

theology was very broadly conceived; that was why we had come to him.) At one point he chuckled and said, "Some of my colleagues regard me as an atheist." "Do you have a dogma?" I asked. "Well," he said, "I'm a Christian." "What does that mean?" I asked. "It means that I believe in the divinity of Christ," he said, "whatever that may mean."

In time we became firm friends and talked much more about these matters. When the fourth volume of Tillich's *Systematic Theology* appeared, a reviewer hailed it as marking Tillich's "turning toward the organic." Tillich imputed some of that development to the work of the Jesuit priest, philosopher, and anthropologist Teilhard de Chardin. A few years later Tillich, then at the University of Chicago, agreed to join with me in a series of public presentations at Harvard under the title *The Search for Common Ground*. Sadly, just two months before that was to happen, he died. By then we shared a lot of common ground.

I believe that in reality science provides one of the most meaningful paths in the pursuit of religion—a *Tao*, to use Lao-Tzu's term, as Fritjof Capra does in his *Tao of Physics*. But that would be non-institutional religion, religion-in-general. I think that that indeed is what science is ultimately about.

In the Museum of Fine Arts in Boston there hangs a lovely painting by Paul Gauguin from his Tahitian period, brooding and mystical. In the upper left corner Gauguin painted the words, "*D'ou venons nous? Que sommes nous? Ou allons nous?*" "Whence do we come? What are we? Whither do we go? Those are the everlasting questions that humankind has asked since we know of it and will go on asking as long as we survive. They are at once dominant in both science and religion. I think that anyone who lives with those questions is deeply religious.

But that again need be only religion-in-general. It leaves out common appurtenances of the organized religions. I feel myself to be deeply religious, for example; yet there is nothing *supernatural* in my scheme of things. For me to reach for the supernatural, I should have to believe that we had exhausted nature, and we have not nor ever will.

Benedict Spinoza, having been brutally excommunicated from the Jewish community in Amsterdam, never took on another formal faith. He ended up equating God with Nature, insisting, however, that we shall never go beyond a very limited conceptualization of either. I accept that position entirely, though I - as I believe was true also for Einstein - use the term God only as metaphor; yet in that sense I use it fairly often, as do many other scientists.

Another aspect of organized religion that many scientists do without is *ritual*. I heard the

anthropologist Anthony Wallace of the University of Pennsylvania speak of ritual as "the cutting edge of religion." I think he called it that because he was considering religion in action rather than in contemplation. He defined religious ritual as "communication without information," pointing out that information can enter only as a mistake in the ritual. The point of a ritual is not to inform, but to assert a unity of those practicing the ritual, at times to create or produce the illusion of such a unity. "We are this and not that," the ritual insists; for it is as important for it to declare its difference from others as its own unity. Unity for what? For action of one kind or another, if only the actions needed to maintain and perpetuate those practicing that ritual.

The World Congress for the Synthesis of Science and Religion dealt to a degree with all these matters. That there is ever so much more to explore goes without saying; yet this was a fine and moving beginning. This book that emerged from it makes me an important and, I trust, a lasting contribution to an essential dialogue. As Einstein said, "Science without religion is lame, religion without science is blind" (*Out of My Later Years*, 1956, p.26). The Congress dealt not only with these relationships but with important aspects of new technologies and with some of the world's most pressing problems.

The Bhaktivedanta Institute is greatly to be congratulated for having produced so crucial and productive a discussion. It should be given every encouragement and support in going ahead with an enterprise so well begun.

George Wald
Woods Hole, MA
October, 1987

In 1980, our director Sripad Bhakti Madhava Puri Maharaja, Ph.D. approached Professor of Biology at Harvard University Nobel Laureate George Wald (1906-1997), who was still a hardcore atheist at that time. Professor Wald was having strong faith in the materialistic view of origin of life and it is very much evident from his statement:

"The important point is that since the origin of life belongs in the category of at least once phenomena, time is on its side. However improbable we regard this event, or any of the steps which it involves, given enough time it will almost certainly happen at-least-once. And for life as we know it, with its capacity for growth and reproduction, once may be enough.

"Time is in fact the hero of the plot. The time with which we have to deal is of the order of two billion years. What we regard as impossible on the basis of human experience is meaningless here. Given

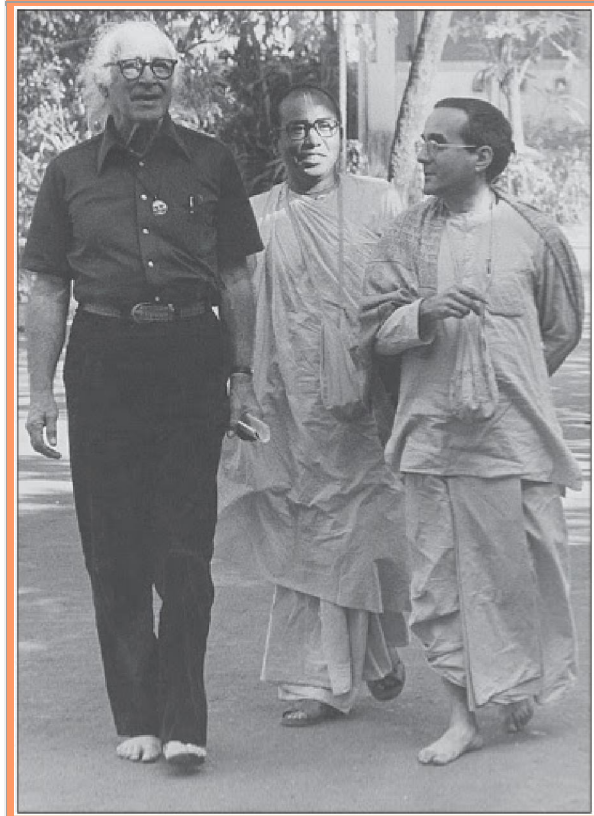
so much time, the "impossible" becomes possible, the possible probable, and the probable virtually certain. One has only to wait: time itself performs the miracles." {Wald, G. (1954). The origin of life. *Scientific American*, Vol. 191, p. 48.}

During the meeting, Sripad Puri Maharaja asked Professor Wald, "Why do you think that life comes from matter? Why don't you think opposite, 'Matter Comes from Life'?" Miraculously, this message entered deeply in the heart of Professor Wald. In a very short time, Professor Wald completely rejected all his past concepts on the material origin of life and became an active supporter of the message of [Bhakti Vedanta Institute](#) – 'Matter Comes from Life'. His

change is very strongly evident from his later statement:

"Let me say that it is not only easier to say these things to physicists than to my fellow biologists, but easier to say them in India than in the West. For when I speak of Mind pervading the universe, of Mind as a creative principle perhaps primary to matter, any Hindu will acquiesce, will think, yes, of course, he is speaking of Brahman [God].

"That is the stuff of the universe, mind-stuff; and yes, each of us shares in it." {Wald, G. (1989). The cosmology of life and mind. *Noetic Sciences Review*, No. 10, p. 10, Institute of Noetic Sciences, California.}



In the photograph Srila Sripad Bhaktisvarupa Damodara Maharaja and Madhava Das (Brahmachari name of Sripad Puri Maharaja) with Professor George Wald, Nobel Laureate in Physiology and Medicine.

"The Bhaktivedanta Institute is greatly to be congratulated for having produced so crucial and productive a discussion. It should be given every encouragement and support in going ahead with an enterprise so well begun."

– Professor George Wald

Absolute Is Sentient

The modern material conception of life is based on the abstract idea that the Absolute or Ultimate Reality is Substance, while Vedanta concludes that the Absolute i...

[View on bvistics.org](#)

Preview by Yahoo

Professor Wald actively participated in the conferences and activities of [Bhakti Vedanta Institute](#). He delivered the key-note address at the 'First World Congress for the Synthesis of Science and Religion' held in Bombay in 1986 and also participated in the 'First International Conference on the Study of Consciousness within Science' in San Francisco, 1990.

Sripad Bhakti Madhava Puri Maharaja, Ph.D. with Nobel Laureate, George Wald in 1981.

Sincerely,

B.N. Shanta

I don't find it surprising that cultures in the days before Newton, needed to find external mechanisms to

account for tides and the motions of planets and the evolution of animals. I think it would be good for us to focus on some concrete event, present or past, for which there isn't a materialist explanation. For sure that wouldn't rule out cosmic mind, but it would be good for our discussions to have some concrete, objective something-or-other for us to focus on that rules out the materialist option. Does anyone have something concrete to suggest?

Stan

Reply:

You raise a very important question, one to which I think we have consistently replied in this forum. The focal point on a "concrete event" that is empirically observed for both materialists as well as non-materialists alike is called the law of Biogenesis - that life comes from life, *omni vivum ex vivo* in Latin. Louis Pasteur scientifically established this principle in his famous experiments in 1864.

This experimentally confirmed observation directly challenges and refutes the materialist metaphysical presumption that life comes from matter. Of course we may argue that such observations do not establish whether the origin of life was material or not, since such original life cannot be observed. Here we must rely on logic. If life comes from life is established as a presently observable fact, then by logical induction why wouldn't the origin of life also be Life or first Life. This in fact is the Vedantic conclusion, that the *Adi-Purusha* or first Life is the origin of all life.

On the other hand, if we assume the origin of the life-from-life law that we currently observe started with a material scenario that we merely presume, then we deny the purely logical deduction, and make a doctrinaire assertion of materialist metaphysics. In other words we don't have an ambiguous equal choice between either a material or living origin. If life comes from life now, then logical consistency should demand that life has a living origin as well. Unless we are biased against theistic conclusions, then there should be no logical problem with the idea that life has its origin in Life.

This principle that life comes from itself, has very important implications for how we understand the world scientifically or rationally. In fact, it underlies the fundamental structure of how we think, or more objectively the structure of how thought itself moves in its development. The whole concept of self-causation is missing in mechanistic science, and this is the basis for its failure and inability to comprehend life or mind.

Causa sui or cause-of-itself . The whole discussion about free will takes on a completely logical and rational form when we understand what Spinoza discerned about the necessary nature of the

absolute, which he arrived at using a very mathematical paradigm for developing his philosophy, employing axioms and definitions and their deductive consequences. Free will or freedom must be an act that determines itself, or is self-determinate. In other words, whatever is determined by something other than itself, cannot be considered free because of its being determined by or dependent upon something other than itself.

Mechanical systems are made of parts that are considered inanimate because they do not move without being impelled by other parts external to themselves. They never move themselves without some external impetus, force, or energy. But life, or animate creatures, do seem to make self-determined choices, i.e. exhibit free will. When a rock rolls into an obstacle it suffers a loss of inertia and comes to a stop, but when an ant runs into an obstacle it finds a way around it.

If we look at this closely we can notice that the mechanistic view considers cause and effect to be distinct from each other. A causes B which is the effect. However, if something is the cause of itself, the cause and effect inhere in the same identical subject. This is what Kant recognized as one of the central features of living organisms - they are both cause and effect of themselves. The whole cell and its members are mutually co-related and essential to each other. Modern biological science demonstrates this in many ways, for instance, by the mutual co-dependence of DNA and proteins.

We may raise the objection that life requires other life for its production, thus how is this an example of cause of itself? Here we have to recognize the generic nature of this principle. An acorn produces and oak tree which produces an acorn. The original and resultant acorn are generically or conceptually the same yet different in the particulars associated with each. Mechanistic systems deal with parts that are conceptually external to and distinct from one another individually and as a whole. Whereas organicism deals with members that are immanently/conceptually related to one another as well as the whole.

The distinction that Bob Wallace makes between objective causal laws of nature and the subjective rational necessity that is used to formulate them usually passes the notice of most scientists of the materialist persuasion. Our annual conferences on "Science and Scientist" emphasize the need to recognize the rational nature of science and the scientist essential to yet overarching the mechanistic explanations of materialism. However, the more basic principle they cannot so easily ignore is the evidence of their senses - the empirical observation that life comes from life, the law of biogenesis. Once this is

recognized, then a more inward scientific critique of science itself can begin.

Sincerely,
 Bhakti Madhava Puri, Ph.D.
 Bhakti Vedanta Institute
 of Spiritual Culture and Science
 Princeton NJ 08542

<http://bviscs.org>

From: Robert Wallace
 <Bob@robertmwallace.com>

To: [Online Sadhu Sanga@googlegroups.com](mailto:Online_Sadhu_Sanga@googlegroups.com)

Sent: Sunday, December 13, 2015 7:40 PM

Subject: Re: 2]: [Sadhu Sanga] An intelligence based materialistic explanation to evolution

Hi Stanley,

You asked:

I think it would be good for us to focus on some concrete event, present or past, for which there isn't a materialist explanation. For sure that wouldn't rule out cosmic mind, but it would be good for our discussions to have some concrete, objective something-or-other for us to focus on that rules out the materialist option. Does anyone have something concrete to suggest?

I believe I gave previously what amounts to a concrete answer to your request:

I think the only consideration that should make the materialist stop and think, is the question, what is the status of materialist science itself? Is it something that the scientist is forced by material forces (causal laws) to believe, or is it something that the scientist believes because she has good reasons to believe it?

If it's the former, then we have no good reason to join her in believing it. If it's the latter, then science itself is an exception to the materialist's program of explaining everything in material (physical) terms. And once there is one such exception, there is no reason to suppose that it's the only one.

What I meant to suggest was that science itself—the efforts of scientists to arrive at explanations that they have good reasons to believe in (rather than explanations that they're merely forced by causal laws to believe in)—is “an objective phenomenon that rules out the materialist option.” Materialism says, in effect, that we believe merely what we're caused to believe. If science aims to believe what it has good reasons to believe, rather than merely what it's caused to believe, then science rules out materialism (as applied to science itself).

I think this objective and materistically inexplicable phenomenon of science itself has vast implications, which materialism has never come to grips with and (by its nature) never can come to grips with. This phenomenon confirms what we know from our daily practical thinking about what's valuable, what's worth pursuing in our lives, namely, that we

seek what's true and what's truly valuable, and not merely what we've been “wired” to seek.

This is the real “freedom” that we clearly possess, and which Jeremy Christian has correctly been urging us to focus on. This freedom isn't a mere experiment that God for some reason wanted to carry out. It's the most valuable thing that God could create, the thing that's most like himself, and which therefore (as Plato teaches in his Timaeus) a God who isn't “jealous” had to create.

Best, Bob W

On Dec 13, 2015, at 2:30 AM, Stanley A. KLEIN <sklein@berkeley.edu> wrote:

I don't find it surprising that cultures in the days before Newton, needed to find external mechanisms to account for tides and the motions of planets and the evolution of animals. I think it would be good for us to focus on some concrete event, present or past, for which there isn't a materialist explanation. For sure that wouldn't rule out cosmic mind, but it would be good for our discussions to have some concrete, objective something-or-other for us to focus on that rules out the materialist option. Does anyone have something concrete to suggest?

Stan

On Sat, Dec 12, 2015 at 9:28 PM, jeremy christian <jeremychristian@gmail.com> wrote:

I disagree. Yes, human perception is prone to fault, but that doesn't render it useless. Statistics have value. If not taking the individual's interpretation of something, statistical analysis over a large number can be useful.

While empirical certainty is certainly nice to have when it can be established, it's not always possible. There are some elements that cannot be empirically measured or confirmed. There are elements to reality that can only be assessed through our perception.

It's this attitude towards human perception and intuition that I think leads to what I've found to be a troubling trend. I spend a lot of time studying ancient cultures and human history. And more often than not conclusions are reached based on an assumption that people of the past are ignorant fools, basically. Like the various mythologies of the ancient civilizations. There's this assumption that this is just how the human mind works. It tries to make sense of things it doesn't understand, so it just starts making stuff up.

Nevermind these same bronze age people invented civilization and writing and mathematics and astronomy and a whole host of other things. Because we deem their stories impossible because we've never seen anything like that in our lifetimes, we dismiss them as over-imaginative ignorant morons.

Meanwhile I believe this is causing us to gloss over what should be recognized as significant

information. It's highly unlikely that multiple civilizations would independently come up with roughly the same explanation, considering all the cultures situated around the Mediterranean Sea all claimed that male/female immortal gods lived among them. They also claim it was these beings that taught them things we know they actually did. Odd they wouldn't give credit to actual people of their culture, but rather would give credit to imagined gods. Yet this is widely accepted as what happened.

While human perception can be imperfect, it shouldn't be discounted all together.

On Sat, Dec 12, 2015 at 5:10 PM, 'Priya Vrata' via Sadhu-Sanga Under the holy association of Spd. B.M. Puri Maharaja, Ph.D. <Online_Sadhu_Sanga@googlegroups.com> wrote:

First and foremost,

We are all subject to the four frailties of human nature namely: We commit mistakes, we are subject to illusion, our senses are imperfect, and we possess the propensity to cheat.

Therefore our speculations and opinions have no value whatsoever. Perfect knowledge cannot come from imperfect beings. Perfection undeniably cannot come from imperfection. That is not possible in any sphere of comprehension.

Secondly, and equally as important, is the fact that science and religion are not separate. That is your misconception. Science is; hypothesis, observation, experiment, result, and conclusion.

Our hypothesis is that we are not these bodies that we inhabit. Both the observation and experiment are that our bodies are changing from infancy, to toddler, to boyhood, to youth, to manhood, to old age, then finally the death of the body. The result is that which animates the body is not changing throughout this process. The consciousness that pervades the body is not changing. It remains the same until that consciousness leaves the body which we call death. The difference between a dead body and a living body is the absence or presence of consciousness respectively.

So the result is that the body is changing and the consciousness that pervades the body is not. It remains the same by its presence. Therefore and conclusively, we are not the body. We are in fact, the consciousness that pervades the body.

That is science and religious philosophy combined. Therefore there is no separation.

On Saturday, December 12, 2015 1:08 PM, Jeremy Christian <jeremycchristian@gmail.com> wrote:

"Religion is religion. Science is science. Keep them separate."

I feel this statement requires some elaboration. Science has limitations. It is only a tool to determine

what's what in the physical/material world. There is clearly more going on than what falls within the jurisdiction of the material sciences.

In essence religion is humanity's attempt to make sense of the non-material. This too plays a significant role in what's being discussed here. Life, the conscious mind, these things are not material. They're not beholden to the physical sciences. They're not observable. So it's important to not just toss out the input of centuries of humanity's views and observations. It's just important to put it all in the right context.

For example, I have an explanation that I can back up with physical evidence that incorporates both. The story the Genesis books are telling has been misunderstood. It's claim is not that Adam/Eve were the first humans ever. There's plenty to show this story is taking place in an already populated world. Populated much like what science has shown to be the case. In fact, these 'naturally evolved' humans play a significant role in the overall story. The creation of Adam and Eve is the creation of free will. It reads much more clearly in this context.

It's that right there where religion makes it's largest contribution. Science has shown us that all the material world is beholden to physical laws. We're an exception to every rule in that regard. Life in general is an exception in many cases, and we humans are an exception in every way that remains.

We are the one bundle of matter in all the universe whose behaviors are not dictated by natural law, but instead are determined by the willful volition of a conscious/self-aware being. This is the significance of the Genesis story. Adam and Eve were not the first humans to ever exist, they were the introduction of free will. Up until this point, just as the creation story details, all of the natural world (including the humans created on "day 6") behaved according to God's will. Much like the natural world we see now, it's beholden to a constant singular set of laws. Free will is the creation of beings who have a will of their own and determine their own rules and behaviors.

There is a specific period in human history when our behavior changed in very significant ways. These changes were the catalyst that brought about civilization and the modern human world we now know. It is this change that most sets us apart from the primates and the rest of the animal world we evolved from. Humans for millions of years lived in harmony with nature. We migrated and lived as the animals do. We didn't see the natural world as belonging to us, but as belonging to all living things. This changed right where the story of Genesis is set in the very same time frame that it's set. It can be seen spreading from there all throughout the world. This is the result of the story

being told in Genesis. This is the change that the rest of the story is about. This is the story the entirety of our human history is telling.

That's what this is all about. This change made us very self-aware. Like realizing for the first time you're naked when you have been the whole time. A self-awareness that makes us see this piece of land as "ours". This same self-awareness is what drives these discussions now. Figuring out who we are and our place in this universe.

It's a false assumption to think that science is all right and religion is all wrong. There's truth in both. Don't toss out one in favor of the other. They're both part of the story. The natural sciences alone will never be capable of showing us the whole picture. But it does define where the material ends and the immaterial begins. It lends itself to more accurate and better defined definitions in regards to what remains.

Religion and science are not separate. They both coexist in this reality. Products of this same reality. They're part of the story. It's just important to keep each piece in the correct perspective.

On Sat, Dec 12, 2015 at 12:10 PM, 'Patrick Hedemark' via Sadhu-Sanga Under the holy association of Spd. B.M. Puri Maharaja, Ph.D. <Online_Sadhu_Sanga@googlegroups.com> wrote:

Common ancestor, Black Africa?

Ridiculous.

Darwinism. Scientific?

Ridiculous.

Darwinism is simply "Murphy's Law" - in action.

"If you don't know, sound convincing"!

On December 12, 2015, at 12:04 PM, cvasquezcarrera@gmail.com wrote:

Religion is religion. Science is science. Keep them separate. Our common ancestor is a black African. The conversation has been lively. We are what we read and what we believe in. Darwinism is king. Even the universe has a limit, but human stupidity has no limits. -Albert Einstein

Sent from myMail for iOS

Saturday, December 12, 2015, 4:59 AM -0800 from sandeepgoel977@gmail.com <sandeepgoel977@gmail.com>:

Good point Ognen: I can only add that i hope you and people like you who don't think that Darwinism should be immediately taken out from the schools, will admit that the kids and people in general are being cheated in the name of science.

Without any evidencial backing why textbooks have to brainwash the innocent kids and force them to believe an insulting view about their ancestor: ancestors are descended from restless apes. This is an extremely cruel act and this act in the name of science is an attempt to malice the image of science itself.

On Sat, Dec 12, 2015 at 6:06 AM, Ognen Zafirovski <ogi_dogi@hotmail.com> wrote:

Dear Joan, dear Raju i have to say this. First to Raju, i really liked this statement from you:

"Science may start off with a completely wrong solution, then it may come up with a few alternate ones that are closer to the actual fact and after going through various iterations, it has a good chance that it will finally hit the correct answer."

What is the good chance can you elaborate more precisely? Is it 1 in a 1000000 or maybe more?

"Science may start off with a completely wrong solution..."

Do you know why is like that?

Our senses are imperfect, that we can all agree on right? So whatever we try to figure out with our senses is imperfect and will lead to more imperfect "various iterations" and will end up with a good chance far away from the "correct answer"

"At the moment, we are still only a couple of hundred years into a truly scientific era. Computers have only been around a few decades."

Computers are made with our imperfect senses so again they will never be able to give us anything more then we can gather on our own and they are nothing but 1s and 0s. Btw if the easterners weren't there we wouldn't have the 0 :) the word Shunya in Vedas which means nothingness or 0 is just a small hint how much knowledge this texts can give us. And what to speak about the 1.

I can go on further but i know that you will not accept what is being said here. I can only add that i hope you and people like you who don't think that Darwinism should be immediately taken out from the schools, will admit that the kids and people in general are being cheated in the name of science.

To Joan: You know why they believe that the consciousness or life begins from matter? Its actually very simple, because they start from the matter. If they start from consciousness or spirit then it would be different.

For the end i will quote A.C Bhaktivedanta Swami:

"Suppose I go into a dark room and say to the person inside, "The sun has risen. Come out!" The person in darkness may say, "Where is the proof that there is light? First prove it to me; then I will come out." I may plead with him, "Please, please, just come out and see." But if he does not come out to see, he remains ignorant, waiting for proof. So, if you simply read Bhagavad-gītā you will see everything. Come and see. Here is the proof."

Kind regards, Ognen.

On Dec 11, 2015, at 8:23 PM, Joan Walton <waltonj@hope.ac.uk> wrote:

Raju, I am fascinated by one simple sentence in your very long email:

"Someone also mentioned here that consciousness can create matter. I can't seem to agree with that concept either".

No argument, no explanation - just 'I can't seem to agree with it'. As arbitrary as that? Is this, then, an intuitive response of yours?

From my point of view, I can agree with that concept! And I have many, many reasons for doing so. However as you do not seem to have any properly founded reasons for not doing so, we can't go any further!

It seems to me that this presents a real difficulty in any of us going any further in this debate. The implications of 'consciousness emerges from matter', are so phenomenally different from what the implications would be for the alternative possibility that 'matter emerges from consciousness', that I cannot see much point in pursuing any theory (based on either one or the other), until we are able to find a means of exploring the case for either one or other of those presuppositions. It surely cannot just be arbitrary choice! But if not arbitrary choice, what are the arguments to support each view? That surely is such an important prior discussion. Otherwise our case for any argument is deeply flawed, because it is based on something being taken as 'fact' which is very far from being so.

Best wishes,

Joan

On 9 December 2015 at 20:04, 'Raju P' via Sadhu-Sanga Under the holy association of Spd. B.M. Puri Maharaja, Ph.D.
<Online_Sadhu_Sanga@googlegroups.com> wrote:

Dear all,

I too am one who puzzles over how I ended up in this group. But I have been reading many of the discussions going on over the past few weeks and thought I will reply. I would like to add a few things to this discussion. I apologise that the email is a far too long. But it seems like the biggest issue being discussed here is that the current theory of evolution does not take intelligence or cognitive nature of cells and other living organisms into account and that there are too many other problems with the current explanations. Thus the whole theory of evolution itself should be rejected. I hope to throw some light into this gap because it is something that happens to be a favorite subject of mine (explaining evolution using intelligence, yet still within a materialistic framework and not invoking spiritual or supernatural components).

I realise that Shanta mentioned www.thethirdwayofevolution.com website a few weeks ago in one of your emails. You pointed out that

the group of scientists on the website dismiss Darwinian evolution. I am one of the initiators of that website and so let me clarify that part first of all. Arnold De Loof and Adrian Bejan who both responded on this forum a few weeks earlier are also represented on the website. I saw a paper by James Shapiro mentioned few days ago and James is also one of the other key initiators of the site.

Every single scientist listed on the thirdway accepts evolution as a fact. Which means that the organisms we see today on earth evolved from earlier simpler ones over millions of years. What all of them have issues with is the mechanism that drives it – the currently accepted theory of Neo-Darwinism. This primarily means the theory that random mutation followed by natural selection is the main mechanism, that the DNA is the primary vehicle responsible for change (so epigenetics is side-lined), information cannot pass from the phenotype to genotype (from the body to the sperm or egg) and such.

Each scientist have their own particular part of the Neo-Darwinian theory that they do not agree with. Some feel that variation is not entirely brought about by random mutation but that the organism has some control on that process (but that selection is still needed for evolution to proceed). Some feel that selection only have limited roles. Some feel that epigenetics should be given a far more important role, some point out that phenotypic variations can pass freely into the genotype. There are a few more. But the disagreement ends there and as far as I am aware, they are all comfortable with the multitude of proof we have for the process of evolution itself – fossil records, large percentage of DNA being shared among organisms etc.

A large part of the discussion seems to be centred on the argument that Darwinism (I would prefer to call it Neo-Darwinism) does not take into account the cognitive nature of living matter including single cells and larger organisms as a whole. I DO agree with that part. But then a good number of participants here seems to prefer to subscribe to an idea that cognition in cells and other multicellular organisms cannot be explained by using a materialistic explanation. There also seems to be the idea that all living organism including cells have consciousness and that they have some sort of a soul. Some also seem to claim that abiogenesis is impossible and an insult to science. The last three, I DO NOT agree to (my personal opinion).

Many years ago, I too came to the conclusion that the explanation for evolution by random mutation and natural selection did not make complete sense. However, I am pretty comfortable with a materialistic explanation. I do not think that some sort of god created living organisms or that they all have souls

that keep passing from one to the next each life. My own explanation was put into a book form and it is titled BEEM: Biological Emergence-based Evolutionary Mechanism: How species direct their own evolution. As the name suggests, the main focus of the book is on the principle of emergence and how it can act right from the origin of life from simple molecules right up to complex animals we see around us. This is purely my thought and of course it could be right, it could be wrong.

I think life and the intelligence we see in life and that then proceeding on to consciousness can all be explained within a materialistic framework. As long as matter has the chemical and physical properties we see today, these are just things that follow (with a bit of initial luck, timing and circumstances). How the universe and all the matter along with it came into existence is a different question. But given the two options that the universe came out of nowhere from something like the big bang or that the universe was created by a god that has existed for an infinite time, I prefer the former. Someone also mentioned here that consciousness can create matter. I can't seem to agree with that concept either.

Someone here did touch upon emergence. But I think when people usually talk about emergence, they generally seem to see it as a simple rule that gives some form of pattern and control to otherwise uncontrolled events – like cities grow in similar patterns or the flow of water in certain patterns etc. Emergence is hardly given any importance in biology beyond that. But emergence can do a lot more. It is a very powerful phenomenon. The whole really becomes more than the sum of the parts. There is so much that emergence offers to life that I think it is actually fundamental to life. It is the principle behind self-assembly, self-organisation, it brings control into the billions of molecules in a cell and allows them to behave intelligently and carry out useful and meaningful tasks. It is the principle behind intelligence itself. To understand how a cell can be intelligence, you have to look at the fundamentals behind intelligence – what are the components you need for a system to start generating intelligence. Explore if a cell has the necessary components to generate intelligence. These are the things I were looking for and of course the cell is a perfect system for all those.

The individual participants in an emergent system are called the agents in that system. It would be the various types of complex molecules in a cell or the ants in an ant colony or neurons in a brain or cells in multicellular organisms. There are five properties that are most useful for a system to bring out its best as an emergent system (that's from Emergence by Steven Johnson). I am keeping all this extremely

short, not attempting to explain the whole thing – a couple of properties that help an emergent system are: 1) More number of agents – the better. Numbers are not a hindrance but good. The billions of molecules in a cell is great in that sense. 2) The dumber the agents, the better. The molecules in a cell are dumb and that helps.

The cell is indeed intelligent. It can look after its own interest. It can react intelligently to threats or demands for change from its environment. But that doesn't necessarily mean it is self-conscious. Obviously one cannot conclusively claim that a cell is not conscious at the moment if he is not himself the cell. Currently we do not have a scientific method of determining if a system is conscious in a conclusive manner. We may be able to determine it in higher animals, but not yet in say something like an ant. But it really doesn't matter if a cell is conscious or not. I do not see a need to just jump to the conclusion that consciousness is never a materialistic phenomenon and we have to introduce supernatural forces to explain it. That, I think would be the wrong route to take. Take a look at these guys whose long term goal is to create consciousness artificially. <http://tinyurl.com/m43dbx5>.

It may not happen in the next 50 years. It could be 100, it could be 150. Doesn't matter. At the moment, we are still only a couple of hundred years into a truly scientific era. Computers have only been around a few decades. But biological systems are intelligent in their own way which is very different from our brains and so there are things that biological systems can invent over millions of years that our brain will struggle to figure out. In a biological system, the organisms are building systems by working at the molecular level and we humans are working with much larger components. So it is unfair to compare our ability (at a brain level) and the ability of our own cells (who work at a molecular level). So let's give it some time before we jump into all sorts of conclusions. Scientists are not magicians. They need time.

My book is a hypothesis. It goes on to explain how the intelligence ubiquitous to cells and all living organisms are also the driving force behind their own evolution. They are able to understand their environment, they are able to make changes to themselves (phenotypic – both physical as well as behavioral) and pass these on to the next generations. They can store information in cells (not just in genes). The DNA is just a tool of the cell rather than the other way round (a flaw I think in the modern synthesis). This means the cell is the agent that is free to make changes to its genetic code wherever and whenever it is needed. It is in complete control of its genetic code, it corrects the errors that seep in rather than allow

those errors to become part of its evolutionary mechanism. This idea is fast gaining more and more acceptance. Weismann's barrier (another key component of the modern synthesis – that information does not pass from phenotype to genotype does not happen) is now proven so false – plenty of recent examples for that. So the book finally explains a possible mechanism for how organisms are the agents of their own evolution. They are free from the limitations of natural selection. Selection does occur in nature but it certainly isn't strong enough to pick out the small variations that it needs to work to the efficiency that is claimed. Selection has an influence on evolution but it is currently mistaken for the mechanism (and it is easy to see why). Once you accept such ideas, it then slowly starts to make sense why some species are seemingly untouched by selection (a list of living fossils which have not changed much over the past 100 or 200 million years) or the process of punctuated equilibrium. Someone kept posting a link that explained nine reasons why evolution is wrong and these were two of the reasons listed there.

On the issue of abiogenesis, I did touch on the subject in my book although it is not one of my primary concerns. But I wanted to find a simple example that would demonstrate to me how a concentration of simple chemicals can take control of themselves and display some basic forms of non-random behavior and self-replication (not relying on just luck, which is what Neo-Darwinism would need because they would prefer the replicator-first scenario). I did find one and I used it in the book (and I think this is another good example of emergence in action and this is why I think it is what is responsible for the beginning of life and the same principle can work all the way to complex life forms). Although the authors claim it could be an explanation for how results of this experiment could be a potential explanation for how self-replicating molecules such as DNA could have taken shape, my explanation would only focus on how this could lead to the formation of a very complex system of molecules capable of displaying some very complex behaviors. Such an intelligent cell (or an early form of cell) can then go on to invent the DNA when it gets much more complex. This would possibly explain why there is so much of control over the DNA by the cell. Link to the experiment-<http://tinyurl.com/jye6cmr>.

Someone raised the point that we should not believe that we evolved from apes because we haven't observed it. Or that we have never seen a single cell evolve into a multicellular organisms. Science is about providing reasonable answers by taking in all available information and coming up with the most logical conclusion from it. It will be easy to prove that

the earth is round. But to prove something as complex as the process of evolution which proceeds over millions of years is slightly more difficult. But I think given that difficulty, there is plenty of evidence for evolution – fossils, share DNA. Now it's just a matter of just take it or leave it. If someone finds solace in explanations given by two thousand year old text book, that's fine. But unless those claims are backed up by a reasonable set of evidence and logic, I doubt that most scientist would take it too seriously.

There are organisms that live their life as single cells and then clump together as a blob, crawl around like a slug, then grow out like a simple plant like structure and go back to the single cell life. I have used that too as an example in the book to explain how life might have evolved from single cell to multicellular. That's the closes I can think of evidence for single cell to multicellularity.

Much of Neo-Darwinism could be wrong (that's my opinion and the opinion of many others and that stance seems to be gaining momentum). But then to say that this proves that evolution itself is wrong and claim that our 3000 year old Vedas have got it right is not going to help. To call for evolution to be taken out of school curriculum is most certainly wrong. The Vedas were good for the time considering what people of the time knew. But we have come a long way since and it is time to leave old science behind and give way to the new. Doesn't it intrigue you that the people of the Vedic times knew so much about life and its origin but yet couldn't come up with a simple steam engine?

Science may start off with a completely wrong solution, then it may come up with a few alternate ones that are closer to the actual fact and after going through various iterations, it has a good chance that it will finally hit the correct answer. Science also has politics. Science is also not immune to blind faith and belief just as in religion, although probably not to the same extend. Many scientists cling on the ideas of Neo-Darwinism because they have been brought up with that idea, they have career pressures, funding pressures (these will be the politics part) and also because they so truly believe in the powers of selection and they simply ignore all other explanations as untrue even if confronted with a wide array of evidence against it (the faith part). I have come to realise that this is just how the brain works. It is hard to shake off one's hard wired ideas - and that includes mine. But still, I would place my bet on science any day.

Science will progress – even if it is one funeral at a time.

Regards

Raju

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