

Cyano-Gas was first used as a killing agent. The powdered form of Cyano-Gas was placed in a small container with a perforated top that would hold 2 tablespoonsful and placed in the bottom of a half gallon glass jar. As soon as the jar was approximately half full of insects the killing agent was no longer effective, as the insects almost completely blocked the gas.

Ethyl acetate is the killing agent now used. The method employed is as follows: a half gallon glass jar is coated with approximately $\frac{1}{4}$ inch of plaster-of-Paris on the inside by rotating the semi-liquid plaster-of-Paris until it hardens. The plaster-of-Paris creates enough heat that the jar often is broken by heat and expansion. To prevent this the plaster-of-Paris is allowed to harden for 36 hours before being used, by placing the jar in 5 to 6 inches of water. The lower half of the jar is wrapped with friction tape to prevent the cutting of the operator's hand in case the jar breaks.

Each night before operating the electric insect trap, 20 to 25 cc. of ethyl acetate is poured down the inside of the jar and the jar quickly rotated. The plaster-of-Paris absorbs the liquid, providing a killing agent from bottom to top of the jar. Insects continue to be killed until the jar is filled. During the cooler months the same amount of ethyl acetate will continue to kill insects 2 or 3 nights. The jar is attached to the electric insect trap as illustrated in the figure. The insects can be collected and pinned directly from the jar. Unless a large number of beetles are collected, destroying the moths, the moths are relaxed and ready for spreading upon removal from the jar.

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NOTES ON THE OCCURRENCE OF *THYMELICUS LINEOLA* (HESPERIIDÆ) IN NORTH AMERICA· A SUMMARY

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A number of new locality records recently have been published for this comparative newcomer to the North American butterfly fauna, and with a few more to add here it seems an appropriate time to gather into one place all these records.

The following list includes all the records, hitherto published or otherwise, known to me of the occurrence of *Thymelicus lineola* Ochs. in North America. In each case the source is given, and occasionally a few remarks.

ONTARIO: London; first North American record, 1910; later seen in 1912, 1913, but not since (T. N. FREEMAN, *in litt.*). Amherstburg (Univ. Michigan, Mus. Zool.). Toronto; first found in 1945; often common, as in 1953, but fluctuates widely in numbers from one year to another (S. L. THOMPSON, *in litt.*; specimens in Carn. Mus.). St. Catherines; extremely abundant (BAILEY, 1953).

MICHIGAN: Wayne Co.: Detroit (RAWSON, 1931; many collections). Oakland Co.: Oak Park (Univ. Michigan Mus. Zool.). Macomb Co.: Warren

(Univ. Michigan Mus. Zool.). Washtenaw Co. (all coll. or obs. by CLENCH, 1949): nr. Saline; 6½ mi. W. of Clinton, Lenawee Co.; Geddes Rd. at Huron R., E. of Ann Arbor; Willow Run, 3 mi. E of Ypsilanti; 1 mi. W. of Ann Arbor; ½ mi. W. of Lima Center; Dexter. Lenawee Co.: ¼ mi. E. of Clinton, just S. of Washtenaw Co. line (CLENCH).

NEW YORK: Niagara Co.: Niagara Falls (W. MERGOTT, personal communication). Erie Co.: Kenmore, N. of Buffalo, 1948 and again in 1951 (W. MERGOTT, personal communication).

OHIO: Hancock Co.: Findlay (RAWSON, 1931; THOMAS, 1953). Franklin Co.: Columbus (THOMAS, 1953) — a remarkable record.

It is worth adding that on the same trips that yielded many of the Michigan records (made in the company of Dr. and Mrs. J. V. SLATER and their family, and of Mrs. CLENCH), eastern Jackson County was examined at several likely places, but no trace of *lineola* was found. From this I concluded (CLENCH, 1950) that western Washtenaw County marks the approximate western boundary of the present *lineola* range.

As noted above, Mr. STUART THOMPSON, of Bessboro, Toronto, Ontario, in a letter commented on the remarkable fluctuations in numbers of the species near Toronto. The fluctuations there, varying from abundant to completely missing according to Mr. THOMPSON, would seem larger than I had experienced around Willow Run, which at the time were remarkable enough. In the latter locality during my stay there it was never absent entirely in its proper season, and ranged from one year to another from frequent to very abundant. The peaks of abundance as noted by Mr. THOMPSON near Toronto and myself at Willow Run seem fully comparable, for he states that at peak frequency he could easily capture half a dozen in one sweep of the net any place, which well describes the peak numbers seen near Willow Run.

There is still very much to be learned of the distribution of this little skipper in North America. We know nothing as yet of its northward limits. Mr. THOMAS' surprising record (based on a series, not on a single capture) near Columbus may well indicate that the species is spreading southward. Of this, too, we need more information and more records. Mr. MERGOTT's captures near Buffalo and Niagara Falls may indicate an eastward extension of range actively in progress, or they may indicate merely a long-held territory. I rather incline to the former notion.

Should any one obtain additional records of this species, I should be most interested to learn of the details.

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