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The Secretary of the Expert Committee on Malaria
has the honour to communicate hereunder
the following note:

MALARIA CONTROL IN AREAS WHERE HOUSES HAVE MUD WALLS
(CEYLON)

by

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[The Author has kindly sent, under the above title, an exhaustive paper where the physiography of the Island and many observations related to the epidemiology of malaria and the bionomics of the vector are carefully described. With the Author's consent, the Editor has extracted from this paper and reproduced here only the pages directly associated with the problem indicated by the title.]

The question of the construction of the walls of houses is important because the vector prefers walls made of mud and of cadjan and also because there may be a fear in the minds of some about the extent to which the residual insecticides like DDT or BHC sprayed on mud and cadjan¹ walls may be effective in the control of malaria. There is no doubt that malaria has been controlled very effectively almost to the point of eradication in Ceylon, where anything between 80 per cent - 90 per cent of the houses have walls made of mud or cadjan. The results of malaria control in Ceylon by residual spraying show that there is no need to fear any failure in other countries where conditions are similar to those in Ceylon.

In the really malarial parts of Ceylon anything between 80 per cent - 90 per cent of the walls of houses are of mud or cadjan. The vector, A. culicifacies has been found to rest during the day-time on the walls particularly of the living room up to a height of about seven to eight feet. Some portion of the roof also harbours this vector. Therefore the spraying of these walls and low roofs with a residual

¹ Cadjan = woven out of the dry leaves of the coconut palm

insecticide like DDT must be effective provided a sufficient dosage of the insecticide remains on the sprayed surfaces.

The effect of DDT suspension at a dosage of 65.5 mgms per square foot on mud walls and lime-washed walls is being studied in a selected village on the banks of the Deduru Oya where A.culicifacies is breeding profusely. Tables A and B show some of the results of this study. A number of houses with mud and lime-washed walls were selected at random for treatment with DDT. A number of other houses in the same village were left unsprayed. The treated houses were situated in the midst of unsprayed houses. Catching of adult mosquitos was carried out weekly both in the sprayed and in the unsprayed houses. The sprayed houses had window traps set up.

TABLE A
Effect of treating walls and roofs with
DDT 65.5 mgms per square foot

Mud houses

Weeks	Unsprayed				Sprayed			
	No. Exd.	No. of A.culici	Time taken hrs.mins.	Man hour catch	No. Exd.	No. of A.culici	Time taken hrs.mins.	Man hour catch
1 - 4	17	90	7.16	12.4	15	0	5.54	0
5	5	22	2.08	10.3	6	0	3.35	0
6	5	13	2.20	5.6	6	0	3.24	0
7	5	5	1.37	3:1	5	0	1.44	0
8	5	23	1:48	14.1	6	0	3.13	0
9	2	16	.46	20.9	6	0	2.16	0
10	9	37	3.18	9:0	10	1*	3.52	0.25
11	10	58	3.46	15:4	10	0	3.48	0
12	9	22	3.02	7.2	10	0	3.28	0
13	9	54	3.28	15:5	10	3*	3.41	0.8
14	10	49	3.51	12.7	10	1*	3.26	0.3

* 10th week - 1 A.c. in trap died within 24 hours
 13th week - 2 A.c. in house survived 24 hours
 1 A.c. in trap survived 24 hours
 14th week - 1 A.c. in trap survived 24 hours

TABLE B
Effect of treating walls and roofs with
DDT 65.5 mgms per square foot

Lime-washed houses

Weeks	Unsprayed				Sprayed			
	No. Exd.	No. of A. culici	Time taken hrs, mins.	Man hour catch	No. Exd.	No. of A. culici	Time taken hrs, mins.	Man hour catch
1 - 4	5	0	1.53	0	5	0	1.58	0
5	3	3	1.12	2.5	2	0	0.54	0
6	2	0	.48	0	3	0	1.59	0
7	1	0	.18	0	2	0	.42	0
8	1	0	.20	0	3	1*	2.07	0.5
9	No examination done				3	2*	1.13	1.7
10	1	1	.20	3	4	0	1.52	0
11	3	1	1.00	1	4	2*	1.48	1.1
12	3	3	1.01	1	4	3*	1.33	1.9
13	2	0	.40	0	4	2*	1.34	1.3
14	4	1	1.21	0.7	4	0	1.32	0

*
8th week - 1 A.c. under bed died within 24 hours
9th week - 1 A.c. under chair died within 24 hours
1 A.c. in trap survived 24 hours
11th week - 2 A.c. in trap survived 24 hours
12th week - 1 A.c. on umbrella died within 24 hours
2 A.c. in trap died within 24 hours
13th week - 1 A.c. under table survived 24 hours
1 A.c. in trap died within 24 hours

Table A gives the adult catches made from mud houses some of which were not sprayed with any insecticide while others were sprayed with DDT wettable powder at the rate of 65.5 mgms per square foot. The unsprayed houses show high catching rates with slight variations from week to week depending on the amount of breeding that was taking place in the nearby river bed. In the case of the sprayed houses, up to the end of the 12th week the man hour catch of A.culicifacies was nil except in the 10th week when one A.culicifacies adult was caught in the window trap. But this died within 24 hours. Therefore there is no doubt that in the mud-walled houses in Ceylon DDT is effective for at least a period of 12 weeks. Even in the 13th and 14th weeks though the A.culicifacies adults that were caught survived after 24 hours, it will be noticed that the man hour catch in the unsprayed houses during these weeks was as high as 15.5 and 12.7 as compared to 0.8 and 0.3 in the sprayed houses.

Table B shows the effect of DDT at a dosage of 65.5 mgms per square foot on lime-washed houses. In the unsprayed lime-washed houses the man hour catch was definitely much lower than in the mud-walled houses shown in Table A. This perhaps indicates that A.culicifacies prefers the darker mud-walled house to the brighter lime-washed house. It is difficult to draw any definite conclusion about the effect of DDT on A.culicifacies in the case of the lime-washed houses. Up to the end of the 8th week the man hour catch in the unsprayed houses was nil except in the 5th week. In the case of the sprayed houses too the catching rate up to the end of the 7th week was nil and in the 8th and 9th weeks, those adults that were caught died within 24 hours. But from the 11th week onwards the effect of DDT on A.culicifacies was beginning to be doubtful and was not uniformly constant. In some cases the mosquitos died while in others they survived. It appears from this study that DDT sprayed on mud-walled houses remains effective for a much longer period than in the case of the lime-washed houses.