

Evidence Suggesting an Impact Event at the Permo-Triassic Transition

PARUBETS, NICOLAS. Granton Institute of Technology, Toronto, Canada.

E. Shoemaker, W. Hartman and other astronomers have used accretionary theory to consider the possible distribution of objects with which the Earth could have collided during its development. Combining the conclusions flowing from their exploratory calculations with an analysis of some established facts relating to the Permo-Triassic boundary (the greatest ever mass extinction and the breakup of the supercontinent Pangaea circa this period; the huge decline of the ocean level; the formation of the greatest ever volume of marine evaporites; the abnormal amounts of acid rain and atmospheric dust at this time; the complete absence of glaciation during the Mesozoic; significant changes in the Earth's magnetic field; the inception of the seasons) yields a new perspective, calling for serious consideration of the possibility of a major collision event at the Permo-Triassic Transition.

This hypothesis is supported by recent Mars Pathfinder alpha proton X-ray spectrometer data for sites A2-A5, A7 and A15-A18, and by data (obtained with the participation of the Geological Survey of Canada) on continental remnants such as the Orphan Knoll (including recently revised fossil data).

Further support for this hypothesis may be forthcoming from the Mars mission in December 1999 – January 2000 and from subsequent missions in 2003 and 2005. The data from these missions may be very relevant to the possibility of the existence of a large undetected impact crater in the Pacific Ocean, and the possible effects of this hypothesized impact on the Permian supercontinent.