organism-level selection had led to the evolution of mechanisms to suppress cell-level selection.'[7]

However, this leads to a conundrum for the evolutionist: how do multicellular creatures evolve from single celled organisms when cellular selection is *diametrically opposed* to organism-level selection? A single cell seeks to proliferate more than its competitors; the multicellular organism seeks to control such proliferation to what is needed at a higher level of organisation. This can be seen in the process of apoptosis as well:

> 'Even today, apoptosis serves an essential role in terms of "cellular altruism". It helps to ensure that an organism's genetic integrity is not compromised, by removing some somatic cells that have sustained irreparable, genetic mutations. Crucially, apoptosis also helps to maintain a *species'* genetic integrity, by eliminating aberrant germ cells that would otherwise carry intact but faulty genes into the next generation.'[8]

The system of serial differentiation is designed to *enhance* bodily integrity, not reduce it. The system has to be in place before it can be selected for, yet organism-level selection cannot take over without measures such as serial differentiation in place. The very existence of this system argues against the evolution of multicellularity.

Conclusion

Serial differentiation is an essential system for the maintenance of mature multicelled organisms. It serves to separate the self-renewal and proliferative stages of cell division, which limits the effect mutations have on tissues. Evolution cannot explain the origin of the system, and neither can it explain the origin of multicellularity. These features of life clearly speak of purposeful, intelligent creation consistent with the Bible's account of creation.

References

1. Epigenetic inheritance refers to heritable characteristics in a cell that do not involve a change in the DNA sequence. For more information on the importance of epigenetic inheritance for life, see Alex Williams' three-part paper on biological inheritance: Inheritance of biological information—part I: the nature of inheritance and of information, *Journal of Creation* **19**(2):29–35, 2005, <www.creationontheweb.com/images/pdfs/tj/j19_2/j19_2_29-35.pdf>; Inheritance of biological information—part II: redefining the 'information challenge', *Journal of Creation* **19**(2):36–41, 2005, <www.creationontheweb.com/images/pdfs/tj/j19_2/j19_2_36-41.pdf>; Inheritance of biological information—part III: control of information transfer and change, *Journal of Creation* **19**(3):21–28, 2005, <www.creationontheweb.com/images/pdfs/tj/j19_3/j19_3_21-28.pdf>.
2. Pepper, J.W., Sprouffske, K. and Maley, C.C., Animal cell differentiation patterns suppress somatic evolution, *PLoS Comput. Biol.* **3**(12):2532–2545, 2007; <www.ploscompbiol.org/article/info:doi/10.1371/journal.pcbi.0030250>, accessed 14 Feb. 2008. Much of the following description of the process is based on this paper.
3. Sarfati, J., Stem cells and Genesis, *Journal of Creation* **15**(3):19–26, 2001; <creationontheweb.com/content/view/1845>.
4. Bell, P.B., Apoptosis: cell 'death' reveals creation, *Journal of Creation* **16**(1):90–102, 2002; <creationontheweb.com/content/view/5467>.
5. Pepper *et al.*, ref. 2, p. 2532.
6. Michod, R.E., Cooperation and conflict in the evolution of individuality. I. Multilevel selection of the organism, *The American Naturalist* **149**:607–645, 1997.
7. Pepper *et al.*, ref. 2, p. 2533.
8. Bell, ref. 4, p. 98.

The paradox of warm-climate vegetation in Antarctica

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The Northern Hemisphere Arctic lands are well known for their warm-climate fossil plants and animals from the Mesozoic and early Cenozoic of the uniformitarian geological column.[1–4] (Although I believe the geological column is a general Flood sequence with many exceptions,[5] I am using the orthodox scientific classification here for the sake of argument.) This situation commonly occurs at mid latitudes also.[6]

Sometimes logs are standing upright at these paleoflora sites or in nearby coal mines, even occurring at multiple levels, suggesting *in situ* growth to the uniformitarian scientist. Creationists describe such upright logs as polystrate fossils, and have reported features that are contrary to *in situ* growth.[7] Such warm climate plants and animals, including dinosaurs (assuming dinosaurs inhabited a warm climate), also occur in Antarctica.

More Antarctica climate conundrums

A recent article shows that the Antarctica flora during the Permian and Triassic was from a warm climate and so adding new conundrums to the climate paradox.[8] The geologists found upright logs interpreted to be *in situ* and one horizontal log 20 m long. Growth ring widths were 10 times those found in polar locations today. The rings contained mostly earlywood and only a small amount of latewood, suggesting a temperate climate with a rapid end to the growing season, considered to be caused by rapid reduction in light levels at such high latitude.

It has been known for a long time that fossil flora from the late Paleozoic to the Tertiary is from warmer climes than expected from the current latitude and even the presumed paleolatitude of Antarctica according to the plate tectonics paradigm. Such discoveries include no widespread winter freezing in the early Cretaceous,[9] large tree rings that suggest a warm-temperate rain forest in the early Cretaceous to early Tertiary,[10,11] supposed *in situ*, vertical trees with large rings and no frost rings in a warm polar Permian climate,[12] dinosaur fossils in Antarctica[3] and dwarf beech trees in the Transantarctic Mountains near 1,800 m elevation at 85°S latitude from the late Pliocene, indicating a cool climate but still much warmer than today.[13]

The new report adds to the paradox in that it compares the trees from the late Permian with those from the following middle Triassic. What they found was that the rings show similar structure, implying similar growing conditions, over the supposed tens of millions of years. These trees were even similar to trees from the early Permian from Victoria Land, Antarctica. This result was surprising because the paleoclimate during the two periods is considered to have been very different. For instance, Antarctica as well as other Southern Hemisphere continents were supposed to be in the grip of a huge ice age in the early Permian, the last of four major pre-Pleistocene ice ages.[14]

Flood deductions

All this information on warm-climate high latitude paleofloras is supportive of the floating log-mat model during the Flood,[15–17] since any landmass near the South Pole would have had a cold climate. The trees would have been rafted to Antarctica from lower latitudes, as I deduced for Northern Hemisphere paleofloras.[18] The fact that the trees remained so similar for tens of millions of years suggests that these tens of millions of years do not exist. Rather, the thickness of the sediment represents the deposition of trees from the log mat during rapid sedimentation.

Furthermore, such warm-climate trees in the Early Permian reinforce the idea that there was *no* late Paleozoic ice age, and that the till-like deposits and their supposed glacial signatures are the result of gigantic submarine slides during the Flood.[14]

The vertical polystrate trees, which are found in many areas worldwide, including Antarctica, indicate that logs from the log mat sometimes sank vertically, just like those observed at Mount St Helens.[19] Interestingly, Mount St Helens even caused the Antarctica geologists to question their deduction of *in situ* trees:

> 'While identifying fossil trees in growth position would appear to be a relatively simple task, the aftermath of the 1982 Mount St Helens eruption (Cascade Range, USA) demonstrates that it can often be difficult to determine whether or not log and stump deposits are *in situ*.'[20]

In fact, these researchers think that the Permian and Triassic trees could have been transported to their current locations, partly because of a lack of bark on the trees: 'Almost all of the wood is extensively decorticated, i.e., the outer tissues (bark) have been lost as a result of transport.'[21] Lack of bark is one of the evidences used to support the log mat model.[22]

I need to mention that the Late Pliocene trees found in the Sirius Group in the Transantarctic Mountains[13] could be post-Flood because the tree rings are quite narrow and the beech trees are a dwarf variety. The average temperature is claimed to be –12°C with a short growing season average of only 5°C. These temperatures, if correct, are significantly warmer than those exhibited in the area today, but very likely much too cold for pre-Flood vegetation. Moreover, the vegetation was found within diamictite, interpreted as glacial till. Such relatively warm-climate vegetation has generated tremendous controversy among uniformitarian scientists,[23] because it suggests that much of the Antarctic Ice Sheet melted 2 to 5 million years ago! A more reasonable idea within the creationist's Ice Age model is that the Sirius Group, with its warmer climate vegetation, represents deposits from ice caps on the Transantarctic Mountains early in the post-Flood Ice Age—before the East and West Antarctic Ice Sheets developed to a large size. Atmospheric temperature would have been much warmer early in the Ice Age because of the much warmer adjacent ocean and the copious release of latent heat to the atmosphere resulting from massive oceanic evaporation.[24,25]

References

1. Oard, M.J., Mid and high latitude flora deposited in the Genesis Flood Part I: uniformitarian paradox, *Creation Research Society Quarterly* **32**(2):107–115, 1995.
2. Oard, M.J., Polar dinosaurs and the Genesis Flood, *Creation Research Society Quarterly* **32**(1):47–56, 1995.
3. Oard, M.J., Polar dinosaur conundrum, *Journal of Creation* **20**(2):5–7, 2006.
4. Oard, M.J., A tropical reptile in the 'Cretaceous' Arctic: paleofauna challenge to uniformitarianism, *Journal of Creation* **14**(2):9–10, 2000.
5. Oard, M., The geological column is a general Flood order with many exceptions; in: Reed, J.K. and Oard, M.J. (Eds.), *The Geological Column: Perspectives within Diluvial Geology*, Creation Research Society Books, Chino Valley, AZ, pp. 99–121, 2006.
6. Oard, M.J., Tropical cycad reinforces uniformitarian paleofloristic mystery, *Journal of Creation* **12**(3):261–262, 1998.
7. Oard, M.J. and Giesecke, H., Polystrate fossils require rapid deposition, *Creation Research Society Quarterly* **43**(4):232–240, 2007.
8. Taylor, E.L. and Ryberg, P.E., Tree growth at polar latitudes based on fossil tree ring analysis, *Palaeogeography, Palaeoclimatology, Palaeoecology* **255**:246–264, 2007.
9. Douglas, J.G. and Williams, G.E., Southern polar forests: the Early Cretaceous floras of Victoria and their palaeoclimatic significance, *Palaeogeography, Palaeoclimatology, Palaeoecology* **39**:171–185, 1982.
10. Jefferson, T.H., Fossil forests from the Lower Cretaceous of Alexander Island, Antarctica, *Palaeontology* **25**(4):681–708, 1982.
11. Francis, J.E., Growth rings in Cretaceous and Tertiary wood from Antarctica and their palaeoclimatic implications, *Palaeontology* **29**(4):665–684, 1986.

12. Taylor, E.L., Taylor, T.N. and Cúneo, N.R., The present is not the key to the past: a polar forest from the Permian of Antarctica, *Science* **257**:1675–1677, 1992.
13. Francis, J.E. and Hill, R.S., Fossil plants from the Pliocene Sirius Group, Transantarctic Mountains; evidence for climate from growth rings and fossil leaves, *Palaios* **11**:389–396, 1996.
14. Oard, M.J., *Ancient Ice Ages or Gigantic Submarine Landslides*, Creation Research Society Monograph No. 6, Creation Research Society, Chino Valley, AZ, 1997.
15. Woodmorappe, J., A Diluvian interpretation of ancient cyclic sedimentation; in: Woodmorappe, J. (compiler), *Studies in Flood Geology*, Institute for Creation Research, pp. 201–220, 1999.
16. Coffin, H.G., *Origin by Design*, Review and Herald Publishing Association, Washington D.C., 1983.
17. Austin, S.A., Mount St. Helens and catastrophism; in: *Proceedings of the First International Conference on Creationism*, Volume I basic and educational sessions, Creation Science Fellowship, Pittsburgh, PA, pp. 3–9, 1986.
18. Oard, M.J., Mid and high latitude flora deposited in the Genesis Flood Part II: creationist hypothesis, *Creation Research Society Quarterly* **32**(3):138–141, 1995.
19. Morris, J. and Austin, S.A., *Footprints in the Ash; the Explosive Story of Mount St. Helens*, Master Books, Green Forest, AR, 2003.
20. Taylor, E.L., Taylor, T.N. and Cúneo, N.R., Permian and Triassic high latitude paleoclimates: evidence from fossil biotas; in: Huber, B.T., Macleod, K.G., and Wing, S.L. (Eds.), *Warm climates in Earth History*, Cambridge University Press, London, pp. 325–326, 2000.
21. Taylor *et al.*, ref. 20, p. 325.
22. Morris and Austin, ref. 19, pp. 82–89.
23. Oard, M.J., *The Frozen Record: Examining the Ice Core History of the Greenland and Antarctic Ice Sheets*, Institute for Creation Research, Dallas, TX, pp. 33–34, 2005.
24. Oard, M.J., *An Ice Age Caused by the Genesis Flood*, Institute for Creation Research, El Cajon, CA, 1990.
25. Oard, M.J., *Frozen in Time: the Woolly Mammoths, the Ice Age, and the Biblical Key to Their Secrets*, Master Books, Green Forest, AR, 2004.

Mars' catastrophic geology

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New information about Mars is highlighting the catastrophic nature of its past. Planetary geologists are finding a variety of indications of very rapid processes in Mars history. These processes often have some parallel on Earth but because Mars is much colder and has a very different atmosphere there are differences in the effects even for well known Earth-like processes.

Martian processes include flooding, volcanism, glacial movement, sedimentary processes and even geysers. NASA and the European Space Agency have gathered valuable data on Mars geology from recent missions that will give new insights into Mars history. How should young-age creationists understand this new information?

The Northern part of Mars is called the Northern Lowlands because it averages about 4–5 km lower in elevation than the Southern half of the planet. The Southern Highlands are very densely cratered but fewer craters are seen on the surface in the Northern Lowlands. On the other hand, the Northern Lowlands has many buried craters. In 2006, the European Space Agency's Mars Express mission (also known as MARSIS) found evidence of what are apparently impact structures buried under the surface ranging from 130 to 470 km in diameter.[1] This was using a special instrument known as a sounding radar. Mars is well known for many channels on its surface as well. Most of the channels formed as a result of subsidence phenomena, but there are often dendritic drainage patterns in or around them, indicating water drained into them or eroded in them after their formation.

Mars' atmosphere is quite thin and if there were liquid water on the surface of Mars today it would quickly evaporate and/or freeze. Water and carbon dioxide ice exist on both the poles of Mars and water ice under the surface. Recently the Mars Odyssey spacecraft mapped patches of water ice just below the surface.[2] Being a planet with a relatively low density (3.9 g/cm^3 compared to 5.5 for Earth), Mars has the potential for having a lot of volatile material in its interior, such as water and carbon dioxide.

Evidence seems to have been discovered recently of water eruptions[3] sometime in Mars' past from two channels on Mars known as Mangala Fossa and Cerberus Fossa, described as graben fractures. Mangala Fossa seems to have had hot water carrying mud with it. Scientists have estimated 10^7–10^8 m^3/s for the water volume flux from Mangala Fossa from a fracture about 200 km long. Cerberus Fossa (fracture about 35 km long) seems to have been a carbonated water geyser with a volume flux of about 2×10^6 m^3/s. Both of these eruptions propelled material several kilometres laterally across the surface. The nature of the channels and ridges produced by these eruptions seem to rule out volcanic flows. Cerberus Fossa is believed to have sent hailstones several kilometres. The force of these eruptions requires that the water come from aquifers as deep as 3–4 km below the surface.

These water eruptions are just one example of a variety of large-scale rapid catastrophic events that have shaped the surface of Mars in its past. There are also massive volcanoes and evidence of glaciation. A major ongoing mystery is how the Martian atmosphere could support so much liquid water in the past, as is indicated by all the evidence of water on the surface. There are sedimentary deposits of sulfate and clorite compounds (evaporites), as well as hematite. A mineral similar to granite was also found in limited quantities.[4] This suggests a variety of processes that may involve water coming up from below the surface.

There is much yet to be thoroughly researched and examined on Mars from a young-age creation perspective. For example, was Mars created with a thicker atmosphere than present that