

FIG. 314.—Structure of the ovipositor of pterygote insects (A–D, diagrammatic). A, showing segmental relations of the parts of the ovipositor. B, ventral view of genital segments and ovipositor. C, D, lateral view of genital segments and parts of ovipositor dissociated. E, nymph of *Blatta orientalis*, ventral view of genital segments with lobes of ovipositor. aiv, anterior intervalvula; Apr, aperture of accessory glands; Gpr, gonopore; Odc, oviductus communis; piv, posterior intervalvula; Spr, spermathecal aperture; Sty, stylus; 1VI, 2VI, 3VI, first, second, and third valvulae; 1Vlf, 2Vlf, first and second valvifers.

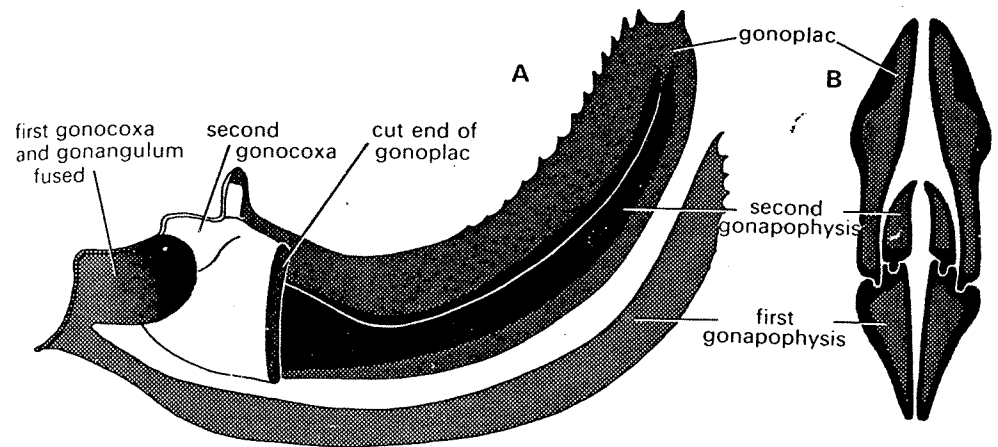


Fig. 207. The ovipositor of a tettigoniid. A. Lateral view with one gonoplac removed. B. Transverse section (from Snodgrass, 1935).

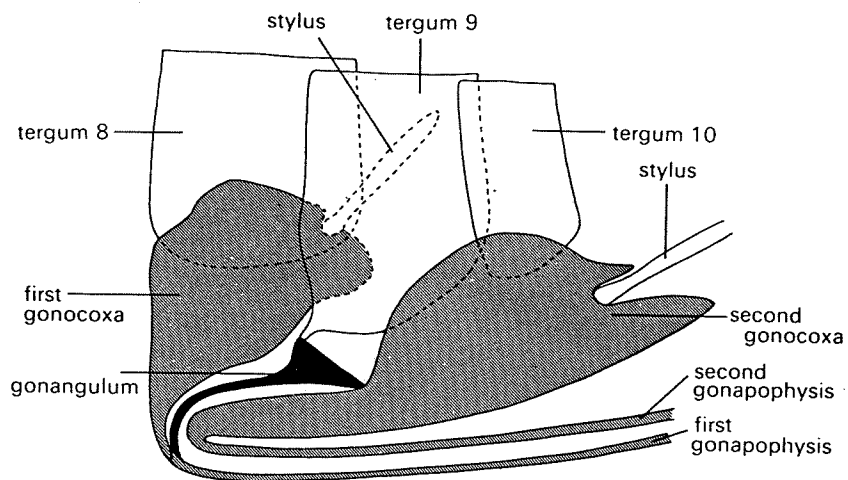


Fig. 206. Inner view of the genital segments of *Lepisma*. The forms and positions of some basal sclerites of the ovipositor have been slightly modified in order to show their interrelationships more clearly. Styli occur on other segments and are not an essential part of the ovipositor (after Scudder, 1961).

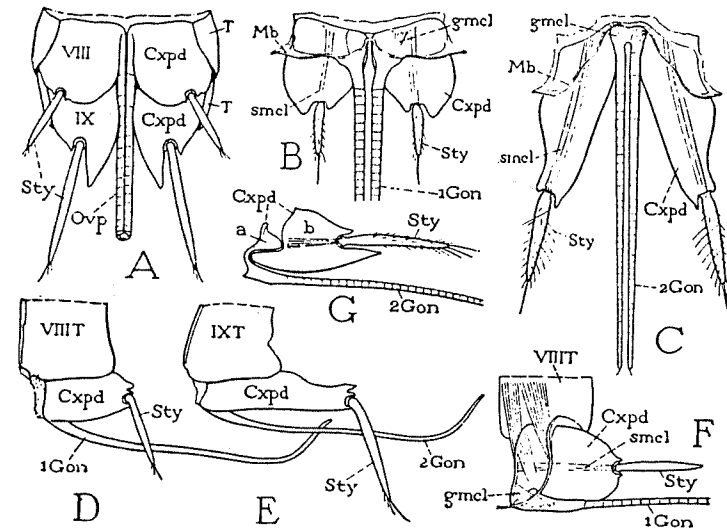


FIG. 313.—The ovipositor of Thysanura. A, *Thermobia*, eighth and ninth abdominal segments, ventral view. B, *Nesonmachilis maoricus*, dorsal view of first gonopods. C, same, second gonopods. D, E, *Machilis*, lateral view of right gonopods and supporting tergal plates. F, *Thermobia*, muscles of first gonopod, diagrammatic. G, same, second gonopod, showing subdivision of coxopodite.

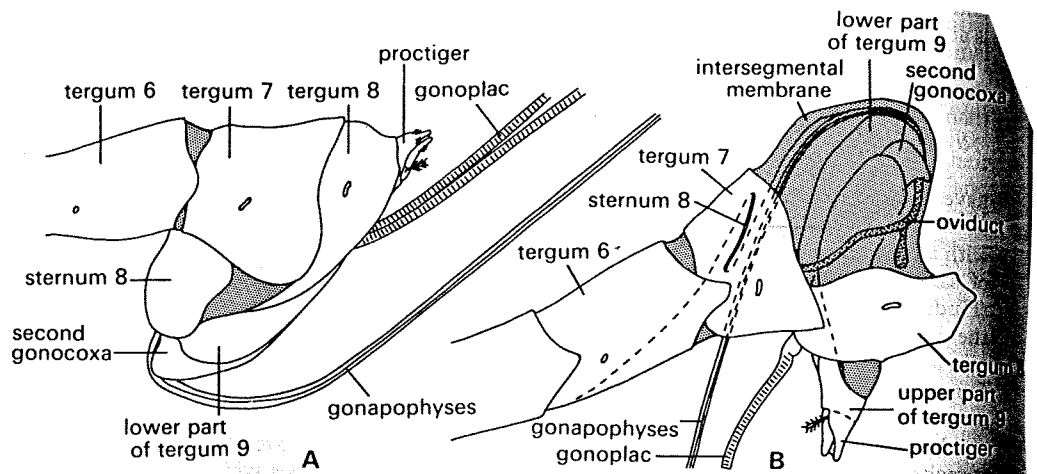


Fig. 213. Basal part of the ovipositor of *Megarhyssa* (Hymenoptera). A. At rest. B. Positions of abdominal sclerites and ovipositor during oviposition. Membranes stippled (after Snodgrass, 1935).

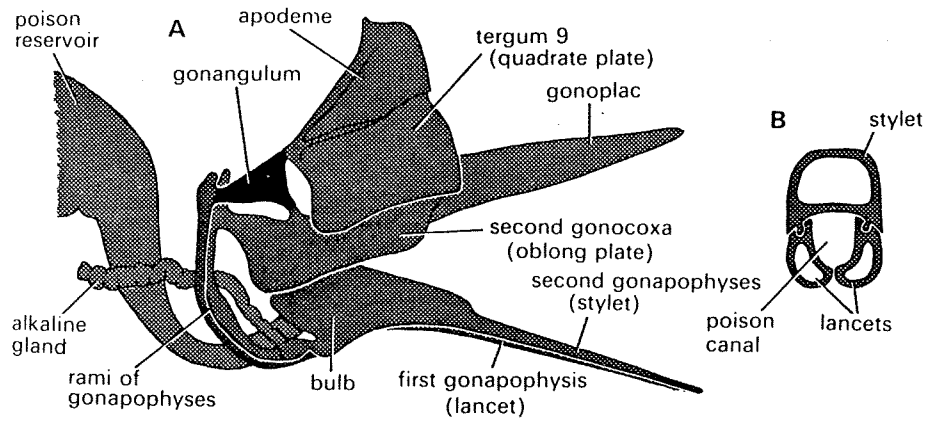


Fig. 208. Structure of the sting of a worker *Apis*. A. Lateral view. B. Transverse section through the shaft (after Snodgrass, 1956).

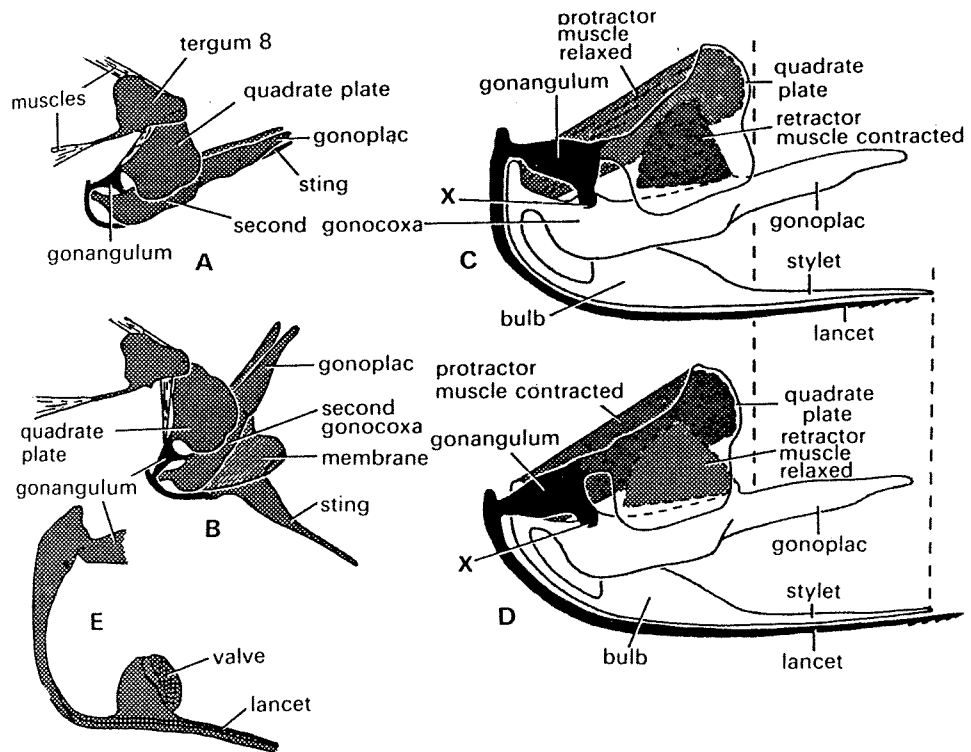


Fig. 214. The manner of functioning of the sting of *Apis*. A. Sting in retracted position. B. Sting protracted. C and D. Movements of lancet resulting from backwards and forwards movement of quadrate plate rocking the gonangulum on its articulation X. E. Basal part of lancet showing valve (after Snodgrass, 1956).

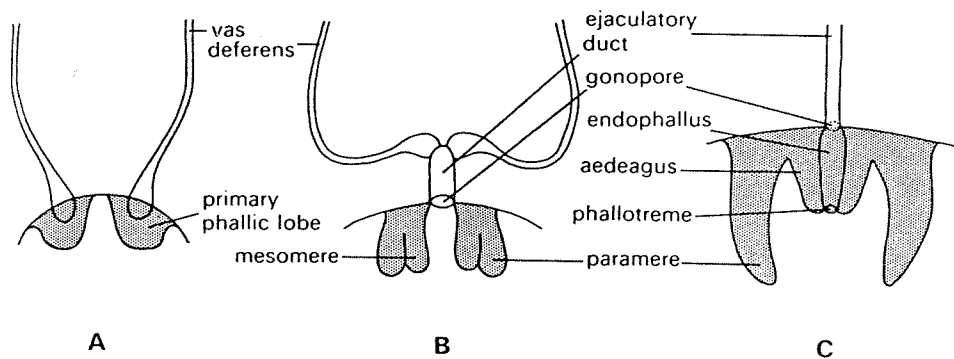


Fig. 197. Diagrams illustrating the origin and development of the phallic organ (after Snodgrass, 1957).

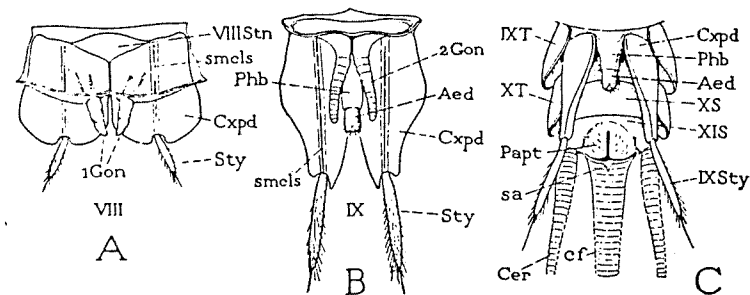


FIG. 298.—Male genitalia of Thysanura. A, *Machilis variabilis*, dorsal view of first gonopods, showing gonapophyses of eighth segment. B, same, dorsal view of second gonopods and median copulatory organ. C, *Nesomachilis mauricus*, ninth and terminal segments, ventral view.

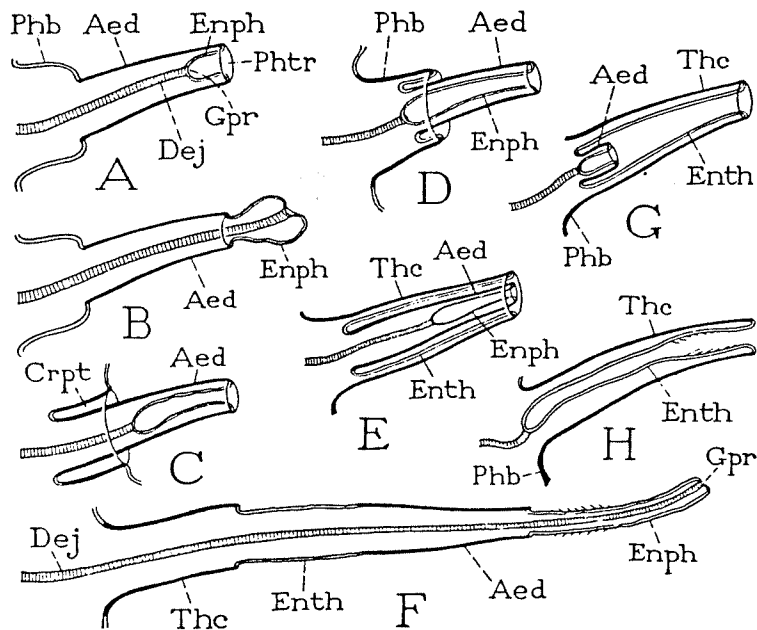


FIG. 300.—Modifications of the phallus, diagrammatic. A, simple structure. B, endophallus everted. C, aedeagus partly retracted into a phallocrypt. D, aedeagus partly retracted into phallobase. E, aedeagus enclosed in a phallosome. F, phallus extended by eversion of endophallus and endotheca. G, aedeagus reduced, theca enlarged. H, aedeagus suppressed and replaced by the theca. Aed, aedeagus; Crpt, phallocrypt; Dej, ductus ejaculatorius; Enph, endophallus; Enth, endotheca; Gpr, gonopore; Phb, phallobase; Phtr, phallosome; The, phallosome.

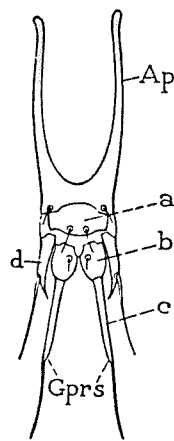


FIG. 295.—Male genital organ of Protura (*Eosentomon germanicum*), ventral view. (From Prell, 1913.)

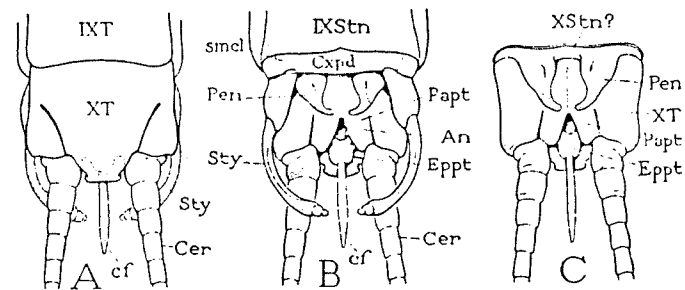


FIG. 296.—Male genitalia of Ephemera (*Hexagenia*). A, end of abdomen, dorsal view. B, same, ventral view. C, segments beyond the ninth, ventral view. An, anus; Cer, cercus; cf, caudal filament; Crpd, basal plate of styli; Eppt, epiproct; Papt, paraproct; Pen, penis; smcl, stylus muscles; Sty, stylus.

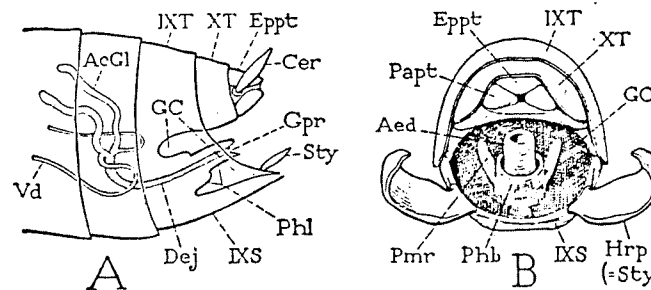


FIG. 299.—Diagrams of the basic structure of the male genitalia of pterygote insects. A, end of abdomen, with phallic organ in genital chamber, lateral view. B, same, end view, with clasperlike modifications of styli. AcGl, accessory gland; Aed, aedeagus; Dej, ductus ejaculatorius; GC, genital chamber; Gpr, gonopore; Hrp, harpago (stylus); Phb, phallobase; Phl, phallus (median penis); Pmr, paramere; Sty, stylus; Vd, vas deferens.

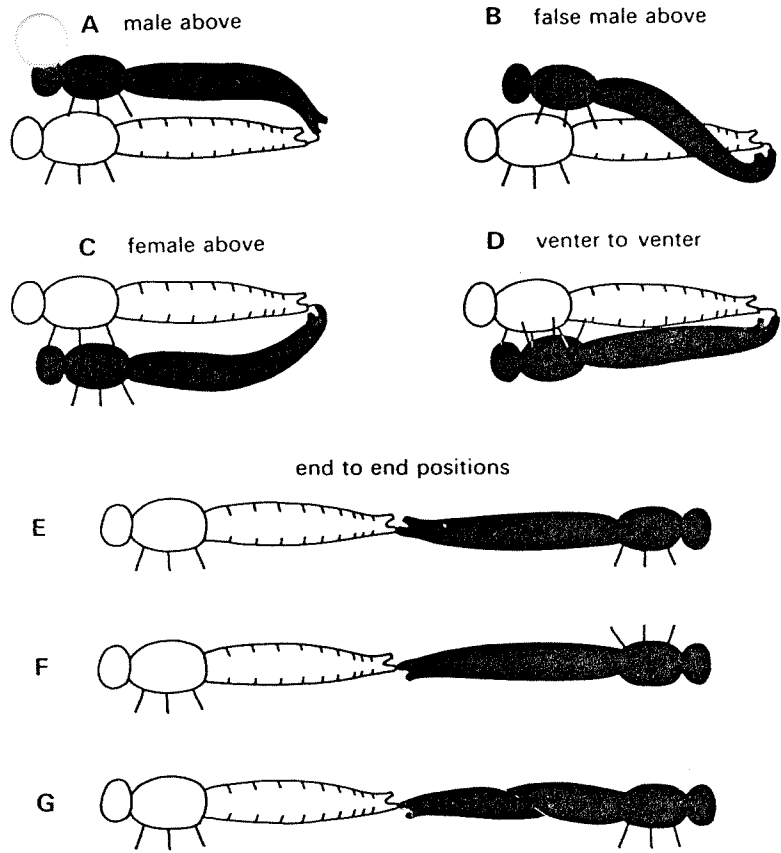


Fig. 195. Different positions assumed by the male and female during copulation, male black, female white. A. Male above (e.g. some Diptera). B. False male above (e.g. Acrididae). C. Female above (e.g. some Orthoptera). D. Venter to venter (e.g. Diptera, Culicidae—hypopygium inverted, cf. Fig. 198). E. End to end, male abdomen not twisted (e.g. some Hymenoptera). F. End to end, male inverted (e.g. some Tettigoniodea). G. End to end, male abdomen twisted (e.g. some Heteroptera, cf. Fig. 199) (based on Richards, 1927).

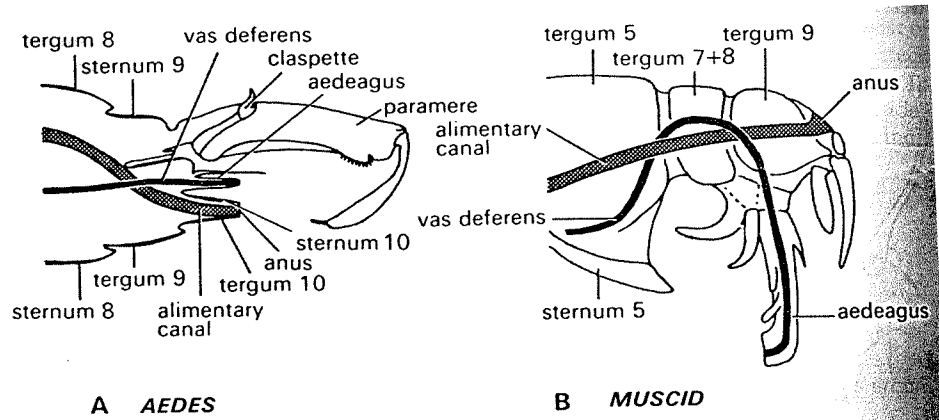


Fig. 198. Diagrams illustrating torsion of the terminal segments of male Diptera. A. *Aedes* with the ninth and following segments rotated through 180°. B. A muscid with the terminal segments rotated through 360° as indicated by the twisting of the vas deferens over the alimentary canal (from Séguy, 1951b).

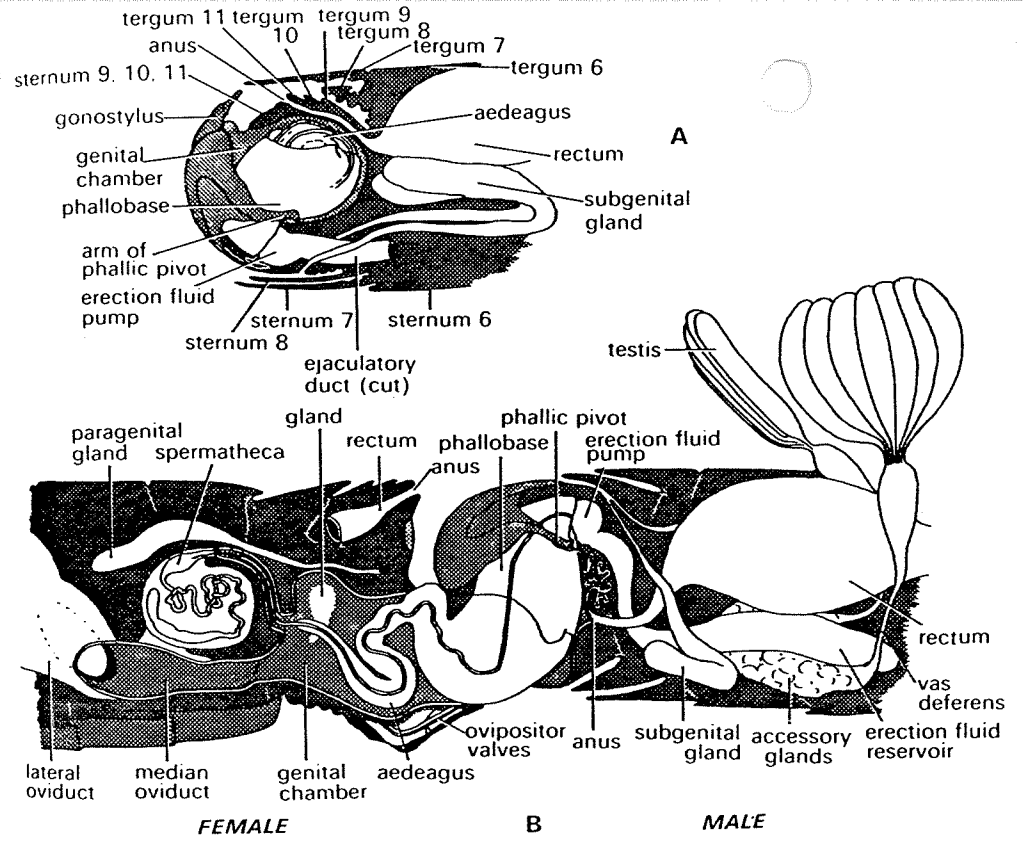


Fig. 199. A. Sagittal section of the genital capsule of a male *Oncopeltus* with the aedeagus retracted. B. Sagittal section of the posterior ends of copulating *Oncopeltus*. Notice the inversion of the male genital capsule and the insertion of the aedeagus into the spermatheca (after Bonhag and Wick, 1953).

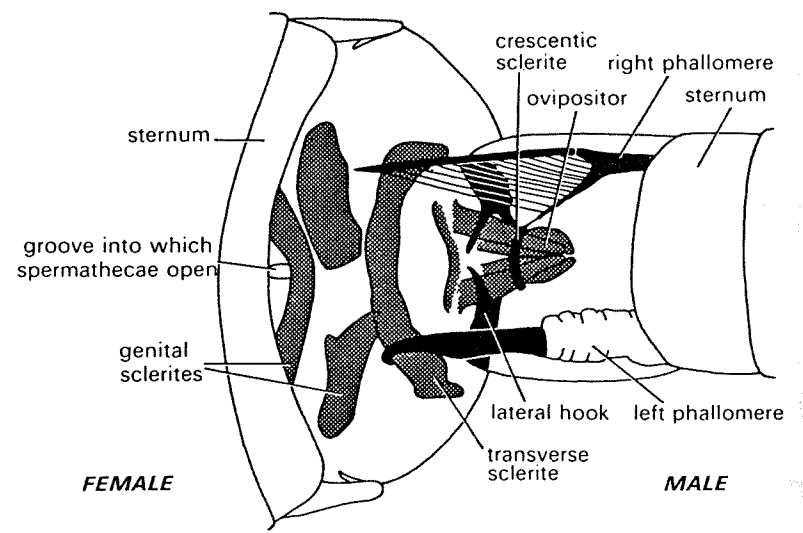


Fig. 200. Ventral view of the terminal abdominal segments of male and female *Blattella* showing the manner in which the male genitalia clasp the female. The insects are represented in the end-to-end position with the subgenital plates and endophallus of the male removed. Female sclerites shaded, male sclerites black (after Khalifa, 1950b).

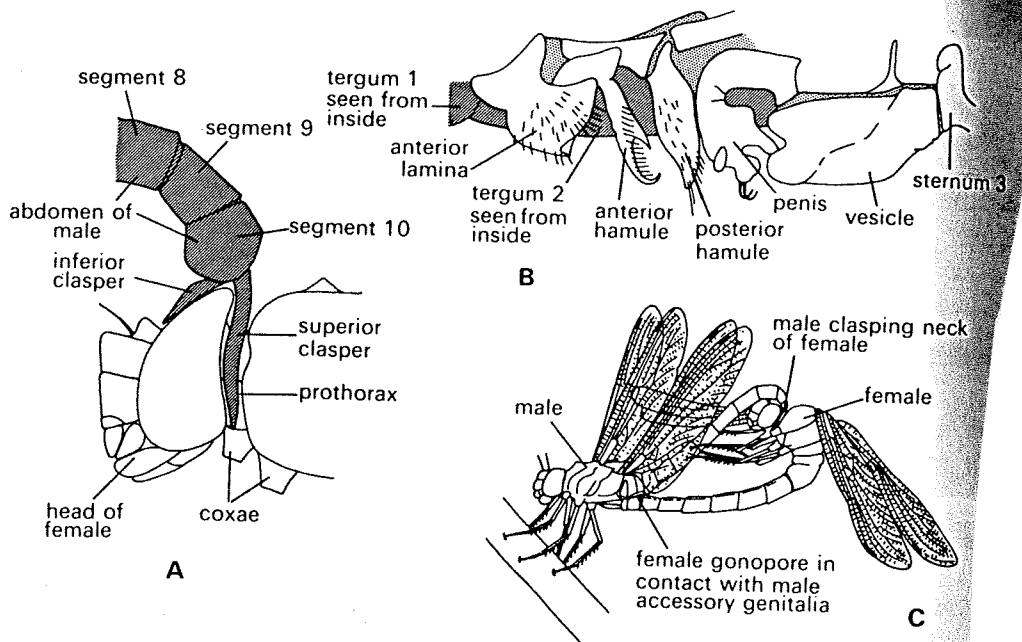


Fig. 196. Mating in Odonata. A. Position of the male abdomen during pairing (after Tillyard, 1917). B. Male accessory genitalia of *Onychogomphus*, terga of left side removed (based on Chao, 1953). C. Male and female *Aeschna* in copula (after Longfield, 1949).

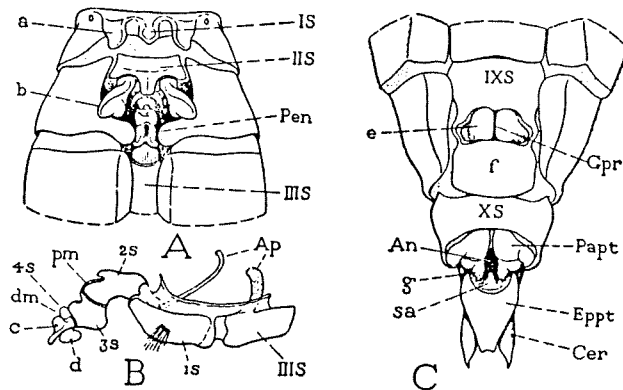


FIG. 301.—Male genitalia of Odonata (*Plathemis lydia*). A, base of abdomen, under surface, showing secondary copulatory organs. B, secondary penis of second abdominal segment, lateral view. C, posterior end of abdomen, under surface, showing true gonopore (*Gpr*) on ninth segment between two valve-like plates.