# Paleobiology databases

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**Based on the premise that very old fossils have far more time to erode than younger fossils, an analysis of the millions of fossils collected to date should show less old examples and more young examples. It is now possible to rapidly search and sort significant quantities of fossils. After sorting one data base of over 500,000 specimens, no clear pattern emerged. If anything, older specimens were more numerous. Sorting by continent also revealed no pattern. The evidence we hold in our hands does not support the traditional evolutionary timescale.**

'It seems these days that there are precious few ordinary human or ape fossils unearthed; rather they all have to be a missing link between the two'[1] laments Peter Line about the potential bias in interpreting archaeological finds. His concern about 4,000,000-year-old fossils[2] can be expanded to the approximate 500,000,000-year-old extant fossil collection now catalogued and housed in museums and private collections around the world. There are precious few 'young' fossils.

When one goes into an antiques store, the most expensive items are usually very rare or very old. Usually, being old makes them rare.

A biblical timescale means that all fossils are less than 6,000 years old. The great age assigned to almost every fossil found fundamentally contradicts this. The biblical model has about 1,500 years of stable conditions, followed by several years of tremendous potential for fossil formation (along with coal, gas and oil) during the worldwide Flood of Noah. These fossils would be found in pronounced and variable sedimentation layers. The last 4,500 years would support occasional, but mostly unspectacular, additional localized fossil formation.

Such a model is hardly supported by the interpretations given to the fossils housed in today's collections. Therefore we suspect that the widely accepted fossil dating methodology is flawed and unreliable. To investigate this, we will organize and sort currently accepted fossil dates in to an overall chronology. We can then check if there exists a correlation between great age and declining quantities of surviving specimens caused by the ravishes of time.

By graphing actual data collected from every known source in the world, we can analyze if inconsistencies or 'bunching' of dates occurs. A decline from a large number of 'young' fossils to a certain point of zero 'old' fossils must occur, by definition, if there was an historical starting point. If actual plotted data shows a decline and then a rise before the final decline to zero, then an anomaly exists. If a lot of 'accepted' dates are wrong, the graphs should contain chaotic plot points.

## The paleobiology database

Real evidence defeats speculation. We now have several centuries of paleological expeditions and collections of real specimens. By assembling a vast cross section of specimens (data points), we can search for patterns. The data can be sorted by strata, species, age, and continent to look for the rise, dispersion, and extinction of species.

The National Center for Ecological Analysis and Synthesis (NCEAS), with funding from the National Science Foundation's Biocomplexity program and individual members, has assembled *The Paleobiology Database*.[3] Its stated purpose is

> 'To provide the public and the paleontological research community with collection-level information on the spatial, temporal, and environmental distribution of fossils … for analyzing large-scale patterns in these data.'[4]

Its intended audience is 'Everyone, and especially professional paleontologists'.[5]

Unrestricted public access is allowed. The reader is encouraged to test the site. Data entry in to the database, however, can only be made by professional researchers trained at a graduate level in paleontology. 95% of the contributors have a Ph.D. degree. We will consider the database unbiased because of the variety of contributors for purposes of this paper. At the time of this writing the database contained 567,505 specimens[6] from 59,933 collections[7], entered by 167 researchers from 90 institutions in 16 countries[8]. The diversity of the researchers negates bias. However, the site does favour North American and European locations, which represent 75.1% of the specimens.[9]

By using already accepted data, trends derived from analysis of the data will better withstand scrutiny by the secular scientific community. Documentation of the data eliminates both duplication of specimens and the possibility of fraud. Using data collected and catalogued by a respected, trained, international community eliminates personal prejudices and adds credibility to the data. Culled or select information will be cancelled out by the hundreds of contributors.

## Real evidence

The graphs shown in figures 1–6 were created from data sorted by the web based 'sort' features provided as part of the website.[10] One of the available fields for sorting was '10-million-year bins'. This was used for convenience since the sort could be done online in a matter of seconds.[11] A 30,000,000 year moving average line (three bins) was (arbitrarily) used to smooth the data and look for trends.

**Figure 1.** Worldwide specimens.

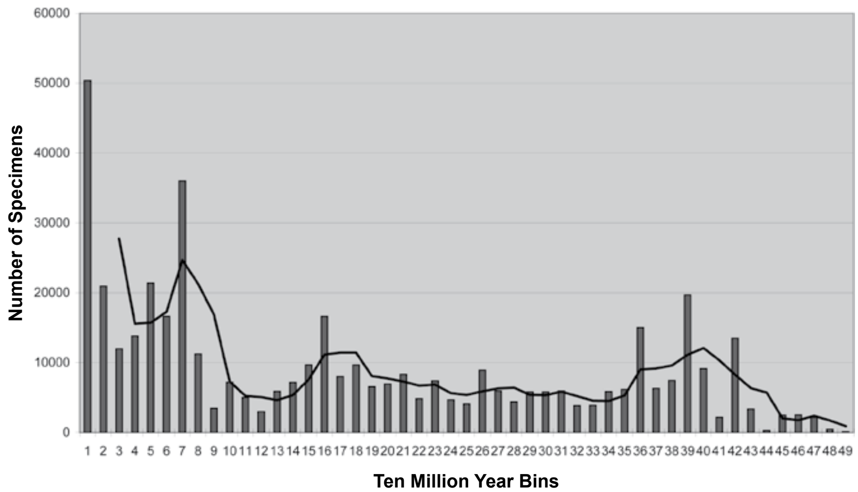



**Figure 2.** North American specimens.

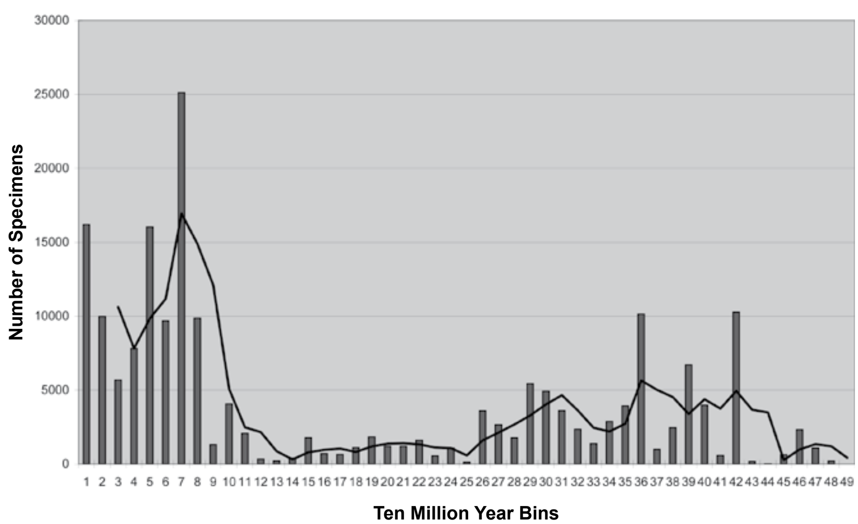



**Figure 3.** European specimens.

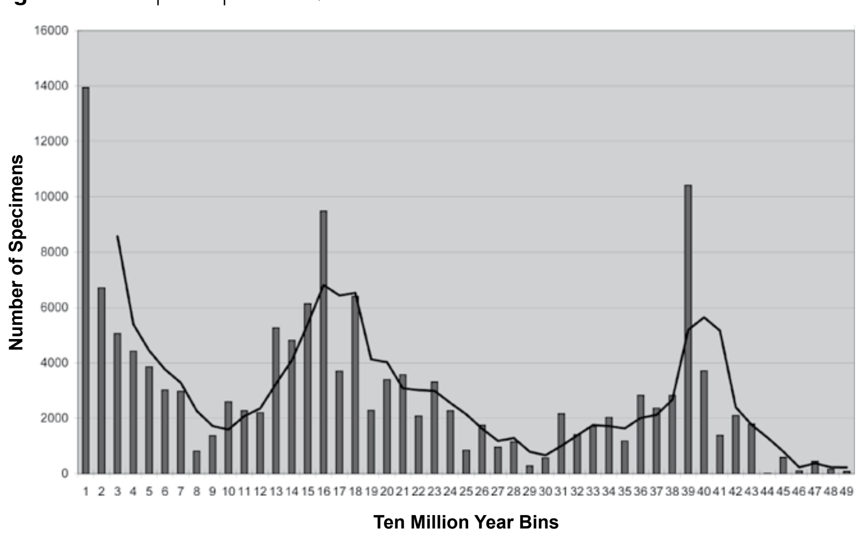



Figure 1 plots all of the dated specimens throughout the world in 10,000,000-year bins. Bin 9, for example, contains all of the specimens that are more than 80,000,000 years old up to 90,000,000 years old. A careful examination of the graph does not show old specimens being found less frequently than very young specimens. Any attempt to construct a declining parabolic curve is greatly disrupted by the 90,000,000–140,000,000-year-old specimens (not enough) and the 360,000,000–420,000,000-year-old specimens (too many).

We can also compare the graph in figure 1 against accepted evolutionary milestones. It is conjectured that half of all the families then existing were eradicated during the Permian extinction approximately 250,000,000 years ago and the number of families then grew steadily from the Permian Extinction to present, even despite the minor setbacks of the Triassic and Cretaceous extinctions.[12] Although bin 25 shows half the specimens of bin 26, it is not significant in the broader context of bins 20–30 (100,000,000 years), 15–35 (200,000,000 years) or even bins 10–40 (300,000,000 years).

Figure 2 and figure 3 show only the North American and European specimens, respectively. These two continents represent three quarters of the collection. Compare these graphs and you will find that North American specimens peak 50,000,000–70,000,000 years ago while Europe is near a low. European specimens peak at 150,000,000–180,000,000 years ago while North America is at a low. North America peaks again at 290,000,000 years ago while Europe is at a low. There is no correlation between these graphs even though plate tectonic theory has these land masses contiguous during much of this time. Both North American and European specimens peak in the 390,000,000-year-old range. There are more specimens in North America 420,000,000 years ago than for the younger 300,000,000 years!

Figure 4 and figure 5 plot ‘collections’ instead of ‘specimens’ and are presented to show that collections with rich deposits do not overly change the findings. In figures 4 and 5, a site with one specimen is counted the same as one with a hundred specimens.

**Figure 4.** North American collections.

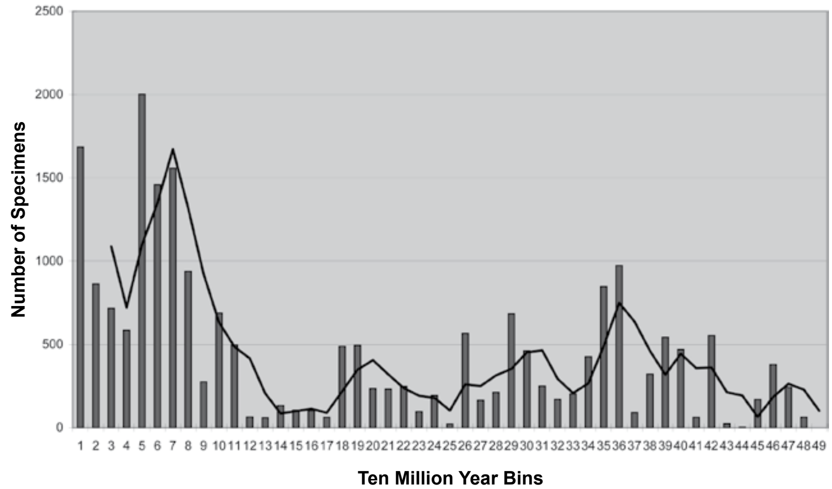



**Figure 5.** European collections.

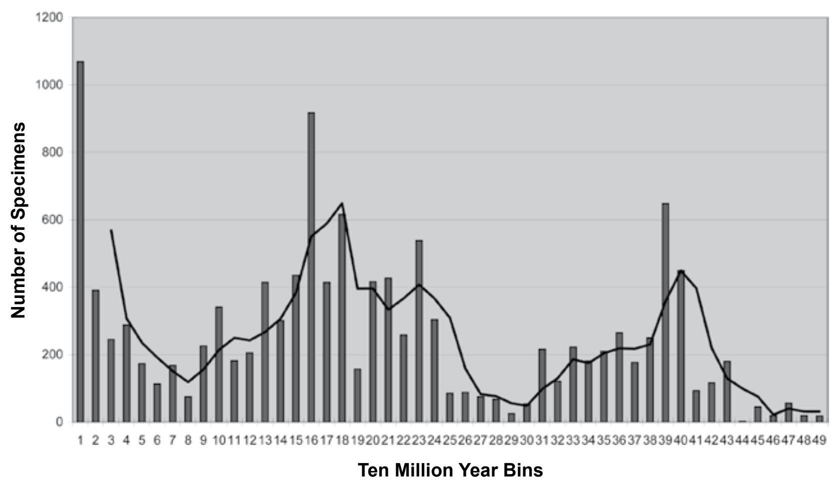
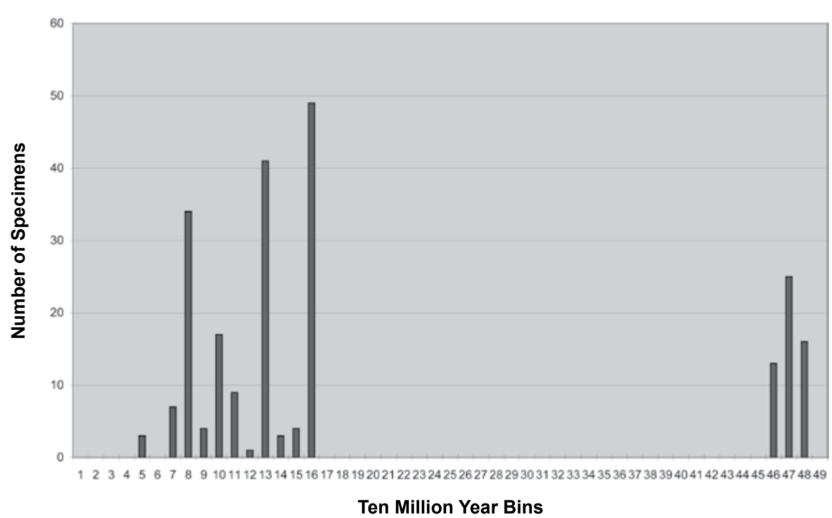



**Figure 6.** Soft parts.




## The top-heavy museum

Let's construct a museum in our minds to house the half million fossils that were randomly selected by the 167 researchers from the 90 institutions reporting to the Paleobiology Database. Let us also assume that this collection represents a reasonably accurate cross section of all fossils. Because our museum is in a major city and the site is limited, it needs to be a high rise building. The museum curator wants to present an accurate walk back into history and insists that each floor contain exactly the same passage of 50,000,000 years. Approximately 1.0 $m^2$ of display space is allowed for each specimen.

The first floor requires 118,000 $m^2$ to house the first 50,000,000 years of specimens, and the second floor needs 75,000 $m^2$ for the 50,000,000 to 100,000,000-year-old specimens.

The third floor needs only 31,000 $m^2$. Fair enough—it certainly makes sense that the further back in time we go, the greater the chance for specimens to be destroyed. But then something unexpected happens. The fourth floor needs 48,000 $m^2$— more than 50% larger than the third floor. This seems odd, but then you remember that there was an explosion of life after the Triassic extinction about 200,000,000 years ago. To simplify construction, you add some gift shops and a theatre to the third floor so that the fourth floor receives the support it needs.

So you continue to design floors five through seven. They stack well enough ranging from 26,000 $m^2$ to 31,000 $m^2$ each.

All is well until you get to the eighth floor. Floor 8 needs an enormous 58,000 $m^2$, twice the size of floors 5 through 7. The design of the top heavy museum is very unstable and you recommend that the curator find a new methodology for presenting his exhibits.

## Decay rates

Time increases the chances that decay processes will consume very old fossils. Therefore, older specimens should be less numerous than younger specimens. The intuitive reasons for this include:

### *Decay by mechanical forces*

- Water erosion
- Wind scour
- Tidal forces
- Seismic forces

- Freeze thaw cycling
- Meteor impact
- Glacier movement

*Decay by biological attack*

- Microbiological attack
- Biological attack
- Root intrusion
- Vandalism[13]
- Theft[14]

*Decay by chemical reactions*

- Dissolution by water, leaching
- Ultraviolet deterioration
- Solvent reduction
- Oxidation
- Radioactive decay

*Decay by electrical currents*

- Lightening strikes
- Galvanic

The rate at which a specimen would be destroyed depends on its location, surface exposure or burial depth, water exposure, surrounding materials, weather conditions and seismic conditions of the area. The rate at which a species would be erased depends on the starting quantity, size and composition. Obviously, some specimens have survived. It is presumed that a vastly greater amount did not. It is routinely accepted that tens of millions of years of strata have eroded at any one location, hence the ability to find very old specimens at the surface. This assumption means that great destructive forces were available.

An example of decay forces can be found at the Florissant Fossil Beds in Colorado, USA. The US National Park Service dates the formation of these fossils via volcanic sediment to over 34,070,000 years ago. The Florissant formation is described as going through the following geologic history: volcanism, massive ashflows, lava flows, 'Mt. St. Helens type' violent eruptions, lahars, uplift and block faulting, blocked drainage, alluvial deposits, 1,219-m uplift and increased runoff, the formation of nearby Pike's Peak, climate change, and finally, erosion to reveal the buried beds in the last 10,000 years.[15] The site contains 1,700 species of plants and insects and is best known for massive fossilized redwood stumps visible at the surface. During my visit in 2002, I noted that roofs were constructed over the largest stumps to protect them from deterioration, even though they survived on their own for 34,000,000 years.

A 2,000,000-year-old specimen would have a greater chance of decay compared to a 1,000,000 year-old-specimen. When we expand the idea to 400,000,000-year-old specimens compared to 10,000-year-old ones, we suddenly see that what ever is destroying the 10,000-year-old specimens (which are very rare indeed) had the opportunity to destroy the older specimens 40,000 times over. Even if the chance of decay in the 10,000-year-old specimen is as low as one half of one percent *per ten thousand years*, the odds of surviving 400,000,000 years are nil.

We need to assume that the decay rate for very old specimens is *extremely* low in order to have any survivors. Once we assume an *extremely* low decay rate, however, then the surviving specimens of a species (that allegedly survived, evolved or mutated for millions of years) would inundate our collections. We can't have both great age and limited specimens. We need more specimens or less age.

We don't know what the decay rate would be for old specimens. Many are found with exquisite detail. Therefore we must conclude that either the assumption of great age is incorrect or the specimen was protected by some extraordinary mechanism that held in place for an order of magnitude of 100,000,000 years, even while miles of sediment deposits were being eroded by incredibly aggressive forces.

## Soft parts

The database can also be sorted by method of preservation. One intriguing category is 'soft parts'. One may argue that casts, molds or otherwise lithified fossils can survive forever, but what about soft parts? Figure 6 shows that no specimens less than 40,000,000 years old contain soft parts, but 160 specimens between 40,000,000 years old and 160,000,000 years old contain soft parts.[16] This is incredible. There is then a gap of no soft parts until we get to the very oldest specimens listed, over 450,000,000 years old, at which time another 54 specimens are listed!

We can continue to come up with theories to support the data, such as population explosions, mass extinctions, population bottlenecks or punctuated equilibrium, but there is a point where the underlying assumption of great age must be re-examined.

## Other research needed

This concept of trend analysis could be expanded to include young specimens, for example the most reliable artefacts of the last 1,000,000 years. The Paleobiology Database is not useful for analysis of data less than 1,000,000 years old. What we would expect to be the most abundant category of specimens (recent ones) is not supported in this fossil database. This, in itself, is a curious example of an unexpected pattern.

Sorting by dating method (such as radioisotope dating, strata, index fossils, carbon dating, known historical documentation or tree ring) may yield interesting patterns of age (i.e. very old, young or very young).

If we plot only human and human artefacts, we would expect to find steady and predictable results for the past 6,000 years if a creation model is used. We would expect steady and predictable results for the past 4,000,000 years if an evolution model is used. The subset data can be used to look for the spread of human civilization across the continents by geography, age, and quantity. Population predictions can be made and compared against known remains.

A plot by geographic region might show vastly different time lines existing for the different hemispheres. If the physical evidence found in the Western Hemisphere graphs a line that points to a human origins date of no more than 20,000 years ago and the Eastern Hemisphere graphs a line that points to a human origins date of no less than 4,000,000 years ago, what can we conclude?[17]

Others may wish to conduct specialized research on sub sets of data within the database. Suggestions are:

- Research of patterns in the 10,000–1,000,000-year-ago time range and the 1–10,000,000-year-ago range.
- Analysis of the rise and fall of select species.
- Analysis of the quantity of large species specimens versus small: the premise that larger bones, teeth, and shells will have a greater chance of survival.
- Sorting of true fossils versus partially fossilized remains.
- Analysis by deposition method; the premise that water borne strata caused by a world wide flood would dominate the database.
- Analysis of plant quantities versus animal.
- Expansion of the data set by merging other on line collections from museums (although many of these collections contain casts and possible duplication of data).
- Comparison of so called 'transitional fossil' quantities to the whole.
- Analysis of the rise and fall of 'living fossils', calculation of the intervening mass of missing remains and the probability of total absence from the record.
- Comparison of the age and quantity of mostly intact specimens versus poorly preserved specimens.

If we want to agree that mineralized fossils will not deteriorate at all because they are basically inert, it is still mathematically improbable to find ages of the order of magnitude needed without a greater quantity of remains. The idea that a specimen can survive hundreds of millions of years unchanged is contradictory to the idea that random changes, given enough time, plus energy input from radiation, lightning strikes and aggressive chemical reactions that drove the formation of life. The fossils are dead, they are not evolving. The presence of delicately preserved fossils, some revealing exquisite detail, contradicts the evolutionary idea of life constructing itself and supports the premise that the fossils are not very old.

## Conclusion

After graphing the accepted ages of over 500,000 fossils, all we find are random quantity spikes. There is no indication of fewer specimens with increased age. Taking inventory of what exists and comparing it with what would be expected to exist is straightforward. A simple sorting of the data eliminates subjective conclusions. If no patterns exist, what can we conclude? Is the set of 500,000 data points too limited to accurately reflect history? Is it plausible that the chance of finding 420,000,000-year-old material is greater than finding 20,000,000-year-old material? Based on analysis of this database, a long history for the deposition of fossils does not match the evidence.

## References


1. Line, P., Hominid fever: yet another alleged early human ancestor unearthed, *Journal of Creation* **19**(2):12, 2005.
2. Scientific notation is purposely not used in this paper. It trivializes the great time spans being used in evolutionary theory.
3. <paleodb.org/cgi-bin/bridge.pl>.
4. Paleontology Database Network info page, Purpose, <paleodb.org/cgi-bin/bridge.pl?user=Guest+action=displayPage&page=pdnetwork>, 10 September 2005.
5. Paleontology Database Network info page, Intended Audience, <http://paleodb.org/cgi-bin/bridge.pl?user=Guest+action=displayPage&page=pdnetwork>, 10 September 2005.
6. The term 'specimen' is used in this paper to refer to an individual fossil. The website uses the term 'taxonomic occurrence'.
7. The term 'collection' used in this paper refers to a locality containing one or more specimens. The average collection contained 9.5 specimens.
8. This data was downloaded from the Paleobiology Database home page on 28 April 2006, <http://paleodb.org/cgi-bin/bridge.pl>.
9. This data was downloaded from the Paleobiology Database on 28 April 2006, using the following parameters: occurrences tabulated by continent; <http://paleodb.org/cgi-bin/bridge.pl>.
10. The graph data was obtained by requesting a sort by the graph title into ten million year bins using the 'Generate Data Summary Tables' feature under 'Analyze our Data', <http://paleodb.org/cgi-bin/bridge.pl>, 28 April 2006.
11. Note that not all specimens are dated. Undated specimens are excluded from the totals.
12. Coenraads, R.R., *Rocks and Fossils: a Visual Guide*, Firefly Books Ltd., 2005, Biodiversity Graph, p. 290.
13. Vandals damage dinosaur tracks, by Paul Meyer, The Dallas Morning News, <www.dallasnews.com/sharedcontent/dws/news/city/tarrant/stories/040106dnmetdinosaur.b644527.html>, 31 March 2006. The article begins with 'They survived up to 95 million years of floods, droughts and tectonic tremors. But the dinosaur tracks couldn't withstand a quick strike by thieves and vandals on Grapevine Lake (Texas, USA).'
14. China Digs into Mystery of Missing Peking Man Fossils, by Ching-Ching Ni, Los Angeles Times, 7 April 2006, p. A.22. The article indicates that five almost complete skulls and other bones of more than 40 individuals disappeared in 1941 '…amid a backdrop of war and intrigue'.
15. Florissant Fossil Beds National Monument, <www.nps.gov/flfo/pphtml/subnaturalfeatures14.html>, 8 April 2006.
16. This data was downloaded from the Paleobiology Database on 28 April 2006, using the following parameters: sort by preservation mode into ten million year bins using the 'Generate Data Summary Tables' feature under 'Analyze our Data', <http://paleodb.org/cgi-bin/bridge.pl>.
17. It is difficult to imagine that it took 99.5% of all of human history to figure out how to make a raft by evolutionary standards (as compared to 25–30% of all of human history to disperse around the world per the biblical account).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