



David Roemer <davidmihjng@gmail.com>

Re: Pseudoscience in the American Journal of Physics

Stephen Barr <smbarr@bartol.udel.edu>
To: David Roemer <davidmihjng@gmail.com>

Mon, Jun 4, 2012 at 3:23 PM

Dear Dr. Roemer,

I have read your article given in the first link. I haven't the time to go through all the articles and letters, as I have many other things to do. I will merely say the following things.

(a) The fact that evolution produces orderly structures from more disorganized matter does not violate the second law of thermodynamics.

(b) The second law allows order to increase in one system if energy is supplied to the system. For example, the entropy of the things placed in a refrigerator decreases as they cool. But energy (e.g. electrical) must be supplied to the refrigerator.

The sun supplies energy to the biosphere, some of this energy can be turned into work. This work can be used to decrease the entropy of some systems on earth. Consider the following set-up, as an illustration. The sun heats ocean water and makes clouds form. The clouds produce rain, which then fills a lake and drives a hydro-electric power plant. That plant produces electricity, which then powers a refrigerator in my home. That refrigerator decreases the entropy of the water I place in the freezer and makes its randomly moving water molecules form into highly structured ice crystals, which have lower entropy than the water did. The decrease in entropy of the water as it froze, could only happen because energy (work) was supplied. That energy ultimately came from the sun. There are several Carnot cycles going on in this illustration. One can think of the sun, ocean, clouds as a Carnot cycle. Energy is going from a hotter reservoir (the sun) to a cooler one (the ocean). This allows some of the sun's heat to be converted into work --- this work lifts the water from the ocean to the clouds. That work is converted by the hydro-electric plant into electrical energy. That electrical energy then drives another Carnot cycle in my refrigerator. That electrical energy (work) allows heat to be pumped from a colder reservoir (the contents of my refrigerator) into a hotter reservoir (my kitchen). All this obeys the second law.

(c) You are also wrong that entropy can only be defined for a system that has a uniform temperature.

I don't have the time to get involved in controversy with you. I think you are on the wrong side of this argument. I don't think it helps the Church to make bad arguments.

The Catholic Church has never condemned the idea of the natural evolution of plants and animals from simpler forms. Using bad science to support bad theology is a profound mistake. Leave that to

the fundamentalist Protestants.

yours truly,

Stephen Barr

On 6/4/2012 1:40 PM, David Roemer wrote:

Dear Dr. Barr,

A member of the American Scientific Affiliation (Phillip Marsdon, Washington State U.) suggested that you might have some ideas about getting the AJP to retract the attached article titled, "Entropy and evolution." My own efforts are not meeting with any success. The article sets forth a fake equation to prove that evolution does not violate the second law of thermodynamics.

I've attached two articles that deal with the connection between evolution and entropy in a scientifically sound way. My own analysis was published by the Catholic Truth at

<http://www.catholictruthscotland.com/MAYnewsletter12.pdf>

I've kept track of my conversations with the AJP on my blog:

<http://newevangelist.me/2012/02/22/physics-department-of-new-york-university/>

<http://newevangelist.me/2012/02/02/american-journal-of-physics/>

<http://newevangelist.me/2012/02/23/american-association-of-physics-teachers/>

Very truly yours,

David Roemer
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