

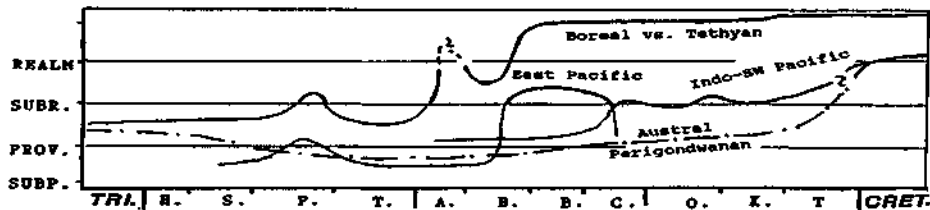
## CEPHALOPODS, VIENNA: BIRTH OF MARINE PALEOBIOGEOGRAPHY

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Roughly a century ago, Melchior Neumayr and Victor Uhlig of Vienna created semi-modern marine paleobiogeography based on ammonites and other molluscs of the Jurassic Period. Neumayr reconstructed climatic belts and distinguished numerous Provinces world-wide; followed by Uhlig who grouped the redefined Provinces into Realms, clearly distinguishing between facies and biogeographic units (biochores). Uhlig, with amazing foresight, distinguished 4 realms, placed in two Climatic Zones: Boreal (Boreal Zone), Mediterranean, Himalayan, and Andean (Tethyan Zone). I will briefly discuss their history, later interpretation and classification.

Realms, like other biochores, are distinguished biotically but defined geographically. They vary through time in area and in rank, according to the degree of endemism of their biota (not single taxa). In fact, most Realms have been either relatively short-lived or reduced to Subrealms or Provinces during much of their duration (figure). Two or three Climatic Belts with "super-realm" rank are presently recognized by some authors, but they were usually asymmetric and are difficult to delineate without biotas.



(A. BOREAL ZONE/BELT [ ? Warm - and Cold- temperate + ? Polar])

1. ? ARTIC REALM - Aal. bivalves, Call. ammonites + bivalves
2. BOREAL REALM - persistent for diverse taxa
- 2a. BOREAL - ATLANTIC REALM/SUBR. --Call. - Cret. cephs. +
- 2b. BOREAL - PACIFIC REALM/SUBR. - ? Aal. bivs., Call.+ cephs.

(B. TETHYAN ZONE/BELT [ Tropics, Subtropics + ? Warm - temperate]).

4. TETHYAN REALM = 4a + 4b - persistent for diverse taxa.
- 4a. MEDITERRANEAN SUBREALM = WEST-TETHYAN SUBREALM --persistent
- 4b. "HIMALAYAN REALM" = INDO-S.W. PACIFIC SUBREALM - persistent
- (5. "PACIFIC REALM" - L. Baj. ammonites; largely tax. error)
- (6. "INDO-PACIFIC REALM" - s.l.= 5+4b, tax. error; s.s. = 4b part)
- (7. "SOUTH ANDEAN REALM" = ANDEAN R. Arkell 1956, non Diener 1916)
- 7a. EAST-PACIFIC SUBREALM - ?Pliensb, U.Baj. - L.Call. ammonites

(C. ? AUSTRAL ZONE/BELT - "mirroring Boreal Z/B. " but lower rank)

8. AUSTRAL REALM/SUBR. - Tith., ?Hett.-Plien. (pectinoids only)
- 8a. PERI-GONDWANIAN REALM/SUBR. = 4b+7 part. - Tithonian

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