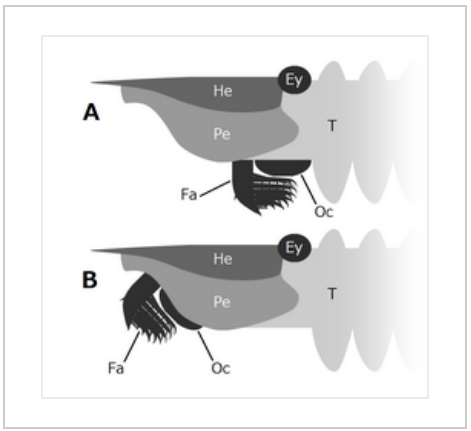
Hurdia

Hurdia is an extinct genus of hurdiid radiodont that lived 505 million years ago during the Cambrian Period. Fossils have been found in North America, China, and the Czech Republic.

Description

Hurdia was one of the largest organisms in the Cambrian oceans, *H. victoria* reached between 18.3–30.5 cm (7.2–12.0 in) in length, while *H. triangulata* reached up to just 8.1 cm (3.2 in) long.[1] Its head bore a pair of frontal appendages. These frontal appendages had 9 or more rarely 10 or 11 segments/podomeres, which were approximately rectangular and decreased in size towards the end of the appendage. The upper surface of the appendage was convexly curved. Podomeres 2 to 6 bore long downward pointing spines (ventral spines) with forward-curving tips. These ventral spines themselves bore up to 9 equally spaced forward-facing spines dubbed auxiliary spines, with podomeres 7 and 8 bearing shorter, smooth forward curving spines. The frontal appenages were used to bring food to its ring-shaped mouth (oral cone), in which four large plates are present, with inner rows of spines inside the main cone.[2] Like other hurdiids, *Hurdia* bore a large frontal carapace protruding from its head composed of three sclerites: a central component known as the H-element and two lateral components known as P-elements. Originally, it is estimated that body flaps ran along the sides of the organisms, from which large gills were suspended.[3] However, anatomy of *Aegirocassis* clarified that *Hurdia* had both ventral and dorsal flaps, and gills were on trunk segments.[4]

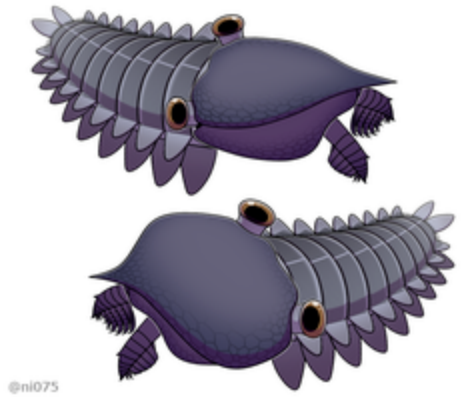
Movement range of the frontal appendage



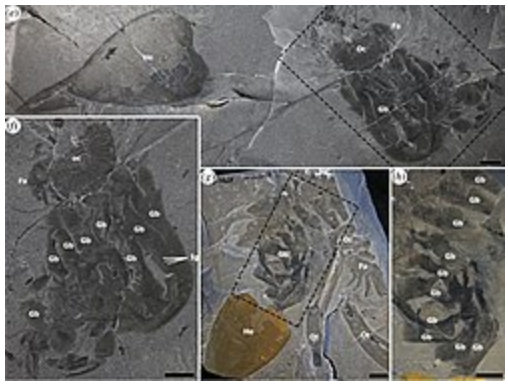
Interpretations of placements (A based on articulated specimens, B based on speculation from *Cambroraster*) of the frontal appendages and mouthparts of *Hurdia*

Hurdia

Temporal range: Mid Cambrian,



Reconstruction of *H. victoria* (top) and *H. triangulata*



Disarticulated fossils

Scientific classification

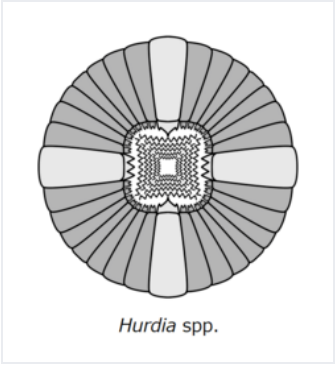
Domain:	Eukaryota
Kingdom:	Animalia
Phylum:	Arthropoda
Order:	†Radiodonta
Family:	†Hurdiidae
Genus:	†*Hurdia* Walcott, 1912

Type species

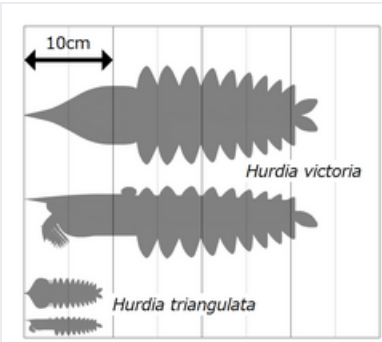
†***Hurdia victoria***
Walcott, 1912

Other species

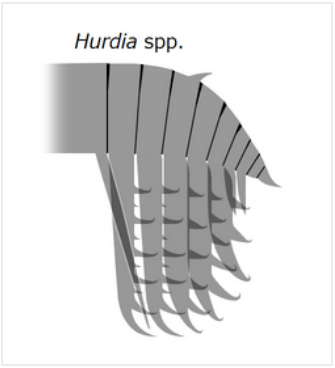
- †*H. triangulata* Walcott, 1912



Morphology of the oral cone



Size comparison of the two species



Hurdia frontal appendage

- †?*H. hospes* Chlupach and Kordule, 2002

Synonyms

- †?*Huangshandongia yichangensis* Shicheng and Zhilin, 1990
- †?*Liantuoia inflata* Shicheng and Zhilin, 1990

Ecology

Hurdia is either suggested to have used its frontal appendages to sift small prey from sediment, or to have used them as a trap to capture larger benthic (seafloor dwelling) prey.[5]

Distribution

Hurdia had cosmopolitan distribution; two described species has been recovered from the Burgess Shale in British Columbia, Canada. In addition, *H. victoria* is also known from the Spence Shale in Utah, USA.[6] Unnamed species are known from Qingjiang biota in Hubei, China, Pioche Shale in Nevada, USA, and Wheeler Shale in Utah, USA.[6][7] *Huangshandongia yichangensis* and *Liantuoia inflata* from the Shuijingtuo Formation in Hubei, China, and *Proboscicaris hospes* from the Jince Formation of the Czech Republic (which is identified as *Hurdia hospes* in some papers[8]), and unnamed fossil from Ordovician Fezouata Formation could represent species of *Hurdia* as well.[3][2]

Taxonomic history

Hurdia was named in 1912 by Charles Walcott, with two species, the type species *H. victoria* and a referred species, *H. triangulata*.[9] The genus name refers to Mount Hurd.[9] It is possible that Walcott had described a specimen the year prior as *Amiella*, but the specimen is too fragmentary to identify with certainty, so *Amiella* is a

nomen dubium.[10] Walcott's original specimens consisted only of H-elements of the frontal carapace, which he interpreted as being the carapace of an unidentified type of crustacean. P-elements of the carapace were described as a separate genus, *Proboscicaris*, in 1962.

In 1996, then-curator of the Royal Ontario Museum Desmond H. Collins erected the taxon Radiodonta to encompass *Anomalocaris* and its close relatives, and included both *Hurdia* and *Proboscicaris* in the group.[11] He subsequently recognized that *Proboscicaris* and *Hurdia* were based on different parts of the same animal, and recognized that a specimen previously assigned to *Peytoia* was also a specimen of the species.[10] He presented his ideas in informal articles,[12][13] and it was not until 2009, after three years of painstaking research, that the complete organism was reconstructed.[3][14][15][16]

Sixty-nine specimens of *Hurdia* are known from the Greater Phyllopod bed, where they comprise 0.13% of the community.[17]

See also

- Paleobiota of the Burgess Shale

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External links

- "*Hurdia victoria*" (http://burgess-shale.rom.on.ca/en/fossil-gallery/view-species.php?id=67). *Burgess Shale Fossil Gallery*. Virtual Museum of Canada. 2011. Archived (https://web.archive.org/web/20201112025257/http://burgess-shale.rom.on.ca/en/fossil-gallery/view-species.php?id=67) from the original on 2020-11-12. Retrieved 2023-01-21.