

## PROOF THAT ENTROPY INCREASES IN OPEN SYSTEMS

One of the recurring evidences evolutionists claim for a Godless creation is the claim that entropy, a measure of disorder among other things, can decrease in open systems. The idea is that evolution, as a march from simple life forms to complex, violates the Second Law of Thermodynamics. Invoking the open systems mantra is designed to deflect criticisms of that nature. But in reality, open systems are just as prone to the second law as closed systems. It is simple to prove this is the case, and thus to show that the evolutionist claim is all wet.

Originally, entropy was defined in terms of heat, particularly:

$$dS = \frac{dQ}{T}$$

where  $dS$  is the change in entropy,  $dQ$  is the change in heat, and  $T$  is temperature. We can express this definition of entropy in terms of energy instead of heat by noting that heat energy is

$$E = kT$$

(where  $k$  is Boltzmann's constant). Expressing this as a differential, we trivially obtain:

$$dE = k dT.$$

Since

$$k dT = dQ,$$

we can equate  $dE = dQ$ .

So it is that by adding energy into a system from the outside (what is meant by the term "open system"), we add heat and the entropy increases; that is, adding energy ( $dE > 0$ ) means heat is added ( $dQ > 0$ ), and so, by the definition of entropy (first equation above),

$$dS > 0.$$

Thus we see that adding energy into a system does not increase the order (decrease the entropy) but instead, increases the entropy (disorder). In other words, adding energy to a room from the outside, by means of a tornado, for example, increases the entropy (disorder) of the room.

What of crystals and other related phenomena held up as examples of local entropy reversal? When the flaws in the crystals are taken into account, the entropy of the crystal is actually higher than the entropy of the atoms in solution. Again, there is no support for evolution there. The facts are simple, evolution violates the Second Law of Thermodynamics.

## MURPHY AND THE SECOND LAW

Speaking of entropy, we've all seen copies of Murphy's Law and its corollaries. Usually Murphy's Law is stated as "If anything can go wrong, it will go wrong," but true to Murphy's Law, the statement was not made by Murphy. Who was Murphy and whence his law?

Edward Aloysius Murphy was a U. S. Air Force Captain working on the rocket sled project back in 1949. One day he noted that a technician was installing accelerometers backward on a rocket sled. As a result, Captain Murphy's law was born as: "If there's more than one way to do a job and one of those ways will end in disaster, then someone will do it that way." Later the rocket sled driver, then Major John Paul Stapp, framed Murphy's Law into its current wording. So you see, Murphy was an optimist!

Now consider the case of Ludwig Boltzmann, born 14 February 1844, who was a famous Austrian physicist. Ludwig was among the staunchest advocates of "Murphy's Law" in the late nineteenth and early twentieth centuries. Some claimed that the Second Law did not apply to mechanical systems; others had other objections. His failure to convince his antagonists, both about entropy and atoms, contributed to, if not provoked, his suicide by hanging at Duino on 5 September 1906.

It seems that as Boltzmann pondered the consequences of the second law of thermodynamics (commonly called "entropy"), he got so depressed by the hopelessness of "it all," that he killed himself. (Boltzmann had tried to kill himself during the entropy debate but was not successful.) Now don't get the wrong idea, Boltzmann was not some poor deluded ignoramus on the matter. It was he who generalized the second law and took it out of the realm of thermodynamics and into the realm of information theory and statistical mechanics. In that sense he is most famous for deriving the current formula for entropy as  $S = k \ln w$ .

Nowadays "everyone" says Boltzmann was wrong; that all physicists believe the second law. But do they? If scientists believe the second law then why, in 1976, did they award the Nobel prize (I think it was chemistry) to Ilya Prigogine for his *unsuccessful* efforts to circumvent the second law so as to allow for the theory of evolution?

Unfortunately for Boltzmann, although he was correct in concluding that his law would not be believed by scientists, he did not realize the extent to which he, himself, would disbelieve the second law. Think about it: could the second law create the second law? There had to be order before the second law. Prigogine tried to derive a rule for naturally creating order from disorder, and then tried to do so through random fluctuations, that is, by chance. But chance supposes that the impossible is possible without God. So there must be a Creator God if anything is to exist!