CHEMICAL AND AGRICULTURAL NOTES FROM THE COCONUT RESEARCH SCHEME, CEYLON

IV. A NOTE ON THE USE OF DYNAMITE ON HARD GROUND BETWEEN COCONUT PALMS

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OF the various types of coconut land, hard gravelly cabook presents the greatest difficulty in economic and satisfactory treatment. The use of explosives on this type of soil was suggested by H. F. Macmillan in the *Department of Agriculture, Ceylon, Bulletin* No. 8 (December, 1913), who described a small scale trial. The object aimed at is, in his words, " deep tillage between perennial crops as coconuts, &c., by placing charges at suitable intervals between the trees, thus improving the drainage and increasing the available plant food by aerating the subsoil ".

As there seems to be on record no later observations on this subject, the results of a recent small trial may be of interest. This demonstration was carried out in No. 5 Field, Udawela Division, Horatapola Group, Nattandiya, in August, 1939, and we acknowledge the kind permission of the agents, Messrs. J. M. Robertson & Co., to report the results.

The ground upon which operations were carried out was of hard cabook with out-crops of ferruginous concretions. Charges of 1, 1½ and 2 dynamite cartridges respectively were exploded each at at a depth of 3′ in the centres of coconut squares. The effects of each explosion were investigated by digging a trench 3′ deep from the outside of the square inwards towards the centre.

The effects naturally were more pronounced with increasing charge, but in no case were effects noticeable at a much greater radius than 2 feet from the holes, and even at this distance the soil was broken up to a limited degree. At the explosive

centre a cavity of about 8″ radius was blown downwards to a depth of about a foot. Macmillan's description of the effects (*loc. cit.*) is not dissimilar; he states that a cartridge had "no disturbing effect" at 4 feet.

In view of the expense of the operations and the limited effect thereof, it seems clear that dynamiting cannot be recommended as an economical way of loosening hard cabooky soil. To treat an area of (say) sixty-five squares with one cartridge per square would cost approximately * :—

	Rs.	c.
Dynamite cartridges 65 @ 16½ cents	10	72
Detonators 65 @ 6 cents	3	90
Fuse (3½′ per charge) 227½′ @ 1½ cents	3	41
Labour @ 10 cents a hole	6	50
Sharpening jumpers, &c.	1	0
	25	53

It is considered that the burial of husks (with suitable fertilizers) in trenches or pits, on such lines as those recommended by Salgado in *Coconut Research Scheme, Ceylon, Leaflet* No. 5 (November, 1939), is likely to be far more effective, especially if a regular and systematic programme of such operations is undertaken, besides costing considerably less per acre. Rs. 11·50 per acre is a rough estimate of the cost of burying husks on the system outlined by Salgado.

Holing.—Macmillan (*loc. cit.*) gives as another possible application of explosives, "efficient holing in conjunction with the use of implements", and he quotes a case at Peradeniya Gardens of the beneficial effect on plant-growth of exploding charges of blasting powder in the subsoil. The primary object of these explosions had been to remove obstructive stumps and boulders, but it was noticeable that the ornamental palms planted in the exploded ground made much better growth than those next to them in the same row.

Dynamite cartridges were not found very effective in hard cabook at Ratmalagara Estate, Madampe, for this purpose, but further observations are necessary and are projected.

* These are pre-war prices ruling in August, 1939, when the tests now reported were carried out. They would be considerably higher now.