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# PRESERVATION OF SOFT-BODIED XYLOPHAGOUS MOLLUSKS (BIVALVA, TEREDINIDAE) AND EVOLUTIVE IMPLICATIONS

N. ROBIN, A. BOURA, G. GARCIA, M. VELASQUEZ, J.-M. BOITEAU & X. VALENTIN

Teredinidae, also known as shipworms, are obligate xylophagous bivalves colonizing drifted woods, which display a very specialized anatomy with valves highly reduced in size. Their fossil representation is very representative of the mineralization level of their body. In addition to their shell, the animal secretes terminal aragonitic structures (pallets) and calcitic linings, but the vast majority of their anatomy consists in soft-tissues.

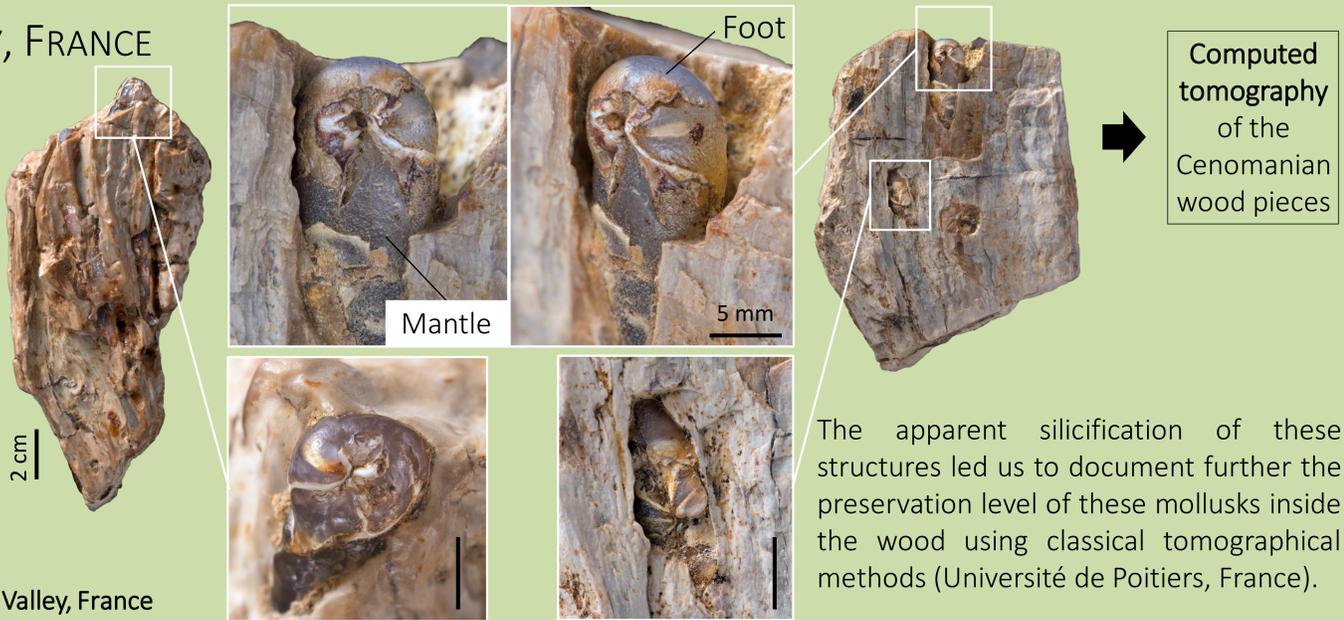


## TEREDINIDAE FROM THE ENVIGNE VALLEY, FRANCE -- UPPER CRETACEOUS --

The Envigne Valley, in the Vienne French department, yielded tons of Cenomanian silicified wood pieces, some of whom include very well-preserved xylophagous shipworms displaying soft-bodied structures like foot or part of the mantle.

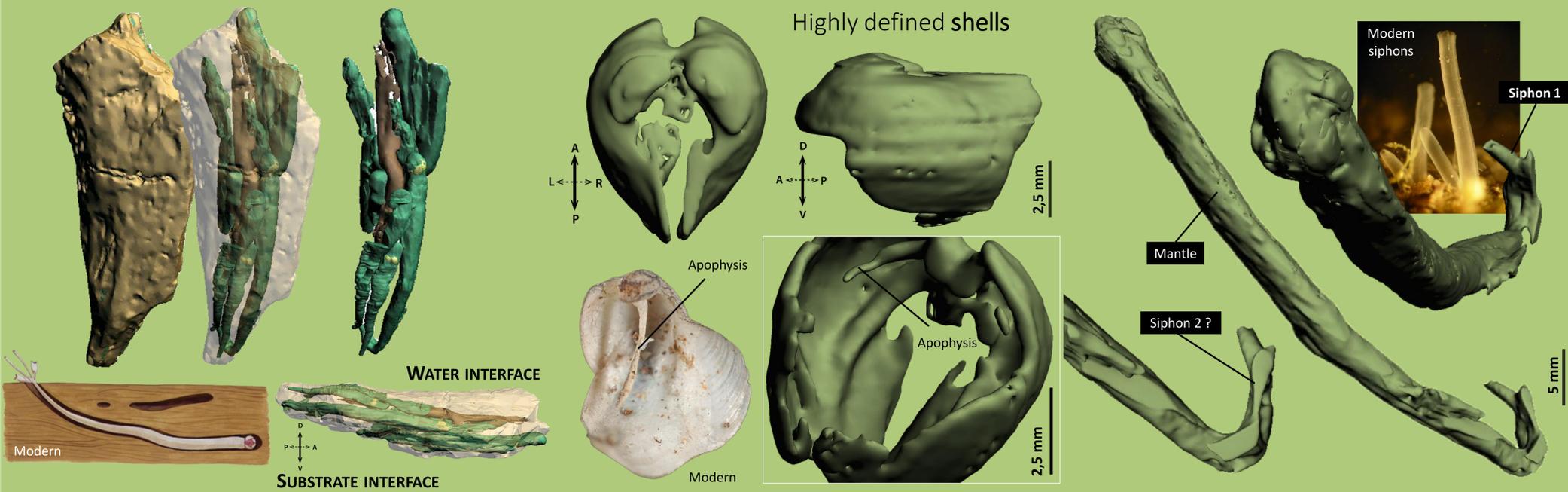


2015, excavations in the Envigne Valley, France



The apparent silicification of these structures led us to document further the preservation level of these mollusks inside the wood using classical tomographical methods (Université de Poitiers, France).

## ORGANISATION IN WOOD AND ANATOMICAL PRESERVATION OF THE SHIPWORMS REVEALED BY CT-SCANNING



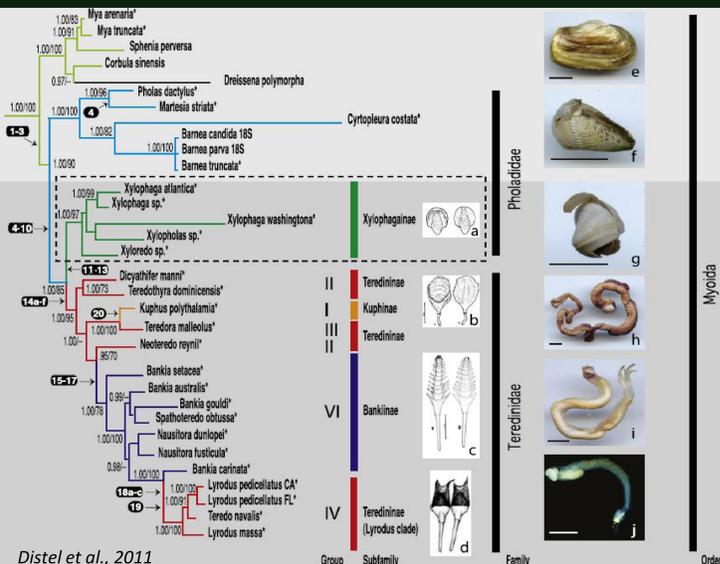
Preservation of most individuals soft-bodies

Thin elements on the mineralized parts (shell)

Fragile soft-bodied structures

But no evidence of any of the terminal pallets which are aragonitic structures ?!!

## EVOLUTIVE IMPLICATIONS OF A CONFIRMED ABSENCE OF THE PALLETS IN UPPER CRETACEOUS TEREDINIDAE



### Derived anatomical characters of Envigne Teredinidae

- Presence of an apophysis (2) → belong to the clade ( Pholadidae + Teredinidae )
- Presence of calcareous linings (3) → belong to the clade ( Pholadidae + Teredinidae )
- Viscera posterior to posterior adductor (14) → if confirmed belong to the clade ( Teredinidae )

But no Presence of pallets ? (appearing in 10) if absence confirmed

- pallets would have appeared later than previously thought among teredinidae ?
- pallets would have appeared several times among teredinidae ?

It could imply to review the status of the *pallets* as a proper synapomorphy of these mollusks.