

Origin of Photosynthesis: A Theory Out of Thin Air

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As Dr. David Menton pointed out in a recent article,¹ why do evolutionists get to use terms that infer an intelligence (albeit completely natural) to explain what they observe in nature, but creationists and those of the Intelligent Design Movement do not?

In a recent *Nature* article, the origin of photosynthesis is discussed and begins with the term *invention*. “The **invention** of oxygenic photosynthesis was a small step for a bacterium, but a giant leap for biology and geochemistry” (emphasis added).² I think two terms need to be considered more closely—*invention* and *small*. An *invention*, according to *Webster’s Online Dictionary*³ is, “the creation of something in the *mind*, a creation resulting from *study* and *experimentation*.” The terms in italics would all seem to indicate a conscious intelligence that does not apply to bacteria. Most people are familiar with the definition of *small*. Considering that photosynthesis involves approximately “100 proteins that are highly ordered” (according to the article), I think *small* is a major understatement.

The authors also go on to say, “Biologists agree that cyanobacteria **invented** the art of making oxygen, but when and how this came about remain uncertain” (emphasis added). Certainly the authors do not believe that bacteria consciously invented photosynthesis. So, what evolutionary mechanisms might be responsible for bacteria being able to “invent” photosynthesis? From the article, it appears like a bunch of “just-so” stories.

Photosynthesis in Plants and Bacteria

There are two basic types of photosynthesis—oxygenic, in which oxygen is produced, and anoxygenic, in which oxygen is not produced. Oxygenic is carried out by plants and cyanobacteria. Anoxygenic is carried out by various types of green and purple bacteria. Oxygenic involves two photosystems which convert light to energy molecules, which are then used to make sugars. A photosystem is a cluster of pigments like chlorophyll that absorbs light. Anoxygenic involves only one photosystem which accomplishes the same thing. The photosystems of the two basic types of photosynthesis are different in structure and composition but accomplish a similar goal.

A Need for Time

A big question for evolutionists is when oxygen appeared on the earth. Oxygen is needed by animals, humans, and plants to make the energy molecule ATP. The appearance of oxygen on earth is very important because it is needed for the development of larger organisms (than bacteria) that have greater energy requirements. (Think what happens when you overdo your exercise routine and your muscles start burning. This is because you have run out of oxygen and are producing lactic acid as a byproduct of ATP production.) The article indicates that the only known significant source of oxygen is photosynthesis and that geochemical evidence places the appearance of oxygen (and thus, cyanobacteria) at 2.3 billion years ago. The article cites other work claiming that cyanobacteria could have been around at 3.4 billion years ago. The authors go on to say, “This range [3.4 billion to 2.3 billion years ago] is admittedly rather imprecise, but it is something. Of course, absence of evidence is not evidence of absence, and other authors suggest that O₂ could have been produced as early as 4.0 billion years ago, but was rapidly consumed.” By moving the appearance of cyanobacteria and oxygen back almost 2 billion years, they have given evolution 2 billion more years to perform molecules-to-man evolution. However, as stated in many other articles on this website—no matter how much time is given the mechanisms of evolution—mutation and natural selection will never result in a microbe becoming a microbiologist.

From One Photosystem to Two

Green and purple bacteria (containing only one photosystem similar to either one or the other of the photosystems found in cyanobacteria and plants) are believed to be the ancestors of cyanobacteria. Two questions arise—how did both the photosystems arise and how did both photosystems get into one bacteria? No mechanism is provided for how the photosystems came into existence, just that “these genes arose” for one photosystem. It is then proposed that a “simple duplication” of the genes encoding one photosystem occurred,

followed by mutation leading to the formation of another photosystem. What is needed is new information to form another photosystem, not duplication of already present genes followed by mutation. This will only lead to the loss of information.

The article proposes that lateral gene transfer (a DNA-swapping mechanism in bacteria) then occurred, and both photosystems ended up in the same bacterium. A good question to pose here is what is the selection pressure to keep both photosystems in a bacterium if one is sufficient? For both photosystems to be kept, a functional relationship between the two would have to form that would give the bacterium an advantage over other bacteria. So, what is the mechanism proposed to form this new functional relationship? “It would have only been a small step away from the cyanobacterial state of oxygenic photosynthesis, provided that it underwent the right mutation [...] and provided that this happened in the right environmental setting at the right time.” The improbability of this is enormous considering that mutations and natural selection, which decrease genetic information, are the only mechanisms that evolution can use.

Evolution—A Faith Based System

Towards the end of the article, the authors continue with inferences to some form of natural intelligence embedded in nature. They use the term “fine-tuning” to describe the process that would have occurred to allow the photosystems to gain the ability to produce oxygen. This would be the final step in going from anoxygenic photosynthesis in green and purple bacteria to oxygenic photosynthesis in cyanobacteria. Again, who or what is doing the fine-tuning and why? Evolution can’t do this—it has no goal in mind. One of their final statements is this, “The *best evidence* for this evolutionary scheme would be the discovery of a modern-day protocyanobacterium. Although it is possible that all protocyanobacterial lineages have died out, *we prefer to think that the missing link is still out there*” (emphasis added). So, their best evidence for the origin and evolution of photosynthesis is faith in an organism which may not exist. I prefer to put my faith in the Word of the living God who says, “Let the land produce vegetation: seed-bearing plants and trees on the land that bear fruit with seed in it, according to their various kinds.’ And it was so.” (Genesis 1:11, NIV)

Footnotes

1. See Menton, D., 2007. Did *Microraptor gui* invent the biplane before the Wright brothers? *Answers in Depth* 2:1–2.
2. Allen, J. and W. Martin, 2007. Out of thin air. *Nature* 445:610–612.
3. *The free dictionary*, Invention.

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