

FIG. 5.—Different positions of the head or mouth parts relative to the body.

A, *Hypognathous* position of head, diagrammatic, head vertical, mouth parts hang downward. B, *Prognathous* position of head, diagrammatic, head horizontal, mouth parts anterior. C, *Auchenorhynchous* position of mouth parts, cicada, beak projects from below the neck. D, *Sternorhynchous* position of mouth parts, aphid, beak held against undersurface of thorax when not in use.

Aclp, anteclypeus; *cvpl*, cervical plates; *es*, epistomal sulcus; *Gu*, gula; *Mt*, mentum; *occ*, occipital condyle; *Poc*, postocciput; *pos*, postoccipital sulcus; *Prmt*, prementum; *sgs*, subgenal sulcus; *Smt*, submentum.
Other lettering as on figure 4.

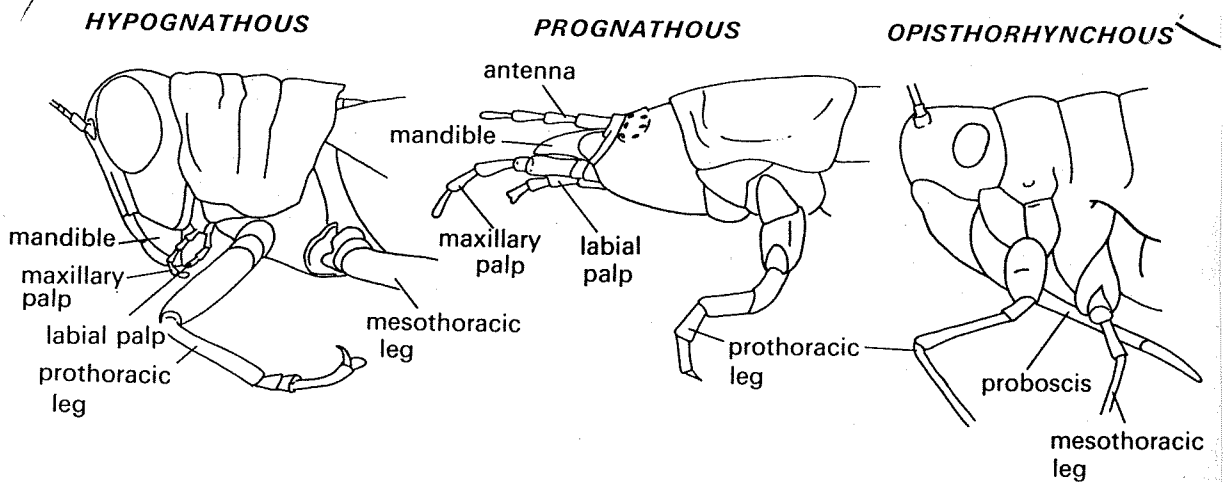


Fig. 1. Different positions of the head and mouthparts relative to the rest of the body.
Hypognathous—grasshopper; prognathous—beetle larva; opisthorhynchous—aphid.

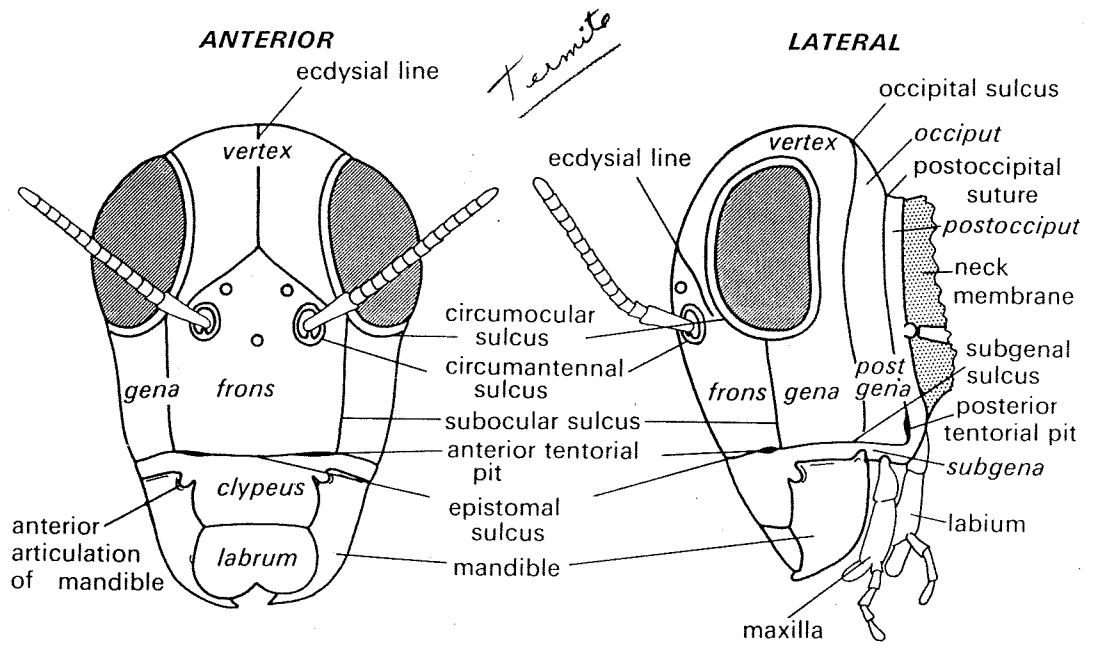


Fig. 2. The common lines or grooves on the insect head and the areas which they define. Names of areas are italicised (modified after Snodgrass, 1960).

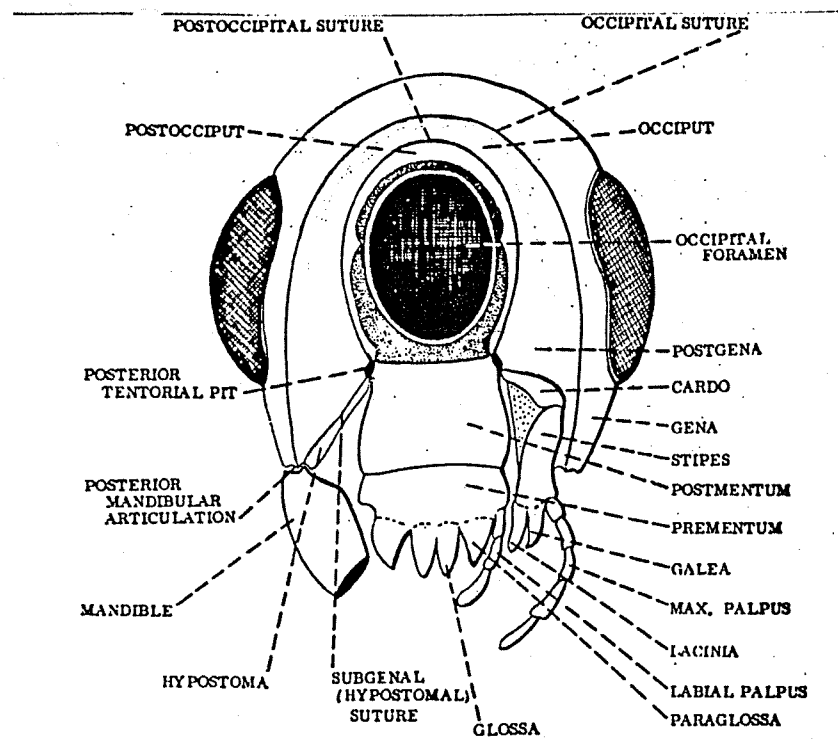


Fig. 12. Ventral aspect of a generalized insect head (diagrammatic).

and Ephemeroptera are ventral and medial to the mandibles. In Odonata, Plecoptera and Dermaptera the pits are lateral to the mandibles while in most higher insects they are facial at either end of the epistomal sulcus (Snodgrass, 1960). DuPorte (1946), however, believes the anterior tentorial pits to lie on the sulcus between the frons and the gena.

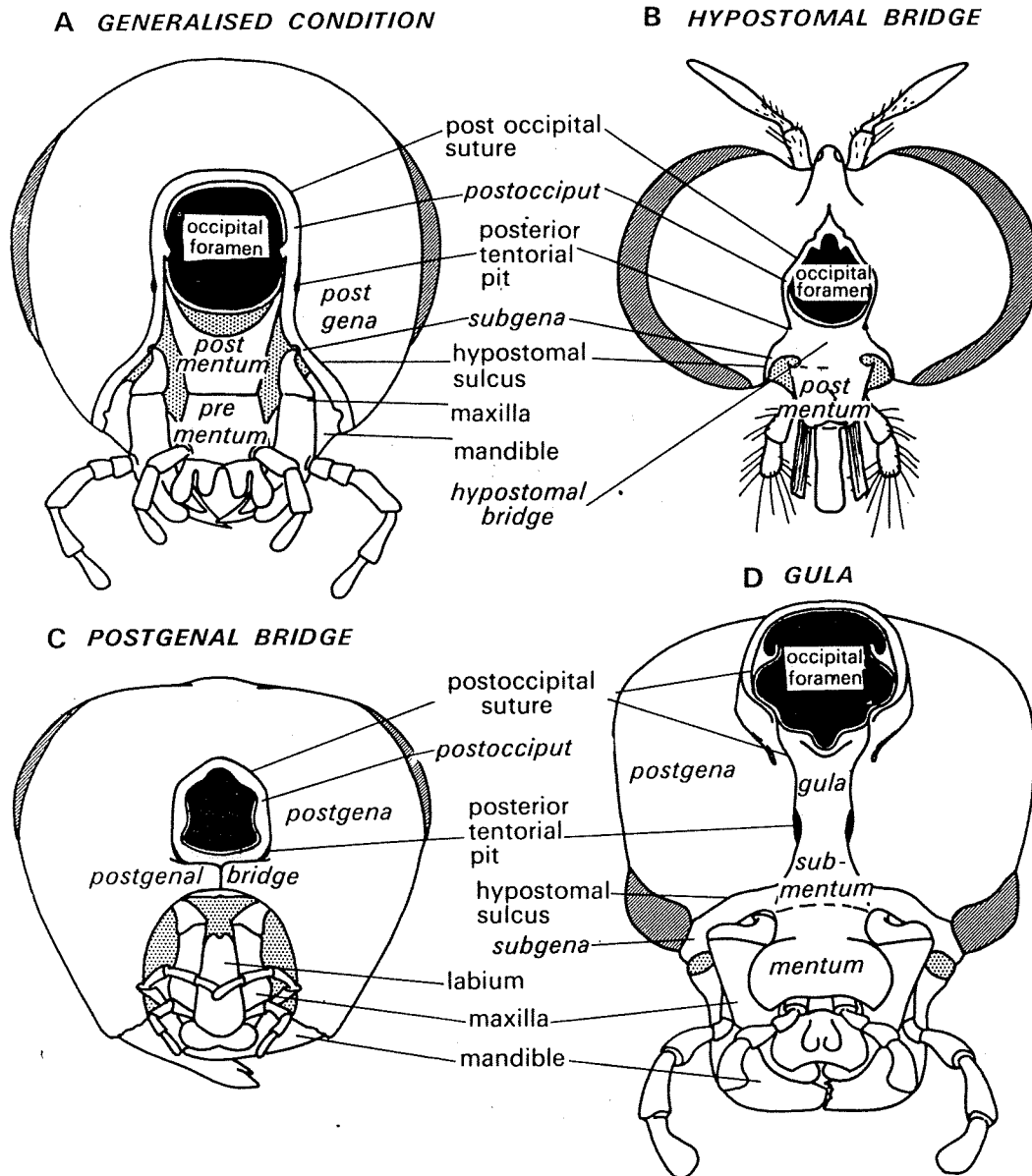


Fig. 4. Modifications occurring at the back of the head. A. Generalised condition; B. *Deromyia* (Diptera) with a hypostomal bridge; C. *Vespula* (Hymenoptera) with a postgenal bridge; D. *Epicauta* (Coleoptera) with a gula. Membranous areas stippled, compound eyes cross-hatched (after Snodgrass, 1960).

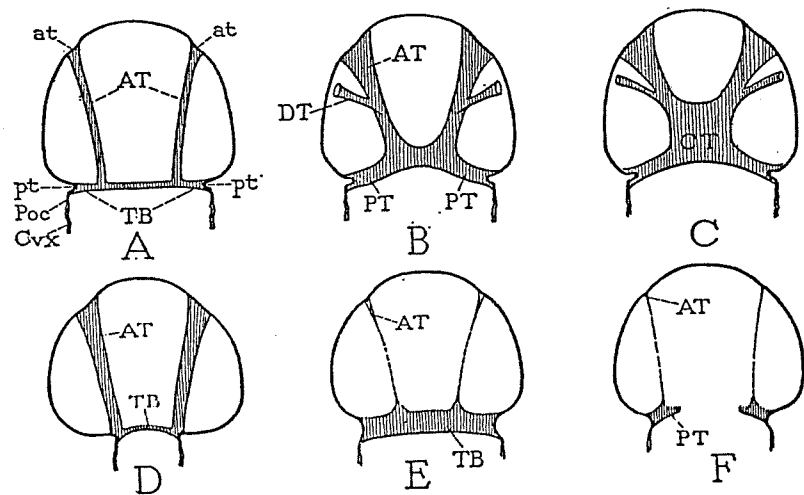


FIG. 17.—Variations of the pterygote tentorium, diagrammatic.

at, anterior tentorial pit; AT, anterior tentorial arm; CvX, neck (cervix); CT, corpotentorium; DT, dorsal tentorial arm; Poc, postocciput; pt, posterior tentorial pit; PT, posterior tentorial arm; TB, tentorial bridge (united posterior arms).

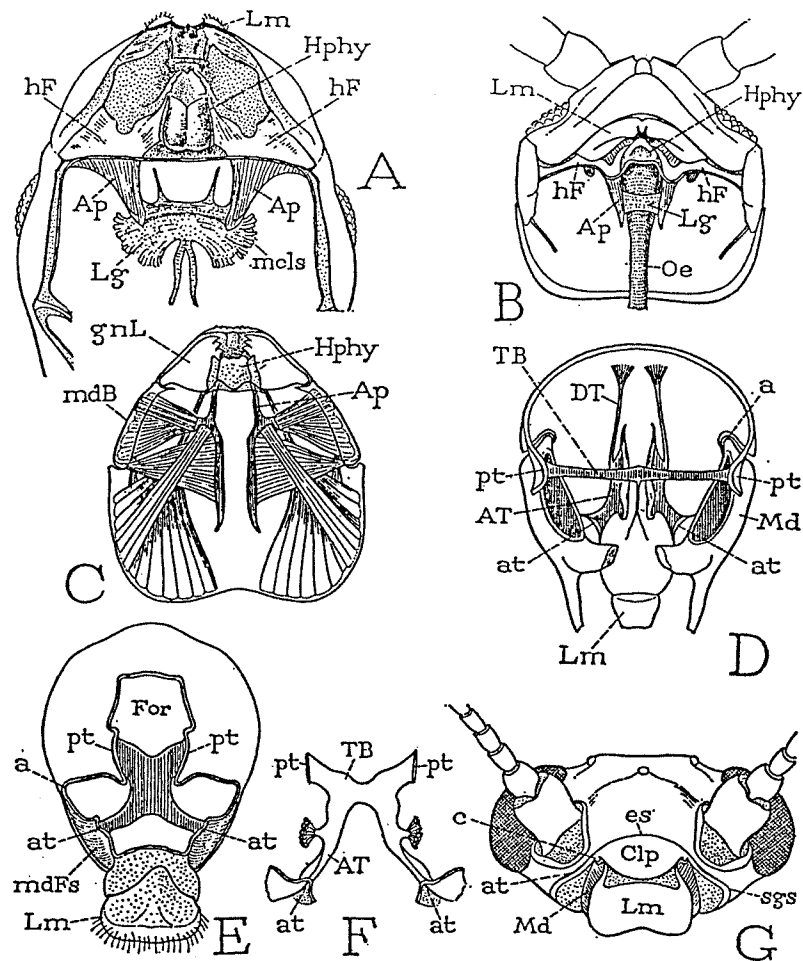
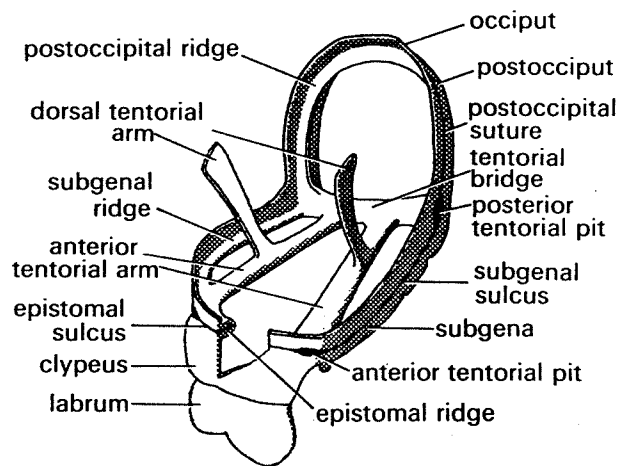


FIG. 16.—Evolution of the tentorium.

A, *Scutigera* sp., Chilopoda, ventral surface of anterior part of head with mouth parts removed, showing hypopharyngeal fulturae (hF) and their apodemes (Ap). B, *Lithobius* sp., Chilopoda, same view of head as A. C, *Scutigera* sp., Chilopoda, optical section of head behind mandibles. D, *Nesomachilis maoricus*, Thysanura, posterior view of interior of head, showing separate anterior tentorial arms (AT) and tentorial bridge (TB). E, *Isorychia* sp., Ephemeroptera, larval head, posterior, showing tentorium. F, *Anax junius*, Odonata, larval tentorium, dorsal. G, *Strophopteryx fasciatus*, Odonata, larval head, anterior.

ARTHROPOD HEAD ENTATION

Segment	Ganglion	Homologous Features or Appendages									
		Onychophora	Trilobita	Crustacea	Pauropoda	Diplopoda	Chilopoda	Symphyla	Insecta	Arachnida	Xiphosurida
Prostomium (Acron)	Protocerebrum	eyes (rudimentary)	eyes	eyes	eyes?	eyes	eyes	eyes	eyes	eyes	eyes
	Archicerebrum	antennae	antennules	antennules	antennae	antennae	antennae	antennae	antennae	rostrum (labrum)	rostrum (labrum)
	Deutocerebrum	labrum or epipharynx	antennules labrum	(1st antennae) labrum	labrum	labrum	labrum	labrum	labrum	labrum	labrum
I (postoral)		MOUTH →									← MOUTH
Premandibular Intercalary	Tritocerebrum 1	Feeding Claws	1st legs	2nd antennae Protocephalon						chelicerae	chelicerae
II	2	Slime papillae HEAD	2nd legs	mandibles	mandibles	mandibles	mandibles	mandibles	mandibles	pedipalpi H	1st legs
III	3	1st legs	3rd legs	1st maxillae	maxillae	1st maxillae "gnathochilarium"	1st maxillae	1st maxillae	maxillae	1st legs	2nd legs
IV	4		4th legs PROSOMA	2nd maxillae	collum (labium?) HEAD	2nd maxillae? H	2nd maxillae HH	2nd maxillae & labium H	labium H	2nd legs	3rd legs
V	5		1st thoracic thoracic legs	1st maxillipeds	1st legs		1st legs (maxilliped, poison claw)	1st legs	Prothoracic legs	3rd legs	4th legs
VI	6			2nd maxillipeds		1st legs	2nd legs		Mesothoracic legs	4th legs PROSOMA	5th legs
VII	7			3rd maxillipeds					Meta- thoracic legs		chilaria PROSOMA
VIII	8			1st pereiopods			2nd legs			---	