

IMAGES OF THE PRECAMBRIAN

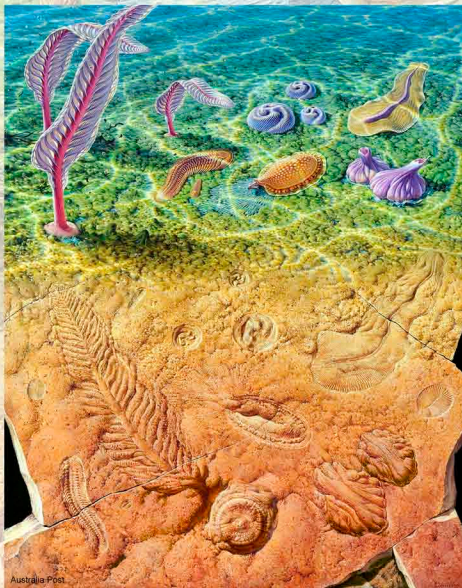
WHERE ART AND SCIENTIFIC THEORY CONVERGE

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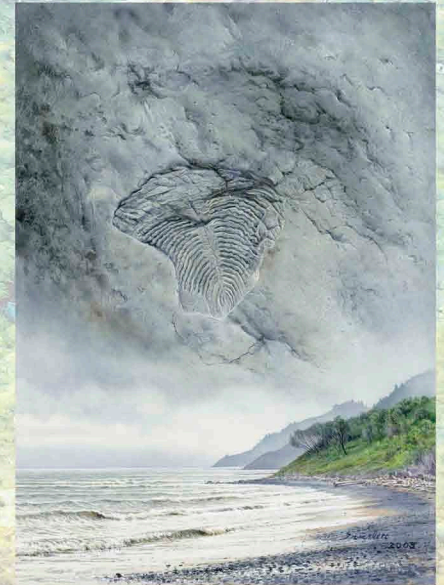


"Ramsley Quartzite" Flinders Ranges, South Australia

Understanding the physical and biological conditions and how they interfaced over time, particularly during times of change, requires the interaction of researchers with diverse backgrounds. Sometimes the differences of detail and terminology between disciplines can be confusing or even unknown because of the lack of awareness and access. Excellent "In-depth" overviews, such as those by Eriksson et al., 2004; Valentine, 2004; Schopf & Klein, 1992) on events in the Precambrian help to alleviate this and bring together masses of information accumulated over recent decades. They serve to bring a closer understanding of the Earth's history, (from its beginnings over 4405 million years ago to the present) to a wider scientific audience. In this respect, "Art" can also be a critical "Esperanto" or "Lingua Franca" allowing cross-disciplinary communication, fuelling discussion, generating new ideas and new approaches to old enigmas.



"Creatures of the Slime"



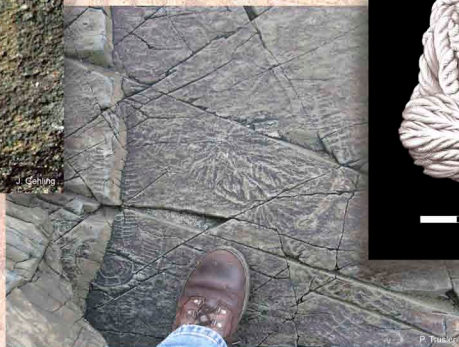
"Yorgia" White Sea, Russia

Intense interest has been focused on times of major change, such as tectonic Super-events, examples being those at 2800-2700, 2200-1800 and 800-600 million years when major tectonic activity, such as super-plumes, were underway. Other times under intense scientific scrutiny are those when Earth was gripped by cold from 2400-2200 Ma and again from 750 Ma to perhaps as little ago as 560 million years. This last major series of glacial events in the Precambrian is of special interest to paleontologists attempting to understand the driving forces behind the appearance and diversification of early metazoans. The conditions of this time certainly led to dynamic, "weedy" environments (ones that favor evolutionary novelty), but the preservation of the early metazoans in these environments is so unusual that the exact detail of just what happened and when have been difficult to define. Furthermore, the identification of the specific driving forces that led to the origin and radiation of metazoans, their ultimate fate and the outcomes of the Early Cambrian, are still far from being understood.

Detailed, thoughtful art that interfaces scientist and artist, genuinely encourages cross-disciplinary communication – and this is not illustration that follows in the wake of scientific discovery, dictated by the researchers only. Over the past 30 years one artist, Peter Trusler, himself with a Bachelor's Degree in Science, has worked closely with a number of geoscientists and neontologists to render reconstructions. These are illustrations of depth and detail that capture and promote current scientific research. This "cooperative" art requires both scientist and artist to work in close association, and in the end provides a highly accurate summary of the current understanding of physical environments, climate and the biological entities that inhabited such a prehistoric mélange. Current interactions will lead to a series of reconstructions through the Ediacaran; from the cold depths of the Mistaken Point and Fermeuse biotas of Newfoundland (in cooperation with Guy Narbonne) dated at around 580 Ma, the assemblages from the type section of the Ediacaran in Australia (with J. Gehling and P. Vickers-Rich) to the Nama Group of Namibia (in concert with Vickers-Rich, M. Fedonkin, A. Ivantsov and C. H. Hoffmann) dated at 541 Ma; times that skirt the last of the "Snowball Earth" glaciations, ending with the Moelv at 560 Ma.



Reconstructing *Bradgatia*



3 cm

Trusler 2006

His reconstruction art works of the Precambrian, serve as foci for cross-disciplinary discussion as well as windows allowing the public access to complex scientific data and ideas. A recent example is the series of postage stamps that he and Vickers-Rich originated and produced with Australia Post using input from a number of Precambrian researchers around the globe.

The methodology of this approach involves working directly on site, analysis of the excavation environs, analysis of the fossil collections and the synthesis of geological, taphonomic and morphological data. It has been important to work with the researchers and contribute directly to their observations across a wide range of disciplines. The final outcome culminates in reconstruction images of entire environmental and biotic hypotheses, but along the way the process establishes conceptual diagrams, anatomies and even species descriptions often novel and quite different from the traditional views.

The old saying "a picture is worth a thousand words" is not so cliché and Trusler's work brings insights that words never will.



Reconstructing *Charniodiscus*