

Information, Intelligence and Ignorance

A debate with Bill Fortenberry

The following, rather heated discussion about the origin of information occurred between Bill and two evolutionists in response to an article that Bill linked to on the Increasing Learning Facebook page. The article was a review of a paper by Dr. Andy McIntosh which demonstrated that the information content of the cell is a definite sign of intelligence.

Bill: A new peer reviewed paper has been released which demonstrates the necessity of intelligence to the existence of information within the cell. One of my preferred arguments in favor of creation is that none of the proposed evolutionary processes is capable of producing an increase in information. In every case of supposed micro-evolution, one can find a decrease in information not an increase. Here is an article about the new paper: http://www.evolutionnews.org/2010/07/peer-reviewed_paper_investigat036771.html

Shoals Skeptics: "none of the proposed evolutionary processes is capable of producing an increase in information."

Says who? Complete nonsense. We can watch that very process happen before our eyes in a lab.

Drake: It's a good thing that no one has discovered the frameshift mutation or the point mutation. Whoops... Quick... somebody change the definition of "information" before it's too late!

Bill: Let me ask two quick questions of both of you.

First, have either of you read the entire article that I linked to above? If not, then I would highly recommend that you do so. If so, and if you still disagree with the author of the paper in question, then have either of you read the paper itself in order to determine its validity? As evolutionists are so fond of pointing out, this paper was peer reviewed and it is nearly certain that those peers would have prevented its publication if its flaws were as obvious as you seem to believe.

Shoals Skeptics: Yes, it was "peer reviewed" by "International Journal of Design & Nature and Ecodynamics." You may as well cite the National Enquirer. The only way these deluded people can get a "peer review" is to hire their own deluded peers and ask them to review it.

It is simply a dressed-up re-telling of the tired, worn-out, thoroughly debunked claim that evolution violates the Second Law of thermodynamics. It's junk science that only fools those who are deluded enough to accept the drivel they are spouting.

Bill: I suppose then that you consider the Royal Society of London to be a bunch of "deluded people" since they have reviewed and published several of Dr. McIntosh's papers in their journal Philosophical Transactions.

Drake: Dr. McIntosh may indeed have great insights in some areas. If this paper does hold some original insight (it doesn't, ask a physics undergrad for details, or better yet take some courses in the topics yourself), it needs to be published in an actual journal.

I didn't read the original work, but then again I don't have to. Imagine reading the abstract to a "scientific" article that states that the earth is flat or that atoms don't exist (contrary to well founded experiment and theory) but then

doesn't bother to give any theory, evidence, or experimental procedure justifying the conclusion. This "paper" is exactly that bad.

You make a fundamental mistake in thinking that if a person is right on one subject, their thoughts or work on another must be valid. McIntosh probably has a great grasp of his area of specialization, but he's not in any way capable of discussing the topics he's attempting.

If you'd like a more technical explanation as to why this paper is (to put it mildly) a joke, and you'll actually take the time to try to understand the subjects I'll take the time to explain, but it'll be a lot of work for both of us, even generalizing. These aren't simple topics, and they don't lend themselves well to "common sense".

Shoals Skeptics: " I suppose then that you consider the Royal Society of London to be a bunch of "deluded people."

I've no idea. The fact is that this paper was "peer reviewed" by an organization that has an agenda of attempting to give credence to Creationism. They will likely accept just about any paper that sounds sciencey written by someone who has some impressive sounding credentials then call it "peer reviewed."

This is a scam, sir. It is dishonest. It's also incredibly and stupidly wrong because it insists that, essentially, evolution violates the 2nd Law of Thermodynamics. It most certainly does not and this has been just as thoroughly falsified as the Flat Earth theory. As I stated, the paper only serves to convince people who are already brainwashed into believing the earth is younger than the invention of beer.

Drake: Well said. Attempting to use thermodynamics to "falsify" the observed mechanisms of evolution works about as well as attempting to use gravity to "falsify" the observed mechanisms of aerodynamic lift.

Bill: Mr. Skeptic,

I find it amazing that you have no idea whether the Royal Society of London is delusional, yet you know for a certainty that the International Journal of Design and Nature is "an organization that has an agenda of attempting to give credence to Creationism." How did you arrive at this conclusion? Have you ever even read this particular journal? I doubt it, but perhaps you have. Perhaps you are so widely read that you've simply forgotten which papers were from this journal. Let's try to refresh your memory.

Do you remember any of these articles?

A Thermodynamic Application To Analyse The Flow Field In Air

Modeling Of Pulsating Peripheral Bioheat Transfer Using Fractional Calculus And Constructal Theory

The Human Lumbar Vertebral Body as An Intrinsic, Functionally Optimal Structure

Multi-functioning And Multi-optimisation In Feathers

Quantification And Evaluation Of Human Tactile Sense Towards Fabrics

A Technical Note On The Recent Tsunami In The Indian Ocean

Oscillating Aero-wing Model In The Quasi-steady Domain for Lift

The Electro-osmotically Driven Flow Near An Earthworm's Body Surface

An Active Vision System For Modelling

Optimization Of The Rib Structure Inside Cooling Channels

The Optimal Structural Design Of The Human Intervertebral Disc

Fuzzy Logic In Biomechanics Of The Human Gait

Persian Architecture: Conformity With Nature

On The Strouhal Number Of Fish Undulatory Swimming: A Simple Predictive Analysis Based On The

Buckling Of Columns

Experimental Investigations Of Transport Properties Of Natural Thermal Insulation Materials

Evocation Of The Head And Brain In Old Vaulted Buildings

Historical Structures And Cultures

Exploring The Effect Of Demographic Elements On The Evaluation Of The Scenic Beauty Of Various Landforms – Preliminary Results

Shape Optimization The Easy Way: The ‘method Of Tensile Triangles’

Thermodynamic Assessment Of Human–thermal Environment Interaction

Why University Rankings Do Not Change: Education As A Natural Hierarchical Flow Architecture

Section Properties Of Palm Petioles. Part 1: The Influence Of Section Shape On The Flexural And Torsional Properties Of Selected Palm Petioles

Now tell me, which of these papers best reveals this journal's "agenda to give credence to Creationism"?

Bill: Drake,

You seem to be taking a somewhat more reasonable approach than that proffered by Mr. Shoals Skeptics, however, you also seem to be a little confused about the nature of scientific papers. You accuse the author of presenting a claim without providing any evidence to support that claim, but you admit that you have never read more than the abstract. If you would take the time to read a few scientific papers, then you would realize that the evidence of a peer-reviewed paper is almost never given in the abstract. In fact, the abstract for this particular paper provides far more information than one would normally expect to find. Nevertheless, if you really wish to claim that Dr. McIntosh failed to provide evidence to support his claim, then you will have to read the entire paper and not just the abstract.

You also seem to be under the impression that Dr. McIntosh is somehow not qualified to discuss the topic of this paper. May I ask how you came to that conclusion? Which of Dr. McIntosh's other papers have you read in order to determine the limits of his expertise? Have you read any of them? Were you even aware of Dr. McIntosh's existence before he wrote this paper?

Shoals Skeptics: Increasing Knowledge says, "I find it amazing that you have no idea whether the Royal Society of London is delusional, yet you know for a certainty that the International Journal of Design and Nature is ‘an organization that has an agenda of attempting to give credence to Creationism.’ How did you arrive at this conclusion? "

The words "Design" is a dead give away, IK. To an actual scientist, that may as well read, "Journal of science and invisible pink fairies."

They are in intelligent design outfit. That means they have an agenda other than science. I do admit they are pretty good. It appears that they publish some papers that tend to suggest that they are a purely scientific, respectable journal. This is a part of the infamous "wedge strategy" where ID "theorists" attempt to build their reputation as scientists so they can occasionally publish a paper that fits their "real" agenda and sound respectable.

That is all almost beside the point. Even if this were a respectable journal, your original paper is still stupid. It's the same old, worn out, falsified regurgitation of young earth creationist stupidity of attempting to show that evolution violates the 2nd Law.

He may as well be writing a paper proving the flatness of the earth.

Bill: Now, now, Mr. Shoals Skeptics. Let's not jump to conclusions here. You are, after all, representing the entire skeptical community of north Alabama. What would your fellow free thinkers think about your comments? Do you really think they would agree that every journal with the word "Design" in its title is a journal about pink fairies?

Let's see... if that were true, then the International Journal of Computational Biology and Drug Design should be read as the International Journal of Computational Biology and Drug Pink Fairies. And the International Journal of Machine Tool Design and Research should be read as the International Journal of Machine Tool Pink Fairies and Research. And the journal Nuclear Engineering and Design is really a journal about nuclear engineering and pink fairies. Oh, and of course it's completely obvious that the journal Applied Process Design for Chemical & Petrochemical Plants is about putting pink fairies to work in our chemical plants. Surely you aren't really proposing such a ridiculous concept.

Did it ever occur to you that you could click on the link to the International Journal of Design & Nature and Ecodynamics and learn a little bit about the kind of design that the title is referring to? Did you stop to consider that the International Journal of Design & Nature and Ecodynamics might possibly be associated with the International Conference on Design and Nature? Do you know anything at all about that conference?

Instead of just jumping to unfounded and ridiculous conclusions, perhaps you should take the time to actually research the material that you are discussing before you discuss it. It seems to me that you would greatly benefit from such a plan, and I'm more than willing to help you in its implementation. To do so, let me recommend that you search for the paper "Functional Information and Entropy in living systems" in which Dr. McIntosh first introduced much of the material that he later submitted for peer-review. It shouldn't take that long to find (of course it will take longer than clicking on the name of the journal would have taken you), and you should be able to download it for free. This will enable you to actually prove your claim that Mr. McIntosh's paper is "stupid." You could cite specific statements made in his own words and demonstrate to the whole world just how "stupid" this man really is.

I look forward to your revelations.

Shoals Skeptics: "Do you really think they would agree that every journal with the word "Design" in its title is a journal about pink fairies? "

Of course not. But anything having to do with Intelligent Design is, by definition, hogwash, puke, verbal diarrhea and sugar candy for ignorant fundamentalists.

I read the abstract of the paper. For the third time, it is simply a regurgitation of the worn out "violation of the 2nd law" ignorance. Yes, it is stupid.

The title of this paper, "Functional Information and Entropy in living systems" is astoundingly stupid. While entropy is a basic fundamental aspect of our universe, it is only applicable to open systems (at least at the macro level, you'll actually need to study to understand the ramifications). A refrigerator, for example, is a closed system. It will function and even gain in complexity as you add "information" to it via bags of chicken bones. Once you remove the external power source, electricity, the whole machine begins to de-evolve into junk.

The same with a cell. We humans ultimately get power from the sun,. As long as it shines upon this earth, complexity (aka "information") will continue to aggregate. The moment the sun stops shining, entropy will regain control and turn us all back into our constituent atoms.

Your esteemed author ends his stupid paper with this statement, ""the implication of this paper is that it supports the so-called intelligent design thesis - that an intelligent designer is needed to put the information into the biological system."

In other words, only God could create machines that increase in complexity in violation of the 2nd law. It's stupid, IK. The very fact that your pseudonym is "Increasing Knowledge" is oddly ironic given your stance that increasing knowledge cannot happen in this universe.

Bill: Aha, I see your problem! You need a new dictionary! I recommend Webster's Second Collegiate Dictionary. It's very thorough and very easy to understand. You shouldn't have any trouble with it at all, and it will greatly improve your comprehension.

Seriously, you really should be less hasty to ridicule things that you know nothing about. You are judging the entire contents of the paper solely by your preconceived notions about the title of the journal, the title of the paper and the abstract. The scientific way to respond to an abstract or title that you think might be from an unscientific paper would be to go and read the paper itself to determine if your suspicions are true. When was the last time you read a peer-reviewed challenge to someone else's work that did not address the actual content of the paper being questioned? For that matter, when was the last time that you read a peer-reviewed paper of any sort at all?

If you wish to demonstrate the folly of the paper that I referenced, then you need to either read the paper itself or at the very least read the second paper that I mentioned which can be obtained freely and with little effort. I cannot help but wonder why you have not taken the time to do this. Are you afraid that your faith in evolution might be shaken by the rantings of a rabid creationists?

Shoals Skeptics: Allow me to rephrase your response so that you may understand how it sounds to me?

"If you wish to demonstrate the folly of the paper on Flat Earth theory, then you need to either read the paper itself or at the very least read the second pa...per on the Fake Moon Landing that I mentioned which can be obtained freely and with little effort."

(honestly, I know nothing about the "second paper" you referenced. If you want to start a new topic on it, be my guest)

Drake: "Aha, I see your problem! You need a new dictionary! I recommend Webster's Second Collegiate Dictionary. It's very thorough and very easy to understand. You shouldn't have any trouble with it at all, and it will greatly improve your comprehension."

Fascinating. Who knew that proper Christian character should be demonstrated by means of abject sarcasm and snide language?

"...however, you also seem to be a little confused about the nature of scientific papers."

Why don't you tell us a little about your technical background, or at the very least, ask yourself why you think you have any informed opinion on this, or any other technical topic?

"You also seem to be under the impression that Dr. McIntosh is somehow not qualified to discuss the topic of this paper."

Yes. Once again, I came to that conclusion based on the fact that he doesn't know what he's talking about. I offered to explain to you why he doesn't know what he's talking about but, ironically, you seem completely uninterested in "increasing learning".

For the last time: I don't need to know the "expertise" or "qualifications" of an individual in the field of mathematics if he seriously proposes that $2+2=5$ IN THE ABSTRACT OF A PAPER. I don't need to know more about a journal that would publish a paper stating that $2+2=5$. In fact, I wouldn't even feel safe giving such a questionable organization my credit card number to order the article. (Oddly enough UNA, UAH, UAB, USA, AU, and UA all fail to carry this "journal". Worldcat lists only 12 libraries worldwide that carry it, only two in the states. Additionally, no one seems to have ever referenced it as an actual citation in any original work. I can't imagine why that is, can you?)

I've tried to be civil and helpful with you, but I've wasted my time here. Good bye and good luck.

Bill: Drake,

You have made the following claims regarding this paper.

- 1) That it does not present any original insight.
- 2) That it does not give any theory, evidence, or experimental procedure to support the authors conclusion.
- 3) That the author is incapable of discussing this topic.

The first two require knowledge of the contents of the paper, and the third one requires knowledge of the author. Yet you have admitted that you have never read the paper in question and claimed that you do not need to know the author's qualifications to know that he is not qualified. You further stated that if I wanted a more technical explanation of the errors of this paper, then you would take the time to provide one.

Very well, then. I would like for you to take the time to read the paper and give us the technical explanation that you promised. If you cannot obtain a copy of the paper in question, I would not mind in the least if you begin your explanation with Dr. McIntosh's previous paper "Functional Information and Entropy in living systems" which is freely available online. Please take your time and read the paper thoroughly. I look forward to your analysis.

By the way, I hesitated in using the sarcasm above, but eventually decided that there could be nothing wrong with following the example of Elijah. If you think that it was inappropriate, I would certainly be willing to discuss the biblical use of sarcasm with you in a separate discussion.

As for my personal qualifications I can only say that I have been blessed with the opportunity to be very widely read. For most of my lifetime, I have been able to read over 1,000 books per year; and I have a personal library of over 4,000 volumes. I prefer to read original source material whenever possible, and I have read many, many scientific works written by men who are and were experts in their fields.

Shoals Skeptics: IK says, "1) That it does not present any original insight.
2) That it does not give any theory, evidence, or experimental procedure to support the authors conclusion.
3) That the author is incapable of discussing this topic."

I didn't see where Drake said that but for the sake of argument, I'll agree with you.

But the author concludes the piece with the supposed "fact" that his evidence "supports the so-called intelligent design thesis - that an intelligent designer is needed to put the information into the biological system."

Let's say for argument sake that I agree with the conclusion. Now, who is this "intelligent designer"? Some Great Space Alien? The god of Abraham?

In the scientific world, biological machines certainly do have a Creator. We call it "nature." It is a haphazard, imperfect Designer but it gets the job done.

So Who, in your mind, is the Creator?

Bill: The Creator is the God of the Bible and my Lord and Savior, Jesus Christ.

Now, Mr. Fisher. My previous comment about you needing a dictionary was meant to be a bit of humor, but now I'm seriously becoming concerned about your education. I realize that Alabama doesn't have the greatest educational system in the world, but surely the University of North Alabama wouldn't have let you graduate if you couldn't read. How in the world can you read this conversation and not see that Drake made those exact comments? For that matter, how can you see the name of this organization dozens of times on this page and still not realize that you are stating it incorrectly?

I'm serious about this. You are claiming that your position is somehow a more intelligent one than mine, but you act as if you can barely even read. Why should anyone heed what you say?

Shoals Skeptics: I'm a little confused on who you are addressing but nonetheless (and I'm ignoring the ad hominem attacks for the moment. Quite un-Christian of you, I might add):

So the Creator is God. You are asserting this as a scientific fact? If so, by what measure?

Bill: There is a great deal of scientific evidence for the existence of God. Much of it is explained in papers like the one that I linked to above, so why don't we take the time to analyze it. I've presented the paper and provided you with an additional paper by the same author which is freely available on the internet. I would love to hear your scientific analysis of the actual contents of either paper. Are you willing to read either paper and explain the errors which you are certain they contain?

Shoals Skeptics: Wow. You singlehandedly proved the existence of God at long last! No longer do minds have to be enslaved by faith! You have PROOF!

I wonder, if what you say were true and faith were no longer necessary, would the entire church fall to ruin? Isn't "faith" important to believers?

I'm not about to pay 30 bucks for this trash but provide the text (in a link, in your discussion area or to my email address) and I'll summarize it for you. Fair enough?

Bill: God has never been afraid of proving His existence. He provided many direct proofs of His existence to the Children of Israel, and He gave us commands such as "prove all things" (I Thess 5:21) and "prove me now herewith, saith the LORD of hosts" (Mal 3:10) to indicate that the existence of proof is not inconsistent with the Christian faith. He even challenges skeptics with statements such as "come now, and let us reason together, saith the LORD" (Isa 1:18) and "produce your cause, saith the LORD; bring forth your strong reasons" (Isa 41:21). Proof of God's existence does not in any way hinder my faith. In fact, it strengthens it, and emboldens me in my defense of the truth.

I'm glad that you are finally willing to discuss Dr. McIntosh's work. As I have already mention twice in this discussion, his preliminary paper, "Functional Information and Entropy in living systems" is freely available

online, and I am certainly amenable to your use of that paper for our discussion in place of the final, peer-reviewed article. By all means, please "bring forth your strong reasons" and "let us reason together."

Shoals Skeptics: Where is the complete paper? I know it's available but I'm not paying 30 bucks for what amounts to a coloring book for fundamentalists. So please provide the link to the full version.

Bill: There's this really neat little web page called google. Have you ever heard of it before? It can find all sorts of things on the internet for you. For instance, if you were to copy and paste the name of the paper that I mentioned in my previous comment (and in two other comments as well), then google would give you the link to that paper. Yes! It's really that easy! They're very good at that kind of thing.

By the way, your dependence on a direct link from myself reveals an inability to learn on your own. It demonstrates that you are entirely dependent on your teachers for your views. I would encourage you to take some initiative and test your beliefs without depending on the beliefs of others.

Take something as simple as the heliocentric solar system. Have you ever actually read Copernicus' book "On the Revolution of the Heavenly Spheres"? If not, how can you know for sure that he actually said what everyone thinks that he said? Now, I'm not saying what he did or didn't say. I'm just pointing out that until you stop depending on everyone else for your beliefs, you will never really know for sure if your beliefs are correct.

Shoals Skeptics: Found it: <http://tinyurl.com/24cp8h2>

Sorry, it's still stupid. Yes, he certainly uses some awfully large and impressive words to make it sound really scientific. Why he even helps his "peers" by defining some of those big impressive words such as endothermic, and "endogenous" and "exogenous."

He says, "In an open system, energy (such as from the sun) may increase the local temperature difference (and thus increase the potential for useful work that can be done locally), but without a machine (that is, a device which is made or programmed to use the available energy), there is still no possibility of the self-organisation of matter."

The "machine" of course, is Jesus but he stops short of that.

He even inserts some impressive looking equations. He certainly goes into great detail step by step to show how he reached his ultimate conclusion and that conclusion is exactly what I've stated from the very beginning of this stupid thread: That evolution violates the 2nd law of thermodynamics and that the only way that could happen is if some sort of intelligence (aka, magical mystery man) is somehow involved.

IL, this paper was written for one single audience and one single audience only: The fruitcakes at the Discovery Institute so they could claim they finally had a "peer reviewed" paper.

Bill: Well, Mr. Skeptic. It appears that you have finally learned how to use Google. I congratulate your success. Unfortunately, you still have not demonstrated any ability to refute Dr. McIntosh's claims. In fact, it is rather apparent that you did not really read his paper at all. It seems as if you just glanced at the pages as you scrolled past them and then read just the first two paragraphs of the conclusion.

You claimed that Dr. McIntosh stopped just short of claiming that the machine was Jesus as if he was only referring to a single machine which created everything, but if you had really read the paper, you would have noticed that he described several examples of the machines (plural) that are the focus of his work.

Please read the paper in its entirety and then provide us with examples of specific errors in Dr. McIntosh's work.

Shoals Skeptics: Let's try this: Does the paper claim that evolution violates the 2nd Law of Thermodynamics or does it not? Simple yes or no question.

Bill: Why don't you tell us? After all we're just a bunch of deluded creationists; we might not even be able to read. Why don't you find out exactly what Dr. McIntosh is claiming, provide examples of those claims from his work, analyze them and explain to the rest of us what he did wrong?

Shoals Skeptics: OK you refuse to answer the question so I'll lay it out for you:

The paper defines "information" for us. He makes a very intelligent case that "information" cannot pre-exist. He posits that "matter and energy" alone cannot create "information" all by itself, because that would violate the 2nd Law of Thermodynamics. In order to create information, matter and energy must be "directed" towards self-assembly.

His focus is on DNA but you could also apply his reasoning to all chemical reactions since ANY chemical reaction creates "information" via self-assembly. By his reasoning, even a lowly salt crystal cannot possibly organize into perfect square structure.

So, therefore, some unknown force that is outside the observable realm could allow the 2nd law of Thermodynamics to be violated. He calls that force the Director.

Did I use too many big words, IL? Let me know and I'll stew it down for you if necessary.

Bill: The word, "Director" does not occur within Dr. McIntosh's paper. Are you sure that you are reading his work, or are you just copying and pasting stuff from some evolutionary discussion board?

Shoals Skeptics: From the article: "Another way of saying this is that for an open system, energy must be /directed/ to be of any use." He also emphatically states that an unidentified "mechanism" (defined as "know how" or "machine") must be present to organize "information" from non informative constructs.

He suggests that a "machine" cannot create itself (the old "Watchmaker argument") and "know how" can only come from some form of intelligence.

Did I mis-state anything about the paper? Care to comment on my synopsis or do you wish to continue to pay homage to your simian ancestry and simply throw poop at me from the sideline?

Bill: You know, it's amazing how quickly one decides that people should discuss the actual content of an author's work when he is the author whose work is being derided. I trust that you will show the same courtesy towards creationist authors that you have requested for yourself. Now, let me make two points about the actual contents of your posts.

1. "He suggests that a 'machine' cannot create itself (the old 'Watchmaker argument')."

This is a true statement accepted by both creationists and evolutionists alike. Everyone knows that the machines of nature do not create themselves. The debate is over the source of their creation. Creationists claim that God created a large number of initial machines while evolutionists argue that these machines were all created by a naturally occurring increase in the entropy of a given system. What Dr. McIntosh has proven is that entropy cannot be increased unless a machine is already present within the system. This is the argument that you must disprove in order to justify your claim that the paper is stupid.

2. You acknowledged without dissent the definition of "information" that Dr. McIntosh provided in his paper, so I'll assume that you agree with that definition. However, you also claimed that every chemical reaction creates information. This claim is not consistent with the given definition of "information." A chemical reaction does not create a series of either/or possibilities. The salt crystals which you mentioned do not represent information because they always form into squares. To be considered informative, they would have to have the option of forming into a square or say a triangle shape. Information only exists if there is a series of either/or possibilities.

Shoals Skeptics: "What Dr. McIntosh has proven is that entropy cannot be increased unless a machine is already present within the system."

Because it VIOLATES THE 2ND LAW OF THERMODYNAMICS which is where we started to begin with! Yes, I see what he is claiming but what he is claiming is pseudoscience at worst and non-scientific at best.

To succeed in being deemed "scientific," his thesis must posit an alternative to Darwinian mechanisms. His alternative is "what we see can't happen therefore God did it" (ok, that an intelligent "agency" did it, wink wink).

Now, in order for a thesis to be considered "science" it must meet a few conditions including falsifiability (unless, of course you wish to redefine the word "science"). So, tell me, would it be remotely possible to falsify his claim? Would it ever be possible to show that an invisible, omnipotent, supernatural being could NOT have created these machines?

No. At best, you might be able to show how these machines can be created in nature (thinking "bacterial flagellum here) but you never, ever could possibly disprove that your invisible man did it.

Ergo, not science. Religion.

"You acknowledged without dissent the definition of "information" that Dr. McIntosh provided in his paper, so I'll assume that you agree with that definition"

Sure. My use of the salt crystal was perhaps overly simplistic but it is an example of self-guided assembly. Other examples of more complicated self-assembly include the formation of molecular crystals, phase-separated polymers, colloids, lipid bilayers, formation of polypeptide chains into proteins and, yes, the folding of nucleic acids into their functional forms. So my point is still valid. "Information" most certainly can self-generate under natural conditions - especially (for the sale of this discussion) proteins.

Now, going from these self-assembled bits of information to a full blown molecular machine, granted, is a bit of a leap. There are gaps in our knowledge but we understand the process well enough to create our own self-assembled molecular machines using coded proteins in the lab. Yes, they assemble all by themselves - evidently in direct violation of the 2nd Law.

So, insert your God into the small gaps of our knowledge if you wish. I find that to be a primitive way of answering the question but it's harmless enough as long as it does not impeded the quest for the natural answer. However, when science illuminates that dark area of knowledge, where shall your god reside then?

Drake: I said I wouldn't be back, and I know I'm wasting my time trying here with IL, but I'm afraid some gullible person reading this silly waste of space thread might actually think that people like McIntosh have a clue what they're talking about. So instead of doing my studies, being productive at work, or spending time with my family, I'm going to waste my time on this garbage. I know as I type this, like all of the other "otherwise intelligent" flat earthers, anti-vaccers, and moon landing hoxers, IL will just find some excuse to believe that he believes what he believes for "good reason", and will continue on with the "cherished belief". So IL, know that this post isn't for you, it's for anyone who might actually be considering drinking the Koolaid of someone like McIntosh.

Okay, now that that's out of the way...

"Functional Information and Entropy in living systems"

Introduction:

"Consequently the biochemical arguments are always going to be a vital battleground because of the root issues at stake."

Wow, what a start for a "technical" paper. Here's a hint to anyone trying to be a little more effective at faking a scientific argument: in these sorts of topics, we don't generally throw around phrases like "root issues", "vital battleground", and especially "worldviews".

There's a coherent quote by Dawkins, followed by this gem:

"This important paragraph shows the dilemma that faces an approach which only considers matter and energy without information (the 'bottom up' approach)."

Major mistake one: Information is OUR term, it is not some mystical, ethereal property that can be separated from the physical aspects of the systems we observe. Molecules arranged due to interacting forces don't possess some mystical intrinsic "information" attribute any more than the objects we deem "cars" possess some physical intrinsic "car" attribute.

Moving on.

"This means that mutations are generally corrected (see for example the papers by Jackson⁵ and de Laat et al⁶), so that even if speciation does occur due to slight modifications and adaptations of the phylogeny, any serious departures in the genetic information would be acted against by the DNA's own repair factory."

By now any credible reviewer of this paper is working hard to contain his laughter while emailing the author to "suggest" that words like "generally" be SLIGHTLY more defined before making such assertions in a "technical" paper.

The gist? "DNA repairs itself "generally", therefore serious departures can't happen." This reads like a bad high school paper on DNA or a good introduction for elementary school children. DNA doesn't have a "repair factory". Our cells have a number of mechanisms to address DNA damage as well as mutation.

Damage is mitigated when enzymes detect physical damage or contamination, which may then be repaired if there is another matched strand or chromosome from which to copy. Mutation is a completely different issue. Transposons, retrotransposons, or the duplication of an entire chromosome are all (assuming they aren't incompatible with life) induce stable, propagating mutations and add information.

Deeper into the nonsense we go.

"Mutations do not increase information content – rather the reverse is true."

Not according to what is commonly called "reality". Once again, mutations arise from a large number of well understood, observed, induced, and documented mechanisms. Translocations, insertions, duplications, and deletions occur on the chromosome scale. Frameshift mutations, point mutations, and deletions occur on the scales of individual genes. At this point it should be more than clear that this guy doesn't know jack about the topics he tries to address. At this point, it shouldn't be necessary to go forward, but I'll do a bit more.

"That is any random mutations always have the effect of increasing the disorder (or what we will shortly define as logical entropy) of any particular system, and consequently decreasing the information content."

Say it enough times, in spite of the stupidity of it, and I suppose it's easier to believe? A mutation does NOT increase disorder. "Order" and "disorder", like "information" are terms WE apply. Cells and embryos don't can't and don't know what such terms mean. They're composed of local agents following local rules. Chemical bonds and molecular interactions need no magical information fields in order to work. Any credible reviewer should be contemplating faking a stroke to escape reading this paper.

"Such thinking is a tacit admission of a teleological influence."

You'll have an extremely hard time finding a credible biologist who denies convergent evolution, or that such events occur without reason (natural selection). You'll have a much harder time finding a credible biologist who thinks the reason is some unnamed intelligent agent or magical information field(?). When people understand the theory, they're not likely to fill in the gaps with magical thinking.

Section 2-2.1 launches into some writing actually fitting of an expert in combustion theory. We're generally coherent and cogent (if overly simplified) until we hit the last sentence of 2.1, when it becomes clear that we're moving into nonsense land again with the equating of a "machine" with "teleonomy / information". Any reviewer should now be attempting to slice their own wrists.

Finally (thankfully, for my sanity) we move into the heart of McIntosh's failure:

"However in reality information is not defined in the coded sequence itself (such as the DNA nucleotide sequence of fig. 1) but rather (Gitt has shown) as five levels of signal statistics: (the Shannon level), code (syntax), expression (i.e. message at the semantic level), expected action (pragmatics) and intended result (apobetics)."

Wow... where to began? Once again, information is OUR term. WE can contrive things like "expected

action" and "intended result". Our biological systems have no such need, being composed of LOCAL AGENTS BEHAVING ACCORDING TO LOCAL RULES.

"To summarise just two of these levels succinctly, the code used is not defined by the material it orders, and the expression (message) is not defined by the code it uses. Gitt argues that information has to be thought of as a third fundamental quantity which cannot be defined in terms of matter and energy."

McIntosh's final failure is in failing to understand that information isn't a "fundamental quantity". It isn't measurable. It isn't demonstrable. It is the definition that WE use in describing a system, not something that exists without us deciding that's what the system is. At this point, any credible reviewer is dead and cold. (Still, wouldn't it be fun to have McIntosh try to define his magical "information attribute"?)

I'm not moving into his pet ideas on what the magical "information" field may be. I'm not reading more of this ridiculous paper, I've wasted enough of my time. I may as well be reviewing a "technical" paper on why pink unicorns can't see in color. I hope it's now clear to anyone who happens to read this just how deluded, dysfunctional, and ridiculous McIntosh's ideas really are. Fortunately he didn't really attempt to make any technical case for anything, preferring instead the format of baseless assertion and oversimplified nonsense (a staple of apologetic writers). No real work. No real research. No real journals and no real peer reviews. No real anything - just a lot of hot air and the hopes of catching people looking to justify a bias with something "sciency" and smart-sounding.

Goodbye and good luck (for good this time). I'm going back to doing something that actually relates to reality. I encourage anyone who ACTUALLY wants to understand these complex topics to GO STUDY* YOURSELF.

(*Note: Study does not mean read things some crackpot like McIntosh posted on the internet or "published" in a quack journal, or reading something in an apologetics book before deciding that it "makes sense to you" and parroting it to other gullible people. Study means actually going and taking college level classes, doing the math, and doing the work. It isn't easy, but it's worth it.)

Shoals Skeptics: "Information is OUR term, it is not some mystical, ethereal property that can be separated from the physical aspects of the systems we observe"

Oh yeah? Well what about CODE, sir?? Hmmm? There's a "code" in them thar DNA molecules. How do you explain THAT?

Drake: Of course... "Code".

That works almost as well as labeling something a creation (I wonder if there is a intrinsic creation attribute as well?) and then using that as "evidence" that it was created. I think I'm going to start going around "detecting" that other people's properties have a high level of "Drakeness" (the "D-Field") then demanding that they turn them over to me. I think I'll call it "Supernatural Allocation" (The D-field was intelligently allocated supernaturally). I can get my theory "peer reviewed" if that would make anyone feel better about turning over their stuff. It's actual science, after all.

Shoals Skeptics: There is a Nobel Prize in your future, sir. Good luck with that.

Bill: Drake:

Thank you for your honest analysis. You have invested a great deal of time in your comments, and I certainly do not want to do you the dishonor of replying in haste. I trust that you will be kind enough to allow me a little time to study what you have presented.

Shoals Skeptics: "Dr. McIntosh's claim is based on observed evidence, and those observations are fully falsifiable."

His claim is that self-assembly of molecular machines cannot happen without an "agent" intervening because it violates the 2nd Law. Yet we puny humans have done just that in the lab.

Bill: Drake:

Let me begin with your final statement and proceed from there. You concluded your review of Dr. McIntosh's paper with a recommendation that I study this topic for myself. You then explained that "study" means taking a class on the topic at a college. You are incorrect in that definition. The word "study" does not mean "taking a class at a college." It means "The pursuit of knowledge, as by reading, observation, or research" (Webster's II New Riverside University Dictionary). I have no doubt that you have attempted to apply your definition of study to this topic by regurgitating the rantings of whichever of your professors or text books happened to speak about this topic, but you have yet to come anywhere close to Webster's definition.

For example:

You stated that Dr. McIntosh used a "coherent quote" from Richard Dawkins, and then you condemned him for his statement that "Mutations do not increase information content - rather the reverse is true." If you had actually studied this comment by reading, observation, or research, then you would have noticed that Dr. McIntosh was merely referring to the earlier statement by Mr. Dawkins who said, "Mutation is not an increase in true information content, rather the reverse."

You then went on to berate the stupidity of the claim that "any random mutations always have the effect of increasing the disorder (or what we will shortly define as logical entropy) of any particular system, and consequently decreasing the information content." But once again you failed to notice that this was the same conclusion that Mr. Dawkins arrived at in his comment that "mutation in the Shannon analogy, contributes to increasing the prior uncertainty."

But that's not all. When you criticized Dr. McIntosh's claim that "mutations are generally corrected," you failed to even acknowledge his reliance on two previously published papers. You must have seen them, for you included their reference in your copy-and-paste quotation. Have you read either of these two papers yet to determine if Dr. McIntosh was faithful to their conclusions? They are both freely available on the internet and remarkably easy to locate. These papers were also both peer-reviewed, and subsequently published in respectable journals. Are you saying that these two papers are just as much nonsense as you seem to believe Dr. McIntosh's work to be?

You also failed to study the definition of the word "teleological" or even its use within scientific literature. Contrary to your claim, the idea that evolution is channeled toward a specific goal is an

admitted teleological concept. You would do well to search for the word "teleology" within scientific journal entries before addressing this topic again.

Your most obvious failure to perform any study according to Webster's definition is your insistence that Dr. McIntosh was wrong in his definition of "information." Your ignorance of this topic is so obvious as to be laughable. Dr. McIntosh's definition of information is pulled directly from the paper, "The Mathematical Theory of Communication" by C.E. Shannon. I doubt that you've ever even heard of it. It's only the most highly recognized and most frequently cited paper ever written on the topic of information, but how could you be expected to know that when the kind of "study" that you engage in excludes the act of reading? And of course, if you are unaware of Mr. Shannon's work on information, how could you possibly be the least bit familiar with the much more obscure but equally important work of Werner Gitt?

You concluded your review by claiming that Dr. McIntosh's ideas are "deluded, dysfunctional, and ridiculous," but you did not criticize him for a single one of his own ideas. In fact, you applauded the section in which he documented his original work as being "fitting of an expert in combustion theory." It is apparent that your only real criticisms of this paper are actually criticisms of other, highly respected papers which Dr. McIntosh cited. This would seem to indicate one or both of two things. Either you are completely ignorant of this field of research, or you are so afraid of Dr. McIntosh's conclusion that you are willing to do anything to discredit his claims.

Shoals Skeptics: IL, you didn't answer a question: Fact we have created self-assembling molecular machines in the lab. According to this paper, that cannot happen. Does that not tend to falsify the paper in question?

Bill: Mr. Skeptic:

Your previous inadequacies have made me leery of trusting you. If you wish to present something as a fact, then please provide references to reputable observations of those facts.

Shoals Skeptics: Yeah, I figured you wouldn't answer. Pretty common avoidance tactic.

Bill: I would be more than happy to answer your question if you could simply provide reputable references to support the factuality of your claim. There is no reason for me to assume that something is a fact just because you say that it is.

Shoals Skeptics: Is this the same person who chastized me for the inability to find the original paper that is the subject of this debate? Dude, Google "molecular machine self assembly" and all is revealed. Genius huh?

You will find plenty of data but this is as good a start as any: <http://www.cs.berkeley.edu/~anindya/FNANO.pdf>

Bill: I suggested that you google a stated paper by a specific author not some large, nebulous concept that would produce over 150,000 results. Now that you have provided a specific reference, I will take the time to review it in light of this discussion.

Bill: I have reviewed the paper you presented, and I have concluded that it agrees with Dr. McIntosh's conclusion. The paper stated that these "self-assembled" machines are dependent on pre-existing DNA. DNA is information. Therefore, these machines conform to Dr. McIntosh's conclusion that machines rely on pre-existing information.

Consider the following quote as an example:

"Yin et al. [15] proposed and implemented a DNA walker powered by enzymatic restrictions and ligations; this is the DNA walker that is most directly relevant to our results. In this implementation, there is a DNA substrate that acts as a "track" for the walker. There are several "anchorage" along the track. A double stranded DNA sequence (with one strand slightly longer than the other) is attached at each anchorage; thus at each anchorage, parts of the longer strand are exposed. The exposed part has a sequence which will allow the walker to bind to the next anchorage using complementary base pairing. The walker is represented by two DNA strands initially attached on top of the first anchorage. Again, one of the strands in the walker is partially exposed, and this part allows the walker to also attach to the next anchorage so that there are no exposed regions left at the original anchorage or the new anchorage. After the attachment, one enzyme ligates (i.e. attaches) the two strands together, so that there is no "break" along the DNA sequences. A second enzyme (a restriction enzyme) recognizes the newly formed continuous sequence, and makes a cut. After the cutting, everything remains the same except the walker strands have now moved to the top of the second anchorage. This process can repeat by itself and the walker moves along the DNA track autonomously until it reaches the end. This was the first walker that could move autonomously without any environmental changes."

Shoals Skeptics: So was "information" created in this experiment or not?

Bill: The paper that you linked to indicated that the molecular machines merely responded to information already present within the scenario.

Shoals Skeptics: So was "information" created in this experiment or not?

Bill: No new information was created by the machines in the experiment. They merely responded to information that was already present.

Shoals Skeptics: Hmm. A self-powered Turing machine based on DNA that can SELF ASSEMBLE itself into new algorithms does not generate new information?

I'm outta here. Good luck with that dissonance thing you got going there.

Bill: Perhaps you could take the time to explain what new information you believe was created. You claim that this machine assembled itself into new algorithms, but did it not assemble itself in a fully predictable manner? Wouldn't this predictability indicate that the assembly proceeded along set paths in accordance with pre-existing information?