ILLUSTRATIONS OF EXTERNAL ANATOMY SILPHA AMERICANA LINN. (SILPHIDAE, COLEOPTERA)[1]

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This paper on the external features of *Silpha americana* Linn. is offered as a contribution to the knowledge of external anatomy of Coleoptera, and to supply a lack of available material on the external characters of this family. The Silphidae belong to the suborder Polyphaga and the superfamily Staphylinoidea. The primitive type of Polyphaga is found in its original form in the series of Staphylinoidea (Böving and Craighead, 1931).

The nomenclature followed by the writer was adopted from Snodgrass, Singh Pruthi, Crampton, and others.

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GENERAL DESCRIPTION

This species is broadly oval and very flat, being adapted for crawling under objects rather than burrowing as in the case of Necrophorus. The thorax is yellow with a discal black spot. Elytra brownish with elevations much darker. The length of the adult varies from 17–20 mm.

The specimens used in this study were procured from South Bass Island in Lake Erie. Partially decayed meat or dead fish were put into cans which were sunk until the open end was flush with the surface of the ground. These were covered with leaves and examined daily. Often as many as ten individuals of *Silpha americana* were found in some cans. Other Silphidae belonging for the most part to the genus Necrophorus were collected. Several Histeridae were also found.

As material was plentiful dissections were made possible from live beetles. Specimens not used for live dissection were preserved in seventy per cent alcohol. In cases where sutures were difficult to discover the parts were boiled in a ten per cent solution of potassium hydroxide. Drawings were made under binocular using a camera lucida.

THE HEAD

The *head capsule*, from the dorsal view (Fig. 5), appears almost square, is strongly depressed, and can be retracted under the anterior margin of the pronotum until the eyes are almost hidden. Sutures in the head have disappeared or are so faint that they cannot be seen.

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A depressed area near the inner margin of each eye locates the internal attachments of the dorsal arms of the tentorium. The head is covered with fine pubescence and the region at the posterior margin of the eyes is covered with much longer hairs. The labrum (Lbr) is closely attached to the head capsule, there being no membrane visible externally. The eyes are quite prominent and can be seen from both the dorsal and ventral view. No ocelli are present.

The antennae (Fig. 18), composed of eleven segments and clavate, are inserted behind the base of the mandibles. The third joint is shorter than the second which is one of the key characters separating this species from *Silpha inaequalis* Fab. The segments are gradually clubbed.

The gula is the most prominent part of the ventral view of the head capsule (Fig. 6) and is separated from the gena on either side by the gular suture. It is broad at the anterior median end, narrows suddenly towards the posterior part and at the extreme posterior end broadens where it forms the ventral part of the foramen magnum.

The endoskeleton of the head (Fig. 7) consists of an anterior arm (Ant. Arm), dorsal arm (Dor. Arm), and posterior arm (Post. Arm). The anterior arms project laterally toward the mandibular articulation, and probably serve as muscle attachments for the mouthparts. The dorsal arms project latero-dorsally and fuse with the exoskeleton of the head near the inner margin of the eyes. The posterior arms extend to the lateral margin of the foramen magnum where they are thickened and articulate with the cervical sclerites.

The labrum (Figs. 8 and 9), closely joined to the head capsule, is deeply emarginate at its anterior end and densely covered with setae and fine hairs which are located in the membranous margin. The epipharynx (Epi) lies on the internal surface of the labrum and is covered with fine hairs as far posteriorly as the suture between the clypeus and labrum. Posterior to this suture two sclerotized arms serve as a framework for numerous sclerotized bars which are arched dorsally. These are not shown in the figures.

The mandibles (Figs. 10 and 11) bear on their posterior inner margins a molar area (Mola) covered with transverse ridges which are probably used in the process of chewing food. The anterior ends have one distinct blunt tooth and the tips of the mandibles are modified into a cutting edge. The spines between the mola and the tip are very dense. A membranous area covered with minute setae covers the mola on the dorsal side, the tips of which articulate when the mandibles are closed.

The maxillae (Figs. 12 and 13) are divided into five distinct parts, namely, cardo, stipes, palpifer (Plpfr), galea, and lacinia. The cardo is a rectangular sclerite and bears on its inner margin large condyles which articulate with the head capsule. The stipes is a triangular division anterior to the cardo and contains two sclerites (Crampton, 1923). The palpiger bears on its posterior margin the maxillary palpus which is four segmented, although the first is very small and membranous. The last segment is tipped with tiny granule-like projections which are probably sensory organs. The galea seems to be composed of a single sclerite and is densely covered with brush-like

hairs. The lacinia, attached to the stipes from the dorsal view, bears on its inner surface an area of brush-like hairs and the anterior end terminates in a toothlike structure or blade.

The labium (Figs. 14 and 15) lies on the ventral aspect of the head between the maxillae, and is attached to the head by the mentum and submentum which are usually included as a part of the labium, but strictly speaking are not a part of it (Crampton, 1928). The paraglossae (Pglo) are clearly separated at the anterior margin and are covered with fine setae on the ventral surface. Crampton (1921) calls the true labium the eulabium (which bears the paraglossae, labial stipes and prementum). The central triangular sclerite, the ligula (Lig), is often used synonomously with glossa. It is usually applied to the unpaired median structure projecting between the labial palpi regardless of whether formed by the united glossa alone or whether the paraglossae have entered into its composition (Crampton, 1921). The labial palpi are located on a broad structure known as the palpiger (Plpgr), which is closely joined to the mentum.

The hypopharynx (Hyp, Fig. 16) is a lobe-like structure densely covered with fine hair and supported by heavily sclerotized pharyngeal rods (Phrgl. Rds.) which have small muscle disks on the posterior end. The pharyngeal opening is located at the junction of the hypopharynx and epipharynx.

The submentum (Submtm, Fig. 17) shown in relation to mentum and gula, is attached to the gula by a wide, membranous area. The mentum is oval shaped and is not heavily sclerotized.

THE CERVICAL SCLERITES

The cervical sclerites (Cerv. Scl., Figs. 6, 19, 20) are located on the ventral surface in the membranous area between the head capsule and prothorax. The posterior end of each is broader than the anterior and probable traces of a suture can be found on both posterior and anterior portions. Several small spines project posteriorly from the anterior lateral edge of each sclerite. No attempt has been made to homologize the cervical structures.

THE THORAX

The tergum of the prothorax (Pntm, Figs. 19 and 25) is flattened and nearly twice as broad as long. The pronotum is yellow with the exception of a broad discal black spot. The surface is covered with fine punctures and the lateral margins are thickened and curve slightly upward. A broad emargination at the anterior end overlaps the head while the posterior margin is broadly rounded.

The prosternum (St.–I, Fig. 19) is strongly convex and closely joined to the pronotum which overlaps the suture with a broad margin. No distinct sutures could be found in the prothorax although the outer areas may be pleurites which have become fused with the sternum. These have been labeled Pl–I?. The posterior region of the prosternum bears a median elevation separating the two coxal cavities which are widely open behind. This characteristic of the coxal cavities is one of the distinctions between this genus and *Necrophorus*. The internal view (Fig. 20) shows mainly the muscle attachments (Furca–I).

The mesonotum (Figs. 21 and 22) is occupied largely by the triangular scutellum (Scutel) with which the elytra articulate and under the lateral margins of which they rest, when folded. The praescutum (Praes) is composed of a small phragma which projects downward between the mesothorax and prothorax. The scutum occupies the anterior end of the mesonotum and on either side are two projections which extend anteriorly and downward and are slightly cup-shaped. These probably serve as muscle attachments.

The mesopleuron (Figs. 25, 28 and 29) consists of two sclerites, the episternum (Eps–II), and epimeron (Epm–II) and is figured with the mesosternum and metasternum.

The episternum is roughly rectangular, bearing on its anterior lateral margin the wing processes (Wing Pro.) of the elytron. The inner margin is attached to the mesosternum and the anterior lateral portion to the mesonotum by the axillary sclerites of the mesothoracic wing. There is a small groove at the dorsal junction with the epimeron (Epm–II) in which the anterior lateral edges of the elytra articulate. This can be seen in Fig. 25.

The epimeron is rectangular in shape with the posterior margin broadly rounded. It articulates on its inner margin with the coxa and trochantin of the mesothoracic leg and is separated from the episternum by the pleural suture. It is not connected to the mesonotum at its lateral margin, but loosely covers the metathoracic spiracle (Sp–III), the edge of which can be seen only from the lateral view (Fig. 25). Internally the pleural ridge is very broad and tapers into a pleural arm which is partially fused with a structure similar to the parapterum of the metapleuron. A muscle disk (M. Disk) is located on its inner surface.

The mesosternum (St–II, Figs. 28 and 29), figured with the metasternum and mesopleuron attached, is roughly trapezoidal in shape and the anterior margin serves as an attachment for the intersegmental membranes between the prothorax and mesothorax. The posterior lateral portion extends to the posterior border of the meso-coxal cavities, while the median part joins the metasternum slightly posterior to these. The internal view (Fig. 29) presents a thickened anterior margin to which membranes and muscles are attached. The furcal processes (Furca–II) arising at the posterior margin and anchored to the internal ridge of the metasternum, curve laterally to the pleural ridge of the mesopleuron (Epm–II) and probably serve as an attachment for powerful leg muscles.

The metanotum (Figs. 23 and 24) shows the four typical areas of this division. The praescutum (Praes) is divided from the scutum by the large central membranous area and the two divisions extend laterally almost to the anterior wing processes. These two lateral divisions support the praescutal phragma (A. Ph.) which extends internally towards the center of the body. The scutum is composed of two parts, being divided by the v-shaped ridge separating it from the scutellum. Each half of the scutum is divided into a posterior and anterior region by the internal ridge on the anterior part of the metanotum. The anterior lateral part of the scutum bears the anterior wing processes

(Wing Pros.) with which the first axillary sclerites articulate, and the posterior lateral part the posterior wing processes (Wing Pros.) with which the third axillary sclerite articulates. The axillary cord is attached back of the posterior wing processes.

The postnotum (P. Sctl.) is a long rectangular sclerite lying behind the scutum and scutellum. It is inflexed internally forming the posterior phragma (P. Ph) and serves as an attachment for several muscles and for the membrane which connects the thorax with the abdomen. It articulates with the epimeron (Art. with Epm) at the lateral margins.

The metapleuron (Figs. 25, 26, and 27) is composed of two distinct sclerites. The episternum (Eps–III) is sometimes divided into two regions, the lower division or katepisternum and the anterior division or anepisternum. The posterior division is attached to the metasternum on the inner margin and to the epimeron on the outer edge at the pleural suture (Pl. S.). Its anterior edge is partially fused with the parapterum, on the inner side of which is a large muscle disk (M. Disk) or pronator muscle disk (Snodgrass, 1909). The parapterum and muscle disk border and are closely entwined with the wing processes of the epimeron.

The epimeron (Epm–III) is elongated on its anterior margin to form the wing processes (W. Pro.). Posteriorly it articulates with the postscutellum on its lateral margin and a rectangular extension is bent so that it extends on the dorsal side. This can be seen in Fig. 25. Internally the pleural suture (Pl. S.) becomes the pleural ridge (Pl. Rdg.).

In more generalized insects the epimeron and episternum are arranged crosswise of the body. In the beetles they are apparently shifted so that they are practically parallel with the body walls. The anterior ends are bent so that they form the wing processes (Fig. 25) and the large muscle disk on the internal part suggests that much of the work is done by one large muscle.

The metasternum (St–III, Figs. 28 and 29) is the largest division of the thoracic sterna, occupying the entire area between the hind and middle coxae. It is connected to the episternum at the lateral margins and the posterior part is thickened and serves as an attachment for the abdominal membranes. Internally (Fig. 29) the most conspicuous structure is the large endosternum (End. St.) with the transverse furca (Furca–III) at the anterior end. The median posterior region of the endosternum bears two condyles which articulate with the inner margin of the hind coxae.

The spiracles (Sp–II and Sp–III) of the thorax are shown in Figs. 19 and 25. The mesothoracic spiracles (Sp–II) are located ventrally on the intersegmental membranes between the prothorax and mesothorax and are partially covered by the front coxae. The metathoracic spiracles (Sp–III) are located latero-ventrad near the anterior lateral margin of the mesothoracic epimeron (Epm–II). They are elongate and extend ventrally for over one-half the breadth of the epimeron.

The legs (Figs. 31, 32, and 33) are similar in many respects. The trochantin (Tcn) is found only on the prothoracic and mesothoracic

coxae (Figs. 31 and 32). The prothoracic trochantin possesses a cup-shaped structure on the distal end which articulates with the inflexed area of the pronotum. The front coxae are oblong with very little space between their inner extremities. All the coxae possess a groove into which the femurs fit when folded. The hind femur is longer and broader than the other two and all have a groove on the flexor surfaces into which the tibia fit when folded. The tibia are similar, the hind one being the longest, and all bear several rows of short spurs which project posteriorly. These have not been shown except in the large dorsal view of the whole insect (Fig. 1). All the tarsi are five-jointed and all except the last have brushes underneath and dorsally are covered with numerous hairs not shown in the figures. Two sharply curved claws are present on the last segment.

The metathoracic wings (Fig. 30) are of the Staphylinoidean type of venation, which is distinguished partly by the complete disappearance of the cross veins. The costa (C), subcosta (S), and radius (R) are very close together on the inner basal half of the wing. The median vein is very strong near the tip and has a break midway between the base and distal end, where the wing folds when under the elytron. The cubitals are faint. Two anal veins are present. Possibly the last should be called the third, and the other a fusion of the first and second. No attempt has been made to homologize the axillary sclerites.

The elytra which cover the two thoracic segments and abdomen are brownish with three indistinct costae and numerous cross elevations. They are about as broad conjointly as long and are not fused but open and functional. They articulate with the anterior lateral edge of the mesonotum (Fig. 21) and the wing processes of the episternum (Eps–II, Fig. 29). No attempt has been made to homologize the axillary sclerites which are reduced and very difficult to interpret.

THE ABDOMEN

The tergites (T) of the abdomen (Fig. 3), unlike those of many Coleoptera, are heavily sclerotized with the exception of the first, which is membranous with a distinct longitudinal median line. Eight tergites are visible when the elytra are removed. The second is heavily sclerotized with a wide membranous area separating it from the third. The others when in normal position have no membranous areas exposed, but each overlaps the tergite posterior to it and the fold can be stretched enough to permit freedom of movement of the abdominal segments. The eighth may be invaginated until only the tip is exposed. Two other dorsal sclerites are present and are shown in detail in Figs. 38 and 39 in relation to the genitalia. To homologize these correctly a detailed study of the post-embryonic development should be made similar to the work of Singh Pruthi on *Tenebrio molitor*, 1924. We have labeled these sclerites T–9? and T–10? only as a possible interpretation.

The pleurites are widely separated from the tergites with the exception of the seventh and eighth which are closely joined on the lateral surface.

The sternites (St, Fig. 4) are not separated from the pleurites. The first is membranous except for a small sclerotized area lying under each

hind coxa. All others are heavily sclerotized and covered with small hairs not shown in the figures. Heavy overlapping folds join the sternites in much the same way as the tergites are joined. Two other posterior sclerites are also present which have been designated St–9?.

The spiracles (Sp) of the abdomen (Fig. 3) are eight in number, the first being the largest. It is elongate and broader on its inner margin which is partially covered with an overlapping fold of membrane. The second, third, fourth, and fifth spiracles are located in the membranes near the inner dorsal margins of the pleurites. The sixth, seventh, and eighth are located on small sclerotized areas on the tergites and although very small are still functional.

THE MALE GENITALIA

The terminology of Sharp and Muir (1912) is followed in interpreting the male genitalia. These are probably more concerned with internal anatomy but since they are so heavily sclerotized they have been considered as falling in the scope of this study.

The male genitalia (Figs. 38, 39, 40, 41, 42, and 43) are composed of three main sclerotized divisions, namely, the lateral lobes (Lat. Lobes), the median lobe (Med. Lobe), and the basal piece (BP).

The median lobe, which is practically cylindrical and sclerotized on the ventral surface but membranous on the dorsal side, encloses the ejaculatory duct (Ej. Duct), which may be extruded from the median orifice (Med. Or.) located on the dorsal tip. The lateral lobes, situated on either side of the median lobe, are sclerotized on their outer lateral margins and membranous interiorly next to the median lobe. The elongate basal piece is a heavily sclerotized rim with internal membrane. The anterior portion viewed laterally (Fig. 43) is thicker than the posterior part. Ventral to the basal piece there is a y-shaped supporting structure, the spiculum (Spi, Figs. 38, 39, 40), which probably aids in the movement of the genitalia. It is cup-shaped at the anterior end and fits over the basal piece while the posterior ends are attached in the membranous area anterior to the sclerite labeled St–9?.

The ejaculatory duct (Ej. Duct) enters the median lobe ventral to the basal piece and ends at the median orifice (Med. Or.). The internal sac (Int. Sac) is very prominent and projects anteriorly over the edge of the basal piece. A thin membrane which is attached at the base of the lateral lobes forms the genital pocket (Singh Pruthi, 1924). The anus is dorsal to the genital opening and is shown in Fig. 38 only by dots as it lies under the dorsal plate marked T–10?.

THE FEMALE GENITALIA

The female genitalia are shown in Figs. 44–48. In view of the fact that our data is furnished by the sclerotized parts only, we have used the terms applied by Tanner (Genitalia of Female Coleoptera, 1927). In using these we do not argue that they are the correct interpretations of homologies. The homologies of genital parts of beetles will not be known until work of a different type has been done. Apparently three lines of study will eventually solve the problem of the homologies of these parts, namely, (1) studies such as that of Tanner on the com-

parative anatomy of the sclerotized parts of beetles, of Walker on Orthopteroid insects, and of Crampton on insects in general; (2) studies on post-embryology such as made by Muir and Singh Pruthi, and (3) studies of the musculature of parts as made by Snodgrass, Weber and Norma Ford. Thus we are not positive of the parts labeled paraprocts, proctiger, and valvifer, but use these parts only as labels. The anus is dorsal to the genital opening.

SECONDARY SEX CHARACTERS

In size there is no constant noticeable difference between male and female. However, the angle at the tip of the elytron of the female (Fig. 35) is much more acute than in the male (Fig. 34). The front tarsi of the male (Fig. 36) are dilated much more decidedly than those of the female (Fig. 37). No differences could be found in the antennae.

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EXPLANATION OF PLATES

PLATE I

Fig. 1. Dorsal view of *Silpha americana.*
Fig. 2. Ventral view of *Silpha americana.*
Fig. 3. Dorsal view of abdomen.
Fig. 4. Ventral view of abdomen.
Fig. 5. Dorsal view of head capsule.
Fig. 6. Ventral view of head capsule.
Fig. 7. Endoskeleton of head capsule.

PLATE II

Fig. 8. Internal view of labrum showing epipharynx.
Fig. 9. External view of labrum with clypeus removed, showing internal sclerotized rods.
Fig. 10. Dorsal view of left mandible.
Fig. 11. Ventral view of left mandible.
Fig. 12. Dorsal view of left maxillary.
Fig. 13. Ventral view of left maxillary.
Fig. 14. External view of labium.
Fig. 15. External view of labium, mentum and submentum removed, showing pharyngeal rods.
Fig. 16. Internal view of labium showing hypopharynx.
Fig. 17. External view of mentum, submentum, and gula.
Fig. 18. Antenna.

PLATE III

Fig. 19. External view of prothorax.
Fig. 20. Internal view of prothorax.
Fig. 21. External view of mesonotum with elytron attached.
Fig. 22. Internal view of mesonotum.
Fig. 23. External view of metanotum.
Fig. 24. Internal view of metanotum.
Fig. 25. Lateral view of thorax.
Fig. 26. External view of metapleuron.
Fig. 27. Internal view of metapleuron.

PLATE IV

Fig. 28. External view of mesosternum and metasternum with mesopleuron attached.
Fig. 29. Internal view of mesosternum and metasternum with mesopleuron attached.
Fig. 30. Metathoracic wing.
Fig. 31. Prothoracic leg.
Fig. 32. Mesothoracic leg.
Fig. 33. Metathoracic leg.
Fig. 34. Tip of male elytron.
Fig. 35. Tip of female elytron.
Fig. 36. Front tarsus of male.
Fig. 37. Front tarsus of female.

PLATE V

Fig. 38. Dorsal view of male genital segments with genitalia in place.
Fig. 39. Ventral view of male genital segments with genitalia in position.
Fig. 40. Lateral view of male genital segments.
Fig. 41. Dorsal view of male genitalia.
Fig. 42. Ventral view of male genitalia.
Fig. 43. Lateral view of male genitalia.
Fig. 44. Dorsal view of female genital segments.
Fig. 45. Ventral view of female genitalia.
Fig. 46. Dorsal view of coxite and stylus, (valvifer removed from right hand figure).
Fig. 47. Ventral view of coxite and stylus, (valvifer removed from left hand figure).
Fig. 48. Lateral view of female genital segments.

ABBREVIATIONS USED ON FIGURES

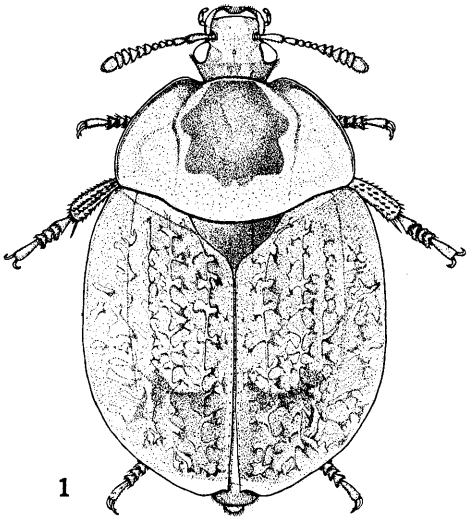
A, anal vein.
A. Ph., anterior phragma.
Ant. Arm, anterior arm of the tentorium.
Art. with Epm., articulation with the epimeron.
Ax. C., axillary cord.
BP, basal piece.
C, costa.
Cerv. Scl., cervical sclerites.
Clyp, clypeus.
Co, coxite.
Cu, cubitus.
Cx, coxa.
Dor. Arm, dorsal arm of the tentorium.
Ej. Duct, ejaculatory duct.
End. St., endosternum.
Epi, epipharynx.
Epm, epimeron.
Eps, episternum.
Gen. Op., genital opening.
Hyp, hypopharynx.
Int. Sac, internal sac.
Lat. Lobes, lateral lobes.
Lbr, labrum.
Lig, ligula.
M, median veins.
M. Disk, muscle disk.
Med. Lobe, median lobe.
Med. Or., median orifice.
Mtm, mentum.
Par, parapterum.
Pglo, paraglossa.
Phrgl. Rods, pharyngeal rods.
Pl, pleurite.
Pl. Rdg., pleural ridge.
Pl. S., pleural suture.
Plpfr, palpifer.
Plpgr, palpiger.
Pntm, pronotum.
Post. Arm, posterior arm of the tentorium.
Ppr, paraproct.
P. Ph., posterior phragma.
Praes, praescutum.
Proct, proctiger.
P. Sctl., postscutellum.
R, radius.
Sc, subcosta.
Scutel, scutellum.
Sp, spiracle.
Spi, spiculum.
St, sternite.
Sty, stylus.
Submtm, submentum.
T, tergite.
Tcn, trochantin.
Vf, valvifer.
Wing Pro., wing process of meso- and metapleuron.
Wing Pros., anterior and posterior notal wing processes.

NUMBERING

Roman numerals I, II, and III, refer to the prothorax, mesothorax, and metathorax respectively. Numerals 1–10 designate first to tenth abdominal segments.

Silpha americana
Norris D. Blackburn

PLATE I



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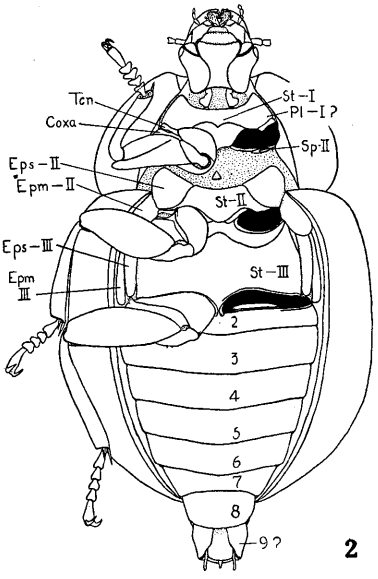

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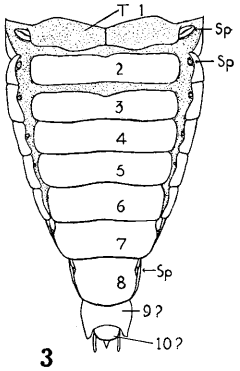

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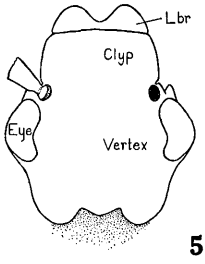

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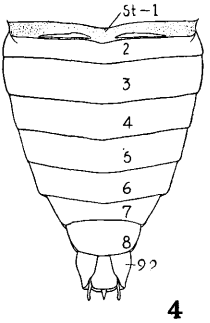

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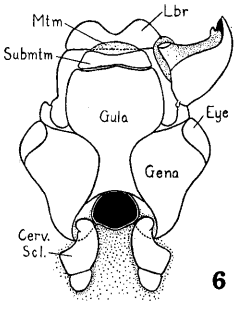

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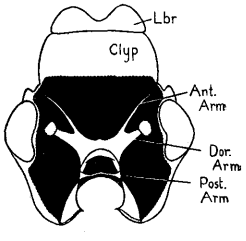

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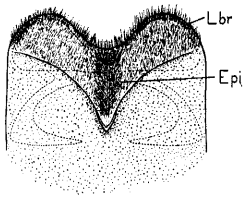

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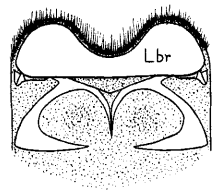

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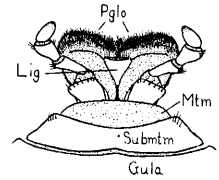

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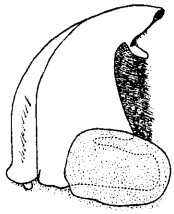

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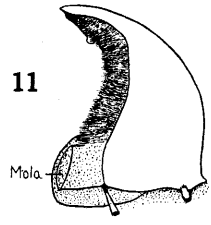

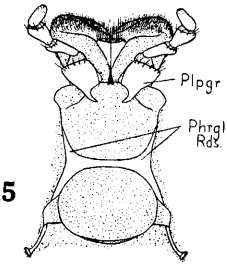

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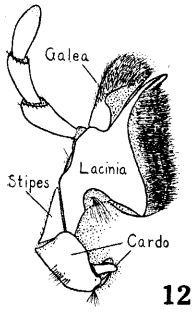

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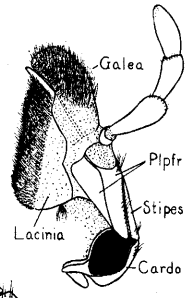

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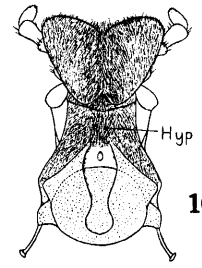

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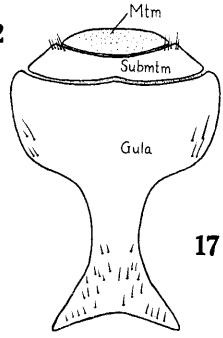

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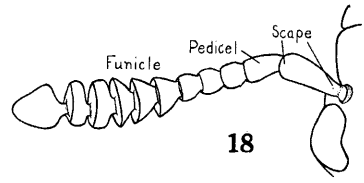

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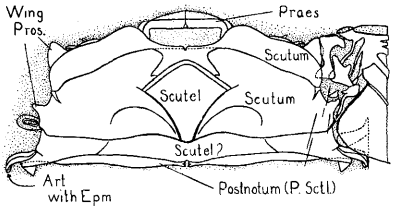

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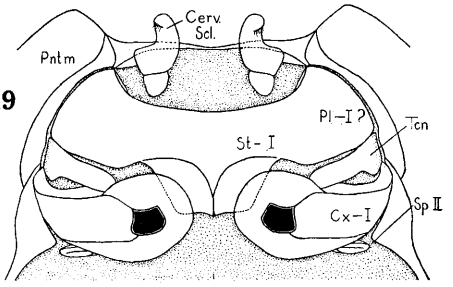

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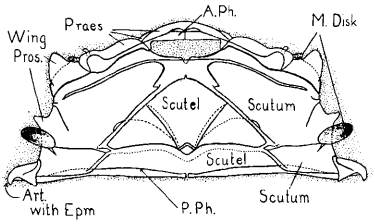

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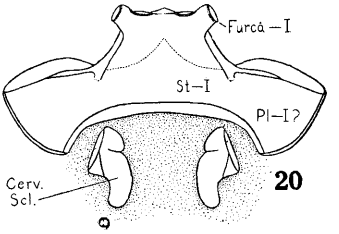

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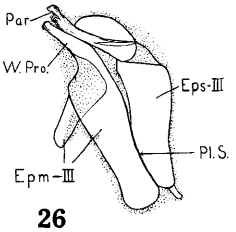

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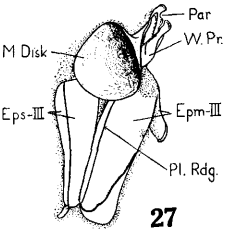

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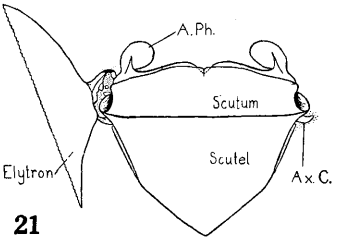

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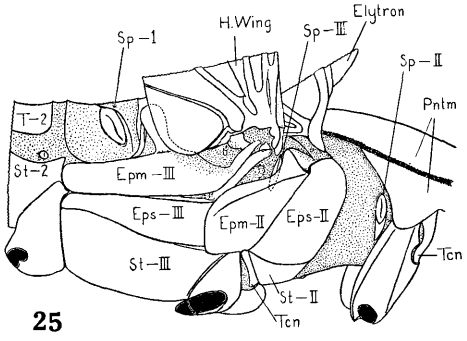

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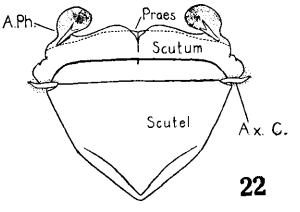

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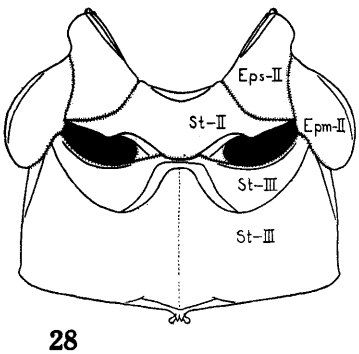

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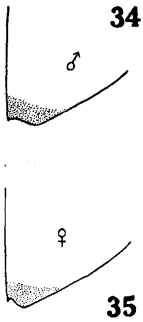

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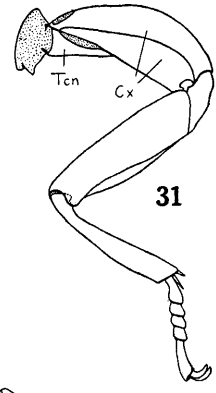

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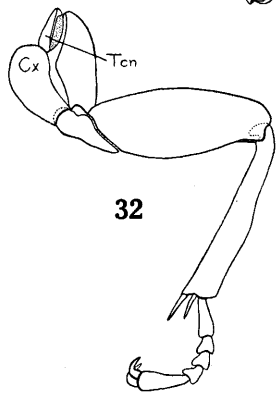

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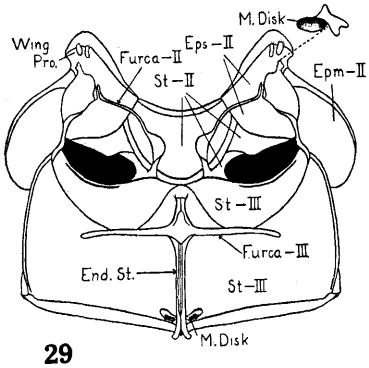

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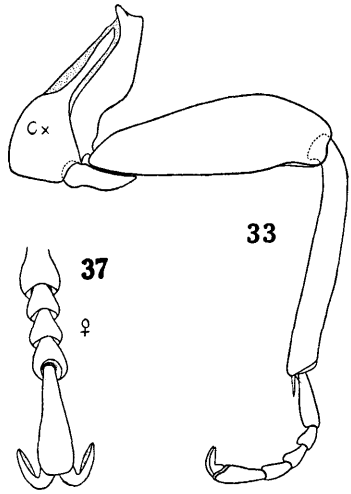

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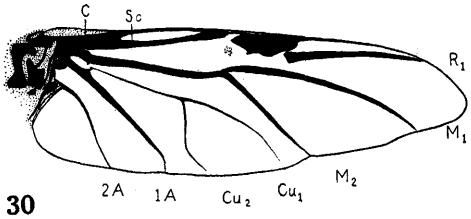

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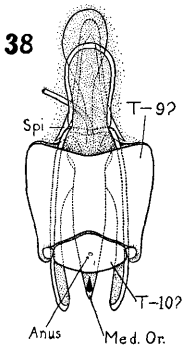
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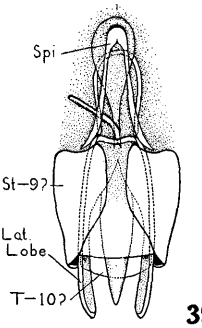
Spi
T-9?
T-10?
Anus
Med. Or.


Spi
St-9?
Lat. Lobe
T-10?
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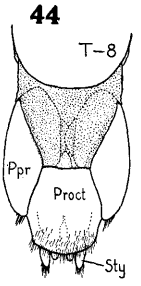
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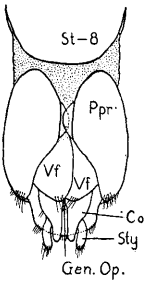
T-8
Ppr
Proct
Sty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Ppr
Vf
Vf
Co
Sty
Gen. Op.
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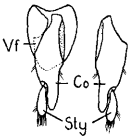
Vf
Co
Sty
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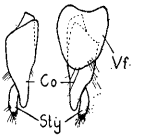
Vf
Co
Sty
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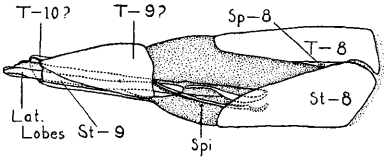
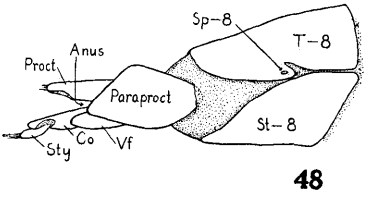
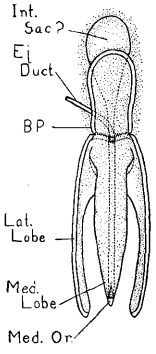
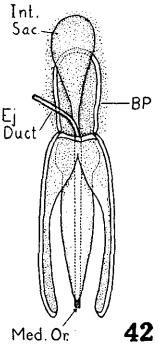

T-10?
T-9?
Sp-8
T-8
St-8
Lat. Lobes
St-9
Spi
40


Sp-8
T-8
Anus
Proct
Paraproct
St-8
Co
Vf
Sty
48


Int. Sac?
Ej Duct
BP
Lat. Lobe
Med. Lobe
Med. Or.
41


Int. Sac
BP
Ej Duct
Med. Or.
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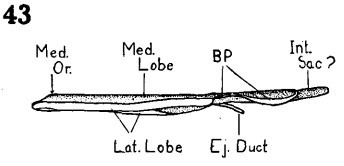
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Med. Or.
Med. Lobe
BP
Int. Sac?
Lat. Lobe
Ej. Duct