NOTES ON A NEST
OF EULÆMA TERMINATA SMITH
(HYMENOPTERA, APOIDEA)
WITH A SUGGESTION OF THE OCCURRENCE
OF A PRIMITIVE SOCIAL SYSTEM

By Fred D. BENNETT
(Commonwealth Institute of Biological Control,
West Indian Station, Curepe, Trinidad, W. I.)

The genus Eulæma occupies a critical position in the range of social behaviour exhibited among the Apoidea. There has been much speculation as to whether a form of primitive social organization exists and if so, whether appreciable differences in the stage of social development attained occur in the various species of the genus. A critical review of the available information on the biology of the Tribe Euglossini is being prepared by Dr. Sh. F. Sakagami and his colleagues (personal communication). Accordingly only brief mention to earlier references will be made.

Ducke (1903) recorded brief notes on three large nests of Eulæma (Apellæma) nigrita Lepeletier which he located in the lower Amazon region. One of the nests contained more than two hundred cells and another more than a hundred. From the nest on which the most detailed observations were made all of the females emerged first and then some time later only males. Myers (1935) also gave a brief description of a nest of Eulæma nigrita. Three adults were present in the nest. There were two separate masses of cells, one containing three and the other eight cells. Some of the cells appeared to have been utilized a second time. Parasitism by Aglaæ caerulea Lepeletier was discussed.

During studies on the pollination of orchids Dodson and Frymire (1961) discovered two nests of Eulæma (Apellæma) cingulata (Fabri-
and recorded some details of nest structure, sequence of emergence, etc. They observed females of this species collecting human fecal matter which they utilized for the construction of cells, in a nest situated in an embankment. This nest contained more than three hundred cells. Six definite stages of construction were discerned, the first consisted of ten old cells almost completely decomposed; the second of about twenty-five partly decomposed cells; the third of seventy-five cells; the fourth of one hundred and twenty-five cells, all empty; the fifth with approximately the same number, most of them intact cells containing females; the sixth still under construction, with twenty-five sealed cells which eventually produced males, and five unsealed cells. About twenty-five females were seen entering and leaving the nest suggesting the possibility that more than one female assisted in the construction and provisioning of each cell.

Discovery and collection of the nest.

During 1961 studies on the species of bees around anthurium flowers in Trinidad, West Indies, were initiated and it was discovered that three species of *Eulæma* commonly visited the flowers. I was intrigued by the fact that all of the specimens were males. Later that year this was mentioned to Prof. Pe. Jesus S. Moure and Dr. Sh. F. Sakagami during a visit to Curitiba, Brazil. Both were impressed with the abundance of males of *Eulæma* around anthuriums and considered that the discovery of nests should not be too difficult. In January 1963 one of my assistants, Mr. D. Bharath, reported that his father had observed a few large bees which regularly gathered mud in the clearing around his shack in the forest. One of the bees was later identified by Prof. Pe. Moure as a female of *Eulæma (Eulæma) terminata* Smith, and arrangements were made to visit the area. On that day none of the bees were collecting mud but I urged Mr. Bharath to observe the line of flight taken by the bees and to move a little further along this line each day. He did this, and eventually observed one of the bees entering an old ant nest which was on a branch of a tree about fifteen m. from the ground. I was unable to visit the area and the notes on the location and collection of the nest were based on Mr. Bharath's observations.

The tree containing the nest was about ninety m. from the clearing where the bees were collecting mud. The nest, located on a branch about two m. from the main trunk of the tree and about fifteen m. from the ground, was almost completely covered with vines. The opening into the nest was about 2.4 cm. in diameter with no apparent modification such as a funnel or extended lip. Mr. Bharath plugged the hole with a cotton plug, cut away the vines, cut the branch to