THE TRINIDAD CACAO INDUSTRY
ITS PLACE IN THE TRINIDAD ECONOMY

A Thesis

by

Neil M. Jarrette

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TABLE OF CONTENTS

PREFACE

This thesis aims at surveying the Trinidad Cacao Industry against the background of the general economic framework of the country. It begins with an analysis of this framework, and a brief examination of the respective roles of the two major agricultural industries, sugar and cacao, within the agricultural sector. The history of the cacao industry is then traced from its beginnings to the present. Following this, the attempt is made to place the Trinidad industry in clear perspective with regard to the world cacao industry, with a view to gauging its present strength and future potential. Remaining chapters deal with the aims, achievements, and shortcomings of the measures for achieving this potential which are currently in use.

The writer has chosen to use the spelling "cacao" as opposed to "cocoa", according to the convention whereby the former denotes the tree and raw product, and the latter the manufactured article. The alternative spelling appears in places, however, when quoting sources which use it.

Except where a distinction is explicitly drawn, the term "Trinidad" is taken to include the neighbouring island of Tobago, the two islands being administered jointly as one unit.

The currency unit employed is the British West Indian dollar (which is tied to the British pound at the fixed ratio of £1 = $4.80).

The thesis was begun in Canada and completed in Trinidad. In Canada, a plan of approach was formulated with the assistance, guidance, and supervision of Dr. W.E. Haviland, Associate Professor of Economics, Macdonald College, and a considerable portion of the writing done. It must be mentioned, however, that in Trinidad it was found necessary to deviate somewhat from the plan approved for the remainder, owing to the fact that much of the data which are available are so only in a form that is not readily usable. The scope of the thesis has therefore been contracted to its present dimensions.

Special debts of gratitude are due to Dr. Haviland, Dr. A.L. Jolly, Senior Lecturer in Economics, Imperial College of Tropical Agriculture, and Dr. C.Y. Shephard, Executive Secretary (Agricultural Economics), Caribbean Commission, for help and direction

freely and unstintingly given at all times; to Mr. G.G. Gianetti, Dean and Registrar, I.C.T.A., for generously allowing the writer complete freedom of access, on a wholly informal basis, to all the facilities of that institution; to Mr. R. Pennington of the McGill Redpath Library, for making available books from McGill Libraries.

CHAPTER I

THE GENERAL ECONOMY

INTRODUCTION.

Perhaps the most distinct feature of the economy of Trinidad and Tobago is that the bulk of the articles consumed domestically, including food, are imported from overseas, whilst domestic production is predominantly production for export. These two aspects may be viewed as mirror-images of each other, and together they form a pattern of economic activity which has prevailed in the West Indies as a whole throughout their history. The pattern has often been described as having arisen out of the British Imperial policy of the nineteenth century, which was founded on the belief that the interests of the Empire would be best served by encouraging specialized production in each of the various territories which comprised it, and under which it fell to the West Indies to concentrate on the growing of those tropical crops, chiefly sugar, to which their climate was suited and which found a ready market within the Empire. It would perhaps be more accurate to say, however, that no serious attempt has ever been made in the area to achieve economic self-sufficiency so long as the profitability of cultivating sugar, cacao and other export crops remained such that the more efficient arrangement was to specialize in their production and to utilize the high returns they yielded for importing all the goods needed for consumption.

Expenditure on food is by far the largest item of this consumption expenditure, accounting in Trinidad and Tobago, for 38% of the total in 1954, or $104.3 million. Of this food bill only $30.7 million, or 29.4% represented the purchase of locally-grown foods,

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illustrating the direct dependence of the economy upon overseas trade.

It is not intended to imply that such a dependence is undesirable, for clearly factors of production should be employed in their most efficient use; in the case of the West Indies, employment of these factors in production for export has represented that most efficient use. However, neither is it to gainsay that in broad aspect, the West Indian economy, predominantly agricultural and primarily dependent upon export, exists virtually behind the protection of international agreements, restrictions, and preferences erected around most of the major export crops, and shielding them from potentially devastating world competition. The delicacy of this position is easily exaggerated, yet the need for greater diversification in production activity will not be denied.

It is in this setting that all aspects of the economy of Trinidad and Tobago must be considered. However, at the outset a significant difference from the general West Indian pattern appears, in that the wealth of the territory is derived overwhelmingly from mining and not from agriculture. Geologically, these islands are regarded as being part of the South American continent, from which Trinidad is separated at its closest point by only eight miles of water. As such, their geological features are readily identified with contiguous formations occurring on the continental mainland. The most important of these are the oilfields of Trinidad which may be looked upon as extensions from the vast Venezuelan petroleum beds. The dominating importance of the oil industry is illustrated in Table I, which depicts the post-war growth in the value of exports of domestic produce. In 1956, almost 80% of the total export revenue was provided by exports of crude petroleum and its products, as against 7.8% by sugar, which was the next largest single item of export. Cacao beans, the third most important exported

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article, contributed 3.3% in 1956.

TABLE I - VALUES OF PRINCIPAL DOMESTIC EXPORTS

Commodity	1947 ($000)	1947 %	1951 ($000)	1951 %	1956 ($000)	1956 %
Crude petroleum and products	61,897.2	75.2	161,871.7	78.3	261,791.8	81.3
Sugar, refined and unrefined	8,111.1	9.9	18,874.7	9.1	25,096.5	7.8
Cacao beans	3,205.1	3.9	11,563.3	5.6	10,485.2	3.3
Asphalt and prod-products	1,771.8	2.2	3,988.6	1.9	2,504.1	0.8
Coffee, raw	250.0	0.3	1,042.4	0.5	1,571.6	0.5
Rum	1,846.2	2.2	2,523.9	1.2	1,354.1	0.4
All other	5,180.8	6.3	7,010.7	3.4	19,245.8	5.9
Total Domestic Exports	82,262.2	100.0	206,875.3	100.0	322,049.1	100.0

Source : Central Statistical Office, Overseas Trade Annual Reports 1951 & 1956.

TABLE II - VALUES OF PRINCIPAL IMPORTS

Item	1947 ($000)	1947 %	1951 ($000)	1951 %	1956 ($000)	1956 %
Mineral Fuels, Lubricants and related materials	17,377.5	14.7	68,244.0	31.2	86,967.8	28.8
Manufactured goods	41,098.7	34.7	63,199.1	28.9	81,669.3	27.0
Food	29,411.5	24.8	37,324.7	17.1	53,202.3	17.6
Machinery and transport equipment	16,177.2	13.7	29,744.7	13.6	47,851.1	15.9
Chemicals	7,350.9	6.2	10,920.0	5.0	17,377.0	5.8
Other	6,973.4	5.9	9,206.5	4.2	14,742.9	4.9
All Imports	118,389.2	100.0	218,639.4	100.0	301,810.4	100.0

Source : Central Statistical Office, Overseas Trade Annual Reports 1951 & 1956.

On the import side petroleum also occupies the premier position, as shown in Table II, accounting for 28.8% of the value of total imports in 1956, as against 27.0% in the case of manufactured goods of all descriptions. Imports of petroleum are in the main of Venezuelan crude, and began to achieve prominence in 1949 when Government granted its approval to the building up of an import trade in crude petroleum as security for the domestic refining industry against the day when indigenous reserves, then thought to be rapidly diminishing, shall at last have been exhausted. In 1957 the crude oil importation from Venezuela was 22.4 million barrels compared with a total domestic production of 32.7 million barrels.

TABLE III - POSTWAR PRODUCTION, REFINING AND EXPORTS IN THE PETROLEUM INDUSTRY
(barrels)

Item	1946	1951	1956	1957 *
Crude oil produced	20,233,000	20,843,000	28,929,000	32,732,000
Average daily production per well	30.5	25.1	27.7	30.2
Crude oil imported for refining	2,893,000	15,855,000	20,251,000	22,354.000
Refinery throughput	22,713,000	35,160,000	44,825,000	50,610,000
Export of refined products	20,169,000	32,441,000	34,774,000	37,338,000

* Estimated equivalent annual rate.

Source : Texaco Trinidad News, Vol. 1, No. 1, p.12.

From these tables may be inferred the tremendous expansion which has taken place in all spheres of the domestic economy during the post-World War II period. Refinery throughput in the petroleum industry jumped from 22.7 million barrels in 1946 to 50.6 million barrels in 1957. The annual output of sugar was almost tripled between 1946 and 1955, rising from 76.4 thousand tons in 1946 to 192.8 thousand tons in 1955.

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The production of cacao beans rose from under 7 million lbs. in 1946 to almost 22 million lbs. in 1956. Throughout the period imports have kept pace with the increases in production as testimony to the general improvement in prosperity in a country whose standard of living is so directly dependent, as explained above, upon imports. The following table summarizes the "external" aspect of the economy for the year 1954 in a modified version of the External Transactions Accounts.

THE EXTERNAL TRANSACTIONS ACCOUNTS, 1954

A. CURRENT ACCOUNT.	$ million
Total Exports of Goods and Services	292.7
Total Imports of Goods and Services	276.7
Trade balance	+16.0
Net remittances and transfers	-30.8
Deficit on Current Account	-14.8
B. CAPITAL ACCOUNT.	
Government borrowing overseas	20.0
Capital inflows (mainly re-investment in foreign-owned business)	40.4
Capital Receipts	60.4
Deficit on Current Account	-14.8
Net change in overseas investments and balances	+45.6

Adapted from Central Statistical Office, Report on National Income, 1951 - 1954.

The "internal" or domestic functioning of the economy is briefly examined in the following section.

THE DOMESTIC ECONOMY.

Income, Output and Employment.

In 1954, Trinidad and Tobago had a total population estimated at 697,000 persons, included among whom was a labour force of 251,800 persons 15 years old and over. In the same year the gross domestic product at market prices amounted to $430.6 million, and the net national income at factor cost to $340.5 million, or a per capita national income of $488.(1)

Table IV shows the general expansion in economic activity which has taken place during the period 1951-1954, whilst Table V indicates the spheres in which the labour force contributing toward this expansion was employed.

TABLE IV - CHANGE IN NATIONAL ACCOUNTING AGGREGATES, 1951 - 1954

Year	TOTAL POPULATION Number	% Change 1951-1954	GROSS DOMESTIC PRODUCT At Market Prices ($mill)	% Change 1951-54	At 1951 Prices ($mill)	% Change 1951-54
1951	648,700		328.6		328.6	
1952	662,850		358.9		339.8	
1953	678,300		402.0		349.0	
1954	697,550	+ 7½	430.6	+ 30	356.0	+ 8.4

TABLE IV (continued)

Year	NET NATIONAL INCOME AT FACTOR COST ($mill)	% Change 1951-54	PER CAPITA NATIONAL INCOME ($mill)	% Change 1951-54
1951	257.9		396	
1952	287.9		433	
1953	310.2		458	
1954	340.5	+ 24	488	+ 20

Source : Central Statistical Office, Report on the National Income, 1951-1954.

(1) Per capita national income figures for Trinidad and Tobago compare (only very broadly) with the figure for Jamaica of $312 in 1952, and for British Guiana of $316 in 1951. Central Statistical Office, Report on the National Income of Trinidad and Tobago from 1951 to 1954.

TABLE V - DISTRIBUTION OF THE LABOUR FORCE BY INDUSTRIES, 1954

	Total	With Jobs	Without Jobs Seeking Work
Agriculture, forestry, fishing and hunting	71,200	69,200	2,000
Mining and Quarrying	10,900	10,300	600
Manufacturing	43,700	41,400	2,300
Construction and Public Services	22,100	19,600	2,500
Commerce	33,400	31,200	2,200
Transport, Storage and Communication	16,600	15,400	1,200
Other Services	50,300	47,000	3,300
No Industry	3,600	-	3,600
Totals	251,800	234,100	17,700

Source : Central Statistical Office, Report on National Income.

Although agriculture is by far the largest employer of labour within the economy, it does not also generate the greatest proportion of wealth, as shown by Table VI.

TABLE VI - OUTPUT OF THE MAJOR INDUSTRIES, 1951 AND 1954
($million)

INDUSTRY	1951	%	1954	%
Agriculture, including fishing, hunting and forestry	53.5	17.4	73.5	18.4
Oil and Asphalt	98.5	30.3	120.1	29.9
Manufacturing and Construction	51.8	16.8	64.0	15.8
All other activities, including Government	109.5	35.5	145.5	36.0
TOTAL Gross Domestic Product at factor cost	308.3	100.0	403.1	100.0

Source : Central Statistical Office, Report on the National Income.

Here it is seen that the oil and asphalt industries together contribute approximately 30% of the gross domestic product as compared with ca. 18% from agriculture. The latter, by contrast, gave employment

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to 28% of the labour force as against an estimated 9% employed in the mining and refining of oil and asphalt.

An alternative presentation of the above is given in Tables VII and VIII, which together compare the relative importance of the various industries according to their contributions to total employment and to the total earned income.

TABLE VII - INCOME EARNED IN VARIOUS SECTORS OF THE ECONOMY, AS PERCENTAGE OF NATIONAL INCOME, 1951 AND 1954.

SECTOR	1951		1954	
	$mill.	%	$mill.	%
Business	244.0	94.6	307.3	90.3
Government	29.2	11.3	46.3	13.6
Households	11.0	4.3	14.3	4.2
Net factor income from rest of world	-26.3	-10.2	-27.4	-8.1
Net National Income	257.9	100.0	340.5	100.0

Source : Central Statistical Office, Report on National Income.

TABLE VIII - INCOMES EARNED AND NUMBERS EMPLOYED IN THE BUSINESS SECTOR, 1951 AND 1954, SHOWING PERCENTAGES OF GROSS BUSINESS INCOME AND OF WORKING POPULATION.

	1951				1954			
	Income Earned		No. Employed		Income Earned		No. Employed	
	$mill.	%	No.	%	$mill.	%	No.	%
A. Private Enterprises								
Agriculture, forestry and fishing	47.9	19.6	64,760	31.8	61.8	20.1	71,200	27.6
Oil and Asphalt	73.7	30.2	17,100*	8.4	92.9	30.2	22,600	9.0
All other industries and services	112.4	46.1	-	-	141.0	45.9	-	-
B. Public Enterprises								
Railways, Electricity, Port and Postal Services	10.0	4.1	-	-	11.6	3.8	-	-
Totals	244.0	100.0	203,290+	100.0	307.3	100.0	251,800+	100.0

* Estimated. - Unobtainable.

\+ Includes workers in all other industries, unspecified.

Source : Central Statistical Office, Report on National Income Table 11(c) p.65, and Ann. Stat. Dig. 1956 Table 34, p.48.

These tables bear out the fact that the economy shows a pronounced industrial bias. Of the incomes earned in the business sector of the economy, which accounts for over 90% of the national income, agriculture, forestry and fishing together contribute about 20% as compared with approximately 80% contributed by non-agricultural industries. A large part of this non-agricultural income is earned in the distributive industries (whose share of the gross domestic product amounted to $37.5 million), in keeping with the exhibited emphasis on imports of capital and consumer goods. But the largest single share was earned in the oil and asphalt industries (30% as against 20% earned in agriculture).

Again, reference to Table VI shows that output of the mining industries was almost 40% above that in the agricultural industry in both years. Although over the four-year period the value of output in the former increased by 28.4% over that of 1951 production, whereas agricultural production value underwent an increase of 39.2%, the significance of this leading rate of advance in the case of agriculture is largely diminished when considered in absolute terms (Table VI).

RATE OF GROWTH IN OUTPUT OF MAJOR INDUSTRIES, 1951 - 1954.

	% Change 1951-54
Agriculture, including fishing, hunting and forestry	+ 39.2
Oil and Asphalt	+ 28.4
Manufacturing and Construction	+ 23.6
All other activities, including Government	+ 32.8

On the other hand, the parallel growth in manufacturing and construction side by side with huge increases in output in the oil industry is important, if not statistically significant, from the point of view of a developing economy.

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Consumption, Saving and Investment.

Table IX sets out the broad pattern of the expenditure side of the National Accounts over the four-year period under consideration. The only observed trend within this pattern relates to the increasing share of government consumption expenditure from 10.7% of the gross domestic expenditure to 12.6% in 1954, and this has been interpreted as "evidence of the increasing dependence of the community on government for the provision of essential services and facilities such as education, health, traffic control, economic planning and arbitration, etc."(2) Consumption expenditure per head of the population was $316 in 1951 and $385 in 1954.

TABLE IX - EXPENDITURE ON THE GROSS DOMESTIC PRODUCT, 1951-1954

AVERAGE	(Percentages of Total)
Private consumption expenditure	62.5
General government consumption expenditure	11.7
Investment in plant, equipment, buildings, and inventory	23.5
Net exports of goods and services	2.3
	100.0

Source : Idem. Chart 4.

The respective shares of the different sectors in this high proportion of investment are shown in Table X. Here the high capitalization in the petroleum industry is brought out to account for its dominating share in the output of the economy.

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(2) Ibid. p. 9. It bears mention, however, that the area of largest increase in Government consumption expenditure was on wages, salaries, and other payments, which increased from $25.7 million in 1951 to $40.0 million in 1954 largely as the result of a substantial regrading of Government salaries and wages effected in 1953. (idem. p.45)

TABLE X - GROSS DOMESTIC FIXED CAPITAL FORMATION BY SECTORS AND INDUSTRIES, 1951 AND 1954

	1951 $mill.	1951 %	1954 $mill.	1954 %
A. BUSINESS SECTOR				
(i) Private Enterprises				
Petroleum and Asphalt industries	30.6	43.8	35.2	41.7
Sugar and Rum industries	1.5	2.2	1.6	1.9
All other industries and services	19.7	28.2	19.3	22.9
(ii) Public Enterprises	2.7	3.9	4.4	5.2
B. GENERAL GOVERNMENT (Public Works)	6.4	9.2	10.2	12.1
C. HOUSEHOLDS (Dwelling houses)	8.0	11.5	12.4	14.7
D. (Not Accounted For)	0.9	1.2	1.3	1.5
TOTAL FIXED CAPITAL	69.8	100.0	84.4	100.0

Source : Idem p.50 Table 9.

The greatest single source of finance for capital formation is the provision for capital consumption or depreciation, which was responsible during the period for 36% of the total expenditure.

A.	Provision for consumption of fixed capital	36%
B.	Savings of households and locally-owned corporations (including public enterprises)	33%
C.	Saving of general government	10%
D.	Borrowing from overseas by government	8%
E.	Other net borrowing from overseas	13%
		100%

Source : idem.

Of a total depreciation allotment in all industries of $36.3 million in 1954, depreciation charges in the oil and asphalt industries were again far to the forefront, together accounting for $27.2 million. Item B above is broken down as follows (1954 values) :

Savings of locally-owned corporations	$million	5.6
Savings of households, including unincorporated businesses	"	28.9
Total	$ million	34.5

This indicates the great extent to which the rest of the economy was able to participate in the great expansion taking place in the oil industry, in which the greatest share of household incomes were earned. The main avenues of use of these savings were in reinvestment in unincorporated businesses, and in investment in dwelling houses. There was a substantial increase of $4.4 million in the latter over the period, 86% of the number of new houses constructed being intended for owner-occupation. The entire construction industry, including site clearing and all other related aspects, accounted for over 25% of the gross capital formation in 1954. It is difficult to say how much of this domestic capital formation took place within the field of agriculture (i.e., excluding the manufacture of sugar) but that it constituted a very small percentage of the total is certain.

TABLE XI - SAVINGS OF HOUSEHOLDS, PRIVATE NON PROFIT INSTITUTIONS, AND UNINCORPORATED ENTERPRISES.

	$ million	
	1951	1954
Investment in dwelling houses	8.0	12.4
Reinvestment of profits in unincorporated enterprises	11.8	9.5
Personal savings (residual)	0.0	7.0
Total	19.8	28.9

Income Distribution.

Only a very tentative estimate of the distribution of personal incomes is available, owing to the inadequacy of detailed information. Table XII shows this estimated distribution after deductions of the imputed values of rent and food obtained in kind, and indicates the low level of income (under $100 per month) earned by the bulk of the population (73%) in 1954. Comparison of this figure with the estimated

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national income per capita of $488, insofar as such comparison is permissible, suggests the pronounced degree to which the frequency curve of incomes earned is skewed to the right. The table represents a wider distribution than that which prevailed in 1951, however, this widening been particularly evidenced in the rural areas where farming incomes are estimated to have increased from $27.7 million in 1951 to $35.4 million in 1954.

Progressive taxation is levied only against those whose incomes exceed $1,200 per annum, and this places the bulk of the income earners beneath the reach of direct taxes. Even so, the wide disparity remains.

Low productivity within the agricultural sector of the economy immediately suggests itself as a major contributory cause to this state of affairs, for this sector, which employs almost 30% of the total labour force, contributes only 12.2% of all incomes earned.

TABLE XII - TENTATIVE ESTIMATED DISTRIBUTION OF TOTAL PERSONAL INCOMES, 1954.

Amount of gross income in 1954	Number of persons (numbers in 000)	Total Income $million
Under $1,200	189.1	111.5
$1,200 and under $2,400	46.8	72.1
$2,400 " " $3,600	7.2	18.6
$3,600 " " $6,000	6.8	27.3
$6,000 " " $12,000	6.6	50.3
Over $12,000	0.5	10.2
Totals	257.0	290.0

The foregoing demonstrates that Trinidad and Tobago constitute an essentially industrial country in terms of origin and value of domestic production and source of domestic income, though not as decided by in terms of occupation of the labour force. Moreover the real growth in the domestic product of 8.4% from 1951 to 1954 (Table IV) has kept pace

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with a rapid rate of increase in population (7.5%) over the same period. Factors facilitating this have been the abolishment of almost all rationing, price controls, and bulk purchasing of supplies by government which had continued since World War II and the resultant increases in prices. Also contributing to this expansion were the expansionary effects on world prices of the Korean War, and divers government-sponsored measures to encourage industrialization and promote agricultural development. As incomes have increased, standards of living have risen also, as evidenced in a shift from lower quality foods to higher, i.e., from sugar and cereals to meat, bacon, and dairy products.

But the rapid growth has brought with it an increasing keenness in the inter-industry competition for resources. As wages and other incomes rise in the industrial sector, labour resources become increasingly beyond the reach of the agricultural sector. Also, except in the case of sugar, capital investment in agriculture does not approach that found in industry, with the result that in terms of the realization of potential output the rate of development of the agricultural sector has been relatively slow. Within this sector, the cacao industry is described as representing "probably the most glaring deficiency".(3) The central aim of what follows is to examine this contention.

(3) JOLLY, A.L. "The Future of Trinidad's Agriculture", The Caribbean, Vol. II, No. 2, p.40.

THE AGRICULTURAL SECTOR.

The previous section has demonstrated that notwithstanding the industrial bias to the economy alluded to above, which is shown to be a direct consequence of the preponderating influence of the oil industry, agriculture is nevertheless of prime importance as the largest direct employer of labour. The following systems comprise the agricultural sector :

(a) Plantations -
Company-owned estates, mainly sugar,
Privately-owned estates, mainly cacao;

(b) Small holdings -
Small land-holders, mainly cacao farmers,
Tenants, mainly sugar and rice farmers.

The small land-holders may be further subdivided into coconut proprietors, cacao proprietors, cane farmers, and rice growers. Appendix II indicates the relative distribution by area of the chief crops grown under these systems in 1946. Cacao is thus seen to have been the greatest occupier of land area, occupying 142,886 acres of the 414,937 acres classified as farmland. However approximately 30% of this cacao acreage in 1946 represented derelict estates. Most of the remainder was at a very poor standard of management.

Sugar, with 60,688 acres under cultivation, was the dominant form of agricultural activity in terms of farming income. Table I shows that exports of sugar and its by-products are second in value to exports of the oil and asphalt industries, accounting annually for 10% to 15% of the total value of domestic exports.

In terms of employment, also, the sugar industry was dominant, occupying 41.0% of the total number of persons directly employed in agriculture.

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TABLE XIII - PERSONS EMPLOYED IN AGRICULTURE, 1946

	Males	Females	Total	% of Total in Agriculture
Sugar Planting	16,671	5,431	22,102	41.0
Mixed Planting	14,511	2,867	17,378	32.3
Cacao farming	6,262	1,233	7,495	13.9
Coconut farming	2,721	667	3,388	6.3
Other agriculture	2,904	579	3,483	6.5
Total in agriculture	43,069	10,777	53,846	100.0

Source : West Indian Census, 1946.

Since sugar so dominates the agricultural sector, and since, as will be shown in Chapter II , historically there has always been a consistent and close interrelationship between the respective fortunes of sugar and cacao, it is necessary to outline briefly the main aspects of the sugar industry.

The Sugar Industry.

The area under sugar cane is, roughly, equally divided between five large estates on the one hand and 10,000-12,000 peasant cultivators or cane farmers on the other. Two of these companies together own upwards of 60% of the land owned by all estates and as well manufacture approximately 80% of the total output of unrefined sugar. Refining of sugar is not done locally except for the small amount necessary to meet local requirements, the greater part being exported in the Grey crystal form of 96° polarization.

The great difference in production efficiency between estate and peasant cultivation is seen in the fact that approximately two-thirds of the total yearly output of sugar comes from estate canes, and only one-third from the 10,000-12,000 cane farmers, despite the even sharing of land area.

The following table shows some of the broad differences existing between the two cultivation methods, whilst Table XV gives a measure of the

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growth of the industry since 1938.

TABLE XIV - ESTATE vs PEASANT SUGAR CANE CULTIVATION, 1946-1956

	Year	Estates	Farmers	Total
Area under cane (acres)	1956	45,285+	42,000+	87,285
Tons cane per reaped acre	1946	25.28	n.a.	-
	1948	26.23	n.a.	-
	1955	30.35	n.a.	-
	1956	29.96	12 - 15	-
Sugar cane production (000 tons)	1950	885.8	516.1	1,401.9
	1951	945.6	487.1	1,432.7
	1955	1183.7	644.0	1,827.7
	1956	1062.3	568.8	1,631.1

+ estimates n.a. not available

Sources : C.E.S. Ann. Stat. Dig. 1956.
Col. Off., Econ. Survey of Col. Terr. 1951. Pt. IV, pp. 195-220.

TABLE XV - PRODUCTION, DISPOSAL AND EXPORT VALUE OF SUGAR, 1938 - 1956

Year	PRODUCTION long tons	DOMESTIC CONSUMPTION long tons	EXPORTS long tons	VALUE OF EXPORTS $
1938	133,551	11,597	121,954	4,957,963
1950	146,508	22,956	123,552	17,901,000
1955	192,793	23,000	169,793	31,276,056
1956	160,230	23,201	137,410*	25,096,492

* includes re-exports of 381 long tons.

Source : C.E.S. Ann. Stat. Dig. 1955 and 1956.

Briefly, the factors held responsible for the wide difference in yields between estates and farmers are :-

(a) the small size of the average peasant holding (under 5 acres) which does not permit the development of a regular planting routine.

(b) irregular replanting and out-of-season planting owing to competition for regular labour from the estates.

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(c) inadequate land preparation, pest control, and use of fertilizers.

(d) inadequate use of high-yielding varieties.

The majority of the cane farmers work for wages on the estates during the crop season to the neglect of their own holdings, on which are taken, in some cases, as many as fifteen ratoons from an original planting. Wage employment on the estates may provide up to 80% of the net income of the cane farmers.(4) In consequence, many of the poorer holdings are difficult to distinguish from surrounding scrub vegetation, in direct contrast to the high standards of cultivation exhibited on the highly-mechanized estates.

Chiefly responsible for the sustained strength of the sugar industry are the International Agreements, viz. :

(a) the Commonwealth Sugar Agreement, under which the British Government each year negotiates a fixed price to be paid for a proportion of the sugar exports of Commonwealth territories. This price is baded on a statutory formula calculated to take account of the various cost factors involved. At present the negotiated price for the year 1958 is £43:16:8 per ton. In addition, all members of the Commonwealth Sugar Agreement are also members of -

(b) the International Sugar Agreement, under the terms of which the Commonwealth is collectively limited to exporting 2,500,000 tons in 1958. Of this Trinidad's share is 30,000 tons. It is expected that when the International Agreement is re-negotiated in 1958, the Commonwealth members may secure an increase in their quota of 50,000 tons at least, thus placing the sugar industry on an even better footing for catering to an expanding Commonwealth market.(5)

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(4) Vide Colonial Office, Economic Survey of the Colonial Territories, 1951, Vol. IV, p. 202, London.

(5) Statement of the Chairman, West Indies Sugar Co. Ltd., The Economist, Vol. CLXXXVI, No. 5975, March 1, 1958, p.800.

The Cacao Industry.

Next after sugar on the scale of export values comes cacao. Cacao's present contribution of only 3% -6% of the total value of domestic exports, and its employment of 14% of the agricultural labour force in 1946 would seem to place it in the position of a poor third to oil and sugar. However, forty years ago the situation was almost the exact opposite of that prevailing today. Cacao was then the undisputed "king"of the Trinidad and Tobago economy. Its demise was brought about by the cumulative ill-effects of the World Depression of the 1930's, which pointed up gross deficiencies which had existed in the system of management, but allowed no margin of profit for correction, or even for preservation of the status quo, with the result that the industry was virtually abandoned during the middle 1930's, throwing open the door to the ravages of disease. World War II followed closely, bringing a general disruption of trade which further aggravated the situation.

In 1946 the industry was at its lowest ebb, with an exportation in that year of only 6.6 million pounds as against an average annual figure of 62.5 million during the peak period of 1920-1924. Since then the measures instituted by the Government to assist in its resuscitation, beginning in 1921 with protection against foreclosure by mortgagees, and culminating in free plants and financial subsidy from 1949 onward, have begun to take effect, and exports have climbed slowly to their present figure.

It was estimated in 1946(6) that there were 5,204 cacao farms in Trinidad and Tobago, covering a total area of 142,886 acres. Of these, 3,914 were located in Trinidad, and 1,290 in Tobago. These farms showed a very wide frequency distribution by size, with the greatest concentration

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(6) West Indian Census of Agriculture, 1946.

by numbers being in the class of holdings 5 and under 10 acres in size. The distribution was bi-modal, with a lesser concentration occurring in the class 20 and under 50 acres.

TABLE XVI - CACAO FARMS, BY SIZE, 1946

Size in acres	1 -	2 -	3 -	5 -	10-	15-	20-	50-	100-	Not stated	All Farms (no.)
No. of farms	187	225	531	1,750	881	507	725	170	194	4	5,204

Source : West Indian Census 1946, Part B, Table 63.

Cacao farms were also widely dispersed throughout Trinidad, with, however, a marked concentration in the county of St. Andrew. Each county showed a similar distribution of holdings by size to the above, except in the relatively insignificant case of Mayaro. (Appendix III).

County :	St. George	Caroni	Victoria	St. Patrick	St. David	St. Andrew	Nariva	Mayaro	Tobago	All
No. of farms	607	570	305	690	316	1,172	231	23	1,290	5,204

Source : West Indian Census 1946, Part B, Table 61.

Hence the cacao industry in Trinidad is neither an estate nor a peasant industry but shows a full complement of gradations between the extremes of 1-acre holdings and estates of over 300 acres, contrary to the case in West Africa, where it is exclusively a peasant undertaking. The distinction between plantation and peasant cultivation methods is not sharp, the small holding being usually a miniature of the plantation. No broad distinction can be made, either, between small holdings on the basis of soil-type, similar soils occurring on both types of holding. Planting spaces vary greatly from 9'x 9' to 18'x18'.

Seven characteristics of the cacao industry which are fairly typical of both peasant and plantation cultivation have been enumerated

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and described by Dr. Jolly.(7) These are as follows :-

(1) It consists of monocultural farming, other crops such as coffee and food crops being only subsidiary to cacao.

(2) It is characterised by private proprietorship. In Trinidad and Tobago all cacao farms are in addition under freehold tenure, and it has been the rule that even the largest holdings have been farmed by a single individual employing gang labour. The absence of public companies in cacao farming is explained by -

> (a) the peculiar nature of the crop; (b) past uncertainties in the market; and (c) the inapplicability of expensive processing machinery,

all of which render the industry insufficiently predictable to attract publicly subscribed capital.

(3) Cacao is a tree crop of exceedingly long life, and fields will continue to give profitable production up to the age of 50 or 60 years. In Trinidad in the 1930's the average age of field was around 80 years.

(4) Cacao makes very exacting demands in its ecology. Its natural habitat is forest, and it evidently requires virgin forest land to become well established. It will grow well in very few areas of the earth's surface and for sustained healthy growth, soil conditions, shade, protection from winds, pruning, draining and all other factors must all be carefully controlled to suit the particular locality. Unlike the outstanding case of sugar, the use of fertilizers, fungicides and insecticides is relatively little developed in cacao.

(5) An important characteristic of cacao is its fairly regular demand for labour throughout the year, unlike the case in most monoculture systems.

(6) A cacao farm entails a relatively heavy capital investment. The estimated cost of replanting one acre of cacao in Trinidad is $700-$1,000,

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(7) JOLLY, A.L. Cocoa Farm Management, (Series of lectures at Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica, Jan. 1958.)

or about 3 times the cost of replanting sugar cane, and about 6 times the cost of planting most annual crops.(8) Other necessary capital investment, including a minimum investment of $200 per acre in housing, buildings, and other amenities, if cacao is to compete successfully for labour resources, plus the cost of the land, bring the requisite investment up to $1,000-$1,500 an acre, or $6,000 to $10,000 per worker.(9) This rate of investment compares with heavily capitalised urban industries.

(7) The industry is characterised by the long cycles in market prices which are the result of the above factors.

The historical interaction of all these factors has had a direct and important bearing on the present state of the industry, which is best understood by first reviewing the history of the crop in Trinidad and Tobago. This is done in the following chapter.

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(8) ibid p.3.

(9) idem.

CHAPTER II
HISTORY OF THE TRINIDAD CACAO INDUSTRY.(1)

(i) Early Establishment (1700-1870).

There is still some uncertainty as to whether the cacao tree (Theobroma cacao, Linn.) is indigenous to Trinidad. The early Spaniards, the first settlers on the island, are reported to have "discovered" the tree in the island in 1617, but this may reflect simply the fact that prior to that date they had not been concerned with it, for the slow development of agriculture in Trinidad began with tobacco, and cacao did not achieve prominence until the failure of the tobacco industry necessitated a search for a substitute crop.

Tobacco had been grown since 1591, when the first permanent settlement was established, and had blossomed into the basis of a lucrative trade. But the old Spanish colonial system limited trade of Spanish colonies to Spanish vessels, and these vessels seldom called at the island, it being considered poor and unattractive. Moreover, as the years progressed, and these vessels became increasingly subject to harrying by English, French and Dutch marauders, fewer still called at Trinidad, those that did exacting the exorbitant freight charges dictated by the hazard involved.

The tobacco industry had progressed in spite of this because of a profitable contraband trade with English and Dutch ships, but when Spanish authority was invoked, around the beginning of the eighteenth century to stamp out this contraband trade, the industry could no longer compete with the growing competition of the other islands, whose climate was better suited to the crop. Cacao was chosen as a replacement for

/ tobacco ...

(1) After Shephard, C.Y., The Cacao Industryof Trinidad - Some Economic Aspects, Series I, 1932, Government Printing Office, Trinidad.

tobacco for by this time the consumption of chocolate as a beverage had become highly fashionable throughout Europe, where Chocolate Houses had begun to usurp the popularity of the famous Coffee Houses. Cacao fetched a high price (between 10/- and 15/- per pound), and its culture had not yet been introduced into the neighbouring foreign settlements. Plants were imported from Venezuela around 1678 and a small but profitable cacao industry developed.

The industry was short-lived, however, for there came in 1727 a severe "blast" (of uncertain cause or nature) which brought complete devastation to it. Cacao being the only article exported, the commerce of the island was crippled, and there followed a general exodus of almost the entire population towards the South American mainland. In 1733 the total population of the island exclusive of Indians, was 162.(2)

In 1756 revival was initiated with the introduction of the hardier Forastero varieties to replace the Criollos grown until then, but although this rendered the industry free of any major disease for the next hundred years, the rate of revival was slow, underpopulation being the cause. The publishing of the Cedula of 1783 which aimed at attracting settlers by offering among other things, generous grants of land, exemption of taxes for ten years, and livestock and agricultural implements at cost price resulted in the development of a sugar industry which surpassed cacao. By 1789 the total population had risen to 18,918, and by 1793 sugar was the staple product of the island, the new settlers, chiefly from neighbouring French islands, having concentrated on the cultivation of sugar-cane instead of cacao.(3) For almost one hundred years sugar remained the chief crop, but later, in the nineteenth century, when sugar

/ began ...

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(2) Shephard, C.Y., op. cit. Pt. III, p.2.

(3) Ibid. p.3

began to run up against various vicissitudes which caused a marked slowing in the rate of increase in its production, the output of cacao continued to rise, the industry being favoured at the time by exceptionally high prices.

By 1834, however, both cacao planters and sugar planters were sorely in the grip of labour difficulties precipitated by the abolition of the slave trade in 1807 and the progressively increasing restrictions imposed on the procurement and utilization of slave labour.(4) Among the several measures instituted to cope with these difficulties were the task-work system and the apprenticeship system. The former had only very limited success, and the latter was doomed by the emancipation of apprentices in 1838. Efforts to attract immigrants also failed for various reasons.

The solution of the problem came with the East Indian Indenture system which came into being in 1843, and continued until 1917. The system was not immediately successful, however, for the first batch of indentured labourers, arriving in 1845, had been chiefly urban outcasts, and were unaccustomed to agricultural labour. Recruitment ceased during 1849 and 1850, but was recommenced in 1851 after satisfactory arrangements had been made with the Government of India.

Under the terms of the agreement, Government looked after recruitment and placing of labourers, and also laid down the conditions of work, housing, wages, discipline, medical attention, and repatriation under which the scheme would operate.

The indenture system was of direct benefit to the sugar estates, which absorbed the vast majority of the indentured labourers. The cacao

/ estates ...

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(4) Inter-island trade in slaves was abolished in 1824.

estates, on the other hand, were for the most part too small for any individual proprietor to meet the requirements of housing and medical attention for workers as laid down in the immigration ordinance. Their benefit was more indirect at first. As East Indians displaced West Indians on the sugar estates, the latter became available for work on the cacao estates, whose needs, in any case, were less heavy than those of sugar. Whereas the sugar estates provided employment for one labourer for every acre, the cacao estates had need of only one labourer per five acres.

In the meantime, a nucleus of small-scale cacao and food growers was being established. Since the days of slavery, 'squatting' by runaway slaves on Crown lands had been prevalent. The abolishment of the apprenticeship system gave added impetus to the practice, as the apprentices all deserted the estates and struck off in search of a more independent life. The planters sought vainly to compel squatters to return to work on the estates by hindering as much as possible the legitimate acquisition of Crown lands, with the result that squatting increased. In 1867 the problem was finally solved by adoption of the reverse procedure. Squatting was 'eliminated' by making it relatively easy to obtain titles to Crown lands. Accurate surveys were carried out, and occupiers were given easy opportunities to purchase the land they occupied. Peasant cacao cultivation was thus legally established.

(ii) The Era of Prosperity (1870-1920).

In the 1870's the fortunes of the sugar industry again began to react on the cacao industry. Intense competition from the expanding European beet sugar industry had reached the stage, by the 1890's, where centralization, or horizontal integration, held the only hope of survival for West Indian sugar. Many of the small sugar estates privately owned

/ until ...

until then (largely by Frenchmen) passed into the hands of large companies resident in England. Proceeds of these sales were used by the Frenchmen to buy out the cacao-growing Spanish "peons", adjacent properties being acquired where possible, and these being supplemented by the purchase of contiguous Crown lands.

Cacao estates were then established by means of the 'contract' system, whereby the owner felled the forest, but gave the clearing, lining[5] and planting of cacao and permanent shade[6] to be done by a contractor. The owner saw to the digging of main drains, but these were maintained by the contractor, who also had to dig the small drains. The most common area of land given over to the contractor to establish was one 'quarée' (1,000 pickets or $3\frac{1}{2}$ acres), but might be as large as 10 acres. The contract ended when the contracted area came into bearing, final settlement taking the form of cash payments to the contractor according to the number of trees in bearing, the number and age of supplies, and the number of blank spaces. For each blank space the contractor suffered a deduction equal to the value of a bearing tree.

The contract system was beneficial to the owner in that it enabled him to build up an estate at relatively little expense to himself. The estate itself provided the security upon which loans could be raised for paying off the contractor at the end of the contract.

The contractor was afforded an opportunity to provide himself with food from catch-crops interplanted among the young cacao for 'ground-shade'. Surplus produce could be sold, and the contractor augmented his

/ income ...

(5) Spacings were usually 12 feet by 12 feet.

(6) "Anauca" Immortelle (Erythryna micropteryx) on the hill slopes, and "Bocaré" Immortelle (E. glauca) on the flats at 48 feet by 48 feet spacing.

income by working on other estates, so that by the time his contract came to an end he would normally have accumulated sufficient cash to set himself up as a small proprietor.

In 1932 nearly half the total acreage under cacao was owned by small proprietors, many of whom had begun as contractors. The tremendous expansion in the cultivation of cacao, a slow-growing tree crop, is shown in the fact that whereas there were an estimated 25,188 acres under cacao in 1879; by 1910 the area under the crop was estimated to be 290,000 acres.(7)

During the period 1870-1920 cacao experienced an unprecedented prosperity. Prices and yields were high, labour difficulties had been overcome, and wages were low. Loans were easily obtained on the mortgage of cacao estates, such mortgages having come to be regarded as gilt-edged securities. Mortgagees were unwilling to surrender such an attractive investment, and many extensions were embarked upon without the bother of formal renewal. The estates were still too small for any individual to make use of indentured labour, owing to the prohibitive cost of providing the requisite health facilities, but the planters overcame this obstacle by cooperation, groups of owners of adjacent properties paying for these facilities.

Exports rose during this period from an annual average of 8,000,000 pounds over the period 1870 to 1879 to an average of 56,000,000 pounds per year during 1910-1919, representing an increase in the percentage of total exports from 14% to 31%. The price cacao remained high, averaging $14.00 per fanega (110 pounds) and culminating in an average of $23.92 in 1919-20 at the close of World War I.(8)

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(7) Ibid. p.8.

(8) Ibid. p.7.

(iii) Decline of the Industry.

In 1921, the price of plantation cacao fell precipitately to $10.00 per fanega. This drastic and unforeseen fall in price was to prove calamitous, for it threw into vivid relief certain changes which the world cacao industry had undergone, as well as certain unsatisfactory practices which had been allowed to creep unnoticed into the local scene.

The changes in the world picture were the huge increase in the production of the 'ordinary' type cacaos, and the accompanying relative decline in the importance of the 'fine' cacaos. The Gold Coast, the chief exporter of ordinary cacaos, had increased its exports from 13 tons in 1895 to 127,000 tons in 1920. 'Fine' cacaos declined from 40% of total exports during the period 1909-1913 to 27% in 1921.(9)

On the local scene, the fall in price came close on the heels of the termination, in 1917, of the indenture system by the Government of India, owing partly to an awareness on the part of that Government of the bad state of abuse into which the system had fallen, partly to wartime shipping difficulties, and partly to the presence of an already ample labour supply. Again, the high prices prevailing in the immediate past had obscured the inherent instability in the practice of carrying heavy financial encumbrances. These could now be carried only at the expense of cultivation standards. Further, a large number of estates had passed, through inheritance, into joint ownership by third generation owners, some of whom had drifted away from active participation in management, and many of whom had been unconcerned over declining yields as long as high prices assured a comfortable income.

Among the expedients frantically resorted to in order to avert disaster was the abuse of the practice of 'claying'. Until then,

/ claying ...

(9) Shephard, op. cit., Pt. V, p.2.

claying, which was the name given to the custom of applying a little red clay to the outside of the bean during the polishing process in order to render it more attractive, had been highly regarded as the final step in processing prior to export. It was recognised means of distinguishing the superior cacaos of Venezuela and Trinidad, the countries where the custom was practised, from the inferior products of West Africa and Brazil, where it was not. In these trying times, however, the proportion by weight of clay added to the beans rose from under two per cent. to as much as twenty. There were, as well, frequent reports of unfermented cacao being clayed and sold for the 'plantation' or well-fermented article. Loud protests from buyers led to the prohibition by law, in 1922, of any form of claying, but the reputation of Trinidad cacao had been dealt a severe blow by the malpractice. Several important manufacturers in the United Kingdom and the United States of America ceased buying Trinidad cacao, and there were cases of Trinidad cacao receiving prices lower than those of other inferior cacaos.

(iv) Relief Measures.[10]

(a) Initial Measures - Government, alive to the critical plight of the industry, stepped in promptly with measures of assistance designed to tide the planters over what was expected to be only a temporary period of distress. The Mortgages Extension Ordinance of 1921 placed severe restrictions on the rights of mortgagees, rendering them unable to foreclose without the consent of the mortgagor, or unless interest payments became six months overdue. Mortgagees, on the other hand, were assured of the protection of their interests by the complementary Agricultural Relief Ordinance, which made advances of Government funds available to

/ growers ...

(10) Ibid., pp. 8 et seq.

growers for meeting all operating expenses, including the payment of interest on mortgages, as well as other necessary personal expenses.

In keeping with the stmosphere of urgency, all details which threatened to involve undue delay and expense were dispensed with, and no provision was made for special evaluation/or inspection of the properties of applicants. The chief safeguard lay in the assumption by the Relief Committee charged with administering the Ordinances of prior charge on crops and property of applicants. The Committee, in turn, requested only the sworn affidavit of the owner together with such inspection as could be made by existing staff.

Investigations into reported cases of misrepresentation of property or misapplication of loans led to several prosecutions, frequent alterations in advances, and the closing of some accounts. In general, however, the Ordinances served their joint purpose well, finally expiring in 1925 after being twice extended.

But the persistence of the depression was causing serious attention to be given to the matter of establishing crops subsidiary to cacao. Thus, exports of coffee, which had averaged 22,799 pounds per year during the period 1910-1919, showed an annual average of 293,620 pounds during 1929-1930, reaching 853,552 pounds in 1931.(11) Coffee had the advantage over most other crops that it could be interplanted among the cacao trees and along the field traces, thus obviating the need for destroying any cacao trees and calling for no great outlay in land preparation. Destruction of cacao trees was most undesirable, for each tree yielded a profitable return as long as it continued to bear sufficiently heavily for the revenue derived from it to cover maintenance costs.

/ Yields ...

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(11) Idem.

Yields did not decline following the 1921 fall in price, but continued to rise until 1924, both as a result of the coming into bearing of plants put down in previous years, and on account of the nature of the cacao tree, by which it does not attain its maximum yield until it is between 15 and 25 years of age.

Moreover, the tree will continue to bear for several years in the face of acute neglect, so that planters were able to secure an income from their estates even though the low prices forced drastic curtailment of expenses on maintenance. In the worst areas, cacao was cleared and the land given over to other crops, notably citrus and coconuts, the latter almost entirely replacing cacao in the southernmost parts of the island.

Proposals aimed at salvaging the reputation of the Trinidad product which were put forward at this time include the suggestion that Government-certified grades be adopted for export cacao. The proposal was rejected on the grounds that it entailed too much Government interference. Independent grading systems by exporters were encouraged, but this idea had to be abandoned in 1927, after a short trial period, owing to lack of support.

(b) The Agricultural Bank - An important outcome of the situation, and one which was to exert a profound influence on the industry, was the formation, in 1924, of the Agricultural Bank, built upon experience gained in the operation of the Agricultural Relief Ordinance. The Bank was conceived as the answer to the proven need for a sound and stable organ for providing long-term credit to agricultural producers, and came into being with an authorised capital of £250,000, of which £25,000 was originally held in reserve, but was later made available for investment subject to a minimum of £10,000 being available for temporary advances. The Bank's

/ stated ...

stated purpose was to foster and encourage agriculture in the Colony, and to aid in the development, improvement, and maintenance of agricultural lands.

Long-term loans were made to property owners for development, maintenance, and improvement of their land, for the discharge of liabilities already incurred in this regard, and for other prescribed purposes. Security took the form of a first mortgage on the property and the personal covenant of the owner, and the maximum amount extended on a single property was $25,000, repayable in 30 years at 8% per annum by means of equal half-yearly instalments.

Short-term credit was allowed in the form of one-year loans up to the amount of £1,050 per individual property, on condition that this amount did not exceed two-thirds of the "estimated annual value" of the crop to be reaped from the lands in question. These loans were made for the same purposes as above, but where used for the subsistence of the borrower or for the repayment of previous loans or mortgages or interest on these the written authority of the Board had to be obtained. Extensions for periods up to a further two years were available if required.

The influence of the Agricultural Bank on the cacao industry was of undeniable importance. Whereas the system of private mortgages had allowed a wide and rapid expansion of the industry such as would have been impossible under the more stringent regulations imposed by the Bank, yet it had the proven drawback of rendering the vast majority of planters highly vulnerable to unforeseen adversity. The system used by the Bank, on the other hand, ensured that estates would be operated more efficiently and would possess greater stability, albeit they would be considerably fewer in number.

/ From ...

From its inception the Bank had been attended by inadequacies of a troubling nature. The first of these had been concerned with the problem of valuation. Commercial methods of valuation in use when the Bank was established depended almost entirely upon the skill of expert valuers, since few of the estates kept records possessing any degree of reliability. Although the opinions of the expert valuers were remarkably alike, the methods used were too roughshod to be of use to the Bank; Moreover they paid too little attention to varying costs of production. The Bank therefore evolved its own complicated system which was based upon consideration of the trend of prices, and upon estimates of yield and expenditure per estate. Prices and estimates of yield were easily obtained, and estimates of expenditure were arrived at by consulting a system of tables drawn up by the Bank and showing the "reasonable expenditure" per acre to be expected on estates of different yields and sizes.

The estimated profit of the estate, as computed in this manner, was then capitalized at 8% to give a preliminary estimate of the value of the property. With the making of final additions and deductions according to the value of such things as undeveloped land, other cultivation, young trees, or expenditure needed to restore lands and buildings, a final estimate of the value of the property was arrived at for the Bank's guidance in the granting of loans. As an added safeguard, individual loans were limited to 50% of the estimated value of the property.

Another drawback was the inadequacy of authorised capital, and the associated factor that as late as 1932 no action had been taken towards raising a loan to meet this capital, as had been the original intention. The Bank was still financed out of surplus Government funds on which it paid interest at the rate of 5% per annum. With an original capital of $250,000 and a maximum loan of $25,000 per property, the Bank

/ could ...

could cater, at most, to only ten of the larger properties at the maximum loan rate. Modern developments of the Bank's operations are treated in a later chapter.

(v) Final Demise of the Industry.

The mild recovery of 1924-1929 temporarily revived the hopes of the cacao planters, prices rising to a peak of $22.88 per bag in 1927. But this revival was short-lived, and in June 1929 the price of plantation cacao in Port-of-Spain was down to $9.00 per bag.

Table XVII gives an indication of the state of the industry between the years 1927-1932.

TABLE XVII - CACAO PRICES AND PRODUCTION COSTS ON 216 SELECTED ESTATES, 1927 - 1932

Year	Cost of Production (per bag of 165 lbs) "Best" Estates*	"Worst" Estates+	All Estates	Average Price per Bag
1927-1928	-	-		$21.75
1928-1929	-	-	$12.91	17.33
1929-1930	$8.49	$24.89	13.17	16.14
1930-1931	9.03	19.06	-	11.40
1931-1932			-	11.03

* Estates having lowest production costs.
\+ Estates having highest production costs.

Source : Shephard op. cit. Series I, Part V, p.19.

These 216 estates represented only those on which simple and reasonably accurate records were kept, and on all but the best of these, which numbered one-quarter of the sample, costs of production were well above ruling prices. Survival seemed possible, therefore, for only a very small segment of the industry as it was. But on top of this descended the scourge of disease.

/ Witches' ...

Witches' broom (Witchbroom) disease, caused by the fungus Marasmius perniciosus, had been observed in Surinam in 1895, and had spread into Colombia and Ecuador before 1920. It was first discovered in Trinidad in 1928, and thereafter spread rapidly. By 1932, every cacao-growing district in the island showed signs of infection. It is apparent that the curtailed standards of cultivation made necessary by the World Depression were largely responsible for the rapid spread of the disease, for with good management Witches' Broom is relatively easy to control, if not to eradicate. All that is necessary is proper attention to drainage, combined with the periodic removal of brooms and diseased pods and cushions. It was estimated in 1932(12) that adequate control could have been secured at the time at a cost of only $5.00 per acre. But even so minor an additional expense was well beyond the reach of the vast majority of estates, and as a result the industry was virtually abandoned. By 1931, three years after Witches' Broom was first reported, 30,400 acres of cacao had been abandoned to forest, reducing the productive acreage from 250,000 in 1920 to 209,000. In 1939 the area under cacao was estimated at 185,000 acres; by 1945 it had dwindled to 160,000, with only about 80,000 acres regarded as productive.(13)

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(12) by Stahel, G., see Shephard, op. cit., Series I, Pt. V, p.20.

(13) Ibid., passim, and Department of Agriculture, Annual Reports, 1931-1945.

TABLE XVIII - CACAO PRICES, EXPORTS, AND EXPORT VALUES (5-YEAR AVERAGES)

Period	Price $/fanega	Exports lbs/annum	Export Values $/annum
1915-1919	15.64	59,460,049	8,941,088
1920-1924	12.75	62,544,079	7,906,968
1925-1929	13.36	54,275,249	6,004,909
1930-1934	7.54	46,189,636	3,309,274
1935-1939	7.87	31,634,822	2,447,994
1940-1944	11.57	14,477,172	1,525,856
1945-1948	31.56	11,342,270	3,455,056

Source : Findlay, E.W., Progress of Cacao Rehabilitation in Trinidad, D.T.A. Report, I.C.T.A., 1951, p.10.

(vi) Rehabilitation.

The years 1930-1945 record a steady concentration of effort in the direction of relief for the industry, control of Witches' Broom, and research into all aspects of the crop. The outstanding event of this period was the setting up in 1930 of a Cacao Research Scheme at the Imperial College of Tropical Agriculture. The work of this Scheme was to lead to the eventual salvaging of the industry.

Relief measures aimed directly towards cacao began with the Cocoa Industry Relief Ordinance of 1930, and were subsequently improved upon until they culminated in the present Cocoa Subsidy Scheme administered by the Cocoa Board of Trinidad and Tobago. Early efforts to contain and control Witches' Broom staff within the Department of Agriculture whose duties were to seek out and report cases of infection, and to supervise the effecting of control measures stipulated under the Plant Protection Ordinance. Ultimately these activities were absorbed into, and coordinated with, the programme of the Cocoa Board, as were the research activities begun by the Department of Agriculture.

/ In ...

In 1945, the first batch of 86,984 clonal cacao plants produced by the Board was distributed to growers. Clonal cacao was the outcome of some ten years of testing and comparison of the progeny of trees selected for their high-yielding capacities or resistance to Witches' Broom. One hundred trees had originally been selected and planted out in blocks forming the original clones. They were numbered I.C.S. (Imperial College Selection) 1 to 100, and all clonal cacao since distributed by the Board has been the progeny of these trees or other selections subsequently added. Propagation has been entirely vegetative, owing to the heterogeneity of the cacao tree and the consequent impossibility of obtaining true-breeding specimens.

In clonal cacao lay the important answer to planned resuscitation of the industry, in that for the first time planting material of known and tested quality was available to growers. The importance of this innovation cannot be overstressed.

Starting almost concurrently with the emergence of clonal cacao, the industry also received a substantial fillip by way of a startling increase in world demand. The shipping shortages and disruptions in marketing occasioned by World War II had seriously impaired the development of the industry, but the tremendous expansion in world consumption of all commodities was vividly reflected in a greatly increased consumption of cacao products. Part of the cause of this increase can be traced to the popularity gained from its inclusion in Army war-time rations, but the chief factor was the enlarged consumption which resulted from war-time increases in per capita incomes and spending.

In 1953 the price of cacao in the New York market stood at 37.1¢ per pound, as against the pre-war (1939) price of 4.8¢ per pound, whilst the London quotation had increased over the same period from 24/- per cwt.

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to 287/- per cwt.[14] This increase was largely a result of the halting in the expansion of West African production caused by the spread of Swollen Shoot disease, which meant a drastic curtailment of the world supply of cacao.

The response to this state of affairs in Trinidad was a general purchasing of derelict estates and an attempt to salvage these. Planters were at first still reluctant, however, to embark on general replanting because of the heavy expenditure this involved, and because many of them harboured misgivings concerning the future of the crop in the light of its proven vulnerability to catastrophe. However, by 1953 the consistently high world prices, lending strength to a widespread compaign of propaganda embarked upon by the Board, had succeeded in dispelling these feelings of mistrust, and the chronic despair of the cacao planter had been replaced by a profound optimism reminiscent of that prevailing during the "golden era" of 1900-1920.

This optimism prevails today, and its ultimate basis is the state of the world market for cacao. In Chapter III, the basic operative factors in this market are considered.

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(14) Gill and Duffus Ltd., Cocoa Statistics, Sept. 1957, Table 10, p.23.

CHAPTER III

THE WORLD CACAO MARKET

INTRODUCTION.

The demand for cacao is a derived demand, stemming from the demand for those finished products in the preparation of which the raw bean finds use. These are in the main chocolate and confectionery products, but include as well a wide variety of other products belonging to seemingly unrelated fields. Cosmetics are an instance of this latter class. Because of the complexity of the demand for cacao, it is not possible to subject it to the formal statistical analysis used in the case of other commodities. Also, basic statistical data concerning the crop have been notoriously scarce, and much of that which is obtainable or imputable has been of doubtful reliability.

The lack of basic statistical data renders analysis of the supply mechanism, too, exceedingly difficult. The pattern of production of cacao is the result of complex, imperfectly understood interrelationships existing between a number of technical peculiarities of the crop, some of which have been touched upon in Chapter I above, with variations in weather exerting a profound influence.

Instability is the most prominent feature of the cacao market; supplies of raw cacao may vary by as much as 20% from one year to another, whilst prices fluctuate markedly from year to year, month to month, day to day, and even hour to hour. The large fluctuations in price correspond to some extent with fluctuations in supply, as shown by Table XIX. However, a multitude of imponderables enter to distort the magnitude of these fluctuations, as well as the degree of correlation existing between them in any given period.

TABLE XIX - NEW YORK PRICES AND WORLD EXPORTS, 1948-1954

Year	New York Average Market Price (cents per pound)	World Exports ('000 metric tons)	Percentage above or below 1948-5 Average Price	Exports
1948	39.8	591	+ 18	- 13
1949	21.5	719	- 44	+ 6
1950	32.2	735	- 4	+ 8
1951	35.6	677	+ 6	-0.3
1952	35.4	623	+ 5	- 8
1953	37.1	731	+ 10	+ 8
1954	57.8	693	+ 72	+ 2

Source : O.E.E.C., Cocoa, Paris, 1956, p.138, Table 28.

The positive correlation in 1953 and 1954 is an unusual development and is attributed to market dislocations caused, among other factors, by grossly inaccurate crop and demand forecasts, aggravated by short stocks.

FACTORS AFFECTING SUPPLY.

Insofar as it is valid or fruitful to condense the essentials of the supply mechanism into a single general statement, it might be said that the main technical factors governing the pattern of supply are that cacao is a slow-growing, extremely long-lived crop having a high establishment cost, that comparatively little is known about its precise cultural requirements, and that the greater part of the world's output is produced on very small farms characterised by private proprietorship.

Thus, because of the lack of scientific knowledge regarding the exact environmental conditions needed by the crop, it is not possible to create these conditions, or close approximations of them artificially, so as to secure a measure of insulation from the vagaries of weather. Hence yields are at all times highly unpredictable.

As is the case with monocultural systems in agriculture generally, the fluctuations in prices which tend to arise out of fluctuating output

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are inclined to be drawn-out in cacao, for monoculture implies that production will tend to be maintained, or even increased during periods of low prices. With no income forthcoming from other crops to mitigate the effects of low prices for the main crop, the farmer seeks to compensate for these low prices by increasing his output. The cacao farmer may do this by harvesting inferior pods which would normally be overlooked. The characteristic of private proprietorship adds to this tendency for the temporary depression in prices to be prolonged, since the private proprietor is inclined to bear losses for quite considerable periods. A conflicting effect of low prices is that husbandry tends to be neglected and this may have a depressing effect on yields.

Complications are introduced into this downswing pattern by a multitude of other factors, notably the slow-growing nature of the tree, which contributes greatly to a similar tendency for high prices induced by short crops to move over long swings. Thus, whilst low prices tend to cause neglect in hsubandry, current yields are the result chiefly of practices applied in previous years, and normally show the full effects of such neglect only after a time-lag of some years. The length of this time-lag varies with the area and locality where the crop is grown, and with the standards of cultivation maintained. Price fluctuations occurring during the intervening period may thus have their short term effects on production largely obscured.

Again, high prices have the effect of promoting new planting, but these new plantings do not come into bearing until after a period of 5-7 years.(1) Hence the lagged falling-off in production which would tend to result from neglect during a period of low prices may be largely counteracted by the added yield forthcoming from plants put in during a preceding

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(1) Some clonal types bear heavily after as little as 3 years,

period of high prices. The age of these new plants is also an important factor, for the annual yield of the cacao tree continues to increase for the first 15-20 years of its life.

The state of balance or otherwise existing, therefore, between the yearly rate of decline in yield of old trees and the yearly rate of addition to total production coming from new trees will depend to a high degree on the extent of planting done per year in previous years. The rate of planting, in turn, will have been conditioned by the length of time during which high prices prevailed, and on whether prices at the time of planting showed a rising or falling trend. Thus, at times of rising prices the rate of new planting may have tended to be on the increase, and conversely at times of falling prices.

In consequence, analyses of the supply of cacao must be very tentative and imprecise.

In the short run, the price elasticity of supply is therefore probably small, the chief factor influencing short-term output being weather conditions. Short-term instability is heightened by the difficulty in forecasting crops both as a result of the dependence on weather and also because so much of the world's output is produced on small farms.(2) Although these short-term fluctuations are not peculiar to cacao, the technical factors mentioned above have also contributed in combination to the unique long term price pattern shown by the cacao industry and discussed in Chapter II above, whereby prices have moved in cycles lasting approximately 50 years on the upswing (1870 to 1920), and almost 30 on the downswing (1920 to 1948). Thus, physical factors are held responsible for the marked sluggishness in post-war expansion of production indicated in

(2) In West Africa, which produces over 60% of the world output, about 95% of the total production is grown on small holdings averaging 1 hectare in size.

Appendix II. These factors are :

(i) Availability of land.

(ii) Senility of fields.

(iii) Disease incidence.

(i) Availability of Land.

The cacao belt extends only some 20° on either side of the equator, and the exacting demands of the crop regarding soil, climate and other conditions further restrict cultivation within this area. Most of the more accessible regions suitable for its growth, chiefly in West Africa where virgin forest land was cheap and plentiful, were relatively quickly absorbed as the industry expanded rapidly during the first quarter of the present century. The slow rate of increase in production since then suggests a positive correlation between production and availability of land.

(ii) Senility of Fields.

The traditional method of field maintenance in cacao is that of annual "supplying", or replacement of missing trees with new plants. However such replacements invariably yielded less than originals, owing to competition from established surrounding trees as well as impaired site conditions of soil and shade usually resulting from the death of an original tree. Also, when replacements are scattered throughout an estate the young trees stand little chance of receiving the special attention needed under these conditions. Hence the system resolved itself into an 'annual replacement of dead or dying supplies".(3) Moreover adequate replanting was hindered by the high and progressively rising costs involved and the unwillingness of planters to sacrifice the yield from bearing trees for the long period necessary for new trees to become

(3) Shephard, C.Y., op. cit. Series II, p.3.

established.(4) It is believed that declining yields in many of the older-established areas from 1911-12 are largely a reflection of degeneration associated with age.

(iii) Disease Incidence.

It is estimated that diseases cause a loss of at least 75,000 to 100,000 tons per year in the West African crop of 500,000 tons. The chief of these is the Swollen Shoot disease (caused by the "Swollen Shoot virus complex") which has been a major influence on world supply of cacao since its appearance in the area in 1936-37. Between 1936 and 1956 Gold Coast production fell by some 70,000 tons as a result of Swollen Shoot infection.(5) An infected tree will normally die in two years, and the only form of control is by cutting out of such trees. Some 50 million trees have been so cut out in a continuing campaign of control, constituting an estimated loss of 25,000 tons of cacao.(6) The disease is still a serious threat to the industry. In the Western Hemisphere, Witches Broom disease has been the major affliction; Black pod (Phytophthora palmivora) occurs in all areas, and is especially serious in Nigeria.

THE MECHANISM OF DEMAND.

The demand for raw cacao is in effect the combined expression of three separate demands for each of the three main constituents of the bean. The composition of the bean is roughly as follows :

Nib (Cocoa Mass)	Fat (Cocoa Butter)	45%
	Usable non-fat	35%
Waste (shell, impurities)		20%

(4) A further factor is the coincidence in life-spans of the cacao tree and the average human being which results in the youthful planter reaching senility at the same time as his fields do, and therefore likely lacking in the desire to replant when this becomes necessary. Jolly, A.L., Cocoa Farm Management, p.5.

(5) O.E.E.C., Main Products of the Overseas Territories - Cacao, Paris, June, 1956.

(6) Idem, p.63.

In the natural state the cacao nib contains approximately 55% fat and 45% non-fat solids. This proportion is inevitably altered during processing, however, and is encountered in no final product.

Briefly, the first operation in the processing of raw export cacao is either the removal of fat or the addition of it, depending on the product being prepared. In the first case fat is pressed out to leave cocoa cake, which when pulverised becomes cocoa powder. Fat content is normally reduced to a maximum of 25% in the powders, but not below 8%, otherwise the character of the non-fat solids will be undesirably altered. As a rule, the powders containing less than 10% fat are used as flavouring materials; the higher fat-content powders are used in the making of the familiar beverages.

When the process is one of fat-addition, the fat or cocoa butter used is that derived from the first operation. This is the first step in the making of chocolate, but nothing general can be said about the proportions of fat added, these depending upon the particular formulas of the manufacturer.

The two processes of fat-removal and fat-addition may not necessarily be carried on by the same manufacturer, and this means that there arise markets for butter and powder quite distinct from each other and from the market for whole beans, but nevertheless intimately interdependent in their price relationships. Thus, when butter prices are high relative to those of powder it becomes economic to further de-fat the nib below 8% to satisfy the high demand for butter and to virtually throw away the residual "defatted cocoa cake". When the demand for powder is high relative to that for butter, there will tend to be an increased production of low-fat powder. But in the preparation of powder, butter is produced, and increasing supplies of butter impinging on a declining market for this

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commodity will tend to depress its price. An instance of how the latter situation can come about is the case where high bean prices react on butter prices driving these up. Manufacturers respond by tending to rely more on the use of cheaper fat substitutes, which induces a downward shift in the demand curve for butter, or a falling off in demand. The changed relationship between butter and powder prices now makes it profitable to produce more powder than before. But butter produced as a by-product of this process represents an outward shift in the supply curve for butter. Equilibrium now obtains at a lower butter price than before, and the use of substitutes will tend to be driven out.

The system, the mechanics of which have been highly simplified here, is therefore to a certain extent self-correcting, but it operates with a lengthy time-lag which frequently extends over a period of years. The net result of the interplay of these demand patterns is the demand for raw cacaos of different grades or quality according to flavour or fat content, and the part played by synthetic flavouring materials and fat-substitutes is consequently of prime importance to the producers of 'fine' cacaos who depend to a great extent on the superiority in these respects of their product to secure a higher price in some markets. Thus, when high prices prevail for raw cacao, these producers are able to benefit by the preference for their product displayed by manufacturers, but should these prices remain at abnormal levels too long, then the tendency is for their product to be squeezed out by the cheaper bulk cacaos as manufacturers resort to artificial fats and flavours.

Perhaps the most important factor shaping the ultimate demand pattern and accounting for the long time taken for adjustments to take effect is the function of stock-holding. In pre-World War II years much of the flattening out of seasonal fluctuations was caused by

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merchants and dealers who held large stocks and conducted a flourishing futures market. Today, however, the rapid development of the world cacao industry has left many of these merchants and dealers with insufficient capital to operate on their pre-war scales. Hence a substantial share stock-holding must be done by the manufacturer, who must secure supplies for several months in advance. In addition to physical stocks, large quantities are held in the form of forward contracts with producers or those acting on their behalf, who also do a certain amount of stock-holding. Costing of these stocks and pricing of the finished products depend on the accounting system used by the manufacturer. Where the historic method of costing is used, stocks are valued at their purchase price, and the values of subsequent additions are averaged together with the value of existing stocks to provide the basis on which the prices of finished goods are set. Where the replacement method is employed, the values of stocks are continually revised and kept equal to their replacement cost. The first method yields relatively long periods of stable final prices, whereas the latter gives rise to constantly varying prices of cocoa products.

Both methods may be used simultaneously by the same manufacturer for different sections of his sales, but in general it may be said that replacement costing is more commonly used by makers of semi-finished goods which are in need of further processing by their purchasers, whereas the historic method finds favour with manufacturers catering to the retail trade. Thus, fluctuations in the price of raw cacao are effectively smoothed out for the ultimate consumer. The length of time for which prices are held steady varies from country to country, and the lag in time elapsing before consumers are made to feel the effects of changes in prices of the raw material is observed to be somewhat longer in Europe and

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the United Kingdom than in the United States.(7)

The above discussion of the forces of demand and supply as they operate in the cacao market has been of necessity brief and severely restricted in scope, since the aim here is to select for treatment only those broad principles which are sufficiently general in nature to have a direct bearing on Trinidad production. The following treatment of the institutional aspects of the market is similarly curtailed for the same reason.

COMPOSITION OF THE MARKET.

The main centres of concentration in the "world cacao market" are in New York and London, in each of which two cities there are highly-developed actuals and terminal markets. The actuals markets constitute the sum of all transactions, by brokers, dealers, and other agents, involving the actual transfer of raw cacao, whereas the terminal markets are primarily concerned with paper transactions, the volume of transactions on the latter markets often exceeding greatly the total world supply of cacao.

A leading influence on prices is exercised by the New York market, although prices on this market are generally lower than correspond- prices elsewhere, this difference in prices being explained in part by the necessity for traders outside the dollar area to obtain dollars in order to deal in the New York market, and partly by the fact that the quotations may refer to different quality cacaos. Sellers of higher-quality cacaos are prone to concentrate their sales in other markets, so contributing towards higher prices in the latter.

The New York spot price f.o.b. for Accra cacao is the quotation in most common use as a measure of the price of cacao, though it should be

(7) Blitz, J.F., The Demand for Cocoa; 1957 Conf. of the Cocoa, Chocolate and Confectionery Alliance,

mentioned that the bulk of actual transactions are for future delivery, and that the spot quotations are usually considerably higher than future quotations on the terminal markets, which more nearly correspond to the prices at which actual transactions take place. However, the New York spot price gives an acceptable indication of the time-pattern of price movements.

The world cacao market is dominated by large buyers and large sellers. Thus, on the buying side, three United Kingdom firms together take some 70% of the raw cacao used in that country, and one buyer dominates in the New York market. On the selling side, 40%-50% of the world's cacao is sold jointly by two Marketing Companies operated by the Statutory Marketing Boards of Ghana and Nigeria.(8) All evidence indicates, however, that the Marketing Companies do not exploit their degree of monopoly, but aim at orderly marketing by preserving a regular yearly pattern of sales. This is in accordance with the main policy of the Boards on whose behalf they act.

Since their founding in 1939, the West African Marketing Boards, as exclusive buyers and sellers in their respective countries, have sought to provide price stability to producers by withholding payment of part of the proceeds of cacao sales during periods of high prices in order to accumulate a financial reserve against periods of low prices. Cyclical changes in cacao have in fact proved to cover such long periods that the Boards have accumulated very large reserves in this way.(9) In recent years these funds have been redirected out of the customary investment in British Government securities and into general development schemes.

The operations of the Instituto de Cacau of Brazil, the third largest seller in the cacao market, provide a contrast in principle. All

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(8) O.E.E.C. op. cit., p.114.

(9) Reserves of the Nigerian Cocoa Marketing Board were £29.9 million in September 1952.
(F.A.O. Commodity Series Bull. 27, Nov. 1955, p.41)

sales of Brazilian cacao, amounting to about 15%-20% of world production, are made through the Institute. Brazilian exporting firms are allocated sales quotas by the Institute, which further prescribes minimum export prices for Brazilian cacao. These prices are fixed daily. The object of this policy is to benefit the Brazilian balance of payments, and at no time has the Institute ever attempted to stabilize producers' prices.

SUMMARY.

The foregoing has served to emphasize the chronic instability of the cacao market, and has drawn attention to the major difficulties to be encountered in attempting to counteract this instability. It was shown that these difficulties stem from the great uncertainty which enshrouds even the most basic aspects of production. The foregoing has sought to demonstrate, also, that as with most tropical export crops, cacao is still bought and sold under conditions approximating to a free market; sugar being the outstanding exception to this rule.

However, this is not to say that the individual cacao grower is without protection against wider-than-usual fluctuations in the price of his product; it is the function of the West African Marketing Boards to provide such protection to West African producers, and insofar as they are able to do this, it would seem that stability of the world industry is largely benefitted, owing to the importance of their position. In this connection, therefore, the current tendency to regard the Boards' funds as revenue rather than reserves has occasioned frequent comment. Thus, the industry has already demonstrated the depths to which it can sink in times of prolonged stress, and the length of time it takes to recover from such stress. Under this view, substantial reserves would appear essential. Yet there is the viewpoint that such stability as any government can hope to achieve is perhaps more easily effected by means of taxation and subsidy.(10)

(10) e.g. Jolly, A.L., op. cit. p.10.

Moreover, the grower can never completely dismiss the spectre of a shift in consumer tastes away from his product, or that of the eventual perfection of synthetic substitutes for its main constituents. Indeed, the vigour of the cacao industry, and all the bright predictions for its future which are frequently made may be said to rest quite simply on the evident remoteness of these two possibilities.

The following Chapter attempts to amplify this proposition, placing the emphasis on examining the particular place of Trinidad production within the general context of the world market.

CHAPTER IV

TRINIDAD CACAO AND THE WORLD MARKET

INTRODUCTION.

Two broad groupings are recognised among the several varieties of cacao coming upon the world market. These are : (a) the so-called "fine" cacaos; and (b) the so-called "ordinary", "bulk", or "common" cacaos. The ordinary cacaos are botanically classified as Amazonian Forasteros, and are produced in West Africa and Brazil; the fine cacaos are further subdivided into two sub-groups, viz.: (a) the Criollos and "near Criollos" of Ecuador, Venezuela, Java, Samoa, and Ceylon; and (b) the Trinitarios or Higher Forasteros of Trinidad and Grenada.

The Criollo cacaos produce the finest quality bean, as judged by flavour and aroma, whilst the Forasteros produce the lowest. In between these two extremes lie the Trinitarios, a heterogeneous mixture of Criollos and Forasteros. The importance of this genetic factor has lessened considerably in recent years, however, and today the superior quality of the fine cacaos is mainly the result of better standards of preparation than are used for the ordinary types.

The most prominent feature of the cacao industry in the present century has been the emergence of West Africa from a position of relative insignificance as an exporter at the beginning of the century to its present place as supplier of well over 60% of the world's annual output.

In the period 1899-1900 to 1903-1904, the fine types constituted 52.6% of the world total, with Ecuador contributing 18.7%, Trinidad 12.6%, and Venezuela 7.2% (Table XX). Within the next two decades, West

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African production had jumped from 11.9% of the world total to almost 54%. The phenomenal increase continued until West African production hit its pre-war peak during the 5-year period 1934/1935 to 1938/1939, when its output averaged 495,200 metric tons annually, or 66.2% of world production. Wartime dislocations, senility, and the spread of Swollen Shoot disease caused a halt in the increase and a temporary decline, but the unprecedented high levels of post-war prices have helped to bring forth a record production from the area in 1956/57 of 586,700 tons, or 65.0% of the world total. The country in the West African area showing greatest strides in cacao production was the Gold Coast (now Ghana), but the pattern has been similar for all the major producers of ordinary cacaos, as Table XX shows.

For the producers of the fine types, however, the production picture has been less favourable. These countries all experienced an absolute decline in production following a peak attained in the period 1919/20 - 1923/24, the causes of which have been outlined in an earlier chapter. The falling-off has been most marked in the case of Trinidad, whose average annual production rate during 1944/45 - 1948/49 was only 18% of that during the peak period of 1919/20 - 1923/24. This state of affairs, combined with the relative decline caused by increasing West African output served to reduce Trinidad's share of the world market from 12.6% during 1899/1900 - 1903/04 to 1.03% during 1939/40 - 1943/44.

Revival has been slow for reasons already advanced - the impact of African production on prices placed Trinidad cacao, in company with that of the other Latin American countries except Brazil, in what has been described as a perpetual economic crisis, aggravated by disease and other factors. "A vicious circle emerged which could only be broken by a series of years of good prices".(11) Such an event did not materialize

(11) F.A.O. op. cit. p.12.

TABLE XX - OUTPUT OF MAIN PRODUCERS OF FINE AND ORDINARY CACAOS, 1899/1900-1903/04 TO 1956/57, EXPRESSED AS PERCENTAGES OF TOTAL WORLD OUTPUT
(Thousand metric tons)

	FINE CACAOS								ORDINARY CACAOS								World Total
	Trinidad		Ecuador		Venezuela		TOTAL FINE*		Ghana & Togo		Brazil		Nigeria & Cameroons		TOTAL ORDRY		
	Quant	%	Quant	%	Quant	%	Quant	%	Quant	%	Quant	%	Quant	%	Quant	%	Quant
1899/1900-1903/04	16.0	12.6	23.7	18.7	9.1	7.2	66.6	52.6	2.3	1.8	20.0	15.8	0.3	.2	60.1	47.5	126.7
1909/10-1913/14	23.7	9.3	39.9	15.6	16.7	6.6	102.2	40.2	42.0	16.5	33.1	13.0	3.9	1.5	152.8	59.8	255.0
1919/20-1923/24	28.4	6.6	36.2	8.4	20.0	4.6	107.4	24.8	170.0	39.4	57.3	13.3	27.4	6.4	324.0	75.2	431.4
1929/30-1933/34	21.0	3.6	14.6	2.5	15.9	2.8	78.2	13.5	238.9	41.3	91.6	15.9	62.7	10.8	500.0	86.5	578.2
1939/40-1943/44	6.6	1.3	13.6	2.1	14.3	2.2	59.7	9.3	233.5	36.4	126.8	19.8	99.4	15.5	580.9	90.7	640.6
1949/50-1953/54	7.7	1.02	24.4	3.2	16.7	2.2	80.8	10.7	246.4	32.7	124.9	16.5	106.4	14.1	674.3	89.3	755.1
1955/56	9.4	2.6	27.2	3.2	17.0	2.0	93.8	11.0	238.7	28.5	171.0	20.4	116.1	13.9	744.9	89.0	838.7
1956/57	7.7	0.8	28.0	3.0	16.0	0.6	93.5	12.5	272.4	29.5	161.0	17.5	137.2	14.9	808.8	87.5	902.3
1957/58+	8.2	1.1	29.0	3.6	16.0	0.5	98.4	12.0	235.2	29.0	150.0	18.5	107.0	13.2	712.8	88.0	811.2

* Includes West Indies, Central America, Venezuela, Ecuador, Ceylon, and Western Samoa.

\+ Provisional figures.

From : Appendix IV.

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until 1945 and later, when rising per caput incomes in most countries were reflected in greatly increased prices for cacao.

From the way in which world consumption has closely followed production, a fairly close estimation of the trend of world consumption may be gained by consulting the trend in world supply. Also, bearing in mind the apparent ease with which rapidly increasing outputs are absorbed, with end-of-year stocks remaining consistently low, it may further be inferred that world demand lies considerably in excess of world supply. This augers well for the producers of "fine" cacaos, who are thereby assured of a market for their small output, and who benefit by the preferential treatment accorded their product. But the situation permits of more precise analysis than this, as is demonstrated below.

ANALYSIS OF THE DETERMINANTS OF DEMAND.

(A) Income-Consumption Analysis.

Cacao products are semi-luxury goods occurring fairly high on the scale of economic wants. At the same time their high nutritive value is such as to lend to them a degree of importance as constituents of the normal diet. Therefore it is to be expected that this two-fold distinction will be reflected in a somewhat unusual effect of income upon consumption. The correlation between income and consumption of cacao products has been investigated by Viton,(12) using three different approaches, viz. :

(i) a multiple correlation analysis for Sweden, the U.K., and the U.S. - two high-income countries and one with very high income.

(ii) a multi-country analysis for a given year (20 countries in 1953).

(iii) analysis of consumption by income class in national consumer studies.

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(12) Idem, pp. 52-56.

The results of this investigation are summarized briefly in Tables XXI and XXII below, and yield the two basic conclusions that :

(a) income elasticity is positive in every country studied;

(b) it decreases as income increases.

TABLE XXI - INCOME ELASTICITY OF DEMAND FOR CACAO PRODUCTS IN TWENTY COUNTRIES, 1953

Classification	Countries	Income Elasticity
Group 1	U.S., Canada, Sweden, New Zealand, Australia	0.3 - 0.4 (low)
Group 2	Norway, France, Belgium, Denmark	0.4 - 0.6 (medium)
Group 3	Portugal, S.Rhodesia, Greece, Chile, Italy, Austria, Ireland, Netherlands, Germany, U. K., Switzerland	0.6 - 0.7 (high)

Source : F.A.O. Commodity Series Bull. No. 27, 'Cacao'.

/ Table ...

TABLE XXII - PER CAPUT NATIONAL INCOME AND CONSUMPTION OF CACAO PRODUCTS IN 12 SELECTED COUNTRIES, 1953

GROUP	Country	Per caput National Income	Per caput Consumption of Cacao	Retail Prices of Cacao Powder	Per caput Amount Spent on Cacao	Per caput Income in Terms of Cacao Price
		U.S. $	Kg	U.S.$/Kg	U.S.$	U.S.$
1	U. S.	1,940	1.69	1.50	2.53	1,293
	Canada	1,310	1.48	1.79	2.65	732
	Sweden	1,000	1.09	1.48	1.61	676
	New Zealand	980	1.17	1.08	1.26	907
	Australia	940	1.29	0.88	1.14	1,068
2	Norway	700	1.12	1.33	1.49	526
	France	690	1.02	1.74	1.77	397
3	U. K.	810	3.01	1.08	3.25	750
	W. Germany	510	1.57	1.96	3.08	255
	Netherlands	490	1.95	1.18	2.30	415
	Ireland	380	1.30	1.03	1.34	369
	Austria	340	0.86	1.53	1.32	222

Source : Ibid.

Points of importance stressed by Dr. Viton as arising out of the investigation include the fact that expenditure on cacao products in the U.S. and Canada was about the same as in the Netherlands and Germany, although per caput real income was about 200% higher in the former countries than in the latter. Similarly, Australia and New Zealand, with real per caput incomes about one-third higher than Norway, France, and Sweden, spent 10%-15% less than these countries on cacao products, and approximately the same amount as Ireland and Austria, whose per caput incomes were less than half their own. Also significant was the observation that retail prices are high in the high-consuming, low income-elasticity countries compared with those prevailing in the other two groups. The high-income Group I countries have the lowest income-elasticities (Table XXI), but not the highest per caput consumption

/ as ...

as might be expected to go with this (Table XXI). Climate may not be held to account for this, since the countries have all types of climatic conditions. However it is remarked[13] that the high-income countries suffered no special wartime food hardships, and no shortage of chocolate products. Hence consumers developed no marked craving for these commodities such as had arisen in the less fortunate countries. Further, all the Group I countries, with the exception of Sweden, have been until recently "frontier countries of considerable social fluidity", in which different tastes and habits have evolved, as attested to by the relatively high consumption of beer and non-alcoholic beverages in the U.S. Again, marketing policies of manufacturers, and their reactions to market changes may have had much to do with the general form of these results, which would otherwise seem to indicate that cacao products might be "inferior goods" whose consumption tends to fall off as income is increased above a certain high level.

Thus, in the U.S., since 1954, the size of the chocolate bar has been drastically reduced, the proportion of nuts and other fillings has been increased tenfold, and quality, taste and appearance of the product have been decidedly inferior to the standards of former years, all manifestations of an unusually pronounced price effect. In addition, sales promotion has been lax.

These results lead Viton to suggest that there may exist a "cacao line" occurring in the neighbourhood of $100 per year per caput income at 1953 prices, below which consumption of cacao is almost zero. In some Latin American countries, and in Africa, inequalities in income distribution are so wide that the "cacao line" must be placed nearer to $150 if the bulk of the population is to receive the $100 yearly income which enables them to spend a portion of their disposable incomes on cacao products. Income effects are

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(13) Ibid p.58-59.

greatest at income levels immediately above this "cacao line".

Viton further speculates as to whether cacao consumption will reach a saturation point and become stabilized at a certain level of income as is the case with sugar, and states that there has so far been no evidence to support this likelihood. Having regard, then, to the large number of countries whose average levels of income lie below the "cacao line", and to the increases in income which most of these countries are experiencing, and bearing in mind the existence of no foreseeable saturation point in the demand for cacao products, and also, noting the relatively high income elasticity of demand exhibited by all save the most prosperous countries of the world, the prospects for cacao appear to be favourable indeed on the basis of income analysis.

Dr. Viton's conclusions, summarized below, now seem perhaps too conservative. They were :

(i) Assuming constant prices, and an annual rise in income of 3.5% (2% per caput) in high-income countries, a further 30,000-35,000 tons might be added to their yearly consumption of 300,000 tons of beans by 1960.

(ii) Assuming constant prices and a rise in total income of 15%-20% by 1960, the medium-income countries might increase their annual consumption of 65,000-70,000 tons by 6,000-7,000 tons.

(iii) Assuming constant prices and a 10%-15% rise in per caput real income, by 1960 the low-income countries might be expected to increase their annual consumption of 140,000 tons of beans by 20,000-25,000 tons.

(iv) The total increase in consumption demand resulting from income and population growth by 1960 (including the very-high-income countries not included in (i) above) was estimated at 85,000 tons at 1953/54 prices.

(B) Price-consumption Analysis.

Time-series correlation studies (14) of the price-elasticity of of demand for cacao yielded the following results :

/ Group ...

(14) Ibid pp.61-66.

Group	Price-elasticity
High-income countries	- 0.5 to - 0.6
Medium- and Low-income countries	- 0.6 to - 0.8

Comparison of these figures with income-elasticity figures would seem to indicate that in the high-income countries the price effect is a more weighty factor than the income effect. This is especially so in the U.S.

Between 1920 and 1938, the price and income effects worked together to bring about an 80% increase in U.K. consumption when real income rose by 25%, and the real price of chocolate declined from 105d to 52d per Kg in 1936-38. In the U.S., between 1926 and 1935-37, a 25% decline in real price was sufficient to cause a 25% increase in consumption despite a slight falling-off in real income.

The post-war price rise of 300% in the medium- and low-income countries has put an effective brake on consumption increases fostered by increases in real income, however. In 10 Western European countries, consumption in 1948-53 was 16.9% above 1934-38, although real prices had risen by an average of 45%, and per caput income by only 17.7%. This was no doubt due to the exceptionally high income effect which prevailed in these countries at this time. As the accumulated post-war demand for cacao products has been appeased, the price effect has begun to re-assert itself, and, commencing in 1954, consumption began to decline in response.

But by the time this price-effect began to emerge, manufacturers had already started to lower their retail prices in response to the 1954 decline in wholesale prices, and a conservative estimate of the consequences of the lowering of retail prices was an increase by 1960 of 65,000 tons in the quantity demanded, assuming (realistically enough) a reduction in the

/ current ...

current money price from 37 U.S.¢ to 28 U.S.¢ per pound, a figure which would still yield a remunerative return, assuming no export or other duties.(15)

Special attention is merited to the case of the U.S., whose income elasticity and price elasticity are both very low - hence the judgment that consumption in this country has been influenced not so much by price and income as by other factors mentioned above. In 1900-02 the U.S. alone accounted for 21% of the world net imports of cacao and cacao products. By 1950-52 its imports had mounted to 40% of the world total. Since then they have declined, standing at 35.6% in 1954. The quantity of cacao processed by U.S. manufacturers in 1954 was 17.4% below the figure for the previous year, whilst retail prices of 6 oz. chocolate packages were up 13.3% over 1953 quotations.(16) Manufacturers resorted to the extensive use of cacao substitutes, at the expense of quality, and with the result of prejudicing consumers against cacao.

By early 1957 the cycle hit the bottom of its trough, and raw cacao prices had fallen so low as to cause concern to producers (Table XXIII). By September 1957, prices had climbed once more to high levels. The depth of the down swing may be regarded as a direct consequence of the abnormally high prices of 1954, and as evidence of the pressing need for greater and more efficient stock-holding. It also demonstrates to producers the danger inherent in "too high" prices, and the associated necessity of constantly expanding production to keep pace with expanding demand.

Yet, on the basis of price-consumption and income-consumption analysis, it appears likely that demand will show a steady and continuing increase in the future. Given this, and a price level kept stable around 25¢ U.S. per pound, it was estimated in 1955 that the world might absorb

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(15) Ibid, p.62.

(16) Ibid, p.51, Table 41.

950,000 tons yearly by 1960.(17) This estimate still seems to hold good, and the outlook of the industry remains decidedly bright. Enhancing these prospects is the considerable consumption potential of Russia, in particular,(18) and of the so-called under-developed countries.

TABLE XXIII - PRODUCTION, ABSORPTION, AND PRICES OF RAW CACAO, 1953 - 1957

Year	Production ('000 long tons)	Absorption ('000 long tons)	Average Spot Price Accra London shillings per cwt	Average Spot Price Accra New York cents per lb
1953	787	784	287/8	37.1
1954	770	711	467/6	57.8
1955	785	708	302/-	37.4
1956	838	801	221/7	27.3
1957	891+	859+	-	-
March	-	-	182/6	22.5
Sept	-	-	272/10*+	41.6*

+ Provisional.
* From F.A.O. Monthly Bull. of Agr. Econ. and Stat., VII, 1, January 1958.
Source : Gill and Duffus Ltd., Cocoa Statistics, September 1957.

(17) Ibid, p.66.

(18) Russia's current annual consumption of 25,000 tons is approximately one-eighth that of the United States.

CHAPTER V

THE REHABILITATION PROGRAMME

INTRODUCTION.

The course of events which led to the formation of the Cocoa Subsidy Scheme has been traced in Chapter II above. It was there remarked that measures designed specifically for assisting the cacao industry began in 1930 with the passing of the Cocoa Industry Relief Ordinance in that year. The central aim of these measures was still the alleviation of the ill-effects of the low prices still thought to be temporary, and this Ordinance authorized advances to growers for the purpose of meeting their operating costs. In 1931, an amendment was incorporated which restricted these costs to those of maintenance and improvement only, withholding from borrowers the right to use loans for the payment of interest and other rates and taxes, or for the payment of past advances.

But by 1934 it had begun to be appreciated that existing measures were inadequate to stop the decline in cultivation which was continuing apace. The Agricultural Bank, which had functioned with exemplary soundness until 1930, had however proved by this time to be incapable of dealing with the constant stream of adversity. From an average yearly figure of $12.75 during 1920-24, the price of cacao had fallen, after a brief intervening revival, to $6.88 per fanega in 1931. Witches Broom disease was spreading rapidly, to add to the distress. Interest payments on mortgages held by the Bank fell off in consequence. Many short-term borrowers made no attempt to liquidate their loans from the sale of their crops, and could not repay the full amounts at the required date. Lowering of the rate of interest on all loans to 6% had no effect.

By 1933 the Bank could not meet the interest due on its capital. Loans ceased, and of the 339 properties under mortgage to the Bank in 1938,

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26 were being managed by the Bank as mortgagee in possession, and 6 had been taken over by it. Whereas the amount overdue in interest payments to the Bank was only £19:10:6d in 1930, by 1937 arrears of interest had reached £52,283.(1) Moreover, the value of all the properties mortgaged to the Bank had depreciated greatly.

	Number of Borrowers	Amount Advanced	Amount Repaid	Amount Outstanding
At end of 1931	360	$1,220,414.62	$148,350.79	$1,072,063.85
At end of 1937	388	$1,279,116.00	$247,815.00	$1,031,301.00

Source : Annual Statistical Digest, 1955.

THE CACAO SUBSIDY SCHEME, 1935-1940.

This, in broad outline, was the ground-work which culminated in the founding, in 1935, of the Cacao Subsidy Scheme. The Scheme provided for the payment of free grants to growers, based on one cent per pound of cacao produced, and was meant to last for four years. The payments, which were to be made annually, were estimated to amount to $500,000 per year. Broadly, the objects of the Scheme were :

> "(1) to assist in the rehabilitation of areas under cacao that appear(ed) to possess sound potentialities, and,
>
> (2) to help in the establishment of alternative crops, either interplanted in cacao or as pure cultivations in substitution for existing cocoa." (2)

Thus, it was recognised that what the industry was in need of was an outright subsidy rather than merely extension of existing loan facilities, if resuscitation was to be achieved. The Scheme was to be financed by special taxation, and grants were to be limited to those estates which had approved programmes. But it was soon realised that it was falling short of ...

(1) Department of Agriculture, General Survey of Agriculture, 1938, p.19.

(2) Report of the Director of Agriculture, Trinidad and Tobago, for 1935.

of its target. Only about one-fifth of the grants allowed between 1936 and 1939 was utilized for cacao rehabilitation, the 275,000 odd plants from high-quality seedlings issued by the Department of Agriculture during the period being used chiefly for supplying old fields. The decline in production therefore continued, and this led to the appointment of a special committee in 1938 to enquire into the needs of the industry.

THE COCOA SUBSIDY SCHEME, 1940-1956.

The recommendations of this Committee provided the foundation of the present-day Scheme, and called for a general expansion in its activities. They were :

"(1) That the existing Subsidy Scheme ... be modified by the substitution of a long range policy involving :-
(a) A replanting programme involving five years planting and four years maintenance to give 7,500 acres replanted in nine years with budded or otherwise vegetatively propagated progeny of self-compatible parents.
(b) Replacement of poor bearers with selected seedlings (pending availability of cuttings or budded plants) in large measure from the same type parents as in (a) on an area ranging from 3 per cent. of the cocoa acreage in 1940 to 1 per cent. in 1949 ...

(2) That these plantings be confined to the more suitable types of soil on which cocoa(was) planted and to areas where the incidence of witchbroom was not excessive.

(3) That mixed farming be encouraged among small proprietors whose lands are considered unsuitable for cocoa and that assistance be given for this purpose except to non-resident proprietors of under 20 acres of cocoa; and that funds be provided for suitable crops on the larger estates.

(4) That assistance be provided by Government over a period of ten years at a total cost for the period of $4,000,000, including free grants and administration charges.

(5) That each proprietor be given a free grant of $100 per acre for half an acre plus 5 per cent of his remaining cocoa acreage for the purpose of replanting cocoa with budded trees and/or cuttings and $45 per acre for 18.4 per cent of his acreage for partial replanting with selected material. On this basis the Scheme (covered) the complete replanting of 7,500 acres and the partial replanting of 18,400 acres, which together (would) cost $1,500,000 over the ten years of the Scheme. The above grants (would) include a contribution towards planting expenses and subsequent maintenance for four years together with manure and fertilizers, extending in all over a period of ten years ...

/ (6)

"(6) That the replanting should be spread over a period of five years and maintenance of each year's replanting ... be continued for four years.

(7) That (one million) budded or otherwise vegetatively propagated plants of self-compatible trees be ... supplied during the first five years according to a specified table (giving) preferential treatment to the small resident owner.

(8) Selected seedlings for the partial replanting ... be produced partly (by the Department) and partly by planters themselves from specially selected trees on their estates.

(9) That assistance for land unsuited for continuation in cocoa ... should be calculated on the basis of approximately $\frac{3}{4}$ the amount suggested for estates suitable for regeneration. This subsidy must be devoted to the planting of substitute crops in the case of large proprietors, but small proprietors should be encouraged to establish mixed farming.

(10) That a Fund of $100,000 per annum be placed at the disposal of the Board for such special witchbroom control as the Board (might) decide. It (was) ... desirable that the Board should have legal authority to order the destruction of witchbroom infected trees in certain circumstances."(3)

Conditions governing the making of these grants were also furnished by the Committee, and were, in part, as follows :(4)

1. The planting and care of the supplied material must follow and strictly adhere to, a definite programme, approved by the Board.

2. All payments of grants to be made against paysheets.

3. Owners receiving financial assistance were to furnish to the Board at the commencement of each year an estimate of their total estate expenditure for the year, and were to submit monthly statements showing the actual expenditure.

4. All work on the estate to be subject to the approval of the inspecting staff.

5. Expenditure to be concentrated on fields on the best soils, and minimized on fields with poor soils.

6. Adequate attention be paid to the improvement of soil fertility, special attention to erosion control.

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(3) Government of Trinidad and Tobago, Council Paper No. 61 of 1940, pp.18-19.

(4) Idem. p.19 et seq.

7. Proper accounts of expenditure and records of yields to be kept on forms approved by the Board except in the case of peasant holdings under 20 acres.

8. The Scheme was open to the whole industry.

9. Applications were to be submitted within a fixed period each year and no applications would be considered after that time.

Assistance for rehabilitation was to be limited to a maximum of 100,000 acres, the area estimated to be suitable for the purpose. Soil surveys where available, chemical analyses, possibly yield per acre, and other conditions would be taken into consideration.

The estimated expenses of the Scheme over the ten years were to be distributed as follows :-

	$
Special regeneration of cocoa on suitable land	750,000
Partial " " " " " "	750,000
Substitution by alternative crops and assistance for the rearing of livestock	1,000,000
Control of Witches' Broom	1,000,000
Administration	500,000
	$4,000,000

so as to come within the limits of the $400,000 realised annually in special taxation for Cocoa subsidy and comprising the Cocoa Subsidy Fund.

The Partial Regeneration programme arose out of the fact that a large proportion (30%-40%) of the trees in most fields accounted for a very small percentage (0-10%) of the total yield. (Table XXIV)

/ TABLE ...

TABLE XXIV - PICKET (Tree Site) YIELDS IN 28 CACAO FIELDS

	Range %	Average %
Blank pickets	34.5-1.2	11.4
Non-bearing supplies	27.0-0.0	5.9
Non-bearing old trees	30.3-4.2	14.6
Pickets giving no yield	57.2-13.1	31.9
Pickets giving less than 1 lb. per tree	36.6-13.9	26.7
Pickets giving more than 1 lb. per tree	68.5-16.9	41.4
		100.0

Source : Council Paper No. 61.

The number of trees per acre vary widely according to planting distances. However the above figures are roughly comparable with yield per acre figures below for 75% of the estimated 1938 acreage of 185,000 acres.

Number of Properties	Acreage	% of Surveyed Acreage	Average Yield per acre (bags of 165 lb)
3,338	45,213	33	under 1
3,191	68,391	50	1 - 2
1,507	24,694	17	over 2
	138,298	100	1 - 2

Source : Idem.

The basic form of the Scheme remains unaltered up to the present time, though its scope has been broadened, grants increased, and several other variations incorporated upon occasion. Thus, between 1940 and 1956,(4)

(a) It was decided to limit planting material to rooted cuttings, these proving easier to propagate than budded material.

(b) Approved planting methods were defined; the old "contractor" system which had allowed the rapid establishment of the industry was disallowed from 1949 as being inconsistent with the aim of assisting the small grower to develop his property along the lines

/ of ...

(4) Annual Reports of the Cocoa Board of Trinidad and Tobago, 1940-1956.

of a family farm.

(c) Since the Board's funds in 1944 allowed for rehabilitation of 10% of the total acreage at subsidy rates applying in 1944 it was decided to allocate plants to 10% of the area of each estate or a maximum of 50 acres per estate, with the stipulation that no less than $\frac{1}{4}$ acre must be planted at a time.

(d) The Witches' Broom campaign was abandoned owing to the impossibility of covering a large enough area at any one time for control to be effective.

(e) The "replacement" section of the Scheme was extended to include non-resident proprietors with less than 20 acres in cacao. Maximum grants per acre available under this section were :

For replacement with : Oranges - $250; Coffee - $90; Limes - $160; Coconuts - $100; Avocado pears - $200; Swamp Rice - $100; Fodder grasses - $50; for purchase of Livestock (calf, cow, horsekind, or cow and calf - $50 to $250.

(f) A cess of 2¢ per pound of cacao was imposed from 1947 on all cacao exported, funds so derived being used for acceleration and expansion of the Scheme.

(g) Assistance was extended to proprietors bringing new lands (other than sugar lands) under cacao, assistance being free plants and a cash subsidy eventually fixed at 30¢ per plant.

(h) All plants were issued and delivered free of charge; in addition, a cash subsidy (eventually 30¢ per plant) was provided for planters who wished to rehabilitate beyond 10% of their acreage.

(i) Tenants holding not less than 25-year leases on suitable lands were made eligible for assistance.

(j) A manuring subsidy was added to the Scheme's operations, fertilizers being issued free of cost for clonal cacao up to 6 years old and at half-cost thereafter. Seedling cacao in areas being partially

/ replanted

replanted also received fertilizer at half-cost.

(k) The Scheme showed considerable expansion in staff, construction of propagating stations and experimental research undertaken.

THE SCHEME, 1956 - PRESENT.

In 1956 current expenditure of the Scheme exceeded current revenue. Consideration of its long-term finances led to the abolishment of the Alternative Crops and Livestock Subsidy as from 31st December 1956, and the manuring subsidy was limited to clonal plants up to three years old. Otherwise the Scheme remains unchanged. At present, therefore, it operates as follows :

Any proprietor who owns or holds title to lands under cacao or adjudged suitable for cacao may obtain assistance for the replanting of clonal cacao, provided that the Board's planting rules are complied with. Only two planting systems are acceptable, viz.:

(A) Complete Replanting, whereby all standing cacao is felled prior to introducing clonal cacao.

(B) Partial Replanting, under which system 35% or more of the existing trees are to be replaced with clonal plants.

The former method is intended for use on fields having good soils but which are in poor general condition because of inferior trees, old age, and neglect. The basis of the latter has been described above.

Assistance takes the form of (A) Free Plants plus a Cash Subsidy varying as follows :-

(i) For Complete Replanting -

(a) on 10% of cacao acreage - $300 per acre for every acre of clonal cacao planted.

(b) beyond the 10% limit, 30¢ per plant planted.

/ (ii) ...

(ii) For Partial Replanting, planting on new lands, or for approved occupiers of Government lands, 30¢ for every clonal plant planted.

(B) Free fertilizers for all clonal plants up to 3 years old.

The form of payment of subsidy is as set out below :

(i) Complete Replanting (up to 10% of total acreage) -

(a)	Felling Grant	$50.00 per acre
(b)	Planting Grant	$100.00 per acre
(c)	Maintenance Grant	$75.00 per acre (one year after planting)
(d)	" "	$75.00 per acre (two years after planting)
		$300.00 per acre

(ii) Partial Replanting and Complete Replanting after 10% -

(a)	At planting	20¢ per plant
(b)	One year after planting	10¢ " "
		30¢ per plant

Maximum benefits are available only for fields which were in standing cacao on January 1st, 1946.

ACHIEVEMENTS OF THE SCHEME.

The total sum spent on the rehabilitation programme from 1942 to 1956 was $11.7 million. Revenue accruing to the Cocoa Board during the period amounted to $13.9 million. Table XXV shows the broad channels of expenditure.

/ TABLE ...

TABLE XXV - EXPENDITURE ON THE REHABILITATION PROGRAMME, 1942-1956
(in $ '000)

		1942-1955	1956	1942-1956
(a)	Administration	938.4	250.1	1,188.5
(b)	Rehabilitation			
	Plant Production	3,467.6	957.9	4,425.4
	Subsidy Payments	1,668.4	408.1	2,076.5
	Virus Control	212.7	12.9	225.5
	Sub-total	5,348.7	1,378.9	6,727.4
(c)	Experimental Work	421.2	132.1	533.3
(d)	Capital Expenditure	2,693.0	576.0	3,269.0
	TOTAL EXPENDITURE	9,401.3	2,337.1	11,738.2

Sources : Moll, E.R., "Rehabilitation of the Cocoa Industry", Cocoa Board, 1955, and Annual Report of the Cocoa Board, 1956.

Between 1945 and 1956, 5.3 million clonal plants were produced, of which 3.9 million were distributed to growers, the remainder being used mainly for building up nurseries. The Board had received 5,714 applications for assistance in replanting cacao, had approved 4,673 of these, and was committed to assist in the rehabilitation of 69.4 thousand acres. This area represented approximately 50% of the area under standing cacao in 1946.

The area already rehabilitated was 17,410 acres, of which 6,282 acres had been completely replanted, and 11,128 partially replanted.

The smallest properties have, since 1951-52, accounted for the greatest proportion of the total number of applications received. The distribution by size of approved applications was as follows :-

	Number
Properties under 25 acres	3,633
" 25 - 50 acres	440
" over 50 acres	600
	4,673

/ The ...

The total number of applications for replacement of cacao with alternative crops received during the life of this section of the Scheme was 3,287, of which 2,766 had been approved. This represented the replacement of 4.4 million acres of cacao with other crops, and included as well requests for assistance in purchasing livestock.

In 16 years of operation, therefore, the Board has managed to effect the rehabilitation of approximately 66% of the originally proposed 25,900 acres, at a total cost to the Scheme of almost 3 times the original expectation, or $674.00 per acre rehabilitated.

Much of the reason for the delay has been the reluctance of planters to make use of the benefits offered during the early years, and the annual production of plants was constantly in excess of the demand for them. By 1950, however, demand had risen to exceed the capacity of the Board's propagators, and a wide programme of expansion was initiated. Plants are now produced at 4 central propagating stations with a combined annual capacity of approximately 1 million plants, and at 18 Estate propagators built and operated by the Board on estates having an annual demand for at least 10,000 cuttings.(5)

TABLE XXVI

PRODUCTION AND DISTRIBUTION OF CUTTINGS

	Production	Distribution to Planters
1941-50	1,251,961	685,112
1951	360,535	310,336
1952	410,644	300,095
1953	527,185	400,709
1954	643,705	484,094
1955	902,134	654,219
1956	1,226,154	1,040,693
TOTAL	5,295,318	3,875,258

(5) The Board also gives subsidy to plants produced at Independent Propagators at 30¢ per plant.

The cost of the programme has therefore been high, and its progress, until recent years, has been slow. Perhaps the main cause of this slow rate, apart from the hesitancy of the planters, which has long since been overcome, is the poor attention the plants have received in the field after planting. 40% casualties have been obtained in clonal fields chiefly on account of this reason. It is felt that considerable improvement in this respect may be obtained by decentralization of the management function so as to allow one manager to supervise under 300 acres, on the average, as opposed to 3,000, as is often the case.

For this reason too, the Rehabilitation method is described as decidely inferior to the method of Complete Replanting.(6) The former method entails a lower per acre planting cost than the latter, chiefly because yield of the best trees may be retained. But labour costs per plant of maintenance during subsequent years are generally much higher than in the case of complete replanting. Yields per acre of partially replanted fields may be reduced by as much as 30% for at least one year, as opposed to the theoretical 5% to 10%, owing to the cutting out of poor bearers and the pruning of others during the course of rehabilitation.

However, few planters possess the necessary financial resources or the labour supply needed for complete replanting, and a well-planned, well-managed rehabilitation system undoubtedly possesses considerable merit as a cheaper, though more protracted means toward the same end.(7)

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(6) Jolly, A.L., Cacao Farm Management, passim.

(7) See Shephard, C.Y., "Rehabilitation of Cocoa Plantations in Trinidad", in Urquhart, D.H., Cocoa. Longmans, 1955.

CHAPTER VI

C O N C L U S I O N

Revitalization of old fields continues to be the prime need of the cacao industry if its current potentialities are to be fully exploited. Improved standards of management are equally essential in the great majority of cacao farms. A third requirement of the industry relates to the quality of the marketed product, and calls for improved general standards of preparation.

Revitalization and Management.

The rehabilitation programme aims directly at achieving the revitalization aspect, and at fostering improved management. Analysis of the cacao market has pointed up the favourable demand prospects confronting the industry generally, and has indicated that these prospects are likely to continue to be favourable for some years in the future, with consumption showing an appreciable rise in all importing countries as incomes in these countries rise. Indications are that the demand for cacao products in the high-income countries would show a positive response to intensified use of advertising and other merchandising techniques - a field of marketing which has been somewhat under-explored by manufacturers in the past.

These prospects are particularly encouraging from the point of view of the Trinidad industry, whose production constitutes less than 1% of the world's supply, and so places it in a position with regard to the world industry which, were it not for the continued buoyancy of cacao prices, might conceivably be somewhat delicate. Thus, cacao farming is a labour intensive enterprise, and in the Trinidad system of estate cultivation, wages account for the greater part of total production costs. By contrast, the West African peasant grower, as such, was historically inclined to place

/ little ...

little or no value on his own labour, and for this reason might maintain production at lower prices per unit of output than can the Trinidad producer at present. The significance of this factor shows signs of diminishing, however, as the West African peasant becomes increasingly commercially-minded.

With regard to the world supply prospects, it has been shown above that these depend largely upon the amount of planting which has been done. The toll of age, pests, and diseases - particularly Swollen Shoot, the effects of which on Ghana production are chiefly responsible for the present very high prices - threaten to cause a continuing decline in the production of that country, which decline may not be off-set by increases in other countries, so that total production appears likely to fall short of demand for some years at least. Continued high (average) prices seem therefore to be doubly assured, thus justifying the observed optimism of the planter, and working to the benefit of the rehabilitation programme.

Fitting the demand for Trinidad cacao into the framework of income analysis, a rough estimate may be made of the "normal" consumption demand for Trinidad cacao by 1961 on the basis of 1956 exports. If the following assumptions are made :

(1) A 3.5% increase in income per year in the Group I countries;

(2) A 2% increase in income per year in the Group II and Group III countries;

(3) Income elasticities of 0.3 in the Group I, 0.5 in the Group II and 0.6 in the Group III countries;

(4) That the present proportion of Trinidad cacao in the total cacao imports of each customer country is maintained;

there would seem to be a "normal" demand for an additional 10,771 cwt. of output by 1961, or a 5.5% increase over 1956 production, representing an addition to the value of exports of $579,157 at the 1956 average price of

...

$53.77 per cwt. (Appendix VI).

Such significance as this projection may possess relates to the market imperfections relating to Trinidad cacao which are discussed below, whereby Trinidad cacao is a choice product marketed on a quasi-personal basis.

Over the past five years 1953/54-1957/58, average total annual production has been only 0.6% greater than during the previous period 1949/50-1953/54, and less than 30% of the 1919/20-1923/24 peak of 28.4 thousand tons per year. During the period 1923/24-1929/30, yields per acre ranged from 167 lb. on the "worst" estates to 347 lb. on the best. By contrast, the best clonal material gives yields considerably in excess of 1,000 lb. per acre at 7 years of age, and the clone I.C.S. 1 has given up to 1,600 lb. per acre in commercial practice at 12 years of age.(1) As well, current experiments in controlled crossing of clones yield promising results, plot yields at the rate of 1,300-2,400 lbs. per acre having been obtained from 5-year old I.C.S.xSCA. (Scavinia variety) hybrids. Seedlings do not appear likely to usurp cuttings for some time, however, since the latter system allows special varieties to be so chosen as to suit particular conditions in different fields. Recent improvements in propagation techniques, too, have increased propagation efficiency from 68.1% to 76.5%, with a reduction of 5% in handling costs.(2)

On the basis of clonal yields, the production potential of Trinidad and Tobago would appear to be at least 30,000 tons on an estimated acreage suitable for cacao of 60,000. However further research into the environmental factors, chiefly soil and shade, is needed before the maximum potential can be realised. Thus, shade is in some ways alternative to fertilizer application, but the poor root development in many of the cacao soils, which are heavy clays, hinder nutrient uptake and so make it difficult to attain

(1) de Verteuil, L.L., Notes on Clonal Cocoa in Caribbean Commission, Publications Exchange Service, Pub. No. 57, Nov. 4, 1957.
(2) Moll, E.R., Rooting Technique of Cacao Propagation.

the ideal of growing cacao intensively as an orchard crop with high yields per acre as opposed to the old system of semi-forest cultivation of large areas of low-yielding trees.

Other management requirements are, notably, improved attention to field replacement, implying a long-term replanting routine geared to the expected life of the tree, and better exploitation of the regular labour requrement of the crop. This implies the payment of higher wages than are paid at present, for the present daily earnings of the average labourer on a cacao estate of $1.00-$2.00 cannot compare with the $4.00-$5.00 earned by unskilled labour in the oil industry which, as has been shown in Chapter I above, exerts a profound upgrading influence on wages in the rest of the non-agricultural sector of the economy.

The third requirement of the industry, that of improved preparation standards is perhaps best treated in relation to the marketing function.

THE MARKETING SYSTEM.

Until 1942 there had been no attempt at government intervention in the marketing of cacao. The system that prevailed was that producers turned their product over to licensed produce dealers, most of whom were shopkeepers, more often than not in settlement of credit allowed them by the shopkeepers against the proceeds from cacao. These produce dealers then sold the cacao to large, recognised exporters. A few of the larger producers exported their crops independently under a private "mark", whilst a cooperative organization, the Cocoa Planters' Association, exported the produce of over 200 members.

In 1942, the United Kingdom Ministry of Food requested of the Government of Trinidad and Tobago, a guarantee of large supplies of cacao. The local government approached the recognised exporters, who agreed to meet collectively the United Kingdom's requirements. In this way a "Pool" of

/ exporters ...

exporters came into being as a purely voluntary arrangement.

In 1952 the Cocoa Pool was legally established. A Cocoa Exporters Committee was formed which was given wide and discretionary powers to -

(i) regulate the marketing of cacao,

(ii) allocate quotas to exporters,

(iii) fix export prices;

(iv) promote orderly marketing, including grading if necessary,

(v) arrange for payment of proceeds into a common fund.

The Committee also -

(i) determines allowances deductable by scheduled exporters for working expenses,

(ii) deals with claims for overseas buyers in respect of inferior or defective cacao and for loss in weight,

(iii) determines commission rates to scheduled exporters,

(iv) may call upon dealers to sell to exporters within a specified time cacao purchased from growers.

The present channels of export are :

(i) A Pool of 8 Scheduled Exporters,

(ii) The Cocoa Planters' Association,

(iii) Private Exporters.

In the crop year 1955/56, the scheduled exporters handled 80% of the total crop of 21 million pounds, the Cocoa Planters' Association exported 15%, and private exporters 5%. A total of 12,820 producers with an average contribution per producer of 1,200 lbs. dry cacao took part in the Pool during this period. Of the quantity exported by the 8 scheduled exporters, two-thirds came from the licensed produce dealers, (150 in all) who handled 53% of the total crop. Most of the cacao handled by the dealers came from small growers, nearly all of the larger producers either selling directly to the exporters or to the Cocoa Planters' Association, and a few exporting independently.

Operation of the Pool.

(i) Pricing : The Cocoa Exporters Committee estimates the crop, allocates quotas, and fixes local interim buying prices early in October. Prior to 1952, buying prices followed the market fluctuations. Since then, the Committee has sought to provide a measure of stability over the crop season by fixing prices which it feels can be maintained throughout the season.

Historically, the Cocoa Planters' Association advanced nine-tenths of the current local price to its members, fixed in July each year. When the pool commenced operations it considered this advance as the local price, and advanced nine-tenths of it. The Cocoa Planters' Association has since altered its pricing system and now pays up to a hypothetical cost of production of 50¢ per pound, a level reached on February 1st, 1958.

Minimum export prices are fixed at irregular intervals as market movements dictate.

(ii) Organization : Produce dealers may legally deal only in "cured" cacao, defined as cacao showing no trace of moisture when cut. However, additional drying beyond the legal limit is often necessary, and for the loss in weight entailed the dealer is allowed to make a deduction on the price paid to the producer. The dealer is paid at a flat rate (75¢ per fanega) for his services and the cost of transport from his store to the scheduled exporter. Prices paid to the producer are predetermined, with the superior "Plantation" cacao obtaining a premium over the second grade "Mixed Estates".(3)

The dealer then sorts and blends the cacao before selling to the exporter so as to sell as much as possible in the "Plantation" class.

The exporter carries out further drying and blending before exporting the cacao under his special "marks". The difference between the price at which the exporter buys and sells, less an allowance for expenses is paid

/ into ...

(3) "Plantation"-$38.00/fanega; "Mixed Estates"-$34.00/fanega.

into the Pool fund, from which Pool expenses are paid and bonuses distributed at the end of the crop year.

Functions of the Pool.

By the institution of the Cocoa Pool, therefore, the exporters, and to a lesser extent, the produce dealers, have become commission agents acting on behalf of the Pool. The Pool acts in the interests of the producers, to whom all benefits of high prices are returned in an end-of-year bonus. Also, although the Pool's policy is not one of speculation, it is felt that a single selling agency would tend to afford the industry increased bargaining power in exploiting the advantages of a superior quality product.

Again, restriction of the number of exporters would tend to eliminate the depressive effect on export prices which might otherwise result from competition between exporters; restriction of exporters to those only who have long-established outlets for their particular "marks" is also to the industry's benefit, since it enables a strengthening of the "customer" relationship existing between buyer and seller.

In this connection it is seen that the Cocoa Planters' Association follows a policy of selling its first-grade cacao in the European market, whilst that falling below a certain standard is sold in the United States market. In this way it seeks to preserve its reputation with those buyers paying premium prices for its product. (see Appendix VIII)

Quality.

The main criterion for judging quality in cacao is its flavour. Other subsidiary criteria are : colour, condition, and average bean weight. Assessment of quality is therefore a highly subjective matter. The requirements for its attainment are equally ill-defined, although the preparation process is roughly similar in essentials in all countries.

/ Defective ...

Defective cacao is the result chiefly of inadequate fermentation ofthe beans during the preparation process, and, often, imperfect drying. The aim in preparation is to produce an evenly-fermented mass of beans whose average degree of fermentation , in Trinidad cacao, is on the under side of fully-fermented. In the varied Trinitario population, these requirements are particularly difficult to fulfil, moreso in the case of the small farmers, who produce approximately 50% of the total crop. These producers do not obtain large enough yields to make possible the filling of a "sweat-box"[3] from one day's picking, as is required for even fermentation, and the and the process cannot yet be successfully carried out in small batches of under 400 pounds. Most of the small producers have no equipment for fermentation and drying, and as a result they produce a high proportion of defective beans. For these producers, the solution would seem to be the setting up of cooperative fermentaries organized on a village basis, as opposed to large central plants, and each aiming at an output of about 100,000 lb of dry cacao per annum in order to be an efficient working unit.[4]

Credit facilitie s for these small producers are decidedly brighter in latter years with the increased popularity of credit societies (430 in 1956 as against 212 in 1951) coming about with the expanded funds made available to these societies by Government. The societies borrow from the Agricultural Bank (now the Agricultural Credit Bank), whose capital has been increased to $4,690,000.00, and which now lends funds to the societies at 3% per annum.

With the basic requirements of the industry at present in the process of being met, therefore, the cacao industry is at last on the way to fulfilling the immense potential for profit which the foregoing analysis has shown it to possess.

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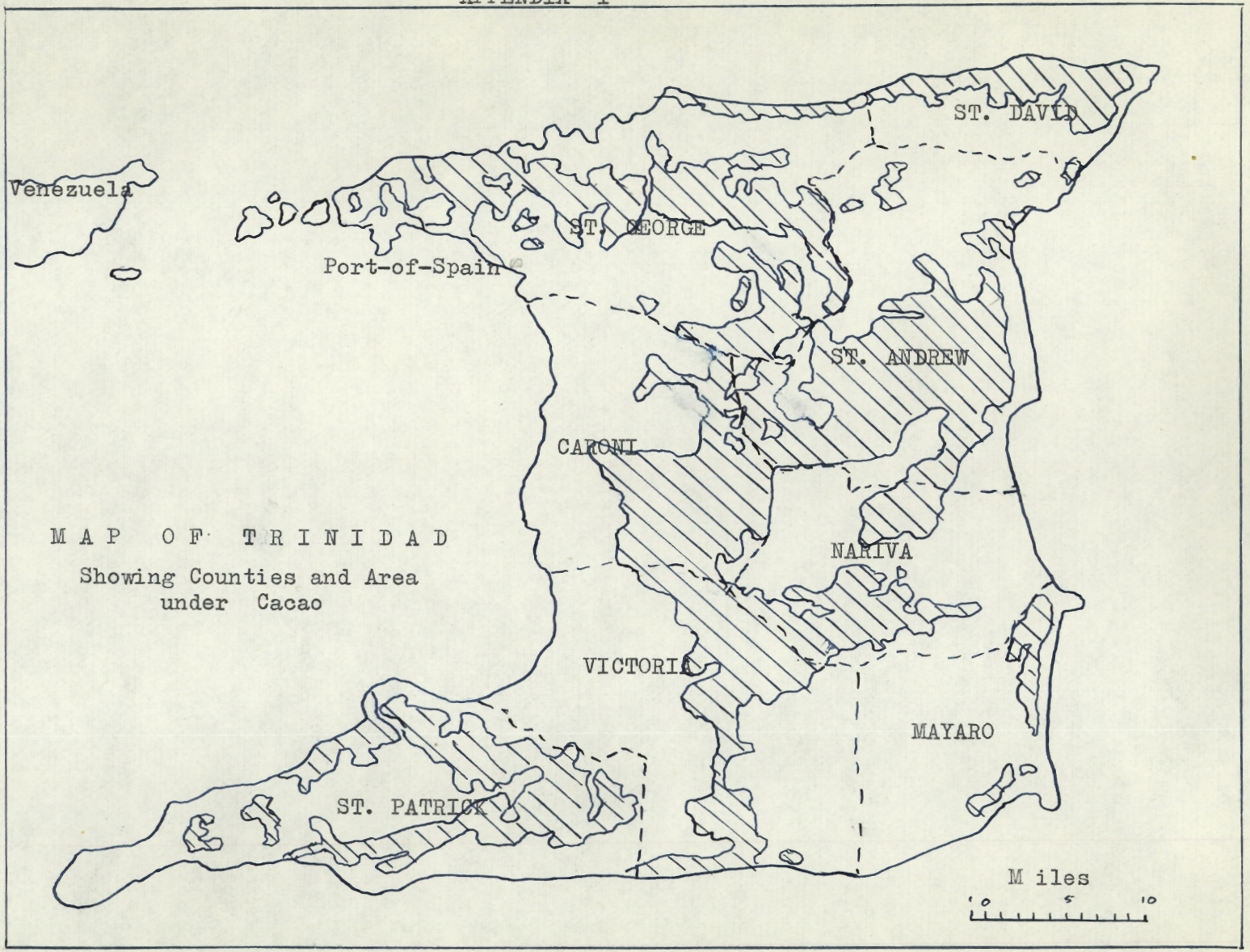
(3) the fermentation receptacle in use in Trinidad/

(4) See Shephard, C.Y., "Report on Cooperative Fermentaries in Tobago." C.P.E.S. 37, May 1, 1957.

APPENDIX I



MAP OF TRINIDAD

Showing Counties and Area under Cacao

APPENDIX II - FARMS NOT LESS THAN ONE ACRE, BY PRINCIPAL PRODUCT, SIZE, AND KIND OF LAND, 1946.

Principal Products	No. of Farms	Total Area acres	Average Area acres	Modal Class acres	Cultivated acres	Other Cultivated acres	Pasture acres	Woodland acres	Other Land acres
Ground Crops									
Cane	6,622	86,921	13.13	1-2	60,688	12,466	2,925	4,115	6,727
Other	12,403	57,077	4.54	-	34,628	11,779	1,855	1,488	2,327
Fruit and Nuts									
Cacao	5,204	142,886	27.46	5-10	96,658	24,055	4,960	10,482	6,731
Coconuts	2,283	70,153	30.73	5-10	49,517	11,071	1,643	3,197	4,725
Other	2,887	49,882	18.94	-	22,120	10,824	1,226	3,796	1,916
Livestock Products									
Dairy produce	136	1,803	13.26	1-2	508	573	453	57	212
Poultry and Eggs	148	1,004	6.78	1-2	395	317	75	185	32
Other	91	1,597	17.54	-	598	678	70	193	58
Forestry Products	19	2,846	149.79	-	2,659	72	3	90	22
No Product	641	5,914	9.23	1-2	1,340	3,448	328	258	540
Product Not Stated	87	854	9.82	5-10	393	314	6	13	128
ALL FARMS	30,511	414,937	13.60		279,504	74,597	13,544	23,874	23,418

Source : West Indian Census of Agriculture, 1946.

APPENDIX III - WORLD CACAO PRODUCTION, BY FIVE-YEAR AVERAGES, 1894/95-1953/54, AND ANNUALLY 1952/53 - 1956/57

PRODUCTION BY CONTINENTS EXPRESSED AS PERCENTAGE OF WORLD TOTAL

(Thousand metric tons)

PERIOD	CENT. AMERICA		SOUTH AMERICA		A F R I C A		A S I A		OCEANIA		WORLD TOTAL QUANT.
	Quant.	%	Quant.	%	Quant.	%	Quant.	%	Quant.	%	
1894/95-1898/99	25.9	29.4	48.2	54.7	10.5	11.9	3.5	3.9	-	-	88.1
1899/1900-1903/04	39.4	31.1	59.6	47.0	23.0	18.2	4.7	3.7	-	-	126.7
1904/05-1908/09	50.1	28.8	74.2	42.7	43.3	24.9	5.9	3.4	-	-	173.7
1909/10-1913/14	61.1	24.0	97.3	38.2	89.7	35.2	6.1	2.4	0.8	-	255.0
1914/15-1918/19	66.4	19.6	117.8	34.7	148.1	43.6	5.9	1.7	1.4	-	339.6
1919/20-1923/24	69.5	16.1	122.1	28.3	232.4	53.9	5.7	1.3	1.7	-	431.4
1924/25-1928/29	66.9	13.0	117.5	22.9	320.1	62.4	6.0	1.2	2.7	-	513.2
1929/30-1933/34	64.2	11.1	135.6	23.4	369.7	64.0	6.5	1.2	2.8	-	578.8
1934/35-1938/39	64.6	8.7	179.5	24.1	495.2	66.2	6.0	-	2.9	-	748.8
1939/40-1943/44	50.0	7.8	171.1	26.8	411.4	64.5	4.8	-	3.3	-	640.6
1944/45-1948/49	54.5	8.2	174.2	26.2	430.3	64.6	3.0	-	3.8	-	665.8
1949/50-1953/54	67.2	8.9	188.5	29.0	491.1	65.0	4.7	-	3.6	-	755.1
1952/53	76.2	10.0	160.8	21.2	517.0	67.8	5.1	-	3.5	-	762.6
1953/54	68.2	9.2	193.1	26.0	472.5	63.5	6.1	-	3.9	-	743.8
1954/55	74.9	9.3	234.4	29.2	484.0	60.4	6.2	-	4.2	-	803.7
1955/56*	69.6	8.3	236.5	28.2	521.4	62.2	5.6	-	5.6	-	838.7
1956/57*	75.9	8.4	226.6	25.2	586.7	65.0	5.9	-	7.2	-	902.3
1957/58* (provisional)	77.2	9.5	217.6	26.8	501.7	61.6	6.0	-	8.7	1.7	811.2

\- Under 1.0%

* From Office de la Recherche Scientifique et Technique Outre-Mer - Service Café, Cacao, Thé, Vol. 1, 3, Sept.-Dec. 1957.

Source : F.A.O. Comm. Ser. Bull. 27, Nov. 1955, Cacao, p.8

APPENDIX IV - CACAO PRODUCTION IN MAIN PRODUCING COUNTRIES, 1894/95 - 1953/54 AND ANNUALLY, 1952/53 - 1956/57

(Thousand metric tons)

PERIOD	SOUTH AND CENTRAL AMERICA								AFRICA						WORLD TOTAL
	Trini-dad	Costa Rica	Dom. Rep.	Mexi-co	Brazil	Colom-bia	Ecua-dor	Venez-uela	Fr. Camer. & Fr. Equat.	Fr. W. Africa	Ghana & Togo	Nigeria & Camer.	Sao Tome & Principe	Spanish Guinea	
1894/95-1898/99	12.0	0.0	2.9	1.0	12.6	3.0	19.8	8.2	0.2	-	0.1	0.1	9.4	0.7	88.1
1899/1900-1903/04	16.0	0.1	8.6	1.5	20.0	3.0	23.7	9.1	0.7	0.0	2.3	0.3	18.2	1.3	126.7
1904/05-1908/08	19.7	0.2	14.2	1.5	27.5	3.5	25.6	13.9	2.0	0.0	11.6	1.1	25.9	2.2	173.7
1909/10-1913/14	23.7	0.3	19.5	2.0	33.1	3.5	39.9	16.7	4.1	0.0	42.0	3.9	34.9	4.0	255.0
1914/15-1918/19	27.0	1.0	21.2	2.1	49.7	3.6	41.4	18.6	3.6	0.4	93.1	14.1	32.1	4.0	339.6
1919/20-1923/24	28.4	3.0	22.4	2.2	57.3	4.1	36.2	20.0	3.8	2.6	170.0	27.4	20.8	6.7	431.4
1924/25-1928/29	24.6	4.9	22.1	1.4	68.1	5.2	20.7	19.2	7.2	11.2	230.1	46.0	16.7	7.2	513.2
1929/30-1933/34	21.0	6.7	21.3	0.8	91.6	8.5	14.6	15.9	14.7	29.2	238.9	62.7	11.0	10.9	578.8
1934/35-1938/39	14.3	6.5	25.1	1.1	129.9	10.7	17.6	16.8	27.3	49.9	291.9	99.9	10.2	12.6	748.2
1939/40-1943/44	6.6	5.2	23.1	1.7	126.8	11.2	13.6	14.3	25.8	29.3	233.5	99.4	6.7	13.6	640.6
1944/45-1948/49	5.3	4.4	27.4	4.3	123.9	10.9	16.9	16.8	41.0	33.8	229.7	98.2	8.6	15.5	665.8
1949/50-1953/54	7.7	4.4	32.8	8.5	124.9	14.8	24.4	16.7	53.6	54.2	246.4	106.4	8.0	16.4	755.1
1952/53	9.7	5.5	38.0	9.1	96.9	15.0	24.4	16.4	57.3	61.2	257.4	110.8	8.4	16.8	762.6
1953/54	7.3	6.1	30.0	9.5	123.1	15.0	29.9	17.0	60.0	54.0	228.0	99.0	7.2	17.5	743.8
1954/55	8.4	7.0	36.0	10.0	168.0	16.0	25.3	17.0	60.0	70.0	238.0	83.0	8.0	18.0	803.7
1955/56 *	9.4	9.1	25.9	13.8	171.0	14.0	27.2	17.0	60.6	71.0	238.7	116.1	7.7	19.8	838.7
1956/57 *	7.7	8.5	33.2	14.1	161.0	14.0	28.0	16.0	65.2	72.0	272.4	137.2	8.2	23.4	902.3
1957/58 * (provisional)	8.2	8.5	31.0	15.0	150.0	15.0	29.0	16.0	57.1	63.0	235.2	107.0	7.8	22.5	811.2

Source : Idem.

APPENDIX V - ANNUAL EXPORTS AND EXPORT VALUES F.O.B. OF TRINIDAD CACAO BEANS, 1951, 1954, and 1956, SHOWING COUNTRIES OF DESTINATION.

(Quantities in '000 cwt; Values in '000 $)

Importing Country	1951		1951		1956	
	Quantity	Value	Quantity	Value	Quantity	Value
United States	100.1	6,030.7	84.7	7,974.0	101.3	5,095.7
United Kingdom	31.6	2,670.7	37.4	3,710.2	32.7	1,961.2
Canada and Newfoundland	4.6	283.4	11.3	1,030.9	13.0	648.2
Netherlands	15.3	1,033.6	6.1	530.1	9.9	550.6
France	-	-	3.1	315.4	3.4	200.2
Belgium-Luxembourg	5.7	417.8	4.3	391.3	16.9	971.3
Italy	4.7	343.8	1.5	177.1	2.2	124.4
Switzerland	1.1	80.6	-	-	1.7	101.9
West Germany	5.7	429.1	5.8	593.4	9.9	581.9
Other	16.1	273.6	3.3	325.4	4.0	169.8
T O T A L	184.9	11,563.3	157.5	15,047.8	195.0	10,485.2

Source : Central Statistical Office, Overseas Trade Annual Reports 1951 - 1956.

APPENDIX VI - IMPORTS OF TRINIDAD CACAO BY CUSTOMER COUNTRIES, 1956 AND ESTIMATE FOR 1961

	Country	Imports of Trinidad Cacao 1956 (cwt.)	1961 (projected) (cwt.)
GROUP I	United States	101,290	
	Canada	12,967	
	Australia	899	
	Sweden	179	
	TOTAL GROUP I	115,335	121,518
GROUP II	Belgium-Luxembourg	16,825	
	France	3,422	
	Denmark	1,000	
	Union of South Africa*	777	
	TOTAL GROUP II	22,024	23,147
GROUP III	United Kingdom	32,725	
	Netherlands	9,909	
	Italy	2,214	
	Switzerland	1,702	
	British Countries in Africa*	915	
	West Germany	9,915	
	Other	232	
	TOTAL GROUP III	57,612	61,077
	TOTAL TRINIDAD EXPORTS	194,971	205,742
	VALUE OF EXPORTS	$10,485,268	$11,064,425

* Arbitrarily included in group.

Source : Trinidad and Tobago Annual Overseas Trade Report, 1956

APPENDIX VII - ACREAGES UNDER CACAO IN COLONY OF TRINIDAD AND TOBAGO, 1931, 1938 AND 1946

Year	Region	Plantation+ (acres)	Small Holdings* (acres)	Unclassified (acres)	TOTAL (acres)
1931	Trinidad	101,600	107,400	nil	209,000
	Tobago	3,100	5,300	3,600	12,000
	TOTAL	104,700	112,700	3,600	221,000
1938	Trinidad	77,700	73,000	29,300	180,000
	Tobago	3,100	5,300	3,600	12,000
	TOTAL	80,800	78,300	32,900	192,000
1946	Trinidad	58,175	61,417	nil	119,592
	Tobago	12,293	11,001	nil	23,294
	TOTAL	70,468	72,418	nil	142,886

+ Over 50 acres.
* Not exceeding 50 acres.

Sources : 1931 - Gilbert, S.M., Cacao Industry of Trinidad, 1931;
1938 - Department of Agr. Survey, 1938, XII, Plantation Agriculture;
1946 - Compiled from data in West Indian Census, 1946, Pt. B.

APPENDIX VIII - AVERAGE F.O.B. PRICES RECEIVED BY GOLD COAST MARKETING BOARD AND TRINIDAD COCOA PLANTERS' ASSOCIATION 1947/48 TO 1953/54

	Gold Coast*	Trinidad+ (C.P.A.)	Trinidad Premium	Premium %
1947/48	201.2	225	23.8	11.3
1948/49	136.7	180	43.3	31.8
1949/50	178.4	225	46.6	26.2
1950/51	268.5	310	41.5	15.4
1951/52	245.1	280	34.9	14.2
1952/53	231.4	260	28.6	12.4
1953/54	358.7	360	1.3	0.3
1954/55	n.a.	400	-	-
1955/56	n.a.	260	-	-
1956/57	n.a.	235	-	-

* Figures from O.E.E.C., op. cit.

\+ Figures supplied by Cocoa Planters' Association.

n.a. not available.

B I B L I O G R A P H Y

American Farm Economic Association, Readings on Agricultural Policy, ed. by O.B. Jesness, Blakiston, 1949.

Black, J.D. Introduction to Economics for Agriculture, New York, Macmillan, 1953.

———— et al. Farm Management, N.Y., Macmillan, 1953.

Barclays Bank, Trinidad - An Economic Survey, 1957.

Blitz, J.F. Demand for Cocoa, Problems and Prospects. Cocoa Committee of Cocoa, Chocolate, and Confectionery Alliance, 1957.

Boulding, K.E. Economic Analysis, Harper, N.Y., 1948.

Caribbean Commission. "Hybrid Cocoa Seedlings", Cacao Publications Exchange Service, 33, April 5, 1957.

———— "Examination of Trinidad and Tobago Cocoa Samples" by Dr. C.Y. Shephard. Cacao P.E.S. 36, Apr. 26, 1957.

———— "Report on Cooperative Fermentaries in Tobago" by Dr. C.Y. Shephard. C.P.E.S. 37, May 1, 1957.

———— "Role of Shade and Fertilizers in Cultivation of Cocoa", by D.B. Murray. Cocoa P.E.S. 50, May 29, 1957.

———— "Notes on Performance of Cocoa Clones - Trinidad and Tobago", by L.L. de Verteuil, W.E. Freeman, and A.L. Jolly. Cocoa P.E.S. 56, Nov. 4, 1957.

———— "Notes on Clonal Cocoa, Trinidad and Tobago", by L.L. de Verteuil, C.P.E.S. 57, Nov. 4, 1957.

———— "Clonal Yield Analysis". C.P.E.S. 59, Nov. 4, 1957.

———— "Preparation of Cocoa". C.P.E.S. 60, Nov. 4, 1957.

———— "Preparation of Trinidad Cocoa". C.P.E.S. 62, Feb. 3, 1958.

———— "Method of Analysis of Raw Cocoa Samples". C.P.E.S. 63, Feb. 3, 1958.

———— "Criteria for Judging Quality of West of West African Cocoa", by Assessment Committee of Cocoa, Chocolate, and Confectionery Alliance of United Kingdom. C.P.E.S. 64, Feb. 3, 1958.

BIBLIOGRAPHY (continued)

Chatt, E.M. Cocoa.

Cocoa, Chocolate and Confectionery Alliance Ltd., Annual Reports, 1950-51 - 1956-57.

_____ and Office Internationale du Cacao et du Chocolat. Reports of Cocoa Conferences, 1951 - 1956, London.

Colonial Office. Economic Survey of Colonial Territories, 1951, IV and VII, London, 1952.

Croxton, F.E. and Cowden, D.C. Applied General Statistics. N.Y., Prentice-Hall, 1955.

De Waal and Van Overzee. "Review of the Cocoa Market During 1956". 35th Annual Circular, Amsterdam.

De Verteuil, Louis L. Cacao Cuttage in the Western Hemisphere, Misc. Pub. No. 8, Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica, 1956.

F.A.O. Commodity Series Bull. 27. Cacao - A Review of Current Trends in Production, Price, and Consumption. Nov. 1955. F.A.O., Rome.

_____ Monthly Bull. of Agricultural Economics and Statistics. Vols. V, 6, June 1956 - VII, 1, Jan. 1958. Rome.

_____ State of Food and Agriculture, Rome, 1957.

Galetti, Baldwin, and Dina. Nigerian Cocoa Farmers. Oxford Univ. Pr. 1956.

Gill and Duffus Ltd. Cocoa Statistics. London, Sept. 1957.

Gillet, David. Report to Cadbury's on a Visit to the Caribbean. Feb. 1949 (Private.)

Government of Trinidad and Tobago. Five Year Development Programme 1958-62.

_____ Central Statistical Office. Report on the National Income, 1951 - 1954.

_____ Annual Statistical Digest 5, 1955 and 6, 1956.

_____ Overseas Trade Annual Reports, 1951 - 1956.

_____ Final Report of the Committee Appointed to Enquire into the Needs of the Cocoa Industry (Council Paper No. 61 of 1940).

BIBLIOGRAPHY (continued)

Government of Trinidad and Tobago. Estimates of Revenue and Expenditure, 1957 and 1958. Government Printing Office.

———— Department of Agriculture. Plantation Agriculture 1938.

———— General Survey of Agriculture 1938.

———— Annual Reports of Department of Agriculture, 1931 - 1955.

Haviland, W.E. "The Family Farm in Quebec - An Economic or Sociological Unit?" Reprint from C.J.A.E. V,2, 1957.

———— "Reflections on Agricultural Policy". C.J.A.E., III, 2, 1955.

Heady, Earl O. Economics of Agricultural Production and Resource Use. N.Y., Prentice-Hall, 1952.

Imperial College of Tropical Agriculture. Fifth Annual Report on Cacao Research, 1935. Port-of-Spain.

———— A Report on Cacao Research 1955-56.

Johnson, D. Gale. Trade and Agriculture, A Study of Inconsistent Policies. Wiley, 1950.

Jolly, A.L. "The Future of Trinidad's Agriculture". The Caribbean. 11, 2, Sept. 1957.

———— Cocoa Farm Management. (A Series of Lectures delivered to a Short Course at Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica, Jan. 1958).

———— "Small-Scale Farm Management Problems". Tropical Agriculture XXXII, 2, Apr. 1955.

———— "The Outlook for Cocoa". Journal of the Agricultural Society of Trinidad and Tobago. LIV, Sept. 1954.

Lewis, W.A. "Industrial Development in the Caribbean". Caribbean Economic Review. I, 1 and 2, Dec. 1949.

Macfarlane, D.L. "The Future of the Family Farm". Reprint from University of Toronto Quarterly XX, 2, Jan. 1957.

Moll, E.R. Rehabilitation of the Cocoa Industry of Trinidad and Tobago. Cocoa Board, 1955.

BIBLIOGRAPHY (continued)

Moll, E.R. Pot rooting Technique of Cacao Propagation. Cocoa Board 1955.

——— Guide to Rehabilitation Under the Cocoa Subsidy Scheme, 1954 (with revs. to 1957). Cocoa Board 1957.

Organization for European Economic Cooperation. The Main Products of the Overseas Territories - Cocoa. Paris, June, 1956.

Office de la Recherche Scientifique et Technique. Café, Cacao, Thé. I, 3, Sept. - Dec. 1957.

Royal Commission on Trade Relationsbetween Canada and the West Indies, London, Wyman, 1910.

Scitovsky, Tibor. Welfare and Competition, Irwin, 1951.

Schultz, T.W. Economic Organization of Agriculture. McGraw-Hill, 1953.

Shephard, C.Y. Cacao Industry of Trinidad, some Economic Aspects. Series I-IV, Port-of-Spain. 1932 - 1937.

——— "Economic Survey of the Cacao Industry of Trinidad, B.W.I." Reprint from Econ. Geog. III, 2, April, 1927.

Simey, T.S. Welfare and Planning in the West Indies. Oxford, Clarendon Press, 1946.

Trinidad and Tobago Yearbooks, 1956 and 1957.

"Trinidad Guardian" Oct. 25, 1957 and Jan. 29, 1958.

Urquhart, D.H. Cocoa. Longmans, 1955.

West Indies and Caribbean Yearbooks 1953-54 and 1954-55.

Wickizier, V.D. Coffee, Tea, and Cocoa.

West Indian Royal Commission Report, 1939.

West Indian Census, 1946.

Frazier, E.F., and Williams, Eric., eds. Economic Future of The Caribbean. Howard Univ. Pr., Wash. D.C., 1944.