

PSYCHE.

A DECADE OF MONSTROUS BEETLES.

BY SAMUEL H. SCUDDER.

Monstrosities among insects have always a unique interest; early in my entomological career I began the collection of facts regarding them, planning a general survey and classification of the entire literature of the subject, which I have not only never fully carried out, but which the multiplicity of other work will prevent my undertaking seriously for a long time to come, if ever. On that account I have thought it well to publish the few original cases which have come into my hands, and of which I have made notes, together with illustrations of them. None of them are of exceptional interest, but one or two are not a little remarkable. They all belong to the Coleoptera, and all but one to one of the two families, Carabidae and Scarabaeidae. The drawings were made by Messrs. J. H. Emerton and Edward Burgess.

CARABIDAE.

Carabus serratus Say. ♂. A right fore leg in which the femur is normal but the tibia unusually thick at base; only a short distance beyond (about $\frac{1}{3}$ the distance) it divides into two branches, each of which is at tip very nearly, if not quite, as large as the normal tibia.

The inner one is not so well developed as the outer and may therefore be considered the supernumerary limb. The inner is slightly shorter. The tarsal joints of each are five in number, and in the inner are slightly shorter than in the outer; this is especially the case with the terminal joint. In the inner leg the terminal joint is not inserted in the middle of the previous but upon the middle of its inner half and at the same time it is slightly curved inwards as if to give room for another joint, which indeed I think once existed, for there is a pit upon the middle of the outer half of the terminal surface of the penultimate joint just large enough for the reception of such a joint, and this too would account for the unusual shortness of the remaining terminal joint. The terminal joint of the outer leg is provided with a normal pair of claws; the other has only a slightly bent, very minute, and very short central and undivided process.

The outer tibia is normal in shape and in armature; the inner exhibits above a longitudinal groove broad and deep in the middle, becoming abruptly shallow and narrow anteriorly, and terminating by a union of the borders at

the very margin of the limb; posteriorly it shallows, narrows gradually, and terminates in a point back of the division of the primary tibia. A similar but not so distinct groove is seen beneath, and at the tip beneath three instead of two prominent spines are visible. It is evident, then, that the inner portion of this supernumerary leg is exhibiting a tendency itself to divide in two places: at the tip of the tibia and at the tip of the tarsi; the only indication in the parts lying between these two points is in the very trifling greater width of all the tarsal joints.

This specimen was received from Mr. Frederick Blanchard of Lowell through Mr. E. P. Austin. It is now in the Museum of comparative zoology in Cambridge.

Dyschirius sp. (Pl. 2, fig. 7). Of this species I have only notes and rough sketches referring to the right front tarsus. The 1st and 2d joints are normal; the 3d is longer than usual, bent a little forwards, and bears at the bend a 4th joint and at the tip another; that at the tip bears a normal 5th joint with claws as usual only a little smaller; that at the bend bears an altogether similar 5th joint only the claws are still smaller, scarcely curved, and a second still more abortive pair of claws is found at the outer edge close to the tip, thus showing signs of double bifidity.

The specimen was shown me by Dr. J. L. LeConte, but its origin I do not know.

Amara musculus Say (Pl. 2, fig. 2). The right antenna is 12-jointed; the left

antenna is affected as follows: joint 1-6 normal (the first not shown in the figure) 7th a very little enlarged apically, the better to support the abnormal 8th joint, which is depressed and beyond the base, here slightly larger than usual, expands and forms a sublenticular mass slightly longer than broad, with a distinct straight impressed line down the middle of the upper inner surface (as if made up of two connate joints); it is of the normal length. Each of these two lateral halves bears an appendage of four almost precisely similar joints, the exact counterpart of those of the opposite antenna except in being a very little smaller though of the same proportions; the lower is borne at the extremity of the lower half, and is continuous with the antenna; while the upper is attached to the upper outer angle of the upper half and trends a little away from the normal direction; the 9th, 10th and 11th joints of this half are a trifle shorter than those of the other more normal half.

The specimen came from Massachusetts, and was received from Mr. Samuel Henshaw.

Galerita janus Fabr. (Pl. 2, fig. 1). The specimen of this species which I have to describe briefly, is not greatly malformed. Malformation occurs in the right hind leg, the femur of which is perfectly natural, and the tibia is of normal length and clothing, but is perhaps a little swollen, and considerably twisted from a point slightly beyond the base, the curvature being more or less sinuous, at first and most strongly backward, at

the apex in the opposite direction. It bears the usual spines at the apex, but the longer inner one is curved beyond the middle. All that remains of the tarsus is a spine-like appendage which takes its place,—an appendage less than one half the diameter at base, about as long as twice the width of the tibia, tapering slightly, and bluntly rounded at tip.

The specimen was obtained by the late Mr. F. G. Sanborn, May 10, 1868, in West Roxbury, Mass., and is now in the museum of the Natural history society, Boston.

Chloenius tomentosa Say (Pl. 2, fig. 3). The single specimen before me shows a somewhat simple malformation in the left middle leg. The femur and tibia are normal, excepting that the tibia is somewhat more enlarged than natural at the apex, more resembling in this respect the fore tibia, expanding broadly at its extreme apex. Here, besides the normal spurs, there is the attachment of what appear to be a triple series of tarsi. The middle one is reduced to a mere conical bulb between the other two, bristling at its apex with spines of a moderate length; one of the others consists only of what may perhaps be regarded as the basal half of the metatarsus extending at right angles outward, bluntly rounded at the apex, but showing at the extreme apex and just at its side the points from which a couple of spines, probably of moderate size, have been broken off; the inner is the only developed tarsus, and this is malformed in two ways: first that the metatarsus

is rather stouter than normal, a little curved, and is followed by a short supernumerary joint only a little smaller than the normal second joint; and second, that the whole tarsus is bent at right angles between the supernumerary joint and the second (this bend is not seen in the figure); unless indeed these two joints may be regarded as one, constricted and bent at right angles in the middle.

This specimen was obtained by Mr. F. Stratton at Natick, Mass., and is now in the museum of the Natural history society, Boston.

LAMPYRIDÆ.

Telephorus rotundicollis Say (Pl. 2, fig. 5). A right antenna in which the first joint is longer than usual; the second is of ordinary length but as large at base as at apex and bears two joints, one at the apex, a normal third followed by eight joints as usual, and the other a short, depressed, thickened joint articulated on the apical half of the anterior face of the second joint, and followed by five joints, the first of which is like the preceding, while the rest are slender, elongated joints, somewhat like the normal joints but evidently useless and perhaps immovable (by will) in life, together curling backward.

In the drawing the normal third bears a curved appendage which I did not see; and the third joint of the supplementary palp, being bent and folded, is represented as if made up of two small joints.

This specimen was shown me by Dr.

J. L. LeConte, but its origin I do not know.

SCARABAEIDAE.

Lachnosterna fusca Fröh. (Pl. 2, fig. 8). This is on the whole the most singular monstrosity with which I have met. It concerns the middle leg of the left side. The femur of normal length is extraordinarily enlarged so as to form a cuneate piece, at its apex nearly as broad as half the length of the femur. From both the anterior and posterior extremities of the expanded sub-compressed apex there arises an independent tibia; the anterior is sub-normal, having all the parts but the tibia somewhat reduced in size and of more uniform width throughout, the tarsi entirely normal and complete. The set of members arising from the posterior extremity of the expanded femur consists of a tibia similar in length and in general appearance to the other but stouter and deeply cleft on its outer face to the depth of fully one third its length. Each of the uniform halves thus cleft presents the normal pair of apical spurs and is followed by a series of tarsi in general respects normal but of rather diminished size, and the upper having the terminal joint not bullate at the extremity but terminating in a conical point without any claws.

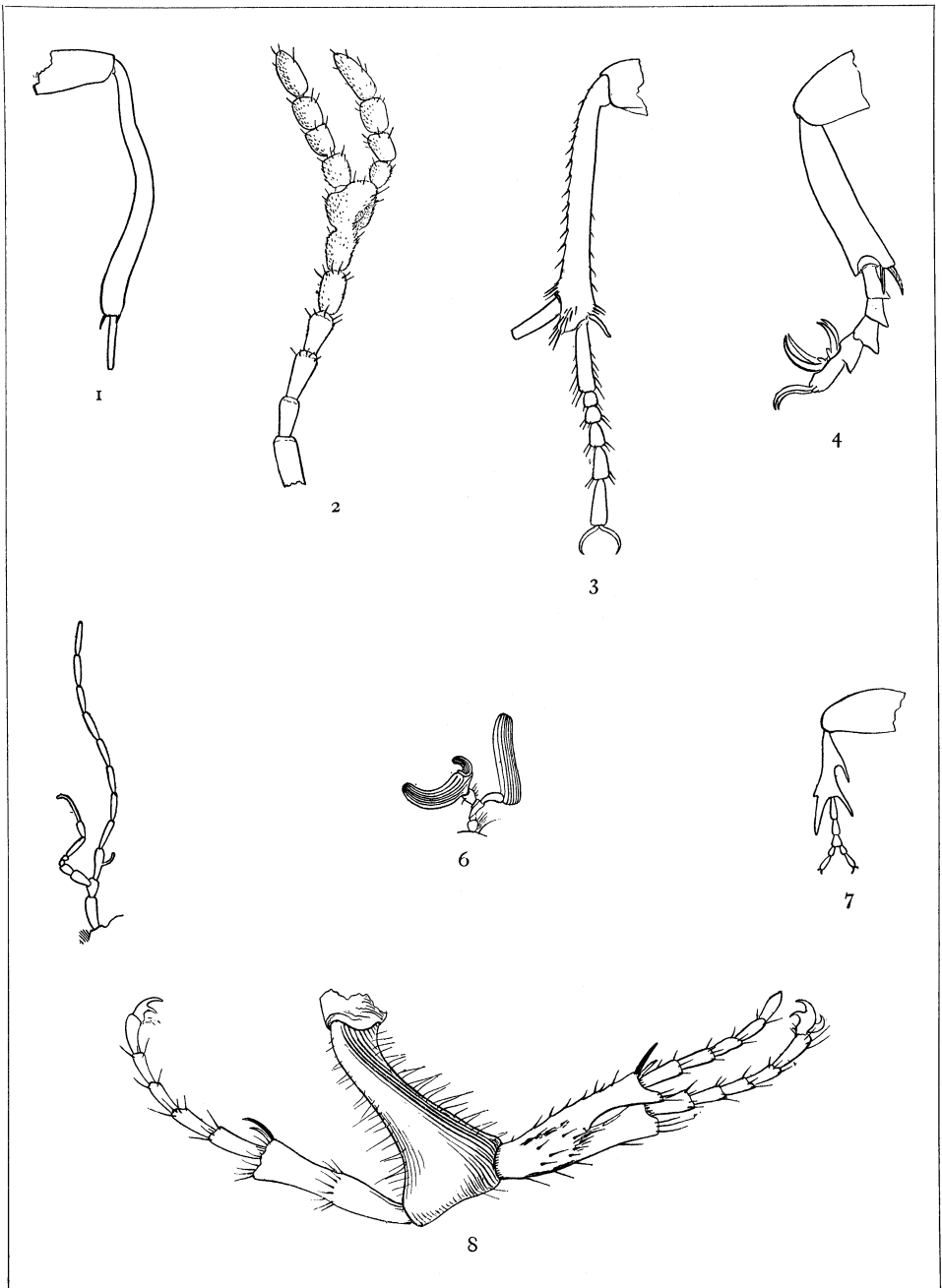
The origin of this specimen I do not know; it is now in the Museum of comparative zoology at Cambridge.

Polyphylla decemlineata Say (Pl. 2, fig. 6). A right antenna in which the first and second joints are normal,

the third not larger than usual but bearing two fourth joints: the first articulated at the tip, the second articulated on the anterior face, the articulation occupying all of it but the part close to the base; both fourth joints are formed in general like the normal fourth joint; the first is directed backward and bears a normally formed set of laminae, seven in number, but small and directed subparallel to, though not so much curved as, those of the left antenna; in this case the secondary fourth joint differs from the normal fourth only in being smaller to about the degree that the laminae are smaller than normally. In the second case the fourth joint is greatly swollen and bears at its broad apex a very peculiar set of lamellae, which from the first show their intention to divide; three are undivided, but irregular in shape, more or less imperfect, and attached not by one extremity but near the middle, the longer portion directed anteriorly and a little inward; the shorter in an opposite direction, each curved downward; the first two of these are flat laminae, a little thickened at the point of attachment; the third is enormously thickened at this point and produced into a triangular projection, upon either side of which are attached the remaining laminae, four anterior and three posterior, the division of this portion of the bifid antenna taking place at this point.

This specimen was shown me by Dr. J. L. LeConte, but I did not learn its origin.

Cotalpa lanigera Linn. Instances are quite frequent in which the longer



anterior claw on one or many of the feet shows a tendency to division, being in some instances cleft on the posterior outer edge from a little below the tip one-sixth the distance to the base of the claws. Mr. E. P. Austin first drew my attention to this feature, and informs me that he has noticed it in a considerable number of specimens he has examined. Nearly every specimen I have examined shows some trace of it, from a tubercular enlargement of the spot whence the bifurcation proceeds, up to the amount I have mentioned above. Half of the four specimens in the Harris collection in the Boston society of natural history have it.

Trichius piger Fabr. (Pl. 2, fig. 4). A right hind leg in which the femur is normal; the tibia is slightly shortened and thickened, but terminated by the usual two spines; the tarsal joints are curved rather strongly upward, and instead of being uniformly long, slender, and gradually thickened at the apex, are (except the last) uniformly and nearly equally short and stout, nearly triangular, with the apex prominent beneath; they are scarcely longer than their extreme height at apex. The last joint is conical, truncated, a little smaller only at tip than at base, about twice as long as it is broad at the base, and very slightly curved outwards; it bears at

the tip a pair of scarcely divaricating claws a little shorter than the normal; but in addition to this it also bears at the very base of the joint, above, two more pairs of claws; one pair so near the base as to appear at first sight to be attached to the penultimate joint, a little smaller than, and facing in the same direction as the apical pair, and also scarcely divaricate; the other, just beyond, also scarcely divaricate, larger than either of the other pairs, but still smaller than the normal claws, and facing in an opposite direction to the other two pairs; apparently the claws are all freely moveable.

The specimen was obtained at Medford, Mass., by the late Mr. F. G. Sanborn, and is now in the museum of the Boston society of natural history.

EXPLANATION OF PLATE 2.

1. Right hind leg of *Galerita janus*.
2. Left antenna of *Amara musculus*.
3. Left mid leg of *Chloenius tomentosus*.
4. Right hind leg of *Trichius piger*.
5. Right antenna of *Telephorus rotundicollis*.
6. Right antenna of *Polyphylla decemlineata*.
7. Right fore leg of *Dyschirius* sp.
8. Left midleg of *Lachnosterna fusca*.

PERSONAL NOTES.—Mr. C. W. Woodworth, recently entomologist to the Agricultural experiment station at Fayetteville, Ark., has accepted a similar position at the station in Berkeley, Cal., and has already moved to his new post.

Mr. Theo. D. A. Cockerell, of England, formerly secretary of the Colorado biological association, has been appointed curator of the museum in Kingston, Jamaica. After June 24 his address will be Institute of Jamaica, Kingston, W. I.



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