

A Mosquito Taxonomic Glossary

III. Adult Thorax*

Kenneth L. Knight
Department of Entomology
North Carolina State University
Raleigh, North Carolina 27607

Jean L. Laffoon
Department of Zoology and Entomology
Iowa State University
Ames, Iowa 50010**

For a full explanation of this project see Part I (Knight 1970). As before, terms recommended for standardized use are given fully capitalized. Synonyms or terms used in error are in lower case and underlined. Standardized abbreviations are also suggested. New in this section is an appendix presenting reasons for the recommendation of terms not presently in common use.

As before we wish to acknowledge the provision by Dr. H. C. Chapman of the adult mosquito specimens used for the drawings. The drawings were prepared by Mrs. Yvonne Lee.

Readers are reminded that this is a preliminary presentation and that when all of the parts are completed, they will be combined, thoroughly revised, and issued under a single cover. Because of this, all individuals interested in mosquito systematics are urged to comment fully on any portion of the included text when they feel this to be necessary.

Part II of this series dealt with terms for those internal head structures that withstand treatment with potassium hydroxide (Knight and Laffoon 1970).

ACROSTICHAL AREA (AA).— In Diptera, the median longitudinal area of the scutum (including prescutum) from the anterior promontory to the prescutellar bare space; bearing the acrostichal setae. Possibly definable as the scutal area on which dorsal longitudinal muscles are attached.

ACROSTICHAL SETA (AcS). — In adult mosquitoes, one of the median longitudinal row of setae occurring on the acrostichal area of the scutum; missing in some genera and/or species.

*Supported in part by the Southeast Asia Mosquito Project (SEAMP) through Research Contract No. DA-49-193-MD-2672 from the U. S. Army Medical Research and Development Command, Office of the Surgeon General, Washington, D. C.

**Journal Paper No. J-6674 of the Iowa Agriculture and Home Economics Experiment Station.

anepisternite. - See POSTSPIRACULAR AREA.

antealar. - See SUPRA-ALA.

antecoxal membrane. - See ANTEPROCOXAL MEMBRANE.

ANTEPROCOXAL MEMBRANE(AM). - In adult mosquitoes, the membrane anterior to the forecoxa, between it and the prosternum, sometimes with scales.

ANTEPRONOTAL SETA(ApS). - In adult Diptera, any seta occurring on the antepronotum. (Syn.: anterior pronotal seta.)

ANTEPRONOTUM (Ap). - In adult mosquitoes and certain other Holometabola, the anterior division of the pronotum; in mosquitoes visible only as lateral setose lobes just above the propleuron (Syn.: anterior pronotal lobe, anterior pronotum, pronotal lobe, prothoracic lobe.)

ANTERIOR PROMONTORY (AnP).- In adult mosquitoes, the broad median prescutal portion of the scutum projecting anteriorly over the neck.

anterior pronotal lobe. - See ANTEPRONOTUM.

anterior pronotal seta. - See ANTEPRONOTAL SETA.

anterior pronotum. - See ANTEPRONOTUM.

anterior spiracle. - See MESOTHORACIC SPIRACLE.

anteromarginal seta. - See SCUTAL FOSSAL SETA.

bare space. - See PRESCUTELLAR BARE SPACE.

COXAL CAVITY. - The body opening left when a coxa is removed; PROCOXAL CAVITY (PC), MESOCOXAL CAVITY (MC), and METACOXAL CAVITY (McC).

DORSOCENTRAL AREA (DA). - In adult Diptera, a narrow longitudinal scutal (including prescutal) setigerous stripe just lateral to the acrostichal area and prescutellar bare space. Possibly definable as the scutal area just lateral to the attachments of the dorsal longitudinal muscles and just medial to the attachments of the dorso-ventral muscles.

DORSOCENTRAL SETA (DS). - In adult Diptera, any seta on the dorsocentral area.

FIRST PHRAGMA (FP) - In adult mosquitoes a transverse apodeme just under the large overhanging anterior promontory and internally connecting the antepronota; from each antepronotum extending posteriorly as a thin rod-shaped apodeme and attaching to the posterior border of the post-pronotum. (Syn.: pronotal apodeme, prephragma.)

fossa. - See SCUTAL FOSSA.

fossal seta. - See SCUTAL FOSSAL SETA.

FURCA. - The forked endosternal process of higher insects, formed of the sternal apophyses supported on a median inflection of the sternum of each thoracic segment.

humeral area. - See SCUTAL FOSSA.

hypopleura. - See MESOMERON

hypostigium. - See HYPOSTIGMA

HYPOSTIGMA (Hy). - In adult mosquitoes, a descriptive term applied to the membranous area immediately below the mesothoracic spiracle; the upper portion of the subspiracular area. (Syn.: hypostigium.)

lateral anterior mesonotal seta. - See SCUTAL FOSSAL SETA.

lateral prescutal. - See SCUTAL FOSSA.

LATERAL SCUTELLAR SETA (LSS). - In mosquitoes, any seta of the group on the lateral scutellar lobes.

LOWER MESEPIMERAL SETA (MeSL). - See MESEPIMERAL SETA.

LOWER MESEPISTERNAL SETA (MStL). - See MESEPISTERNAL SETA.

MEDIAN ANTERIOR PROMONTORY SETA (MAPS). - Any seta of a small cluster anteriorly in the middle line of the anterior promontory.

MEDIAN SCUTELLAR SETA (MSS). - In mosquitoes, any seta of the group on the middle scutellar lobe.

MEDIOTERGITE (Mdt). - The median region of the mesopostnotum.

MERON. - The lateral postarticular area of the base of the coxa, and always proximal to the basicostal suture. In mosquitoes appearing more associated with the pleuron than with the coxa, present on the meso- and metathoracic segments (See MESOMERON and METAMERON)

MESEPIMERAL SETA (MeS). - Any seta on the mesepimeron. In mosquitoes usually in a group inserted dorsally; when, as in a few species, a ventral group is also present the latter are termed LOWER MESEPIMERAL SETAE (MeSL) and the former the UPPER MESEPIMERAL SETAE (MeSU).

MESEPIMERON (Mp). - The area of the mesopleuron posterior to the mesopleural suture. (Syn.: pteropleurite.)

MESEPISTERNAL BRIDGE (MeB). - In mosquitoes a connection between the ventral extremities of the mesepisterna.

MESEPISTERNAL SETA (MSt). - Any seta on the mesepisternum. In mosquitoes restricted to the prealar knob (PREALAR SETA) and along the posterior margin of the mesepisternum proper (Syn.: sternopleural seta), these latter usually occurring in two groups, an upper group (UPPER MESEPISTERNAL SETAE, MStU) and a lower group (LOWER MESEPISTERNAL SETAE, MStL).

MESEPISTERNUM (Men). - The area of the mesopleuron anterior to the mesopleural suture. (Syn.: sternopleuron.) In mosquitoes, the much-narrowed upper portion or PREALA bears a strongly convex dorsal surface, the PREALAR KNOB. See preepisternum.

meseusternum. - See MESOMERON.

MESOCOXAL CAVITY (MC). - See COXAL CAVITY.

MESOMERON (Msm). - In mosquitoes, represented by a small triangular sclerite slightly above and immediately behind the mesocoxa and just below the mesepimeron. (Syn.: meseusternum, hypopleura.)

MESONOTUM (Mn). - The tergum of the mesothorax; sometimes misapplied to the scutum only. In Diptera, made up of scutum (with prescutum), scutellum, and postnotum.

mesophragma. - See POSTNOTUM.

MESOPLEURAL SUTURE (ms). - The external groove of the mesopleural ridge, extending from the base of the wing to the mesocoxa and separating the mesepisternum from the mesepimeron.

MESOPLEURON. - The sclerotization of the pleural area of the mesothorax.

MESOPOSTNOTUM (Mspn). - See POSTNOTUM.

MESOSTERNUM (Mes). - The sclerotization of the sternum of the mesothorax.

MESOTHORACIC SPIRACLE (MS). - The spiracle of the mesothorax. In adult mosquitoes just below lateral scutal margin and just behind the postpronotum. (Syn.: anterior spiracle.)

MESOTHORAX (Me). - The second thoracic segment. In Diptera much the largest part of the thorax, especially dorsally.

MESOTROCHANTIN (Mst). - In mosquitoes a triangular sclerite lying between the mesepisternum and the meron and just above the mesocoxa. (Syn.: pleurotrochantin.)

METACOXAL CAVITY (McC). - See COXAL CAVITY.

METAFURCA (Mf). - See FURCA.

METAMERON (Mem). - In mosquitoes, represented by a vertically narrow sclerite just dorsal to the metacoxa. (Syn.: meteusternum.) Crampton (1942, 64) stated that the metacoxa is not divided into a eucoxa and a meron in the Diptera, yet he left this sclerite unmentioned.

METANOTUM (Mtn). - The tergum of the metathorax. In Diptera, reduced to a narrow, frequently hidden and weakly sclerotized transverse band.

METAPLEURAL SUTURE (mts). - The external groove of the metapleural ridge, separating the metepisternum from the metepimeron. In Diptera, extending from near base of halter to near base of the metacoxa.

METAPLEURON. - The sclerotization of the pleural area of the metathorax.

METAPOSTNOTUM (Mtpn). - See POSTNOTUM.

METASTERNUM (Mas). - The sclerotization of the sternum of the metathorax.

METATHORACIC SPIRACLE (MtS). - The spiracle of the metathorax. In adult mosquitoes just posterior to the upper portion of the mesepimeral area. (Syn.: posterior spiracle.)

METATHORAX (Mt). - The third thoracic segment. In Diptera comparatively small, especially dorsally.

METEPIMERON (Mep). - The area of the metapleuron posterior to the metapleural suture.

METEPISTERNUM (Met). - The area of the metapleuron anterior to the metapleural suture. In mosquitoes, the area immediately behind and below the metathoracic spiracle.

meteusternum. - See METEPIMERON.

paranotal fold. - See PARATERGITE.

parascutellum. - See POSTALARCALLUS.

PARATERGITE (Pa). - In Diptera, a narrow lateral portion of the mesonotum just before the wing root, divided from the main portion of the scutum by a strong suture.

PLEURAL APOPHYSIS (PlA). - The internal arm of the pleural ridge.

PLEURON. - The sclerotization of the pleural or lateral area of a body segment; in Diptera best developed on the mesothorax.

PLEUROTERGITE (Pt). - The lateral (paired) region of the mesopostnotum; forms the postalar arch or bridge connecting the median region of the mesopostnotum with the mesepimeral region.

pleurotrochantin. - See MESOTROCHANTIN.

POSTALAR CALLUS (PoC). - In Diptera, the calluslike posterolateral area of the scutum between the posterior notal wing process and the lateral angle of the scutellum; often setose. (Syn.: parascutellum.) Greatly reduced in mosquitoes.

postcoxal membrane. - See POSTPROCOXAL MEMBRANE.

POSTERIOR MEDIAL SCUTAL SETA (PMSS). - One of a V-shaped line of seta on the scutal midline slightly anterior to the prescutellar bare space.

posterior pronotal area. - See POSTPRONOTUM.

posterior pronotal lobe. - See POSTPRONOTUM.

posterior pronotal seta. - See POSTPRONOTAL SETA.

posterior pronotum. - See POSTPRONOTUM.

posterior spiracle. - See METATHORACIC SPIRACLE.

posterior spiracular seta. - See POSTSPIRACULAR SETA.

POSTNOTUM. - The posterior phragma-bearing division of a pterothoracic segment. In mosquitoes, well developed in the mesonotum (MESOPOSTNOTUM, Mspn) but narrow in the metanotum (METAPOSTNOTUM, Mtpn). Crampton (1942, 49) further divides the mesopostnotum into a MEDIOTERGITE (Mdt) and a paired PLEUROTERGITE (Pt). (Syn.: postscutellum, mesophragma.)

postphragma. - See SECOND PHRAGMA.

POSTPROCOXAL MEMBRANE (PM). In adult mosquitoes, the membrane between the forecoxa and the mesepisternum; sometimes bearing scales. (Syn.: postcoxal membrane.)

POSTPRONOTAL SETA (PpS). - Any seta on the postpronotum. (Syn.: posterior pronotal seta.)

POSTPRONOTUM (Ppn). - In adult mosquitoes and certain other Holometabola, the posterior division of the pronotum, generally lying between the anteppronotum and the mesothoracic spiracle. (Syn.: posterior pronotal lobe, posterior pronotum, proepimeron, posterior pronotal area.)

postscutellum. - See POSTNOTUM

POSTSPIRACULAR AREA (PA). - In adult mosquitoes the sclerotized area lying just posterior to the mesothoracic spiracle; this is a part of the mesopleuron. (Syn.: anepisternite.)

POSTSPIRACULAR SETA (PS). - In adult mosquitoes, any seta occurring on the postspiracular area. (Syn.: posterior spiracular seta.)

praescutum. - See prescutum.

PREALA (Pra). - See MESEPISTERNUM. (Syn.: prealar area.)

prealar area. - See PREALA.

PREALAR KNOB (PK). - See MESEPISTERNUM.

PREALAR SETA (PaS). - See MESEPISTERNAL SETA.

preepisternum. - Applied by Snodgrass (1959, 64) to the combined postspiracular and subspiracular pleural areas of the adult mosquito; considered to be a portion of the mesepisternum.

prephragma. - See FIRST PHRAGMA.

PRESCUTAL SUTURE. - See SCUTAL ANGLE.

prescutellar area. - See PRESCUTELLAR BARE SPACE.

PRESCUTELLAR BARE SPACE (PBS). - In adult mosquitoes, the slightly depressed bare medial area of the scutum between the acrostichal area and the scutellum. (Syn.: prescutellar area.)

prescutum. - See SCUTUM. (Syn.: praescutum.)

PRESPIRACULAR AREA (PsA). - In adult mosquitoes, the small pleural area just anterior to the mesothoracic spiracle, set off from the postpronotum by a strong ridge; sometimes setose. (Syn.: spiracular area.)

PRESPIRACULAR SETA (PsS). - In adult mosquitoes, any seta on the prespiracular area. (Syn.: spiracular seta.)

probasisternum. - See PROSTERNUM.

PROCOXAL CAVITY (PC). - See COXAL CAVITY

proepimeron. - See POSTPRONOTUM.

proepisternum. - See PROPLEURON.

pronotal apodeme. - See FIRST PHRAGMA.

pronotal lobe. - See ANTEPRONOTUM.

PRONOTUM. - The tergum of the prothorax. In Diptera generally narrowed or seemingly absent medially, but well developed laterally; in mosquitoes represented laterally by the antepronota and postpronota.

PROPLEURAL SETA (PlS). - Any seta on the propleuron.

PROPLEURON (Pp). - The sclerotization of the pleural or lateral area of the prothorax; in adult mosquitoes comparatively narrow, setose, not divided into episternum and epimeron. (Syn.: proepisternum, in part.)

PROSTERNAL SETA (PrS). - In mosquitoes, any seta on the prosternum.

PROSTERNUM (Ps). - The sclerotization of the venter of the prothorax; in adult mosquitoes, the region lying anteriorly between the fore coxae, connecting dorsolaterally with the propleuron, possessing a strong median suture, sometimes setose.

prothoracic lobe. See ANTEPRONOTUM.

PROTHORAX. - The first thoracic segment. In Diptera comparatively small, especially dorsally.

pseudosuture. - See SCUTAL ANGLE.

pteropleurite. - See MESEPIMERON.

SCUTAL ANGLE (ScA). - In adult mosquitoes, a somewhat pointed tubercle on the lateral scutal margin near the prothoracic spiracle; usually a ridge (pseudosuture) extends from it posteromesad onto the scutum, this ridge is presumably the remnant of the prescutal suture.

SCUTAL FOSSA (SF). - In adult mosquitoes, the somewhat-depressed anterolateral scutal (prescutal) area, extending caudad to the level of the scutal angle and mesad to the dorsocentral area; sometimes setose. (Syn.: fossa; humeral area, at least in part.) The term "lateral prescutal" has been applied in mosquitoes to the lateral area along the scutal margin anterior to the scutal angle.

SCUTAL FOSSAL SETA (SFS). - In adult mosquitoes, any seta occurring on the scutal fossa. (Syn.: fossal seta, anteromarginal seta, lateral anterior mesonotal seta.)

SCUTAL SCALE PATTERN. - Numerous groups of species in superspecific taxa possess linear scutal scale patterns. Where present, these linear patterns appear to be based on a common pattern. The nomenclature devised for the basic elements of these patterns by Berlin (1969,5) is utilized here. Unless otherwise specified, these lines are longitudinal.

acrostichal line...median line of scutum.

lateral prescutellar line (paired)...lateral to prescutellar bare space.

median prescutellar line...median line of prescutellar bare space.

inner dorsocentral line (paired)...just mesad of dorsocentral setae.

outer dorsocentral line (paired)....just laterad of dorsocentral setae.

lateral marginal line (paired)....bordering scutum to a varied degree from anterior promontory to wing root; may be broken into one or more prescutal or supra-alar segments.

posterior fossal line (paired)....oblique line on scutal angle.

supraalar line (paired)....marginal line above wing root.

SCUTELLUM (Stm). - The posterior sclerotized area of a notum, separated from the scutum by the scutoscutellar suture. In Diptera differentiated only in the mesothorax, hence the scutellum in this order conventionally means the mesoscutellum. Characteristically transverse; in mosquitoes its bulk forming a prominent transverse welt, latter in dorsal view rounded (Anophelinae) or trilobed (Culicinae).

SCUTUM (Scu). - The principal dorsal area of the adult thorax, specifically belonging to the mesonotum; this term is used here for the combined prescutum and scutum, these parts in the mosquito not being divided by any recognizable suture; bounded anterolaterally by the anterior pronotum, laterally by the paratergite and the wing root, and posteriorly by the scutellum; sometimes incorrectly referred to in mosquito literature as the mesonotum.

SECOND PHRAGMA (SeP). - The platelike apodemalous lobe of the mesopostnotum. (Syn.: postphragma.)

SPIRACLE. - A primary tracheal orifice, or the secondary atrial orifice and associated structures. See MESOTHORACIC SPIRACLE and METATHORACIC SPIRACLE.

spiracular area. - See PRESPIRACULAR AREA.

spiracular seta. - See PRESPIRACULAR SETA.

STERNAL APOPHYSIS (StA). - The lateral apodemal arms of the sternum; in Diptera united on a median base, the whole structure forming the furca.

sternopleural seta. - See MESEPISTERNAL SETA.

sternopleuron. - See MESEPISTERNUM.

STERNUM. - The sclerotization of the sternal or ventral area of a body segment.

subalar seta. - See UPPER MESEPIMERAL SETA.

SUBALARE (Sal). - The epimeral epipleurite giving insertion to the posterior pleural muscle of the wing.

SUBSPIRACULAR AREA (SA). - In mosquitoes a smooth area of pleuron lying below the mesothoracic spiracle and between the postpronotum and the postspiracular area, usually continuous with or connected with the postspiracular area; scales and rarely bristles or hairs may be on this area; the portion immediately below the spiracle is the hypostigma.

SUPRA-ALA (Sa). - In adult mosquitoes, the scutal area just above and in front of the wing root; bearing the supra-alar setae. (Syn.: antealar, in part.)

SUPRA-ALAR SETA (SaS). - In adult mosquitoes, one of a cluster of setae on the supra-alar area of the scutum.

THORAX (T). - The second or intermediate region of the insect body, bearing the true legs and wings, made up of the pro-, meso-, and meta-thoracic segments in that order.

UPPER MESEPIMERAL SETA (MeSU). - See MESEPIMERAL SETA. (Syn.: subalar seta.)

UPPER MESEPISTERNAL SETA (MStU). - See MESEPISTERNAL SETA.

LITERATURE CITED

Belkin, J. N. 1962. The mosquitoes of the South Pacific (Diptera, Culicidae). Univ. Calif. Press. Vol. 1, 608 p.

Berlin, O. G. W. 1969. Mosquito Studies (Diptera, Culicidae). XII. A revision of the Neotropical subgenus Howardina of Aedes. Contr. Amer. Entomol. Institute 4(2): 1-190.

Crampton, G. C. 1942. The external morphology of the Diptera. In Guide to the insects of Connecticut. Part VI. Conn. State Geo. and Nat. Hist. Survey Bull. 64:10-165.

Kim, K. C. and E. F. Cook. 1966. A comparative external morphology of adult Sphaeroceridae (Diptera). Miscel. Publ. Entomol. Soc. America 5(2): 77-100.

Knight, K. L. 1970. A mosquito taxonomic glossary. I. Adult head (external). Mosq. Syst. Newsletter 2(1): 23-33.

Knight, K. L. and J. L. Laffoon. 1970. A mosquito taxonomic glossary. II. Adult head (internal). Mosq. Syst. Newsletter 2(2): 69-81.

Peus, F. 1933. Zur Kenntnis der Aedes-Arten des deutschen Faunengebietes. (Dipt., Culicid.) Die Weibchen der Aedes communis-Gruppe. Knowia 12:145-159.

Séguy, E. 1967. Dictionnaire des termes techniques d'entomologie élémentaire. Encyclopédie Entomol. Ser. A: Travaux généraux, 41. 465 p.

Snodgrass, R. E. 1959. The anatomical life of the mosquito. Smithsonian Misc. Coll. 139(8), 87 p.

Speight, M. C. D. 1969. The prothoracic morphology of Acalypterates (Diptera) and its use in systematics. Royal Entomol. Soc. London, Trans. 121 (9): 325-421.

ABBREVIATIONS

AA -acrostichal area	Mst -mesotrochantin
Ab-I-first abdominal segment	MStL-lower mesepisternal seta
AcS -acrostichal seta	MStU-upper mesepisternal seta
AM -anteprocoxal membrane	Mtn -metanotum
AnP -anterior promontory	MtS -metathoracic spiracle
Ap -antepronotum	mts -metapleural suture
ApS -antepronotal seta	N -neck
C -coxa	Pa -paratergite
CS -cervical sclerite	PA -postspiracular area
DA -dorsocentral area	PaS -prealar seta
DS -dorsocentral seta	PBS -prescutellar bare space
Fe -femur	PC -procoxal cavity
FP -first phragma	PK -prealar knob
H -head	PlS -propleural seta
Hl -halter	PM -postprocoxal membrane
Hy -hypostigma	PMSS-posterior medial scutal seta
LSS -lateral scutellar seta	PoC -postalar callus
MAPS-median anterior promontory seta	Pp -propleuron
Mas -metasternum	Ppn -postpronotum
MC -mesocoxal cavity	PpS -postpronotal seta
McC -metacoxal cavity	PS -postspiracular seta
Mdt -mediotergite	Ps -prosternum
MeB -mesepisternal bridge	PsA -prespiracular area
Mem -metameron	Pt -pleurotergite
Men -mesepisternum	SA -subspiracular area
Mep -metepimeron	Sa -supra-ala
Mes -mesosternum	Sal -subalare
MeSU-upper mesepimeral seta	SaS -supra-alar seta
Met -metepisternum	ScA -scutal angle
Mp -mesepimeron	Scu - scutum
Mf -metafurca	SF -scutal fossa
MS -mesothoracic spiracle	SFS -scutal fossal seta
ms -mesopleural suture	StA -sternal apophysis
Msm -mesomeron	Stm -scutellum
Mspn-mesopostnotum	Tr -trochanter
MSS -median scutellar seta	W -wing

EXPLANATION OF FIGURES

Illustrations of the thorax of Aedes (Ochlerotatus) grossbecki Dyar and Knab. All figures are of the male.

Fig. 20 Anterior aspect of thorax.

Fig. 21 Dorsal aspect of thorax.

Fig. 22 Lateral aspect of thorax.

Fig. 23 Posterior aspect of thorax.

Fig. 24 Ventral aspect of thorax.

APPENDIX

As pointed out earlier this section is appended for the purpose of presenting reasons for the use of terms not presently in common acceptance.

ANTEPROCOXAL MEMBRANE. - Antecoxal membrane of Belkin (1962, 548) has been modified to show precisely which coxa is involved.

ANTEPRONOTUM and ANTEPRONOTAL SETA. - Used as a replacement for anterior pronotum and anterior pronotal seta, to shorten these terms and because these usages seem to be gaining acceptance (See Kim and Cook 1966, Seguy 1967, and Speight 1969).

HYPOSTIGMA. - Used instead of hypostigium as being more correctly derived ("hypo" - below; "stigma"-spiracle) and because of earlier usage (Peus 1933).

MESEPISTERNUM and MESEPISTERNAL SETA. - Used in place of sternopleuron and sternopleural setae as a step in the direction of utilizing general anatomical terminology rather than terms limited to use in restricted taxonomic situations only. In this case, there seems to be no argument that the sternopleuron of mosquitoes is indeed mesepisternum.

POSTPROCOXAL MEMBRANE. - Postcoxal membrane of Belkin (1962, 549) has been modified to show precisely which coxa is involved.

POSTPRONOTUM and POSTPRONOTAL SETA. - Used as a replacement for posterior pronotum and posterior pronotal seta for the same reasons given under antepronotum.

PRESPIRACULAR AREA. - Used as a replacement for "spiracular area" as a more precise designation and to be in line with "postspiracular" and "subspiracular."

Fig. 20

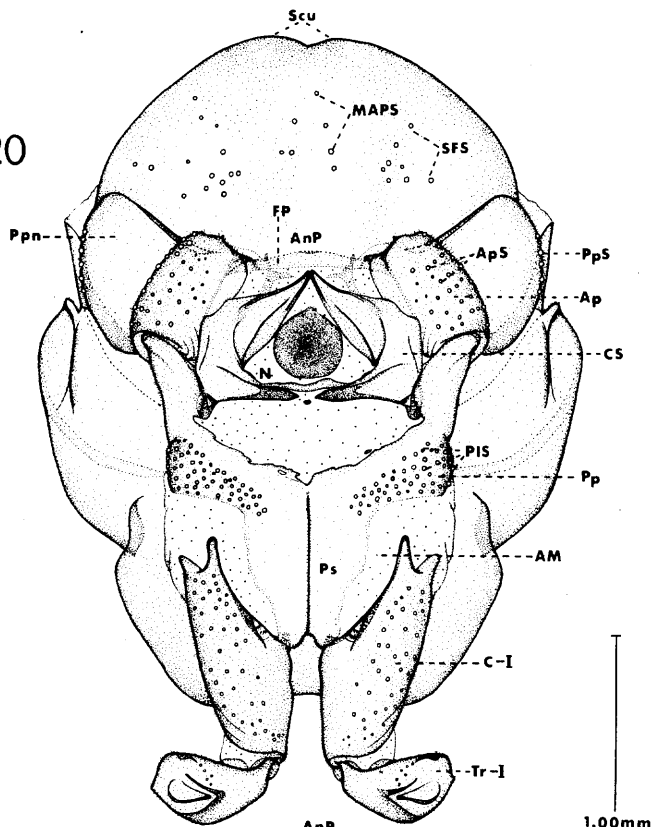


Fig. 21

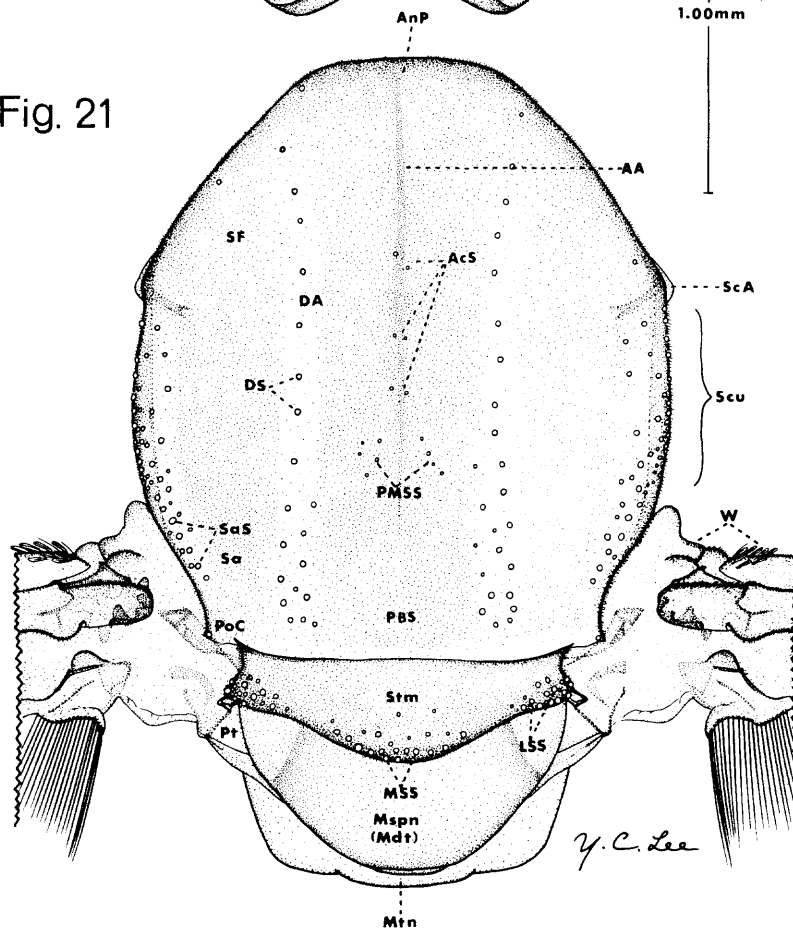


Fig. 22

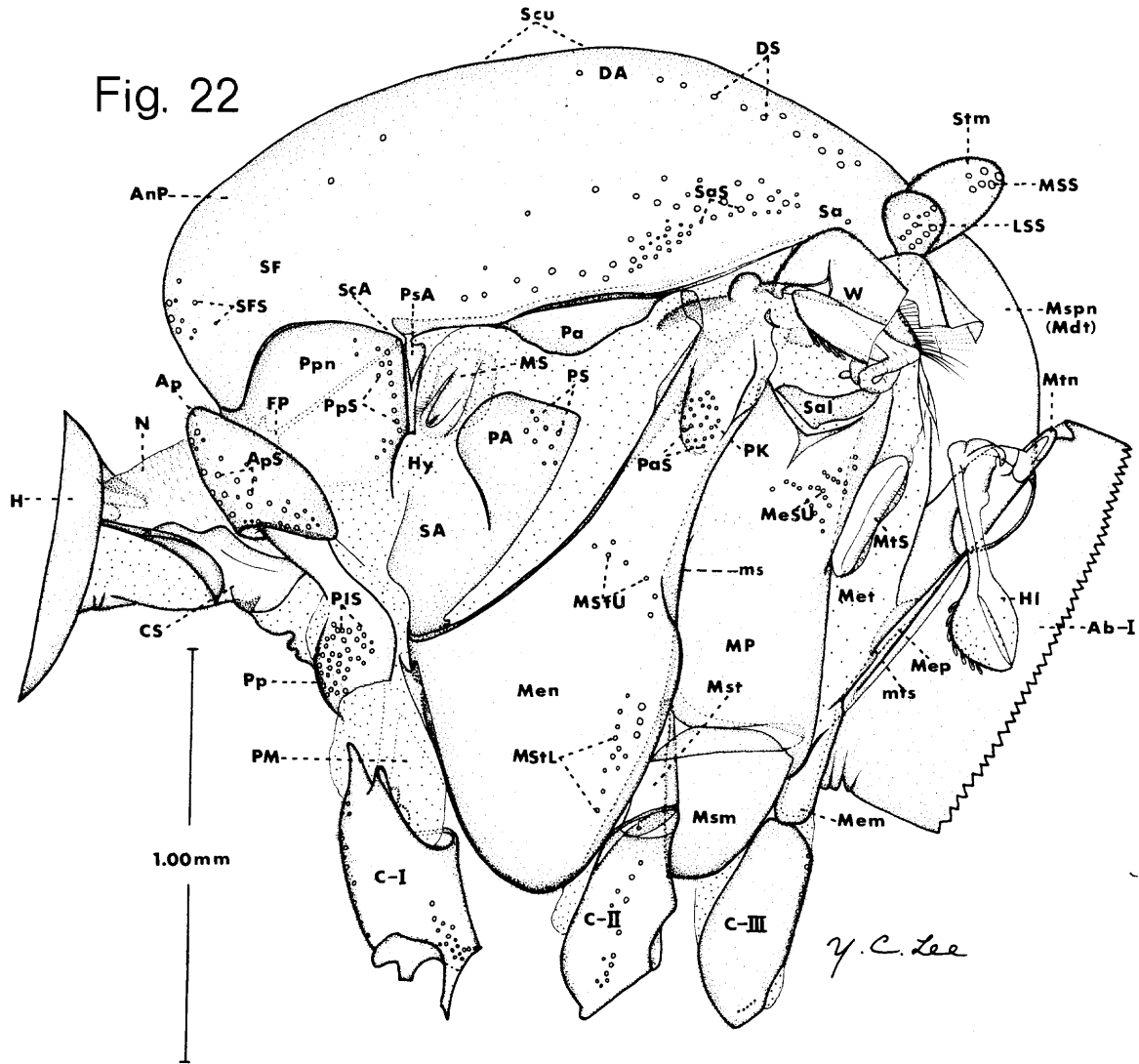


Fig. 23

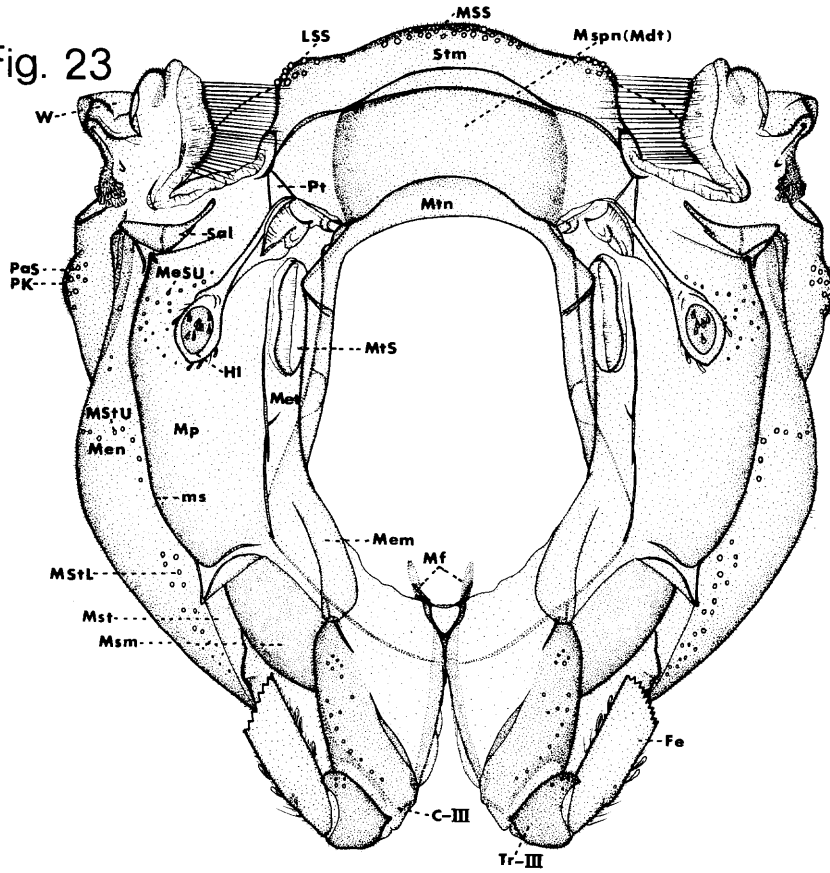


Fig. 24

