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Three anomalies of Coleoptera (Carabidae, Staphylinidae, and Scarabaeidae) from Connecticut

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Three anomalies of Coleoptera (Carabidae, Staphylinidae, and Scarabaeidae) from Connecticut

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Abstract. Three teratological cases in Coleoptera (Carabidae, Staphylinidae, and Scarabaeidae) are reported from Connecticut. The anomaly in the genus *Oxyporus* Fabricius 1775 (Staphylinidae) is being reported here for the third time.

Introduction

Little is known about the teratology of Connecticut Coleoptera. While organizing my collection, I came across several anomalies, three of which I report here. A monograph on teratology in Coleoptera by Balazuc (1948) provides a classification and terminology for the teratological anomalies. Additional discussions can be found in Dallas (1927), Cappe de Baillon (1927), Puissegur and Bonadona (1973). Ferreira (2008) reported an anomaly in *Calosoma sycophanta* (Linnaeus) (Coleoptera, Carabidae) from Connecticut. Kamal et al. (2008) reported the largest known occurrence of morphological anomalies in Carabidae from Michigan. Frank (1981) reviewed the teratology in Staphylinidae and Gamarra and Outerelo (1986) discuss several abnormalities in Staphylinidae. All the specimens reported on here are in my collection.

Observations

Carabus nemoralis Muller (Carabidae)

Figure 1

Carabus Linnaeus (Carabidae, Carabinae, Carabini) is represented in Connecticut by six species (Krinsky and Oliver 2001). This specimen was collected by Dr. M. K. Oliver in Connecticut, New Haven Co., Hamden in his backyard under a log on muddy soil on VII-19-1986. The specimen presents a binary schistomely on the right maxillary palpus. The bifurcate maxillary palpus (Fig. 1B) shows the first segment longer, wider and truncate when compared with the normal left maxillary palpus (Fig. 1A), forming a bifurcation into two segments (Fig. 1B, 1C) of the same size and configuration as compared with the normal segments of the left maxillary palpus. According to Balazuc (1948) this anomaly could result from an exterior action on the larva which caused a split in the distal segment. When regeneration takes place the agent stays in contact and the wound remained divided into two, avoiding the fusion of the two split parts.

Oxyporus rufipennis LeConte (Staphylinidae)

Figure 2

These are the third reported anomalies in the genus *Oxyporus* Fabricius, the only genus of the Oxyporinae (Staphylinidae). Larvae and adults of the genus *Oxyporus* which has a world wide distribution are obligate inhabitants of fresh mushrooms and feed on the flesh and gill tissues.

This specimen was collected on *Pleurotus ostriatus* Fries (family Tricholomataceae) in Connecticut, Litchfield Co., People's Forest on Beaver Pond Road on VI-6-1966. A meiomely according to Balazuc (1948) involves the loss (ectromely) or reduction (atrophy) of appendages or part of appendages. In this specimen the right mandible (Fig. 2C) and the right antenna (Fig. 2B, 2C) are reduced in relation to the left normal mandible and normal antenna. The atrophy of the right antenna has three fewer segments compared to the normal antenna (Fig. 2A, 2C). These atrophies are very common and the cause is mechanical (Balazuc

1948). The reduction of the antennomeres is more common on the last terminal half of the antenna (antennomeres 6 to 10). In this case antennomeres 4-6 are missing.

***Phyllophaga glaberrima* (Blanchard) (Scarabaeidae)**
Figure 3

This specimen of *Phyllophaga glaberrima* (Blanchard) (Scarabaeidae, Melolonthinae, Melolonthini) was collected in Connecticut, New London Co., Pawcatuck, between a pile of oak leaves against a shed on VII-5-1975. The specimen shows on the right side a trifurcation on the middle leg (Fig. 3B, 3C). The schistomely of the middle right leg presents a longer and wider femur which trifurcates into reduced tibiae (Fig. 3B), when compared with the normal one (Fig. 3A). The anterior tibia and the 5 tarsomeres of the abnormal leg are about half the size the normal tibia. The central tibia and the 5 tarsomeres are more reduced than the anterior abnormal. The posterior abnormal tibia is much more reduced as well as the 5 tarsomeres, when compared with the middle abnormal one and is curved towards the body of the insect. The cause of this monstrosity is unknown. Kamal et al. (2008) suggested that possible factors in anomalies may include acid rain and atmospheric nitrogen deposition. To these we can add the possibility of hereditary or mechanical factors during metamorphosis.

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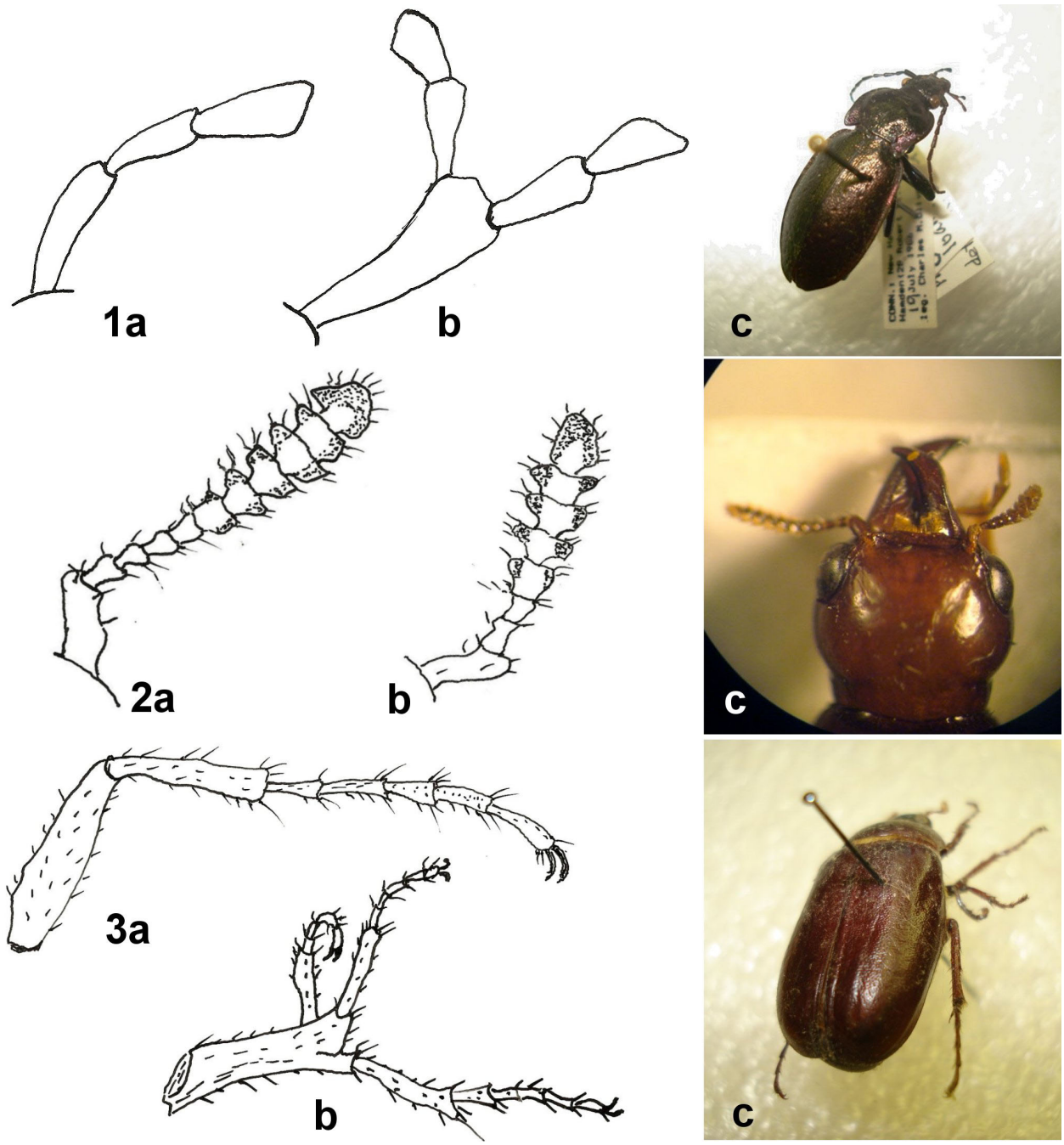

Figure 1-3. Beetle anomalies**. 1)** *Carabus nemoralis* Muller. Drawing of maxillary palpus; **a)** Normal; **b)** Abnormal; **c)** Dorsal view of habitus. **2)** *Oxyporus rufipennis* LeConte. Drawing of antennas; **a)** Normal; **b)** Abnormal; **c)** Dorsal view of head. **3)** *Phyllophaga glaberrima* (Blanchard). Ventral drawing of middle legs; **a)** Normal; **b)** Abnormal; **c)** Dorsal view of habitus.