Summary Write Up of the DGAG Talk Tuesday 18 April 2023

Why do all brachiopods look the same? Speaker: Dr. Keith Holdaway

Our talk was, as promised, a real treat enjoyed by 21attendees. There was much to consider and discussions carried on well after scheduled completion time, with many transfixed by the models and some hands on model construction and hand specimens on display supported by numerous technical publications. Although we cannot reproduce entirely the talk here we have some of the key slides as a PDF document to assist both attendees and those who did not (Link Below)
https://dorsetgeologistsassociation.org/wp-content/uploads/2023/04/1.12-brachiopod-talk_ed_slides_18042023.pdf

The speaker delivered a truly fascinating talk with many excellent slide illustrations interspersed with witty comments and pertinent props (kitchen sieves)! Some interludes had the audience well engaged particularly when it came to making models using pipe cleaners of the various Lophophores. Some were more complex than others but no blue peter badges were handed out!
We learnt that modern CT scans have revolutionized the study of the brachiopod creatures as previous older study was painstaking and involved making multiple casts and slicing them to see the internal structure.
The speaker illustrated with deft use of props and slides the 3 principal groups of brachiopods where the 2 pumps/sieves (Lophophore filter feeding and waste disposal structure) are arranged differently:

- Terebratulida
- Rhynchonellida (Back to Back)
- Spiriferida (Side by side)

In contrast to the bivalves (Mollusca Phylum) brachiopods do not have substantial muscle (soft/body meat). This was explained as probably due the limited amount of pumping of water that they can do with their complex filter/pump and delicate Cilia (hair-like filaments that beat rapidly, drawing in food-bearing water currents). Interesting that this seems likely to be the limiting factor on the size of Brachiopods (a few cm at most) compared to bivalves that can get up to metres.
The zig-zag commissure (join line between two closing valves) in Rhynchonellida was demonstrated/shown with a neat evolutionary mechanism to simultaneously have relatively large water volume enter the shell with a small gape but prevent “nasties” entering into the simple pump system. The Terebratulida have evolved a more complex pump/filter system to avoid “nasties” with a just a simple smooth line commissure.
For those interested in further reading the BGS have a good summary to start you off.
https://www.bgs.ac.uk/discovering-geology/fossils-and-geological-time/brachiopods/

The next talk will now not be until September or October as we take our scheduled summer activities. Although we have a possible 2 speakers, more are required so please ask around and let me know who may be interested.
The next event will be in Saturday May 20 with a day field trip to Worbarrow Bay led by Jeremy Cranmer. Details as to how to register for this field trip are in the DGAG website and also all future events and also in the DGAG group Facebook and will also be in the newsletter and also advertised on third party websites:
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