
CLIMATE OF THE TRIASSIC AS SEEN FROM THE PERMIAN

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The Lower Permian is noted for the provincialism of its faunas reflecting the distinctive climatic differentiation. The Permian opens with widespread glaciation in the Asselian. Evidence of the action of glaciers is seen in Africa as far north as Ethiopia, Arabia, India and Tibet, Australia, South America, Antarctica and possibly Siberia. Although evidence for glaciers is absent from the Sakmarian onwards, the faunal provincialism persists through the Lower Permian and into the Upper Permian.

The striking cosmopolitanism of the Lower Triassic is as though looking at another planet, e.g. the bivalves from Western Australia (Dickins and McTavish, 1963) are virtually cosmopolitan in their occurrence - a feature quite unknown in the Lower Permian.

During the Upper Permian the faunas become more cosmopolitan and I have associated this with worldwide warming of climate and indeed I have been bold enough to suggest the drastic changes of fauna (and flora) at the Permian-Triassic boundary reflect a worldwide very hot climate which together with the world regression at the time were the main factors in the change in life at this time (Dickins, 1983).

The cosmopolitan nature of the fauna of the Lower Triassic is shown for example for conodonts (Sweet et al., 1971) and the ammonoids (Kummel, 1973). This fits other climatic data such as the widespread occurrence of fine-grained red beds and desert conditions (Waugh, 1973). Although some amelioration of the hot climate may have taken place in the Middle Triassic, the nature of the fauna indicates a worldwide warm climate. This persists in the Upper Triassic and is shown, for example, in the distribution of the monotids (Westermann, 1973).

The Triassic therefore in its climate was totally different to the present. For example, to say that a high latitude indicated a cold or temperate climate would be quite misleading. The climate has had a very important place in defining the special features of the System. There are also other special features such as the peculiar tectonic and magmatic development of the System on which I shall not elaborate here.

Taking into account the climate, one could then ask whether the latitudinal weather patterns were quite different to the present, e.g., did a single weather cell extend from the Equator to the Poles, not two as at present? Was there a wide belt or belts of dry climate? Many lines of enquiry are opened up. Does the difference in climate have anything to do with the supposed different positions of the continents? Has a belief that high latitude was associated with cool climate in the Triassic led some authors into a series of complicated manipulations of world palaeogeography to explain the faunal distributions, e.g. Tozer (1982)? Almost certainly the kind of water temperature differences apparent in the Permian are not present in the Triassic. The widespread nature of the zones of the Triassic does little to bear out recognition of restricted low, middle and high latitude faunal provinces.

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On August 30, 1983, the Netherlands Subcommittee on Stratigraphy was installed as a subcommittee of the Royal Academy of Arts and Sciences of The Netherlands.

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The newly established subcommittee wishes to maintain contacts with the STS and in case combine efforts.

The current concept of stratigraphical subdivision of the Triassic of The Netherlands is reproduced on p.16 of the present issue of ALBERTIANA.

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