I. INTRODUCTION

Aulacophora is a small beetle, which according to the system of classification adopted by Imms (1934), is included in the Order Coleoptera, sub-order Polyphaga, Super-family Phytophaga, Family Chrysomelidae, Division Trichostomes and sub-family Galerucinae. Hussain and Shah (1926) first described the life-history and control methods of Aulacophora abdominalis Fab. No further work was done on this genus till 1951, when Saxena published a paper on the morphology and physiology of the alimentary canal in Aulacophora foveicollis Luc. Bhandari (1952) published a short abstract on the glands of the head capsule in Aulacophora foveicollis, but he failed to follow it up by a detailed account. Narayanan, in 1963, published an account of the life-history and control of Aulacophora foveicollis. Thus, from the above, it is seen that the work on the morphology of the genus is of a very fragmentary nature.

The sub-family Galerucinae includes only two Indian genera, Galerucella and Aulacophora. As the larvae of Galerucella on the one hand and of Diabrotica and Phyllobrotica on the other, differ considerably from one another, Boving and Craighead (1931), suggested that they should be placed in separate sub-families. Maulik (1936) disagreed with these views and placed the genus Aulacophora (which is very closely allied to Diabrotica and Phyllobrotica) in a single sub-family Galerucinae, because he considered that the two genera cannot be separated merely on larval characters.
Maulik also observed that the discovery of more material and facts in future may affect the conception and definition of the sub-family Galerucinae. Thus, it was essential that a detailed account of the adult in the two genera be available to throw more light on the subject. The morphology of *Galerucella birmanica* Jacoby, has been worked out by Khatib (1946, 1946.a), but as the work on the morphology of *Aulacophora* is practically negligible, the present work has been undertaken to fill in the gap in our knowledge of the morphology of the sub-family Galerucinae.

The genus *Aulacophora* is distributed practically all over India and is of great economic importance, as it is a pest which feeds on and destroys a large number of plants belonging to the family Cucurbitaceae, like pumpkins, luffas, bottle gourd, white gourd, snake gourd, cucumber, musk melon, water melon, etc. These green vegetables are important items of food in India, as they provide the much needed salts and vitamins in the diet of ordinary citizens. Thus, from an economic point of view also, it is an important animal and it was, therefore, felt desirable to have a detailed knowledge of its morphology.

Maulik (1936), in the Fauna of British India, has described twenty two species of *Aulacophora* and has divided them into three series, (i) those with orange body and
elytra, and black ventral surface; (ii) those with black elytra and brown or orange head and (iii) those with elytra having more than one colour. In the present work, the author has taken one representative of each of these three series, the first of the series being represented by *A. foveicollis* Luc., the second by *A. stripennis* Fab., and the third by *A. cineta* Fab.

These three species cover the entire range of the subcontinent of India, as *A. foveicollis* and *A. stripennis* are the common species found in northern and central India, while *A. cineta* is the common pest in southern India. In the present work, *A. foveicollis* has been chosen as the type for detailed description because its distribution is very wide and that it is available locally in great numbers. All departures and differences in the structure of the other two species from that of *A. foveicollis*, have been specially mentioned in the following pages, so that the present work serves also as a comparative account of the morphology of the three species.

So far, the life-history of *A. foveicollis* alone has been described, because in their work Hussain and Shah (1926) have wrongly identified *A. foveicollis* as *A. abdominalis*. In the present work, in addition to the morphology, the life-history of all the three species has also been described, and the author has been able to
note, for the first time, characters by means of which the larvae of the three species can be distinguished from one another.

The author has also conducted experiments on the three species, to find out the order of preference in which they can feed on the different plants, specially the cultivated ones of the family Cucurbitaceae. It is interesting to note that each of the three species, has a different species of plant which it likes best to feed upon and that each of these species have a different order of preference for plants on which they can feed if their favourite food plant is not available.