TECHNICAL NOTES

DAMAGE BY ANTS TO PLASTIC SHEATHED CABLES

Following the manufacture of plastic covered cables the Postmaster-General's Department of the Commonwealth Government installed considerable numbers of small polythene sheathed underground telephone cables. During the autumn of 1956 failures in some of these cables, as a result of perforations in the sheath allowing the entry of moisture, were reported from Brisbane and Toowoomba.

The damage consisted of scattered to numerous small surface erosions of varying depth and holes completely penetrating the sheath (Fig. 1). These were mostly circular, with both the erosions and the walls of the holes showing tiny

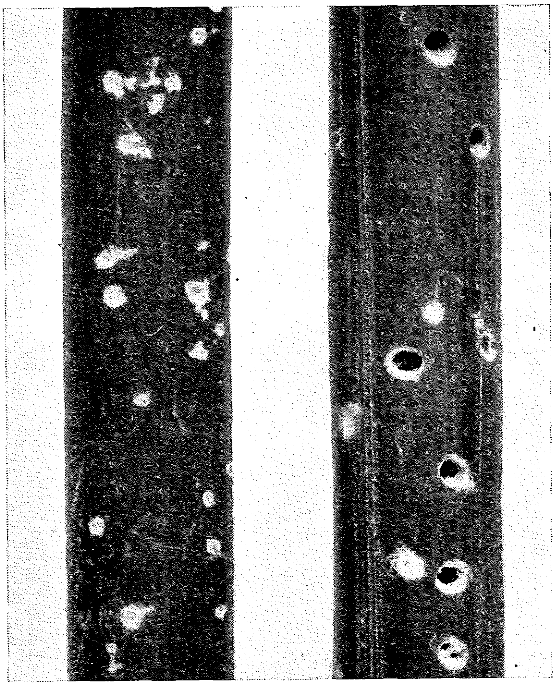

Fig. 1.

Polythene Sheathed Telephone Cable Damaged by Ants. Left, Surface Erosion. Right, Holes Through Sheath.

grooves resembling chewing marks. A study of possible causes of the perforations directed attention to the coastal brown ant, *Pheidole megacephala* (F.), which in large populations was in close association with the cables in each location of the faults.

A trial was conducted to determine whether ants were the cause of the damage, whether current flow influenced attack, and whether damage could be prevented. Installation of experimental polythene sheathed cables was as follows:—

A. One pair cable, connected in parallel with a subscriber's working pair and with open circuit on the distant end.

B. One pair cable, unconnected, with conductors open circuit at each end.

C. Two pair cable, with conductors looped at the distant end and connected to battery and earth at the exchange to allow a 40–50mA. current flow.

D. One blue and one orange-coloured single wire, with conductors open circuit at each end.

E. One black and one white single wire, connected in parallel with a subscriber's working pair and with open circuit on the distant end.

A, B and C were black cables.

A and B were replicated four times, namely in the Brisbane suburbs of Clayfield, Sunnybank and Windsor and at Toowoomba. C was installed at Clayfield only and D and E at Windsor. The cables varied from 20 to 40 ft. in length and were buried approximately 6 in. apart. The dates and depths of installations were:—Clayfield, June 1956, at 6 in.; Sunnybank, July 1956, at 12 in.; Windsor, October 1956, at 8 in.; and Toowoomba, November 1956, at 8 in.

At each site an area 8 ft. long and extending for 6–12 in. on each side of the cables was sprayed at cable depth with 2·0 per cent. chlordane (80 per cent. W/V miscible oil diluted with water); elsewhere the cables were untreated. Relevant details and results of examinations were as follows:—

Clayfield.—On Dec. 18, 1956, light damage was recorded on all cables in the untreated area, where *P. megacephala* was present in considerable numbers. No damage and no ants occurred in the treated area. By Apr. 16, 1957, extensive damage had occurred on cables B and C and light damage on cable A in the untreated area. Very light damage appeared on cables B and C in the treated area, while ants were in moderate numbers in both untreated and treated areas.

Sunnybank.—On Dec. 18, 1956, moderate damage was present on both cables A and B in the untreated area, where *P. megacephala* was common but not numerous. No damage and no ants occurred in the treated area. By Apr. 16, 1957, severe damage had occurred in the untreated area, with light to moderate damage in the treated area, and ants were present in small numbers in both places.

Windsor.—On Feb. 18, 1957, no damage had appeared on any of the cables and *P. megacephala* was present in small numbers in the untreated area only. By Apr. 17, 1957, light damage had occurred on both cables A and B and moderate damage on each of the coloured cables of D and E in both untreated and treated areas, with ants present generally in large numbers.

Toowoomba.—On Jan. 21, 1957, light damage was present on both cables A and B in the untreated area and none in the treated area; the same results were observed on May 17, 1957. *P. megacephala* was recorded at this site prior to the installation of the cables.

These results indicate that the coastal brown ant, *Pheidole megacephala* (F.), was responsible for damage occurring within a few months on differently coloured underground polythene sheathed telephone cables whether carrying continuous, intermittent or no current. Chlordane as a 2·0 per cent. spray in an area surrounding the cables at cable depth afforded only temporary protection.

A. R. BRIMBLECOMBE,
Entomology Branch.

CONTROL OF THE CEDAR LOOPER

During an insecticide trial against the cedar shoot borer, *Hypsipyla robusta* (Moore), at Imbil in 1955, newly established plantation trees of red cedar (*Cedrela toona* Roxb. var. *australis* (F.Muell.)C.DC.) were attacked by larvae of the cedar looper, *Pingasa* sp. (Geometridae), and some trees were severely defoliated (Fig. 1.).

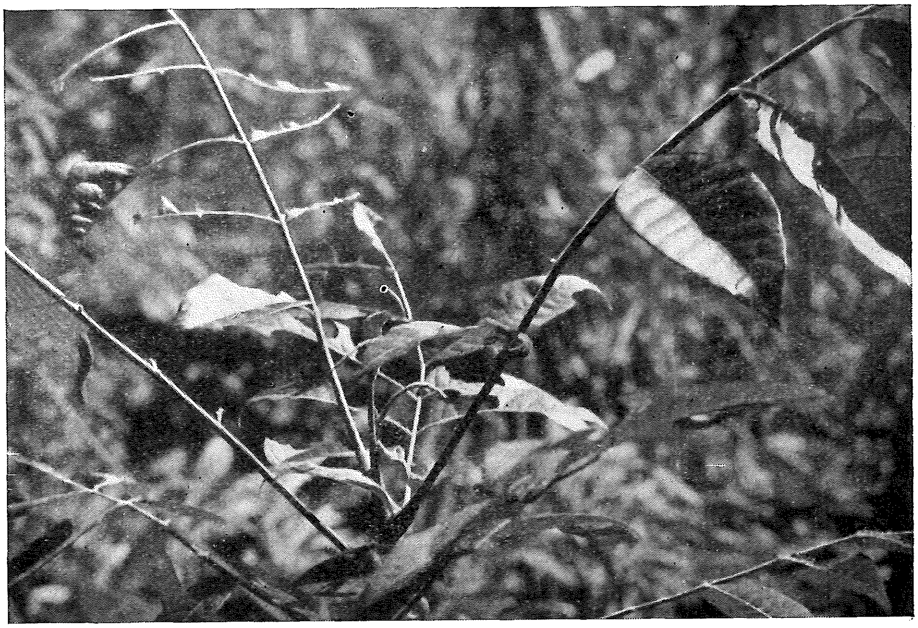

Fig. 1.

Small Red Cedar Tree Almost Defoliated by Looper Larvae.

The trial was a 15 x 4 randomised block, with a unit plot of 50 trees. Spraying was carried out according to programme from Mar. 1 to May 16. In late May counts of trees damaged by the cedar looper were made and, using ratings from 0 to 4, defoliation of each tree was assessed. At this time the trees averaged 1 ft. 6 in. in height. Treatments and results are given in Table 1; unless otherwise indicated the insecticides were emulsifiable concentrates.

Table 1.

TREATMENTS AND MEAN VALUES OF LOOPER DAMAGE.

Treatment.	Interval Between Applications. (Weeks.)	Percentage of Damaged Trees.		Mean Damage per Tree.
		Transformed Mean (Inverse Sine).	Equivalent Mean %.	
1. DDT 0·1%	2	21·2	13·0	0·22
2. DDT 0·2%	2	14·0	5·8	0·13
3. DDT 0·2%	4	29·6	24·4	0·30
4. DDT 0·2% (1)	2	11·2	3·7	0·06
5. Endrin 0·025%	2	7·6	1·7	0·08
6. Endrin 0·05%	2	5·4	0·9	0·02
7. Endrin 0·1%	2	8·6	2·2	0·03
8. BHC 0·03%	2	40·3	41·8	0·57
9. Dieldrin 0·05%	2	25·8	18·9	0·22
10. Lead arsenate 1 lb./20 gal. (1)	2	44·9	49·9	0·56
11. DDT 0·2% + white oil 0·8% (2)	4	24·9	17·7	0·24
12. Lead arsenate 1 lb./20 gal. + white oil 0·8%	4	53·1	63·9	0·88
13, 14, 15. Untreated	..	47·7	54·7	0·82
Necessary differences for significance: Treatment Means 5%		16·1	..	0·32
Treatment Means 1%		21·5	..	0·43
Untreated v. Treatment Means 5%		13·1	..	0·26
Untreated v. Treatment Means 1%		17·6	..	0·35

[1] Wettable powder. [2] Emulsion concentrate.

These results show that both endrin and DDT gave outstanding protection to young red cedar trees against looper attacks, and should this occasional pest become troublesome a suitable control could be achieved.

A. R. BRIMBLECOMBE,
Entomology Branch.

A. H. TUCKER, Government Printer, Brisbane.