Are Those 'Old' Landforms in Australia Really Old?

According to the conventional dating methods, many landforms on the Earth's surface are very old. These old landforms, which geologists have much trouble explaining, are often the highest terrain of the landscape. The most perplexing landforms are flat-topped mountains or mountain ranges that exhibit little sign of erosion for tens of millions of years of geological time. These flat surfaces are considered erosional surfaces by geologists, and creationists would agree. Geologists can usually come up with 'explanations' for the preservation of many of these landforms, but some landforms have escaped explanation, and some of the explanations have been found untenable.

Many examples of 'old' landforms are found in Australia. Several recent articles call attention to the problem of relic landforms. In North Australia, a number of planar erosion surfaces that are little dissected have been assumed the product of four Cainozoic erosional episodes. However, Jonathan Nott brings forth evidence that these postulated cycles of erosion did not occur.[1] Many of these erosion surfaces form the flat tops of mountains in which tilted sedimentary rocks have been bevelled. These surfaces, which include the Tawallah and Yiyinti Ranges and the Arnhem Land massif (see Figure 1), have remained essentially as they exist today for over 100 million years of geological time! These examples challenge all theories of landscape evolution:

> *'The preservation of not just isolated landforms but of ranges, plains and valleys for well over 100 Ma* [million years] *in northern Australia highlights not only the inability of traditional theories of long-term landscape evolution to account for these landscapes but also underscores the complexity of the causes of their preservation. '*[2]

Old surfaces abound in other areas of Australia.[34] Many of these are also flat-topped mountain ranges that are sometimes bevelled.[5]

The significance of these survival times can be compared to the estimated denudation rate of continents. Although estimates of the time required to reduce a continent down to a planation surface are crude and depend upon many variables, Young reckons it to be between 10 and 25 million years.[6] Young,[7] Nott,[8] and Twidale and Campbell[9] reference the authoritative work of Stanley Schumm[10] as a good estimate for continental denudation. Schumm estimated that under a warm humid climate, the United States would be flattened in 33 million years. A drier continent may of course take longer, but the above estimates provide an order of magnitude for total continental denudation. Thus, flat surfaces that display little erosion for over 100 million years present a difficult problem.

Many reasons are brought forth to explain these old surfaces, such as

(1) protection by sedimentary rocks until exhumed,
(2) resistant rocks,
(3) high and dry sites,
(4) erosion confined mainly to canyons, and
(5) low fracture density of the rocks.[11]

These explanations admittedly only

> *'. . . alleviate, but do not resolve, the problems posed by the long term survival of land-forms and land-scapes . . . '.*[12]

The burial of old surfaces, which includes surfaces as old as Archaean, by an Early Cretaceous sea and later exhumation by erosion is one of the favourite explanations.[13] But some ranges, such as the Hamersley and Gawler Ranges in Australia (see Figure 1), apparently were not covered with a protective layer of sediment, but have survived almost untouched for many tens of millions of years of geological time.[14]

The explanation of a site being preserved for tens of millions of years because it has supposedly been high and dry, resulting in less erosion by water, does not seem correct for many continental areas. Normally precipitation increases with altitude. So, one would expect higher precipitation and hence more erosion the higher a land surface. Apparently, a dry environment has been invoked to explain the ancient paleosurfaces in south-east Australia.[15] However, Young states that the rainfall for south-east Australia, especially the Sydney Basin (see Figure 1), is too high for this explanation to work.[16] In fact, none of the explanations seem to work for south-east Australia. Young states:

> *'But here a paradox arises. Although these landforms are*

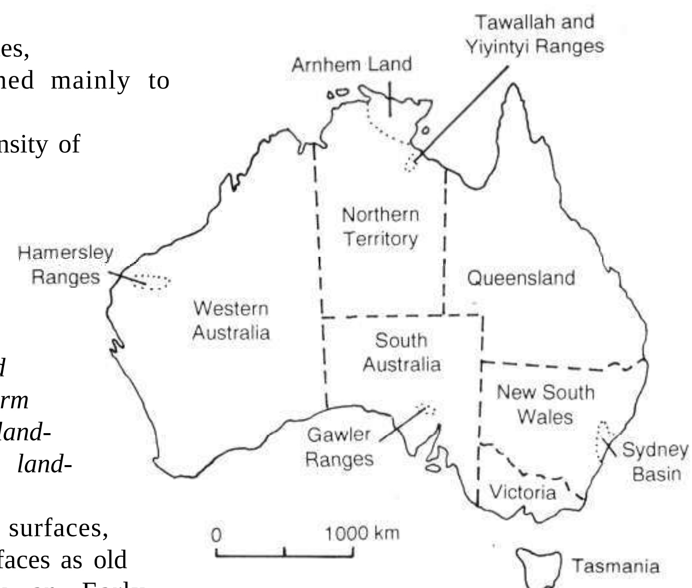

Figure 1. *Location map of some Australian landforms.*

undeniably very old, there is nothing exceptional about their geological- geomorphological setting. There is neither a dearth of erosive energy, nor a particularly great bedrock resistance ... Moreover, not only the upland surfaces are old, so too are the canyons which dissect them.'[17]

As a result, current uniformitarian models for landscape development are seriously challenged:

'One possible solution to the problem posed by such ancient land surfaces is that the conventional models of landscape evolution are in error.'[18]

A better explanation is to take the evidence at face value — the landforms look young because they really are young. The geomorphology of the landforms also calls into question the conventional dating methods that produce old dates.

Similar landforms as found in Australia are also common around the world:

'. . . the ancient landscape of southeastern Australia may be typical of very substantial parts of the earth's surface.'[19]

Some are readily apparent in Montana and Wyoming in the United States. Thus, the geomorphological evidence implies that a worldwide erosional event occurred not long ago. Since many of these erosional surfaces are at high elevations, the terrain has been recently uplifted. What better explanation than the worldwide Genesis Flood? The erosion surfaces, especially the horizontal surfaces that bevel tilted sedimentary rocks, likely represent the final scouring of the land by fast currents draining off the rising continents at the end of the Genesis Flood.

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'Rapid' Granite Formation?

One of the persistent scientific objections to the Earth being young (6,000-7,000 years old rather than 4.5 billion years), and the Flood being a year-long, mountain-covering, global event, has been the apparent evidence that the large bodies of granitic rocks found today at the Earth's surface took millions of years to cool from magmas. However, contrary evidence pointing to relatively rapid, even catastrophic, formation of granites is now beginning to surface.

Granites are crystalline rocks that occur over large areas, sometimes exposed over hundreds of square kilometres. Deep in the Earth's crust the temperatures are sometimes high enough to melt the rocks, particularly if there are applied high pressures due to tectonic forces (earth movements). The theory has been that large 'blobs' of magma are thus generated at 750-900°C, and because they are 'lighter' than the surrounding rocks the 'blobs' rise like balloon-shaped diapirs into the cooler upper crust. There they crystallise as granites.

Young[1] has insisted that an immense granitic batholith like that of southern California required a period of about one million years in order to crystallise completely, an estimate repeated by Hayward.[2] A survey of the technical literature, however, yields estimates of even greater time-spans. Pitcher sums it all up:-

'My guess is that a granitic magma pulse generated in a collisional orogen may, in a complicated way involving changing rheologies of both melt and crust, take 5-10 Ma to generate, arrive, crystallize and cool to the ambient crustal temperature.'[3]

Of course, there is the added time-span from cooling of the granite pluton within the Earth's curst to its exposure at today's land surface by uplift and erosion. Nevertheless, it should be kept in perspective that most recent estimates of these time-spans, including uplift and erosion, rely heavily on radiometric dating determinations and uniformitarian assumptions, and not just on the thermodynamics of crystallisation and heat flow/ dissipation.

So whence cometh the challenge to this hithertofore seemingly impregnable bastion of old-earthers? Surprisingly, the contrary evidence pointing to