

Fig. 209. A. Eggs of *Orthellia* in a cavity in cow-dung (after Hinton, 1960a). B. Eggs of *Culex* showing the hydrophile micropyle cup. C. Eggs of *Anopheles*, ventral and lateral views (after Marshall, 1938).

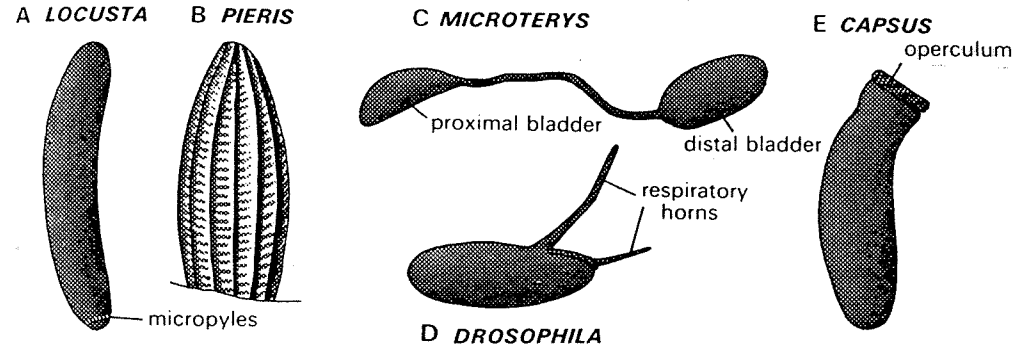


Fig. 216. Various forms of eggs. A. *Locusta*. B. *Pieris*. C. *Microterys* (Hymenoptera). D. *Drosophila*. E. *Capsus* (Heteroptera). Not all to same scale (after various authors).

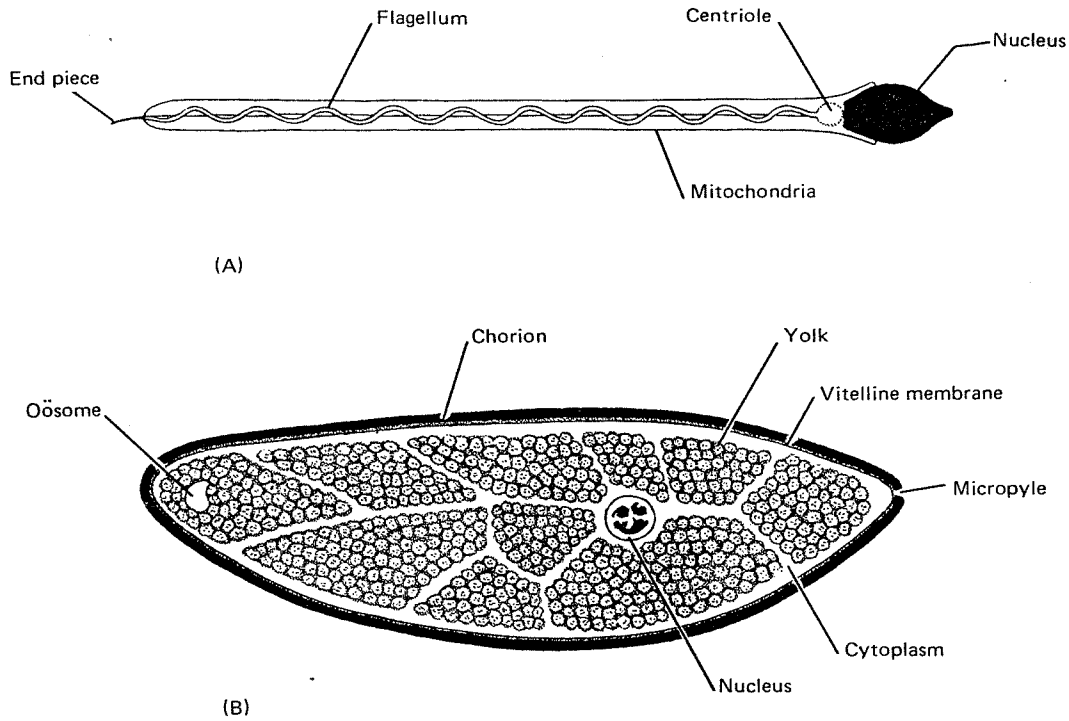


Figure 71. Insect gametes. (A) sperm; (B) egg.

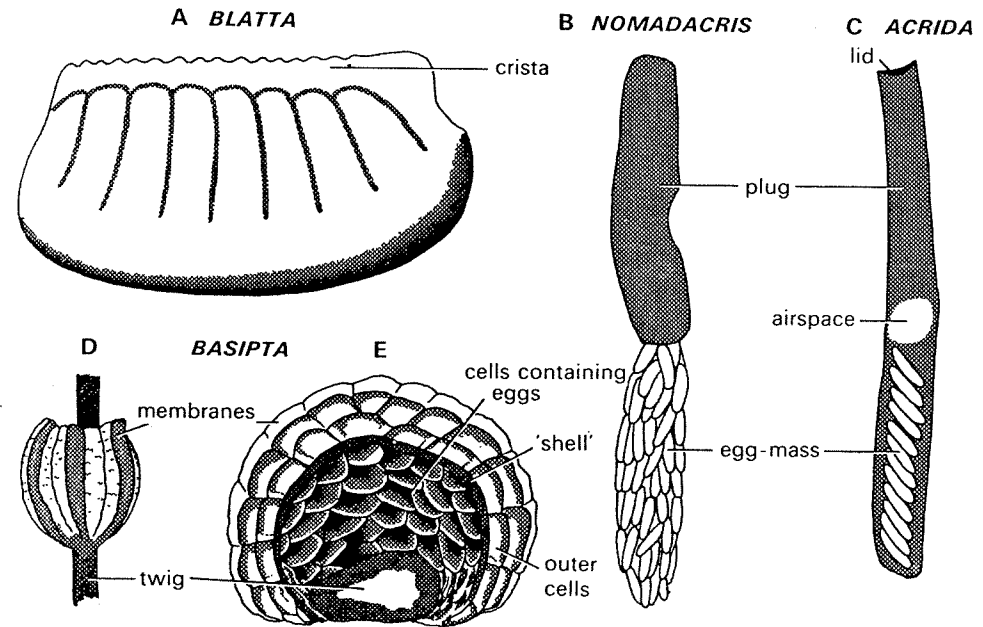


Fig. 210. A. Ootheca of *Blatta* (after Ragge, 1965). B and C. Egg pods of *Nomadacris* and *Acrida* (after Chapman and Robertson, 1958). D. Ootheca of *Basipta*. E. Transverse section of the ootheca of *Basipta* (after Muir and Sharp, 1904).

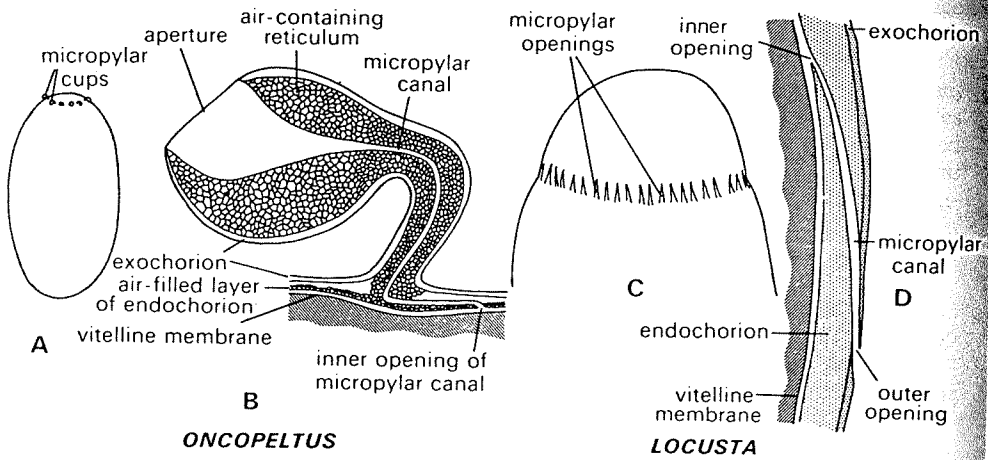


Fig. 220. A and B. *Oncopectus*: whole egg and longitudinal section through a micropylar process (after Southwood, 1956). C and D. *Locusta*: posterior end of egg and longitudinal section through the chorion along the length of a micropylar canal (after Roonwal, 1954).

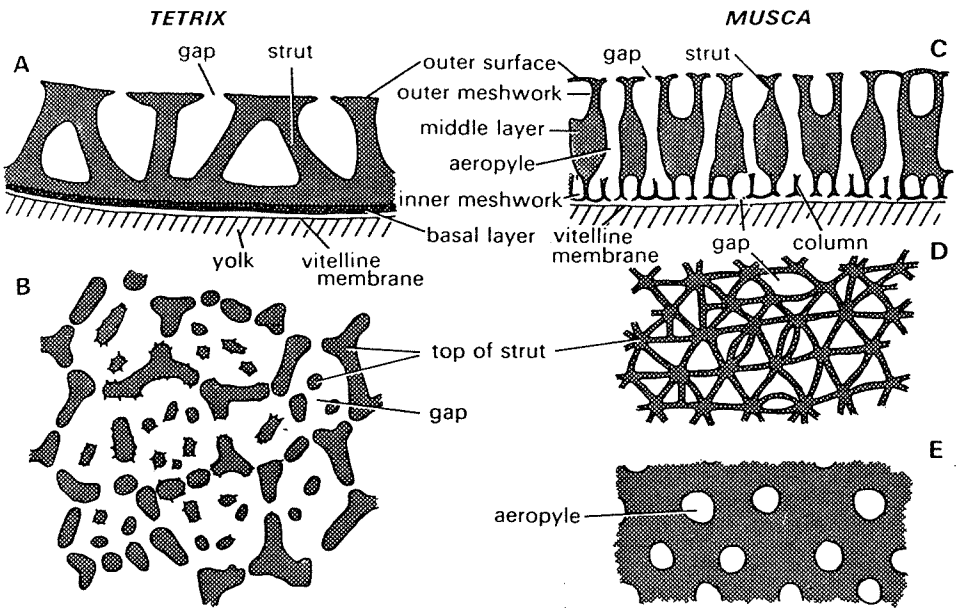


Fig. 218. The structure of the chorion of *Tetrax* and *Musca*. *Tetrax*: A. Transverse section. B. View of the surface. *Musca*: C. Transverse section. D. View of the surface. E. Horizontal section through the middle layer (after Hartley, 1962; Hinton, 1960a).

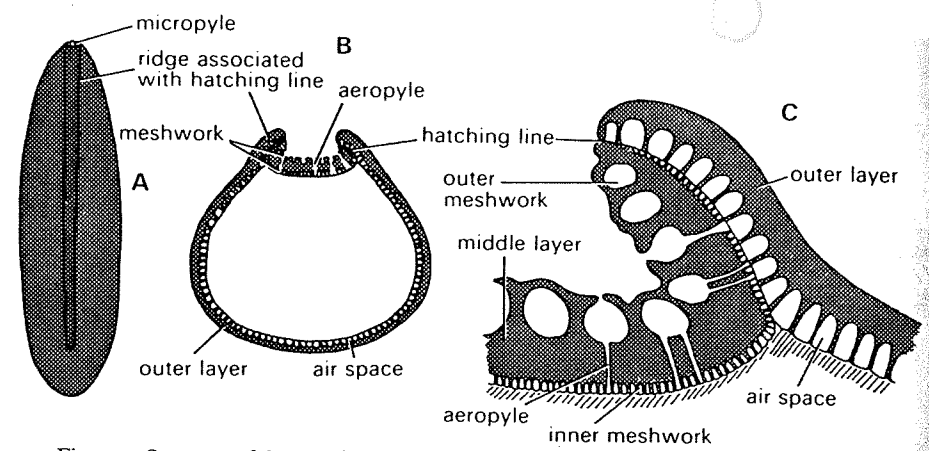


Fig. 219. Structure of the egg of *Calliphora*. A. Dorsal view showing hatching lines. B. Cross-section through the middle of the egg. C. Detail of section through one of the hatching lines (based on D. S. Anderson, 1960; Hinton, 1960a).

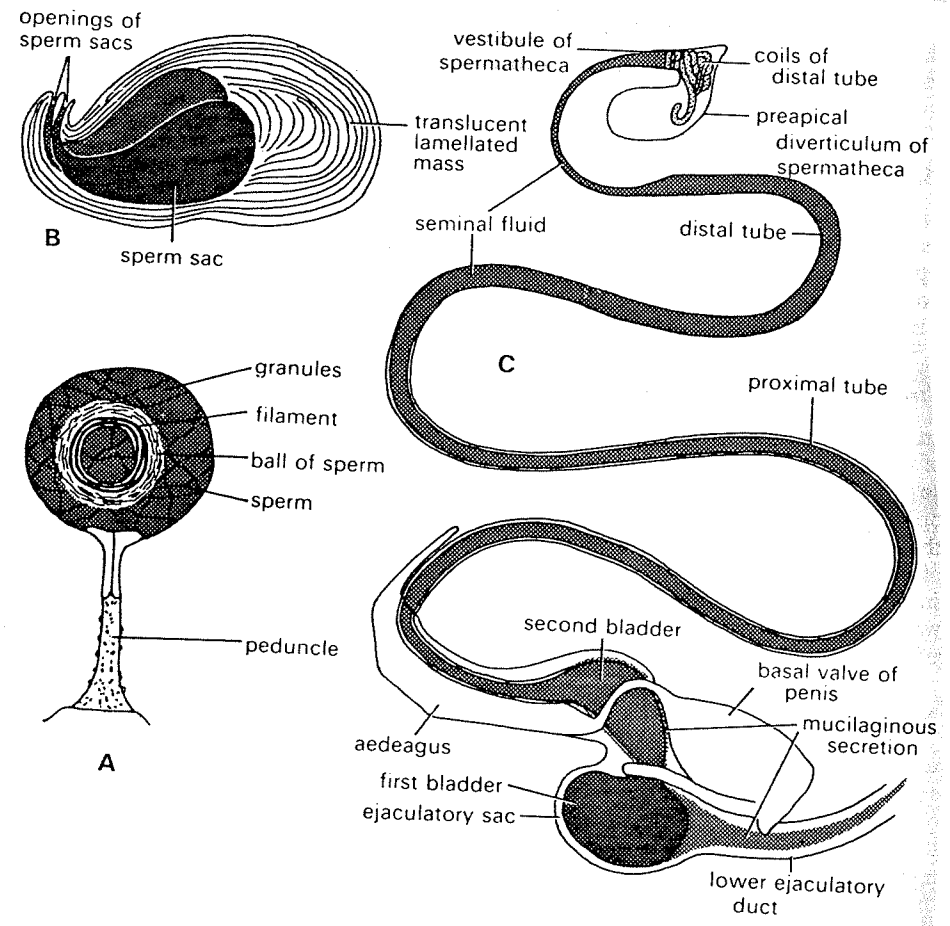


Fig. 201. Spermatophores. A. *Campodea* (after Bareth, 1964). B. *Blattella* (after Khalifa, 1950b). C. *Locusta* (after Gregory, 1965).

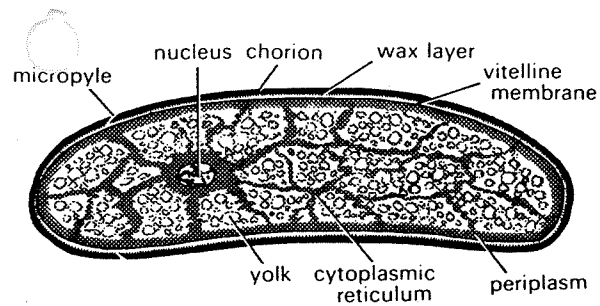


Fig. 217. Diagram of the structure of an egg at the time of oviposition.

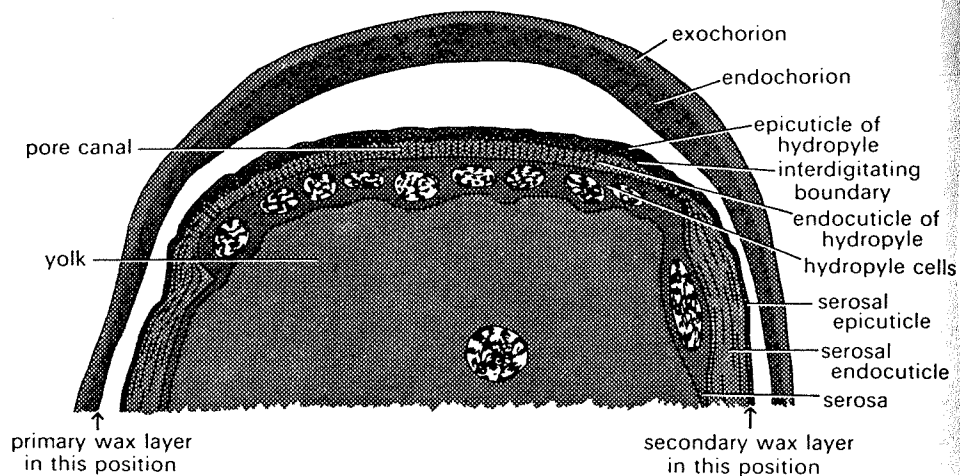


Fig. 224. Section through the posterior end of the egg of *Locusta* showing the hydropyle (based on Roonwal, 1954).

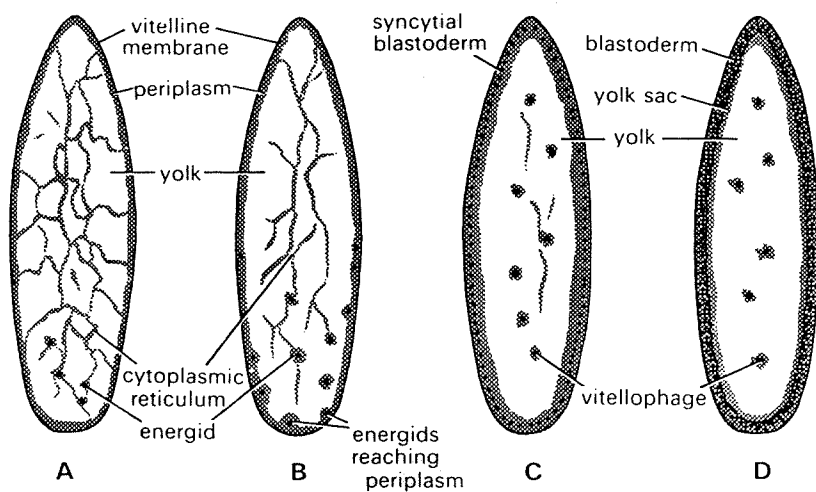


Fig. 225. Diagram illustrating the formation of the blastoderm.

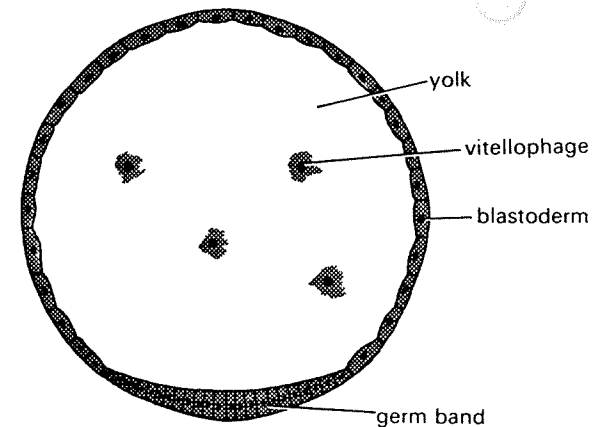


Fig. 228. Diagrammatic transverse section of a developing egg showing the ventral thickening which forms the germ band.

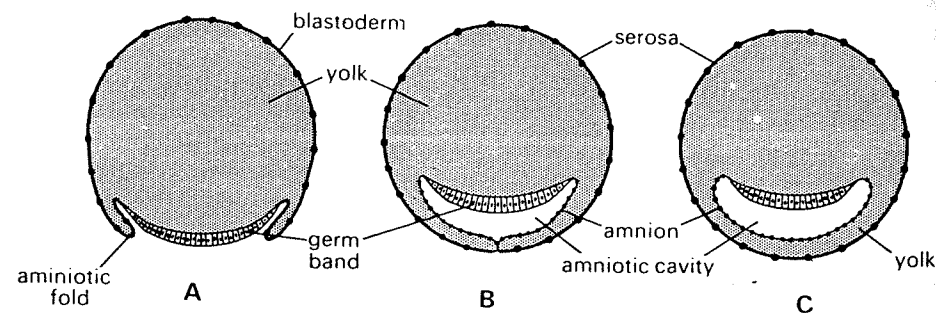


Fig. 232. Diagrams illustrating the development of the amniotic cavity. A. Lateral folds beginning to grow over germ band. B. Lateral folds meet beneath germ band. C. Amnion and serosa separated, embryo immersed in yolk.

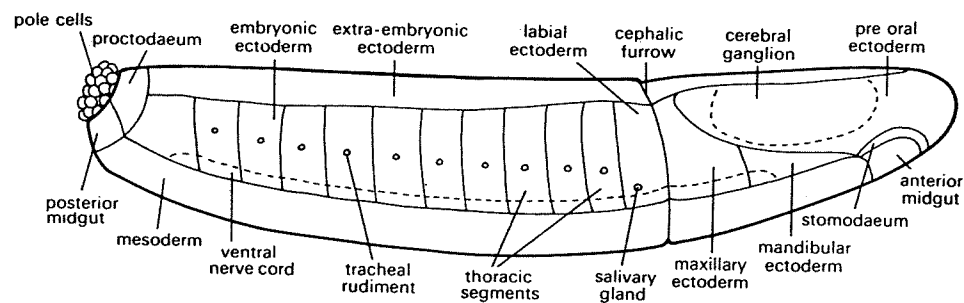


Fig. 227. The presumptive larval areas on the blastoderm of *Dacus* (after Anderson, 1966).

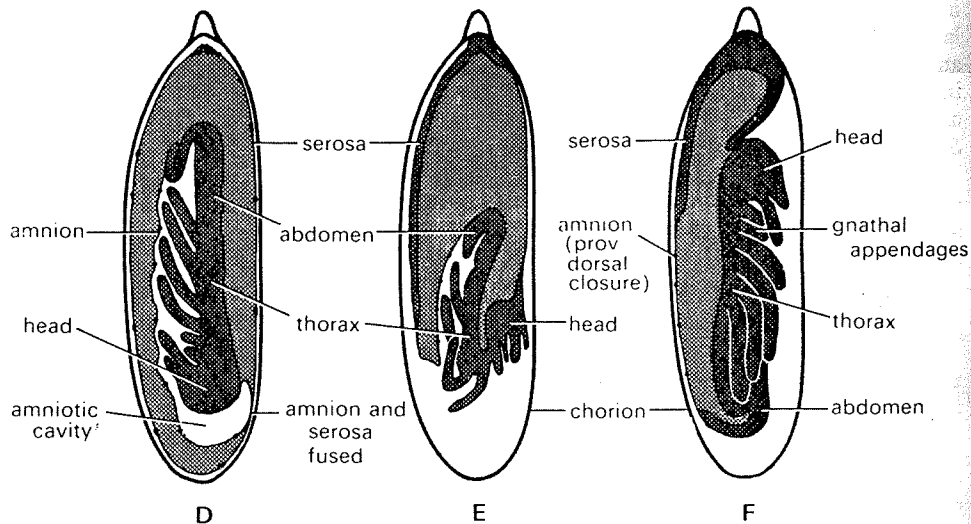
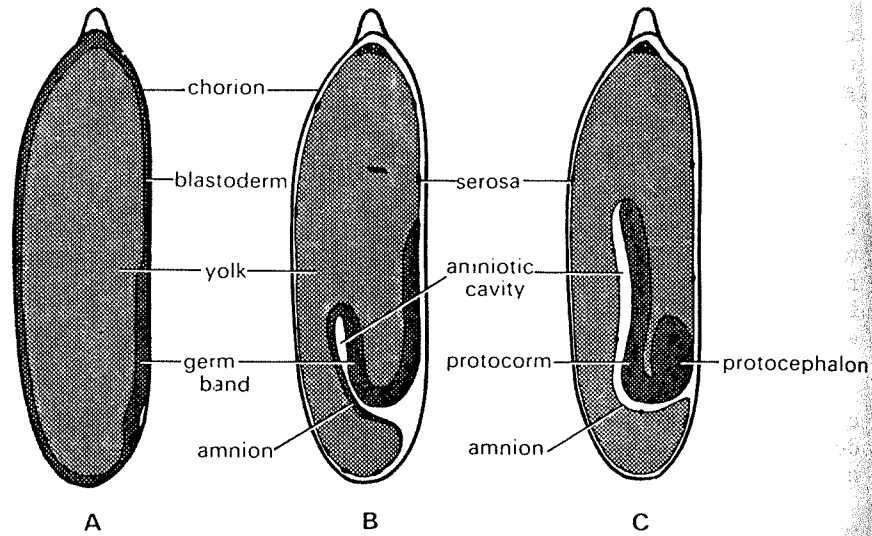


Fig. 234. Stages in the embryonic development of *Agrion* (from Johannsen and Butt, 1941).

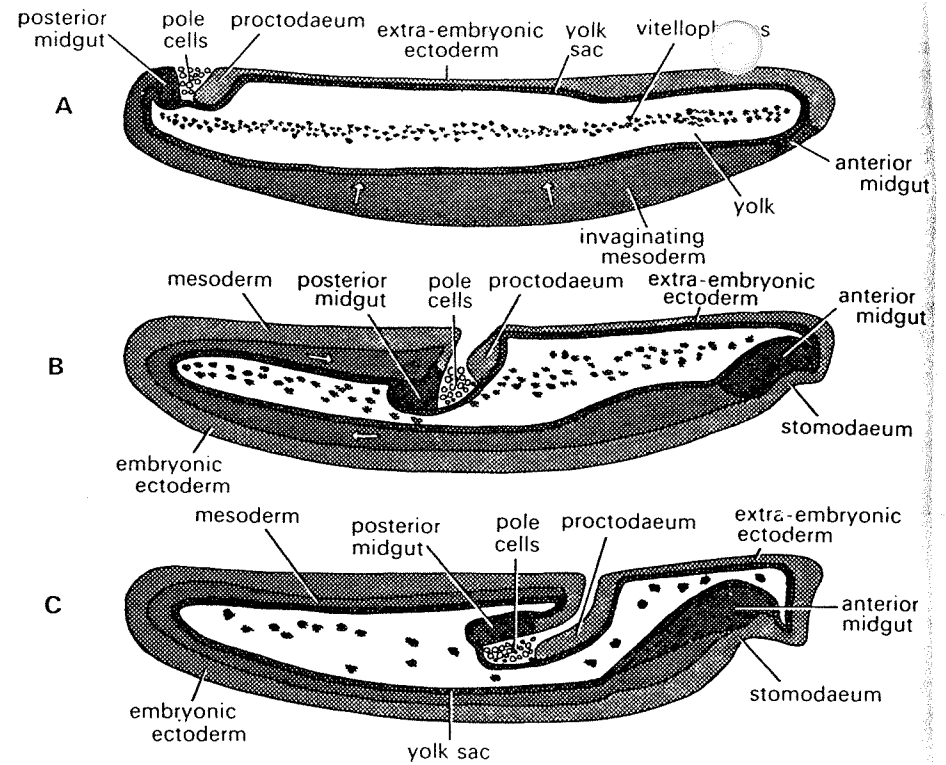


Fig. 231. Diagrammatic sagittal sections through the embryo of *Dacus*. A. Eight hours after laying. B. Nine hours after laying. C. Twelve hours after laying. Arrows indicate the movements of the mesoderm (after Anderson, 1962).

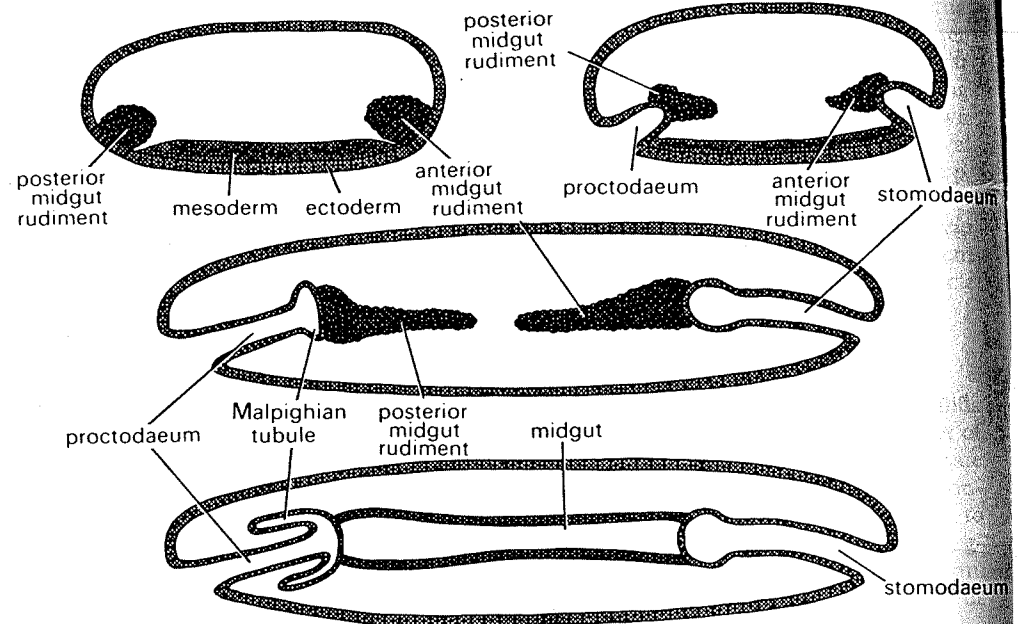
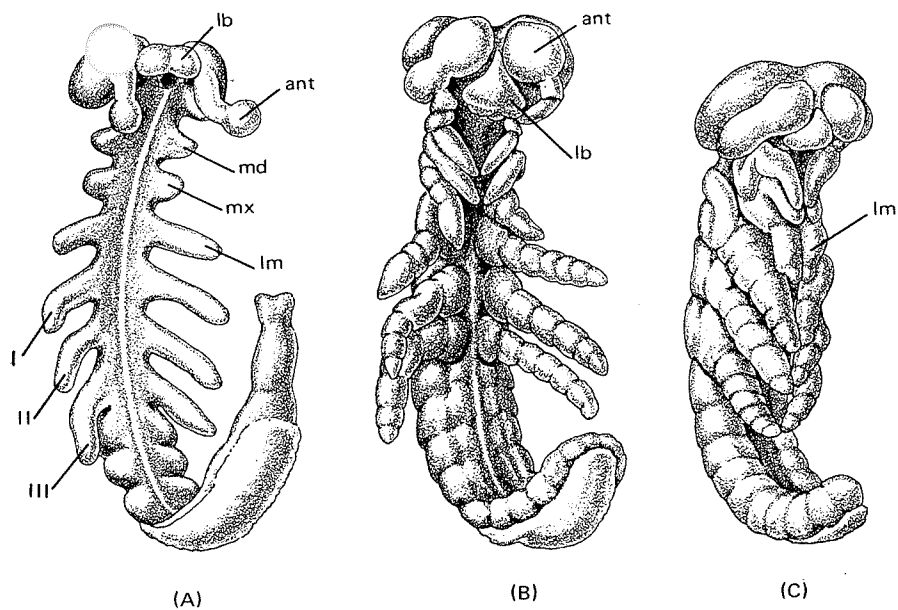
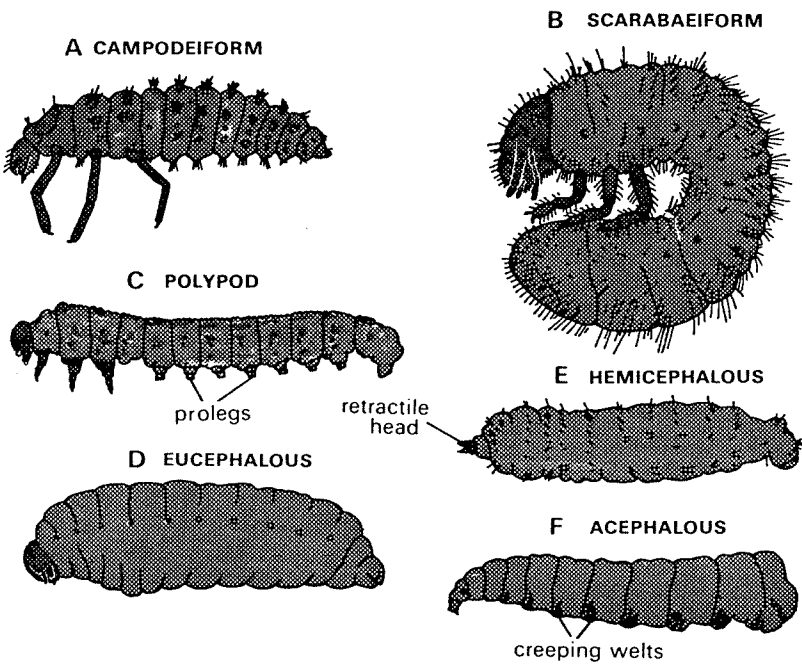


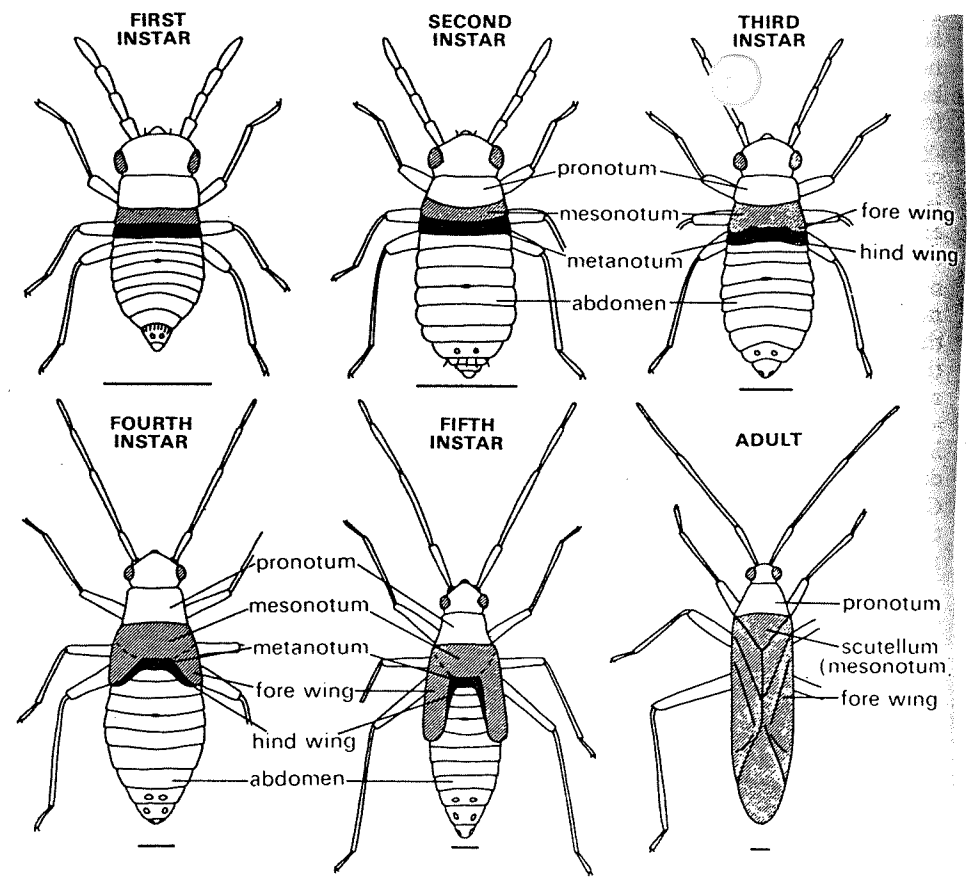
Fig. 240. Diagrams illustrating the development of the midgut (after Henson, 1946).



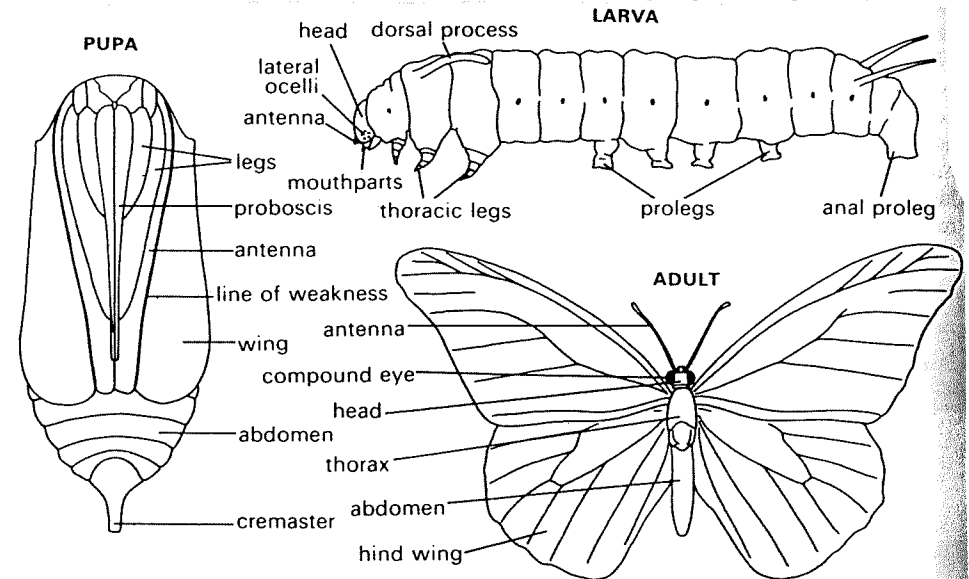
**Figure 81.** Embryology of the milkweed bug, *Oncopeltus fasciatus*. Envelopes and yolk have been dissected away. (A) 71 hours; (B) 91 hours; (C) 101 hours. ant, antenna; md, mandible; mx, maxilla; lb, labrum; lm, labium; Roman numerals, thoracic legs. (Redrawn after F. H. Butt, 1949.)



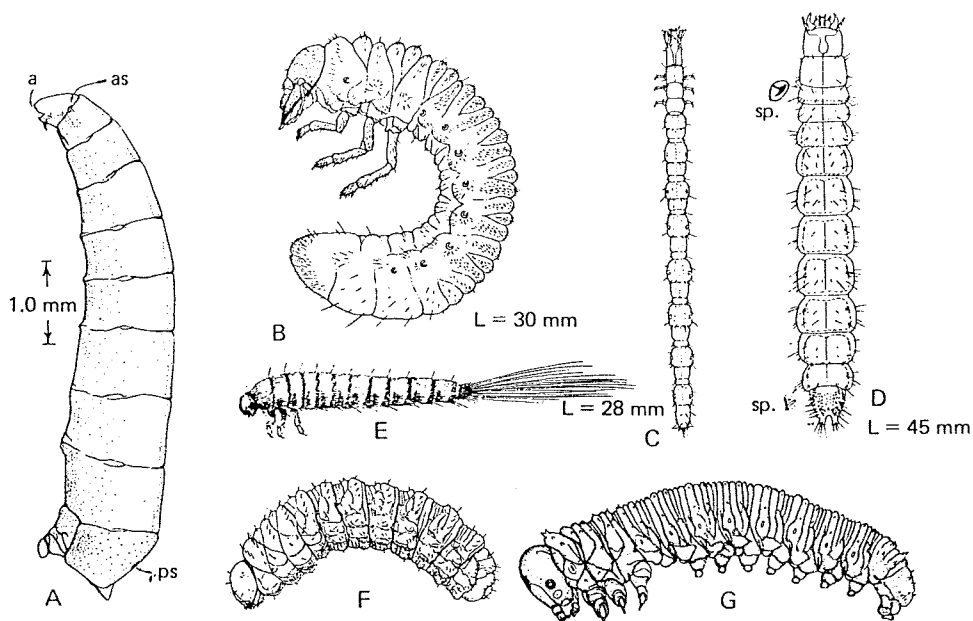
**Fig. 263.** Larval forms. A. Campodeiform—*Hippodamia* (Coleoptera). B. Scarabaeiform—*Popillia*. C. Polypod—*Neodiprion* (Hymenoptera). D. Eucephalous—*Vespula* (Hymenoptera). E. Hemicephalous—*Tanyptera* (Diptera). F. Acephalous—*Musca* (after Peterson, 1960, 1962; Hewitt, 1914).



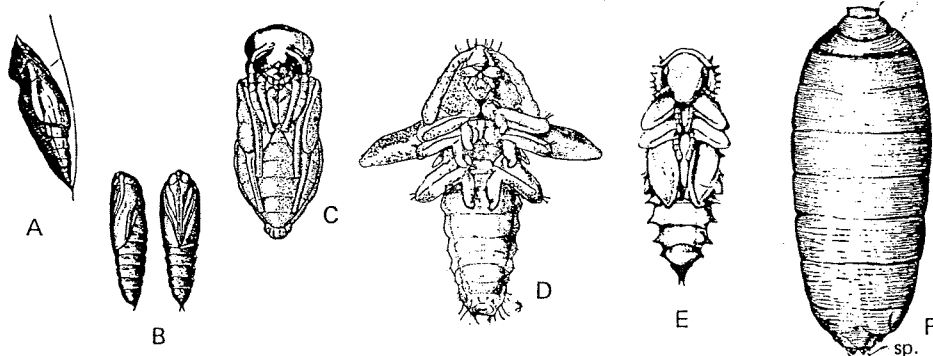
**Fig. 260.** Larval development of a hemimetabolous insect. The larval and adult stages of *Cylloceria* (Heteroptera). The horizontal line under each stage represents 0.5 mm. (after



**Fig. 262.** Development of a holometabolous insect. Larva (lateral view), pupa (ventral view) and adult (dorsal view) of *Danaus* (Lepidoptera) (after Urquhart, 1960).



**Figure 60.** Insect larvae, **A**, maggot or vermiform larva of *Hylemya platūra* (Meigen) (Díptera, Anthomyiidae); **B**, grub or scarabaeiform larva of *Phyllóphaga rugosa* (Melsheimer) (Coleóptera, Scarabaeidae); **C**, elateriform larva of *Cardióphorus* sp. (Coleóptera, Elatéridae); **D**, elateriform larva of *Álaus oculátus* (L.) (Coleóptera, Elatéridae); **E**, campodeiform larva of *Attagénus megátoma* (Fabricius) (Coleóptera, Derméstidae); **F**, vermiform larva of *Cylas formicárius elegántulus* (Summers) (Coleóptera, Curculiónidae); **G**, eruciform larva of *Calirò aèthiops* (Fabricius) (Hymenóptera, Tenthredínidae). *a*, antenna; *as*, anterior spiracle; *L*, length; *ps*, posterior spiracle; *sp*, spiracle. (**A** and **E-G**, courtesy of USDA; **B-D**, courtesy of Peterson. Reprinted by permission.)



**Figure 61.** Insect pupae. **A**, chrysalis of the sulphur butterfly, *Còlias eurýtheme* Boisduval (Lepidóptera, Piéridae); **B**, fall armyworm, *Spodóptera frugipèrda* (J. E. Smith) (Lepidóptera, Noctúidae); **C**, clover seed chalcid, *Bruchóphagus platýptera* (Walker) (Hymenóptera, Eurytómidae); **D**, sweetpotato weevil, *Cylas formicárius elegántulus* (Summers) (Coleóptera, Curculiónidae); **E**, sawtoothed grain beetle, *Oryzaéphilus surinaménsis* (L.) (Coleóptera, Cucùjidae); **F**, seedcorn maggot, *Hylemya platūra* (Meigen) (Díptera, Anthomyiidae). **A** and **B** are obtect pupae, **C-E** are exarate pupae, and **F** is a coarctate pupa. *sp*, spiracle. (Courtesy of USDA.)