Precambrian dissonance

John Reed and Michael J. Oard

Dickens and Snelling[1] do us a service by pointing out the need to heed 'Precambrian' rocks. If Earth's crust is primarily a result of two great events—Creation and the Flood—we should be able to reasonably interpret it within that paradigm, recognizing, as they say, an intrinsic harmony between natural and revealed truth … the former of course subordinate to the latter.

But pointing out the need and meeting it are two different things. And given the extreme complexities of Precambrian rocks, it is somewhat surprising that the authors would (or could) present a comprehensive overview right off the bat. In it, they bet their roll on a single fragile roll of the dice—that rocks are best interpreted by uniformitarian chronostratigraphy. Why? They never really say, they simply move directly into correlating days of the Creation Week with various eras and eons of the Precambrian (figure 1). When they write: 'Each subdivision of the Precambrian geologic record has its own characteristics',[2] they presuppose that such subdivisions are historically real and that rocks are best ordered by that chronology. A strong case can be made otherwise.[3]

Yes, they reject the quantity of uniformitarian time, but that only gets them started on the path to true biblical history.[4] The uniformitarian timescale is firmly established within its home worldview of naturalism,[5] and the chains that bind the two together are ignored at our peril. Jerusalem, Athens and all that. Valid stratigraphy should be empirical at its root, not just as window dressing for presupposed prehistory.[3]

Nowhere is the need for rethinking the present paradigm more obvious, but Dickens and Snelling watch a hanging curve ball float by. The Precambrian time scale has no real connection to empirical stratigraphy. While the Phanerozoic maintains that polite fiction with Global Stratotype Sections and Points (GSSPs)[6] supposedly defined by lithology, fossils, magnetic signatures, or astronomical tuning, its Precambrian counterpart is nothing more than the arbitrary decree of the International Commission on Stratigraphy (ICS).[7] They created eons, eras and periods; then made their boundaries *ex nihilo*, before mandating correlation by radiometric dating alone:

> 'By contrast, Precambrian stratigraphy is formally classified chronometrically … the base of each Precambrian eon, era, and period is *assigned* a numerical age [emphasis added].'[8]

No rock units or fossil zones constrained the process:

> 'Due to the fact that most Proterozoic and Archean rocks lack adequate fossils for correlation, a different type of boundary definition was applied for subdividing these eons into eras and periods … For these two eons, the assigned boundary, called a Global Standard Stratigraphic Age (GSSA), is a chronometric boundary and *is not represented by a GSSP in rocks, nor can it ever be* [emphasis added].'[9]

So when Dickens and Snelling state: 'The following is a brief description of the key lithologic features of the major periods of the Precambrian',[10] they cannot possibly mean that the rocks show any inherent chronology. That would place them at odds with the ICS—the originators of the timescale apparently so congenial to biblical history. If Precambrian chronostratigraphy could be based on observed criteria, would not the ICS have seized on those physical properties instead of merely assigning GSSAs? But they did not, because there is no physical basis for even defining the eras. Why? Perhaps because it's hard:

> 'The "Precambrian" is not a formal stratigraphic term and simply refers to all rocks that formed prior to the beginning of the Cambrian Period. The task of establishing a rigorously defined and globally acceptable time scale for the Precambrian is an exceedingly difficult, and often frustrating, exercise. The reason for this is related to the face that studying the Earth becomes increasingly difficult and uncertain the further one goes back in geological time.'[11]

But surely, you think, there must be *some* empirical basis. Dickens and Snelling apparently think so when they claim that: 'The appearance of widespread stromatolitic carbonates at about 2,300 Ma has been said to separate the Archean from the Proterozoic.'[12] Unfortunately, their cited source is not up with the latest from the ICS:

> 'By contrast, the Archean and Proterozoic time scales are *currently defined chronometrically*, with subdivisions into eras and periods being defined and allocated boundaries in terms of a round number of millions of years before present [emphasis added].'[11]

You don't have to be a creationist to see the problems:

> 'This Precambrian time scale, while innovative in design, has a few major problems. First, a purely chronometric definition … is not, and cannot be, located precisely in the stratigraphic record … Definition of boundaries in terms of arbitrary, round, absolute ages, although superficially appealing, is therefore naïve … Second, boundaries within the Precambrian scale are defined by a

completely different method to the Phanerozoic time scale, in which boundaries are based on GSSPs in stratigraphic sections … Third, the formal or proposed subdivisions … of the current Precambrian time scale are either not being used or are used inconsistently … Fourth, the present time scale is incomplete, leaving the lower boundary of the Archean undefined.'[13]

If the Precambrian timescale is difficult for uniformitarians to swallow, why should creationists accept such a shaky solution springing *de nova* from the head of the ICS? We also question why we should accept the radiometric dating as its clock … even a relative one. As Snelling noted:

'All these considerations taken together emphatically show that the radiometric dating methods are fatally flawed and cannot yield the valid absolute ages claimed by those who require the millions of years to prop up their belief in long evolutionary ages of earth history.'[14]

Now we recognize Dr Snelling's expertise in the area of isotopic dating, but we must question the logic. If we can't trust these methods to provide *one* particular accurate date, how can we trust the result of taking lots and lots of dates we know are wrong, arranging them in sequence, and pronouncing it a relative time scale?

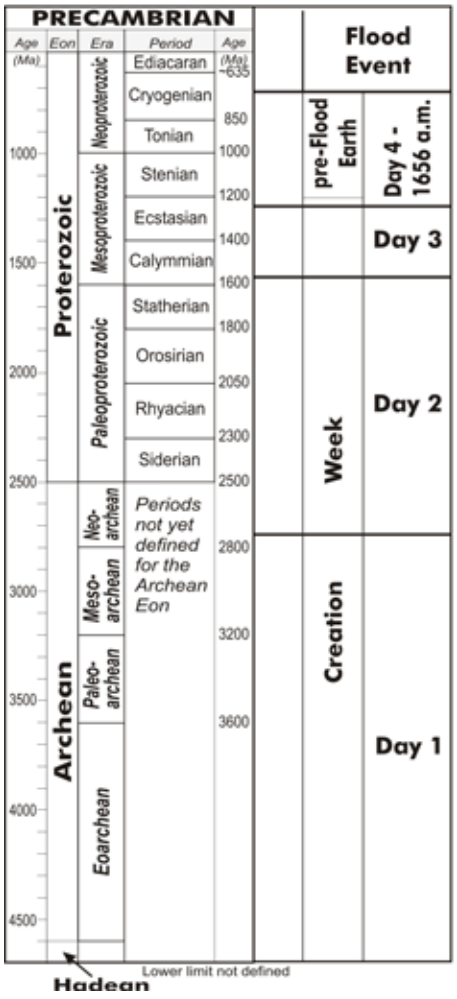

Figure 1. Dicken's and Snelling's interpretation of the Precambrian rock record.

Finally, we do not see any real harmony between Precambrian geology and the Bible in their abbreviated summary. What they present is quite speculative and lacking in convincing demonstration. For example, they pepper impact events throughout Creation Week, the antediluvian world and the Flood because the uniformitarian timescale places them throughout the Precambrian. Why not pursue the more common sense idea that they were all a part of the Flood judgment, regardless of their isotopic dates, and use the direct physical evidence of impacts to constrain correlation. We are told to believe that the Bible teaches that the creation of the continents was by the outward accretion of Archean shields and multiple zones of Proterozoic belts.[15] As Figure 1 shows, their history would have the 'older' parts of the continents accreting underwater on the first day of creation, while the rest of the crust would not have formed until Day 3. It makes more sense to bring the continents up from the seas as coherent masses, rather than a succession of accreted belts and cores … if our present geological understanding can discern those details of divine creation.

Furthermore, all of this happened by plate tectonic processes if we are to follow a line of reasoning that starts with uniformitarian explanation. All uniformitarian interpretations of Precambrian geology rest on two things: (1) radiometric dating and (2) the assumption of plate tectonics. Geologists posit numerous plate tectonic cycles during the Precambrian. In fact, a perusal of the Decade of North American Geology volume, *Precambrian: Conterminous U.S.*, gives the impression that most major lineaments in North America were the result of collision or subduction! If creationists are to accept uniformitarian evidences of *any* plate tectonic cycles, then logic demands they accept similar evidence for *many* cycles, and it seems difficult to fit them all into three days. Perhaps we are minimizing the supernatural aspects of Creation.

It is interesting that creationists plate tectonics began in 1994, they started off with one—Pangaea—breaking up at the onset of the Flood … an attractively concise model. But criticism has since forced them to concede another—hence Rodinia has made its creationist debut: 'The Mesoproterozoic was the Era of the formation of the first identifiable supercontinent, Rodinia.'[16] But what about earlier ones, such as Kenorland or Nuna? And it appears that Pangaea is mistaken for Rodinia: 'The site of antediluvian rivers mentioned in Genesis 2 has been correlated with suture zones in a pre-drift Mesozoic configuration of the Pangaea supercontinent.'[17] If we read their chronology right, would not those rivers have been flowing on Rodinia? As a side note, the authors state that continental roots extend to 250 km. The depth of continental roots in currently under debate, but even at those depths, it is a question worth investigating, if for no other reason than that deep continental roots and the absence of asthenosphere under parts of the continents are features that are difficult to explain by any model of lateral plate motion.

In an apparent timing error, Dickens and Snelling seem to place the North American Midcontinent Rift System (MRS) in the Mesoproterozoic rifting episode between 1.7 and 1.2 Ga. In reality, that episode is dated between 1,110 and 1,045 Ma.[18] Furthermore, its relationship to the underlying

basement and overlying sediments, and the composition of associated rift sediments all suggest that the rifting is better interpreted as having occurred at the onset of the Flood, along with other widespread North American rifting dated by uniformitarians as ranging from Proterozoic to early Cambrian. It makes more sense for a single continent-wide rifting episode to have occurred simultaneously at the onset of the Flood, than to divide it up among Earth's first 1,656 years based on scattered radiometric dates. Although Reed[18] showed that the MRS could have formed in less than 40 days, it is not readily apparent how it could reasonably have done so in just one.

What about strange lithologies? Stromatolites? Banded Iron Formations? Ore formation? Greywacke? Don't these features allow their constituent rock formations to be place in some kind of chronological order? The question is: what criteria set that chronology? Given the widely scattered distribution, it can't be superposition and be globally reliable. Again, we must remind ourselves that the geologists of the ICS do not set their timescale on lithologies, and they have every motivation to find physical criteria for golden spikes in the Precambrian. But they default to GSSAs, not GSSPs as the basis for their timescale. Is it not possible that these unusual lithologies reflect events or environments rather than the passage of time?

The authors state: 'Day 3 is the first mention of life on Earth.'[19] Since the Bible notes that this was plant life, should we not expect widespread plant fossils of every type in sediments deposited after Day 3? But those are apparently not found. Why? On a similar note, they relate that:

> 'Greywackes were subjected to reworking by weathering processes so that mafic minerals were gradually destroyed, leaving behind more resistant quartz and feldspar in the early Proterozoic sedimentary record.'[20]

How could this weathering, transport, deposition and lithification have occurred in one day?

Precambrian rocks are a challenge to all geologists, as generations of frustrated uniformitarians would agree. Aspects unappreciated by most are the roles of erosion and preservation. Precambrian rocks exposed today cannot possibly be understood apart from the reality of massive erosion, both at the beginning of the Flood and at its end. Maybe it is what we do *not* see that could help harmonize biblical and physical interpretation.

In summary, it is clear that any creationist approach to 'big picture' geology relies on a choice of method. There are two options: (1) strip away a minimal amount of uniformitarian interpretation to preserve a comprehensive and 'relevant' diluvial story; or (2) dig down to the raw data and reinterpret it within the diluvial paradigm. Do we replace the top layer of frosting on the cake or do we revisit the recipe? The former yields apparently impressive models reaping what uniformitarians have sown, but it runs the risk of subsequent inherent collisions of conflicting paradigms. The latter insures more consistency, but demands a lot of not-very-glamorous work with a potentially small initial return. Dickens and Snelling chose the former and provide a glimpse of walking through a minefield of conflicting axioms. Uniformitarian versions of Precambrian geology rest on the twin pillars of radiometric geochronology and plate tectonics. Can diluvialists find real harmony and happiness by simply playing that tune with a faster beat? We don't think so. Strip away all of the uniformitarian interpretation and then rebuild the house. It might take several generations, but truth is worth the effort.

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