



SESSIONAL PAPER VIII.—1940.

Report and Accounts of the
Coconut Research Scheme
for 1939.

JUNE, 1940.

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1940.

COCONUT RESEARCH SCHEME.

ANNUAL REPORT OF THE BOARD OF MANAGEMENT FOR THE YEAR 1939.

(In terms of Section 8 (2) of Ordinance No. 29 of 1928.)

BOARD OF MANAGEMENT.

ON January 1, 1939, the Board of Management consisted of the following members:—

Chairman: The Acting Director of Agriculture (Mr. F. P. Jepson, M.A.).

The Deputy Financial Secretary: (Mr. C. H. Collins, C.C.S.).

The Chairman of the Low Country Products Association of Ceylon: (Mr. J. Tyagaraja, M.A., LL.B.).

Members of the State Council, nominated by His Excellency the Governor:	{	Mr. S. Samarakkody, M.S.C.
		Mr. E. R. Tambimuttu, M.S.C.
Representatives of the Low-Country Products Association of Ceylon:	{	Mr. L. J. M. Peiris, M.B.E., B.A.
		Mr. H. W. Peiris.
Representatives of the Planters' Association of Ceylon:	{	Mr. O. B. M. Cheyne.
		Mr. Austin Ekanayake.
Representing the Small-holders, nominated by His Excellency the Governor:	{	Mr. G. Pandittesekere, J.P., U.M.
		Mr. D. D. Karunaratne, J.P.

Mr. E. Rodrigo, C.C.S., returned from leave and resumed the Chairmanship of the Board from March 1, 1939.

Mr. James P. Fernando was elected Chairman of the Low-Country Products Association in March, 1939, and so became an *ex officio* member of the Board, succeeding Mr. J. Tyagaraja.

The following members were re-nominated to serve on the Board for a further period of three years:—Mr. O. B. M. Cheyne, representing the Planters' Association of Ceylon, in June, and Mr. S. Samarakkody, M.S.C., one of the two members representing the State Council, in August, 1939.

Four meetings of the Board of Management were held during the year, on April 19, June 20, September 15, and October 11, 1939, respectively. In addition, members of the Board paid an informal visit to Bandirippuwa and Ratmalagara Estates on October 2, 1939, to see work in progress. The Director of Research acted as Secretary to the Board at all meetings.

COMMITTEES.

The Buildings Sub-Committee.—Personnel: Mr. Graham Pandittesekere (Chairman), Mr. O. B. M. Cheyne and Mr. A. Ekanayake. Secretary-Convenor, Dr. R. Child.

This Committee held one meeting on May 16, 1939.

2. *Amendment to Coconut Research Ordinance, 1928.*—

An amendment to the Ordinance establishing the Coconut Research Scheme, cited as Coconut Research (Amendment) Ordinance, No. 77 of 1938, received the assent of H. E. the Governor on December 23, 1938.

This amendment gives power to the Financial Secretary to fix the rate of interest on any loans granted by Government to the Scheme.

3. *The Future of the Scheme after 1940.*—

The Scheme is financed by a cess on certain exported coconut products with the addition of an Annual Grant of Rs. 30,000 from the general revenue. This grant is payable up to and including 1940 under the present Ordinance (No. 29 of 1928).

At the two meetings held on April 19 and June 20, the Board of Management considered the position of the Scheme, and discussed proposals for the continuance and expansion of the Scheme's work. These tentative proposals, which included suggestions for an increased cess, were embodied in a comprehensive draft memorandum prepared by the Director of Research. This memorandum was in July referred to the associations and other bodies represented on the Board of Management, including the Low-Country Products Association, and the Planters Association of Ceylon and through the latter to the District Associations interested in the coconut industry.

A good measure of support was forthcoming for the tentative proposals for expansion, and even for the suggested increase of cess. However, the outbreak of war on September 3, 1939, led the Board to decide, on September 15, to defer indefinitely any proposals for alteration of the present rates of cess. The opinion was expressed that, in view of the importance of the coconut industry to the Island as a source of food supply, and also as a source of material likely to be required for the war, and in view of the desirability of carrying on as well as possible all local industry, the Scheme should be kept going during the war. The Board decided, as mentioned, to defer proposals for increase of income, and to approach the State Council for a continuance of the existing grant after 1940.

4. Staff.—

Director of Research and Technological Chemist: Dr. R. Child, B.Sc., Ph.D. (Lond.), F.I.C.

Geneticist: Mr. W. V. D. Pieris, M.A. (Cantab.), B.Sc. (Lond.), Dip. Agric. (Cantab.).

Soil Chemist: Dr. M. L. M. Salgado, B.Sc. (Lond.), Ph.D. (Cantab.), Dip. Agric. (Cantab.).

Mr. W. V. D. Pieris left the Island on study leave to Trinidad on September 1, 1939. During his absence the work of the Department of Genetics is being carried on by Mr. C. L. de Zylva, Technical Assistant to the Geneticist.

Mr. P. J. Nonis has held the post of Superintendent of Bandirippuwa and Ratmalagara Estates; and Mr. J. Duff-Tytler has held the post of Chief Clerk throughout the year.

The secretarial and accounting work has been carried out as usual at Bandirippuwa Estate under the supervision of the Director of Research.

5. Technical Work:

A. Technological Chemist.—

(i) *Copra (a) Nos. 2 & 3 Grades.*—The examination of a considerable number of samples of Estate No. 1 Copra in 1935-6 is now being supplemented by the examination of samples of No. 2 & No. 3 copra. Four of the estates which co-operated by sending samples, are now sending every two months samples of their No. 2 & No. 3 grades, with a statement of the percentages these qualities represent of the bulk.

The results obtained will be considered in conjunction with inspection of samples in the Colombo Sales Room, to ascertain what are the average characteristics of Estate Nos. 2 & 3 copra, and how these compare with accepted buyers' standards.

(b) *Individual variation between Palms.*—Routine analyses of samples of copra from 100 individual palms are being carried out by a refractometric method, which is rapid and accurate enough for the purpose, this being to ascertain whether there is a significant difference in oil content between nuts from individual palms, and thus whether there is any possibility of attempting selection for higher oil content of copra.

(c) *General.*—Other samples of copra were analysed in connection with advisory work for the Coconut Board and others. In last year's report reference was made to the high oil content of a sample from Malabar. A sample from the

Cochin District examined in 1939 had moisture 5.0, oil 68.5., oil (dry basis) 72.1 per cent. Four Indian and one Colombo sample for comparison were reported upon for the Coconut Board:—

	Madras.	Allepey.	Rajapuri.	Gotas (whole copra).	Colombo.
Moisture ..	5.4	4.0	4.9	3.8	4.4
Oil per cent. ..	64.9	69.8	67.6	67.8	67.5
Oil per cent. (dry basis) ..	68.6	72.6	71.0	70.4	70.6
Free fatty acid of oil ..	0.03	0.05	0.06	0.02	0.09

The Ceylon copra is equally satisfactory as a milling grade, but it seems probable that it is not so well regarded in India as an edible grade. The Ceylon Trade Commissioner in Bombay confirms this and the subject is under examination.

The dried kernel of a nut of the variety known locally as "Panipol" had the low oil content of 42.6 per cent. (dry basis).

(ii.) *Coconut Oil.*—13 samples of coconut oil were reported on during the year, mostly in connection with inquiries on the preparation of an edible grade of oil.

A sample of "vegetable ghee" sent by the Department of Commerce and Industries consisted essentially of a mixture of approximately equal parts of tallow and coconut oil. There had also been an addition of about 1.5 per cent. of a high melting paraffin wax. The tallow used was said to have been "refined", and the sample in fact contained 3.1 per cent. moisture, and 0.4 per cent. of suspended matter, the latter containing traces of soap. Despite this evidence that alkali refining had been attempted, the finished article still contained 4.5 per cent. free fatty acid.

Mixtures of tallow and coconut oil may find use as baking and cooking fats, but prospective makers should take care only to use the best possible quality tallow, freshly rendered and clarified. It is, moreover, not legitimate to state or imply that such mixtures are "vegetable" fats.

(iii.) *Toddy Products (a) Preserving toddy.*—The effect of preservatives:—benzoic acid, salicylic acid, and sodium bisulphite on the fermentation of toddy has been studied.

In the case of benzoic acid, 2000 parts per million were required completely to inhibit both alcoholic and acetic fermentation. This figure is confirmed by recent work of the Haffkine Institute, Bombay.

Since this amount is equal to 17½ grains per pint, methods of keeping toddy by the use of chemical preservatives do not altogether appeal. Detailed results of these experiments will be published elsewhere.

(b) *Vinegar.*—Seven commercial samples each with a different trade name supplied by the Director of Commerce and Industries were analysed during the year. Two of these were of good quality, two consisted largely of diluted acetic acid, and three were probably genuine, but badly made as they were incompletely acetified and contained unchanged alcohol.

Attention has been frequently drawn to the sophistication of toddy vinegar with imported acetic acid. For a time since the war there has been a shortage of acetic acid in the Island and prices have risen considerably; and it is ironic that coconut vinegar has been used as an emergency coagulant for rubber. It is suitable for this purpose, but its cost is usually prohibitive.

(c) *Arrack.*—The Technological Chemist accompanied the Excise Commissioner and the Government Analyst to Sirilande Distillery on December 8, when an experimental double distillation of arrack was carried out. Analyses of the many samples taken are being made.

(iv.) *Distillation of Coconut Shells.*—The shortage of acetic acid in Ceylon referred to above led to increased interest in the possibility of the local production of this acid. Consequently the Technological Chemist's Department has towards the end of the year been largely studying the distillation of coconut shells and in particular the possibility of the local manufacture of acetic acid. A first report on this subject has already been published and copies are obtainable on application. Further work is proceeding in collaboration with the Rubber Research Scheme and the Department of Commerce and Industries.

A re-examination of the tar was made, and from a sample of about 2 kilos, there were isolated 10.7 per cent. of crude crystallizable phenol and 18.1 per cent. creosote fraction.

(v.) *Miscellaneous: Fermented Coconut Water* has been found a useful emergency rubber coagulant. On fermentation a maximum of about a $\frac{1}{2}$ per cent. of acetic acid is reached in four or five days. Other samples examined have included desiccated coconut (with special reference to its keeping qualities in various forms of packing); and locally made lime with regard to its suitability for manufacture of "grey acetate".

From March to May, the Technological Chemist's Department gave assistance to the Soil Chemist's Department in handling the large number of analyses involved in the study of ammonia losses from fertilizer mixtures.

(vi.) The Director of Research paid sixteen visits to Ratmalagara Estate during the year, and seventeen visits to other estates, including five in the course of supervising the lay-out of the Fodder grass experiment (see para. C. (iv.)). A circuit of seven days in the Eastern Province was carried out in May, 1939.

B. Geneticist: I.—Bandirippuwa Estate.—

(i.) *Yield records*.—The usual yield recording, selection and study of high yielding palms have been continued.

(ii.) *Seednuts and Seedlings*.—A record number of selected seedlings was sold in 1939. The numbers of seednuts and seedlings ordered and supplied during 1939, with 1936 to 1938 figures for comparison, were:—

	Seed-nuts.		Seedlings.	
	Ordered.	Supplied.	Ordered.	Supplied.
1936 ..	17,457 ..	15,432 ..	4,540 ..	3,927
1937 ..	32,159 ..	29,909 ..	4,830 ..	3,721
1938 ..	21,893 ..	20,893 ..	6,106 ..	3,311
1939 ..	18,522 ..	17,272 ..	6,791 ..	6,011

All the seedlings were raised in the nursery at Bandirippuwa and stringently selected. The seed-nuts supplied were all from selected high yielding palms, either from Bandirippuwa itself or co-operating estates. 14,600 of the total were supplied to Revenue Officers or Officers of the Department of Agriculture for raising seedlings to supply peasant colonists.

(iii.) *Coconut Varieties: (a) Papua*.—Of the 21 seednuts from Papua referred to in last year's report, 18 germinated. One seedling was kept for examination, and the remaining 17 have been planted out at Ratmalagara Estate.

(b) *Zanzibar*.—Twenty-four nuts from Zanzibar supplied by courtesy of the Director of Agriculture, Zanzibar, who visited the Scheme in January, of a variety believed to be similar to the Ceylon *Rath tembili* were put down in the nursery.

(c) *Dwarf Varieties*.—Fifty-one seedlings raised from nuts of the dwarf palms at Bandirippuwa Estate, were sent to Ratmalagara in July and have been planted out. They are doing well.

Seedlings of the red, yellow, and green varieties are being grown in the nurseries at Bandirippuwa Estate and will be later planted out at Ratmalagara Estate.

(d) Eight nuts of a variety known locally as "pani-pol" (see this report paragraph 5A (i.) (c)) have been put down in the nursery.

II. Ratmalagara Estate.—

(i.) *Experimental Plantation*.—The experiment described in last year's report which had to be postponed owing to the drought, was laid down in 1939. 1,728 nuts were put down in the nurseries at Bandirippuwa Estate in April. Records were kept of the nuts: short and long diameter measurements; weight (unhusked), volume and colour, of the seedlings: weight, number of leaves, number of roots, and date of germination.

The 576 seedlings selected for the experiment were planted out at Ratmalagara Estate on November 15.

The experiment is designed to compare:—

A.—*Seednuts from High Yielding Mother Palms.*

- (a) Selected seedlings.
- (b) Unselected seedlings.

B.—*Seednuts from Low Yielding Mother Palms.*

- (a) Selected seedlings.
- (b) Unselected seedlings.

C.—*Seednuts from Heaps.*

- (a) Selected seedlings.
- (b) Unselected seedlings.

The experiment comprises 36 plots of 16 plants. Catch crops (mung, plantains, and manioc) grown on this clearing were harvested separately from each plot, and interesting data have been obtained on the fertility variation of the area, which will be useful for the purposes of the main experiment.

Apart from the primary object of comparison of the above six types of seedlings, some information should also be obtained on the inheritance of mother-palm characteristics other than yield attendant on normal cross-pollination.

(ii.) *Oil Palm Seedlings.*—The ten oil palm seedlings raised at Bandirippuwa Estate and referred to in last year's report, were planted out at Ratmalagara Estate in May. Nine are growing well; the tenth was a very late germination and has never been robust.

(iii.) *Coconut Varieties.*—Varieties planted out at Ratmalagara Estate during the year have been referred to in the previous section I. (iii.)

III.—*Co-operative Experiments.*—

(i.) *Yield Records.*—The number of co-operating estates increased in 1939 and yield recording and selection of mother palms is now being carried out on twelve estates. The number of palms recorded on these total 852, of which so far 181 are regarded as proved high yielders. It is hoped to extend observations further in 1940.

The figures quoted above show that the Scheme is unable to accept all the orders for seed-nuts and seedlings which come in. The demand for planting material for colonists has increased and it is felt that these should have preference over estates. It is hoped, therefore, that more large estates will carry out their own mother palm selection, in which work the advice of the Geneticist's Department is always available.

(ii.) *Experimental Plantations: No. 1.*—This plantation of 5 acres to which reference has been made in previous reports is now in the fifth year of life. It is visited monthly and careful records are kept on the progress of the individual palms. The palms are all in excellent condition in spite of adverse weather conditions. There was a slight outbreak of grey blight (*Pestalozzia palmarum*). Up to the time of writing 77 palms have come into flower out of a total of 292 (26.7 per cent). The cover of *Centrosema* and *Calopogonium* has almost replaced the *Cenchrus echinatus* which was formerly very troublesome. The manuring due in November, 1938, was carried out in January, 1939, and that due in November, 1939, was carried out in December, 1939.

No. 2.—As mentioned in last year's report, this plantation has suffered severely from termite and black beetle attack. There was further loss in 1939 on this account. 254 more seedlings were put out in October, but it was not possible to complete the whole planting as well as to replace casualties.

(iii.) Both the private plantations, situated in Kurunegala and Matale Districts, which have been opened up with selected seedlings supplied by the Scheme are doing well.

IV. *Estate Visits.*—145 visits to estates were paid by the Geneticist and his Assistants during the year, mainly in connection with mother palm selection and yield recording.

V. *Bibliography of Literature on the Coconut Palm.*—This bibliography which has been referred to in previous reports was completed and checked in 1939, and estimates obtained for printing. It has, however, been decided by the Board of Management, that printing should be deferred until more normal times.

The bibliography is, however, of great use in the Scheme's own work.

VI. *Issue of Publications.*—The Geneticist, until his departure on leave in August, acted as Officer-in-Charge of Publications.

The demand for publications continues to increase. From 250 registered in the mailing list in 1938 the number has now increased to over 300. As mentioned in last year's report the Scheme's publications were distributed through the assistance of the Village Committee Chairmen. Their co-operation in this connection is cordially acknowledged.

C. *Soil Chemist.*—

(i.) *N. P. K. Experiment.*—Five years' records on the nitrogen-phosphate-potash experiment were completed with the October, 1939, pick. The third application of fertilizers since the commencement of the experiment was made in November, 1939. Palms of plots in gravelly areas which have received no potash since 1933 are showing definite signs of deficiency in the form of yellowing of leaves and general unhealthy appearance of the crowns.

Phosphoric acid still appears to cause little response.

Analytical work commenced in 1937 in connection with potash utilization—particularly on nut water and husk samples—has been continued.

(ii.) *Co-operative Manurial Experiments.*—Circumstances necessitated the discontinuance of the experiment commenced in Negombo in 1938, but it is hoped shortly to take up another experiment in that district. Good progress was made with the other two experiments. One year's pre-manurial records have been kept on that at Gampaha, and the first application of fertilizers was made in December, 1939, after the whole area had been fenced. Similarly application of fertilizers was made to the experiment in the Southern Province.

(iii.) *Cover Crop Experiment.*—The treatments of this experiment which had to be postponed owing to drought conditions in 1938 were carried out in June, 1939. The treatments were modified from those originally intended (see Annual Report for 1937, Sessional Paper IV.—1938, page 9) and were as follows: No cover, but manured with general mixture, NPK, and soil turned with mamoties; cover + K; cover + PK; cover + NP; cover + NPK.

The thirty plots on which cover is being grown have shown a marked drop in yield relative to the six control plots free from cover. The whole area has shown a large decrease in yield following drought conditions in 1938, but this is much more marked on the cover plots. The adverse effect of cover commenced to show approximately 18 months after the planting of cover in June, 1937, and to-date $2\frac{1}{2}$ years after planting, is still increasing. At the commencement of the experiment the average of the cover plots was some 10 per cent. above that of the controls; in December, 1939, it was 30 per cent. below. This effect is probably best explained as due to actual competition of the cover crop for moisture during the abnormal drought conditions of 1938. If so, it seems advisable to recommend turning in of cover before the onset of the dry season, even at the risk of the cover not regenerating if drought is prolonged.

The effect of manurial treatments will not of course be apparent until 1940 at the earliest.

(iv.) *Fodder Grass Experiment.*—Later in the year a comprehensive experiment on fodder grass foreshadowed in last year's report was laid down on a neighbouring estate. The experiment is designed to study the effect on yields and growth of coconut palms of inter-planting with Napier grass, with and without the application of fertilizers. The following six treatments are compared:—

Without Fodder grass.

O
N
NPK

With Fodder grass.

O
N
NPK

Fodder Grass Experiment

The lay-out is of 24 plots of 15 trees (all 5 x 3) with single guard rows, in four randomized blocks.

The fodder grass plots on Bandirippuwa Estate have been maintained.

That all five of the above-mentioned major field experiments received manurial treatments in 1939 meant that particularly in the last half of the year, the field staff of this Department was fully occupied.

(v.) *Loss of Ammonia from Fertilizer Mixtures.*—Preliminary results on this subject mentioned in last year's report were not in agreement with some reported in 1934 by the Tea Research Institute. Accordingly in 1939 a comprehensive study of the question was taken up jointly with Dr. Eden, Agricultural Chemist of the Tea Research Institute. In the course of this work nearly 100 different mixtures containing sulphate of ammonia and rock phosphates of various brands were studied. A summarized account of the results was published in the "Tropical Agriculturist" in October. It was established that appreciable losses of ammonia from fertilizer mixtures containing sulphate of ammonia and rock phosphates are not to be anticipated under reasonable conditions of storage.

(vi.) Samples examined in the course of advisory work included U.D.C. compost, goat manure, and kitchen ash.

(vii.) There was approximately the same volume of advisory correspondence as in 1938. Thirty-three estate visits were paid, including fifteen in connection with co-operative experiments.

6. *Paper Pulp from Coconut Husk.*—Mr. S. R. K. Menon, to whom laboratory facilities were afforded from April 25, 1938, for carrying out experiments on the possibility of making paper pulp from husks, submitted a report of work done to the end of October, 1939. This is being studied by the Board of Management, Coconut Research Scheme, and by the Ceylon Coconut Board, who had co-operated with the Scheme in financing these experiments. If considered promising, it is likely that the research will be taken beyond the laboratory stage under the auspices of the Coconut Board. The Research Scheme will continue to afford such laboratory facilities as are required.

7. (i.) *Publications.*

M. L. M. Salgado: Annual Reports of the Soil Chemist for the period July, 1933, to December, 1937. Coconut Research Scheme Bulletin No. 3, pp. viii + 76, November, 1938.

W. V. D. Pieris: Geneticist's Annual Reports for 1936 & 1937. Coconut Research Scheme Bulletin No. 4, pp. ii + 58.

M. L. M. Salgado: "Chemical and Agricultural Notes from the Coconut Research Scheme, Ceylon. III. Loss of Ammonia from Fertilizer Mixtures containing Sulphate of Ammonia and Mineral Phosphates". *Tropical Agriculturist*, 1939, Vol. XCII., No. 4 (April), pp. 220-221.

R. Child: "Ceylon's Coconut Crops". *ibid.* No. 6 (June), pp. 330-35.

Report and Accounts of the Coconut Research Scheme for 1938. Government Sessional Paper XI.—1939. July 5, 1939.

R. Child: "Coconut Oil and Whale Oil". *Ceylon Trade Journal*, 1939, Vol. IV., No. 9 (September), pp. 381-83.

R. Child: "The Destructive Distillation of Coconut Shells". *Tropical Agriculturist*, 1939, Vol. XCIII., No. 4 (October), pp. 195-204.

R. Child, T. Eden & M. L. M. Salgado: "A Note on the Loss of Ammonia from Fertilizer Mixtures" *ibid.*, pp. 210-12.

O. B. M. Cheyne & R. Child: "Chemical and Agricultural Notes from the Coconut Research Scheme, Ceylon. IV. A Note on the Use of Dynamite on Hard Ground between Coconut Palms". Submitted for publication in December, 1939.

The following articles of popular interest were also published during the year:—

M. L. M. Salgado: "Some New Aspects of Coconut Manuring" in the "Times of Ceylon" (Estate & Industries Supplement), January 26, 1939.

B. Child: "Coconut Oil: Properties and Composition": *Journal of Coconut Industries*, Vol. 3, No. 2, June, 1939, pp. 86-91. Reprinted in "Ceylon Coconut Oil", a propaganda booklet issued by the Ceylon Coconut Board, and also under the title "Value of Coconut Oil as Food" in *The Coconut Advocate* (Manila, P. I.), Vol. I., No. 19 (September, 1939), pp. 5-10.

B. Child: "The Food Value of the Coconut". *Young Ceylon* (Special Coconut Number) July-August, 1939, pp. 90-93. Reprinted in the *Journal of Coconut Industries*, Vol. 3, No. 4 (December, 1939), pp. 230-35.

Leaflets.—Leaflet No. 5: "The Utilization of Husks on Coconut Estates", by M. L. M. Salgado (pp. 7 with one diagram) was published in December, 1939. A Sinhalese translation has been prepared.

A Sinhalese version of "Ceylon's Coconut Crops" appeared in "Govikata Sangarawa", Vol. XXXIV., No. 3, 1939.

Leaflet No. 6: "Coconut Shell Charcoal", by R. Child was completed for publication in December, 1939, and will be issued early in 1940.

(ii.) *Library*.—An important addition to the Library during the year (by purchase) was a run of "American Chemical Abstracts", Vols. 14-25. The purchase of nine volumes of the "Kew Bulletin" brought this publication to a continuous run for 1926-1938.

The Library contained 478 books and 829 bound volumes on December 31, 1939. The latter include 106 volumes loaned by the Director of Research. Previous reports show that the library has grown from 352 volumes in 1934 to the present figure of 1307.

The number of current periodicals received is seventy-nine including those loaned by members of the staff. The additions to the list during the year were: "Biological Abstracts—Section D. Plant Sciences" and "Journal of the Indian Chemical Society".

The Library continues to receive a large number of periodicals from Government Departments, Research Institutes and other bodies, both in Ceylon and overseas. These are acknowledged individually by post, but a general acknowledgment is here made to all those who kindly supply their publications *gratis*.

Those interested are welcome to make use of the Library, which is open during week days from 9 A.M. to 12 noon and 2 to 4 P.M. and on Saturdays from 9 A.M. to 12 noon.

8. (i.) *Lectures &c.*—The following lectures and talks were given by members of the staff in 1939. On January 26, the Director of Research gave a talk on "Coconut Research" from the Colombo Broadcasting Station in the series of afternoon school broadcasts organized by the Department of Education.

An address by the Director of Research "Coconuts—To-day and To-morrow" to the Chilaw Planters' Association on March 31, re-iterated the necessity for replanting most existing coconut land with selected seedlings.

At a field day organized by the Department of Agriculture in Batticaloa on May 27, 1939, the Director of Research gave a talk on "Coconut Cultivation, with Special Reference to the Eastern Province".

On July 14, the Geneticist gave an informal address to the students of the Farm School, Peradeniya, on "Varietal Characters and General Problems connected with the Coconut Palm".

The Director of Research also spoke briefly at the Kurunegala Planters' Association Meeting on August 30, on the subject of "Immature Nut Fall"; and commented at the 7th meeting of the Central Board of Agriculture at Peradeniya, held on November 16, on a motion concerning the possibility of manufacturing sugar from coconut toddy and the bottling of sweet toddy.

(ii.) *Field Days, Exhibitions &c.*—The Scheme participated in an Agricultural Field Day organized by the Department of Agriculture at Batticaloa on May 27. Two officers of the Scheme were sent to assist and distributed a large number of leaflets, mostly Tamil editions. This was the first occasion on which the Scheme had undertaken such activities in the Eastern Province. The previous year, 1938, had seen the Scheme's first activity in the Northern Province.

Owing to exigencies of staff, the Scheme was unable to accept invitations to participate in other Exhibitions and Carnivals organized by private bodies.

(iii.) *Meetings.*—The Senior Officers of the Scheme continue to be honorary members of the Chilaw and Kurunegala Planters' Associations, and of the Coconut Planters' Joint Committee and have attended meetings of these bodies when possible.

The Scheme, as a corporate body owning estates, is a member of the Low-Country Products' Association, the Ceylon Estates Proprietary Association, and the Chilaw Planters' Association.

The Director of Research attended during the year four meetings of the Board of Management as Secretary, and one meeting of the Buildings Sub-Committee as Secretary-Convenor; also three meetings of the Central Board of Agriculture, four meetings of the Chilaw Planters' Association, one of the Kurunegala Planters' Association and two of the Coconut Planters' Joint Committee.

By courtesy of the Board of Management, the Coconut Planters' Joint Committee held two meetings in the Library Room at Bandirippuwa Estate on April 1, and September 16.

In October, at the instance of the Assistant Government Agent, Puttalam, a Collaboration Committee was set up for Pitigal Korale South to encourage food production. The Board of Management assisted by placing the Library Room at the disposal of the Committee for its meetings, of which three were held. The Director's Clerk, Mr. T. B. Weerakoon, was elected Honorary Secretary of this Committee.

9. *Visitors.*—The year was noteworthy for the number of overseas visitors, who included (in order of date of visit) Mr. C. Harvey, Agricultural Officer, Fiji; Mr. R. W. R. Miller, Director of Agriculture, Zanzibar; Mr. A. S. Evensen of Rabaul, New Guinea; Dr. E. de Vries, Department of Economic Affairs, Batavia; Mr. Ch. Press, Palestine; Maxim M. Kalaw of the National Assembly, Philippine Islands, and party; Dr. H. J. Page, Director, Rubber Research Institute, Malaya; and Mr. G. B. Pease of Jamaica.

Twenty-two students of the Farm School, Peradeniya, in the course of their annual tour, visited the Scheme's Headquarters on August 7, in the company of Mr. J. A. Alles. They saw work in progress in the laboratories and in the field under the guidance of the Soil Chemist.

Three parties of school children visited the laboratories during the year, two of these from Rural Scheme Schools.

THE ESTATES.

10. *Bandirippuwa Estate.*—As in previous reports the finances are presented in two parts, that relating to normal estate management and that to research management. Expenditure under the Research Heads of the Estimates is distributed between the Bandirippuwa Estate Working Account, the Ratmalagara Estate Working Account and the Revenue Account, according to whether it was incurred for work on the Scheme's own estates or on co-operative experiments on outside estates.

The crops harvested in 1939 were as follows:—

Crop No.	Nuts from Blocks under Estate Management.	Nuts from Blocks under Research Management.	Total.	Average 1931 to 1939.	Per Cent. Below Average.
1 ..	68,033	22,180	90,213	69,796	+ 29.2
2 ..	79,548	25,181	104,729	106,568	— 1.7
3 ..	71,160	24,430	95,590	125,837	— 14.0
4 ..	50,849	16,512	67,361	112,824	— 40.3
5 ..	33,463	10,799	44,262	73,725	— 40.0
6 ..	31,281	10,169	41,450	65,033	— 36.3
	334,334	109,271	443,605	553,782	— 19.9

Corresponding totals for previous years have been:—

Year.	Number of Nuts.	Per Acre.	Per Palm.
1931 ..	583,155	3,887	59.3
1932 ..	447,191	2,981	45.4
1933 ..	632,106	4,143	64.2
1934 ..	575,755	3,774	58.5
1935 ..	541,699	3,564	55.8
1936 ..	502,137	3,293	51.8
1937 ..	664,742	4,356	68.7
1938 ..	503,632	3,893	61.4
1939 ..	443,605	2,910	45.9
Total 1931-1939 ..	4,984,047	—	—
Average 1931-1939 ..	553,782	3,630 (approx.)	58 (approx.)

The abnormally low rainfall of 1938, referred to on page 14 of last year's Report seriously affected crops in 1939. The adverse effect, as anticipated, was most severe for the last three crops, which were about 40 per cent. below average.

The revenue from Bandirippuwa Estate actually accruing in 1939 was:—

<i>Revenue from Estate Management.</i>			<i>Revenue from Research Management.</i>		
	Rs. c.	Rs. c.		Rs. c.	Rs. c.
6th Crop, 1938—			6th Crop, 1938—		
Sale of nuts ..	1,825 52		Sale of nuts ..	100 88	
Sale of copra from rejections ..	7 1		Copra from experiments ..	325 34	
Sale of husks ..	93 36		Seednuts and seedlings ..	261 0	
		1,925 89			687 22
Crops 1-5, 1939—			Crops 1-5, 1939—		
Sale of nuts ..	4,276 21		Sale of nuts ..	50 99	
Sale of copra ..	2,563 58		Copra from experiments ..	1,619 77	
Sale of copra from rejections ..	17 96		Other copra ..	71 74	
Sale of husks ..	583 74		Sundries ..	14 60	
Sale of shells and sundries ..	70 70		Seednuts and seedlings ..		1,757 16
		7,512 19			2,413 80
		9,438 8			4,868 12

Total gross revenue in 1939 was thus Rs. 14,296.20 which may be summarized as follows:—

	Rs. c.	Average Price.
Sale of 238,571 nuts realizing ..	6,253 60	Rs. 26.21 per 1,000
Sale of 39 tons 5 cwt. 107 lb. copra realizing ..	4,005 40	Rs. 29.30 per candy
Sale of 306,150 husks realizing ..	677 10	Rs. 2.21 per 1,000
Sale of 43,500 shells realizing ..	65 0	Rs. 1.49 per 1,000
Sundries ..	20 30	
Sale of seed nuts and seedlings ..	2,674 80	
	14,296 20	

Expenditure for the year totalled Rs. 6,721.47 for the portion under Estate management, and Rs. 5,697.07 under Research management, cost of Superintendence and watchers having been allocated proportionately, viz., of a total of Rs. 2,124.53 under these heads, Rs. 1,601.21 has been charged to estate and Rs. 523.32 to research. The expenditure under Research management also includes Rs. 1,223.69 for purchase of selected seed-nuts from co-operating estates.

The estate expenditure includes a sum of Rs. 1,799.65 for manuring, which Rs. 5.88 was due to manuring). In calculating this figure Rs. 326.02 (copra curing and despatch) has been deducted from the total estate expenditure, since this does not enter into the cost of production of nuts.

The excess of receipts over payments for the estate area was Rs. 2,716.61. For the research area payments exceeded receipts by Rs. 838.95.

COCONUT RESEARCH SCHEME.

13

SUNDRY DEBTORS AND CREDITORS ACCOUNT.

Of the income accruing in 1939, from the 6th crop 1938, Rs. 1,500 (estate) and Rs. 60 (research) were credited in the Estate Working Account, 1938, through Sundry Debtors and Creditors Account. The Estate Working Account, 1939, does not therefore include these items.

On account of the 6th crop, 1939, the following sums have been included in the Estate Working Account (see page 20) through Sundry Debtors and Creditors Account.

EXPENDITURE.		Rs. c.	INCOME.		Rs. c.
<i>Estate.</i>			<i>Estate.</i>		
General charges ..		15 17	Sale of husks ..		139 76
<i>Research.</i>			Sale of copra (provisional) ..		1,000 0
General ..		7 75	<i>Research.</i>		
Purchase of seed-nuts ..		12 60	Sale of copra from experiments (provisional) ..		400 0
Soil Chemist's research ..		5 85	Sundries ..		0 60
		41 37			1,540 36

The Bandirippuwa Estate Working Account shows a balance carried forward to the Revenue Account of Rs. 1,816.65.

Meteorological Observations at Bandirippuwa Estate.—The usual weather records have been kept at Bandirippuwa; daily telegrams and monthly abstracts have been sent to the Colombo Observatory, in whose reports the Scheme's Station is referred to as Lunuwila.

The total rainfall during 1939 was 70.07 in. falling on 143 rainy days; wet days, i.e., those of 0.04 in. or more rainfall, numbered 118. The corresponding figures in 1938 were 47.81 in. falling on 153 rainy days (120 wet days).

The rainfall was reasonably well distributed throughout the year, though fairly extensive periods of drought occurred from late January to the end of March and from mid August to mid September.

Drought conditions recurred at the end of the year and continue to the time of writing (January 20, 1940).

Roads and Buildings were maintained. A new well was dug at Kotakande, which provided a useful source of water during the period of acute shortage at the beginning of the year.

11. *Ratmalagara Estate.*—The crops harvested in 1939 were:—

Crop No.	Nuts sold.	Rejections.	Nuts picked.	1938 Crops.
1 ..	23,268	484	23,752	30,896
2 ..	25,512	901	26,413	28,130
3 ..	29,055	1,105	30,160	37,413
4 ..	33,036	1,242	34,278	44,180
5 ..	30,944	1,571	32,515	34,573
6 ..	22,125	1,740	23,865	20,945
	163,940	7,043	170,983	196,137

Revenue from estate actually accruing in 1939 was as follows:—

	Rs. c.
Sale of 141,815 nuts ..	3,435 25
Sale of copra from rejections ..	43 12
Sale of catch crops ..	104 96
Sale of timber ..	17 55
Sale of husks ..	30 0
	3,630 88

Expenditure totalled Rs. 4,360.83 plus Rs. 199.17 Research Expenditure, total Rs. 4,559.50, giving an excess of payments over receipts of Rs. 928.62;

SUNDRY DEBTORS AND CREDITORS ACCOUNT.

On account of the sixth crop sold at Rs. 46.50 but undelivered by December 31, 1939, Rs. 930 were provisionally credited per Sundry Debtors and Creditors Account. On account of receipts after December 31, 1939, from further sales of Catch Crops, 1939, Rs. 74.08 were similarly credited.

Rs. 23.33 were debited on account of payments in 1940 for services in 1939.

The Estate Working Account as detailed on page 20 accordingly shows a balance carried forward to Revenue Account of Rs. 52.13. This may be compared with the previous year, when Rs. 2,136.85 were carried forward as *loss on working*.

Weather Records.—Records of rainfall, cloud and state of weather are kept at Ratmalagara Estate and monthly statements sent to the Colombo Observatory. 72.32 in. of rain fell in 1939 on 115 rainy days (108 wet days).

Buildings, Roads, &c.—A Circuit Bungalow and Field Laboratory were completed during the year. Construction of a bungalow for the Superintendent will be undertaken in 1940.

The well near the new Circuit Bungalow was deepened and provided with a parapet wall and coping. A new well was dug in the 12-acre new clearing provided with parapet and coping, and fitted with a hand pump.

12. *Finance.*—The audited Statement of Accounts will be found attached.

E. RODRIGO,

Acting Director of Agriculture, and
Chairman, Board of Management,
Coconut Research Scheme.

January 25, 1940.

Audit Office,
Colombo, January 31, 1940.

THE CHAIRMAN, Board of Management, Coconut Research Scheme, Peradeniya.

SIR,—I HAVE the honour to furnish the following report on the audit of the accounts of the Coconut Research Scheme for the year 1939 and to forward the following statements duly certified:—

- (a) Statement of Receipts and Disbursements for 1939.
- (b) Bandirippuwa Estate Working Account for 1939.
- (c) Ratmalagara Estate Working Account for 1939.
- (d) Revenue, Nett Revenue and Surplus and Deficit Account for 1939.
- (e) Capital Account and General Balance Sheet as at December 31, 1939.

2. The Statement of Receipts and Disbursements based on actual receipts and payments during the year is furnished in compliance with the statutory requirement in section 8 (2) of Ordinance No. 29 of 1928.

I.—INCOME.

3. The total income accrued during the year amounted to Rs. 87,234. It exceeded the estimate of Rs. 73,924 by Rs. 13,310 but fell below the revenue of the previous year by Rs. 9,471.

4. *Grants.*—The annual grant of Rs. 30,000 payable by Government under section 6 (1) (b) of Ordinance No. 29 of 1928 has been duly received.

5. *Cess Collections.*—The amount accrued for the year was Rs. 50,524 inclusive of the collections made by the Principal Collector of Customs during December, 1939, but received in January, 1940.

6. *Interest.*—The amount accrued for the year is Rs. 3,651. This amount includes in addition to the sum of Rs. 3,014 received as interest on the fixed deposits in the National Bank of India and the Eastern Bank, Colombo, the interest on the investments in the Ceylon Government 3½ per cent. loan and State

Mortgage Bank and on loans to the staff, a sum of Rs. 636 being the interest accrued on the investments of the Scheme and the fixed deposits in banks up to the close of the year under review.

7. *Profit from Bandirippuwa Estate.*—The total income earned from the estate and research block for the year under review was Rs. 14,277. The expenditure incurred on working the estate and research block amounted to Rs. 12,460 leaving a profit of Rs. 1,817. This profit includes a sum of Rs. 1,540 being an estimate of the amount expected by the sale of the sixth crop of 1939.

8. *Profit from Ratmalagara Estate.*—The total income earned from the estate for the year under review was Rs. 4,635. The expenditure incurred on working the estate amounted to Rs. 4,583 leaving a profit of Rs. 52. This profit was arrived at after including a sum of Rs. 1,004 being an estimate of the amount expected by the sale of the sixth crop of 1939.

II.—EXPENDITURE.

9. The total expenditure on revenue account exclusive of the amount allowed for depreciation on capital assets amounted to Rs. 76,486. The details of this expenditure are fully set forth in the Revenue Account. The expenditure charged to capital account amounted to Rs. 9,108. This sum includes Rs. 1,825 spent on improvement to the Ratmalagara estate, Rs. 5,173 on buildings in the same estate, Rs. 1,971 on the laboratory and Rs. 139 on the additional electric installation. The whole of this expenditure was checked with supporting vouchers.

10. The following is a comparison between the original estimate and the actual expenditure incurred:—

Account.	Estimated. Rs. c.	Actual. Rs. c.	Excess. Rs. c.	Supplementary including Revised Votes. Rs. c.
<i>A.—Capital :</i>				
<i>Land Acquisition—</i>				
New clearings ..	1,000 0	1,630 4	630 4	—
Fencing ..	1,000 0	194 55	—	500 0
<i>Buildings—</i>				
Circuit bungalow at Ratmalagara Estate ..	8,500 0	4,916 87	—	5,750 0
Superintendent's bungalow at Ratmalagara Estate ..				
Equipment of laboratory ..	2,000 0	3,392 81	1,392 81	—
Office furniture and equipment ..	500 0	139 55	—	300 0
Additional Electric Installation ..	—	34 50	34 50	—
<i>B.—Personal Emoluments :</i>				
Salaries of senior staff ..	33,742 0	33,566 3	—	172 0
Salaries of junior staff ..	15,342 0	15,545 92	203 92	364 0
Provident Fund contribution and interest ..	3,200 0	3,166 11	—	33 0
Rent allowance ..	318 0	659 33	341 33	272 0
<i>C.—Other Charges :</i>				
Travelling expenses of staff ..	3,750 0	5,342 90	1,592 90	650 0
Travelling expenses of Board Members ..	750 0	482 30	—	150 0
<i>D.—Office :</i>				
Stationery ..	1,000 0	928 98	—	—
Postage ..	750 0	772 75	22 75	—
Printing and advertising ..	1,500 0	845 89	—	—
Legal expenses ..	100 0	75 45	—	—

Account.	Estimated.		Actual.		Excess.		Supplementary including Revised Votes.		
	Rs.	c.	Rs.	c.	Rs.	c.	Rs.	c.	
D.—Office—contd.									
Incidental expenses	1,000	0	890	55	—	—	—	—	
Telephone	355	0	355	0	—	—	18	0	
Propaganda	750	0	271	45	—	—	350	0	
Entertainment allowance	200	0	47	50	—	—	50	0	
Workmen's Compensation Insurance	—	—	77	40	77	40	—	78	0
E.—Laboratory :									
Upkeep, chemicals, &c.	2,000	0	2,565	37	565	37	350	0	
Scientific books and periodicals	1,750	0	2,072	40	322	40	250	0	
F.—Buildings :									
Upkeep of buildings	1,000	0	795	2	—	—	—	—	
Insurance of buildings	510	0	506	75	—	—	—	3	0
Running expenses of electric plant	2,100	0	1,948	31	—	—	—	—	
Water supply	—	—	452	38	—	—	—	200	0
G.—Estate Account (a) Bandirippura :									
General charges	2,000	0	2,227	75	227	75	200	0	
Upkeep	1,200	0	838	23	—	—	300	0	
Cultivation	2,500	0	2,140	65	—	—	250	0	
Collection	600	0	418	16	—	—	160	0	
(b) Ratmalagara Estate :									
General charges	1,500	0	1,635	8	135	8	150	0	
Upkeep	1,500	0	825	13	—	—	600	0	
Cultivation	1,000	0	501	79	—	—	—	—	
Collection	300	0	198	33	—	—	100	0	
H.—Research Account :									
General	200	0	653	89	—	—	250	0	
Genetical work	1,000	0	1,223	2	223	2	—	—	
Purchase of seed nuts	—	—	1,214	19	1,214	19	700	0	
Soil Chemist's work	3,600	0	3,868	99	268	99	—	—	
I.—Loan Repayment and Interest .. 6,800 0 .. 6,800 0 .. — .. —									
J.—Reserve for Depreciation .. 11,280 0 .. 11,130 67 .. — .. — 218 0									

11. The excesses under the different items save the following have been approved by the Board of Management:—

	Rs.	c.
A—New clearings	630	4
Superintendent's bungalow	74	15
Equipment of laboratory	1,392	81
Additional electric installation	34	50
B—Rent allowance	69	33
C—Travelling expenses of staff	942	90
D—Postage	22	75
E—Upkeep, chemicals, &c.	215	37
Scientific books and periodicals	72	40
G—(a) Bandirippuwa Estate :	27	75
General charges	223	2
H—Genetical work	514	19
Purchase of seed-nuts	268	99
Soil chemist's work	78	67
J—Reserve for depreciation	—	—

III.—SURPLUS.

12. The accumulated surplus at the beginning of the year was Rs. 53,833. The result of the year's working showed a deficit of Rs. 388 and, in view of the

fact that a sum of Rs. 9,108 was utilized on capital works, there was a deficit of Rs. 9,491, for the year under review. The accumulated surplus at the close of the year was therefore reduced to Rs. 44,362.

IV.—BALANCE SHEET.

(a) Liabilities.

13. *Contribution to Capital Outlay: Rs. 533,979.*—This sum represents the total amount of contributions made from revenue towards the capital outlay of the scheme. The amount contributed during the year was Rs. 9,108.

14. *Loan from Government of Ceylon: Rs. 40,000.*—This sum represents the amount of loan still payable to the Government of Ceylon out of the loan of Rs. 50,000 obtained in 1937 for the purchase of the Ratmalagara Estate. An instalment of Rs. 5,000 was paid to the Government during 1939 and the total amount so far repaid, viz., Rs. 10,000, is shown under "Loan Redeemed" Account in the Statement of Liabilities.

15. *Passage Fund Reserve: Rs. 1,483.*—This amount represents the balance lying to the credit of the fund for meeting the cost of passages to officers. No contributions were made to this fund during the year under review but an expenditure of Rs. 2,076 was incurred during the year in providing passages to an officer of the Scheme who proceeded to Trinidad on study leave.

16. *Provident Fund: Rs. 28,278.*—The balance to the credit of this fund at the beginning of the year was Rs. 22,735. The contributions made by the officers during the year amounted to Rs. 2,376. The contribution made from the funds of the Scheme amounted to Rs. 3,166 inclusive of the interest on the balance of the fund for 1938.

17. *Reserve for Depreciation: Rs. 96,571.*—The balance on December 31, 1938, was Rs. 85,441. A sum of Rs. 11,130 was transferred from revenue to this account during the year under review. This amount has been arrived at as follows:—

	Rs.	c.
Buildings at 4 per cent. on Rs. 152,456·76 ..	6,098	27
Laboratory:		
Structures at 4 per cent. on Rs. 47,264·43 ..	1,890	58
Equipment at 7½ per cent. on Rs. 19,296·80 ..	1,447	26
Gas plant at 10 per cent. on Rs. 1,826·48 ..	182	65
Furniture for bungalows at 7½ per cent. on Rs. 2,213·19 ..	165	99
Office furniture and equipment at 7½ per cent. on Rs. 1,401·89 ..	105	14
Accumulators at 12½ per cent. on Rs. 9,747·19 ..	1,218	40
Museum at 10 per cent. on Rs. 223·84 ..	22	38
	11,130	67

The percentage of depreciation allowed during the year has been reduced in respect of buildings, laboratory structures and equipment, furniture for bungalows, office furniture and equipment, as compared with the depreciation allowed in previous years and this reduction has been made in accordance with the decision of the Board of Management on the matter.

18. *Creditors: Rs. 1,406.*—Of this amount, a sum of Rs. 1,038 represents the interest and instalment accrued up to the close of the year in respect of the loan of Rs. 50,000 obtained from the Government. The balance sum of Rs. 368 represents the outstanding liabilities on December 31, 1939, with the exception of the cost of audit for 1939.

(b) Assets.

19. *Capital Expenditure: Rs. 583,979.*—The details of this expenditure are set forth in the Capital Account. A sum of Rs. 96,571 which is about 16.54 per cent. of the total capital expenditure has been provided for the depreciation of these assets.

20. *Debtors: Rs. 5,699.*—Of this amount the sum of Rs. 3,106 was due from the Deputy Financial Secretary on account of cess collections made during December, 1939. This sum was received from him during January, 1940. Of the balance the sums of Rs. 1,540 and Rs. 1,004 represent the estimated amounts of the sale of produce collected in the Bandirippuwa and Ratmalagara Estates in 1939 and sold during the current year.

21. *Accrued Interest: Rs. 636.*—This amount represents the interest accrued up to the close of the year on the fixed deposits amounting to Rs. 40,000 and on the investments of Rs. 60,000 and Rs. 25,000 in the Ceylon Government $3\frac{1}{2}$ per cent. loan and the Ceylon State Mortgage Bank respectively.

22. *Loans to Staff: Rs. 250.*—This amount represents the balance outstanding out of the loan of Rs. 1,500 granted to a member of the staff for the purchase of transport. The loan is being repaid in monthly instalments with interest.

23. *Rice Advance Account: Rs. 68.*—This amount represents the value of the stock of rice on hand at December 31, 1939, together with the amounts outstanding from the staff in respect of the rice issued during the month of December, 1939. The amounts due from the staff are being recovered from their wages and it is expected to close this account by the end of February, 1940.

24. *Investments: Rs. 83,800.*—The stock certificates relating to Rs. 60,000 Ceylon Government loan, 1957-62, and the Debenture Bonds in support of the investment of Rs. 25,000 in the Ceylon State Mortgage Bank were seen at the inspection of the office in January, 1940. The actual purchase price of the Ceylon Government loan stock was Rs. 59,400 but it is shown at the market price on December 31, 1939. The depreciation of Rs. 600 in the value of the stock is shown separately under "Depreciation on Investment" in the Statement of Assets.

25. *Cash Balances: Rs. 81,047.*—The receipts in support of the fixed deposits of Rs. 20,000 each in the National Bank of India and the Eastern Bank, Colombo, were seen at the inspection of the office. The balance in current account at the National Bank of India, Limited, Colombo, was verified by reference to the bank certificate. The cash in hand on December 31, 1939, was not verified but a surprise verification of the cash, &c., on hand was made at the inspections of the Research Scheme Office and the Ratmalagara Estate Office on January 17, 1940, and January 18, 1940, respectively.

V.—GENERAL.

26. The accounts were received quarterly and examined in this office. The books and accounts kept at the offices of the Coconut Research Scheme at Bandirippuwa and Ratmalagara Estates were inspected and test verifications of the inventory balances in addition to cash verifications were made at the inspection.

27. Section 8 (2) of Ordinance No. 29 of 1928, provides that, within one month after each 31st day of December, the Board shall cause to be prepared statements of receipts and disbursements during the previous year and the same shall be subject to audit and published. If the intention is that the auditing should also be completed within the above period the time now available for this Department is hardly sufficient to make a complete and satisfactory audit of the accounts after their receipt generally during the latter half of January and I would suggest that action be taken to have the Ordinance amended so that the last day may be altered from January 31 to the last day of February or March.

I am, Sir,
Your obedient Servant,
J. J. JACOB,
Actg. Auditor-General.

COCONUT RESEARCH SCHEME.

19

COCONUT RESEARCH SCHEME.

Statement of Receipts and Disbursements for the year 1939.

RECEIPTS.		DISBURSEMENTS.	
	Rs. c.	Rs. c.	Rs. c.
Balance at January 1, 1939		57,572 18	
Revenue Account:			
Annual grant from Government	30,000 0		
Cess collections	50,925 74		
Interest	3,345 92		
Income from Bandirippuwa Estate	14,296 20		
Income from Ratmalagara Estate	5,630 88		
Charges to Staff for electricity	574 0		
Sale of publications	27 94		
Charges for telephones	—		
Sundry receipts	270 30		
	108,571 98		
Advance Account:			
Repayment of loans to staff	1,099 96		
Rice accounts, Bandirippuwa and Ratmalagara Estates	153 81		
	1,253 77		
Deposit Account:			
Provident Fund	5,542 55		
Passage Fund reserve	—		
Depreciation reserve	11,180 67		
	16,673 22		
Expenditure Account:			
Capital Account:			
New clearings, Ratmalagara Estate	1,630 4		
Fencing, Ratmalagara Estate	194 56		
Buildings:			
Circuit bungalow, Ratmalagara Estate	4,916 87		
Superintendent's Bungalow, Ratmalagara Estate	74 15		
Equipment of laboratory	3,392 81		
Office furniture and equipment	139 55		
Additional Electric Installation	34 50		
	10,382 47		
Personal Emoluments:			
Salaries of senior staff	33,566 3		
Salaries of junior staff	15,545 92		
Provident Fund contributions for 1938 and interest	3,106 11		
Rent Allowance	659 33		
	52,987 39		
Other Charges:			
Travelling expenses of staff	5,342 90		
Travelling expenses of Board Members	482 30		
	5,825 20		
Office Expenses:			
Stationery	928 98		
Postage	772 75		
Printing and advertising	845 89		
Incidental expenses	890 55		
Legal expenses	75 45		
Telephone	365 0		
Propaganda	271 45		
Entertainment allowance	47 50		
Workmen's Compensation Insurance	77 40		
	4,264 97		
Laboratory:			
Upkeep, chemicals, &c.	2,565 37		
Scientific books and periodicals	2,972 40		
	4,637 77		
Buildings:			
Upkeep of buildings	795 2		
Insurance of buildings	506 75		
Running expenses of electric plant	1,048 31		
Water supply	452 38		
	3,702 46		
Bandirippuwa Estate Account:			
General charges	2,227 75		
Upkeep	838 23		
Cultivation	2,140 65		
Collection	418 16		
	5,624 79		
Ratmalagara Estate Account:			
General charges	1,635 8		
Upkeep	825 13		
Cultivation	501 79		
Collection	198 33		
	3,160 33		
Research Account:			
General	653 89		
Genetical work	1,223 2		
Genetical work, purchase of seeds	1,214 19		
Soil Chemist's work	3,868 99		
	6,960 9		
Loan repayment and interest	6,800 0		
Reserve for depreciation	11,130 67		
	115,426 14		
Advance Account:			
Loan to staff	100 0		
Rice accounts, Bandirippuwa and Ratmalagara Estates	222 20		
	322 20		
Deposit Account:			
Provident Fund	—		
Passage Fund reserve	2,076 8		
Depreciation reserve	—		
	2,076 8		
Fixed deposit in Eastern Bank, Colombo	20,000 0		
Balance at December 31, 1939:			
Cash in current account at bank	40,246 73		
Cash in hand	800 0		
	41,046 73		
	178,871 15		178,871 15

Audited and found correct:
 J. Jos. JACOB,
 Acting Auditor-General.
 Audit Office,
 Colombo, January 31, 1940.
 J. N. 23820 (4/49)

E. RODRIGO,
 Chairman, Board of Management, Coconut Research
 Scheme, Peradeniya.

Bandrippuwa Estate Working Account for the Year ended December 31, 1939.

Dr.	EXPENDITURE		INCOME		Cr.
	Rs. c.	Rs. c.		Rs. c.	Rs. c.
<i>To Estate Expenditure :</i>					
General expenses :					
Salaries of Superintendent, Conductor and watchmen		1,601 21			
General charges	1,738 30				
Upkeep	838 23				
Cultivation	2,140 45				
Collection	418 10				
		5,185 48			
Research expenses :					
Salaries of Superintendent, Conductor and watchmen		528 32			
General work	430 18				
Genetical work	1,173 85				
Purchase of seednuts	1,236 29				
Soil Chemist's work	2,359 65				
		5,199 95			
Balance carried forward to Revenue Account		1,816 45			
		14,276 56			14,276 56

Katmalagara Estate Working Account for the Year ended December 31, 1939.

Dr.	EXPENDITURE		INCOME		Cr.
	Rs. c.	Rs. c.		Rs. c.	Rs. c.
<i>To Estate Expenditure :</i>					
General Expenses :					
Salaries of Superintendent and watchmen		1,920 0			
General charges	938 41				
Upkeep	825 13				
Cultivation	501 79				
Collection	198 35				
		2,463 68			
Research Expenses :					
General	149 61				
Genetical work	39 67				
Soil Chemist's work	9 89				
		199 17			
Balance carried forward to Revenue Account		52 13			
		4,634 90			4,634 90

Revenue Account as at December 31, 1939.

Dr.	EXPENDITURE		INCOME		Cr.
	Rs. c.	Rs. c.		Rs. c.	Rs. c.
<i>To Personal Emoluments :</i>					
Salaries of senior staff	33,566 3				
Salaries of junior staff	12,725 92				
Provident Fund contribution and interest for 1938	3,166 11				
Rent allowance	659 33				
		50,117 39			
<i>Other Charges :</i>					
Travelling expenses of staff	5,068 54				
Travelling expenses of Board Members	482 39				
		5,550 84			
<i>Office :</i>					
Stationery	937 28				
Postage	779 65				
Printing and advertising	855 69				
Incidental expenses	884 12				
Telephone charges	355 0				
Legal expenses	75 45				
Propaganda	271 45				
Entertainment allowance	47 50				
Workmen's Compensation Insurance	77 40	4,283 54			
<i>Laboratory :</i>					
Upkeep, chemicals, &c.	2,462 71				
Scientific books and periodicals	1,975 50				
		4,438 21			
<i>Buildings :</i>					
Upkeep	795 2				
Insurance	506 75				
Running expenses of electric plant	1,931 92				
Water supply	452 38				
		3,686 7			
Repayment of loan and interest		6,704 35			
<i>Research :</i>					
Special Vote (Arctic Acid)	81 87				
Co-operative experiments	1,564 5				
		1,645 92			
Depreciation		11,130 07			
		87,617 2			87,617 2

COCONUT RESEARCH SCHEME.

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Net Revenue Account for 1939.

Dr.	Rs. c.	Cr.
To Balance brought forward from Revenue Account	383 11	By Deficit for the year carried forward to Surplus and Deficit Account
Contribution to Capital Outlay	9,107 81	9,490 92
	9,490 92	9,490 92

Surplus and Deficit Account for 1939.

Dr.	Rs. c.	Cr.
To Deficit brought forward from Net Revenue Account	9,490 92	By Balance on December 31, 1938
Balance on December 31, 1939	44,362 49	53,853 41
	53,853 41	53,853 41

Capital Account as at December 31, 1939.

EXPENDITURE.	To December 31, 1938.	Additions 1939.	Total.	RECEIPTS.	Rs. c.
	Rs. c.	Rs. c.	Rs. c.		Rs. c.
To Land Acquisition:				By Revenue contributions to Capital outlay	533,979 26
Purchase of Bandirippuwa	187,554 68	—	187,554 68	Loan from Government of Ceylon	50,000 9
Purchase of Ratmalagara	73,138 0	—	73,138 0		
Improvement of Ratmalagara	1,409 19	1,824 69	3,233 78		
Buildings	195,352 52	5,172 58	200,525 10		
Laboratory	91,601 77	1,971 9	93,572 86		
Gas plant	3,436 83	—	3,436 83		
Furniture for Bungalows	4,164 49	—	4,164 49		
Office furniture and equipment	2,000 17	139 55	2,139 72		
Accumulators	15,937 60	—	15,937 60		
Museum	276 20	—	276 20		
	574,871 45	9,107 81	583,979 26		583,979 26

General Balance Sheet as at December 31, 1939.

LIABILITIES.	Rs. c.	Rs. c.	ASSETS.	Rs. c.	Rs. c.
Contributions to Capital outlay		533,979 26	Capital expenditure		583,979 26
Loan from Government of Ceylon on December 31, 1938	45,000 0		Debtors:		
Loan redeemed in 1939	5,000 0	40,000 0	Cess collection for December, 1939	3,106 28	
Loan Redeemed Account:			Bandirippuwa Estate Account	1,540 36	
At December 31, 1938	5,000 0		Ratmalagara Estate Account	1,004 8	
Amount paid in 1939	5,000 0	10,000 0	Revenue Account	48 57	5,699 29
Passage Fund Reserve:			Accrued interest:		
At December 31, 1938	3,559 32		On fixed deposits at Banks	155 4	
Less expenditure in 1939	2,076 8	1,483 24	On Ceylon Government 3 1/2 per cent. loan	262 50	
Provident Fund:			On State Mortgage Bank Investment	218 75	636 29
At December 31, 1938	22,735 30		Advance Account:		
Receipts during 1939	5,542 55	28,277 85	Loans to staff for purchase of transport	250 5	
Depreciation Reserve:			Rice Accounts, Bandirippuwa and Ratmalagara Estates	68 39	318 44
At December 31, 1938	85,440 66		Investments:		
Reserved in 1939	11,130 67	96,571 33	Ceylon Government loan	58,800 0	
Creditors:			Ceylon State Mortgage Bank Debentures	25,000 0	83,800 0
Accrued interest and instalment of loan from Government	1,036 35		Depreciation on the investment in the Ceylon Government loan		600 0
Sundry	387 49	1,423 84	Cash:		
Surplus		44,362 49	At Banks in fixed deposit	40,000 0	
		766,080 1	At Bank in current account	40,246 73	
			In hand	800 0	81,046 73
				81,046 73	766,080 1

I certify that the above Balance Sheet correctly sets forth the position of the affairs of the Coconut Research Scheme, Ceylon, as shown by the books on December 31, 1939.

Audit Office,
Colombo, January 31, 1940.

J. JOS. JACOB,
Acting Auditor-General.