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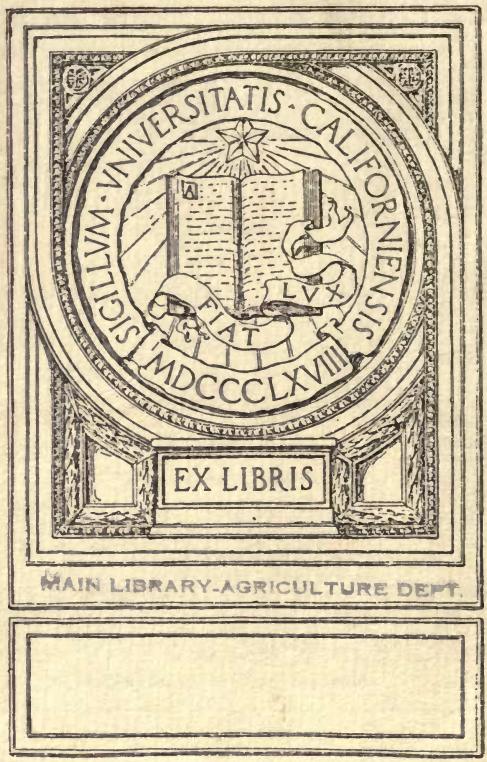

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CACAO TREE ON A TRINIDAD PLANTATION

Inset: PODS, AND OPENED POD SHOWING COCOA BEANS

PEEPS AT INDUSTRIES

COCOA

BY

EDITH A. BROWNE, F.R.G.S.

AUTHOR OF "SUGAR," "RUBBER," AND "TEA"
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NOTE

It is astonishing how ignorant is the world as a whole of the great industries which maintain our oft-boasted civilization, and it is ignorance of this character which this series of books aims to dispel.

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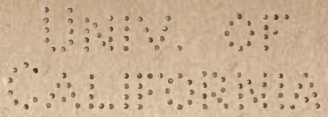


COCOA

CHAPTER I

A SURPRISE PACKET

It so happens that I drop in to see you at a moment when you are busy unpacking a parcel. Friends such as we are, travelling companions who have pulled out together many a time on old trails and new for thousands-of-miles long journeys, do not stand on ceremony when they meet.

"Surprise packet—just arrived!" you explain excitedly, proceeding to make quick work of removing string and paper. One by one you carefully extract the contents of a packing-case, unwrapping each find from its tissue-paper covering, or drawing it out of its corrugated cardboard sheath before you again dip into the paper shavings to try your luck once more.

In a few minutes the table is set out with a variety show of good things—a daintily beribboned big box of mixed chocolates, pound, half-pound and quarter-pound packets of plain chocolate, cartons of Neapolitans, a slab of nut-milk chocolate, a box of chocolate almonds, a tin of cocoa, a tin of chocolate biscuits, a tin of chocolate powder, a tin of cocoa and milk powder, and a tin of condensed cocoa and milk.

"What a tuck-box!" you exclaim—"food for the gods!"

"The very name!" I break in hurriedly, before you

have time to accuse me of remembering your birthday. "That's almost exactly what Linnæus called cocoa—*Theobroma*—which, being translated from Greek into English, means 'food of the gods.' Are you sure you've reached the bottom of that box ?"

Taking the hint, you grope again amongst the shavings, and presently bring to light an envelope. You break the seal, peer in curiously, and with a puzzled look shake out on to the table a dozen or so brown beans.

"What in the name of all the *theos* are those things ?" you ask. "What's the joke ?"

"Depends on what you call a joke," I reply. "I have a little plan in mind, and if it takes your fancy we shall soon be playing the very practical joke of slipping away from rain and slush, fog and snow, to winter in the sunshine. I'm speaking quite seriously, my friend, and before we go any further I want to win your respect for the brown beans before us, which you have just greeted with scorn. They are the dried seeds from the fruit-pod of a tropical tree; beans such as these are the natural raw product from which all the goodies arrayed before us on this table have been made. Indeed, beans of this kind are the prime source of all the cocoa and chocolate you or anyone else in the world has ever consumed—of all the cocoa and chocolate you and millions of other folk in all quarters of the globe hope to continue eating and drinking as some portion of their daily fare.

"The trees which yield these beans flourish in many parts of the Tropics. I propose that we should set forth on a tour of the raw-cocoa producing countries of the world, where we can visit the little farms and big plantations on which the trees are born and brought

up, watch the scenes connected with harvesting the crop and preparing it for market, get into touch with the manners and customs of the people who yearly produce hundreds of thousands of tons of cocoa beans Then, if we travel home with a cargo of cocoa beans and accompany them to a factory to see them transformed into cocoa essence, plain chocolate, and a variety of other popular provisions such as are now awaiting your pleasure on the table, I hope you will find even greater enjoyment than ever you have done before in a cup of cocoa, a bar of chocolate, a chocolate pudding, or any of their many good, wholesome, and nice relations."

A week or so later, on a grey November day, we are in Liverpool, where we have just come aboard a mail steamer that is leaving this afternoon for the West Coast of Africa. We are off to the Gold Coast, to start our tour of cocoaland in a British colony which has recently risen to fame as the biggest cocoa producer in the world. The rapid development of the cocoa industry in the Gold Coast is one of the romances of commercial history, comparable only with the phenomenal growth of the plantation rubber industry in the parts of our Empire known as Ceylon and Malaya.

CHAPTER II

OFF TO THE GOLD COAST

It is nearly a four-thousand mile journey from Liverpool to Accra, the capital and chief cocoa port of the Gold Coast.

Four days after crawling through a fog in the River

Mersey our steamer is running full-speed ahead past Lisbon, and the sun is hot enough to make us talk about getting out summer clothes. Two days later we sight the peak of Teneriffe in the Canary Islands; now the sun is beginning to stoke up fast and furiously, preparing to do justice to his West African reputation. Eight nights after leaving home in a well-heated ship, where we vainly tried to keep warm in bed by crouching under four blankets and hugging a hot-water bottle, we are lying on our bunks gasping for breath, with the electric fan going, and without so much as a sheet over us. The next morning we get our first view of the African mainland, when Cape Verde looms up on the horizon as a little mound and quickly grows to imposing height as we draw nearer to it, and see it standing out in contrast with a sea-level shoreline. Henceforth on the voyage we are seldom out of sight of the generally low-lying West African coastland.

Everyone who is not going to land at Accra begins to bewail the fate of everyone for whom that experience is in store. . . . Under the best of weather conditions —run the hundred and one stories, grave and gay, of duckings and luggage going to the bottom of the sea—the trip in a surf-boat between steamer and beach is a perilous adventure. The men who spin these yarns have all, at some time or other, had to go through the nerve-test as newcomers of listening to similar tales, and they lose no opportunity of paying off that old score. They are used to scoffers among their audience, to a minority on whom they can make no impression, and to a majority who seek chances of taking them on one side to enquire confidentially whether the landing ahead is as fearsome as it is pictured. But it is something of a surprise to them

to encounter fellow-passengers who can cap their tales with stories of surf-boat landings in other parts of the world; those of us who have gone ashore at certain west-coast ports of South America, and can thus hold our own in the good-natured sport of leg-pulling with surf-running yarns, soon get at the truth of what may be expected—landing at Accra is apt to be awe-inspiring in the rough weather that comes with the rainy season, always exciting, but seldom dangerous at this dry season of the year.

We have spent eleven days at sea when our ship puts in at her first port of call, Freetown, the capital of Sierra Leone. Here we unpack our sun helmets, for it is not safe even to lean our heads over the side of the steamer for a moment to look at what is going on in the little boats swarming alongside, unless we are wearing a helmet to protect our head and the back of our neck. Now is the time when we should make a solemn vow to ourselves that, onwards from this minute until the day we are clear of Sierra Leone on the homeward bound trip, we will respect the sun, the white man's deadliest enemy on the West Coast—from seven o'clock in the morning until five o'clock in the afternoon we must never go out without a helmet on; we must be specially careful not to think we need not trouble to put it on because we are only going a few yards—say, from the bungalow where we are staying to meet someone at the foot of the stairs; and we must keep that helmet on even if we are under cover of a roof, if that roof happens to be of corrugated iron, as may very likely be the case in some of the cocoa stores we shall be visiting; also under any kind of roof, such as the awning on the ship, or the dilapidated thatch to a native hut, or the ant-eaten timbers of an

old shed, which may allow the sun's rays to strike down direct on our head, or, worse still, on the back of our neck, through so much of an opening as an almost invisibly narrow crack, or a speck of a nail-hole. There is no leg-pulling in the warning stories of men on the Coast who have had sunstroke, although they were wearing a helmet, because they thoughtlessly stooped down to tie a shoelace or pick something up, thus exposing that most vulnerable part—the back of the neck. I personally know of two cases in which this happened; both men fell down helpless in a second, and one of them, whose neck bore a red patch, such as might have been caused by a hot flatiron, remained unconscious for three days. Remember, too, that the sun is even more dangerous in this part of the world on a dull day than on a bright one.

Now, too, we should begin to take five grains of quinine a day as a protection against malaria-infected mosquitoes.

At Freetown we make our first acquaintance with the negro in his native land. But the blacks we meet are by no means strangers to us; we have spent many an interesting and amusing day amongst crowds of their relations, descendants of West African slaves, when we were staying on sugar plantations in the West Indies and British Guiana.

A gang of Kruboys come aboard the steamer at Freetown.

"Who are they?" you ask. "Whither are they bound? What are they going to do?"

In answering those questions I had better begin by telling you that the vast native population of West Africa includes a bewildering number of tribes, each with its own language, habits, and customs.

The tribes, by the way, are sometimes called races, and some of them speak of themselves as nations.

Among the few tribes whose menfolk can be drawn on for labourers are the Kruboys, natives of Liberia. They travel along the Coast, acting as boat-hands and steward boys. Most of those who have now come on board are crew-boys, according to the nautical spelling of the word; they will clean decks, load and unload cargo, do the ship's washing, and generally relieve the white seamen of manual labour whilst the steamer is in tropical waters—that is to say, until she reaches Freetown again on the homeward voyage. A few of these boys, however, are travelling as deck passengers —they are migrating to neighbouring countries as domestic servants. We shall find some of their "brothers" doing the work of the house at the European bungalows where we shall be staying in the Gold Coast. Notice the tribal mark by which you can always recognise a Kruboy—a broad band running vertically down the middle of the forehead. If you look closely at that band you will see it consists of a number of narrow ridges and furrows in horizontal, roughly parallel lines; the mark was made when the boy was a baby by a series of gashes with an old jack-knife, and an application of some native preparation to help the wounds heal into the ridge and furrow pattern.

You no savvy why I call dem men boys?

"Boy" is pigeon-English for a native male labourer, no matter whether he be a child, a youth, or an old man. Keep your ears open to learn as much as you can of your mother-tongue, as spoken by the natives in the Babel-land where we shall soon be going ashore. Those of you who have learnt to talkee-talkee in the East

may be thinking you will find it quite easy to understand and make yourselves understood by the West African native, seeing that you already knew the meaning of that word "boy" before I explained the same for the benefit of those of our friends who have not had so many opportunities of travel. Wait small, my learned friends, and you will find out for yourselves that West Coast pigeon-English—or, as it is sometimes called "trade English"—differs widely from any other desecration of your language you have ever heard.

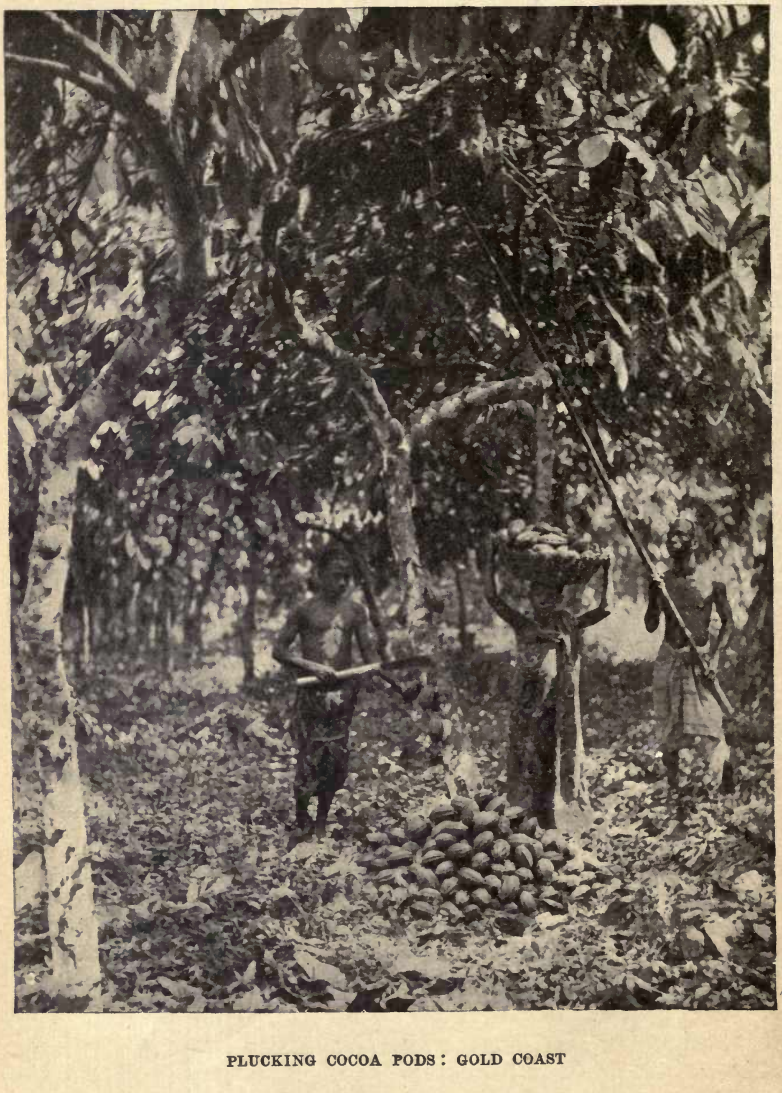
Meanwhile, I expect you would all be glad if I would translate some of the expressions I have already used.

"Savvy," of course, most of you recognised at once as the equivalent of "know" or "understand."

"Wait small" means "wait a minute." If you tell your steward-boy or your motor-boy to "wait small," there is just the ghost of a chance, if he knows any English at all, that he will stay where he is at the time you give him the order until you call him again. But if you bid him "wait a minute," he will probably go off and fetch you a bottle of soda-water, or take the car to some place where he has happened to drive you any time during the last year or so, pull up there, and go to sleep till somehow or other you manage to find him.

"Brothers" are not the near relations we understand by the word, but simply members of the same tribe.

"Palaver" may mean "talk" or "work." A conversation between two people is a palaver, so also is a deputation to the Governor or a wordy battle in the Courts; and in the opinion of most black men



PLUCKING COCOA PODS: GOLD COAST

out here, agricultural work is "women's palaver." Now that we are nearing our destination, it is time we had a little palaver about cocoa on lines that will prepare us to understand what we are going to see.

CHAPTER III

CACAO PALAVER

We have met by appointment after dinner on the boat deck. The air is stiflingly still and hot, but the moon is shining brightly, and myriads of stars are adding their lustre to the splendour of the tropical night.

I announce informally that, as arranged, we are about to have a cacao palaver.

"Cacao—what's cacao?" you chorus, following up the half query, half exclamation, with a sigh that seems to suggest I have brought you all this way away from home under false pretences.

Cacao, as you will soon understand, if you will give me a chance to explain, is more nearly related to cocoa than are coconuts. Since I overheard some of you anticipating the pleasure of picking coconuts from cocoa trees, I had better tell you, without further delay, that you might just as well expect to pluck cherries off an apple-tree. Coconuts are the fruit of a tree belonging to the palm family, whereas cocoa. . . .

But before I go any further, please make yourselves comfy in your deck chairs; if you are any the less attentive to what I have to tell you because your feet are up and you have a cushion at your back, mine will be the blame for not telling my story in such a way

as to keep you wide awake. Here is a tin of mixed chocolates for you; I have just bought them at the barber's shop, to show you how chocolates must be packed if they are coming to the tropics, and also to help put life into the information I am about to give you.

The correct name, botanically speaking, for the tree which yields the vast commercial supply of the world's cocoa, is *cacao*. It is the most important member of the family called *Theobroma*, a name which, as you may remember, I have already told you means "food of the gods"; that name was given to the family by Linnæus as a lasting record of appreciation for it as the source of a most delicious food. Several of the Theobromas yield beans from which cocoa is prepared, but the one most generally cultivated for commercial supplies is distinguished by the name of *cacao*. *Theobroma cacao* being the full designation of this most important branch of the family, the short but botanically correct name for the trees belonging thereto is *cacao*; hence, the edible beans yielded by such trees are cacao beans. Strictly speaking, the name cocoa should only be used for a pure product prepared from the beans to distinguish it from the raw product, cacao; cocoa becomes chocolate by the addition of sugar, with, maybe, some flavouring ingredient.

In everyday language, however, that word cocoa has come to be used indiscriminately in talking of the tree, the fruit, and the powder that is prepared from the beans as the basis of a beverage. Thus, ninety-nine people out of a hundred who are interested in the industry—planters, merchants, shippers, and manufacturers—speak of cocoa farms, cocoa plantations, cocoa beans, cocoa bags, cocoa stores, the cocoa market, and cocoa factories. The hundredth, being a

scientist, probably refers more correctly to cacao farms, cacao plantations, and cacao beans, and might argue quite logically that a depository for the raw beans should be called a cacao store, and one for the powdered product prepared from them a cocoa store. I propose that during our trip together we should use that word cacao often enough to become familiar with it, but not harp on it in a way that might convey a wrong idea concerning our position and ambition as visitors to the sights and scenes of a great industry.

Cacao beans are entitled by their composition to a high place of honour among the world's food products. Some scientific experts put them first on the list, others say they are second only to milk, and others argue them into a slightly lower position of merit; but all are agreed that they are composed of a remarkable amount and combination of valuable ingredients. The scientific analyses of the beans vary slightly according to circumstances—such as variety, method of cultivation, country of growth, and process of preparation; but here is a fair average of the statistics, and I want you to note the facts very carefully, for although they may seem a bit dull to you now, I can assure you there will be many an occasion presently when you will find you can get more enjoyment from what you have come to see by being able to recall them:

	Per cent.
Fat (cocoa butter)	52
Starch and digestible carbohydrates ..	23
Albuminoids	12
Moisture	6
Fibre	2
Mineral matter	3
Theobromine	2
	100

Note the high percentage of fat, the heat-giving constituent of food, and of starch and albuminoids, the flesh-forming constituents; theobromine, I should tell you, is an alkaloid which has a similar property to the stimulating power of theine in tea, and caffeine in coffee. In cacao beans, therefore, as you will now understand, we have a food product that combines a very high proportion of nourishment with tonic power. To sum up its virtues, the bean is imbued with special power for building up the bodies of growing children, for making good the waste suffered by older bodies through the wear and tear of life, for supplying people of all ages with a reserve fund of energy, and for giving them a fillip when they are physically or mentally tired.

Now that you know how large an amount of fat enters into the composition of cacao beans, or, as they are commonly called, cocoa beans, you will understand why those chocolates you are eating have to be kept in tins in a hot climate; you can also explain to yourselves why chocolate goes soft at home if it is exposed to the sun in a shop window, and why your pocket gets messy if you have any chocolate in it when you sit near the fire.

I quite agree with you that in this Turkish bath atmosphere of the part of the world where we now find ourselves, it seems hardly possible to imagine that we have ever enjoyed sitting near a fire, and that our friends at home are now probably hugging the hearth and trying to get warm.

A damp, hot climate suits the cocoa tree.

Gasping for breath and feeling as though you are wearing clothes that have been dipped in hot water and only half wrung out, you are thinking that this

tree ought to thrive out here. The climate of the Gold Coast is so congenial to cocoa that the trees grow, as you will presently see, like weeds. In other countries the cocoa tree has gained the reputation of being one of the most exacting of tropical crops, demanding much time and skilled attention. Local conditions and the happy-go-lucky methods of cultivation under which the Gold Coast has become the biggest cocoa producing country of the world, are challenging some of the theories hitherto put forward by experts, and generally accepted as the first principles of successful cocoa growing. For instance. . . .

Quick! Get inside. We fight against the furies of a terrific gale. . . . All manner of things are flying about everywhere around us. . . . Deck-chairs are being hurled overboard. . . . Awnings are thundering, doors are banging, there is a crash of breaking glass. It is only a stone's throw from where we have been sitting on deck to the haven of the lounge, but by the time we get under cover we are on the verge of exhaustion.

"Shut that door!" is the greeting shouted at us before we are through it. To a chorus of "Wasn't it glorious to feel the wind!" . . . "The rain will soon be here, coming down in bucketfuls." . . . "Cool night after this—be able to sleep for a change" . . . we join fellow-passengers and stewards in the frantic rush to close windows, portholes, and skylights, and in lending a hand at holding things down until all communication with the outer air has been shut off, so as to prevent any more books, papers, bottles, and glasses joining in the fray.

We are experiencing a very good sample of the tornadoes which are a feature of West Coast weather.

They occur frequently in the rainy season, and there is usually a grand finale, one like the present outburst, to herald the arrival of the dry season towards the end of October or the beginning of November. Also, an odd tornado is common in the middle of the dry season, somewhere about Christmas-time or New Year.

Looking back on your experiences of a few moments ago, and listening now to the roar of the wind outside, you will not be surprised to hear that the strength of a tornado is sufficient to blow roofs off houses and uproot veteran forest trees of monster girth. Widespread damage is wrought by tornadoes in the towns, villages, and forests of the Gold Coast, but by some miraculous means the cocoa trees generally escape any very serious injury. Yet, as I was about to tell you at the moment when this tornado burst with characteristic suddenness, there is a rule of tropical agriculture, founded on the widest and best practical experience of cocoa cultivation previous to the development of the industry in the Gold Coast, which says that, given all other ideal conditions, cocoa trees will not thrive in a country where they are exposed to strong winds.

CHAPTER IV

WE LAND AT ACCRA

Two days after leaving Freetown we call at Seccondee. We have reached the Gold Coast.

The West African portion of our Empire which is commonly spoken of as the Gold Coast for short, includes the Gold Coast Colony and its dependencies of Ashanti and Northern Territories; the whole of

this country covers an area of 80,000 square miles; in other words, it is about the size of Great Britain. Seccondee is in the Colony, and from here a railway runs to Coomassie, the capital of Ashanti, a distance of 168 miles. The only other main railway line in the country links up the port of Accra with Tafo—sixty-five miles in the interior. There are several ports, but no good harbour; everybody and everything coming to this country, everybody and everything leaving it, have to be transported two or three miles between coast-town and steamer in a surf-boat. It is very entertaining for us, as visitors, to watch numerous surf-boats coming and going, or tied up in bunches round our steamer. Leisurely strolling along the deck, or standing at ease looking over the side, we are delighted by the variety show that springs to life the moment a ship drops anchor, and ceaselessly continues until she again gets under way—the rhythmic movements of surf-boat crews, the flash of paddles, the din of weird chants to which the paddles keep time, the antics of small craft on heaving waters that are challenging the skill of the boat-boys, the rainbow-hued costumes of the natives, with here and there an outstanding patch of bright scarlet, navy, or white, contributed by the jerseys of the boat-boys in the service of the Post Office, Medical Department, Customs, or special transport firm—these are but a few of the fascinating sights and scenes amidst which the winches do their work of putting off and taking on passengers, mails, and cargo. But suppose we were in the shoes of the Gold Coast business man; say, for instance, we were buyers and shippers of cocoa, which is the principal work of nearly every important business man over here—should we not look on surf-

boats from a very different point of view, seeing that we should be dependent on them for putting aboard every bag of cocoa we wanted to export, and for bringing ashore motor lorries, scales, bales of empty sacks, tarpaulins, building materials, and numerous other accessories indispensable to the pursuit of produce dealing on a large scale? As you can well imagine, there would be heavy entries to be made on the wrong side of our profit and loss account for damage to cocoa that has got wet during the surf-boat passage, and for out-and-out losses as a result of boats turning turtle or performing somersaults in rough weather.

The principal localities of the Gold Coast in which cocoa production has been developed up to the present are the districts around Coomassie and the country in the neighbourhood of the Accra-Tafo railway line; there is also a large area under the crop in Winnebah, off the track of the railway, but near Accra, to which it is accessible by a motor road—activities such as the erection of stores and bungalows are proceeding apace for tapping the supplies available there. The Accra cocoa district is in the Gold Coast Colony, whilst that of Coomassie is, as I have told you, in Ashanti; but Seccondee, the port for the Ashanti crop, is in the Colony. The methods of farming and of marketing the crops are similar in both districts, but as the largest area under cocoa is in the Accra-Tafo region, and as the development of the industry has been specially favoured there by the provision of motor transport facilities, we are going to make Accra our first headquarters; afterwards we will come back to Seccondee and go up to Coomassie.

At Seccondee we make our first acquaintance with the Hausas, several of whom come aboard as deck

BREAKING OPEN THE PODS, OR "CRACKING" COCOA: GOLD COAST

passengers. By their features and dress they at once strike us as being different from any of the negroes, although they have black skins. They have Eastern blood in their veins, and look very much like Arabs, to whom they are akin. The Hausas are a distinct race, which, though it has often been conquered, has never renounced its individuality; outstanding characteristics of the race are energy and enterprise in trading, skill in craftsmanship, appreciation of art as applied to things in everyday use, courteous manners, and an entire absence of desire to ape the European. The religion of these people is Mahommedanism; their language is the *lingua franca* of the Sudan, and the only language of tropical Africa which the natives have themselves learnt to put into writing, a modified style of Arabic characters being used; their home is North-Central Africa. Following the habits of their forefathers from time immemorial, the Hausamen trek hundreds of miles, peddling Hausaland wares and wares from Old Testament lands, which they have acquired by payment in money or cowry shells, or by barter; the principal "curios" they have in their packs are feathers, goatskins, grass mats, beads, Kano cloth, and leather goods. Some of them we now see squatting in picturesque attitudes on the lower deck have made their way for nearly a thousand miles to the coast from Timbuctoo, and are bound for that other well-known old caravan centre, Kano, another thousand miles or so away up in Northern Nigeria. The walled city of Kano is now in British territory; it is still one of the most important and densely-populated towns of Hausaland.

Since the moment you had an inkling of what the Hausas have in their packs, I am sure your thoughts

have been with the friends at home for whom you want to get a nice "dash." "Dash," mark you, is West African palaver for a present, and it covers the whole range of offerings from a tip to a gift of love; you will soon find when you get ashore that every native, no matter what be his tribal language, savvies that word "dash." You will have plenty of opportunities of bargaining with Hausamen; at the moment, therefore, give your whole attention to noting details which will enable you to recognise them, for such knowledge will help you to solve the puzzling problem of "who's who" among the mixed crowds of natives you will meet ashore. The Hausaman's national costume, as you see, is Oriental in style: cotton trousers that are like a voluminous petticoat in the body, with legs that fit tight to the ankles; long flowing cotton robe, wide armholes, sleeveless, and beautifully embroidered at the neck; sandals or mule pattern shoes; daintily embroidered skull cap, or a fez or turban as head-dress; favourite colour scheme blue and white, the blue being all shades, from pale sky to deep navy that is almost black—blue garments of any shade are native dyed with indigo. The cap form of head-gear is invariably white, turban blue or white, fez red or green—a green fez denotes that the wearer has made a pilgrimage to Mecca, the Mahommedan holy of holies.

The day after leaving Seccondee and fourteen days after leaving Liverpool our ship drops anchor in the Accra roads. Accra as viewed from the sea makes us think of the east coast of England round Yarmouth way; there in the distance is the same type of low sandy beach with white-capped billows and the spray of breakers fringing the foreshore, and a

town on much the same level in the background. On closer acquaintance with Accra, those of you who happen to know Yarmouth will discover that the two towns have nothing in common except this similarity of site, but I think you will agree with me that the experience of landing at Accra on a calm day is very like a pleasure trip in a row-boat at Yarmouth on a day when the sea there is rough enough to make most pleasure-seekers decide to remain on land, but not unpleasantly rough for people who are very good sailors.

Fortunately the sea is very calm to-day. Are you ready to go ashore? Here come the surf-boats, and from what I know of our host he will be in one of the first of them that arrives alongside, one of the first of friends from the shore to welcome friends aboard.

The popular Captain is on the look-out to see us off; he adds to his many kindnesses to us by acting as our light porter. The equally good-natured purser, who has volunteered to superintend the transhipment of our heavier baggage, presently rejoins us armed with his camera. The Mammie Chair, draped with the Union Jack, awaits us; it reminds us of a swinging boat made for four, such as we have seen at village fairs. In we step, the first batch of us . . . the next moment we are hoisted into mid-air to the tune of a donkey engine at work, and dumped overboard . . . at the end of a rope we hang dangling in space . . . now we are dropping down, down, the little boats below look a long way out of the line of our fall, and the steamer grows to a mountainous height. A second later we recognise the voice of the Chief Officer shouting commands from somewhere up above, hear

a babble of strange tongues below, catch a glimpse of black hands reaching up to us; then, with a bit of a bump, the Mammie Chair comes to rest on the floor-boards of a surf-boat. We edge our way out and, as we take our place in comfortable wicker chairs that have been placed in the boat for us, up goes the Mammie Chair to fetch another load of human cargo.

Ten strapping nigger boys, sitting five aside on the gunwale, bend to their paddles. . . . The helmsman, standing with a grip on a steering-oar, starts a tune. . . . Off we go, cutting through the swell to the weird chant of a part song. We cannot understand the words, for they are in the Cape Coast lingo of the boat-boys, but we are told by our host that, in accordance with a common custom, the crew are probably indulging in an improvised criticism of us as newcomers, speculating on the extent to which, judging from our appearance, we are good for a "dash." The next ditty, rendered in English to the swish of the paddles and the drum of their handles beaten on the gunwale, confirms the suggestion; it runs thus:

"Paper money (*Swish, swish*).
Paper money (*Rat, rat*).
No good (*Swish, swish*).
No buy chop."

"Chop" is West Coast palaver for food; so common has the word become in this sense that our countrymen out here use it even when they are talking amongst themselves; thus, you will never hear them call a dining-room by any other name than a chop-room. The boat-boys' reference to paper money is a hint to us that silver is the proper currency of the Coast, and that they so strongly object to the introduction of a paper currency that amongst themselves a silver

coin is worth about twice as much as its equivalent in a note.

As the surf-boat plunges into the race of white horses the boys cease singing—they now need all their breath for keeping the little boat on the move so that she does not get swamped. The helmsman dexterously prevents the boat getting broadside on to the waves, and on either side of us we see backs bent double as in a rapid succession of strokes the paddles cleave the breakers; we are getting quite sufficient of a shower-bath from the spray to feel that we were well-advised to put on our macintoshes for this "joy-ride" to the shore. We are still a good distance from the land when the boat begins to grate on the bottom of the sea; the helmsman, keenly watching his opportunities, turns her where another wave, another, and yet another can be made to help the crew get her several yards nearer in. Suddenly, above the roar of the breakers, there rises a shrill word of command, and in the same second every boy of the crew is in the water, hauling the boat beachwards. Even when she is beached there is still water all around her. We are wondering whether we are expected to take off our shoes and stockings and wade, when our host tells us that all white people are carried ashore. Ladies are "chaired" to dry land; each sits tight in the armchair in which she has made the passage, whilst it is hoisted up and overboard by some of the darkie crew, and passed on to others who seize it by the legs, carry it aloft, and eventually lower it gently on to a spot well beyond the water's reach, for all the world as if they were paying homage to a heroine. The men make this last little stage of the journey in a comically different way; the darkies pick them up in their arms

as if they were babies, or tuck them under one arm like naughty schoolboys.

Our host has a car waiting for us on the beach, and after he has seen about getting our luggage through the Customs he whisks us off to take up our residence in his bungalow, or, as he puts it, to have chop, make ourselves at home, and ask for anything we want.

CHAPTER V

A FIRST PEEP AT ACCRA

We have been staying in Accra a few days before going up country. To-morrow we are starting for a tour in the Bush, where we shall be in the midst of cocoa trees growing amongst native chop crops. This being harvest time for the Big Season's cocoa crop, we shall see a particularly wide variety of interesting and amusing scenes, many of which will have more meaning for us now that we have made a first acquaintance with Accra than they would have done if we had rushed straight into their midst.

Meanwhile let us survey, in the light of our experiences since we landed, the capital and leading cocoa port of the Gold Coast.

The beach merges into a plain. On that plain, close behind where we landed, stand the business quarter and native town of Accra, a mixed assembly of up-to-date facilities, pioneer makeshifts, and primitive squalor. Fine premises built in European style, of durable concrete or concrete blocks, are scattered about among weather-beaten, ant-eaten wooden shanties resembling old barns surmounted by a loft, and wedged in among these civilized and semi-civilized buildings are mud huts and warrens of mud hovels.

The mud quarters are the homes of swarms of black people—men, women, and children. Thanks somehow or other to cocoa, these natives are all better off to-day than they have ever been before; most of them, it is generally believed, have money hidden away in the ground, and from the evidence of our own eyes there is no doubt that many a one who looks as if he had not a penny in the world keeps his own motor car.

The wooden bungalows in the barn and loft style are typical of the buildings which served the white pioneers as combined houses and business premises. The majority of those pioneers were fellow-countrymen of ours; some of them are still alive to tell the story of what the Gold Coast was like when they first came out here, but many of them, alas, succumbed to the physical, moral, or mental effects of roughing-it conditions allied with an exacting climate.

Less than ten years ago the worst of the old conditions had to be faced by every white man who came to Accra. To-day, fortunately, so many changes for the better have been made that men who came out only five years ago say they can hardly believe they are in the same town; from what we see of improvements and developments in course of progress, and what we hear of proposed activities to be pursued in the near future both by Government and private enterprise, we are persuaded that if we visit Accra five years hence we, in our turn, shall not know the place. Already, many a camp-style bungalow that was crowded in amongst native surroundings has given place to commodious business premises with spacious yards—or, as they are called, "compounds" —and mud huts are being removed to afford sites for more such premises; the location of destructive and

constructive operations suggests that the business quarter will eventually rise clear of the native town.

An extensive stretch of open country, about a mile and a half distant from the beach, has been set apart as a European Reservation Area; by virtue of its elevation, this area is known as "The Ridge." A model tropical garden suburb is quickly growing up on the Ridge, judging from the houses that have already been erected, and the flowers that bloom in newly laid out compounds. The existing houses vary in size and style, according to individual estimates of accommodation required and individual ideas of the best way of planning a house for tropical life. Differences of opinion on architectural matters are making for a pleasing variety of appearance, and for progressive experiments in designs and materials. All the houses, however, are alike in that they are well built, planned with consideration for the health, comfort, and convenience of white people accustomed to a high standard of decent surroundings, and situated in their own spacious grounds. Some of these country houses provide their occupants with much more than first-class housing accommodation, and when the occupants are first-class men—as is the rule in these days, and not the exception—they respond in a way that results in a delightful home. For instance, there is the house where we are staying, and under whose hospitable roof we are now having this little palaver about Accra over a daintily served tea, including a dream of a fruit salad: the furniture is solid and well made, pleasing to the eye and to the touch, and suitably selected for all practical purposes by someone who, obviously, understands that a particularly practical purpose is served in the tropical home by furniture and furnishing

DRYING COCOA BEANS : GOLD COAST

accessories that are conducive to rest—good beds, fitted with mosquito curtains that can be tucked in under the mattress, best quality bedding, nice bed-linen, well cushioned lounge chairs, plenty of light but strong wickerwork easy chairs, and loose cushions that can be moved from room to room, or into the garden. The equipment throughout is on a par with the furniture—solid brass fittings to doors and windows, good table linen and table appointments, fitted porcelain baths and lavatory basins, with a running-water supply. Recreation facilities include a library, billiard table and cabinet gramaphone; in the well-kept pleasure grounds of the compound, prettily situated amongst fragrant frangipannis and gorgeous flamboyants, there is a tennis court, whose every detail is of the tournament order. The house and everything in it is spotlessly clean. Life runs smoothly on attractive lines in this exceedingly well-managed establishment. As is the case with many of the bungalows on the Ridge, the members of the household are the Gold Coast staff of a British cocoa-buying organization; their servants are Kruboys. Neighbouring bungalows are the homes of Government officials, or of staffs representing firms engaged in activities intimately connected with commerce—such as banking, shipping, lighterage, and motor transport.

There are servants' quarters in each compound, and no natives other than the servants of residents are allowed to take up their abode within the Reservation Area.

Building operations are being continued as quickly as labour and materials can be obtained, and the staffs of other European firms will move into houses on the Ridge as soon as the necessary accommodation can be

provided by those at home who are responsible for their welfare.

To such an extent have the conditions of life in Accra already been improved that the white woman, who not long ago was quite a novelty anywhere in the Gold Coast, is now frequently to be seen in the capital.

The main road from the beach follows the coastline to Christiansborg Castle, originally a Danish fort and now the residence of His Excellency the Governor and Commander-in-Chief of the Gold Coast Colony and its dependencies. Situated on this main road, in the neighbourhood of the Ridge, are various Government offices. Some of these offices have been rebuilt in a style and size that is worthy of an important capital; others are reminiscent of camping days in newly-acquired territory, but their out-of-date state in comparison with the Colony's achievements and possibilities is largely due to the war, which came as a hampering influence to progressive activities at a critical time when the country, which had for centuries been ravaged by slave raids and tribal warfare, had just begun to benefit from the stable government following on British occupation. Working under great disadvantages, the Government of the Gold Coast has rendered much practical assistance in promoting the industrial development of the country, notably by the provision of a widespread network of roads. Take care not to be tempted into saying unkind things about these roads, particularly when you return bruised and sore from a motor-bumping excursion along them by car or lorry. Remember they were carved out of jungle-lands at a time when funds were scanty and there was no great industrial achievement to prove beyond dispute the advisability of thus opening up

the country. Remember, too, that it was impossible to keep the roads in anything like proper repair during the war. Whatever be their faults, these roads are a fine testimony to a far-sighted policy, which has been a prime factor in bringing the country to its present stage of prosperity. The Government-made roads opened up possibilities for motor transport, and the well-organized development of motor transport facilities which followed, thanks to the enterprise of the British merchant community, is largely responsible for the success of the Gold Coast cocoa industry.

Further, as regards Government activities in so far as they have directly affected the cocoa industry, special mention must be made of the work done by the Agricultural Department, through the medium of travelling instructors and of object-lesson experiments at Agricultural Stations, notably at Aburi, near Accra, and at Coomassie.

Our host has just rung up from his office to say that, in accordance with the wish we expressed over lunch, the car is now on its way to the bungalow to take us for a last look at the commercial sights of the town before we go up-country.

Ten minutes later we are in the thick of cocoa traffic, constantly passing or meeting motor lorries with trailers, some piled up with sacks of cocoa that are being transported from the railway station to stores, others returning empty to the station to load up again for the stores, or going back to a store to get another load for stacking on the beach ready for shipment. Now and again we greet and are greeted by a white man, riding on a lorry, or, like us, going about his business in a car. But the pedestrian crowd that throngs the streets, the policemen, the motor

drivers, the boys perched aloft on cocoa bags and singing themselves hoarse—the whole populace, in short —consists of natives.

Outstanding among the buildings are the factories.

Let us make sure that we clearly understand the meaning of "factory" in the Gold Coast sense of the word.

A factory in this part of the world is a trading establishment, not a place fitted up with machinery and devoted to manufacturing according to the meaning we have been accustomed to associate with the name. The business of many of the factories is of a twofold nature—the purchase of produce and the sale of goods. For produce buying, the essentials of factory premises are a compound to serve as buying ground, office, warehouse, or as it is commonly called store, and residential quarters for the European staff; if the business includes the sale of goods, the premises must include a shop.

There are some old-style factory premises left even in the main street of Accra, as you see; they are the barn and loft type of building. The barns are still used as shops. You are not interested in such poor-looking shops? If you passed an hour or two in any one of them any day of the week, early morning time for preference, and counted up the amount of money that is spent by the natives, I fancy you would jump at the chance of having an interest in the business. The lofts now serve as quarters for black clerks or as extra stores; the white men who used to be the top-story inhabitants now go off in their firms' staff-car to their home on the Ridge when the shop is closed in the middle of the day, and when their day's work is done. Some of the modern shops have windows, and one of

them, of which Accra is justifiably very proud, is built and run on the lines of a European departmental store. Most of the shops cater for native custom only, and specialize in what are known as "trade goods"; cotton materials done up in long lengths and sold only by the piece, salt, hardware, kerosene, and beads are some of the principal lines in trade goods.

However wide or limited be the range of a factory's operations, cocoa buying on a large scale is, as a rule, one of its principal activities; indeed, some of the factories do no business other than cocoa buying.

The majority of the factories in the Gold Coast and Ashanti are owned by British firms, or groups of firms. Two or three French companies are, however, among the big proprietors. America, too, is now anxious to acquire an interest in established factories, and is also on the spot looking for opportunities to open up on her own account.

Every important organization operating on the Coast has a chain of factories, consisting of central establishments in Accra and Coomassie, the two hubs of the cocoa industry, and branch premises in the principal cocoa-growing districts. Large stores for warehousing cocoa, until such time as it can be railed and shipped, are a feature of all the factories; even in the remotely outlying districts many of the stores can accommodate 5,000 bags, each containing 140 lbs. of cocoa beans, and this though they are within motor lorry access of clearing stations that have stores with a 15,000 or 20,000 bag capacity.

Each chain of factories is controlled from home by its owners, the actual cocoa buyers. The head-quarters of most of the directorates are in Liverpool, Manchester, or London. The West African staff of

a chain of factories consists of European agents and assistants, together with a number of native clerks. On behalf of each directorate one European agent has charge of the Accra district, another of the Coomassie district; the assistants may be deputed by the agent whom they are under to help at his district factory, or they may be sent by him into the Bush to take charge of, or act as second-in-command of, a sub-station.

Our host is the Accra district agent for the purchase of cocoa beans in the joint interests of two of the oldest and best known English firms of cocoa and chocolate manufacturers, Messrs. J. S. Fry and Sons, Ltd., Bristol, and Messrs. Cadbury Bros., Ltd., Bournville, Birmingham.

CHAPTER VI

OFF TO THE BUSH

We are going by train from Accra to Tafo, the main artery of the most extensive cocoa-growing district in the Gold Coast. Although the whole distance to railhead at Tafo is only about sixty-six miles, we are not travelling straight through; our plans are made for breaking the journey at the principal cocoa stations *en route*, and staying at one and another of them long enough to enjoy a variety of excursions on foot and by motor to neighbouring and outlying scenes of activities connected with the cultivation of cocoa, the preparation of the beans for market, and the disposal of the crop. The country in which the cocoa farms are situated is usually spoken of as "the Bush," because it was practically all jungleland not long ago,

and forests are still in possession of numerous and often extensive tracts; the farms occupy clearings in the jungle, many of them being bordered by a stretch of forest on this side or that, whilst some are buried away in the very heart of a wilderness.

The principal cocoa stations on this line are Nsawam, Mangoase, Koforidua, and Tafo, at each of which there is a railway siding flanked by stores capable of housing tens of thousands of bags of cocoa.

We shall first break our journey at Nsawam, twenty-three miles up the line.

Our travelling companions in a first-class carriage —corridor pattern, unbroken by division into compartments—are Englishmen and West African negroes.

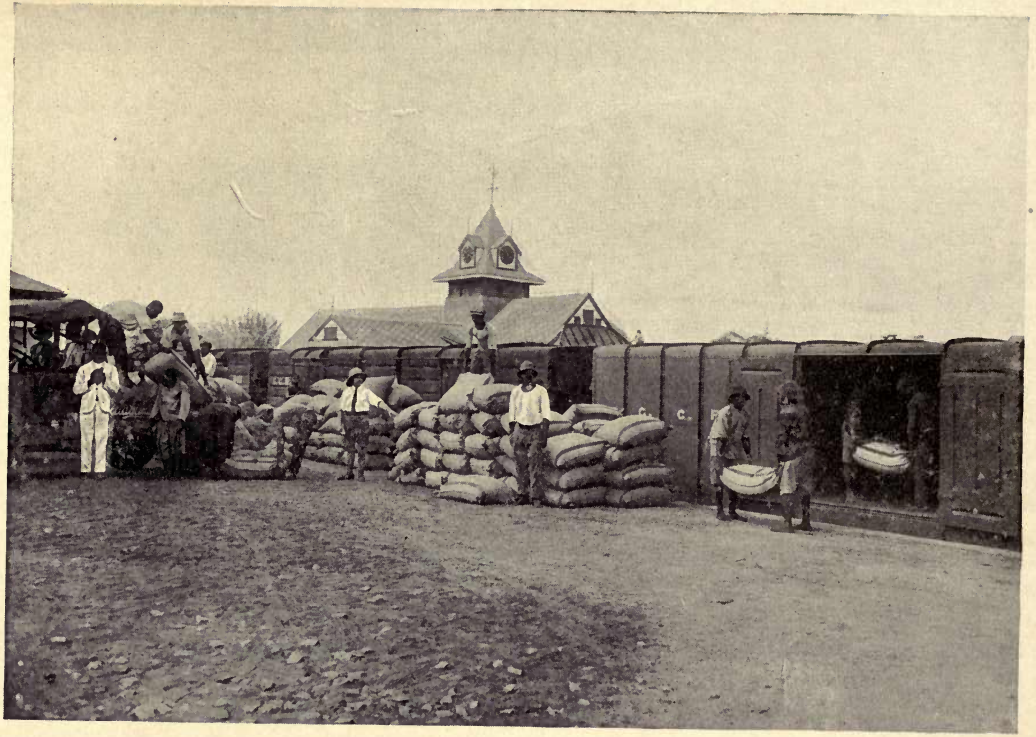
The Englishmen are all attired in the smart and business-like costume known as "Bush kit"—khaki drill shorts and shirt, helmet, strong boots, and puttees. One of them, as we happen to know because he is our host, is an agent going to kill two birds with one stone by acting as our guide and by making a tour of inspection to see how his assistants are getting on—examine their books, discuss prices, look into the quality and quantity of cocoa they have been buying the last few days, find out how the workmen are progressing with the bungalow that is being put up so that such or such an assistant at a newly-opened station may move out as quickly as possible from temporary quarters into a comfortable home, make a survey of prospects with a view to anticipating requirements in the way of sacks, scales, and motor lorries. . . . You are quite right, an agent holds a much more responsible position and has a great deal more work to do than most people would imagine; an assistant, too, if he is to make a success of his job

and qualify for promotion, must be a smart, steady, and industrious man, with plenty of initiative and self-reliance. For instance, you see that boyish-looking young Briton sitting opposite us in the far corner of our carriage: I happen to know, and I am sure you will be interested to hear, that he is a new assistant, just turned twenty-two years of age, who only arrived at Accra yesterday, and who is now off up the line to distribute several thousand pounds among fellow assistants who are buying cocoa for his firm; he has the money with him in sacks under his feet, and in suit cases on the seat beside him and in the rack over his head. Of our other European fellow passengers, three are fellow-countrymen, and two are Frenchmen; judging from their conversation, some are Old Coasters returning to their work of cocoa buying, and others are newcomers going to learn what it means to be an assistant at a cocoa-buying station.

The blacks who are travelling first class with us favour a negligé style of ready-made tweeds or boating costume; they are traders, we are told, doing a big business in cocoa as middlemen.

Everyone around us is talking about cocoa—the price is still rising, we hear, the present Big Season will be a short one, as there has been so little rain this year, so and so in such or such a place is buying more cocoa than any of his neighbours. We are getting used to cocoa as the sole topic of conversation anywhere and everywhere from morning till night; indeed, there is so much interest and excitement in the air over cocoa, and so much cocoa in evidence, that we ourselves are already beginning to talk, think, and dream of nothing but cocoa.

A few miles out from Accra we catch sight of cocoa



UNLOADING A TRAINLOAD OF COCOA BEANS AT ACCRA

trees, and as we get nearer to Nsawam they become a more and more prominent feature of the small farms on either side of the railway line.

We leave the train at Nsawam, and walk a few hundred yards to the bungalow residence of our host's assistant who is in charge of one of the many factories here. We are greeted with the typically warm welcome of the Bush, the welcome which in a twinkling turns strangers into friends and would fain make the visitor believe he is doing a favour by coming.

After a good breakfast, nicely served, to which we do full justice, our host of Accra and his assistant go down to the office for a few minutes to discuss business. During their absence let us have a further little talk about the cocoa tree.

There are several varieties of cocoa, each with its own botanical name. The distinctive names depend, mainly, on the shape and colour of the fruits, or, as they are more usually called, "pods," and on the internal colour of the beans within the pods. At first sight of beans taken from different varieties of freshly gathered pods you would probably think they are all white, because nature fits them carefully into the pods amongst a quantity of soft, pasty white packing material, which prevents them getting broken or scratched.

Most scientific experts divide the cocoa trees into two main classes—CRIOLLO and FORASTERO.

The CRIOLLO varieties have thin-skinned pods, with, usually, rough skins, and a shape resembling that of a plump ridge cucumber with a pointed tail end; the beans are generally white or pale coloured. The FORASTERO varieties have hard and thick-skinned pods something like a lemon in shape; the beans are usually purple in colour.

The CRIOLLO class includes several varieties of cocoa that have special characteristics allied with class distinctions. For instance, there is *Nicaraguan Criollo*, which yields very large but rather flat beans; and there is *Old Red Criollo*, with beans that are plumper and more rounded, but smaller than their Nicaraguan relations.

Similarly there are several varieties of the FORASTERO class: for instance, *Cundeamor*, with bottle-necked pods and very good quality beans; *Calabacillo*, with smooth, small pods containing small, flat beans; *Amelonado*, with medium size pods and medium quality beans that are all purple in colour and inclined to be flat.

Some authorities group *Calabacillos* as a separate class.

Trees of the same variety bear different coloured pods—some red, some yellow. To indicate the special pod-colour characteristic of a tree, the descriptive adjective *amarillo* (yellow) or *colorado* (red) is added to the variety name.

The full botanical name of the cocoa trees which are commonly grown in the Gold Coast and Ashanti is FORASTERO, *Amelonado amarillo*, which is to say, they belong to the yellow pod variety of the Forastero class.

The Criollos are the aristocrats among cocoa trees; they are delicate and difficult to cultivate, but they yield the best quality beans. The Forasteros are the middle class; they are moderately hardy and the beans are of medium quality. Calabacillos, the hardiest variety, will thrive under the worst conditions, but the beans come last on the quality list.

These distinctions in quality, as governed by class or variety, are founded on facts furnished by scientific

experiments. The actual quality of the cocoa beans of commerce depends largely on methods of cultivation and the amount of care exercised in preparing the crop for market. Thus, a good sample of Forastero beans will command a higher price than a poor sample of Criollos.

The homeland of the cocoa tree is South America, but the extent of country within which it originally grew wild is a matter of dispute.

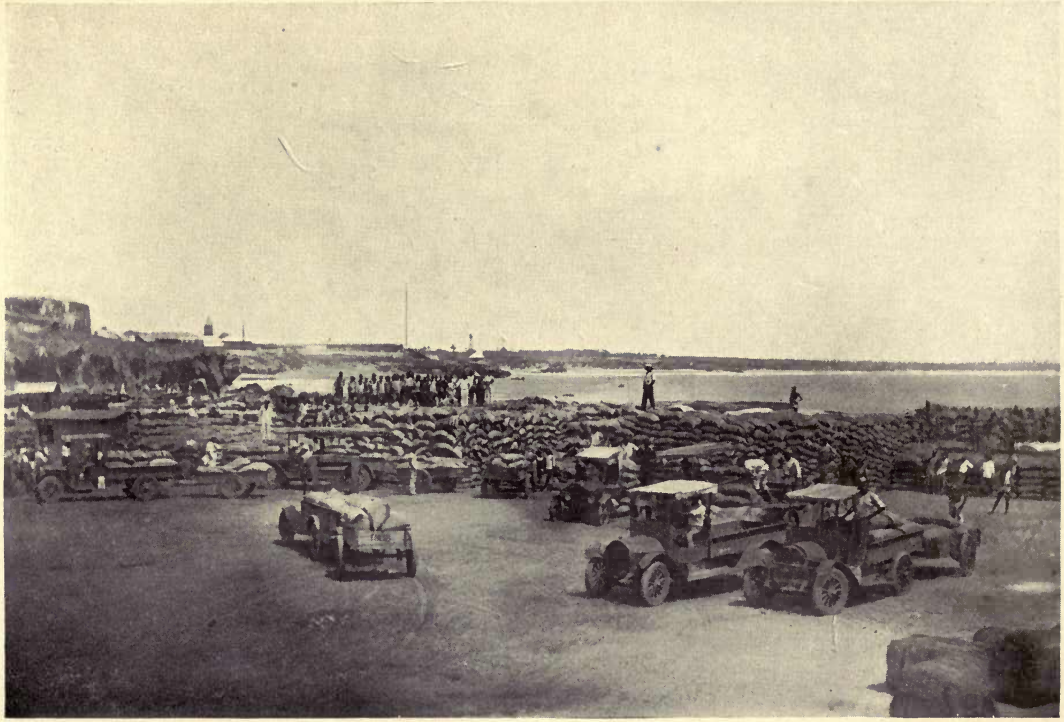
Wild cocoa trees are still to be seen in the primeval forests of the basins of the Amazon and Orinoco Rivers up to an altitude of about 400 feet. Many authorities bear witness to this fact, and, possibly, my statement of fact will have more power of appealing to your imagination when I tell you that I myself have had the joyously romantic experience of seeing wild cocoa trees in the Amazon valley. Some authorities are inclined to think that the native land of the cocoa tree extended northward into Central America as far as Guatemala, and eastward through Peru, Venezuela, Ecuador, and Brazil, into the Guianas and Trinidad.

Certain it is that when Columbus discovered the New World, the Indians—as he called the natives, through the mistaken idea that he had found a new route to India—were already cultivating the cocoa tree. They may have introduced the tree into Central America and Mexico, or it may have been indigenous to those countries as well as to the land farther south. You see how difficult it is to decide whether the old historians were correct in saying that cocoa trees were indigenous to such and such a part of the New World, since trees which they believed to be wild might very well have been the naturalized descendants of cocoa

introduced into that particular district by the Indians, or by early Spanish colonists.

Beyond all dispute, it is to the aboriginal Indians of South America—to mere savages, as we are pleased to call them—that the whole civilized world owes the discovery of cocoa. They singled out the tree from the multitudinous variety of trees in the tangled maze of primeval forests; they ran the risk of sampling the fruit, which might have been poisonous; they had the good taste to regard the fruit as a delicacy, the brains to make from the beans a beverage fit to serve at royal feasts, the common sense and enterprise to multiply supplies of the raw product by cultivating the tree that had proved such a find of finds in their forest homeland of hidden treasures.

The civilized Spaniard not only first saw cocoa trees in the land of the South American Indians and saw them under cultivation, too, but he learned from the savages there what good fare could be prepared from cocoa beans; it must have been a pleasant experience, judging from the accounts that have been handed down of the chocolate "froth" that was served in golden goblets at Montezuma's feasts. Unfortunately, the recipe of that delectable preparation has not been handed down. Have you read Prescott's histories of the Conquest of Mexico and the Conquest of Peru? If not, make an early opportunity of doing so after we get home from our travels together—they are more exciting than any adventure story that has ever been invented, and they teem with fascinating descriptions and stories of the homeland of cocoa, the lands in which the tree was first cultivated, and the people who first made beverages and sweetmeats from cocoa beans.



BAGS OF COCOA BEANS ON THE BEACH AT ACCRA AWAITING SHIPMENT

Cortez, the conqueror of Mexico, sent specimens of cocoa to his royal master, Charles V. of Spain. Spain was the first country to manufacture cocoa, and to her, therefore, belongs the honour of introducing cocoa to the civilized world.

CHAPTER VII

GOLD COAST COCOA FARMERS

Put on your helmets so that you can lean over the verandah without getting sunstroke, and look at the people who throng the village highway through Nsawam. They are the country relations of the natives we met in Accra; they are dressed in similar costumes to those worn by the blacks we have been meeting daily since we landed, they follow similar customs, and live on the same kind of chop.

The two principal tribes among the inhabitants of the Gold Coast are the Fantis and the Ashantis. There are several other tribes, who have played and are playing an important part in the history of the country, but they are minor elements as regards numerical strength.

Most of the natives you are now looking at here in Nsawam are Fantis, but mingling with the crowd there are several Ga folk, who are not of Fanti origin.

The Fantis form the bulk of the Colony's population; the Ashantis predominate in the dependency which bears their name. The homelands of the smaller tribes are along the coast; the Gas, for instance, are installed in the coast country round Accra, and for this reason they are often called "Accra people."

According to the traditions which have been handed down among the people, the Fantis and the Ashantis originally belonged to the same stock. The coast tribes are considered to be the descendants of an earlier race of settlers, who were driven within narrow bounds by an invasion of Northern people, the parent race of the Fantis and the Ashantis.

The invading race—so the stories go that are told to the pickins (children)—was composed of twelve tribes, and each tribe was called by a name that indicated the occupation of its members. Names, of which the English equivalent is Oil Palm, Cornstalk, Plantain, Leopard or some other animal or product familiar to the native, are still common among both the Fantis and the Ashantis. To-day, individual families, as distinct from tribal communities, follow a particular occupation—such as farming, weaving, or trading—for generation after generation, and they adopt the old name applicable to that occupation, no matter to what tribal family they belong. But in the "once upon a time days," probably, the "leopards" were all members of one, and one only, of the tribal families, whose special occupation was hunting; similarly, the "cornstalks" were members of a tribal family devoted, probably, to agriculture; and the "oil palms" of another tribal family that specialized in trading.

In further support of the traditional belief that the Fantis and the Ashantis were originally one people, there is the fact that their languages have a common origin—they are both Twi-speaking people. Quite a different language is spoken by the Accra people and other coast tribes.

A cotton "cloth," as you must have already noticed every day and many times a day since we landed, is a

feature of the Gold Coast style of costume for grown-ups, whilst a string of beads serves as full dress for most of the pickins. The men wear their cloth toga fashion, frequently without any undergarments, sometimes over a common woven singlet, sometimes over trousers, and sometimes over singlet and trousers; there is a half-comic, half-tragic suggestion of the sublime and the ridiculous in European clothes, which are generally rags of cast-off garments, peering through the folds of a picturesquely draped toga in cloth of artistic design and colour. The women wear their cloth hanging from under the arms like a high-waisted skirt; sometimes it is drawn round over a white muslin or flowered print jumper, but very often it affords a display of bare arms, shoulders, and low neck. The most fashionable clothes among the Fantis are, as you see from the costumes of the crowd you are studying, Oriental in design—indigo blue or white ground, with geometrical patterns in terra cotta and coppery hued shades of brown; these cloths are precisely similar in designs and colourings to those worn in the Far East as sarongs by the Malays and Javanese.

In the Gold Coast Colony most of the farmers are Fantis; in the dependency of Ashanti the land is worked by the Ashantis. In both territories, most of the farmers are smallholders; the exceptions to this rule are the headmen of a village, the petty chiefs, and the paramount chiefs, all of whom are big land-owners. All the farmers go in for mixed farming: cocoa and staple chop crops—such as yams, maize, Guinea corn, and plantains; unfortunately, there is a growing tendency to sacrifice food crops to cocoa. It is impossible to discover the area of land cultivated

by any farmer, or how many cocoa trees he possesses. Ignorance of such details is a valuable asset: practically every farmer has to pay tribute in money or in kind to someone above him—the yeoman to a headman, the headman to a village chief, the village chief to a petty chief of the district, the petty chief to a paramount chief. The less each one knows about what he possesses the more chance he has of getting off cheaply in the payment of tribute.

Both in the Gold Coast Colony and Ashanti the labourers on a farm consist almost entirely of the farmer's large family of near and distant relations; most of the work is done by women and children.

In the Colony, the Gas are frequently to be found acting as wayside cocoa dealers; you will see numbers of them, when we go out early one morning to watch cocoa being taken to market, standing in the country lanes trying to cajole the farmers as they come along into selling their cocoa to them, instead of taking it direct to the factories of the European buyers and shippers in the neighbouring village.

Here comes the car to take us to some of the farms around Nsawam.

"Ready," we reply to our host's summons, and suiting the action to the word we leave one entertainment to go on to another. The pleasure of moving on to fresh scenes in this country is always tinged with regret at leaving behind something of which we should have liked to see more . . . and some one of our countrymen who has made us very welcome.

LOADING COCOA IN SURFBOATS AT ACCRA

CHAPTER VIII

AMONG THE GOLD COAST COCOA FARMS

WE have come about five miles along the cross-country road to Asuboi. Onwards from the outskirts of Nsawam there have been cocoa trees to right of us and cocoa trees to left of us, and still we are running past cocoa trees, but never a sign can we see of anyone at work among them, or any trace of a path that might lead to a habitation.

Naturally, you are anxious to get a closer view of cocoa trees, so we will leave the car and strike off haphazard into their midst.

It is rough walking among the thick tangle of leaves, which look as if they were evenly spread carpet-fashion over level ground, but which in reality hide a series of treacherous hummocks and hollows. But how good it is to be in the shade . . . and no wonder you are enchanted by the beauty of our surroundings. Alone, amongst this boundless stretch of cocoa trees laden with ripe fruit-pods, do you not feel as if you had been wafted into some magic grove hung with golden lanterns ?

How came it to pass that these trees are growing here ? . . . Who planted them ? . . . Who looks after them ? . . . Is anyone going to gather the myriads of pods that look quite ready to be harvested ? . . .

I know there are endless questions you are burning to ask me, and all in good time I hope to answer them for you. But as far as possible, in the time at our disposal, I want to *show* you the answers to your questions, and as the farmers, who are all their own

masters, only work when the fancy takes them, we must take our chance of finding someone doing each of the many kinds of work that make up the whole business of cocoa production.

Now that we are in the midst of well-grown cocoa trees that are ready to yield a harvest, let us have a little talk about the general methods of bringing the crop to this stage in the older producing countries, and see how far those methods are practised by the newest competitors, the Gold Coast farmers, who have so rapidly won fame as the biggest cocoa producers in the world.

The first step towards creating a cocoa farm is known as—

CLEARING.—In common with most sites suitable for cocoa cultivation, this land on which we are now standing was originally occupied by tropical jungle. A good clearing is made by cutting down all undergrowth, felling all trees, removing as much of the valuable timber as can be transported by available labour, setting light to the remaining débris, and ultimately grubbing out roots when the bonfire has done its work and the ashes are cool.

The Gold Coast farmers are not ambitious to make a good clearing; their idea is to get rid of forest encumbrances with as little trouble as possible. They cut down the undergrowth, and fell only the small trees that can easily be removed for firewood; the burn-off is made with the big trees still standing. There are numbers of the old forest trees, as you see, towering above the cocoa trees around us; unfortunately, most of them are cotton trees, the best-loved haunt of an insect that is among the cocoa tree's deadliest enemies.

PLANTING.—Cocoa trees are raised from seed.

The seeds, which should be carefully selected from the yield of healthy and highly productive trees, may be reared in a nursery or sown in the ground which the trees are to occupy; the latter method is known as "planting at stake"—holes are made in rows at regular distances apart, and three seeds are planted in each hole; of the seedlings which come up, the weaker ones are thinned out, and the strongest of each group left in position. If reared in a nursery, seedlings are transplanted when they are about a foot high.

Young cocoa is usually tended to the point of being pampered, so delicate has it proved in most countries where it has been induced to grow. The seeds are often sown separately in little "pots," consisting of lengths of bamboo cut off at the joints. But no matter whether the seeds are sown in pots, in a well prepared nursery bed, or at stake, the rule is to shade the precious little seedlings. Plaited palm leaves are commonly used for shading the baby plants. Temporary shade is also provided for the trees, until they are about three years old, by catch crops, such as plantains, bananas, or cassava, planted between the rows of cocoa; these catch crops are removed in due course, so that they shall not strangle the main crop and rob it of nourishment. In some countries permanent shade trees are also interplanted at carefully calculated distances between the rows of cocoa.

Outside the Agricultural Stations you may search the Gold Coast in vain for a cocoa nursery, or anything approaching it in character. The seeds are sown mustard and cress fashion, in any bit of ground that has been scratched over with a primitive, short-handled hoe. Strange to say, too, they come up as thick and vigorous as a bumper crop of mustard and

cress, and they grow and flourish exceedingly well, although they are not given any artificial shade; nor are they by any means always located in a naturally shady spot, for you may often see crowds of them growing by the roadside, exposed to the glare of the sun. When the seedlings are moved to their permanent quarters on the farm, they are not planted in rows or in accordance with any scheme of regular spacing. They are put in anywhere on the clearing so long as they are so close together that as they grow up their branches will meet to form a "solid" roof. By excluding the light, this roof discourages the growth of weeds and thereby lessens labour. Plantains are liberally interspersed among the cocoa seedlings; the plantains are not treated as a catch crop and removed in due course when the cocoa trees are well established; consequently, when both crops are grown up, they are very much in a tangle.

GROWING HABITS.—Cocoa trees grow to a height of 20 feet to 30 feet. The young leaves are yellowish brown in colour; the older ones are bright green and of a remarkable size—12, 14, 18 inches or more in length. Tiny little pink and yellow blossoms grow in clusters on the old limbs and on the trunks of the trees. The wee flowers give place to little fruits like baby cucumbers, and in three or four months, if the weather is favourable, these develop into big pods. The clusters of flowers are called "cushions." Notice how very short and slender are the little stalks by which the big pods are attached to the cushions. Big leaves, tiny flowers, big pods, little stalks—do you not find such differences in size of details very striking, and is it not very strange to see fruit pods growing on the trunks of trees? The

pods are green until they begin to ripen, when they turn yellow or red, according to the variety of the tree that bears them. The trees by which we are surrounded are, as you know, all members of the Forastero class, variety *Amelonado amarillo*; consequently, the ripe pods are all yellow. The average length of cocoa pods is from 6 to 12 inches, according to the variety of the tree; actual length and bulk of the pods vary very considerably with weather conditions, as also does the number of pods on a tree. Rain helps to swell the pods, and sun, of course, is needed to ripen them; a cold, dry wind has a shrivelling effect, and young pods are apt to drop off wholesale under such an influence.

The trees begin to flower, as a rule, when they are three years old, and to bear fruit onwards from their fourth year. They should be in full bearing by about their twelfth year. They may live and be productive until they are sixty years old or more, but their length of life depends very much on the way they are treated, particularly as regards the amount of care taken to safeguard them against disease. The trees flower and fruit all the year round. Look carefully at any tree which happens to be near you, and you will find on it flowering "cushions" to which are attached pods in various stages of development, from infancy to maturity. But although there are ripe pods to be gathered at all times of the year, there are special harvest seasons due to the tropical succession of rainy and dry seasons. In the Gold Coast the Big Season begins about the middle of October and lasts until about mid-January; this is followed by a Small Season between March and May or early June.

METHODS OF CULTIVATION.—In most cocoa producing countries a considerable amount of work is

regularly done on the land in the way of weeding, pruning, digging, mulching, and manuring, and a great deal of trouble is taken to combat disease.

In the Gold Coast, the great majority of the farmers give their cocoa little or no cultural assistance from one year's end to another, beyond drawing up some of the fallen leaves to the base of the trees—they do not even loosen the soil before applying the mulch. And if disease plays havoc with the trees on one bit of ground, they leave that plot to its fate and plant up a fresh clearing with cocoa. Very often the newly-planted plot is quite close to the abandoned one, which is to say very near a danger source of infection.

CHAPTER IX

AMONG THE GOLD COAST COCOA FARMS (*continued*)

As there is still no one to be seen we go back to the car and slowly continue our journey along the road, all the time on the lookout for any sign of cocoa being gathered or anyone who can tell us where we may possibly find someone who has elected to have some plucking done to-day.

We have come about a couple of miles further when out from a stretch of bushland emerges a boy, carrying on his head a calabash full of fresh cocoa beans. Fortunately, he savvies a little "pidgin" English. He offers to guide us to a farm where he thinks some pods are being harvested.

"How far away?" we ask.

"He be small far," is the reply, which means to say, "far, but not very far," and that may mean any distance from a hundred yards to ten miles.

After following our guide for about a mile and a half along a Bush trail and through trackless belts of cocoa trees, we suddenly come upon a typical harvest scene on a Gold Coast cocoa farm—a family party of men, women, and pickins are leisurely helping each other to get in the crop.

HARVESTING COCOA.—In gathering cocoa pods, great care must be taken not to injure the "cushion" of flowers to which they are attached, for damage to flowers means, of course, less chance of pods forming for a succeeding crop. The little stalks by which the pods are suspended are so short, and the tiny flowers grow so close to them, that a very little carelessness in harvesting the crops may do much harm to the trees. Care must be taken, too, in selecting the pods to be harvested; they should not be under-ripe or over-ripe, for the quality of the cocoa will be impaired if the beans are taken from any but just nicely ripe pods.

The pods are detached singly by severing their stalks. Those which can be reached from the ground are sometimes plucked by hand; a firm hold is taken of the pod, and the stalk is broken by a turn of the wrist. A better method is to hold the pod in one hand and cut through the stalk with a sharp-edged tool. The pods on the higher branches are detached by means of an improvised or specially designed picking implement.

The men of the party we are watching are doing the picking. They use a cutlass for severing the stalks of the low-hanging pods; for detaching the pods aloft, one of them is armed with a long piece of bamboo to the top of which is tied an old jack-knife, and the other with an up-to-date specimen of picking implement, consisting of a long handle of broomstick style, which

is fitted with a movable blade that is worked by a cord.

The women and children have been gathering up the pods as they fall, and heaping them at the foot of the trees. Presently, some of them start piling up the pods in big baskets. A few minutes later a little procession moves off carrying the heavily laden baskets on their heads. What a pretty picture the carriers make as they wend their way through the leaf-strewn spaces between the near neighbouring trees—the blues and browns of their draperies mingle with the green and gold of the cocoa trees to present a fascinating colour scheme, and the repetition of the golden note in the headloads of ripe pods might well be a master artist's touch. And is it not a joy to watch these people walk? They hold themselves so well, and have such wonderful control of their movements, thanks to a gymnastic exercise in which they are trained from the time they can run alone—the exercise of balancing on their heads anything they may have to carry.

The pods that have been harvested to-day, together with those which were gathered yesterday and left at the foot of the trees, are being taken by the carriers we are watching to a spot near the farmstead's compound, ready to be broken open for the beans to be extracted.

We express a wish to follow the carriers, in order to see something of the next stages in the work of cocoa production.

We can go where we like on the farm, we are told, but to-day no one here will be doing any of the other kinds of work we want to see; if we like to come again to-morrow . . . or the next day, perhaps. . . . Well,

FERMENTING COCOA : GRENADA (BRITISH WEST INDIES)

yes, it is just possible that someone on a neighbouring farm is getting beans ready to ferment, and if we discover some folks over yonder doing what we want to look at next, perhaps they will be able to tell us where there is a chance of finding someone else attending to beans in other ways. Certainly, one of the men will come with us to show us the way to a place where one of the women thinks we may find pods being opened.

Breaking Cocoa.—For mile after mile we plod after our new guide. We are drenched to the skin with steam heat, very weary of struggling through trackless seas of leaves and negotiating the stony beds and swampy morasses of parched streams. Our leader seems to be taking us on an exploring expedition that is akin to a wild goose chase. Comes the moment when our courage fails us to the point of urging us to discuss whether we shall turn back and make for the car, but we decide to follow on in case we should be nearly "there." A few minutes later we sight our reward.

Seated on the ground in a rough semicircle, around a mound of pods and a heap of beans, is a family party. With a cutlass the men slash open the pods, and, using the point of the cutlass as a scoop, they toss the contents of each pod on the heap of beans at their side.

Each pod contains about forty beans, arranged, as you see, in rows. The beans are held together in one slimy mass by a sticky white pulp, and it is in one mass, usually, that the contents of each pod are extracted at the point of the cutlass.

The women of the party are busy breaking up the sticky masses into single beans, and picking out rubbish

such as bits of stalk and pod. They do this messy job with their hands.

FERMENTATION.—Fermentation, otherwise known by the highly descriptive name of "sweating," is one of the most important operations in connection with cocoa production, for the quality of the beans is affected to a considerable extent by the care—or carelessness—with which it is carried out. During the sweating process the acrid pulp surrounding the beans runs off as a fluid, and the beans undergo a chemical change; further, at the outset of the treatment the beans all look white, because they are wrapped in a jacket of white pulp, but in the course of sweating their bodies emerge in their natural colour, which gradually deepens in tone—the pale coloured varieties assume a cinnamon-brown hue, and the purple varieties turn chocolate-brown.

You notice that the beans which we now see being picked apart are heaped up on plantain leaves. When the picking over is finished, the heap will be covered with plantain leaves and left to ferment. Fermenting beans should be uncovered and turned over once a day, or at least once in two days, whilst they are under treatment, otherwise some will be underdone and others will sweat themselves together into a mildewy mass.

The length of time necessary for fermentation varies with climatic conditions, but averages about six days.

Most of the Gold Coast farmers follow the primitive method of fermentation we now see being practised, or some primitive variation thereof—they leave the beans on the ground, or in a hole in the ground, piled up on plantain leaves and covered with plantain

leaves. Usually, they turn the beans, but not as frequently and thoroughly as is desirable.

In countries where cocoa production is carried on under more advanced methods, the beans are put to ferment in specially designed bins or boxes, fitted with perforated bottoms through which the acrid juice can escape; special care is taken, too, to see that the beans are regularly and thoroughly turned.

Drying.—After fermentation the beans have to be dried. Artificial drying in specially constructed "hothouses" is resorted to in some countries, but sun-drying is more common and by many experts it is considered preferable.

The Gold Coast farmers have nearly all advanced beyond the very primitive method of spreading the beans just anywhere on the ground to dry.

Another "small far" walk brings us into the midst of a typical Gold Coast cocoa-drying scene. Several mud huts, thatched with grass, are grouped at close quarters round a "compound." The open-air compound is the centre of a small clearing in a maze of cocoa trees, alternating with patches of virgin bush; it is the common yard which serves as playground and cocoa-drying ground for the numerous branches of the farmer's family who live in the mud huts. Within this compound are several raised platforms, with rough-hewn timber legs, and a lath flooring of split palm-leaf ribs. The laths are covered with home-made mats of plaited grass. Spread out on the mats are cocoa beans which have been headed from the fermenting heaps to this sun-cure centre, where they finish their whole course of preparation for their journey to the world's markets as "raw cocoa."

CHAPTER X

GOING TO MARKET

We have travelled by train to Mangoase, thence up the line to Tafo; and from Tafo we have returned by car to Koforidua, where we are now staying.

It is early morning. The sun has only just risen, but we are up and dressed and sitting on the verandah of the bungalow that has been our happy home for the past two days. Eagerly we watch the road that skirts the garden.

Presently, round a bend in the road comes a figure carrying a white bag on his head. He is followed by another and another, each balancing a headload that looks as if it might be a bundle of linen. We snatch up our sun helmets and hurry out. The spectacle for which we have been waiting has begun . . . the farmers and their families are bringing in their cocoa for sale.

By the time we reach the road, crowds of carriers are in sight. On they come, in an endless but broken procession of groups, twenty, thirty, fifty or more men, women and children to the group. Everyone is heading a load of something to market, and most of the loads consist of sixty pounds of cocoa beans in a white or blue and white cotton wrapper. Some of the very small pickins have loads which look bigger than themselves. At intervals a man appears on the scene, rolling along an enormous barrel; these barrels contain 5 cwt. or half a ton of cocoa beans, according to whether they are of the puncheon or butt size.

The prevailing style of dress is a more or less scanty attire, but the whole effect of the costumes in this great march of darkies to market is very picturesque. Here

comes a man in a blue and white " toga " cloth, which is draped to leave black legs, arms and right shoulder bare and free; he is heading cocoa beans in a white cotton bag. Follows a youth bare to the waist and up to the knees, but clad about the loins with an indigo and cinnamon hued cloth of Oriental design, worn short-petticoat fashion; his headload of cocoa beans is in a blue and white wrapper. Close behind comes a striking study in black and white; a woman whose black skin shines like ebony against her dull black draperies is balancing a white cotton load on her woolly head. Striding with stately gait alongside this woman is a tiny pickin, who helps himself along with a pilgrim's staff; he is wearing a ragged nightshirt and a scarlet and gold smoking cap, and by the help of a blue and white head-pad he balances a huge brass bowl piled up with plantains. His near neighbouring, childish companions in the procession include a little girl dressed in a string of beads, who is heading a load of cocoa to market, and a small boy in bathing drawers, who is almost lost to view under the bundle of wood stacked up on his head.

Similar processions to that in which we are joining are now wending their way to Nsawam, Mangoase and Tafo, and to numerous sub-stations which are feeders for the main buying stations in the Accra district. Similar activities, too, are in progress in the Winnebah cocoa district and in the cocoa-growing region of Ashanti. And throughout the season, similar busy scenes, and others at which we are just going to have a peep, are matters of daily occurrence.

Cocoa beans in the Gold Coast and Ashanti are all grown and prepared for market by natives. The buyers, however, are natives and Europeans.

The trading methods of the native buyers are apt to be against the best interests of the industry. All the native traders are more or less educated, and their knowledge encourages an inborn instinct for trading to make opportunities for what they consider " smart " dealings. Many of them take advantage of their ignorant farmer brethren by means of such tricks as can be played by people who understand the working of scales and are able to count and do a little mental arithmetic. Most of them, despite any education they may have, are too ignorant to see the folly of buying any rubbish that is brought to them, and of mixing good, bad and indifferent cocoa beans.

There are three classes of native cocoa buyers: Freesellers, Middlemen and Shippers.

The Freesellers are the worst offenders. They are itinerant middlemen, in a small way of business, who take up a free-of-charge stand by the roadside, all along the roads between the farms and the nearest centre to them in which the European factories are situated. They congregate, too, in some street or open place near those factories; the most frequented pitch is commonly known as the " cocoa market." The freesellers and their scouts favour a sports style of English summer costume, slop made or second hand. They are good at palavering, and use other means, such as the bribe of payment in silver, for inducing the farmers to bid their carriers drop their loads on the wayside scales. During the mile or so walk into Koforidua which we take in company with the procession of carriers, we see many a group fall out by the way to do business with the freesellers.

The freesellers dispose of their produce to native middlemen, who, as a rule, resell to natives in a

comparatively big way of business as buyers and shippers.

The European factories buy, for the most part, direct from the growers. They seldom have any dealing with the freesellers, but their clients sometimes include a middleman who has the reputation for selecting the best of his produce to offer them.

On arrival at Koforidua, we notice that the carriers are flocking into the town, in spite of the wiles of the freesellers en route. Here the procession scatters. One group of carriers stops at the shanty store of a native middleman, two or three groups turn into the compound of one European factory, other groups into the compound of a European factory opposite or a few yards up the road. The majority, guided by the farmer heads of families, take their loads to one or other of the European factories, and the biggest crowd congregates in the compound of the white competitor who is this day offering the highest price for cocoa beans.

At the European factories the buying is all done by white men. Each load of beans offered for sale is examined, and if the quality is up to the firm's "passable" standard, the load is weighed, the correct weight and corresponding value are called out and entered on a slip of paper, and the beans are turned out into one of the firm's sacks; the native who has sold the cocoa beans takes the slip of paper to a white cashier, in an office close by, receives payment, ties up the notes in a handkerchief or tucks them into a fold of his toga, collects his carriers and starts off on the return tramp to his farm.

Any beans which are not considered sufficiently dry for packing are spread out in the sun. There are

concrete drying grounds for this purpose in the compounds.

For transport, the beans are packed into large sacks, or, as they are commonly called, " bags." Each filled bag is dumped on to platform scales by darkie yard-boys. When the scales register a certain exact weight—usually 140 lbs.—the bag is hauled off the platform and passed on to another gang of darkies, whose business it is to sew up the mouth. The bags are next stacked in the factory's store, flanking the railway siding.

From the up-country stores, the bags of cocoa beans go by train to Accra. Here, the Agent of the European firm to whom they belong must arrange to meet them with motor lorries and be able to give them storage accommodation until such time as there is room for them on a steamer going to the land of their destination. When the Agent is advised that such a steamer is due in the Accra roads, the cocoa bags are taken by motor lorry from store to beach, where they are stacked up so that no time may be lost in getting them aboard. When a steamer is expected in, homeward bound for England, France or America, the beach at Accra is suggestive of a cross between Brooklands on a race day and Yarmouth sands on August Bank Holiday, except, of course, that everyone in the crowd is hard at work instead of hard at play. When the steamer drops anchor, the scene is still more animated, for every bag of cocoa has to be carried down to the water's edge and taken in a surf boat to the ship.

DRYING COCOA : GRENADA

CHAPTER XI

WE GO TO ASHANTI

FROM Accra we return by boat to Seccondee, whence we go by train to Coomassie, the capital of Ashanti.

The distance by rail from Seccondee to Coomassie is 168 miles, and under existing travelling conditions the journey takes about twelve hours. The train passes through African junglelands that present gorgeous pictures of forest trees and flowers, reveal exciting glimpses of famous goldfields, and recall modern history stories of savagery, memories of which almost make one's hair stand on end.

At Coomassie we are met by our host and his wife. He is the Agent-in-Charge for the same British cocoa-buying organization with whose representative we stayed at Accra. His wife is one of the twelve white women in the whole European population of Coomassie, which now reaches a total of about eighty.

Our host and hostess prove to be two of the kindest of all the kind people it has ever been our good fortune to meet on our travels. All day and every day they devote themselves to making our study of Ashanti cocoa production a varied round of entertainments, and their many good friends in the neighbourhood play such an active part in this conspiracy in our honour that we shall always remember Coomassie as one of the most hospitable places we have ever visited. It is, too, a particularly picturesque and historically interesting city.

Ashanti is now a Dependency of the Gold Coast Colony. We shall better understand and appreciate the country as we find it to-day if we remind ourselves how it came under British rule.

All of you, of course, have heard of the Ashanti wars, the last of which was fought as recently as 1900. Doubtless, too, you know something of the fame of the Ashantis, in days not long gone by, as a savage race of born warriors, who threatened to overrun a great part of West Africa. In putting an end to the Ashanti reign of terror, our old British Army—the now revered Contemptibles—had to employ the pick of its troops. During the long and fierce struggle, Coomassie and the neighbouring country were the headquarters of the Ashanti kings and their most powerful chiefs. In 1875, when the Black Watch made their famous entry into Coomassie, the place was a primitive native village. The first European building of any importance to be erected there was the British Fort, which was begun in 1896. In this little stronghold the Governor of the Gold Coast, his wife, his staff, a few soldiers, and some missionaries, endured one of the most terrible sieges in the history of the British Empire. That siege is a very modern history story, dating back only to 1900, and in 1900 the whole of Ashantiland was still one of the most fearsome parts of Darkest Africa.

The Coomassié of to-day is a garrison town, designed on garden city lines and occupying an extensive clearing. It is well planned, many large buildings of a permanent character have already been erected and others are springing up rapidly, and there are numbers of roads leading out in all directions to the surrounding country. Special quarters, devoted to special purposes, have their individual characteristics; thus, large "factories," similar to the commercial premises known by that name in the Gold Coast, are features of the European business section; bazaars and market-places are the pulse of the crowded native quarter; the Fort,

officers' bungalows, and barracks, typify the Government centre; and pretty country houses, situated in spacious grounds, are conspicuous in the European residential reserve. But whilst Coomassie has something different to show us at every turn there is a charm common to every part of the town.

Whence springs that charm? Day after day, and many times a day, we put this question to ourselves and to one another. Sometimes we think the key to the secret lies in the happy and contented appearance of all the inhabitants, Europeans, Ashantis, Syrians, and Hausas, each in their way being merry and prosperous. Sometimes the explanation seems to be the cheery presence of gardens everywhere, even the roads in the heart of the town being showgrounds of avenues of trees and flowering shrubs. As we look on the graves of the men who gave their lives to keep the old flag flying, as we stand by the well to which the besieging hordes of Ashantis gallantly allowed our besieged fellow-countrymen to go unmolested to fetch water, or as we pass the now overgrown bush trails along which the majority of the emaciated garrison cut their way out to seek for help and the relief force at last dashed to the rescue of those who still held the Fort, we swallow a lump in our throats and feel that Coomassie's power of fascination for us lies in its historic associations, which are so much a part of our times that we have met people who went through the siege. Be the explanation what it may, there is something that gives individuality to Coomassie, and it is something with a strong power of appeal.

The flourishing and progressive condition of Coomassie as we find it to-day is due to the successful development of the cocoa industry by the Ashantis as

farmers and by British merchants as organizers of the export trade. Is it not an extraordinary record of civilization for a born and bred fighting race such as the Ashantis to have settled down, within the short space of twenty years, to the peaceful pursuit of cocoa farming, and to be making a phenomenal success of their new career ?

Between the British and the Ashantis there is the bond of mutual respect for " grit." Already that bond of esteem has led to a mutual friendship which is acting as a prime factor in the rapid regeneration of Ashanti.

Wherever we go amongst them the Ashantis give us a right royal welcome. We do not like all their habits and customs, but as a people we like them very much, and we believe they have a great future before them in their remarkably rich country. Indeed, under the new régime in which they have become partners of the British Empire, we see Coomassie, at a not far distant date, as one of the leading cities of Africa, and Ashanti as one of the Empire's main sources of wealth in minerals and tropical agricultural products.

CHAPTER XII

COCOA IN ASHANTI

From Coomassie we make numerous excursions to the surrounding country. Everywhere we go we see multitudes of cocoa-trees, alternating with stretches of forest or occupying a clearing in the heart of the jungle. The situation of the cocoa farms, the numerical strength of the trees, methods of cultivation, the way in which the crop is harvested, fermented, dried, and taken to market, and the quality of the beans, are all reminiscent of cocoa production as we have become

familiar with it in the Gold Coast Colony. We are constantly being confronted with evidence which goes to prove that Ashanti, no less than the neighbouring colony, is richly endowed by Nature for cocoa production.

Particularly interesting and enjoyable is our visit to the Coomassie Agricultural Station, a Government enterprise, consisting of gardens and experimental plantations cultivated under the direction of trained agriculturists. The senior curator acts as our guide, and at the outset of our tour he impresses on us that his labourers are all Ashantis, that they use their own primitive style of agricultural implements, and that they are only taught the simplest agricultural methods.

The main purpose of the station, of the instruction that is given there, and of the work done by the staff of travelling instructors, is to give simple object-lessons showing how the farmers could improve their crops by taking more care over details, such as seed selection and everyday measures for the prevention of disease. The same policy and similar methods are pursued at all the agricultural stations which have been established in the Gold Coast and Ashanti, and thanks largely to the whole-hearted service of the Director of Agriculture and his staff, to the trouble taken by these experts to understand the character of the natives, and to their infinite patience, considerable progress is being made in the education of the farmers, as we shall presently see when we visit a cocoa farm as developed by one of the curator's model pupils.

Ashanti has struck us as being quite as rich an agricultural country as the Gold Coast. Our peep at the Coomassie Agricultural Station strengthens this impression. Here, where the land is cultivated with knowledge and care, we are in a veritable paradise.

Here we see not only the ubiquitous cocoa-tree, but as witness to Ashanti's magnificent possibilities there are flourishing crops of ground nuts, kola nuts, oil palms, rubber, cassava, rice, coffee, and numerous other tropical products. There are tropical fruits, too, in abundance and infinite variety, and, wonder of wonders, there is a model English market garden, where fine crops of lettuces, cabbages, runner beans, onions, beetroot and artichokes proclaim the good news that Ashanti is capable of producing health-giving fresh vegetables.

We are, of course, specially interested in the station's cocoa plots. We notice that nowhere is the undergrowth allowed to reach bush heights, as is common on the farms, that the trees are pruned, and that the fallen leaves are used as a mulch. The plots are respectively occupied by different varieties of cocoa-trees, which are being cultivated by methods that could easily be followed by the farmers, should experiments prove that some variety of cocoa, other than the now commonly grown Forastero, *Amelonado amarillo*, would yield a richer harvest, particularly in the way of better quality beans. As indicative of the farmers' possibilities of increasing their output, it is interesting to know that the average annual yield per tree of the Forastero, *Amelonado amarillo*, grown at the Coomassie Agricultural Station is 7 to 8 lbs., and the record yield 14 lbs., as against the average annual yield of 2 to 3 lbs. per tree on the farms.

A few days later a merry party of us set off by motor, under the guidance of the curator, to visit a model cocoa farm. The model farmer, who turns out to be an important chief, meets us at a village a few miles out of Coomassie. Onwards from this point the only means of access to our destination is a bush trail.

We have trekked for about three miles through dense forest when the trail merges into a broad path, and the jungle gives place to a vast clearing planted with cocoa-trees. We have reached the chief's cocoa plantation, and in comparison with anything we have seen so far it is certainly a model farm. On the authority of the curator, this farmer-chief carries out, generally speaking, the instructions of the agricultural department. We notice that the undergrowth is kept down; that the trees have been pruned to the extent of having dead and diseased branches removed; that wild cotton-trees, which are a feature of the average farm and the beloved haunt of one of the cocoa-tree's deadliest enemies, are conspicuous by their absence; and that the plantation is intersected by clear-kept paths which give easy access to the trees for cultural attention.

The principal enemies to the cocoa-tree are:

Pod Rot.—A fungus which spreads rapidly over the surface of the pod and penetrates to the beans.

White Thread.—A fungus which affects the leaves. The white threads travel quickly among the leaves, killing every branch they attack. The whole tree dies unless the affected limbs are removed.

Pod Borer.—A moth, or, to use the family name by which the insect pests are commonly known, a "cocoa bug." In science, it belongs to the *Helopeltis* species, and in everyday language it is called the "cocoa mosquito." It punctures the pod to attack the beans. The outward signs of its ravages are small black spots.

Cocoa Bark Sapper.—A very deadly bug belonging to the *Sahlbergella* species. Large black spots near the base of cocoa pods are the mark of this beast. The native names for it are "Akati" and "Sankouabi." The latter means "back to the oil palm," and the idea

at the back of the meaning is resignation to an evil against which even the fetich man cannot supply a juju (charm). Here is a fuller translation of "Sankouabi": We can't fight against fate, so when this evil spirit attacks our cocoa-trees, let him do his worst, and if worst comes to the worst we will go back to collecting the fruit of oil palms, the trees which the good spirits cause to grow wild in abundance in our forests and to yield a crop which we can easily exchange for chop and cloth.

Big Bug.—A particularly deadly enemy, which makes black punctures that distort the pods. Fortunately it has not so far become a prevalent danger in the Gold Coast and Ashanti.

Other pests in this part of the cocoa growing world are squirrels, rats, and bush deer.

The cocoa-tree was introduced into the Gold Coast by a native of the colony. Previous to its introduction the people of that country had no agricultural knowledge or experience other than what they had gained by growing food for themselves, and their crops were of the temporary kind known as annuals. By taking up the cultivation of cocoa they made their first attempt to establish a permanent crop, which for such a people was a revolutionary enterprise and a big stride towards progressive civilization.

With our own eyes we have seen something of the astounding success with which that enterprise has been pursued. Here, briefly summarized in figures, is the record of achievements: The first export of cocoa beans from the Gold Coast was in 1891, and the total shipment was 80 lbs.; the total had risen to 960 tons by 1901, to figures which eclipsed those of any other country in the world by 1911, and to 90,964 tons by 1917. The estimated output for 1919 was 180,000 tons.

GIRLS ON COCOA PLANTATION : TRINIDAD (BRITISH WEST INDIES)

The stupendous figures for the last few years include the rapidly increasing output from Ashanti.

British merchants and manufacturers, as we have seen, have played the leading part in developing the Gold Coast cocoa industry on the export side. We know, too, that the Agricultural Department has rendered valuable service. But whilst we should not forget to give credit, where credit is due, to the Europeans who have helped to make a success of the industry, we must remember that it was the people of the Gold Coast themselves who founded the industry, and that, commercially speaking, it is these people and the Ashantis who have planted all the cocoa-trees and who have produced and are producing every bean of the total exports. In all the circumstances let us rejoice that these people have made the British Empire the biggest cocoa producer in the world, rather than bemoan the fact that, at this comparatively early stage in their civilization, they have not shown an "infant prodigy" ambition to adopt modern agricultural methods and to improve the quality of their output.

Still, for their own sakes, for the sake of their country, and for the sake of the Empire in which they are now partners, it is to be hoped that the farmers will soon begin to see more clearly that they need to raise the standard of their efforts and of their ambitions. There is no country in the world in which cocoa can be grown as easily and as cheaply as in the Gold Coast and Ashanti. An outside estimate, based on numerous inquiries we have made on the spot, puts the all-in cost of production at 5s. per load of 60 lbs. At the outset of the cocoa-growing enterprise, natural advantages proved a blessing by acting as an encouragement to a people who were making their first experiment with

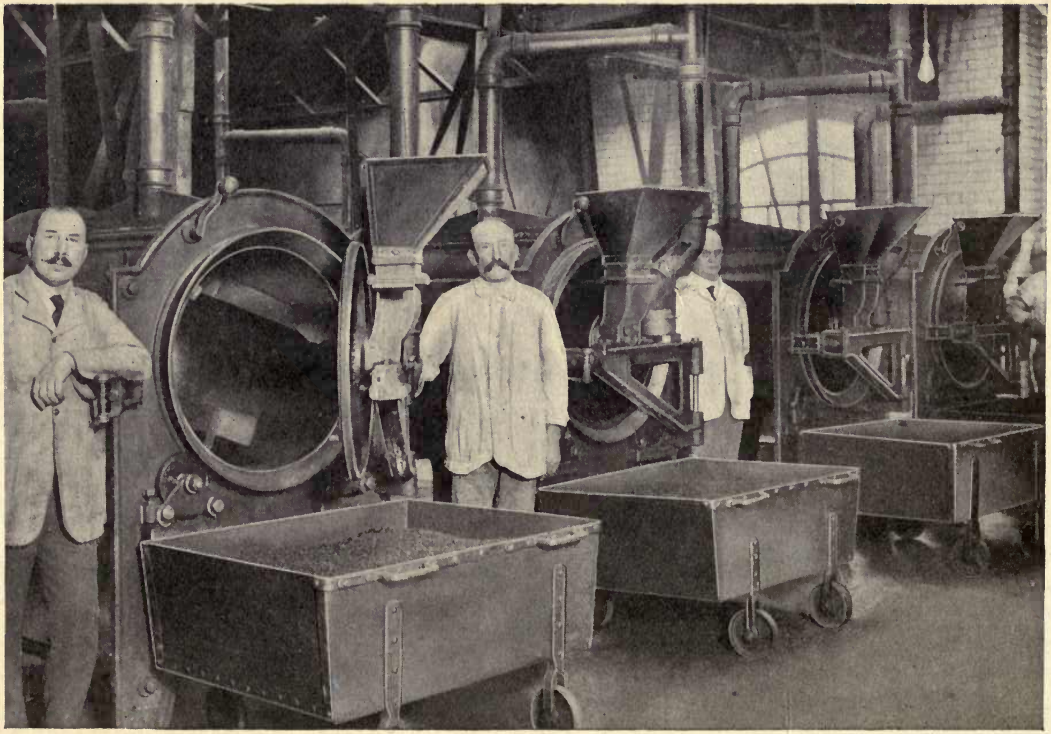
a permanent crop. But at this stage of the industry's development, those advantages, together with the phenomenally high prices which cocoa has recently been commanding, are apt to be a dangerous source of incentive to slackness. And slackness might so easily mean a disease-born catastrophe such as ruined the coffee industry in Ceylon and Malaya, or a big loss of business due to cocoa-producing competitors in other parts of the world making efforts to increase the output and improve the quality of their output, whilst the farmers of the Gold Coast and Ashanti are, with a few exceptions, contentedly resting on their laurels.

CHAPTER XIII

THE WORLD'S PRODUCTION AND CONSUMPTION

THE world's production of raw cocoa has reached an annual total of upwards of 300,000 tons. The principal countries contributing to this grand total are, in the British Empire, the Gold Coast, and Trinidad and Grenada in the British West Indies; among foreign competitors, Brazil, Ecuador, Venezuela, San Domingo, and San Thomé. Minor producing countries within the British Empire are Jamaica and various other British West Indian islands, Nigeria, Ceylon, and the portion of the Cameroons now under British administration; among foreign competitors, Fernando Po, Java, Haiti, Cuba, the French Colonies (chiefly Guadeloupe and Martinique), Dutch Guiana, Belgian Congo, Costa Rica, Nicaragua, Colombia, Panama, and Peru.

The oldest producing countries are situated, of course, in the New World, the homeland of cocoa. Some of them, such as Mexico, have dropped out of the competition; others, such as Haiti, Dutch Guiana, and



ROASTING COCOA BEANS AT J. S. FRY AND SONS' FACTORY, BRISTOL

Martinique, have lost much of their old importance; others, notably Trinidad and Venezuela, have retained a firm hold on the world's markets although they have been beaten, as regards quantity of output, by newcomers. Besides continuing to rank as big exporters, Venezuela and Ecuador still have the honour of producing some of the finest quality cocoa in the world.

Among the newer producing countries, the Gold Coast, with its Dependency of Ashanti, Brazil, San Thomé, and San Domingo, are famous for a phenomenal increase of production during the last quarter of a century, and the Gold Coast with Ashanti is at the top of this tree of fame.

As indicative of the relative positions of the cocoa-producing countries, here are the 1916 statistics. In studying them, remember it is estimated, by reliable authorities, that the increase of production in the Gold Coast and Ashanti since 1916 has brought the British Empire's total cocoa exports up to a figure which exceeds the total exports from foreign countries.

BRITISH EMPIRE: PRODUCTION OF RAW COCOA, 1916.

	Cwts.
Gold Coast	1,443,236
British West Indies:	
Trinidad	479,393
Grenada	109,772
Jamaica	64,360
St. Lucia	14,575
Dominica	5,514
St. Vincent	1,596
Montserrat	49
Nigeria	179,121
Ceylon	73,245
British Guiana	416
Uganda	258
British Honduras	164
Fiji	21
Total, British Empire	2,371,720

FOREIGN COUNTRIES: PRODUCTION OF RAW COCOA, 1916.

	Cwts.
Brazil	860,347
Ecuador	839,606
San Thomé	652,797
San Domingo	414,293
Venezuela	298,760
Fernando Po	65,909
Dutch Guiana	39,632
Java	28,949
Haiti	36,622
Cuba	29,500
Belgian Congo	15,152
Other Foreign Countries	176,000
Total, Foreign Countries ..	3,457,567

You will notice that the British West Indian island of Trinidad is the second largest contributor to our Empire's output of cocoa. The exports from Trinidad steadily increased from about 1,000 tons in 1840 to 26,000 tons in 1910, and reached the record quantity of 31,315 tons in 1917. Much of the cocoa is grown by peasant proprietors on small holdings. But there are some large plantations, too, and these are amongst the best-managed estates in the cocoa-producing world. The planters are gentlemen farmers; the labourers include some West Indian negroes, whose forefathers came over in the slave ships from West Africa, but the majority of them are East Indian coolie immigrants. Plants are raised from selected seeds, and carefully tended in nurseries; seedlings are planted out at equal distances apart, about fifteen feet in all directions being the allotted growing space; crops, such as bananas, are interplanted to afford temporary shade, but however profitable these catch crops may prove they are removed as soon as necessary for the healthy development of the permanent crop; permanent shade-trees are interplanted at proper distances among the young cocoa; the cocoa-trees are pruned when they are

about three feet high to encourage the growth of a pyramidal crown. All the work on the plantations is done systematically, and under the supervision of the planter or his assistants. Special attention is given to the important process of fermentation, for which there are specially built sweating-houses fitted with compartments; the beans are shovelled from one compartment to another, at regular intervals, to ensure even sweating. There are specially built drying-houses, too. Some of these are fitted with a sliding roof, easily adjustable for exposing the beans to the sun on a fine morning or for affording protection at night or on a rainy day. Others are shelters for large platforms, mounted on wheels which run on rails; the beans are spread out on these platforms, and can easily be moved, as desired, into the sunshine or back under cover.

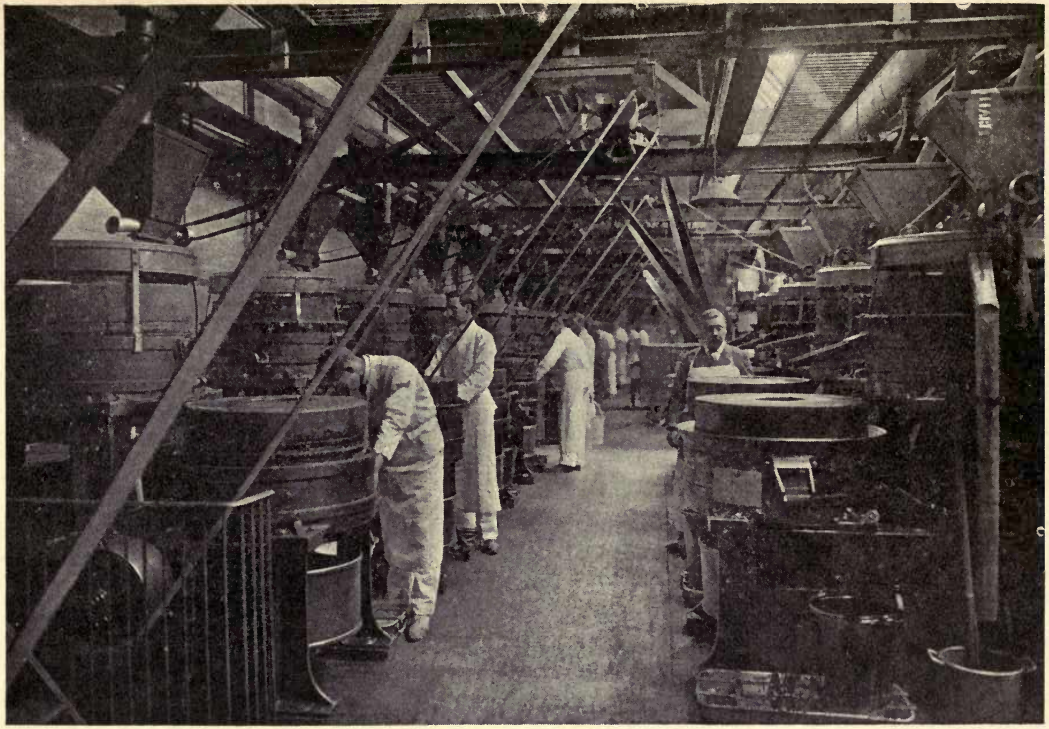
In Trinidad, the European planters have always maintained a high tradition in producing a well-developed cocoa of uniform quality. Some of them cover their beans with a light sprinkling of clay or red earth, on the supposition that it hardens the shell and protects the bean from damp and mould.

As in Trinidad, cocoa is grown both on large plantations and on small holdings in all the producing islands of the British West Indies. The peasant proprietors have become good cocoa farmers, thanks largely to the instruction they receive from the Agricultural Departments, to the encouragement given them by means of prize-bearing competitions, and to the object-lessons of well-managed plantations in their midst.

Ceylon's contribution to our Empire's cocoa output varies considerably in quality. The well-prepared plantation beans are classed among the finest in the market, but lower grades are more commonly produced.

The chief producing areas are up country, in the neighbourhood of Kandy and Matale. Ceylon cocoa is washed during the process of preparation for market.

Nigeria, like its neighbour the Gold Coast, is one of the newest cocoa-growing countries. The areas of production are in the colony of Lagos and in the Southern Provinces of the Protectorate, the principal centres being Agege and Ibadan. Not only is Nigerian cocoa all grown by native farmers, but it is practically all marketed through the agency of native middlemen. In comparison with the Gold Coast, the cocoa industry of Nigeria is in its infancy as regards the marketing organization. Generally speaking, the output is of a low grade, inferior to average quality Gold Coast cocoa. But the quality of the present-day output must not be taken as evidence of Nigeria's possibilities as a competitor in the cocoa world. Here is some evidence which throws a broader light on the situation. In the neighbourhood of Agege there are several model farms, and not long ago the cocoa they turned out began to win a very good reputation as superior quality West African produce. We visit these farms, and can hardly believe we are in West Africa, so well are they laid out, equipped with sweating boxes and drying grounds, and provided with good roads. The model farmers, too, strike us as being exceptionally well educated and very much abreast with the times. One of them, a lawyer who has forsaken the Bar for the more remunerative business of cocoa growing, proudly shows us his fermenting boxes, and follows up an explanation of their virtues by telling us that he does not use them nowadays, because the world's shortage of foodstuffs has so raised prices that he can get as



GRINDING COCOA AT THE BOURNVILLE FACTORY OF CADBURY BROS., LTD.

much money as he wants for his cocoa without taking the trouble to ferment it.

South America is the British Empire's most formidable competitor in the raw cocoa industry. Although it is generally admitted that the average quality of South American cocoa has much improved during recent years, it is frequently argued that our Empire should easily be able to maintain its newly won supremacy over South America in the cocoa world, such arguments being based on facts concerning the neglected state of the average cocoa plantations in the South American Republics. We know there is a great deal of truth in the disparaging facts that are put forward; but we also know the South American Republics well enough to warn competitors that they are industrially formidable beyond the comprehension of anyone who has not had opportunities of getting wide first-hand knowledge and experience of their natural fertility, and of the miracle-working, progressive spirit of their people in this present stage of their development.

Prior to the war, the biggest purchasers of raw cocoa were, in order of importance, the United States, Germany, Holland, the United Kingdom, France, and Switzerland. During the last few years the United States have been buying more and more cocoa, and their annual importation now exceeds half the world's production. The United Kingdom's purchases rose from 699,639 cwts. in 1913 to 1,158,160 cwts. in 1917.

CHAPTER XIV

WE VISIT BOURNVILLE

To see how cacao beans, or, as they are commonly called, "cocoa" beans, are transformed into cocoa essence, chocolate powder, plain chocolate, fancy chocolates, and numerous other good things, we must visit some modern factories which aim at turning out for mortal consumption products that merit the ancient name of "Food for the Gods."

By the courtesy of Messrs. Cadbury Brothers, Limited, we are about to make a tour of their "Factory in a Garden." Afterwards, there is the treat in store for us of a visit to the factory of Messrs. J. S. Fry and Sons, Limited, at Bristol.

Leaving Birmingham, the metropolis of the Midlands, a fifteen minutes run by train brings us to Bournville. Nearing the station, we suddenly feel we have been wafted into a stretch of open country that is very far removed from the noise and bustle of city life. As we step out on to the platform, wend our way down the steps and emerge into the village highway, that impression is intensified into a sense of wonder. Can it really be that we are feasting our eyes on picturesque buildings set in gardens ablaze with flowers and dotted about in a boundless park?

A few hundred yards from the station we come upon a lodge. Remembering the clearly worded directions that accompanied our invitation to Bournville, we pass through the creeper-decked porch. At the wicket window of the inquiry office we mention our names to a commissionaire, and quote from our letter

COVERING CENTRES WITH CHOCOLATE AT BOURNVILLE

of invitation the name of our appointed host and guide.

So quickly does our host respond to a telephone message that we have only just begun to take a first glance round the cosy waiting-room when he is at our side, greeting us in a way that seems to suggest we are doing Bournville an honour by our visit.

Our host pilots us across a strikingly beautiful rock garden, which gives access to the warehouse. In a lobby skirting a store, where vast piles of bulging sacks of cocoa are stacked, we are met by two other experts, representing the factory side of the Bournville enterprise, and together we all adjourn to a dressing-room, where we are to robe ourselves in preparation for our tour among the machines. In merry mood we select our fit and fancy from an assortment of spotless white overalls and caps; but the men who know the habits of the machines are very much in earnest when they tell us that the mills will dust us very brown with cocoa powder, and warn us to fasten up our protective kit securely from top to toe.

Appropriately equipped, we pass on into the store where the cocoa beans are brought for grading. During the first stage of our tour, we are told, we shall see how the beans are treated up to a certain point, no matter whether they are destined to be transformed into cocoa or chocolate.

The bulging sacks by which we are surrounded are old friends of ours, or near relations of old friends, whom we have met under memorably amusing and interesting conditions in far distant lands. They are bags of cocoa beans from such widely scattered parts of the tropical world as South America, the West Indies, Ceylon, the Gold Coast, and Nigeria.

All cocoa beans used at the Bournville factory undergo a thorough process of *Cleaning*. The cleaning is done by a wonderful machine, which most efficiently performs a number of duties in achieving its main purpose. We watch shower after shower of beans being fed to this machine from sacks into a large hopper. We see the beans jumping and wrestling to free themselves of such impurities as dust, loose threads of sacking, and loose bits of shell; during this sifting process the machine rejects foreign bodies and immature beans, together with any clusters of fully-developed beans that have become stuck together as a result of mildew caused by bad fermentation, or of careless drying, or of getting wet on the journey. After this first general cleaning the beans pass from our sight into the monster tunnel-like body of the machine. Here, by means of meshes, they are graded into three sizes—known as broken, flat, and plump—to facilitate more thorough cleaning, and the cleaning of each grade is continued by a separate set of fans.

From the cleaning machine raw cocoa emerges in two streams, one consisting of broken beans and called "fine," the other of whole beans, both flat and plump specimens, called "coarse." The fine material is carried off to undergo a further and special process of cleaning; the coarse material—the technical adjective is misleading as it signifies superior quality—has been thoroughly cleaned in the machine we have seen, and is now ready for the next stage of preparation, which is to say *Roasting*.

Cocoa beans are roasted in their shell. There are several types of roasting machines, some heated by coke, others by gas. Roasting takes about an hour; towards the end of this time the operator in charge of

the machine starts testing the beans to judge when they will be cooked to a "T." From a sample, which is automatically discharged, he picks up a handful of beans and tests them by smelling to see how far the aroma has been developed. When sufficiently roasted, the beans are transferred to trucks, or hoppers, the bottom of which is perforated, and these receptacles are wheeled into position over gratings served from below with cold air. This operation not only cools the beans, but prevents them being burnt in their own heat.

The roasted and cooled beans are carried by a sliding band to an elevator and thence transferred to a store.

Now comes the very important operation of *Blending*. In simple language, this merely means mixing; such or such a weight of beans from one part of the world is mixed with a similar or proportionate weight of beans from one or more of the other producing countries—thus, two portions of Trinidad with one of West African. The actual variety and proportion of beans depend on the particular brand of cocoa or chocolate for which the mixture is to be used; every manufacturer has his own recipes for his own specialities, and these recipes vary with such details as quality and selling price of brands to be manufactured. Naturally, manufacturers do not publish particulars of their blending recipes.

The blended beans, now thoroughly clean but still in their shell, next undergo the process of *Crushing* and *Shelling*, or, as it is often called, *Kibbling*. The machine which performs this operation is a tall and long monster, consisting of numerous compartments equipped with many sets of fans for winnowing the broken shell from the crushed beans, and fitted with a Clapham Junction

of switches for turning the crushed material into various special channels for discharge. The actual crushing, however, is all done in a small bell-shaped apparatus, which is divided into grooves fitted with teeth; the grooves are adjustable in width, and act on the nut-cracker principle. But the best crushing apparatus yet designed will not break beans of various sizes and shapes into pieces of similar size. Most of the beans get nicely broken into pieces known as "coarse," but some of them are smashed to powder, whilst the flat specimens may pass unbroken through the nut-cracker grooves. The powder is rejected through a screen, and is conducted to a separate machine for winnowing. The unbroken beans are thrown out for a further passage through the crushing apparatus. The vast concourse of coarse pieces, comprising the bulk of the raw material which has emerged from the crushing apparatus and representing the best results of the operation, is discharged into the capacious body of the crushing machine, and comes into contact with a system of meshes working in conjunction with a system of fans. The meshes of varying sizes grade the material to encourage perfect winnowing, and at the same time the fans separate the pieces of shell from the pieces of bean kernel, or "nibs." The machine finally discharges its contents in four separate streams, consisting of: (1) Nibs—perfectly clean, smallish pieces of bean, entirely free from shell and ready to be made into cocoa or chocolate. (2) Dust—tiny fragments of bean, which may have some shell amongst them and consequently will need further winnowing. (3) Shell—useful as an ingredient of cattle food. (4) Undecided—pieces of nib to which bits of shell are still adhering, making it necessary for them to be recrushed and rewinnowed.

You will have noticed, I feel sure, that of all the raw material we have seen passing through the main machinery—cleaning, roasting, crushing, and winnowing machines—the proportion known as "nibs" is the only portion now absolutely ready for making cocoa or chocolate. Certainly nibs predominate, but by this time you can imagine how ruinous the waste would be to a manufacturer if the remainder of the material could not be utilized.

Chemical research and mechanical genius have done great things in the elimination of waste. For instance, you will remember I have told you there is a special machine for winnowing such portion of the beans as is smashed to powder in the crushing machine.

CHAPTER XV

HOW THEY MAKE COCOA AND CHOCOLATE

DURING the roasting process some of the water which is a natural part of the cocoa bean is evaporated. Consequently, the percentage of the fat ingredient in the roasted nibs is raised to the high proportion of about 55 per cent. In the preparation of cocoa the main objective is to extract sufficient of the fat, known as "cocoa butter," to leave behind a product which shall be soluble and digestible, and which at the same time shall retain enough fat to make it highly nutritive.

The crushing machine we have been watching has been dealing with the particular blend of beans which is used for "Bournville" cocoa, and countless truck-loads of nibs from this blend are ready for the mills. Dodging the full trucks which are being wheeled out in quick succession and the empty ones that are being

rushed back for a fresh load, we follow our guides to the mill-house, and emerge from a wide corridor into a spacious apartment that is humming with the chorus of grindstones. From end to end of the room stretch row upon row of mills, some with one pair of grindstones, some with two pairs, some with three pairs; overhead, the machinery belting in ceaseless motion looks like decorative festoons dancing in a breeze. At random we come to a standstill before one of the mills to watch the performance of its merry-go-round grindstones.

A batch of nibs is showered into a hopper which automatically feeds the mill. The motion of the horizontal millstones generates heat, and as the nibs come within their clutches they are crushed to powder; at the same time the heat turns the powder into a fluid by melting its butter ingredient. The melting-point of cocoa butter is 91° Fahrenheit. When the mills are in full swing they generate heat well above this temperature, and are easily capable, therefore, of doing their work without the assistance of artificial heat; but when, after a week-end's rest, they are quite cold, they are restarted with the help of a gas-burner. A second grinding results in a finer paste, and a third grinding fines it down to Epicurean standard.

Now comes the process of extracting a given proportion of the butter ingredient. Crossing the room to the press department, we see how the butter is removed by mechanical means.

The cocoa paste is ladled out into clean press-cloths of very fine texture. The sides and ends of each cloth are folded over to form a large oblong package about two inches in thickness. These packages of cocoa paste look like brown-paper parcels. The packages are put into hydraulic presses. Immediately the

presses are set in motion the butter begins to ooze through the cloths in the form of oil. The oil is collected by a receptacle at the base of each press. The oil in its raw state is, as you would expect, brown in colour, tinged with the cocoa hue of the nibs in which it has resided. It is taken belowstairs to a dairy-like apartment, where it is refined and put into moulds to cool; thus it is changed into slabs of cream-coloured cocoa butter, which are used, as we shall see presently, in the manufacture of chocolate. During the war, when comparatively little chocolate was made, there was a surplus of cocoa butter, which, as you know, made its appearance for sale in the shops. Cocoa butter is one of the richest of fats.

In a few minutes the requisite amount of oil has been removed from the cocoa paste by presses adjusted to exert just the right degree of power for extracting so much and no more of the fat. The packages are now taken out of the presses, the cloths unfolded, and lo and behold! what went into them as a fluid paste has become solid blocks of cocoa.

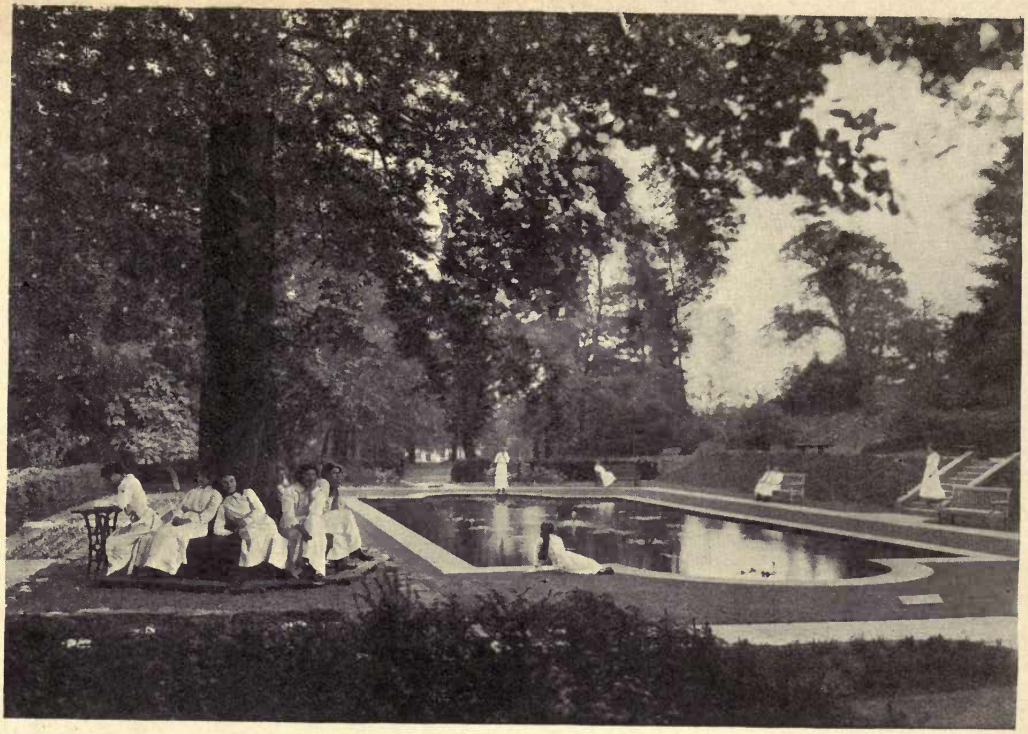
Another type of hydraulic press is fitted with a drum-like container for filter-cloths and cocoa paste; in such the paste, after expression of part of its butter ingredient, takes the form of a solid disc of cocoa.

After leaving the press, each block of cocoa, round or oblong, is weighed. The blocks are wheeled away to an adjoining room, where other special machines grind them to powder. The powder is put on trays and set aside to cool. The cooled powder is reground and conducted to sieves of very fine mesh; all of it which comes through the sieves has passed the final test for upholding the reputation of Bournville cocoa, and is ready for packing.

The packing-room presents a very different scene from anything we have witnessed in the other departments we have visited. Hitherto the outstanding feature has been machines, but now our attention is held by rows upon rows of women and girls. How fresh and clean and neat they all look in their white dresses and caps! We are struck, too, by another picturesque note in our surroundings; everything and everybody is patterned over in shades of brown—loose cocoa, seeking escape from confinement in tins and boxes, weaves quaint and pretty pictures on any clinging-place it can find.

All the packers are engaged in some operation connected with putting up certain weights of cocoa, mostly pounds and half-pounds, into tins and cartons. There is a wonderful little machine which weighs the cocoa into a parchment packet and slips the packet into a tin; the cocoa comes streaming through a funnel, and when the packet beneath contains its correct weight the supply is automatically shut off. Another little marvel machine puts labels on the tins. Plain round tins, lying on their sides, go racing along a narrow platform, one behind the other in endless procession, pick up a ready-gummed label *en route*, and slide gently off the other end of the platform bearing the well-known red-and-yellow identity label of Bournville Cocoa neatly wrapped round their bodies.

Pure cocoa, as we now know, consists of ground cocoa beans from which part of the fat ingredient has been extracted. Pure chocolate, on the other hand, consists of ground cocoa beans containing all their fat, together with a liberal allowance of sugar, and more cocoa butter in proportion to the sugar allowance; sometimes, too, flavouring, such as vanilla, is added



A VIEW OF THE GIRLS' RECREATION GROUNDS AT BOURNVILLE

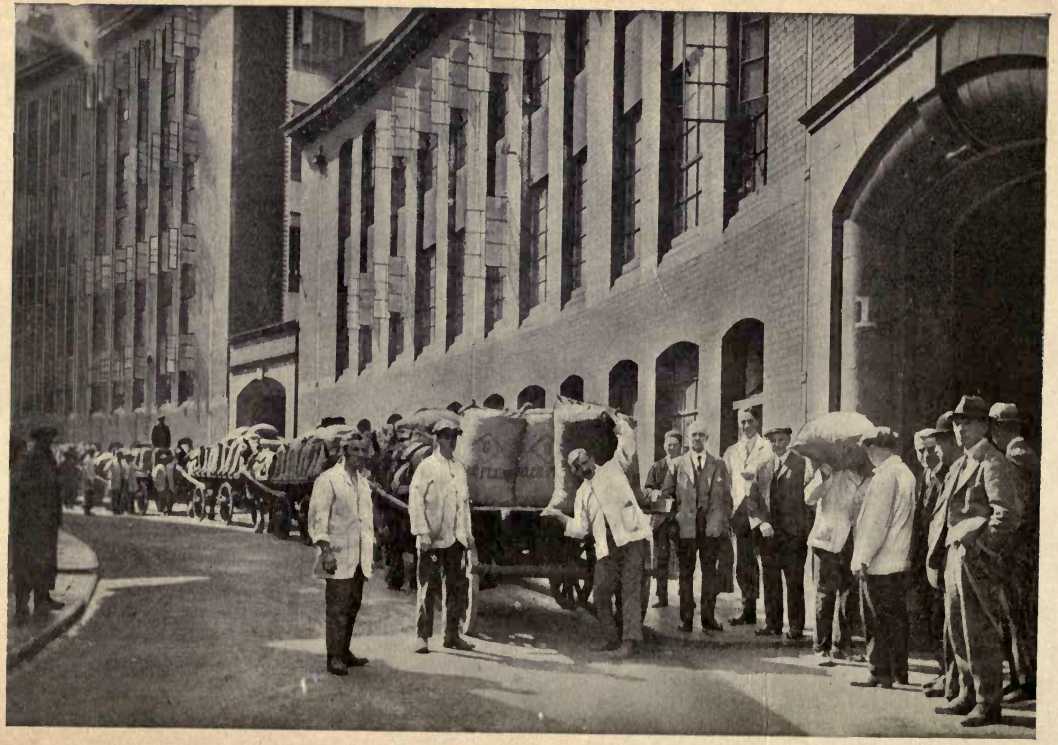
and for milk chocolate fresh milk is included in the mixture.

The beans are prepared in the same way as for cocoa up to the stage of being crushed into nibs. To see what happens to them next we are taken to the chocolate-mill room. Here we find some large machines fitted with granite millstones and others equipped with rollers. The millstones occupy the centre of a capacious bowl. Into this bowl bucketfuls of cocoa nibs are shot, and in a few seconds they are ground into a fluid paste, just as if they were being prepared for transformation into cocoa. A liberal allowance of refined but melted cocoa-butter is now poured into the paste, and, following this, shower upon shower of fine white sugar. The sugar absorbs both the butter supply that has been set free in the grinding of the nibs and that which has been added, and the resulting mixture is a stiff paste. This paste is transferred to a near neighbouring rolling machine; it emerges from the powerful rollers in the form of thin friable sheets. The mass of sheets is passed on to another rolling machine, called the roll refiner, and the material after passing through this second set of rollers is a fine dry powder. The powder is put into a mixing machine, where it is automatically stirred up with another allowance of cocoa butter to form a smooth, soft, brown paste. The transformation of the paste into a solid is the natural result of the cocoa butter in the chocolate being brought under the influence of cold air; just as the butter ingredient in the cocoa beans begins to melt at a temperature of about 91° Fahrenheit, so it begins to set in the paste at a temperature below that melting-point.

We have been on our feet for nearly four hours at a

stretch, but we have been so interested in all we have seen that we do not think of feeling tired until our host suggests we must be wanting lunch and a rest.

On our way to lunch, we pass through spacious rooms in which centres are made for fancy chocolates, centres are covered with chocolate, and miniature cakes of plain and milk chocolate, known as Bournville Neapolitans, are wrapped in paper and tinfoil by a little-marvel machine. *En route* to lunch, too, we begin to get more closely in touch with the social side of the Bournville enterprise. We pass through the Girls' Dining-room. Over two thousand women and girls are having a meal in a cool and airy hall; everything is so clean that, in popular language, you could eat off the floor. From the menu boards on the walls, we gather that choice can be made from a wide variety of fare, and that two substantial courses of meat, vegetables, and pudding cost about a shilling. Helpings are liberal, and the food is of best quality, nicely cooked, and served in an appetizing way. The Staff Dining-room, where we do full justice to an excellent lunch, has all the advantages of a first-class restaurant without the customary drawbacks of high prices, bustle, and clatter. The Works' dining-rooms play an important part in the Bournville social system; besides those we have seen, there are equally comfortable ones for the men, forewomen, foremen, and clerks. All the dining-rooms are served from a large and fully-equipped kitchen. The workers can bring their own food if they like, and cook it in a special kitchen. On an average 3,570 meals are provided daily for the workpeople, or over a million a year, and these figures do not



UNLOADING COCOA BEANS AT ONE OF THE FACTORIES OF J. S. FRY AND SONS, LTD., BRISTOL

include the annual total of some 22,000 meals served at social and other functions.

Thoroughly refreshed, we go out into the beautiful grounds surrounding the factory and belonging to the workpeople. The men's recreation grounds cover an area of thirteen acres, and those reserved for the girls are nearly as extensive; also there are sixty acres of land used as additional playing fields. In each case a portion of the grounds is a restful retreat of gardens and shady walks, and a portion is laid out to meet the requirements of all modern sports and athletics.

On we go, this time to the workshops which make the "Factory in a Garden" self-supporting for the accessories of cocoa and chocolate production. We visit the shops in which tins, cardboard boxes, and wooden packing-cases are made; the printing works; the engineering shops; the power and lighting house; the sawmills.

Surrounding the Bournville factory and its grounds is the Bournville model village, which was founded by Mr. George Cadbury, one of the pioneers of the movement for the better housing of the people.

The necessity of running for our train brings our happy "Day at Bournville" to an end.

CHAPTER XVI

THE HOUSE THAT FRY BUILT

THIS is the *House that Fry built.*

It was founded in 1728, nearly two hundred years ago, by a young Quaker doctor, Joseph Fry, and is historically famous as the parent of British cocoa

and chocolate factories. Joseph Fry first specialised in the sale of "chocolate, nibs and cocoa" at a little factory in Wine Street, Bristol.

Cocoa, introduced into England in 1656, was still a novelty in this country when the hero of our story began to trade in it. But by that time it had become a fashionable craze, under the name of "chocolata," and the blue-bloods of English seventeenth-century society had acquired the habit of resorting to cocoa-houses to gossip, talk politics, and patronise the beverage which enjoyed the attractive recommendation of having been served at Montezuma's feasts in Mexico. Those cocoa-houses, by the way, were the origin of some of modern London's most exclusive clubs.

Inspired by a broad outlook and a scholarly appreciation of the valuable nutritive properties of the cocoa bean, Joseph Fry conceived the idea of popularising cocoa and chocolate. By 1777, his business had far outgrown the accommodation of its birthplace, so he moved to more commodious premises in Union Street, Bristol, near to where we are now standing. Those premises have developed into the group of twelve great factories we are about to visit, into a vast concourse of up-to-date buildings in which the oldest cocoa and chocolate making business in England has grown into one of the largest and most prosperous of industrial enterprises.

Throughout the record-making career in which this House of Fry has woven itself into one of the finest romances of British industrial history, the business has been captained by the founder's family. Although it is now a limited company, the able Chairman is a member of the historic family, and other members of

that family are heads of departments, in daily attendance at the works, and popular among staff and workpeople as the right men in the right place.

We are welcomed by a genial descendant of the founder. Memory takes us back to the day when we first met a family representative of the House of Cadbury, and as we recall the one example of a British gentleman-trader, and look on the other, we tell ourselves that both are true sons of the Merchant Adventurers to whom England owes her greatness.

Two members of the staff are deputed to show us over the factory. We robe ourselves in overalls and set forth.

In general principle, the processes of making cocoa and chocolate at the Bristol factory are similar to those we have seen at Bournville. Cocoa beans are roasted, crushed, winnowed and ground to a paste. For the manufacture of cocoa, part of the butter ingredient is extracted by hydraulic pressure, and the resulting cake is ground to a fine powder. For the manufacture of chocolate, sugar and more cocoa butter are added to the paste, with or without milk and flavourings; the mixture is well milled and passed through rolling and roll-refining machines. A special feature of chocolate-making at this factory is treatment of the mass, after the milling process, in large and powerful machines, called conches, fitted with steel rolls to beat the paste smooth. Another difference of detail we notice is a unique mill-room, with a decorative ceiling of gigantic wheels, which are continuously making picturesque revolutions to keep the mills below in motion.

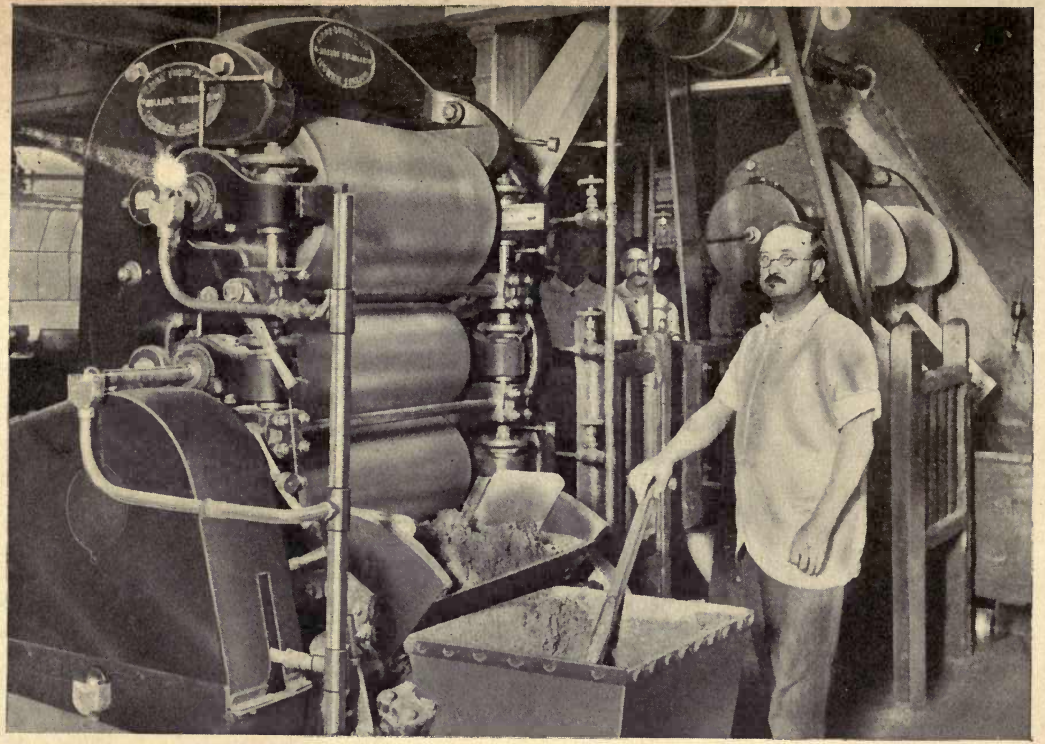
Our expert guides have the rare gift of putting life

into technical explanations. Also, they are bent on discovering what we have set our hearts on seeing. Will we, they ask as a favour, mention any department we would specially like to visit.

In chorus we greet this invitation: We want to see how chocolate is made into bars and cakes, and all our life long we have been wondering how almonds, crême and suchlike dainties get into their chocolate coats.

On we go to another large, cool and airy room. Canloads of chocolate, in the stiff paste form in which it leaves the mills, are incessantly arriving. The chocolate is fed through a hopper to shallow, oblong tins, divided by ridges into " bar " moulds. The mass is of the particular blend for that fine quality of Fry's plain chocolate called *Belgrave*, and this name is stamped on the bottom of each section of the moulds. The tins are automatically filled from the hopper, and passed on to a " dancing table "; as they dance up and down throughout the course of their passage along this table, the chocolate paste gets evenly distributed in the sections of the mould. At the far end of the table the tins enter a refrigerator, and when they emerge therefrom, their contents are a solid cake of chocolate. The cakes are turned out of the tins, and either wrapped whole in paper for sale in packet form, or packed in wooden boxes for sale in sections.

Now we are off and away to the fancy chocolate department. In a series of rooms we watch wholesale quantities of sugar and innumerable other good things being mixed by machinery to make crême, marzipan, nougat, jelly and suchlike dainties for the " centres " of fancy chocolates. In near neighbouring rooms we see white-coated men rolling out nougat; white-frocked



CHOCOLATE GRINDING AT J. S. FRY AND SONS' FACTORY, BRISTOL

girls, with healthy, happy faces, rolling out marzipan and stamping it into pretty shapes with miniature cutting moulds; more white-coated men pouring jelly into multiple moulds and running the moulds into cooling and cutting machines.

The centres are covered with chocolate in an adjoining series of rooms, where all the operators are women and girls. Some of the fancy chocolates made at the Bristol factory are covered by "enrobing machines." Naked and unadorned centres are fed on trays to these wonderful machines, and in passing over a vessel filled with liquid chocolate they are clothed in a chocolate coat. This coat is ornamented with lines by little tools, cleverly manipulated by girls skilled at the work, or with raised patterns formed by trickling liquid chocolate through a funnel. Some of the centres are hand covered as well as hand ornamented, each being balanced on a special fork and separately dipped in a bowl of liquid chocolate. All fancy chocolates, whether hand dipped or enrobed by machinery, are put on trays and taken to a cooling room, so that their coats may set to their figures before they are packed.

In this House of Fry there are workshops for making all the tins, boxes and packing cases used in the packing rooms. There are, too, dining rooms, rest rooms, a surgery, dental room, and club rooms, for in the policy that has piloted the House to its honourable and successful position the social welfare of the workers is regarded as a matter of primary importance.

Our "Happy Day at Bristol" brings our cocoa-tour to an end. Here we must part company, to journey to our respective homes and take up the round of our daily life. I hope we shall meet again soon

for another trip together to the scenes of everyday life connected with the production of things for everyday use. Meanwhile I would ask you to remember, and to explain to all your friends, that although cocoa and chocolate are so nice that they tempt people into considering them as luxuries, they are amongst the cheapest and most nutritious of foodstuffs, and should therefore have a place of honour among the necessities of life.

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