A COMPARATIVE STUDY OF THE FOUR
SPECIES OF PADDY STEM-BORERS
BELONGING TO THE GENERA
CHILOTRAEA AND CHILO IN ASIA
(LEPIDOPTERA: PYRALIDAE: CRAMBIINAEE)*

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INTRODUCTION

STUDIES have been carried out by a number of authors to describe various striped moth-borers attacking sugarcane, paddy and other graminaceous crops. Earlier workers based their studies on the general colour pattern of the wing and body of the moths, structure of the pupae and the coloured stripes on the body and arrangements of crochets in the prolegs of the caterpillars. The later workers in addition to the above-mentioned characteristics made a study of the wing venation, genitalia of male and female moths and chaetotaxy of the caterpillars.

Fletcher and Ghosh (1920), Ghosh (1921) and Fletcher (1928) based their classification of the graminaceous borers recorded by them in India on the colour pattern and the shape of the wing, body, palpi, etc., of the moths, structure of the pupae and the body colour, stripes and arrangement of crochets in the prolegs of the caterpillars. Kinoshita and Kawada (1932) showed the difference between *Chilo simplex* Butler and *Chilo zonellus* (Swinhoe) [now known under the names, *Chilo suppressalis* (Walker) and *Chilo partellus* (Swinhoe) respectively] comparing the chaetotaxy of the head capsule and genitalia of these two species. Isaac and Rao (1941) gave

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an account of the chaetotaxy of the known lepidopterous borers on sugarcane in India and included a key for their identification, while Isaac and Venkatraman (1941) described the pupae of these borers. Trehan and Butani (1948) discussed the systematic position of Chilo partellus (formerly known as C. zonellus) and gave an account of the chaetotaxy of the larva. Kapur (1950) described the common Crambid borers in India, added detailed descriptions of the wing venation of the different common genera, male and female genitalia and erected the new genus Chilotraea different from Chilo in having the frons produced forward but subrounded and Sc and R1 fused in the forewing. Butani (1956) using characters which can easily be made out by using hand lens, such as body colour, stripes, arrangements of crochets in the prolegs and spiracles, published a note on their identification. Nair (1958) in his study of biology and control of Chilotraea polychrysa (Meyrick) [formerly known as Proceras polychrysa (Meyrick)] described the colouration of the stripes and the arrangements of crochets in the caterpillar and in somewhat detail the pupal morphology. Gupta (1938 and 1960) made a comparative study of the common species of striped Crambid borers on sugarcane basing the differentiation on the shape and colour of moths, chaetotaxy of the caterpillars, structure of the pupae, wing venation and genitalia of both sexes. Bleszynski and Collins (1962) recently considered the genus Chilotraea of Kapur as a synonym of the genus Chilo and included in it the species Chilo auricilia, C. partells, C. polychrysa and C. suppressalis amongst the well-known borers of paddy. But they did not give any reasons for synonymyizing the genus Chilotraea with the genus Chilo. In the present paper, therefore, the genus Chilotraea has been retained by the authors.

Fracker (1915) earlier showed the importance of the study of chaetotaxy in differentiating the caterpillars using Greek alphabets for the nomenclature of the setae. Later Peterson (1959) published his volumes on "Larvae of Insects" using Fracker’s terminology for the setae of Lepidopterous larvae. Although a few borers attacking sugarcane and other graminaceous crops also feed on paddy stem and the above-mentioned studies on sugarcane borers are useful, a careful comprehensive study of the chaetotaxy of all the striped borers attacking paddy, the structure of their pupae, the wing venation and genitalia of the moths has not been made so far. As a result of this, there is a confusion in the identity of the striped moth-borers attacking paddy. The present authors, therefore, made a detailed comparative study of the borers, pupae, wing venation and genitalia of the species, Chilotraea auricilia (Dudgeon), Chilotraea polychrysa (Meyrick), Chilo suppressalis (Walker) and Chilo partellus (Swinhoe). The results of the observations made are given in this paper along with keys and charts prepared for the