

PLATE 7

22. *Vema ewingi*, specimen 2. Transverse section of anterior pharynx showing paired salivary glands (sg), each consisting of several smaller lobules.

23. *Vema ewingi*, the small specimen 3. Paraffin cross section through anterior pharynx. The paired salivary glands consist of only one lobule on each side.

24. *Neopilina galathea*, specimen 1. Transverse section of the liver just in front of the stomach. An isthmus (ili) connects the liver on the right with that on the left side and is, in fact, open into the stomach. See Figs 13-14.

25. *Vema ewingi*, specimen 2. Transverse section through right half of animal, showing cleftlike communication between liver and stomach (arrow x!).

26. *Neopilina galathea*, specimen 1. Transverse section of posterior end of stomach, showing crystalline style (cr).

27. *Vema ewingi*, specimen 2. Transverse section through posterior end of stomach, showing crystalline style (cr).

cr, crystalline style; d, artificial disruption of the pharyngeal wall; f, fold of the posterodorsal wall of the stomach, perhaps collapsed style sac; i, intestine; ili, isthmus part of liver; li, liver; oe, oesophagus; ph, pharynx; phd, ramifications of the pharyngeal diverticula; s, shift from gastric to liver epithelium in the dorsal wall of the gut; sg, salivary glands; st, stomach; x, cleftlike communication between liver and stomach.

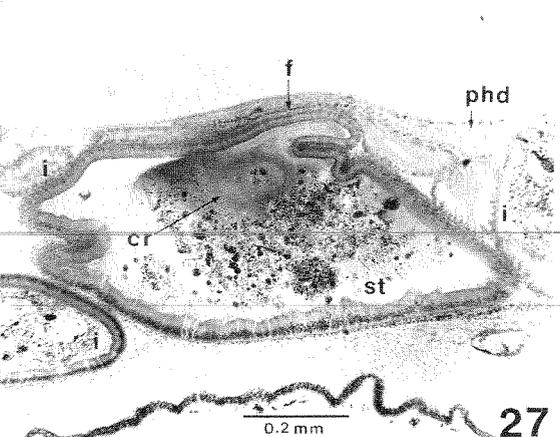
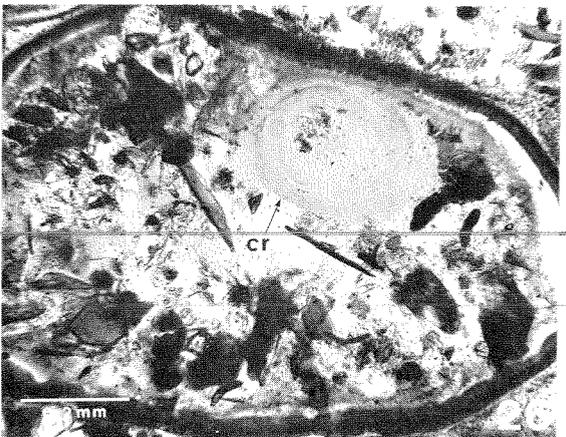
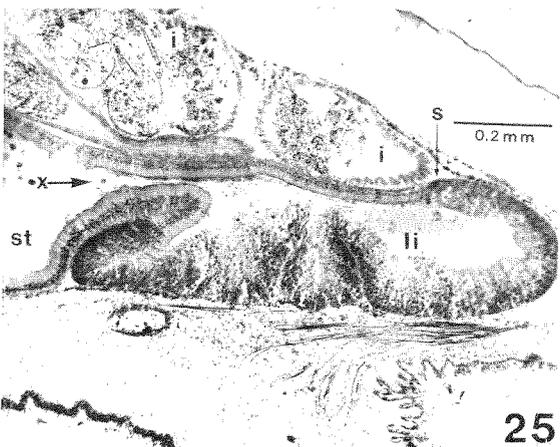
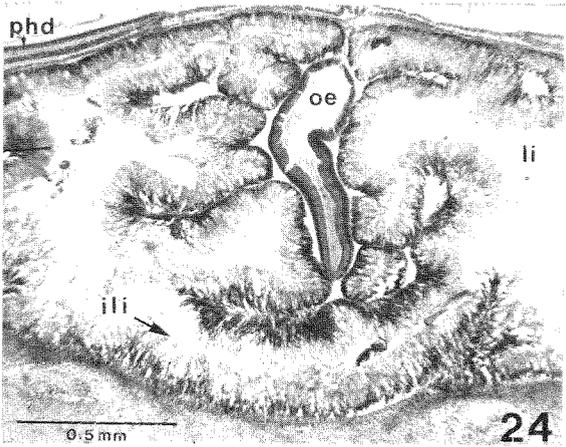
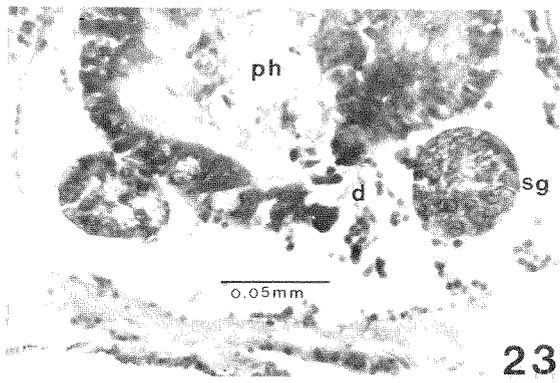
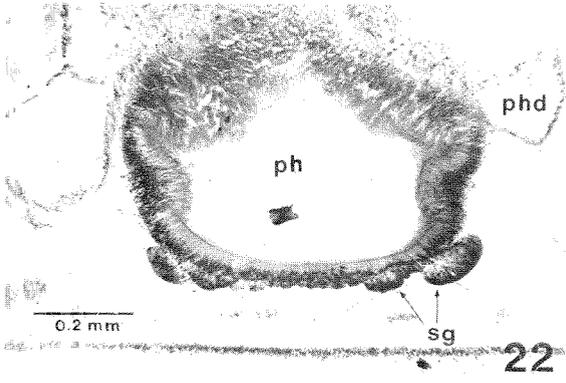


PLATE 8

28. *Neopilina galathea*, specimen 1. Transverse section of right radula vesicle showing the intermingling of the lamellae with the tissue of the cartilage. Dorsal direction right in the picture.

29. *Lepidopleurus asellus*. Structures around the mouth of intact fixed specimen. The furrow separating the circum-oral lip (1) from the structure interpreted as velum (ve) is distinct. No feeding furrow as in Monoplacophora.

30. *Lepidopleurus asellus*. Horizontal celloidin section showing anterior head region with radula vesicles, radula cartilages and radula diverticula.

31. *Lepidopleurus asellus*. Transverse celloidin section of radula apparatus. The lumen of the radula vesicle is partly filled out by small-cellular cartilaginous tissue (ic) situated inside the membranous wall of the vesicle (rv).

32. *Acanthopleura echinata*. Dissected radula support including radula vesicles, cartilages and m. radulae impar (va). Dorsal view. The cartilages, of similar colour as the vesicles, are indicated by ink lines. The extension of the lateral cartilage on the ventral (opposite) side of the vesicle is stippled. It is continuous posteriorly with the "muscle attachment cartilage" (ma).

33. *Patella vulgata*. Dissected radula support, seen from the dorsal side. For comparison with Polyplacophora and Monoplacophora see Chapter 5.4.3. al, anterolateral cartilage; am, anteromedial cartilage; ct, connective tissue pad; f, foot; ic, internal, small cellular cartilage inside the membranous wall of the vesicle; l, lips; la, lamellar vesicle wall; lc, lateral cartilage; lcx, posterior extension of the lateral cartilage on the ventral (opposite) side of the vesicle (contours stippled), ma, muscle attachment cartilage; mc, medial cartilage; pc, posterior cartilage; pm, pallial margin; r, radula; rd, radula diverticula; rv, radula vesicle; sr, subradular organ; ve, velum; va, m. radulae impar = ventral approximator muscle.

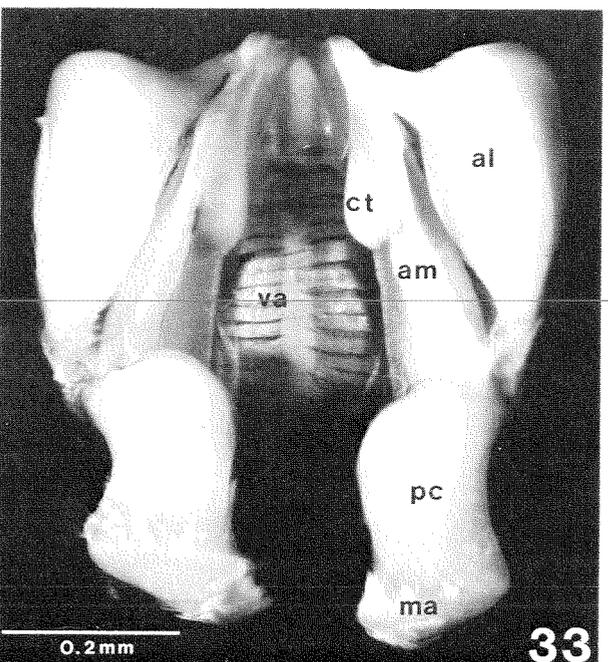
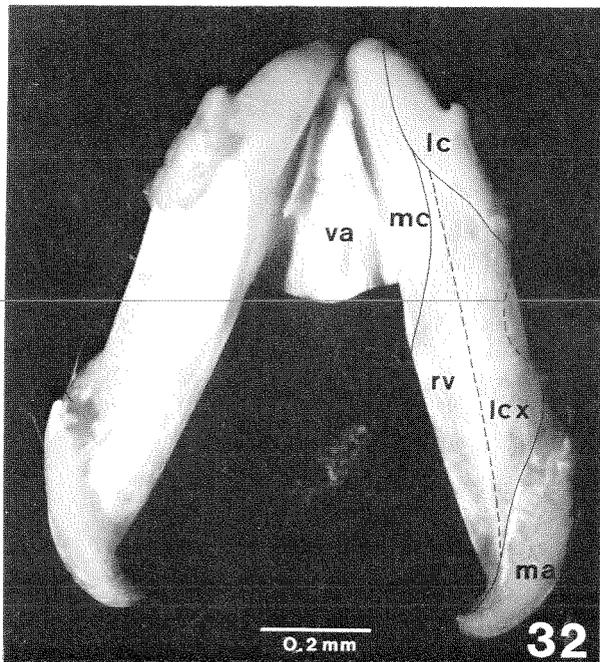
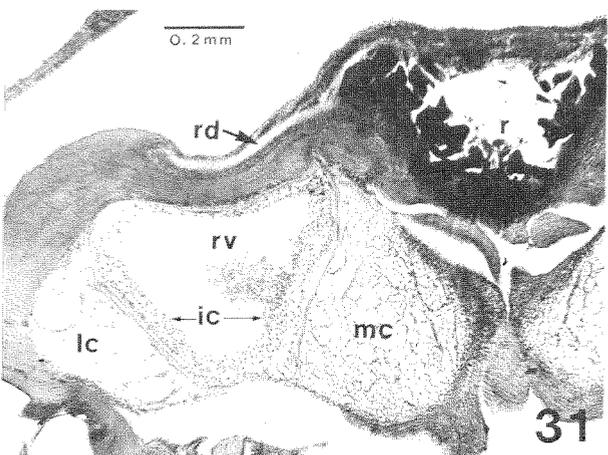
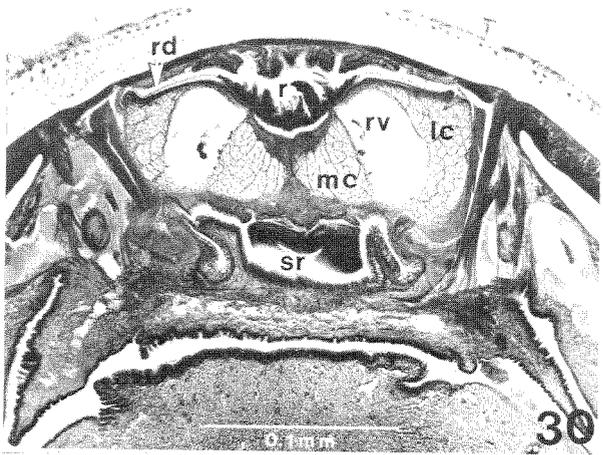
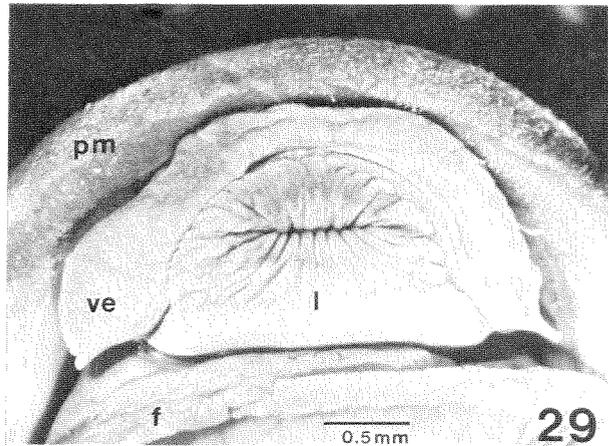
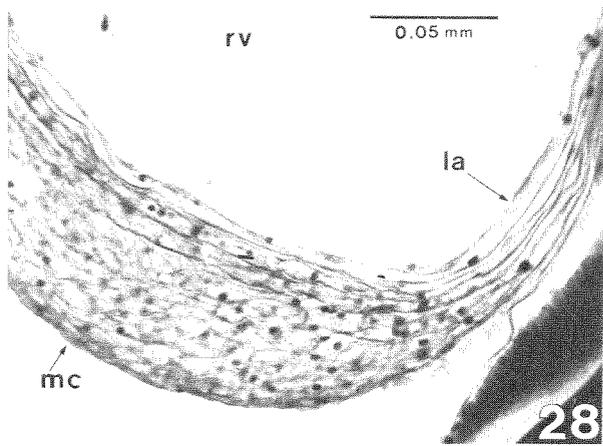


PLATE 9

Neopilina galathea, specimen XIV. SEM microphotographs of radula teeth. The radula ribbon had been cleaned in alcohol by ultrasonic vibration and dried in air. All photographed teeth are from the part of the radula ribbon which follows immediately behind the radula diverticula.

34. Entire radula ribbon. One transverse row of teeth is indicated.
 35. Close up of inner marginals at a point where the ribbon is broken.
 36. Relative situation of teeth 1 to 5.
 37. Details of the comb of inner marginal.
 38. The relative size and situation of rachitidian (1), 1st lateral (2) and 2nd lateral (3) at a point where the ribbon is broken. The hooks of 2nd lateral are artificially straightened out when dried.
 39. 2nd marginal tooth of right side to show the triangular basal plate and elevated anterior margin.
- 1, rachidian; 2, 1st lateral; 3, 2nd lateral; 4, 3rd lateral; 5, inner marginal; 6, outer marginal.

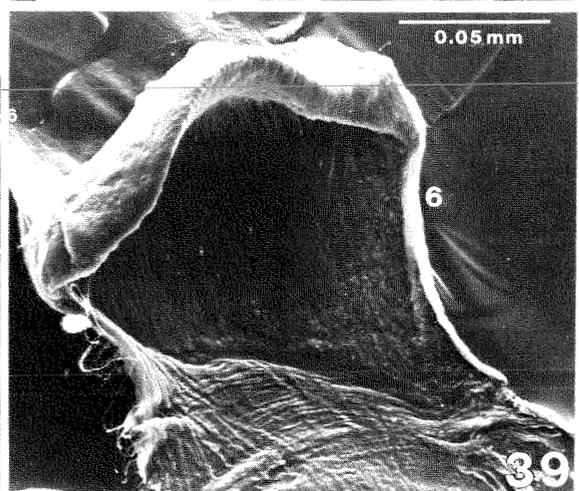
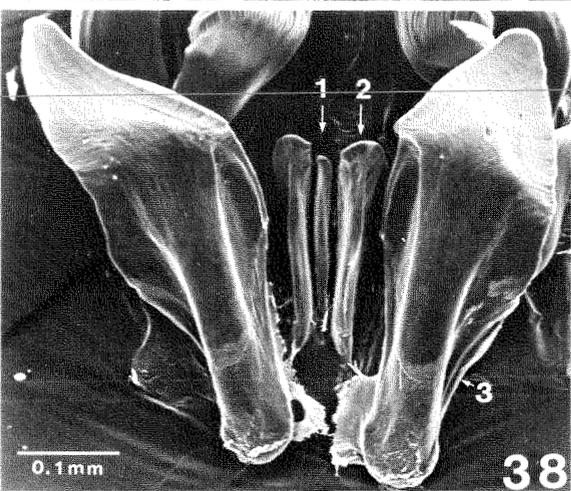
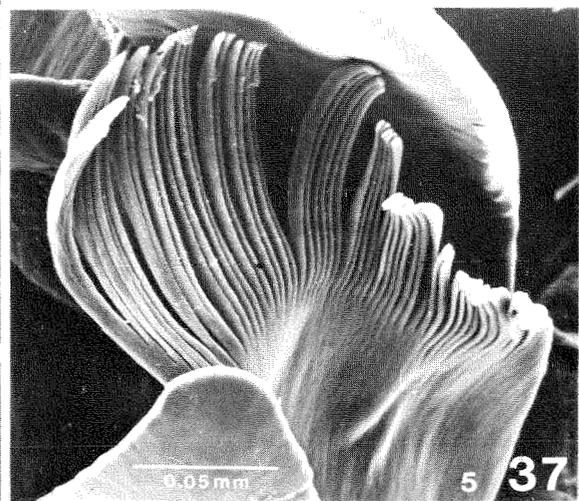
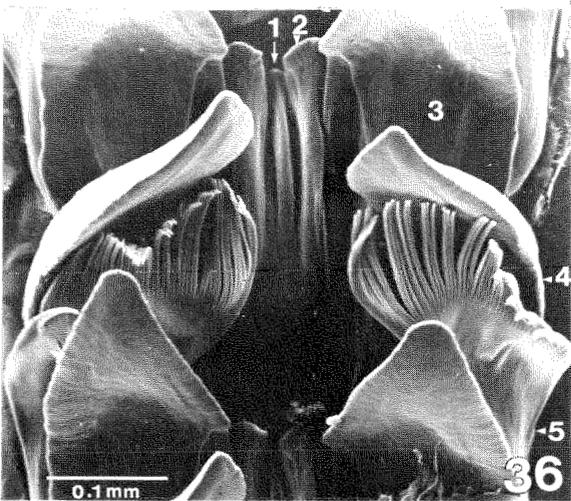
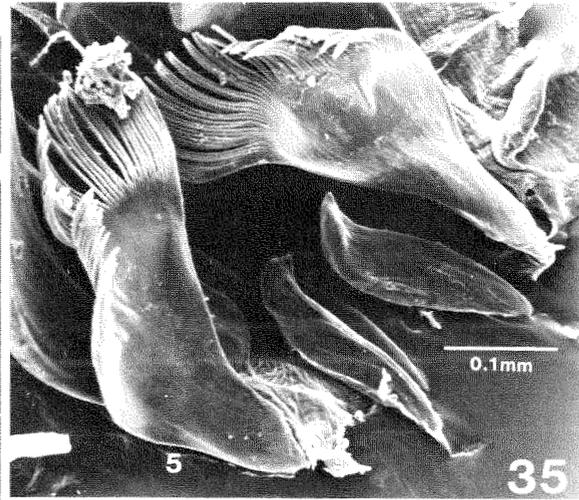
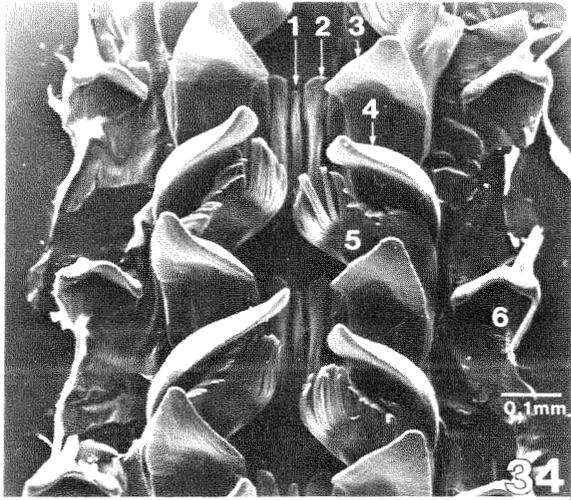


PLATE 10

40. *Tonicella marmorea*. Free edge of 5th lateral tooth of radula, corresponding to inner marginal in *Neopilina*. Scanning picture, technique as in Pl. 9.

41. *Lepidopleurus asellus*. Horizontal celloidin section through posterior end, showing insertion of lateropedal foot retractor 8 near posterior margin of shell plate 8.

42. *Acanthopleura spiniger*. Dorsal view. The shell plates are removed, and the muscle insertions are stained with acid fuchsin, followed by differentiation in 1-2% phosphomolybdic acid. The 7 large insertion areas, dominated by the m. transversus, are seen. The 8th, at the posterior part of shell 8, has no transversus but only pedal retractors (see Figs 41, 43).

43. *Lepidopleurus asellus*. Same horizontal series as Fig. 41, but on a more ventral level. The medio-pedal foot retractors of muscle group 8 are shown, crossing when they reach into the foot.

44. *Lepidopleurus asellus*. Anterior end of animal seen from the right. Shell plates removed, muscle attachments stained with acid fuchsin-phosphomolybdic acid as in Fig. 42. The attachment of the coarse bundles of "m. radulae longus" is shown medially of m. transversus 2.

g, gills; ip, pockets of insertion plates; lp8, lateropedal retractor of muscle group 8, on hind part of 8th shell; m8, muscle attachments of 8th group, on 8th shell; mp8, mediopedal muscle of 8th group; mrl, radula muscle, homologous to m. radulae longus of *Neopilina*; r, rectum; tr1 to tr7, m. transversus 1 to 7.

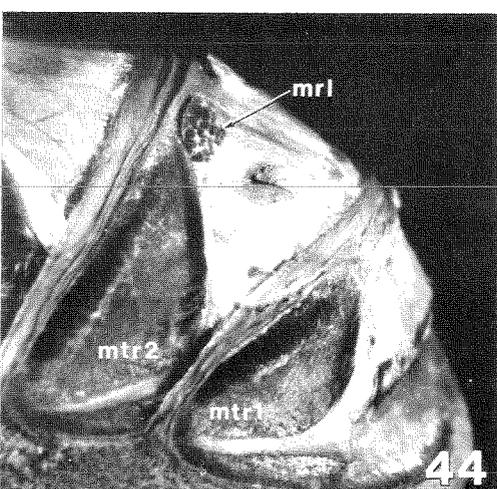
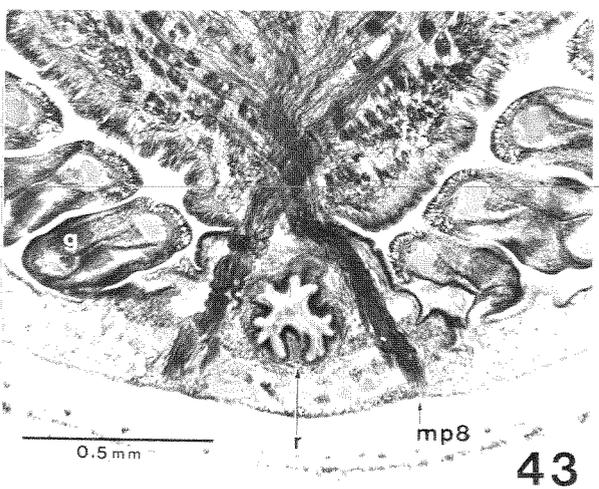
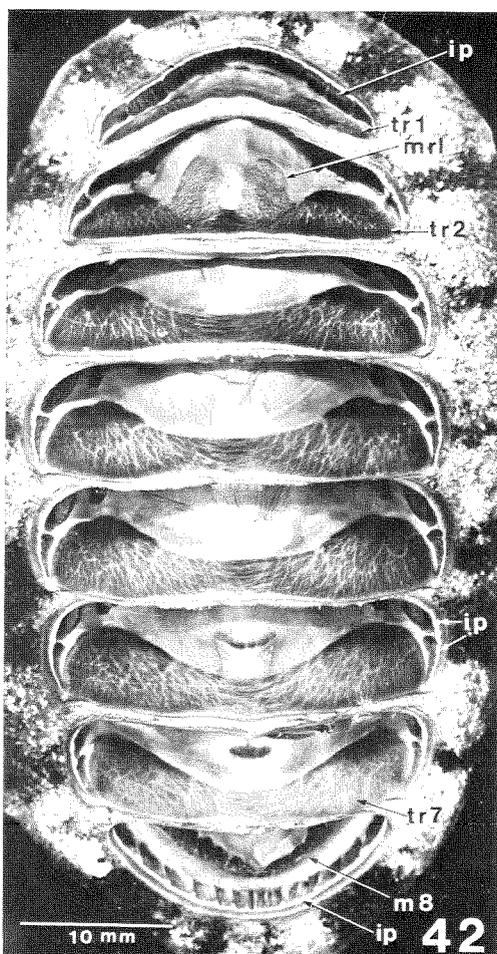
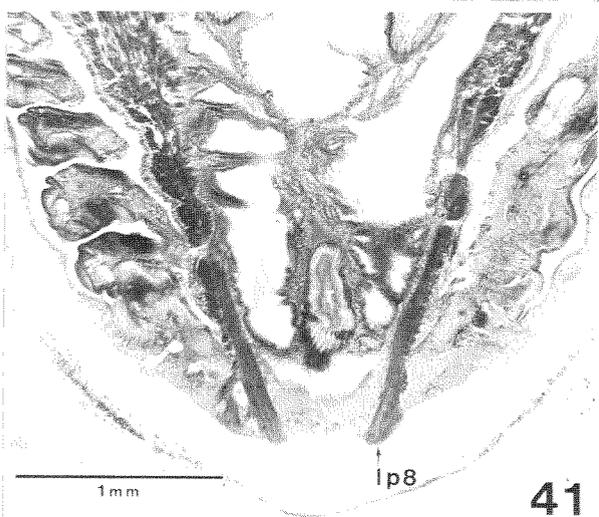
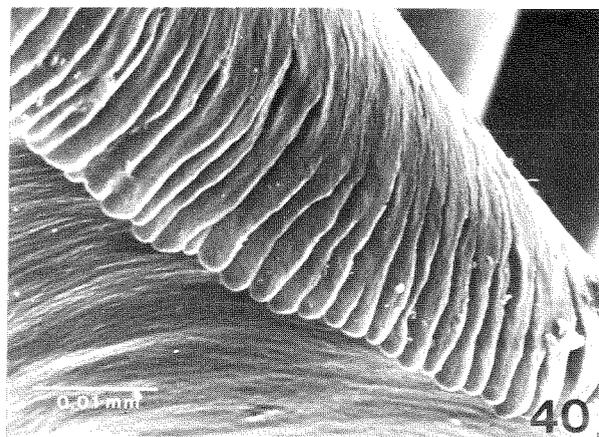


PLATE 11

45. *Acanthopleura spiniger*. Dorsal view of the region of shell plates 3 to 6. The shell plates themselves are removed and the muscle insertions are stained with acid fuchsin, followed by differentiation with 1-2% phosphomolybdic acid.

46. Same preparations as Fig. 45, dissected. To the left the roofs of apophysis pouches 4 and 5 are removed to show the attachment of the post-apophyseal muscle groups (mb), whereas the pre-apophyseal muscle groups (ma) were cut through when the pouches were removed (apc). On the right side both apophyseal pouches and dorsal mantle wall are removed to expose the musculi recti dorsales and mm. obliquii dorsales.

apc, wall of apophyseal pouch cut through when the roof of the pouch was removed; ip, pockets of insertion plates; ma, pre-apophyseal muscle group, continuous with the m. transversus; mb, post-apophyseal muscle group, od, m. obliquus dorsalis, pe, dorsal pallial wall exposed when the shell was removed; rd, m. rectus dorsalis; rd6, the 6th rectus dorsalis, which has a characteristic anterior attachment far back on the shell VI; tr4, tr5, and tr6, musculi transversi 4, 5, and 6, each including the true transversus and the anterior group of pedal and pallial retractors (ma).

For further explanation compare Text-Fig. 27.

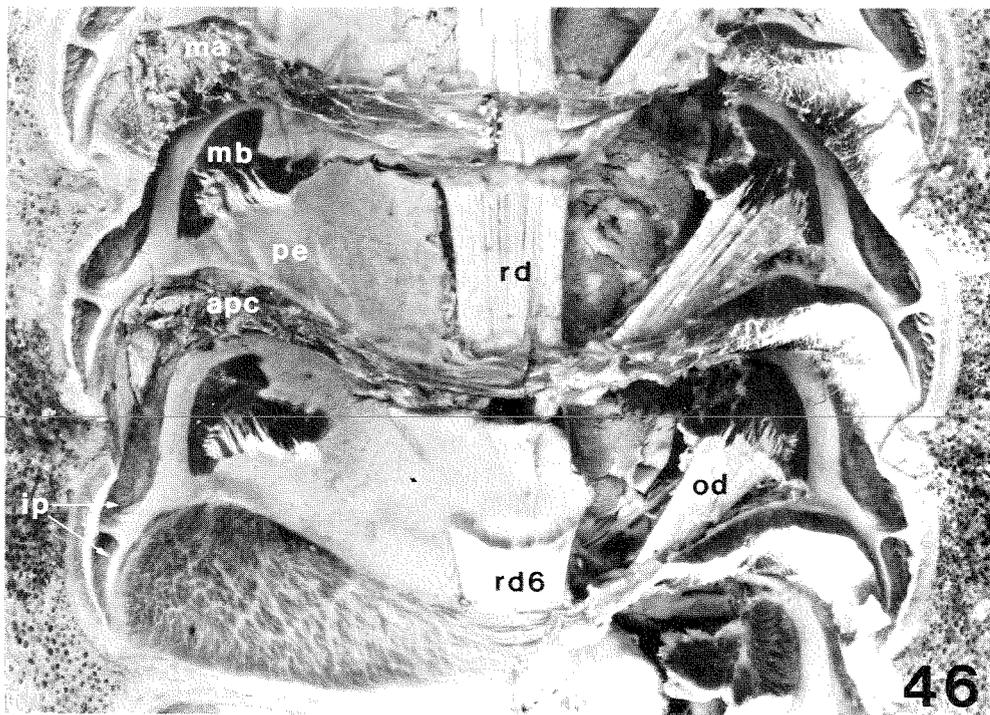
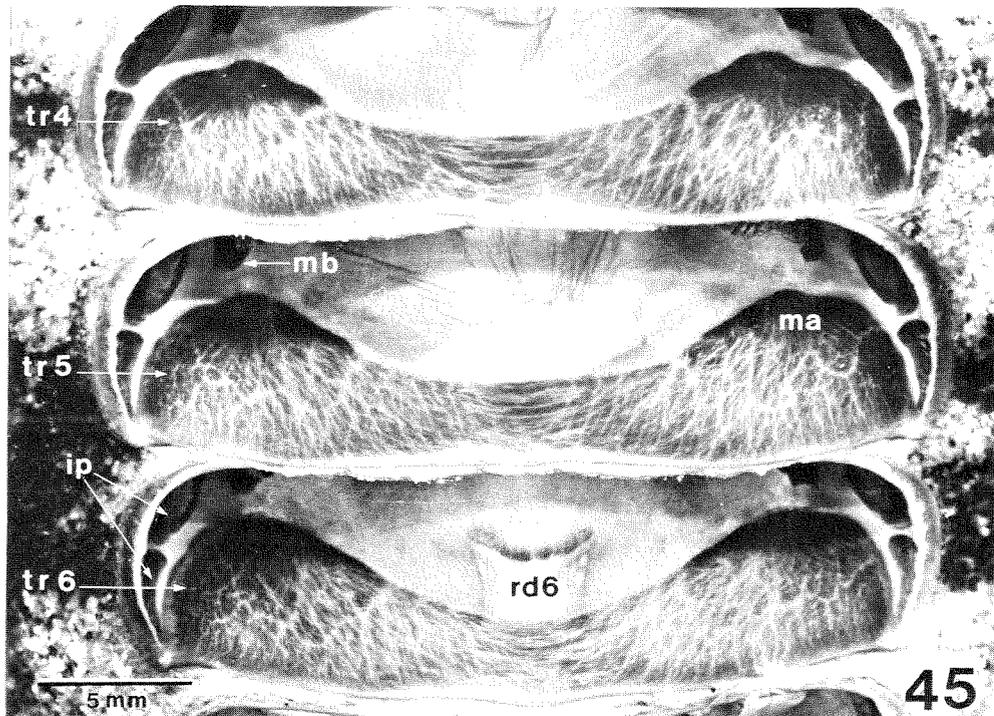


PLATE 12

47. *Patella vulgata*. Transverse paraffin section of right half of radula skeleton. Compare Pl. 8:33. The histological difference between the anterolateral and the anteromedial cartilage is distinct.

48. *Lepidochiton cinereus*. Electron micrograph of ultrathin section of the wall of the heart ventricle, showing absence of true endothelium and the situation of the basal lamina on the inner (luminal) side of pericardial epithelium. Specimen fixed in trialdehyde, osmificated and embedded in epon by Dr. H. Rähr.

al, anterolateral cartilage; am, anteromedial cartilage; bm, basal lamina; ct, connective tissue pad; m, muscles, detached from heart wall and passing through the ventricular lumen; pe, lumen of pericard; ve, lumen of ventricle.

