Re: A question of timing

Source: http://sci.tech−archive.net/Archive/sci.bio.evolution/2005−08/msg00532.html

- *From*: "g" <gillawton@xxxxxxxxxxxx>
- *Date*: Sun, 28 Aug 2005 18:17:18 −0400 (EDT)

"Michael Nuwer" <StopSpam@xxxxxxxxx> wrote in message
news:derght$1ti6$1@xxxxxxxxxxxxxxxxxxxxx
> whitesickle@xxxxxxx wrote:
>
>> Darwinian evolution in "general" is an extremely long and gradual and
>> incremental process which doesn't occur in a generation's lifetime or
>> innumerable generations. The changes are imperceptible. It's only
>> really been through molecular genetics we've recently been able to draw
>> some rough but good speculations and conclusions.
>
> Hi Michael,
>
> In your view is a long and gradual process a necessary property of
> Darwinian evolution? Or is it just that Darwinian evolution happens to
> be a long and gradual process in the biological world?
>
> What I'm wishing to understand is whether the principles of Darwinian
> evolution (variation, inheritance, and selection) can be applied to
> human culture and institutions. Gould once argued that biological
> evolution is a bad analogue for cultural change. One of his three reason
> is that "cultural evolution can be faster by orders of magnitude than
> biological change at it maximal Darwinian rate−−and questions of timing
> are of the essence in evolutionary arguments." But he doesn't elaborate
> on this point.
>
> So I am wondering what it is about Darwinian evolution that _requires_ a
> long and gradual process.
>
> Michael Nuwer
> nuwermj at potsdam dot edu

Hello to BOTH Michaels,

Wouldn't it make sense to all of us if we were to speak in terms not of WHETHER evolution takes a long time to do something but WHAT it takes a long time to do. There can be a few increments of change necessary for alteration in competition for, say, giving up on one kind of food that is disappearing, and going over into use of another not vastly different from

it, but an enormous number of increments would be required to change over, say, from living in the ocean into surviving in a desert. And archeological evidence does, indeed, support that assumption, abundantly, does it not?

And, also, new evidence has been found that pushes back to clock on some key issues. For example, no one was sure bilaterians had existed much prior to the Cambrian, but recent evidence pushed the existence of some of them back by at least 40 million years to 55 million before the Cambrian, and nothing indicates the oldest found are necessarily the "first." So, the point is, that some of the things previously thought to have "exploded" into being for the first time ever during the Cambrian did NOT just jump into existence as a distinct kind then. Thus, lots of things previously thought to have virtually jumped into existence out of practically nowhere did not jump quite so seemingly instantaneously, after all.

Another thing that has been pushed back by recent evidence (though some controversy remains over it) is when there first was a significant amount of surface water on Earth. Where that used to be thought of as being only after perhaps a billion years after Earth got up to its current size, there is evidence now that this condition was present as early as 850 million years prior to that. So evidence does, indeed, seem to be accumulating to put some dents in just how "punctuated" some things were in getting started... And, as technology enables new means of extracting more difficult−to−get evidence, and dating technology continues to accumulate to fine tune the ages of things with greater and greater specificity, assumptions of virtually instantaneous punctuation are giving way −− after all −− to something fast but not AS fast as some have sought to assert. So, as evidence continues to come in, and ways of dating it continue to improve by leaps and bounds... the TREND of the findings are more and more AWAY from quick−shot punctuation... and TOWARD gradual processes, after all. And, the evidence does... repeat does... continue to erode the grounds for virtually instant changes that would have been of the sea bottom to desert variety, and to support changes not so drastic, such as the availing of new opportunistic eating of food supplies made more abundant but quick climatic changes, for example.

But what I would like to see discussed here is something else −− something I would call, for lack of any formal term I know of for it −− a "package view" of evolution. Let me explain:

What makes most sense to me is that each species is more than just a species in the sense that we can collect a few specimens and say, this is a distinct species, with the following characteristics. What I would propose is that some packages have been more successful than others. And an evolutionary "package" would have to meet certain basic criteria that I won't try, just yet, to list.

But think of it this way: Let us imagine a creature that could kick any would−be predator's butt, once it got hatched and three days old. Also, let this imaginary (or thought−experiment) creature (both as individuals and as a group) have an immune system that makes it impervious to any parasite or

any infection, whatsoever. Let this creature be capable of breathing air, and being born into an environment with an abundance of that. Let this creature be capable of living off a huge variety of plants and other animals; and let us imagine an abundance of that. But, let this creature have an Achilles heel in that, a mother lays an egg and abandons it and, the instant it gets laid, ants can eat right through the shell and devour Junior.

Fantastic package. One little Achilles heel and... bye bye, if it ever even had gotten to exist in the first place.

My point is that it only takes one fatal flaw, and the otherwise "fittest" package ever... is a goner.

On the other hand, what if we imagine a kind of plant that tastes great, can be digested healthily by any number of "predators," can grow only in certain limited kinds of places having just the right externalities, etc., etc., etc... but it grows so profusely where its needs are met, and does not deplete any nutrients, but is epiphytic. And, because it is so profuse in replenishing itself, and because it does not eat itself out of house and home, all the kings horses and all the kings men cannot eat it all up. In fact, when they eat it and then poop, they spread its seeds. This little package has a dozen seeming drawbacks that might be fatal for almost any plant," and yet they have a survival package that WORKS.

What I would like to do is make a list that would take any and every "package," be it poison ivy, a blue bird,
a crocodile, an earthworm... and list what they ALL HAVE IN COMMON... if that be possible.

Maybe that is not possible. Maybe the only thing they ALL have in common is that they have a "package" that allows them to do like that little Ever Ready Rabbit and, as a species, (or a source of changing and splitting number of species) just keep going on, and on, and on, and on.... for millions of years.

After all, the only real rule is that they do that and ONLY that... their "package" just has a combination that keeps going on, and on, and on, and on, ...and on.

Or... maybe there ARE a few things ALL successful packages have. Or, perhaps there are some characteristics that occur in MOST.

Wouldn't it be fun to try to make a "wish list" for a successful package −− perhaps even a set of "wish list" items that could be tried in various combinations in a succession of computerized modelings?

But here's where the idea of a "package" is LARGER than a mere set of "selfish genes:" A successful package has to make it through every phase in its life cycle... not just the characteristics of the adult... not just the characteristics of the reproductive package... not just the characteristics

of being able to keep changing, let the externalities change and obsolesce an up−to−then−successful package. Being able to go through some DNA drift would be one of the ESSENTIALS, would it not? And each increment of change has to pass the filters it encounters... and cannot ANTICIPATE something. (For example, an evolved creature, individually and collectively, must succeed... period... and cannot be expected to anticipate that feather will aid its great, great, great, great... etc. grand−offspring in flying away from predators. Each generation must be a "me, now..." generation −− no matter how much parents may object to that as an attitude... (:>)

g

.

- ***References***:
  - ♦ ***A FUNDAMENTAL ISSUE***
    - ◊ *From:* g
  - ♦ ***Re: A FUNDAMENTAL ISSUE***
    - ◊ *From:* whitesickle@xxxxxxx
  - ♦ ***Re: A question of timing***
    - ◊ *From:* Michael Nuwer

- Prev by Date: ***Re: Question: Philosophy of Science − is it Relevant?***
- Next by Date: ***Re: Question: Philosophy of Science − is it Relevant?***
- Previous by thread: ***Re: A question of timing***
- Next by thread: ***Re: A question of timing***
- Index(es):
  - ♦ ***Date***
  - ♦ ***Thread***