



Published 2012

# The Cambrian Explosion Paradox

by Warren Krug



An unexpected explosion is usually an event that begins and ends quickly but one which can have long-term effects such as injured people and damaged buildings. Once long ago there was such an “explosion” whose effects are still being felt today, not in injured bodies or damaged buildings but in a theory of origins. This event is commonly called the “Cambrian explosion,” and it poses a serious problem for the theory of evolution. Scientific American magazine once called the Cambrian explosion “evolutionary biology’s deepest paradox.”<sup>1</sup>

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1. Levinton, J. “The Big Bang of Animal Evolution”, Scientific American (November 1992), 52–59.

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## The Cambrian Explosion

The Cambrian explosion was named after the Cambrian period, a period of time into which secular scientists have divided the alleged evolutionary history of the earth. These periods have been based on radiometric dating of the earth’s strata or layers, a system that has been shown to be unreliable. Supposedly the Cambrian period lasted from about 542 to 483 million years ago with the Cambrian explosion starting about 530 million years ago and lasting about 5 million years (see figure 1).<sup>2</sup>

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2. Stephen Meyer, P. A. Nelson, and Paul Chien, “The Cambrian Explosion: Biology’s Big Bang.” 2001, 2 <http://www.discovery.org/articleFiles/PDFs/Cambrian.pdf> (accessed September 5, 2011). Most of the information for my article comes from this 50-page online paper. The website providing this paper is sponsored by an Intelligent Design organization, and consequently, the authors may mistakenly accept as fact the old ages which are mentioned in the paper.

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The “explosion” refers to the sudden appearance of all sorts of creatures in the Cambrian rocks, as if the evolution of animals suddenly exploded onto the scene following a long period of very little action. As we shall see, this event is a mystery that evolutionary paleontologists and other scientists have difficulty explaining. There are various problems which they must address; for example:

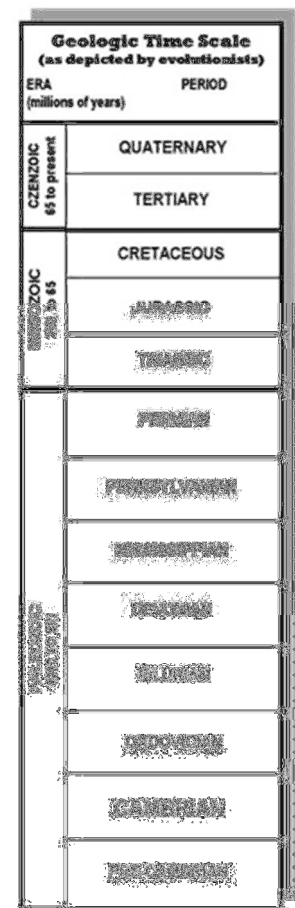


Figure 1. Simplified representation of the geologic time scale.

**Problem #1:** So many new animals appearing suddenly in the fossil record in such a short time with few ancestors found.

The Cambrian explosion was found by some studies to have lasted about five million years. That is a very short time, geologically speaking, when one compares it to the alleged 3-plus-billion years for life on earth. Chinese paleontologist Chen Junyan says that comparing 5 million years to 3 billion is like comparing one minute to a 24-hour day.<sup>3</sup>

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3. Ibid

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In the Precambrian rocks, which evolutionists say covered more than 3 billion years of history, only a few species of organisms can be found, organisms such as bacteria, algae and sponges as well as some fairly complex creatures called the Ediacara fauna. Then, all of a sudden, in a span of “5 million years,” a great variety of animal life bursts upon the scene. At least 28 of the known 42 animal phyla, and possibly all 42, appear for the first time in the Cambrian rocks.<sup>4</sup> A phylum is the taxonomic rank below kingdom and above class (see figure 2), and each phylum displays a unique architecture, blueprint or structural body plan. This sudden appearance of such a variety of animals has been referred to by various secular publications as the “Big Bang” of biology.<sup>5</sup>

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4. Ibid, 3

5. Ibid, 2

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What is also noteworthy is that so few organisms which could possibly be considered ancestors of the Cambrian phyla are found in the Precambrian rocks. Nearly 90 percent of the Cambrian phyla have no ancestors in the Precambrian strata.<sup>6</sup> So where did the Cambrian phyla come from? That is a question evolutionists have a hard time answering.

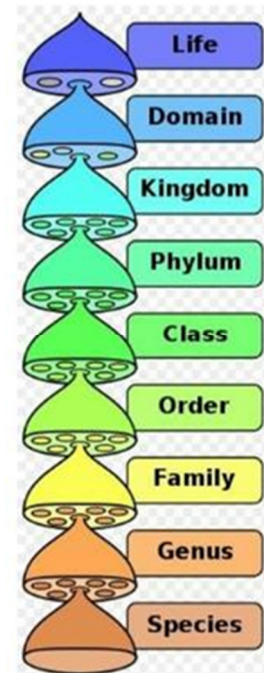
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6. Meyer, 22.

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**Problem #2:** Little if any evidence of intermediate forms among the Cambrian animals.

If there is little evidence of evolutionary ancestors of the Cambrian animals in Precambrian strata, there is also little evidence of intermediates of these animals within the Cambrian rocks. According to Meyer, Nelson, and Chien, “Though all Cambrian and subsequent animals fall clearly within one of a limited number of basic body plans, each of these body plans exhibit clear morphological differences (and, thus disparity) from the others.”<sup>7</sup> There is no evidence of body parts changing slowly over time; rather the image is, for the most part, one of remarkable stability or stasis.



Arthropods are a phylum.

Figure 2. Biological Classification system.

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7. Meyer, 4. "Morphological" means having to do with the structure and form of organisms.

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The evolutionist web site, The TalkOrigins Archive, maintains that there are transitional fossils within the Cambrian explosion fossils, but it strangely mentions only one candidate, a lobopod (basically a worm with legs) which it says is an intermediate between arthropods and worms, but it provides no evidence for this belief.<sup>8</sup>

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8. "Claim CC300: Complex life forms appear suddenly in the Cambrian explosion, with no ancestral fossils," The Talk Origins Archive, accessed September 8, 2011, <http://www.talkorigins.org/indexcc/CC/CC300.html>.

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Evolutionists generally take one of two approaches when trying to explain the seeming incompleteness of the fossil record. Some say the fossil record is not yet complete, implying the transitional/ancestral fossils will some day be found. Others simply deny that the transitional/ancestral forms are missing.

**Problem #3:** An unexpected explosion in information content or complexity.

For three billion years, according to evolutionist reckoning, the biological realm included little more than unicellular bacteria and blue-green algae. Late in the Precambrian period some more complex eukaryotic cells (cells with nuclei), multi-cell algae, sponges and the unusual Ediacaran organisms appeared. Then the Cambrian explosion happened, and there was suddenly a very steep increase in biological complexity.

One way to measure the increase in complexity of the animals is to note the number of cell types needed to build the animals and compare that number to the number of cell types needed by the creatures that went before. More complex organisms need more cell types which require new and specialized proteins which in turn require new genetic information encoded in DNA. There is an enormous jump in DNA of several orders of magnitude between a complex arthropod such as a trilobite, which was a now-extinct animal found in the early Cambrian period, and a minimally complex cell. Any transition from single cells to colonies of cells to complex animals require significant increases in complexity and information content.

Charles Darwin realized that the sudden appearance of complex animals such as trilobites in the Cambrian fossil record challenged his theory. However, he eventually "expected to find intervening strata showing fossils of increasing complexity until finally trilobites appeared."<sup>9</sup> He predicted that the world would have swarmed with living creatures during the pre-Cambrian period.<sup>10</sup> Unfortunately for Darwin's view, the fossil record does not match what Darwin expected.

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9. P. Ward, *On Methuselah's Trail, Living Fossils and the Great Extinctions* (New York: W. H. Freeman & Co., 1992), 29-30, quoted by Meyer, 7.

10. Charles Darwin, *Origin of the Species*, 1859, reprint (Penguin Books, 1985), 313, quoted by Meyer, 7..

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**Problem #4:** “Disparity” in Cambrian fossils preceding “diversity.”

According to evolution theory, as life evolved one would expect to see small variations among animals at first which would then lead to larger differences later. The prediction was that first distinct species would appear, later distinct genera, and still later distinct families, and so on up the classification ladder. Small variations as seen in the lower levels of the classification system are referred to as examples of “diversity.” When the higher levels such as phyla are reached, the larger differences are called examples of “disparity.”

What we see in the Cambrian rocks is the opposite of what we should expect according to evolutionary theory. Disparity actually precedes diversity. In the “top-down” pattern which emerges, morphological disparity between many separate body plans comes on suddenly before the species level examples of diversification. In other words, the major biological themes can be seen before the minor variations of the themes.

Science writer Roger Lewin notes: “Several possible patterns exist for the establishment of higher taxa, the two most obvious of which are the bottom-up and the top-down approaches. In the first, evolutionary novelties emerge, bit by bit. The Cambrian explosion appears to conform to the second pattern, the top-down effect.”<sup>11</sup>

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11. Roger Lewin, “A Lopsided Look at Evolution,” *Science* 241 (July 15, 1988) 292, quoted in Meyer, 12.

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What this also means is that the higher levels of the classification system could not build on the smaller variations below them because they came first. That is opposite of what evolutionary theory would predict.

**Problem #5: No new phyla are coming into existence.**

According to Darwinism, the fossil record should be showing that the morphological distance between organisms would be increasing over time. In other words, over time we should be witnessing a steadily increasing number of new body plans or phyla. Members of one phylum should be diversifying and giving rise to new phyla.

What does one see in looking at the fossil record? A few new phyla may have appeared after the Cambrian explosion, but they were less complex than the Cambrian phyla and likely did not long survive. Estimates of as much as 95% of all phyla first appeared during the Cambrian. There is nearly a complete absence of new phyla evolving in the fossil record after the Cambrian. There is no steady increase of phyla before, during, and after the Cambrian – contrary to Darwinian expectations.

### **An Explanation for This Paradox?**

Secular scientists can get pretty creative when it comes to explaining what for them are scientific puzzles. Researcher Susumo Uno has suggested one possible way out of the Cambrian explosion paradox. There was, he says, a “pananimalian genome” that arose in a hypothetical ancestor well before the Cambrian explosion. This genome contained all the genetic information necessary to construct every protein needed in order to build all the Cambrian animals. Slight differences in separate genes of this master pananimalian genome would explain the great variety of new animal forms found in the Cambrian rocks.

This explanation has problems. Specific genes would have arisen before they were used or needed or advantageous to the organism. That means they would be invisible to natural selection. What would cause a creature with this genome to evolve into anything else? It also suggests that the genome had some kind of foresight to anticipate future changes. However, as Meyer, Nelson, and Chien say: “The origin of a massive, unexpressed Precambrian genome containing all the information necessary to build the proteins required by not-yet-existent Cambrian animals, would strongly suggest intelligent foresight or design at work.” **12**

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12. Meyer, 32.

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What Meyer and colleagues are saying in effect is, “If you want to believe in a pananimalian genome, then you’d better believe in an intelligent designer.”

### **A Creationist Explanation for the Cambrian explosion**

According to creationist theory, if there was an explosion, it was an explosion of flood waters. The existence of the Cambrian fossils and their placement in the strata, creationist scientists believe, are due to the sorting action that could have resulted from Noah’s flood. Marine creatures would tend to be buried by the flood waters in different zones when compared to land animals and at varying stages during the flood. Thus, the creatures found fossilized in Cambrian rocks lived at the same time as the animals found fossilized higher up in the geological column.

Creationists don’t need to explain the absence of ancestor and transitional fossils in either the Precambrian or the Cambrian strata for one simple reason: there never were any ancestral nor transitional animals of the type the evolutionists are trying to find.

The Bible doesn’t directly address the Cambrian explosion paradox so there is some room here for varying opinions. However, an evolutionary explanation is out of the question: first, because evolution does not fit with a straight forward reading of the Genesis account of creation; and second, for the scientific reasons spelled out above.

What we also know is that the mass destruction we see recorded in the Cambrian rocks will never again be witnessed on a global scale until the Second Coming of Christ. Then our present world will be destroyed by fire, but it will be replaced by the new heavens and new earth (Isaiah 65:17). All who believe in Jesus Christ as our Savior from sin will enter eternity knowing that we will never again have to witness death and destruction of any kind.  
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*Warren Krug, a retired teacher, is the editor of the LSI Journal and is currently serving as president of the Lutheran Science Institute. He holds a B.S. in Education from Concordia University Chicago and a M.S. in Education from Oklahoma State University. He is a member at Trinity, Caledonia, Wisconsin. Illustrations from Wikipedia.*