Introduction

The present writer was initiated into the fanciful world of the two-winged flies when in 1956 he first embarked on his research project on the morphology and biology of the melon-fly, Dacus (Strumeta) cucurbitae Coq., under the supervision of Prof. S. M. Alam.

The initial interest in the morphology and taxonomy of the fruit flies enlarged into an interest in the morphology and classification of the Diptera in general. It did not take him long for the present writer to discover the unsatisfactory state of affairs particularly with regard to the higher classification of the Order.

This unhappy discovery was nothing new. The history of insect classification is replete with examples of sincere efforts by workers from time to time to set the house of Diptera in order. Based as they were mostly on superficial characters, not many of these could see the light of the day. In certain other cases, instead of solving the problem, the efforts became problematic themselves.

Wing venation, characters of the antennae, chaetotaxy and similar other anatomical features are, no doubt, important in themselves, but in the opinion of the present writer one has to ultimately resort to a study of the genitalia for the final clue.

Although the male genitalia hold the key to proper identification even at the species level, the present writer in view of the sheer immensity of the problem, has confined himself to the higher level of classification. He takes this opportunity of paying sincere tribute to Prof. Willie Hennig and Prof. Guy C. Crampton, the two stalwarts who devoted rather a life time to the study of the genitalia of Diptera with particular reference to their impli-
cation in the classification. None of these, however, made a study of the musculature as a guide to the identification and homologies of the components of the male terminalia. The present writer, being convinced of the importance of an integrated study of the skeletal and muscular relationships, made a study of the skeleto-muscular system of the male genitalia of some representative members of Diptera of some consequence from the phylogenetic point of view.

In the present work, the basic knowledge of the morphology of Diptera has been taken for granted and, therefore, the descriptive portion has been sliced to the minimum. Similarly, although only a few genitalia have been described, supporting studies have been made on a considerable number of flies belonging to diverse families. Their description has deliberately avoided since they happened to broadly tally in essential features with those already described. A reference, however, has been made to them wherever considered useful or necessary.

The efforts appear to have been rewarding as would be evident from the following account. The present writer is hopeful that the morphological structure of the male genitalia, in view of their pervading importance, would be utilized as a key in solving the predicament of the higher classification of Diptera, besides their use at every other level of taxonomy.