AN ECONOMIC VIEW OF RUBBER PLANTING*

THIS is an unpretentious booklet written by one who apologises for not being a planter, but a banker. The author seems to have travelled through rubber-producing lands and to have made and recorded first-hand observations. The book is interesting especially because of the notes upon matters connected with the rubber industry in some countries that may not have been realised by those resident in another. Some of these notes are of a nature that will especially interest those concerned with rubber in Ceylon. For this reason it is intended here to give a synoptic review of the book not with the idea of obviating one from the necessity of purchasing it, but rather to whet the appetite to read more.

The author possesses a vein of optimism as to the future of the rubber-growing industry such as is certainly not shared by all, and he still thinks "that the industry has a very bright future." He blames the "Stevenson Scheme" for much of the present depression. "Artificially maintained prices induced the native of Sumatra and Borneo to plant new gardens. Had not the price been raised in such an abnormal way, the native would never have planted over 1,000,000 acres in a few years, as rapid extensions require capital and native cultivation always proceeds slowly in normal circumstances."

"The surface under rubber in the Dutch East Indies should therefore now reach nearly 1,200,000 ha. (3,000,000 acres) against 500,000 ha. in 1923, i.e., an increase of about 15% in five years—thanks mostly, it may be said to the "Stevenson Scheme".

A table is given of the acreages planted by the leading companies in Malaya:

	Acres
"Dunlop Rubber Plantations, Ltd.	85,000
S. I. P. E. F. (F. M. S. Rubber Co., and other subsidiaries)	80,000
Société Financiére des Caoutchoucs (several companies, but under the same general manager)	28,000
Malayan American Plantations, Ltd.	24,000
Malacca Rubber Plantations, Ltd.	22,000
Anglo-Java Rubber & Produce Co. Ltd. ...	23,000
United Sua Betong Rubber Co., Ltd.	22,000
East Asiatic Rubber Co., Ltd.	23,000
Penang Rubber Co., Ltd.	16,000
London Asiatic Rubber & Produce Co., Ltd ...	11,000
Linggi Plantations, Ltd.	10,000
Straits Rubber Co., Ltd.	10,000
	354,000

"In Malaya, generally speaking large companies own a fair number of average-sized estates (from 2,000 to 3,000 acres) under the supervision of a general manager and visiting inspectors. There are very few large estates in one block, an exception being the Dunlop Plantations, Ltd., which are now planting about 12,000 acres in one block. Almost all these companies have their Head Office and Boards of Directors in London".

* "An Economic View of Rubber Planting" by R. Soliva. Kelly & Walsh, Limited, Singapore. 2$. 50 cts.

"The organization of small estates of a few thousand acres is generally this: First of all, many are not quite independent, but are more or less under the control of agency firms which keep their accounts, sell their rubber in Singapore or London and often supply them with a manager and a visiting agent. The agents are frequently interested in the estates holding more or less important blocks of shares and having a seat on the Board."

"In Java there is a large number of small companies" and "Sumatra is the land of the largest rubber companies in the world".

The areas of the leading Dutch East Indies companies are thus given:

	Hectares
"Société Financiére and subsidiaries (Soengei Liput Cult. Mij. Asahan Cult. Mij., Batangara Cult. Mij., etc.)	26,000
Rubber Cultuur Mij. Amsterdam (R. C. M. A.) ...	24,000
The Hollandsch Amerikansche Plantage Mij. (H.A.P.M.) and associated companies, a subsidiary to the General Rubber Co.	23,500
Harrisons & Crossfield (United Serdang, Central Sumatra Rubber Estates, Etc.)	19,500
Deli Batavia Rubber Mij.	8,000
The Goodyear Orient Co. (a subsidiary to the Gooodyear Rubber Company)	8,500
Deli Mij.	5,500
	115,000

1 hectare = 2½ acres."

In Ceylon "no large companies are to be found possessing 5,000 or 10,000 acres as in Malaya and the Dutch East Indies. But a few groups control rather a large number of small estates totalling several thousands of acres".

"It seems to be the general opinion of European planters that low-lying lands are not suitable for growing rubber. Yet in 1929 in the F.M.S. the average production of native estates was estimated at 500 lb. against 400 lb. for European estates. I personally visited a large number of native gardens and was much surprised at the high yield of their trees, which undoubtedly confirms the accuracy of the statistics.

It is however difficult to conclude anything definite on the matter for the two following reasons:

1. Native estates are generally planted with 200 and even 250 trees per acre, while European ones have generally from 80 to 100 and are certainly under-planted.
2. Native estates allow secondary growth between the trees, and generally lie on very flat land; consequently they do not suffer much from erosion. On the contrary European estates situate on hilly land, have lost most of their top soil, thanks to "clean weeding".

"It is very difficult to ascertain the area under budded rubber, for there are numerous estates which have budded a few scores of acres, and no statistics whatsoever are available.

I know personally of about 30/40,000 acres which will be budded by the end of 1930.

If one supposes there are some further 30/40,000 acres budded on large plantations and on small extensions of middle-size estates, one would estimate the budded area at some 70,000 acres (about 30,000 hectares) corresponding to about 5% of rubber under European or American ownership in British Malaya".

"It is noteworthy that in this respect the Dunlop Plantations, Ltd. are far in advance compared with other companies. They appear to have been among the first to start budding on a large scale in Malaya, under the supervision of a Dutchman, Dr. Cramer, who formerly was one of the Heads of the Agricultural Department in Buitenzorg.

One of the most interesting facts of the opening of the Dunlop Plantations, is that they have bud-grafted some 6,000/7,000 acres of trees, some of which were 2½ years old. I could see that the results were very satisfactory and I noticed the same thing at the Pasak Rubber Co., which is now bud-grafting about 2,000 acres from one to three years old."

"Practically all the estates turn out smoked sheet or crepe, as usual, with the exception of some estates which use new processes. One of these is the "Sprayed Rubber Process" of the Malayan American Plantations (a subsidiary to the General Rubber Co., of New York), used by the H.A.P.M. and the Anglo-Dutch Plantations of Java, in the D.E.I.

The other which appears to be the more interesting is the concentration of latex by the centrifugal process in use on the Dunlop Plantations, Ltd.

Latex is thus concentrated to 60% rubber content instead of 30 to 35% in its natural condition and shipped to Europe in tins or barrels. All the latex however cannot be concentrated this way and in fact, about 10% remains which has to be turned into crepe. What makes the process of special interest is that the buyers in London pay for concentrated latex, 40 to 50 per cent. more per lb. dry, than for standard crepe, owing to the saving they realise in its use."

Some interesting notes are given upon the health conditions of the labour force on rubber estates.

"The opening of new estates has always been very unhealthy, and Malaya has been no exception to the rule; but the matter has been taken in hand very efficiently by the Government with the help of the planters, and results may be considered very satisfactory.

About 1911/1912 the death rate on estates varied from 4% to 6%. In 1927 it was 3%, and in 1928 2·9%, which means a decrease of nearly one-half. These last figures are very near the averages for towns or rice-fields.

How were these results obtained ?

Although coolies suffer from many diseases such as hookworm, dysentery, etc., the most dreadful one is malaria, and this has been fought by every possible means.

The disease is carried from one cooly to another by the anopheles mosquito and there are two ways of fighting it: isolation of sick coolies or destruction of carriers.

Conversely to what has been done in the Dutch East Indies, efforts have been mostly directed towards the destruction of mosquitoes rather than to the isolation of sick coolies.

A thorough investigation of the habits of anopheles was conducted from 1900 to 1910 and revealed three main kinds of harmful species in Malaya: *A. ludlowi, A. umbrosus,* and *A. maculatus.*

Though the matter has been much discussed for long in Malaya, it may be found of interest to say a few words about it.

A. ludlowi lives in marshes and swamps and in brackish water, often near the sea. It is generally easily controlled when the soil is dried by open drains. As however European estates are very seldom located on the alluvial coast, they are rarely affected by this mosquito, but rather by *A. umbrosus* and *A. maculatus.*

The former lives in the jungle in the shade. It generally disappears when the jungle is cleared and open drains are dug. But when *A. umbrosus* is controlled, then appears *A. maculatus* which lives in running water exposed to the sun. It has been very difficult to eradicate it; yet estates have succeeded in controlling *A. maculatus* through sub-soil drainage or oiling; but they are expensive methods.

Owing to the high cost of anti-malarial works against *A. maculatus*, the tendency is now to concentrate European bungalows and cooly lines within a circle having a radius of 400/500 metres which is extensively drained and oiled and to do nothing or very little in the other parts of the estate. This method is being adopted by the Dunlop Plantations, Ltd., for their new openings."

The author has a keen appreciation of the value of scientific research and bud-grafting. Speaking of the rubber in the Dutch East Indies he says:

"A typical character of the large estates, with one exception, is the importance devoted to research departments which employ large staffs, and work in very close connection with the AVROS., the well-known Planters' Association of the East Coast of Sumatra (Algemeene Vereeniging van Rubber Planters ter Oostkust van Sumatra)."

"One cannot too much emphasise, in my opinion, the leading rôle played by these research departments, and nothing is more demonstrative of their usefulness than the awkward position of the companies who have been planting with ordinary material for the last few years and whose plantations will be almost valueless in five or ten years, unless they bud immediately their trees, even if they are three or four years old".

"But the most important fact as regards new planting is the budding of rubber trees which is now universally considered in Sumatra as having left the experimental stage. Most estates have already budded their new openings for several years, without inter-planting them with seedlings, as was done heretofore as a measure of safety in case of failure of budding. Besides, some companies are now tapping somewhat large budded areas (probably several thousands of hectares) and the results appear so far to meet expectation."

"It is at present difficult to ascertain the practical results of bud-grafting, as the oldest fields planted with buddings came under tapping only six months or one year ago. Anyhow it may be of interest to know the following facts:

A few hundred hectares, six years old belonging to the RCMA (Rubber Culture Mij. Amsterdam) has yielded about 900kg. (810 lb.); 20 ha. of the HAPM (the Hollandsch Amerikansche Plantage Mij.) planted nine years ago is said to yield 900/1,000 kg. per ha; a small area of the same company covering only 3 ha., and seven years old, is said to give 1,400 kg. per ha.

Further, I will recall, it is now generally admitted that the first clones of AVROS numbers 49 and 50, will give 4 to 4½ kg. (8 to 10 lb.) and the newly-proved clones such as AVROS No. 152, Bodjong Datar Nos. 5 and 10, Prang Besar, Tjirandji, will yield from 8 to 10 kg. (15 to 20 lb.) In fact the aim of some large companies like the RCMA and the HAPM, is to plant with trees giving 8 to 9 kg. (17 to 20 lb.) per tree, corresponding with 300 trees per ha. to a theoretical yield of over 2,500 kg. per hectare.

Though such yields will not be practically reached, yet productions of 1,000 kg. or even 1,200 kg. per ha. (900 or 1,100 lb.) appear quite reasonable, as ordinary trees giving about 2 to 2½ kg. (4 to 5 lb.) yield on a good estate 450/500 kg. per hectare, with 200/250 trees per hectare."

"Very interesting efforts are made, on one side, to improve the preparation of rubber and ship a produce easier to work than sheets, and, on the other, to reduce the cost of milling.

The HAPM have established a very large central factory which can turn out yearly 18,000 tons of liquid latex and sprayed rubber, coagulated by heat instead of the usual acid.

The RCMA is trying also to ship a liquid produce called "revertex" which is latex concentrated by evaporation up to 70-75% of dry rubber.

It is very likely that many other improvements will be introduced in the future, for companies are devoting more and more attention and money to mills in their provisions for new plantations. I should add that this will be one of the most efficient weapons against native and Chinese producers who (as in the case of sugar and palm oil) will never be able to compete in the scientific field."

With regard to average yields in the various producing countries the author's comparison is not so full and certain as we should like. He complains of the difficulty of estimating, being due to variation in restriction assessments in the different countries during the "Stevenson Scheme". The average production for Malaya in 1929 is worked out at 410 lb. per acre against only 356 in Ceylon, although the three previous years' averages are given as 280 lb. and 270 lb. respectively.

The average yield per acre for Java in 1929 is given as 393 lb. and for Sumatra 381 lb. and average for the three previous years works out at 359 lb. and 355 lb. These figures are certainly very different from the beliefs held by some.

It is difficult to understand why in the comparison of costs of production in Sumatra and Malaya in the table on page 81 income-tax should be added in each case, but on page 104 in the comparison between Malaya and Ceylon income-tax is omitted from the Malayan expenditure and the cost of production reduced accordingly.

The author's method of treating costings is somewhat algebraical. Although the formulae are readily understandable when one follows their deduction yet their employment in synoptical tables involves considerable back reference to see what the symbols do mean.

We do not however wish to depreciate the value we have found in this publication. We advise all those interested in rubber to procure the book—and read it.