

TABLE 1

Variations in Disease Incidence and Severity, 1962-63, in 82 Trembling Aspen Trees, Long Lac Area, Geraldton District, Ontario

Diameter class (inches)	No. of trees	No. of diseased trees		Incidence (%)		No. of cankers		Severity*	
		1962	1963	1962	1963	1962	1963	1962	1963
1	10	4	0	40	0	18	0	1.8	0
2	16	10	2	60	12.5	43	7	2.5	0.3
3	27	19	1	70	5	79	1	3.0	0.04
4	20	12	0	60	0	50	0	2.5	0
5	7	5	0	71	0	18	0	2.5	0
6	2	2	0	100	0	10	0	5.0	0

\*Average number of cankers per stem.

The sample trees were re-examined 1 year later, in June 1963. It was observed that most cankers had disappeared, that this was accompanied by a sharp decline in both the incidence and the severity of the disease (Table 1), that no mortality attributable to these cankers had occurred, and that profound changes had taken place in the character of tissues previously diseased. Despite the destructive appearance of the cankers in 1962 their sites in 1963 were traceable only through irregular black scars and callus tissue.

The rapid and spectacular recovery of the diseased trees from cankers in the space of 1 year was not unexpected. Examination of stem cross-sections through cankers in 1962 showed that lesions usually were shallow-seated in the outer bark with underlying tissue healthy above the cambium. However, in occasional instances infections extended to, and killed, the cambium locally. By 1963, these lesions had healed over. Similar lesions had occurred in 1960 and 1956, and although they had healed successfully and growth continued beyond the wound, relatively large areas of the adjacent heartwood were discoloured with brown stain.

While young aspen trees can quickly recover from the external symptoms of this disease, permanent internal injury in the form of brown heartwood stain results from the condition.—Dance, B. W., Lynn, D. F. and V. Jansons.

**Correction.**—In the article by D. Punter entitled "A Northward Extension of the Recorded Range of *Fomes annosus* in Ontario", Vol. 20 No. 2, "sodium nitrate" should read "sodium nitrite".

### ROCKY MOUNTAIN REGION

**Unhatched Forest Tent Caterpillar Egg Bands in Northern Alberta Associated with Late Spring Frost.**—The current outbreak of the forest tent caterpillar began in 1957 in the Elk Point district east of Edmonton. Since that time it has gradually increased and now covers a large area of north central Alberta.

Egg populations in the Naylor, Hawk, and Buffalo Head hills located in the Peace River Region were sufficiently high in the fall of 1962 to predict a continued severe attack in 1963. This attack failed to materialize and an examination of egg bands in the Naylor Hills in mid-June 1963 revealed that no hatch had occurred. Dissection of egg bands showed a high mortality of well-developed embryos. The mortality observed in this area was similar to that reported by Prentice (Bi-Mon. Prog. Rept. 10(5): 2. 1954) from northern Saskatchewan in 1954.

Weather records at the Naylor Hills Forestry Tower (Alt. 2,600) showed that a severe frost occurred during the first week of May 1963. This unfavourable weather had been preceded by unusually warm temperatures. The mean maximum temperature from April 22 to May 1 was 56.9°F with a mean minimum temperature of 35.1°F. The mean maximum temperature from May 2 to 7 was 46.1°F with a mean minimum temperature of 25.5°F. The lowest temperature recorded (10°F) was on May 3. A snowfall totalling 6.1 in. occurred on May 6 to 7. The effects of these unfavourable temperatures on aspen and birch were very noticeable causing extensive killing of buds. It is interesting to note that on descending the Naylor Hills to approximately the 1,500 ft. level, climatic damage ceased to be evident. An examination of forest tent caterpillar egg bands at this elevation revealed that a good hatch had occurred and larvae were causing light to moderate defoliation.

Forest tent caterpillars overwinter as fully developed embryos. According to Hodson (Minn. Agr. Exp. Sta. Bull. 170. 1945), these can withstand very low temperatures. However, it is only during the dormant period that the cold

resistance is so marked. The threshold for hatch is reported to lie between 5° and 10°C (41 and 50°F).

While evidence here is not adequate for a final conclusion, it is believed that the warm temperatures occurring in late April initiated embryo activity making them susceptible to the freezing temperatures which occurred in early May in the Peace River Region of Alberta.—E. J. Gautreau.

### BRITISH COLUMBIA

**Ambrosia Beetle Brood Production in Relation to Tree Growth and Sapwood Depth.**—During studies of ambrosia beetle brood development in relation to tree felling date, it was noted that the ambrosia beetle, *Trypodendron lineatum* (Oliv.), usually had largest broods in logs cut from the fastest growing Douglas-fir trees in an even-aged stand. To obtain more information about this relationship, 15 logs, five from each group of 20 trees felled October, November, and December 1961, were chosen for fastest growth in terms of annual rings in the outer inch. Another 15 logs of these felling dates were selected from trees with the slowest recent growth. Measurements of annual rings and sapwood depth were made at the base of the first logs. Sapwood is easily recognized in Douglas-fir logs because it is pale compared with the darker heartwood. No trees less than 8 in. diameter were felled. The average and range of the measurements are shown in Table 1.

TABLE 1

Average and Range of Growth Measurements from 15 Fast-growing and 15 Slow-growing Trees

Measurement	Fast-growing	Slow-growing
D.B.H. (inches).....	15.1 (11.0-23.5)	9.3 (8.0-11.8)
Age 1961 <sup>1</sup> .....	58 (54-61)	56 (53-59)
Sapwood depth (millimetres).....	40.3 (31-51)	24.4 (17-32)
Rings per outer inch.....	10.2 (8-14)	22.8 (18-29)

<sup>1</sup>Based on 10 trees of each growth type.

In 1963, five galleries, selected at random along the top of each log, were excavated and measured for length, maximum depth, numbers of egg niches and pupal cradles. The latter indicate fully developed larvae or pupae. These data are given in Table 2.

TABLE 2

Measurements of 75 Galleries Each in Logs from Fast-growing and from Slow-growing Trees

Gallery measurements	Logs from fast-growing trees		Logs from slow-growing trees	
	Mean	S.E.	Mean	S.E.
Total length (millimetres)....	107	4.0	76	3.7
Max. depth (millimetres)....	23	1.0	14	0.7
Number egg niches.....	34	1.9	16	1.3
Number pupal cradles.....	23	1.7	9	0.8

The means of all gallery measurements differ significantly (t.01) between the types of logs. Gallery development and brood numbers were clearly greater in logs from fast-growing trees. These also had larger diameters, wider annual rings,

and deeper sapwood than trees of slow growth, although tree ages did not differ significantly. Although there was a significant difference in the density of attack between fast- and slow-growing trees, this is not considered to be of an order that would influence gallery length and productivity. Something about the physiological or physical condition of logs from fast-growing trees resulted in the beetles boring longer galleries and laying more eggs. It is also of interest that although galleries were deeper in the logs with thicker sapwood, in both fast- and slow-growing trees they still penetrated only slightly more than half the sapwood depth.—E. D. A. Dyer and J. A. Chapman.

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