

Phylum Euarthropoda, class Trilobita

Unclassified at subclass level

Order Redlichiida - 4 suborders including:

Suborder **Olenelloidea** (L-M Camb) - Large, semicircular cephalon, usually with genal spines; long, strongly furrowed glabella; large crescentic eyes; thoracic pleurae spiny; micropygous.

Suborder **Paradoxoidea** (L-M Camb) - Large cephalon with long genal spines, weakly furrowed glabella; crescentic eyes and opisthoparian facial suture; thoracic pleurae spiny; micropygous.

Order Agnostida

Suborder **Agnostina** (L Camb-U Ord) - Very small, isopygous; eyeless; 2 thoracic segments; <3 rings on pygidial axis.

Suborder **Eodiscina** (L-M Camb) - Very small, isopygous; mostly eyeless; 2 or 3 thoracic segments; >3 rings on pygidial axis.

Order **Corynexochida** (L Camb-M Dev) - Flat, isopygous to macropygous; furrowed glabella, parallel sided or expanding anteriorly; eyes crescentic with eye ridges; suture opisthoparian; many tend to smoothness. Includes scutellids and illaeniniids.

Order Lichida

Suborder **Lichoidea** (L Ord-U Dev) - Medium to very large; opisthoparian; distinctive glabella with furrows isolating first lateral lobes; iso- to macropygous with 3 pairs of blade-like pleurae.

Suborder **Odontopleuroidea** (U Camb-M Dev) - Characteristically very spiny; prominent eyelobes; opisthoparian; glabella tapering forwards with 3 pairs of lateral lobes.

Order Phacopida

Suborder **Phacopina** (L Ord-U Dev) - Glabella prominent, expanding anteriorly; schizochroal eyes with proparian suture in most; few eyeless; 11 thoracic segments.

Suborder **Calymenina** (L Ord-M Dev) - Gonatoparian suture; one group with strongly furrowed bell-shaped glabella (*Calymene et al.*); second group smooth with wedge-shaped cephalon (*Homalonotus et al.*).

Suborder **Cheirurina** (L Ord-M Dev) - Glabella usually expanding forward, <4 pairs of furrows; exoskeleton usually tuberculated; mostly proparian suture; pygidium usually spiny.

Subclass Libristomata

Order Ptychopariida

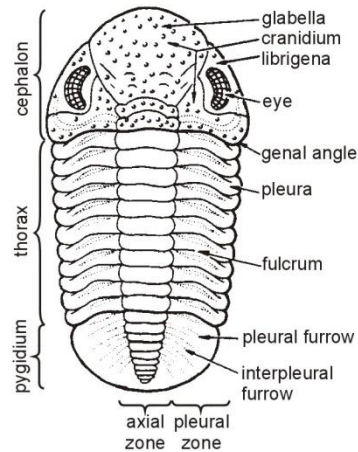
Suborder **Olenida** (L Camb-U Ord) - Cephalon short, wide; glabella tapering forward with preglabella field; eyes small, crescentic, with eye ridges and usually opisthoparian suture; micropygous.

Suborder **Harpina** (L Ord-U Dev) - Proportionally large cephalon with wide brim extended in genal prolongations; very small eyes; marginal suture; short pygidium.

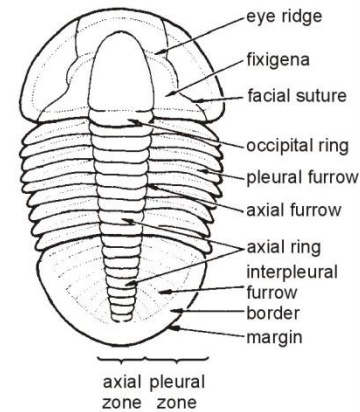
Order **Asaphida** (U Camb-U Sil) - Large, flat, smooth, isopygous; glabella weakly furrowed or smooth; opisthoparian suture, without rostral plate. Includes trinucleids with proportionally large cephalon with genal spines; some with distinctive, pitted, cephalic fringe (*Trinucleus et al.*); others with prominent rostral spine (*Ampyx et al.*); eyeless; 6 thoracic segments; triangular pygidium.

Order **Proetida** (L Ord-U Perm) - Cephalon longer than wide usually with genal spines; glabella inflated, usually unfurrowed and wider anteriorly; crescentic eyes, opisthoparian suture; 8-10 thoracic segments; subisopygous.

General trilobite morphology (dorsal view of mineralised exoskeleton)



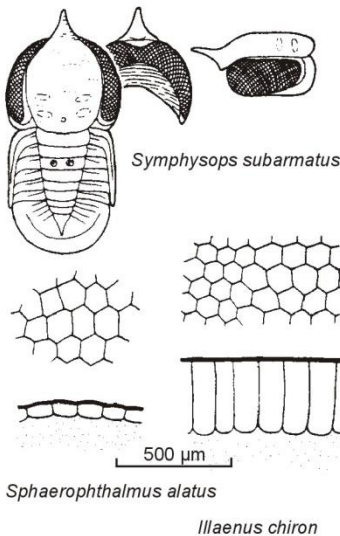
Phacops fecundus (Devonian)



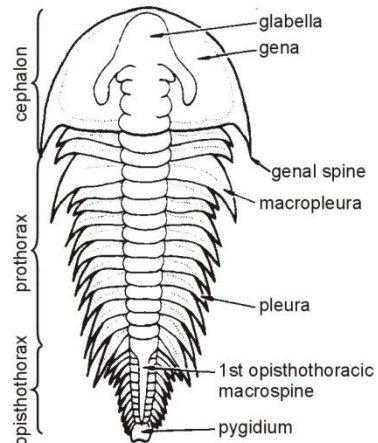
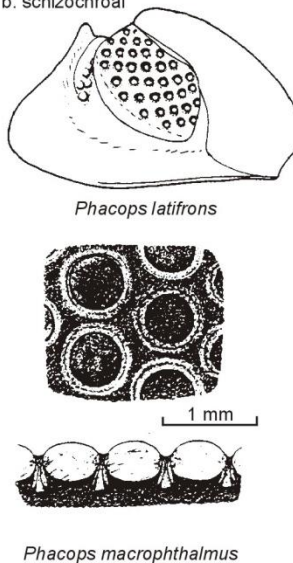
Asaphiscus wheeleri (Ur Cambrian)

Eyes

a. holochroal



b. schizochroal



Olenellus vermontanus (Lr Cambrian)

PROparian, GONATOParian, OPISTHOParian:
refers to position of suture relative to genal angle.

