C. ADJUNCTS TO TAXIDERMY.

Tools, eyes, materials, perches, leaves, rock-work, etc.

Already a large number of important objects are entered for exhibition, consisting chiefly of artistic groups, both large and small, and it is certain that there will be a fine display in class B, or household ornaments and decorations, most of which will be entirely new and original in design. A silver medal will be awarded to the finest single exhibit, a bronze medal to the best general exhibit, and a diploma of honor to the best exhibit in each of four natural classes, viz.: Mammals, birds, reptiles and fishes. A number of interesting papers and notes upon the various methods of taxidermy will be read at the general meeting and afterwards published in a volume as the proceedings of the society. From now until December each member will be busily engaged in putting forth all his skill and knowledge in the effort to win some of the honors offered for the highest excellence.

It is to be earnestly hoped that their vigorous and already successful movement will meet the hearty approval and co-operation of all American taxidermists, both amateur and professional, and that they will, by joining the society, and taking active part in the meetings and exhibitions, help to build up a powerful and influential organization, which is devoted to their best interests. The most unskillful amateurs are cordially welcomed as members, if they are but earnest in taking hold of the work in hand. It now remains to be seen how much liberality of mind, enthusiasm of purpose and ambitious enterprise will be awakened by this movement among American taxidermists.

DESCRIPTION OF SOME MONSTROSITIES OBSERVED IN NORTH AMERICAN COLEOPTERA.[1]

BY HORACE F. JAYNE.

The accumulation of material in some of the larger collections of Coleoptera of our fauna has suggested that a description of the more marked monstrosities might be interesting, and aid at some future time in throwing light on points of development not yet understood. I have, therefore, in this paper, described and figured those monstrosities which M. Mocquerys of Rouen, in his excellent work on Abnormal Coleoptera, calls "Monstrosities by Excess." Deformities by deficiency or incomplete development have not been considered as they do not seem of sufficient importance, and point only to accidents happening to the insects while in the larvæ or pupæ stage.

I desire to return my sincere thanks to Dr. Horn for the free use of his collection and library, for many suggestions and for kindly revising these pages; also to Dr. LeConte for the loan of specimens from his cabinet, and to Dr. Hagen for the use of specimens belonging to the Museum of Comparative Zoology at Cambridge.

[1] A paper read before the Am. Ent. Soc., June, 1880.

CALOSOMA TRISTE, Lec.

Fig. 1 represents a monstrosity on the right antenna of a specimen of *Colosoma triste*, Lec. It consists in the sixth joint bearing two branches of five joints. Fig. 1a, shows the antenna greatly enlarged. The first three joints are normal; the third a little dilated at apex. The fourth is normal in length but is one-half broader at apex. When viewed from above it is distinctly pyriform. The fifth joint is also of normal length but twice the width of that of the left side and slightly broader at apex. The sixth joint is pentagonal in form, in its widest place as wide as long. The apex is obliquely truncate on its inner and outer angles, presenting two unequal faces for the insertion of the two branches. The inner or posterior facet is much smaller and from it arises that branch with the joints exactly resembling the normal antenna. The anterior or outer facet is larger and gives insertion to an anterior or outer branch of five joints; the first being short and thick the others similar to the corresponding normal joints but smaller.

The specimen is in Dr. Horn's Cabinet. Collected in California.

CYCHRUS ANGUSTICOLLIS, Fisch.

Fig. 2 represents the deformed left anterior leg of a specimen of *Cychrus angusticollis*. The femur is greatly dilated a little beyond the middle and gives off from its superior border a tubercle moderately long and blunt at tip. This may possibly indicate an attempt at the development of a second leg. The femur is then narrowed and at apex is a little larger than the apex of the normal joint. The existence of a cotyloid cavity shows the former presence, and accidental loss of the tibia.

In the Museum of Comparative Zoology at Cambridge.

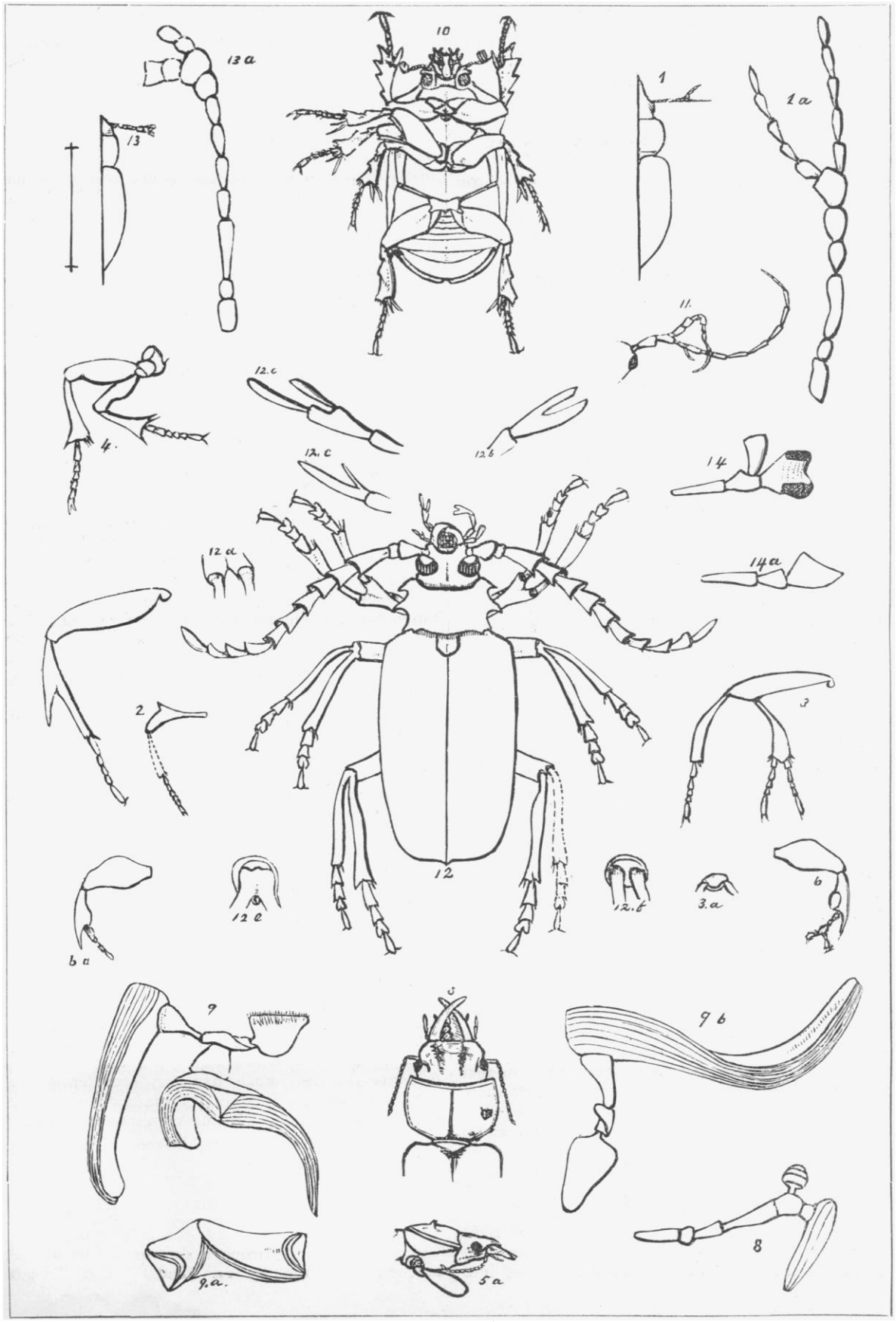
METRIUS CONTRACTUS, Esch.

A monstrosity in the middle left leg of a specimen of *Metrius contractus* is shown in fig. 3. The femur bears two tibiæ; the inner one bearing two full sets of tarsal joints. The femur is normal. The outer tibia, which may be regarded as the normal one, arises from the extremity of the femur and is somewhat shorter, stouter, and more curved than the tibia of the middle right leg. The inner tibia arises from the posterior side of the femur a short distance within the tip and is articulated with it by a separate cotyloid cavity, the two cavities however are confluent as seen in fig. 3a. It is distinctly arcuate, dilated toward the apex which is obliquely truncate at each angle. From each facet thus formed arises a tarsal joint of normal length, almost contiguous at their bases, and somewhat stouter than the succeeding joints which are normal in form but shorter than those of a normal tarsus. There are four terminal spurs to this tibia, two placed external to the outer tarsus, two within the inner.

In Dr. Horn's Collection.

PASIMACHUS PUNCTULATUS, Hald.

A specimen of *Pasimachus punctulatus* has seven legs; the extra one arising from a trochanter placed between the normal trochanter and femur of the left


13a
10
1
1a
13
11.
12.c
4.
12.b
12.c
14
14a
12a
2
12
3
12.e
12.b
3.a
6
6a
9
9b
9.a.
5a
8

middle leg. Fig. 4 represents the anomaly as seen from below. The coxa and trochanter are like those of the right leg. On the inferior surface, between the trochanter and femur and embraced in front and behind by the latter, is inserted a second trochanter; triangular in form, about half as wide and one-third as long as the normal one. It gives origin to the extra femur, which is two thirds as long and about three-fourths as stout as the main thigh. The tibia of this extra femur is perfect except that it is one-fourth shorter than the other; its spurs and tarsal joints and the claws of the latter being all normal. This abnormal leg is less chitinous than the others.

In Dr. Horn's Collection.

SCARITES SUBSTRIATUS, Hald.

I have tried to represent in fig. 5a monstrosity on the right side of the dorsal surface of the prothorax in a specimen of the *Scarites substriatus*. It consists of a tubercle about a thirty-second of an inch long, projecting outward and slightly forward. It arises a thirty-second of an inch transversely from the middle of the right margin of the thorax. It is deeply cleft on the summit, almost transversely. Fig. 4a, represents it when viewed from the side.

Collected in Texas. In Dr. Horn's Cabinet.

DYSCHIRIUS GLOBULOSUS, Say.

The anomalous right anterior leg of a *Dyschirius globulosus* is shown in fig. 6. Fig. 5a, represents the normal right leg. The deformity consists in the third joint of the tarsus bearing two branches of two joints each. The inferior terminal spur of the tibia is wanting. The first two joints of the right tarsus are normal; the third a little longer, more clavate, and obliquely truncate on each side at tip for the articulation of the double set of joints which follow. The two anomalous branches arise on each side of the sharp apex thus formed, one directed to the left, the other to the right. The first joint on each branch is a shorter and stouter than a normal fourth joint; while the terminal or claw joint does not differ greatly in length. The claw joint of the inner or left branch bears a pair of normal claws, the outer claw joint is somewhat broader and bears two sets of claws curved from each other.

In Dr. LeConte's Cabinet.

CHLÆNIUS DIFFINIS, Chaud.

Fig. 7 represents a deformity in the left middle leg of a specimen of *Chlænius diffinis*. The tibia at a point a little below the middle bifurcates, the inner bifurcation continuing to normal length bears the tarsal joints. The outer is about two-thirds as long as the inner. It appears from its size and form that this branch bore a set of tarsal joints similar to those seen on the inner; and this opinion is strengthened by the fact that the end is somewhat ragged and seems to have been broken off.

In Dr. Horn's Cabinet.

LICHNANTHE VULPINA, Hentz.

A specimen of this insect has an anomalous right antenna as shown in fig. 8. The first three joints are normal. The fourth, fifth, and sixth are fused into one joint twice as long as the third; the seventh appears to be connate with the first joint of the club. From the posterior outer border of the long fourth joint near the tip there arises a spherical club of three joints about the length of the third antennal joint. The first joint comprising the pedicle and base of the club, the second the centre, and the last the apex.

In Dr. Horn's Cabinet.

POLYPHYLLA DECEMLINEATA, Say.

Fig. 9 represents the right antenna of a specimen of *Polyphylla decemlineata* in which, in addition to the normal structure, the second joint bears a branch anteriorly, consisting of a single free joint which supports two clubs, placed transversely to the normal, of seven lamellæ each, united at their bases. The plane of the normal club is perpendicular to the plane of the abnormal, but in the figure the two are represented as in the same plane; the normal branch as seen from the outer side, the abnormal as seen from above. Fig. 9b, represents the left antenna. The basal joint of the right antenna is somewhat smaller and more inflated than that of the left. The second joint is twice as long as the corresponding one on the left antenna; the outer half of the anterior border being flattened for the insertion of the first joint of the abnormal branch, and its posterior border somewhat sinuate near the tip. The double club on the abnormal branch consists of two sets, of seven lamellæ each of unequal size, united at their bases at an angle of forty-five degrees, the outer scarcely longer than half the inner and more curved, while the inner is but little shorter than the club of the normal branch but more curved than it. The joint supporting these branches is obconical and much shorter than the second joint from which it arises. Fig. 9a, represents the double club as seen from below. The third joint of the normal or posterior branch is in form like that of the left antenna, but a fifth shorter. It bears a club of seven lamellæ, which is directed downward, and is about half as long as that of the left side, much narrower and feebly curved.

The insect is in Dr. LeConte's Cabinet.

STRATEGUS ANTÆUS, Fabr.

A specimen of this insect has the left middle leg triplicated. I have tried to represent this monstrosity in fig. 10. It may be regarded as made up of a normal leg with its trochanter entire. To the under surface of this normal femur are added two others, making together a pyramidal mass; free at their apices for about one-third their length. Those of the normal femur and the one nearest to it are closely placed, while the other diverges at an angle of about forty-five degrees. Each femur is provided with a tibia and tarsus. The tibia of the normal femur is not as greatly developed as the corresponding one on the right leg and those on the two abnormal femora are still less strongly marked.

In the Museum of Comparative Zoology at Cambridge.

TELEPHORUS ROTUNDICOLLIS, Say.

A specimen of this insect is deformed in the right antenna as shown in fig. 11. The third joint bears

from its anterior surface an extra branch of six joints. The first joint of this antenna is much stouter than the corresponding joint on the left side. The second about half as long as the first and as stout. The outer half of the anterior border is flattened to receive the first joint of the abnormal branch. From its end arises the regular branch of nine joints, all of which are normal except the first which gives off near the middle of its posterior border a slender spine-like process, half as long as the joint itself, curving outward and backward. The abnormal branch which is composed of six joints is directed forward and outward. The first three joints are flattened and very wide proportionately, the last three cylindrical. The first joint is about as long as the one which bears it and at its base about half as wide as long but considerably wider at tip. The next joint is a little narrower than the tip of the first. Its length about equals its width. The third is one-third narrower than the second and almost twice as long as wide. In the figure it is represented as folded upon itself. The fourth joint is somewhat longer than the third and half as wide, almost twice as long as the fifth which bears the sixth a long slender joint which curves inward and is as long as the fourth and fifth together.

PRIONUS CALIFORNICUS, Motsch.

Fig. 12 represents in a specimen of *Prionus californicus* one of the most remarkable monstrosities that has probably ever occurred among Coleoptera—remarkable not only for extent but also for symmetry. The left maxillary palpus bears two terminal joints. In the right maxillary and the left labial palpi the terminal joint is bifid. Each femur bears two tibiæ furnished with tarsi and claws. The second joint of the left maxillary palpus appears to be composed of two joints closely connate, the anterior one much shorter than the other, each bearing a terminal joint of somewhat unequal lengths, as shown by fig. 12a. The terminal joint of the right maxillary palpus is deeply cleft at apex representing two joints connate at their basal halves; fig. 12b. The terminal joint of the left labial palpus gives off anteriorly from its base a second joint half as long and as stout as the other and connate with it; fig. 12c. The antennæ are normal. The anterior femora are normal in length and in articulation with their coxæ. They gradually widen from base to apex where they are more than twice as wide as a normal femur. Rhomboidal in section; the superior surface about one-third narrower than the inferior. The apices are dilated and deeply notched vertically, making two processes about as long as wide, each containing a normal cotyloid cavity with which the tibiæ are articulated in a normal manner. Fig. 12d, shows the femur and articulations as seen at the end. Of the tibiæ the anterior is somewhat shorter and about two-thirds as stout as the posterior, which is probably the normal one. The spurs, tarsi, and claws of both are similar. The middle femora are normal in length and form but about one-half stouter. The apices each contain one large cotyloid cavity. Into this, which is twice as wide as a normal one, is inserted a single broad condyle formed by coalescence of the condyles of the two tibiæ is shown in fig. 12e. The anterior of these is somewhat shorter and about two-thirds as stout as the posterior. Its tarsi are more slender and a little shorter. The articulation of the tibiæ with the left posterior femur is identical with that of the middle femora; fig. 12e. The anterior of the two tibiæ and its tarsus are about five-sixths the length of the posterior and one-half more slender. In the right posterior femur the articulation with the two tibiæ differs from all the others. The femur itself is about equal in thickness to the left but is a trifle more dilated at apex. This is not notched as in the anterior femora, but truncate. Each tibia is inserted into a distinct cotyloid cavity separated by a considerable interval; fig. 12f. The anterior of the two has been unfortunately broken off about one-fourth of an inch from the femur. The structure of the under side presents no departure from the normal standard.

Collected by Mr. Morrison in Washington Territory.

ELEODES PILOSA, Horn.

In fig. 13 is shown a specimen of *Eleodes pilosa*, the right antenna of which is deformed; the ninth joint bearing on its end two branches of two joints each. Fig. 13a, represents the antenna enlarged. The first seven joints are normal. The eighth and ninth equal each other in length, being slightly shorter than the seventh. The eighth is as wide as long. The ninth at base is as wide as long; at the middle almost twice as wide. From the anterior part of the end arises a branch of two joints which are flattened, almost connate and a little more than half as wide as the ninth joint and as long as wide. The last joint is sinuate at tip. From the posterior part of the end of the ninth joint arises a branch also of two joints which equal in length those of the other branch but are more cylindrical and more nearly resembling normal terminal joints.

From Nevada. In Dr. Horn's Cabinet.

HELOPS SULCIPENNIS, Lec.

Fig. 14 represents an anomaly in the right maxillary palpus of a specimen of *Helops sulcipennis*. Fig. 14a, shows the normal palpus. The anomaly consists in the second joint bearing two terminal joints, one from the outer end of the anterior border and one from the tip. The first joint of this palpus is normal. The second nearly so excepting a dilation and flattening of the anterior border into which the terminal joint is inserted. The latter joint, which in the figure is represented as seen from below, is foreshortened as its plane is nearly perpendicular to the plane of the palpus proper. When viewed from the side it is precisely similar to the terminal joint in fig. 12a. The other joint which arises from the tip of the second is really made up of two joints soldered together at the bases of their broad surfaces. It is consequently twice the thickness of the other terminal joint and at its free edge deeply grooved indicating the union of two joints, and presenting that silky appearance common to the free edge of the normal joint. It is shown in the figure as seen partially from below, partially from the side. The parts shaded are intended to represent the edges of the two joints in one, the dotted part the deep groove.

In Dr. Horn's Cabinet.