; though he was not able to generate a continuous advance in technology or output per capita.<sup>1</sup>

## II. A History of Misconceptions

The success of the Ghana cocoa industry is illustrated in Figure 1. Exports expanded at a rate of about % per annum in the first quarter of this century changing Ghana from an insignificant supplier of cocoa at the beginning of the century to the world's leading exporter by 1920<sup>2</sup> (about 40% of total supply), a position maintained ever since (the share fell somewhat in the late 1930's but recovered in the late 1950's and 1960's).

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[footnote continued from page 5]

And a detailed study of response to agricultural proposals in a Tanzanian district shows a clear pattern of acceptance for those proposals (and only those proposals) which were seen to offer substantial short or medium run benefits. It also shows a very different set of reactions to attempts to explain proposals from attempts to enforce change without demonstrating its value. J. Kesby, "Warangi Reaction to Agricultural Change East African Institute of Social Research, Conference Papers, 1965, op. cit.

<sup>1</sup>See Hla Myint The Economics of the Developing Countries, Hutchinson, London, 1964, esp. Ch. .

<sup>2</sup>In Changes in the Structure of the Economy of Ghana 1891-1911, London, 1965, R. Szereszewski demonstrates in detail the total transformation of the Ghanaian economic structure in this period largely through Ghanaian investment in cocoa and distinctly secondarily through European private investment in gold mining and public investment in public works. He further shows that growth to 1960 continued within the economic pattern created by the introduction of cocoa during the 1891-1911 period.

Figure 1: Cocoa Production of Ghana, Other African Smallholders,  
Plantation Economies, World Production

Similar success has been registered by other countries where production is largely in the hands of African smallholders, (Nigeria, and since the mid-1930's the Ivory Coast and Cameroon Republic) while the plantation economies of Latin America, West Indies, and African islands (e.g. Fernando Po, St. Thome) have experienced a relative decline, and in a majority of cases absolute stagnation as well.

The rapid growth of the industry was paralleled by a history of erroneous description by official bodies despite its major significance to the economy of Ghana, the views expressed on the cocoa industry have consistently been badly informed and highly inaccurate. Prior to the Second World War, almost no attention at all was paid to the collection of basic data on acreage, investment yields, age distribution of trees, size of farms, and institutional patterns--

and knowledge on this subject remains uneven and inadequate even in 1965.<sup>1</sup>

The errors date from the very beginning. For example, at first, credit for the introduction of cocoa was given to the government (and occasionally to missionaries). In 1903--when exports were 2,280 tons--the Colonial Report asserted "the introduction of cocoa has been one of the most successful of government experiments ..."<sup>2</sup> Even a decade later the Encyclopedia Britannica which may be taken as an index of informed British opinion states of Gold Coast cocoa:<sup>3</sup>

The industry has been founded in 1879 by a native of Accra, but it was not until 1901, as the result of government's fostering care that this export became of significance. (Italics added)

This view was fairly widely held in official circles at the time--partly because the government had provided cocoa beans from its Aburi Gardens (though in fact the amount was minimal in relation to total planting) but mainly because it was felt that African farmer initiative could not possibly have carried Ghana

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<sup>1</sup>For example, Ghana cocoa acreage estimates--a byproduct of swollen shoot disease control surveys--give an average yield per mature acre of 250 pounds. However, sample data and agricultural service micro estimates range from 400 to 800 pounds per acre. In short either almost all the micro cost-return studies or the acreage estimate (or both) must be highly unreliable. Nonetheless, the current Ghana Agricultural Census will not cover cocoa because the official view is that existing data on acreage, yields per acre (average and range) and age distribution is adequate.

<sup>2</sup>Colonial Report 1903, Gold Coast Government, Accra. The same report estimates acreage at 44,000 which is too low by a multiple of between five and ten. 1911 exports were 39,700 tons implying at least 200,000 acres in full bearing (8 years old and over), assuming 400 lbs. per acre and nearly 400,000 if official 200 lb. per bearing acre estimates were correct. This is a dramatic illustration of how little was known

<sup>3</sup> 11th Edition, London, 1914. p. 204.

to the position of the world's leading producer in the 21 years between 1890 and 1911. It persisted as late as 1916 when the Curator of Kew Gardens, writing to a 1916-1917 official inquiry into cocoa, asserted:<sup>1</sup>

the rapid development which has taken place has been mainly due to the success which attended the efforts of the officers of the Agricultural Department to establish and promote the industry of cocoa growing.

The historical data, though admittedly sketchy, throw a rather different light.<sup>2</sup> The crucial innovations were made in the 1880's by Chanaians,<sup>3</sup> and they succeeded in spite of, not because of the department's efforts.

The present "official version" though clearly oversimplified, comes close to the truth. This view attributes the effective introduction of cocoa in the Gold Coast to Tetteh Quarshie, who, returning from a contract on Fernando Po, brought cocoa beans with which he established a seed farm, is clearly oversimplified.<sup>4</sup> It perhaps placed too much emphasis on one man but it reflects accurately the fact that Gold Coast workers, mainly Artisans and craftsmen--employed in

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<sup>1</sup>A. W. Hill, letter to Under Secretary of State, September 10, 1915, cited in Gold Coast Sessional Paper II, 1916-1917, Accra, 1916, p. 62. As this letter was placed in evidence by the Agriculture Department it indicates approval of this point of view.

<sup>2</sup>For a fuller account see Polly Hill, Migrant Cocoa Farmers of Southern Ghana, Cambridge University Press, 1964, especially pp. 161-178 from which much of the data in the following paragraphs is drawn.

<sup>3</sup>It is true that the Basel Mission had begun efforts to introduce cash crops for its Christian villages by 1843 with cocoa included at least as early as 1857, but in the next two decades its efforts appear to have had only minimal success.

<sup>4</sup>Cf. West African Lands Committee, Draft Report, His Majesty's Stationary Office, Africa (west), No. 1,046, London, 1917, p. 96.

Nigeria, the Cameroons, the Gulf Islands (Fernando Po, St. Thome Principe) and the Congo Free State did play a critical role in the establishment of cocoa. In the Islands and the Cameroons they came in contact with cocoa cultivation and--presumably--were impressed both by the incomes cocoa earned for planters and the technical similarity between cocoa farming and the oil palm plantations already fairly widely established by the Krobo and Akwapim farmers.<sup>1</sup> Many of the first farms were established by these returning migrants. These in turn demonstrated the viability of cocoa planting to broader groups.

Beginning in the 1890's (judging from subsequent export figures) cocoa planting spread very rapidly.<sup>2</sup> Akwapim farmers initially raised crops for seed and sold the beans for establishing new farms as far afield as Southern Ashanti by 1900.<sup>3</sup> The Basel Mission continued to raise and distribute some seeds and helped spread information on the new crop in the Christian community.<sup>4</sup> The government, however, at least until the middle 1890's saw coffee--not cocoa--as the

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<sup>1</sup>Cf. Hill, op. cit., loc. cit., for fuller details on the establishment of palm oil farms and the beginning of the land purchase and migrant company systems later used by cocoa migrants. Cf. the Report on the Population Census, 1891, Government Printer, Accra, p. 24, for a discussion of the outflow of skilled craftsmen.

<sup>2</sup>Cocoa exports reached 5,000 tons in 1904 indicating that at least 25,000 and perhaps 50,000 acres had been planted by 1896.

<sup>3</sup>Oral reports collected by Ivor Wilks of the Institute of African Studies, University of Ghana cited by Polly Hill, op. cit., p. 167.

<sup>4</sup>The per cent of Christians among early farmers appears to have been substantially above that for the Akwapim as a whole. The direction of causation is not clear, however, in that Christianity was related to desire for access to education, health, and other European amenities so that the Christian community was probably both more eager to advance economically and more willing to seek out new activities than the majority of the population.

promising tree crop.<sup>1</sup> In late 1891 (when several thousand acres of cocoa had already been planted) it reported that there was no appreciable demand for its cocoa pods or plants.<sup>2</sup> On the basis of data on distributions it appears that not more than 250 acres of a total exceeding 200,000--could have been planted from this source by 1903. Even in the high years of 1910 and 1916, government plants and pods sold to farmers were adequate for planting perhaps 60 and 75 acres respectively.<sup>3</sup>

One foreign group had played an important facilitating role--the mercantile houses. Their provision of a market--and later of any upcountry buying system and crop advances--was essential to the industry. Their organizational structure, interest in promoting larger West African farmer exports to expand their markets for European goods and contracts with British cocoa purchases<sup>4</sup> were a

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<sup>1</sup>Various dispatches of Governor Bradford Griffith (1888-1892), Report of the Commission on Economic Agriculture in the Gold Coast, (1889) cited by Hill, pp. 173-176.

<sup>2</sup>Dispatch dated November 9, 1891, ADM 1/492 cited op. cit., p. 176.

<sup>3</sup>Estimated from Gold Coast Department of Agriculture Reports and Gold Coast Colonial Reports, cf. also W.H. Beckett, Koransang: A Gold Coast, Government Printer, Accra, 1945, Introduction. In a letter Beckett gives the 1900-1920 distribution of seedling as "hundreds of thousands", in that 750-1,000 seedlings are needed to plant an acre this would suggest that by 1920 not more than 10-15,000 acres of at least 1,000,000--could have been planted from government stock. The recurrent citation of seedling and seed totals--in themselves impressive--with no indication of their relatively minor share in total planting in itself casts doubt on Agriculture Department knowledge of the industry.

<sup>4</sup>For a more detailed description of this factor see W.K. Hancock "West . Africa: The Traders' Frontier" in Survey of British Commonwealth Affairs, Vol. II, Part II, Oxford, 1940.

necessary link between the African farmers and the world cocoa market which was entering a period of rapid expansion apparently linked to the late 19th and early 20th Century rise in real wages of urban workers.<sup>1</sup>

By 1919 the dominant role of African farmers was finally recognized;<sup>2</sup> but followed by another error, namely that it must require neither energy nor foresight, an assertion maintained for the next four decades despite the fairly obvious labour involved in clearing forest and the time horizon implicit in planting a tree crop with an eight year period before substantial harvests. Even C. Y. Sheperd in his authoritative Report on the Economics of Peasant Agriculture<sup>3</sup> began "the establishment of a cocoa farm in the Gold Coast is a simple process." The standard picture came to be one of a sedentary peasant who burnt an acre or two of land near his village then grew maize on it until the fertility was exhausted. Meanwhile, he dropped a few cocoa beans in the soil and passively waited for them to come into bearing. Having established his farm he would spend

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<sup>1</sup>The same phenomenon has been studied in greater detail in relation to similar switch of tea from a limited market luxury good to a mass consumption item two decades earlier cf. S. Rajaratnam "The Ceylon Tea Industry, 1886-1931" Ceylon Journal of Historical and Social Studies, July-December, 1961.

<sup>2</sup>For example, the twelfth edition of the Encyclopedia Britannica in revision of its previous description stated:

The cocoa industry has throughout been entirely a native enterprise, Europeans acting only as carriers, purchasers and shippers.

London, 1919, p. 296. The article was written by Sir Hugh Clifford, a former Gold Coast Governor who had opposed the Department of Agriculture's proposals for limiting industry expansion and enforcing changes in planting methods, described below.

<sup>3</sup>Gold Coast Government, Accra, 1936.

a few days a year harvesting. His income was supposedly spent--often in advance--on funeral feasts, litigation, and clothing and certainly not on new cocoa farms.<sup>1</sup>

The persistence of this picture into the 1940's and 1950's is in itself a devastating comment on the Agriculture Department. So false is it that one can only conclude that the Department had made no serious attempt to study any aspect of the actual operation of the industry it sought to advise and improve even when it had the raw data in hand.

One reason it persisted is that the best known study of a cocoa-growing community, W.H. Beckett's Akokoaso<sup>2</sup>, tended to reinforce certain features of this view, (though the author himself was not an upholder of the "lazy, improvident peasant" position). Akokoaso was typified by small farms and few farms per farmer. Planting had been done by the original villagers. Most farms were near their homes. But this was not an accurate picture of the more important segments of the industry. On the contrary, cocoa planting required considerable entrepreneurial activities and broad horizons. Polly Hill's

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<sup>1</sup> Cf. e.g., Shepherd, op. cit., W.S.D. Tudhope (Acting Director, Department of Agriculture) Enquiry into the Gold Coast Cocoa Industry, Interim and Final Report, Gold Coast Sessional Papers, II and IV of 1918-19, Accra; Cocoa, O.E.E.C. Paris, 1956, p. 20; Cocoa, FAO, Rome, 1955, pp. 16-21.

<sup>2</sup> Akokoaso: A Survey of a Gold Coast Village, London School of Economics, Monographs on Social Anthropology, #10, 1944.



Migrant Cocoa Farmers of Southern Ghana<sup>1</sup> provides exhaustive evidence that cocoa production in the Eastern Province, the major region of cocoa production in the early years, was dominated by large scale, migrant farmers who bought land ahead of needs and ploughed a high share of their earnings into new land--up to 300 miles from their towns--and continually planted new cocoa.<sup>2</sup> The major post World War II cocoa expansion into Western Ashanti shows a similar pattern of migration and capitalistic enterprise--with Ashanti the dominant migrant group here as the Akwapim and Krobo had been in the East.<sup>3</sup>

The evidence of the growth of the industry as contrasted to official attitudes demonstrates two points. First, the short-run answer to the perennial Agriculture Department doubts "expressed in a 1930 conference called to find out if a country run by peasant farmers was economically sound" was clearly that the industry could and did grow. Second, the Agriculture Department did not carry

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<sup>1</sup>Op. cit.

<sup>2</sup>In fact, Beckett's second major study, Koransang: A Gold Coast Cocoa Farm, Government Printer, Accra, 1945, does analyze a large migrant farm. However, Akokoaso not Koransang continued to be the "official archtype" of cocoa farming.

<sup>3</sup>Personal communication from and discussion with Polly Hill, also F.R. Bray, Cocoa Development in Ahafo, West Ashanti, Faculty of Agriculture, University College of Ghana, 1959. Expansion in the Western and Central regions has also involved substantial migration by Eastern farmers, again a continuation of 1920's patterns made possible in this case by capsid control. Further confirmation of the effort and initiative required in cocoa production is found in an unpublished survey by J. H. Mensah and the comprehensive study for Western Nigeria. O. Dina, R. Galletti and K. Baldwin, Nigerian Cocoa Farmers, Oxford 1956.

out adequate investigation, nor for that matter did it even make use of the best existing data on acreage, yield, farm and farmer size, income and investment patterns, suitable land for new planting during the fifty years from 1890 to 1940<sup>1</sup>. In 1954 their errors were "authoritatively endorsed" by the Food and Agricultural Organization which, basing its study on colonial reports, produced a summary of the West African industry rehearsing the lazy non-economically motivated, small scale peasant case.<sup>2</sup>

However, lack of knowledge did not hinder the Agriculture Department in making numerous proposals regarding techniques of production, quality control, optimum rate of industry expansion, rural credit, marketing organization, and disease control. In general these proposals met with a near total lack of producer response. It could be argued that the adoption of some or all of the policies endorsed by the Department would have increased the success of the cocoa industry. Despite their lack of knowledge, they might have been right. In fact,

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<sup>1</sup> Post-war data, as noted above, is still incomplete and misleading. Moreover, some of the materials were so hard to locate in the Agriculture Department itself in 1961 as to raise doubts as to what use, if any, was being made of them.

<sup>2</sup> Cocoa: A Review of Current Trends. 1955, op. cit. F.A.O's manner of providing "expert advice" on cocoa deserves mention. The organization has never conducted field research on the production side of the industry. Rather it has sent queries to Agriculture Departments. These have usually been filled in at the central office on the basis of prevailing guesses or impressions. These are then printed as an "authoritative" study which is cited by the same Agriculture Departments in support of their opinions. FAO has recently become aware of the weakness of this process--perhaps because the early post war reports led to prediction of a massive cocoa shortage by 1960--1965 by which point, on the contrary, a phenomenal increase in output and cocoa glut had resulted from massive 1948--1958 plantings in response to high prices and from farmer purchase of sprays and sprayers to control diseases.

the reverse appears to be the case--the majority of the proposed courses of action would have impeded the industry's growth and left Ghana with a weaker and more fragile economy in the post-war period. This is the subject of the next three sections.

### III.

#### The Agriculture Department's Fears and Proposals

From 1900 to 1940 the Agriculture Department continuously expressed grave dissatisfaction over the state of the cocoa industry and suggested many far-reaching reforms<sup>1</sup>. In 1917-18 their criticism culminated in a series of Sessional papers<sup>2</sup> prepared to support their attempts to pass legislation to remove the practices they deplored. The legislation they proposed would empower the government to (i) require certain standards of maintenance for farms and to fine owners who allowed their farms to fall below this standard; (ii) halt further planting if this was deemed necessary; (iii) prohibit the export of bad cocoa; and (iv) forbid the cutting down of Palm and other trees to make way

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<sup>1</sup>The 1915-1920 position of the Department was dominated by the views of Director W.S.D. Tudhope who authored the Sessional papers and who expressed the fear, "I live in constant dread of disaster overtaking the industry." Sessional paper No. II, 1916-17. However, as both earlier and later statements show Tudhopes position differed in being more extreme rather than in basic presuppositions and proposed lines of action.

<sup>2</sup>Sessional Papers II of 1916-17, and II and IV of 1918-19.

for cocoa. Their attempt failed, but though the intensity of their protests then abated, their opinions were maintained and were reflected in their policies well into the 1950's.<sup>1</sup>

Three central themes predominate; the first concerned the production techniques used in cocoa; the second, the quality of cocoa; the third, the degree of specialization.<sup>2</sup>

#### 1) Production technique

In the eyes of the agricultural department "peasant" techniques of production and of disease control were inadequate and far inferior to the ones they proposed. They regularly termed the African methods as inefficient and wasteful and complained that the farmers rejected new techniques--including lining, pegging, and row planting to create "more productive" (neater and "more British"?) farms. This view was particularly prevalent during the period of rapid development between 1900 and 1925. Far from encouraging this remarkable growth, the

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<sup>1</sup> Cf. Annual Reports of the Department of Agriculture.

<sup>2</sup> These were not the only issues raised. The department was concerned with the problem of rural indebtedness. We shall not discuss this problem in detail but our overall conclusions would not be affected if we did, for here as elsewhere the department's evaluation was in large part erroneous. Unlike Asia, which probably served the department as a model, the African cocoa farmers are not ground down by usurers. As subsequent investigations have shown, there is a high correlation between total output and debt, indicating that it is the richer farmers that are the most heavily indebted and the overall ratio of debt to assets is not high. There are some cases where the value of debt is equal to the value of the farm, but there is a good deal of evidence to suggest that the loans in this case are often a device for disguised sales and in most cases the debtor has other farms for income. Cf. Polly Hill, Migrant Cocoa Farmers op. cit., and The Gold Coast Cocoa Farmer, Oxford, 1955; Report of the Committee on Agricultural Indebtedness, Department of Agriculture, Accra, 1958 (includes an historical summary of past reports and proposals).

Agriculture Department felt it was proceeding too fast, that farmers in a rush to get more and more acres under cocoa were overextending themselves and not taking proper care of their farms. Farmers, the Department asserted, made their farms too large, had too many, and paid little attention to good cultivation. As a result, the farms were in a very poor state and disease was rampant. The department particularly deplored the African practice of allowing diseased farms to lie fallow instead of taking more active rehabilitary measures. "There is no argument" says the 1913 report "against the fact that the system is wasteful in the extreme." A quotation from the 1954 F.A.O. Report on Cocoa provides a modern version in capsule form of the main line of argument against peasant production.<sup>1</sup>

"Since rational cultivation involves much more work than the traditional type, the farmer, by means of social propoganda, must be persuaded to place higher values on economic and physical welfare and lower value on leisure."

It was this view that led the department to request power to curtail production and supervise techniques.

## 2. Quality

The department also argued that poor preparation of cocoa beans resulted in inadequate quality and purity. They argued that better quality cocoa fetched higher prices in world markets, but the farmers paid little or no attention to quality or purity. This was attributed partly to farmer ignorance and partly to refusal of buying firms to pay "adequate" differentials. The Acting Director of Agriculture, W.S.D. Tudhope calling for legislative action in 1916-17 summed up the main department arguments.<sup>2</sup>

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<sup>1</sup> Cocoa, A Review, op. cit., p. 21, 16.

<sup>2</sup> Sessional Paper II, 1916-17.

"The keen competition between rival firms and their entirely commercial outlook militates against their taking voluntary action ... Peaceful persuasion by the few available officers of this department is not often successful. ... legislation appears essential in order to impose cultural reform upon a people incapable of taking the necessary measures to ensure the future prosperity of the industry by other methods than that of coercion--a method which is inherently familiar to them ..."

This concern with quality has remained an important preoccupation and lies behind the elaborate government inspection scheme in practice today and the continued attempts to secure legislated price differentials as late as the 1950's.

### 3. Overspecialization

Lastly, the government feared that the farmer, attracted by the higher returns in cocoa, was neglecting food crops and other export crops. Two quotations from the Department Report of 1916<sup>1</sup> and Cardinal's The Gold Coast of 1931<sup>2</sup> illustrate these views:

"(The present war time price collapse) may not be an unmixed evil as it will be no doubt temporarily at least check further planting of cocoa and may have the result of aiding development or resuscitation of other (export) products and be the cause of the introduction of a more rational system of farming."

and

"The Gold Coast peasant if he is to survive ... must remember and always be taught to remember that the crops which produce small but certain profits are those on which his existence depends, since they do not draw upon him the envious eye of the usurer or the greedy one of the capitalist."

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<sup>1</sup>Government Printer, Accra.

<sup>2</sup>Op. cit.

There is no doubt that in focusing on the question of productivity, disease control, quality, and diversification the department was concentrating on the crucial problems for an agricultural export economy. Similarly the demonstration of errors in specific analysis and proposals, which we are about to present-- although rather alarming in summation--would not, by itself, constitute a basis for fundamental rejection of the Agriculture Department's approach. The technical and economic problems of tropical agriculture in an underdeveloped economy are complex and available information limited making mistakes in detail not only plausible but virtually inevitable. The basic criticism is that the errors were systematic and the programme irrelevant or harmful because of two fundamental mistakes in concept and approach. First research efforts were totally inadequate; instead reliance was placed on ad hoc attempts to transplant technological methods from abroad without testing under Gold Coast conditions. Second, economic and technical efficiency were consistently confused. The department neither understated nor paid attention to the economic reasons for the behavior they observed nor did they seek to assess the overall economic consequences of the proposals they made. These two failings emerge clearly from an analysis of each of the three issues.

#### IV

#### Research and Technology

Before discussing the specific proposals of the department on cocoa technology, we might briefly record the history of research facilities and activities by the department. Agricultural research by the government began in 1888 with the establishment by Governor Bradford Griffith of Aburi Botanical Gardens to introduce new crops through local growing and distribution of

seeds.<sup>1</sup> By 1890 they were experimenting with cocoa but failing. The curator claimed the climate was unsuitable but in 1890 when Sir Hesketh Bell, an Officer with West Indian experience, visited the Gardens he pointed out that the cocoa had been planted on an exposed hillside with no shade, and this accounted for its failure.<sup>2</sup> This was the level of technology reached by the government when there was over 40 years experience in growing cocoa trees in the Gold Coast by missionaries and at least 100-200 acres of African cocoa, some of it within five miles of Aburi Gardens.

Until 1905 (in the words of the 1927 Committee on Agricultural Policy and Organization)<sup>3</sup> "agricultural policy was limited to the importation of exotic plants and observation of their behavior under local conditions." No study of crops, yields, or techniques of cultivation was attempted, instead there was a confusion between agriculture and decorative horticulture.<sup>4</sup>

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<sup>1</sup>Despatch 28, August, 1888 ADM 1/489, cited by Polly Hill, op. cit., p. 174.

<sup>2</sup>"Letter to the Editor" Times, London, February 25, 1929, quoting diary of October 1, 1890.

<sup>3</sup>Report of the Committee on Agricultural Policy and Organization, Sessional Paper XVII 1927-1928, Part II-D.

<sup>4</sup>Ibid. The Chairman of the Committee was Deputy Director of Agriculture G.G. Auchinleck suggesting that its very sharp criticism of the 1890-1927 record was shared by at least some senior Agriculture Department staff.



In 1905 the Department was reorganized but from then through 1920 emphasis was placed on instruction and demonstration without local research.<sup>1</sup> Indeed the 1919 Report, as well as making the standard complaint that cocoa had developed without the "necessary" regulation admitted "the fact that one cannot record any valuable addition made by the Department to the science of agriculture", while the 1920 Annual Report (p.5) expressed the hope that the reorganization of that year would allow adequate technical work to be instituted

But though the expansion of the 1920's included ten main projects, only two concerned cocoa: one an intensified local instruction scheme in Ashanti and the other 40 acre model cocoa farm for intensive cultivation at Asamankese. Substantially larger allocations went to a 1,000 acre sisal plantation and to three coconut plantations totalling 900 acres.<sup>3</sup> The Agriculture Policy and Programme Report pointed to deficient "provision for intensive investigational work... The Department assumed that the domain of investigation lay in the laboratory and not in the experiment station." Further it noted "agricultural

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<sup>1</sup>In 1905, the Department staff consisted of 3 curators, 3 African Overseers, and 2 African Garden Assistants while even in 1915 it numbered only 1 administrator, 17 gardens staff (7 European), 1 Inspector, 13 African field instructors, and 2 technically trained agricultural research and technical officers. By 1922 the technical officers had risen to six. (Ibid and Annual Reports, 1905, 1915, 1920, 1921, 1922.) Examination of Gold Coast Civil Service Lists for the 1920's and 1930's further reveals that a distinct minority of the officers had any West Indian--or indeed any tropical--experience before being posted to West Africa. In 1922 for example one had West Indian experience and one had served briefly in Ceylon. The majority came direct from British agricultural or technical colleges.

<sup>2</sup>Agriculture Department, Annual Report 1919, Gold Coast Government, Accra, 1921.

<sup>3</sup>Annual Report 1920, p. 8. The question of allocation is important because the persistent concentration on non-cocoa (and in most cases non-economic) crops renders rather unconvincing the defense frequently advanced that the Department sought additional funds for cocoa research. Quite clearly its pre-1937 cocoa research programme could have been increased several fold had not sisal, palm oil, coconut, cotton, and mechanized rice cultivation been viewed as having higher priority than cocoa work.

stations are in the hands of junior and partly trained overseers." In calling for change from a "limited Policy of protection of existing industries to one of resource development" it warned "neither in organization, nor in staff, nor in facilities is the Department fully prepared!"<sup>1</sup> Thus, during the crucial years of cocoa expansion, the Department was neither inclined nor capable of investigating in a scientific manner the best way to grow cocoa. With so little research, it is not surprising that the Department's proposals were faulty.

The main thrust of the department's news on techniques centered on a call for intensive cultivation, i.e., lining and pegging, neat rows and clean weeding, ditching, open uniformly dry fields, etc. To the department the farmers use of less careful techniques was due to short sightedness, ignorance, and a single minded search for "the attainment of the maximum amount of money with a minimum expenditure of energy, however uneconomical the system."<sup>2</sup> The farmer, on the other hand, rejected intensive cultivation because it economized on land which was plentiful and not on labour which was scarce. Thus, the quarrel was in part over differing evaluations of what was to be maximized and what minimized. It was however also due to the department's inaccurate assumption that no serious work of maintaining farms was done between harvest<sup>3</sup> and its untested hypothesis that the West Indian techniques would lower Gold Coast costs even though the latter were already lower than the former

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<sup>1</sup>Sessional Paper, XVII, 1927-28.

<sup>2</sup>Sessional Paper, No. XI, 1916-17.

<sup>3</sup>Cf. Cardinall, op. cit., Hill, op. cit. and Gold Coast Cocoa Farmer, Oxford, 1955; Dina, Gilletti, and Baldwin, op. cit.

Ironically, they did not apply their valid warning that extensive clearing might lower moisture content and injure long-run prospects<sup>1</sup> to their own schemes for neat rows, separated trees, and clean weeding all of which tend to increase water loss and erosion.<sup>2</sup>

The two other main criticisms; that farms were wastefully scattered and that temporarily abandoning diseased farms was an inadequate measure for disease control were answered by the department's own submissions. Regarding the larger number of dispersed farms Sessional Paper II, 1918-19 noted that:

"Amongst Akwapim it was probably occasioned by the limited supply of (nearly) suitable land ... (and was) also due to native shrewdness, for, as they have frequently explained in planting cocoa ... it being a new crop ... they thought it best to plant in many localities ... to ensure some of these being successful."

While the Agriculture Department by the late 1920's and 1930's could give some relevant advice on suitable land for cocoa, they were of little help at the time this was written.<sup>3</sup>

On the question of disease control, the department admitted that the "fallowing" method of disease control "almost invariably leads to complete recovery"<sup>4</sup> which would seem an excellent justification. The Department also

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<sup>1</sup> Ibid, pp. 19-20.

<sup>2</sup> Cf. Dina, Gilletti, Baldwin, op. cit., D. W. Urquhart, Cocoa, Longmans Green, London, 1961.

<sup>3</sup> Local selection methods are defective especially in checking for hardpan. Cf. P.S. Hammond "Cocoa: Agronomy" in J.B. Wills (ed.) Agriculture and Land Use in Ghana, Oxford, 1962.

<sup>4</sup> Sessional Paper II, 1916-17, Government Printer, Accra.

believed that infested areas provided sources for spread of harmful insects and/or viruses. But, while important to plantation or other solid cultivation areas, this concern did not prove true in the Gold Coast where most cocoa farms were separated by forest and/or foodcrops. In any event, the diseases--with the two exceptions of capsid and swollen shoot--proved minor<sup>1</sup> and in no case did the Agriculture Department discover a cure.<sup>2</sup> Swollen shoot and capsid were serious threats beginning in the mid-1920's but were not intensively studied until after WACRI's founding in 1937 and not controlled until the 1950's.<sup>3</sup>

In summary, the Department's recommendations on techniques of production were ill advised. As subsequent research showed, the Ghana cocoa farmer, using methods he developed himself achieved parallel or better productivity at distinctly lower costs than those achieved elsewhere by the methods proposed by the Department. No prima facie case whatsoever was made that his

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<sup>1</sup>Cf. Urquhart, op. cit., and P.F. Entwistle "Minor Insect Pests", in Wills, op. cit.

<sup>2</sup>W.H. Beckett in his comments cites sankonuabe (Twi for "go back to oil palms"--a baring insect) as having been controlled by Department action, Department reports suggest that the attacks were first overestimated and then receded with no real control found necessary.

<sup>3</sup>Hammond estimates loss of farms (seedlings killed) from capsid as perhaps 50% prior to control in the late 1950's--an excellent reason for scattering new farms. Before 1937 little research was done on this pest and control measures dates to 1954. Its importance appears to have been gravely underestimated. Beckett, for example, relates the low growth and indeed decline of cocoa in the Western Region to lack of transport. It now appears from interviews with farmers by Polly Hill the basic reason was heavy capsid infestation killing new and sometimes even established cocoa. Certainly, since capsid control was achieved, Western planting and output has risen rapidly.

techniques were economically inefficient. Polly Hill's extensive and authoritative investigation of the Gold Coast farmers show that far from being tradition bound and unadaptive he was "forward looking, prospective, provident, prudential."<sup>1</sup> When in 1936-37, an expert evaluation of productivity was made, the author, C.Y. Shepherd found:

"The brief description of methods of cocoa cultivation in the Gold Coast shows that the farmer has adopted few of those expensive operations which planters in Trinidad and Grenada consider necessary for the maintenance of yields and profits ...(but) it is a fairly safe assumption that the yield in the Gold Coast is at least twice that obtained in Trinidad and equivalent to that obtained by intensive methods in Grenada."<sup>2</sup>

A direct test of the efficiency of the economic efficiency of the methods advocated by the Agriculture Department is found in the experience of European cocoa plantations in the Gold Coast during the period 1906-1935. At least six plantations were launched and at least four came into production. Two, including one owned by the United Africa Company, were cited as using modern methods and efficient management and equipment. By the middle of the 1930's even these two had incurred such heavy losses as to be closed--the

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<sup>1</sup>Polly Hill, Migrant Cocoa Farmers, op. cit., p. 179, but the theme is reiterated and amply documented in her many writings on the subject. From her analysis, it emerges that "agricultural capitalist" rather than "peasant" provides the more appropriate description of the Gold Coast cocoa farmer.

<sup>2</sup>Report on the Economics of Peasant Agriculture in the Gold Coast, Government Printer, Accra, 1936, para. 16.

UAC plantation being given to the Gold Coast Government which--instead of using it as a test site--turned it over to Achimota School.<sup>1</sup> The difficulties facing the plantations included labour shortages but appeared to center on the fact that their regular plantings, heavy weeding and maintenance expenditures, high overhead for management and drying equipment, and relatively high wage bill per acre (the plantations by definition had no core of family labour) were not offset to any substantial degree by higher yields per tree or per acre. As a result the cost per load of cocoa was distinctly above that of the African farmer and, by and large, also well above the merchant house buying price. In short, the Department was not able to offer any alternative method of production that was economically more efficient either for African farmers or for plantations. Even today, though the yields obtained in the West African Cocoa Research Institute test plots are far higher than those achieved by the farmer, these involve high costs in fertilizers, labour and skilled management, and their economic efficiency has not been established.<sup>2</sup> In contrast, sprays and faster growing trees

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<sup>1</sup>Annual Reports, 1922-1934, *passim*, also Ormsby-Gore Report (Cmd. 2, 2744, 1926, pp. 152-3 and Sir K. Hancock, Survey of British Commonwealth Affairs, Vol. II, Pt. 2, London, 19 , pp. 188, 192. Unsatisfactory plantation experience has been the rule, not the exception, in West African cocoa, European Ivory Coast and Cameroon plantations--despite provision of conscripted labour--almost all failed in the 1930's but large as well as small African Farms survived.

<sup>2</sup>Discussion with WACRI officers from both Ibadan and New Tafo stations.

developed since 1945 have been widely and rapidly accepted without coercion.<sup>1</sup>  
 The best summary of the Agricultural Department's contribution to cocoa technology prior to the establishment of WACRI remains that of the expert independent 1938-39 survey which found it<sup>2</sup>

"extraordinary that until 1937 there was no single agricultural station in the cocoa belt proper at which research could be carried out on the requirements of the crop. It is difficult to see how any officer of the Department could be expected to offer correct advice on cultural or other treatment, as he had no opportunity to acquire knowledge under local conditions."

Equally the 1927 view of Governor Gordon Guggisberg<sup>3</sup>:

Although there are certain defects in our cocoa industry these are all remediable and there need not be the slightest doubt about the future. Our production is steadily going up. There is a noticeable improvement in the farms and in the preparation of cocoa.

was and remains a far more realistic appraisal than agricultural expert "cocoa pessimism" based on supposedly basic problems of disease control, cultivation techniques, farmer laziness, or market collapse.

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<sup>1</sup>Cf. Economic Survey of Ghana. Government Printer, Accra, Annual 1955 et seq passim. Discussions with farmers suggests that some have adopted row planting but are in doubt whether ease of cultivation and plucking offsets the higher initial costs.

<sup>2</sup>H.C. Sampson and E. M. Crowther, "Report on Crop Production and Soil Fertility Problems" in The West African Commission 1938-39, Technical Reports, Leverhulm Trust, London, 1943, pp. 39-40.

<sup>3</sup>Annual Address, Legislative Council Debates 1927-28, Government Printer, Accra, 1928, p. 52.

## V

## The Quality View

On the issue of quality, the Department's views were opposed both to those of the farmers and those of the merchants. The Department wished the farmers to use better methods of fermentation and to take more care in removing defective beans in order to improve the quality and purity of the export crop. They also wanted the merchants to help them bring this about by paying a higher premium for higher quality cocoa and thus providing an economic incentive to the farmer. Since neither complied completely, the Department sought and to some extent achieved legislation to enforce its point of view.

The concern over quality can be traced to the very first report of the Botanical and Agricultural Department in 1906.

"The quality of cocoa appears to deteriorate yearly. This is largely due to plants being raised from immature beans, and to the ignorance of the natives in the proper method of preparing their crop. Practical instruction to the natives is at present impossible, owing to this Department being so much understaffed."

Since the merchants paid a flat price for all acceptable cocoa, the African farmers were unwilling to improve purity by detailed picking over of beans or purchase of fermenting equipment. In their submissions the merchants agreed that West African cocoa was not first grade but held it was suitable for certain markets. A provisional scheme for picking over cocoa in order to separate it into first and residue grades fell through when it was



found that the first grade would fetch only £1.5 a ton more than the unpicked and the loss on the residue grade would substantially exceed this gain (quite apart from costs to farmers of separation and the costs to firms of inspection),<sup>1</sup>

In 1907 the Department made trial shipments of specially fermented and unpicked cocoa to "prove" that to pay premiums for higher quality was economically sound. Typically, they made no effort to estimate the costs of the special preparation noting only that they received a London price of £67.7 per ton for their few tons of high quality cocoa as opposed to the "prevailing" price of £65 per ton for Gold Coast cocoa. As they sold in five lots at prices ranging from £65. to £70 per ton in a rising market, the existence of any differential seems hypothetical.<sup>2</sup>

In 1908 report notes the Ghana amelonado was recognized as second grade, but the plants were hardy and fruitful. Quality, Tudhope claimed, could be raised to first grade (West Indian criollo) if differential prices encouraged proper care.<sup>3</sup> Here and later an utter confusion between intrinsically different cocoas is at its most evident. The West Indian criollo is a fine quality cocoa used in limited quantities for flavouring mixed cocoas. The Amerlonads type grown in Ghana was used for bulk and had a much larger demand. The two types

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<sup>1</sup>See G. C. Dudgeon The Agricultural and Forest Products of British West Africa, Empirical Institute Handbook, John Murray, London, 1911, pp. 50-

<sup>2</sup>Botanical and Agricultural Department, Annual Report, 1907.

<sup>3</sup>Agricultural Department, Annual Report, 1908.

are not direct substitutes on the demand side but are in fact different commodities and rather more complements than substitutes. The departmental reports, however, persistently composed the price of the two and cited movements in the differentials between them as evidence of changes in the quality of Ghana cocoa--a patently absurd conclusion.<sup>1</sup>

Subsequent reports<sup>2</sup> emphasized the need for better methods of drying and fermentation. This was--and to a minor extent is--a genuine problem. But the Department's constructive role was very limited. The gradual solution through improved use of the African open pile technique--now agreed to be satisfactory if properly carried out<sup>3</sup>--seems to have come more by sharing of experience amongst the farmers and company refusal to buy improperly fermented cocoa than from Department action.

The 1916-1919 period marked a peak in concern over quality with the demands for legislation forbidding export of "low quality" cocoa even though firms could find a market for it.<sup>4</sup> The Department cited as proof of the need for legislation firm statements saying they paid low and occasional or no differentials because the difference in London price of £2-3 per ton (between best and normal West African) would not sustain additional handling and supervision costs and leave a useful buying differential.<sup>5</sup> Rough computations suggest that a 6d to 9d load might have been obtained for very intensively picked over cocoa, but the cost from discarding beans would exceed the gain in unit price even ignoring the labour involved.

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<sup>1</sup>See, for example, the rather late repetition of this, Memorandum on the Creation of a Fund for Improving the Quality and Marketing of Cocoa, Sessional Paper XVIII, 1930-31, para. 19.

<sup>2</sup>E.g. 1912, 1914.

<sup>3</sup>See Urquhart, op. cit., Chapter X, Hammond "Cocoa: Agronomy", op. cit.

<sup>4</sup>Sessional Papers II 1916-17, II & V, 1918-19, op. cit.

<sup>5</sup>Sessional Paper IV, 1918-19, op. cit., pp. 7-8.

A few quotations from Tudhope's justification of the need for coercion to improve quality are instructive for the contrast they reveal between the criteria of the Department and those of the farmers and the merchants. It will be noted that in both cases Tudhope's criticism amounts to the charge that African Farmers and European Firms are maximizing profits.<sup>1</sup>

"West Indian cocoa producers are either Europeans, or of European extraction, or are sufficiently intelligent to accept European methods; the producers of cocoa in this colony and Ashanti are natives in a most elementary state of civilization whose sole aim, as yet, appears to be the attainment of a maximum amount of money with a minimum expenditure of energy, however uneconomical the system, and whose lack of foresight for the future welfare of the industry--and consequently of themselves--has not yet been compensated by adequate legislative measures ... (At St. Thome cocoa is better than Gold Coast cocoa with the same labour,) ... but there decided measures of coercion obtain under European control."

and

"The keen competition between rival firms and their entirely commercial outlook militates against them taking voluntary action."

and

"Peaceful persuasion by the few available officers of this Department" -- is not often successful ... and legislation appears essential in order to impress necessary cultural reforms upon a people incapable of taking the necessary measures to ensure the future prosperity of the industry by other methods than that of coercion--a method which is inherently familiar to them."

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<sup>1</sup>1916-17, Sessional Paper II.

Governor Clifford rejected the proposals<sup>1</sup>:

"to prevent owners of produce from offering for sale, and merchants from buying cocoa which it pays one to sell and the other to buy is an arbitrary interference with trade and with private rights and discretion which could only conceivably be justified if the course pursued were proved to be doing some vital injury to the industry as a whole and to the Colony as a cocoa-producer. This has not in any sense been proved at the present time."

During the 1920's "Accra fine fermented" became the basic world cocoa standard, evidence--at the least--that Gold Coast quality was not such as to threaten the future of the industry. Misleading comparisons with the prices for intrinsically different West Indian cocoa continued,<sup>2</sup> however, and isolated rejections of Gold Coast shipments were cited as dire portents. In fact these rejections appear to have been largely (or perhaps entirely) of cocoa held too long in the Gold Coast (especially during the World War I shipping crisis) or in bond abroad (as in certain 1963-1964 U.S. cases following the peak 1961 crop).

Nonetheless, the Department continued to seek action along two main lines (1) cooperatives controlled by the farmers and (2) compulsory grading to raise quality. Both were viewed by merchants and farmers alike as costly nuisances.

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<sup>1</sup>Gold Coast, Sessional Papers II, 1916-17, Government Printer Accra. (As Governor Guggisberg did on similar grounds in 1927-28. Gold Coast, Legislative Council Debates 1927-28, p. 51.

<sup>2</sup>E.g. Sessional Paper XVIII, 1930-31, op. cit.

From 1928 to 1938 extensive efforts were made to develop cooperatives selling "quality cocoa"; indeed it was a major activity of the Department.<sup>1</sup> The cooperatives failed to achieve a volume of even 10,000 tons (of 250-350,000) of the total during the period before the war.<sup>2</sup> They were criticized in 1936 as government run and uneconomic.<sup>3</sup> The Nowell Commission findings clearly underline the reasons for their failure:<sup>4</sup>

"A Cooperative society receives for its cocoa only 6d. more (per 60 pound load) than is obtained by outside producers ... (deducting expenses) the cooperative producer thus makes an average loss of 5-3/4d. per load ... cooperative producers have not profited by their additional expenditure and labour ... We think that the propaganda in the early stages of the Cooperative Movement laid undue emphasis on very high standards of quality and that hopes not justified by market conditions were raised."

In contrast to this early attempt, after 1945, sales of cooperatives organized to make profits on buying commissions instead of losses on quality rapidly rose to 50,000 tons in 1956 (of 218,000) and to over 100,000 tons (of less than 300,000) in the later 1950's.<sup>5</sup>

In 1934, a Cocoa Industry Regulation Ordinance, setting minimum standards and grades was finally adopted. The inspection scheme of this ordinance has remained in force with little positive benefit. The Nowell Commission found<sup>6</sup>

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<sup>1</sup> See K.K. Appadu, Notes on the History of the Gold Coast Cooperative Movement, Department of Agriculture, Accra, 1956.

<sup>2</sup> Appadu, op. cit., p. 4.

<sup>3</sup> Shepherd, Economics of Peasant Agriculture, op. cit.

<sup>4</sup> Cmd. 5845, op. cit.

<sup>5</sup> Appadu, op. cit., 1924.

<sup>6</sup> Colonial Office, Report of the Commission on the Marketing of West African Cocoa, Cmd. 5845, op. cit.

"The firms do not conceal their view that it (the Ordinance) entails a waste of time and money especially as the larger firms have their own grades which cut across those of the government. The producers and brokers are at present not affected by the system since there is in general no payment of differential prices for quality, although an individual who brings in well prepared cocoa ... may get a small premium."<sup>1</sup>

In the post-war, the Ghana Cocoa Marketing Board has replaced the private merchants but has equally held (with one brief and inconsequential exception) that quality premia were uneconomic. The Board has never had to reject a significant quality of cocoa as sub-grade.<sup>2</sup>

Ironically, the grading and inspection scheme has resulted in a lowering of the quality of cocoa. Since very bad quality was not bought and good cocoa received no premium, it paid to mix the bad with the good and sell it as second grade, a practice the Department was still complaining about in its annual reports in the 1950's.

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<sup>1</sup>Beckett comments that Cadbury and Fry and the Eastern and Scottish Cooperative Wholesale Society did pay differentials and have higher acreage quality. He also notes that Liverpool experts (a) stated a preference for better cocoa quality and purity and (b) selected a Gold Coast experiment station sample as being of the highest standard among African farmer and agricultural station cocoa. No one would dispute that manufacturers "wanted" better cocoa at the same price, but the fact remains that their preference was not great enough to lead to a price differential covering additional production cost.

<sup>2</sup>Ghana Cocoa Marketing Board Annual Reports, Oddly enough in early postwar years when sub-grade was somewhat larger in volume, it was sold to the local cocoa butter mill and the cocoa butter exported, a practice still followed in the Cameroon Republic.

## VI

## The Diversification Issue

The diversification issue can be treated more summarily. In part it rested on a belief that the cocoa expansion created domestic food shortages, as evidenced by the growing importation of food. Neither the factual basis nor the economic logic of this concern is clear.

In the context of an open economy if it pays the farmer to grow an export crop and buy imported food rather than grow his own food the decision to specialize in the export is economically sound while an attempt to promote self-sufficiency for its own sake is not.<sup>1</sup> Moreover, there was in fact little evidence of any such shortage in traditional crops. There were occasional problems of supplying food to urban areas, but this was not the case in cocoa areas for the reason that food growing is partly complementary to cocoa; certain food crops are a byproduct of cocoa planting while others require labour in the seasons where cocoa does not.<sup>2</sup> Gold Coast food imports never amounted to 5% of total food consumption and were heavily concentrated in products the Gold Coast could not readily produce or could produce only at high cost. Food and cocoa production are complementary rather than competitive. The two detailed surveys cited earlier show the typical food farmer without cocoa to cultivate one or two food farms while the typical cocoa had two to four food farms and additional food production on cocoa farms.<sup>3</sup> Opening of new cocoa

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<sup>1</sup> Similar pleas--reminiscent of the lost battle of England to save the Corn Laws--were endemic. In a number of colonies, Ceylon and Malaya in particular, sought to reduce rice imports (from another British colony, Burma) sometimes even at the expense of higher income yielding smallholder export crops.

<sup>2</sup> Ironically, the Annual Plan(1965), Government Printer, Accra, p. 15 cites the falling off in cocoa planting and its byproducts of reducing interplanted food output as a source of pressure on the food supply.

<sup>3</sup> Computed from Oda-Swedru-Asamankese and Ashanti Surveys, op. cit.

farms is particularly closely tied to production of plantain and cocoyam which are used as cover crops during the initial two to three years to protect the seedling cocoa trees.<sup>1</sup> Indeed in 1965 the Annual Plan cites the reduction in new cocoa planting as a contributory factor to food shortages in 1963 and 1964.<sup>2</sup>

In practice, the Department did relatively little to encourage expansion of domestic food. Research on basic root crops was particularly deficient<sup>3</sup>. The 1920-27 capital expenditure programme of the Department shows, for example, 46% on new export crops, 31% for "sanitation" (introducing British clean weeding, ditching, and orderly planting patterns), 10% for forestry and firewood production, 0% for cocoa, and 3% for local food crops and even that limited to mechanized upland rice cultivation.<sup>4</sup> No effort was made to stimulate modern fishing, ranching, or fish and meat tinning although meat and fish in various forms ranked with flour, sugar, and tinned milk among the leading food imports.

The argument for diversification also rested on a fear of overspecialization in export crops. The premises advanced were sound; the demand for cocoa could be expected to level off or at any rate grow slowly, and cocoa prices were

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<sup>1</sup>A point emphasized by Polly Hill in discussion with the authors.

<sup>2</sup>Government Printer, Accra, 1965, p. 15.

<sup>3</sup>At a forest zone agricultural station visited by one of the authors in 1961, the chief crop was indeed a root crop--Irish potatoes. For two decades these had been grown with poor size, low yield, and constant need for new planting materials, and a probable cost of £1-2 per pound with the only apparent gain being to the local senior officers' diet.

<sup>4</sup>Gold Coast, Legislative Council Debates, 1927-28, p. 276.



highly unstable. The first premise was often pushed to the point of undue pessimism as in 1918-19:<sup>1</sup>

"the production of cocoa is already approaching the world's requirements, so ... a continued expansion of output might cause a serious lowering in the value of the commodity to such an extent it would no longer be profitable to the producers and it is worthy of serious consideration whether restriction is not necessary from the point of view above."

In any case, restriction by the Gold Coast above would--even give its 40% market share--not have been adequate to maintain prices. The most striking results of the actual use of similar tactics in rubber during the 1930's was to halve Malaya's share of the market by 1940 and to hinder her postwar expansion of rubber output when demand was bouyant.<sup>2</sup>

Governor Guggisberg phrased the problem more realistically in 1919:<sup>3</sup>

we have nearly all our eggs in one basket. The cocoa baskets are full--what about the other baskets? Where are the other products to fill those baskets--if anything goes wrong with the cocoa crop or the cocoa market?"

The conclusion that the Gold Coast should diversify into other export crops--no more broadly based development policy was seriously considered<sup>4</sup>--

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<sup>1</sup>Sessional Paper IV, op. cit., p. 20.

<sup>2</sup>Cf. Bauer, Rubber Industry, op. cit., Silcock, Malayan Economics, op. cit.

<sup>3</sup>Legislative Council Debates, 1919-20, p. 7.

<sup>4</sup>This is not to the discredit of the Gold Coast colonial staff as such. Imperial economic organization did not envisage such changes in West Africa. Under Governor Guggisberg the Gold Coast did have an economic plan of some sophistication. However, its basic dynamics were increases in trade leading to increases in government revenue expended on public works to promote further export expansion and on health and education to raise the level of African job potential and welfare. (Cf. Governor Guggisberg's Annual Address to Legislative Council in Legislative Council Debates 1919-20 to 1927-28). The Volta River dam was considered but dropped largely because no use for the volume of power necessary to make it economic could be envisaged.

does not follow from these premises. It represents the Colonial Government version of the World Bank Mission fallacy, that salvation for primary product exporters lies in diversifying competitively into each others present lines of export. The Gold Coast encouraged coffee and rubber, Malaya and Ceylon encouraged cocoa and oil palms, and similarly in other colonies. In that individual primary product price changes are rarely widely divergent during major cyclical swings and that the demand growth and price trend for cocoa has been at least as satisfactory as for the typical tropical agricultural product over the period 1900-1965 (or 1915-1965) the case for diversification is no clearer in retrospect than it was in the 1920's when demand grew and prices moved erratically sideways.<sup>1</sup>

What stabilization among primary exports was possible---or better stabilization among primary and manufactured goods---could much better have <sup>been</sup> sought on a sterling area basis through territorial specialization and pooling of short-run gains and losses. This line of action was, in fact, never seriously considered.

As opposed to the dubious potential gains, diversification had clear present costs. It diverted limited funds away from cocoa research, e.g. on capsids which were identified in the 1920's but not seriously studied with a view to control until WACRI's founding.<sup>2</sup> Similarly, it was in practice,

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<sup>1</sup>See P. Lamartine-Yates, Forty Years of Foreign Trade, Allen and Unwin, London, 1959, passim (price levels and trends for various crops). Even with the post 1960 price collapse Ghana's cocoa and cocoa product export earnings have risen steadily from £67.8 million in 1960 to £76-78 million in 1965, while total export earnings have stagnated. The 1960-1965 cocoa series is 67.8, 70.7, 70.8, 71.7, 72.8, 76-78. Economic Surveys 1961, 1964.

<sup>2</sup>Cf. C.G. Johnson, "Capsids" op. cit.

a substitute to research and local food crop techniques and costs. This would have been justified had it succeeded in finding major new cash crops but it did not.

The reasons for the failure are clear in Department and project reports.<sup>1</sup> Returns to labour and capital were simply not commensurate with those available in cocoa. Eastern Region farmers had--to the horror of the Agriculture Department--neglected and occasionally even cut down oil palms to plant cocoa because it paid better; it was idle to expect them to switch into sisal or coconut palms which were even less competitive. Even costing capital at 4-1/2% (below what a local farmer could expect in cocoa) and underestimating government officer time used (or at any rate charged) most of the plantations made losses in all but their best one or two years. With a 10% capital charge and full costing of executive time a uniform record of losses would almost certainly have been shown. Despite this record and the uniformly unsatisfactory record of private plantations<sup>3</sup>, the Department believed at least until the 1930's that its plantations could be turned over to Gold Coast chiefs and/or stimulate them to establish similar estates.

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<sup>1</sup>In addition to Annual Reports see e.g. Report on Communal Coconut Plantations, Sessional Paper X, 1921-22, Correspondence Relating to the Development of the Oil Palm Industry, Sessional Paper IV, 1924-25; Dispatch Relating to the Oil Palm Industry, No. 665, 1929.

<sup>2</sup>See Annual Reports, 1921, et. seg. and Legislative Council Debates, 1924, et. seg., passim, e.g. 1927-28, pp. 46-60.

<sup>3</sup>The 1932-33 Annual Report summed up the plantation record fairly when it commented "There have been but a few plantation ventures in the Gold Coast and they have in general not been sufficiently successful to encourage further development. The fall in the price of raw material products has now rendered such propositions unattractive."

In its diversification efforts as in its cocoa programme the Department appears to have been hampered by lack of an adequate research and knowledge base. The 1938-39 West African Commission Report astringently notes:<sup>1</sup>

"The Department of Agriculture has been singularly unfortunate in its legacy of agricultural stations. Except in the Northern Territories, none of them appears to be typical of the country which it is intended to serve."

It seems highly doubtful that primary export diversification has been of value to those African states with more varied commodity baskets. Commenting on this question H. W. Ord concludes:<sup>2</sup>

"Ghana seems to have done better from her heavy dependence on cocoa ... than Uganda, with a more diverse range of agricultural commodities, none of which account for a large proportion of world trade—in sharp contrast to Ghana's leading world position in cocoa."

## VII

The failings of the Gold Coast Agriculture Department and the achievements of Ghanaian cocoa farmers demonstrate neither that small farmers can surmount the problems of raising tropical agriculture unaided nor that modern agriculture experimentation and technological developments when properly costed are irrelevant. However, they do justify drawing certain conclusions about the strengths and weaknesses of tropical family farmers and of colonial agricultural policies. These conclusions appear to be of a fairly broad interest in

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<sup>1</sup>Sampson and Crowther, "Report on Crop Production and Soil Fertility Problems" op. cit., pp. 40-41.

<sup>2</sup>"Agricultural Commodity Projections, Peal Growth and Gains from Trade" in Stewart and Ord (Editors), African Primary Products and International Trade, Edinburgh, 1965, p. 111.

that the dual (or even dual) record of rapid expansion of cash crops by indigenous farmers and of largely ineffective or worse agricultural policy is prevalent both in West Africa and Southeast Asia and the attitudes and approaches involved often have been substantially adopted by independent African and Asian states.<sup>1</sup>

- 1) Ghanaian cocoa farmers have acted with a high degree of economic rationality, a fairly long time horizon, and a substantial propensity to reinvest in the industry;
- 2) They have adopted and adapted techniques--including some entailing capital outlays--when these appeared likely to be or had been proven by other farmers to be economically sound;
- 3) They have--predictably--not been able to carry out scientific research, to operate disease control schemes in which social benefits exceed costs, but there is a private loss to the farmers directly concerned, nor to regulate industry output in a manner consistent with maximizing total receipts once the growth of demand slackened;
- 4) Gold Coast Agricultural programmes consistently emphasized introduction (by education or coercion) of new techniques and organizational patterns without testing their technical suitability, much less their economic viability, under local conditions;<sup>2</sup>

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<sup>1</sup>The authors are personally familiar with parallel cases in Nigeria, Uganda, The Cameroon Republic, Ceylon, Burma, and Malaysia. In general independent states have been more sympathetic to farmers but not necessarily better informed on rural institutions or techniques. They have frequently embarked on large scale institutional and technical changes borrowed from temperate countries with neither substantial local (tropical) testing nor serious costing studies.

<sup>2</sup>The result of such a policy is likely to be the creation of skepticism and caution on the part of farmers. If the past record of agricultural "expert" proposals is poor and especially if the farmer in question has suffered by introducing one, the maxim "once burnt, twice shy" will tend to govern. This, however, is a criticism of attempted generalization of unproven innovations not of farmer attitudes.

5) Ghanaian farmer techniques were assumed faulty whenever they diverged from agricultural service proposals. The farmers' economic motivation was either denied or derided when (usually cost increasing and net revenue decreasing) technical changes were rejected;

6) Systematic study of Gold Coast practices and institutions from the point of view of finding out how and why they worked and in what way they could be adapted to improve an already successful industry was not undertaken and apparently never even seriously contemplated because of the basic negative attitude toward the Ghanaian farmer (and to a lesser degree toward the buying farms as well);

7) Basic research on cocoa--until the founding of WACRI in 1937--was virtually non-existent despite the fact that Gold Coast African results were at least as good as West Indian or Brazilian plantation ones and that no improvement on the local "fallowing" for disease control was known;

8) Diversification proposals either called for a loss of current incomes for little, if any, gain in stability through growing alternate export crops or erroneously posited that cocoa expansion was hindering the growth of domestic food production.

Both in terms of economic rationality and calculation and of relevant technical and institutional knowledge and adaptability the Gold Coast cocoa farmers--despite very real limitations--had significantly better records than the Department of Agriculture throughout the period 1890-1940.

Country	1893/94- 1897/98	1898/99- 1902/03	1903/04- 1907/08	1908/09- 1912/13	1913/14- 1917/18	1918- 1921
New World Total	70.2	91.2	119.9	151.3	180.5	19
%	85.6	79.0	73.6	63.1	58.6	4
Brazil	11.5 <sup>8</sup>	18.5	25.3	31.8	45.3	5
Ecuador	18.3	23.4	24.8	37.3	42.8	6
Dominican Republic	2.7 <sup>3</sup>	6.5	13.9	18.3	20.9	7
British West Indies	17.6 <sup>1,6,7</sup>	17.5	28.1	32.3	12.3	8
Africa Total	8.6	19.6	37.3	81.2	120.4	21
%	10.5	17.0	22.9	33.8	39.1	9
Ghana	0.1 <sup>13,14</sup>	1.3	8.4	34.4	73.6	15
Nigeria	-- <sup>15</sup>	0.2	0.8	3.4	9.9	10
Cameroons	0.1 <sup>12</sup>	0.5	1.6	4.1	3.5	11
Ivory Coast	-- <sup>1,14</sup>	--	--	--	0.2	12
Spanish Equatorial Region	0.6 <sup>16</sup>	1.1	2.0	3.6	4.3	13
Sao. Thome & Principe	7.8 <sup>1</sup>	16.5	24.1	34.6	27.6	14
Other	3.2 <sup>10,1,4,7</sup>	4.6	5.5	7.3	7.0	15
%	3.9	4.0	3.5	3.1	2.3	16
World Total	82.0	115.0	163.0	240.0	308.0	41

PERCENTAGES OF PRODUCTIO  
Five Year Awer

	<u>1893/94-</u> <u>1897/98</u>	<u>1898/99-</u> <u>1902/03</u>	<u>1903/04-</u> <u>1907/08</u>	<u>1908/09-</u> <u>1912/13</u>	<u>1913/14-</u> <u>1917/18</u>	<u>1918/19-</u> <u>1922/23</u>	<u>19</u>
New World Total	85.6	79.0	73.6	63.1	58.6	45.6	
Brazil	10.4	16.1	15.5	13.2	14.7	13.3	
Ecuador	22.3	20.3	15.2	15.5	13.9	8.9	
Dominican Republic	3.3	5.7	8.5	7.6	6.8	5.2	
British West Indies	21.5	15.2	17.2	13.4	4.0	4.1	
Africa	10.5	17.0	22.9	33.8	39.1	52.7	
Ghana	0.1	1.1	5.2	14.3	23.7	36.8	
Nigeria	--	0.2	0.5	1.4	3.2	6.1	
Cameroons	0.1	0.4	1.0	1.7	1.1	0.7	
Ivory Coast	--	--	--	--	0.1	0.4	
Spanish Equatorial Region	0.7	1.0	1.2	1.5	1.4	1.1	
Sao. Thome & Principe	9.5	14.3	14.8	14.4	9.0	6.5	
Other	3.9	4.0	3.5	3.1	2.3	1.7	



Sources and Footnotes to:

PRODUCTION BY COUNTRIES  
Five Year Averages

PERCENTAGE OF PRODUCTION BY COUNTRIES  
Five Year Averages

PRODUCTION OF ANNUAL DATA, 1950-1962

Source: FAO Commodity Series Bulletin, No. 27, November, 1955.  
FAO CCP/Cocoa/63/64.

1. Calendar year exports (referring to the second year shown) up to 1944/45.
2. " " " " " " " " " " " " 1930/31.
3. " " " " " " " " " " " " 1934/35.
4. " " " " " " " " " " " " 1938/39.
5. " " " " " " " " " " " " 1937/38.
6. " " " " " " " " " " " " 1942/43.
7. " " " " " " " " " " " " 1943/44.
8. " " " " " " " " " " " " 1918/19;  
standard cocoa year, October-September, since 1945/47.
9. Crop year exports up to 1912/13 and calendar year exports (referring to the second year shown) from 1913/14 to 1944/45.
10. Calendar year exports (referring to the second year shown) up to 1932/33.
11. " " " " " " " " " " " " 1946/47.
12. Included with Nigeria up to 1947/48.
13. Calendar year exports (referring to the second year shown) up to 1910/11.
14. Figures refer to production, after making allowances for movements between neighbouring territories.
15. Calendar year exports (referring to the second year shown) up to 1921/22; includes former British Cameroons up to 1947/48.
16. Calendar year exports (referring to the second year shown) up to 1909/10.
17. Excludes about 8000 tons of sub-grade cocoa, a small fraction of which may be used.
- 18.

PRODUCTION BY COUNTRIES  
Five Year Averages

Country	1893/94- 1897/98	1896/99- 1902/03	1903/04- 1907/08	1908/09- 1912/13	1913/14- 1917/18	1918/19- 1922/23	1923/24- 1927/28	1928/29- 1932/33	1933/34- 1937/38	1938/39- 1942/43	1943/44- 1947/48	1948/49- 1952/53	1953/54- 1957/58	1958/59- 1962/63
New World Total	70.2	91.2	119.9	151.3	180.5	192.7	187.4	193.9	237.3	228.6	210.0	252.1	302.9	300.4
%	85.6	79.0	73.6	63.1	58.6	45.6	37.4	34.1	33.4	33.3	34.4	33.2	37.0	28.1
Brazil	11.58	18.5	25.3	31.8	45.3	56.3	68.9	82.8	124.5	130.5	109.4	129.8	160.0	144.6
Ecuador	18.3	23.4	24.8	37.3	42.8	37.7	23.9	14.4	17.9	13.8	15.7	23.6	30.7	36.8
Dominican Republic	2.7 <sup>3</sup>	6.5	13.9	10.3	20.9	22.2	22.5	21.0	24.3	24.2	27.6	30.0	33.7	35.9
British West Indies	17.6 <sup>1,6,7</sup>	17.5	28.1	32.3	12.3	17.3	32.3	31.7	21.8	12.6	9.4	13.2	13.1	12.7
Africa Total	8.6	19.6	37.3	81.2	120.4	223.1	304.9	364.7	463.6	448.9	393.5	499.9	502.6	747.1
%	10.5	17.0	22.9	33.8	39.1	52.7	60.9	64.2	65.3	65.4	64.5	65.8	61.5	69.9
Ghana	0.1 <sup>13,14</sup>	1.3	8.4	34.4	73.6	155.8	216.1	236.7	266.8	250.9	210.1	253.3	234.7	366.7
Nigeria	-- 15	0.2	0.8	3.4	9.9	25.7	42.0	59.0	91.0	108.5	90.0	105.4	100.0	66.2
Cameroons	0.1 <sup>12</sup>	0.5	1.6	4.1	3.5	3.1	5.9	12.5	24.9	25.0	35.1	52.3	62.8	71.9
Ivory Coast	-- 1,14	--	--	---	0.2	1.9	8.8	24.1	47.2	37.4	27.2	53.8	61.8	78.0
Spanish Equatorial Region	0.6 <sup>16</sup>	1.1	2.0	3.6	4.3	5.0	7.1	10.7	11.7	14.1	15.4	15.7	20 <sup>5</sup>	25.9
Sao, Thome & Principe	7.8 <sup>1</sup>	16.5	24.1	34.6	27.6	27.5	17.4	12.8	10.0	6.4	9.6	8.0	8.0	8.8
Other	3.2 <sup>1,4,7</sup>	4.6	5.5	7.3	7.0	7.3	8.6	9.3	9.0	8.5	6.6	7.9	12.0	20.7
%	3.9	4.0	3.5	3.1	2.3	1.7	1.7	1.7	1.3	1.3	1.1	1.0	1.5	2.0
World Total	82.0	115.0	163.0	240.0	308.0	423.0	501.0	568.0	710.0	686.0	610.0	760.0	818.0	1068.2

PERCENTAGES OF PRODUCTION BY COUNTRIES  
Five Year Averages

COUNTRY	1893/94- 1897/98	1898/99- 1902/03	1903/04- 1907/08	1908/09- 1912/13	1913/14- 1917/18	1918/19- 1922/23	1923/24- 1927/28	1928/29- 1932/33	1933/34- 1937/38	1938/39- 1942/43	1943/44- 1947/48	1948/49- 1952/53	1953/54- 1957/58	1958/59- 1962/63
New World Total	85.6	79.0	73.6	63.1	58.6	45.6	37.4	34.1	33.4	33.3	34.4	33.2	37.0	28.1
Brazil	10.4	16.1	15.5	13.2	14.7	13.3	13.8	14.6	17.5	19.0	17.9	17.1	19.6	13.5
Ecuador	22.3	20.3	15.2	15.5	13.9	8.9	4.8	2.5	2.5	2.0	2.6	3.1	3.8	3.4
Dominican Republic	3.3	5.7	8.5	7.6	6.8	5.2	4.5	3.7	3.4	3.5	4.5	3.9	4.1	3.4
British West Indies	21.5	15.2	17.2	13.4	4.0	4.1	6.4	5.6	3.1	1.8	1.5	1.7	1.6	1.2
Africa	10.5	17.0	22.9	33.8	39.1	52.7	60.9	64.2	65.3	65.4	64.5	65.8	61.5	69.9
Ghana	0.1	1.1	5.2	14.3	23.7	36.8	43.1	41.7	37.6	36.6	34.4	33.3	28.7	34.2
Nigeria	--	0.2	0.5	1.4	3.2	6.1	8.4	10.4	12.8	15.8	14.8	13.9	12.2	15.7
Cameroons	0.1	0.4	1.0	1.7	1.1	0.7	1.2	2.2	3.5	3.5	5.8	6.9	7.7	6.7
Ivory Coast	--	--	--	--	0.1	0.4	1.8	4.2	6.6	5.5	4.5	7.1	7.5	7.3
Spanish Equatorial Region	0.7	1.0	1.2	1.5	1.4	1.1	1.4	1.9	1.6	2.1	2.6	2.1	2.5	2.4
Sao. Thome & Principe	9.5	14.3	14.8	14.4	9.0	6.5	3.5	2.3	1.5	0.9	1.6	1.1	1.0	0.5
Other	3.9	4.0	3.5	3.1	2.3	1.7	1.7	1.7	1.3	1.3	1.1	1.0	1.5	2.5

