SCIENTIFIC NOTE

A REMARKABLE TERATOLOGICAL SPECIMEN OF PSEUDOLUPERUS LONGULUS (LECONTE) (COLEOPTERA: CHRYSOMELIDAE) FROM UTAH, U.S.A.

The word teratology is derived from the Greek τέρας, meaning monster (among other things). Hence, the strict translation of teratology is the study of monsters. However, in modern biological usage, this term refers to the study of malformations, defects, and abnormalities. Nichols (1989) defined teratology as “the study of structural abnormalities, especially monstrosities and malformations”.

Teratological insects, although not common, are familiar to taxonomic entomologists. Among thousands of specimens examined, there are almost always a few abnormal individuals. Such specimens are often not reported, as they have no taxonomic significance. However, the abnormalities are sometimes so dramatic that they practically demand publication. Beyond being mere curiosities, they are scientifically important. Some abnormalities are coded in the DNA and are transferable to subsequent generations. Mutant colonies are especially useful in experimentation. Other malformations have no genetic basis and are often triggered by environmental factors. Even these are scientifically important, as they sometimes provide insight into ontogeny. Conceivably, they could also provide warnings of harmful environmental contaminants. Cockayne (1937) appropriately stated that “it seems advisable to publish descriptions – with plates illustrating the nature – of the abnormality in each case”. Glasgow (1925) elaborated on this concept: “Every entomologist who has examined carefully any considerable amount of insect material must have observed some specimens which presented noteworthy abnormalities that should be recorded in the literature of biology, and thus made available for consideration by investigators who may have a special interest in these phenomena.” He further noted that an interpretation of the abnormality is not always necessary or even desirable. These statements are as valid today as they were at the times they were given. Savini and Furth (2004), in their discussion of malformation in Coleoptera generally and in Chrysomelidae specifically, reiterated the importance of reporting abnormalities, stating that some cases present insight into the influences of environment on insect development.

In comparison to teratological reports for some other insect groups, those for the Chrysomelidae are rather infrequent. They are nonetheless numerous. Examples of these reports are presented in Table 1.

In the insect collection of the Monte L. Bean Life Science Museum at Brigham Young University (Provo, Utah, U.S.A.), there are two female specimens of Pseudoluperus longulus (LeConte) labeled “Cedar Valley Environ, Clive Jorgensen Collector”. The country, state, county, and date are not given. However, the collector has reported that these specimens certainly came from entomological surveys that he conducted in 1953 at two sites in Utah County, Utah (C. D. Jorgensen, personal communication). The first site was in an open area of Cedar Valley, about 3.2 km north of the southern end of the valley. The second site was at the north end of Cedar Valley, near the entrance to Tickville Gulch. The specimens also bear the field numbers CJ 1736 and CJ 1737, but C. D. Jorgensen (personal communication) reported that the corresponding field notebook has long been lost. One of the Cedar Valley specimens, the one labeled CJ 1737, is normal (Fig. 1). The two compound eyes are located laterally, and the interocular distance is clearly greater than half the width of the head. The standard features of the head, including the frontal tubercles and interantennal carina, are well formed. In contrast, the other specimen, the one labeled CJ 1736, is remarkably malformed (Fig. 2). The head is slightly narrower than normal, and the external surface consists almost entirely of a single holoptic eye. This eye entirely covers the areas that would normally be occupied by the vertex and frontal tubercles. The antennae are inserted abnormally close to each other, and the area normally occupied by the broadly convex interantennal carina is abnormally elevated into a very abrupt, prominent tubercle. The distal portion of the head, including the mouthparts, appears to be normal. The thorax, abdomen, and appendages also appear normal, although the tibia and tarsus of the left mesothoracic leg and the distal portions of both antennae are missing.

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