

Mesozoic Atlas

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The first climatic atlas of the world as it was some 150 million years ago is being drawn at the University of California's Scripps Institution of Oceanography.

It will be based on the ratio of two forms of oxygen in the shells of an extinct sea creature called the Belemnoid. Research has shown that these ratios vary according to the warmth or coolness of the waters in which the shells were formed. This means that for the first time actual numerical values can be assigned to sea temperatures of the far past.

Belemnoids, which resembled squids, were widespread if not abundant in the Mesozoic seas, says Robert Bowen, English paleontologist working at Scripps. Their fossil remains have been found on every continent.

The Belemnoid's guard, a balancing organism, is formed principally of calcium carbonate. A few years ago Harold C. Urey found that the ratio of the isotope oxygen 18 to ordinary oxygen 16 in calcium carbonate alters with temperature change and he thus unlocked the door to one of Nature's most closely guarded secrets, the quantitative history of ancient climates. Bowen's atlas, which may be completed late this year, will be one of the first systematic studies using the technique.

Bowen's work has received support from the Atomic Energy Commission and the National Science Foundation.