Evolution: Is there a problem here for the believing person?

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Creationists are completely opposed to the scientific concept of biological evolution, and have made concerted efforts to ban the teaching of evolution in public schools. We examine the basis for their opposition, showing that it is not due to the text of Genesis. Rather, the creationist opposition to evolution is based on theological grounds. In their view, there is a close connection between the spiritual and the physical aspects of God’s world. In particular, creationists believe that spiritual importance requires physical importance. Thus, if mankind shares similar physical origins with the cockroach and the crocodile, it would seem to imply that, we are equally devoid of any spirituality. This explains why many creationists oppose not only evolution, but also an ancient universe, and why there was such opposition in the past to the heliocentric solar system. However, if one recognizes that spiritual importance is unrelated to physical importance, then all these problems disappear.

Key words: Creationist, spiritual, evolution, Genesis, creation, mankind.

INTRODUCTION

One of the important news stories of 1999 in the area of science and religion was the decision of the Kansas Board of Education to remove the subject of evolution from its high school education standards. Accordingly, high school students in Kansas would no longer be tested on the subject of evolution, which of course guaranteed that they would no longer learn the subject. (As is well known, both students and teachers tend to view the principal task of teaching as preparing students for examinations). An election in Kansas had produced a Board of Education with a majority of creationists. The new board opposed teaching evolution as a scientifically established fact, and held that evolution should be viewed as “merely a theory,” that is, an unproved speculation. The creationist view of the origin of the animal kingdom - the separate divine creation of each and every species - was to be treated as an equally acceptable explanation of present-day fauna.

We shall discuss why the creationists are so opposed to the idea of evolution. There are many other phenomena for which the standard scientific explanation does not correspond to the literal text of the Bible, but these subjects do not provoke the creationists into demanding changes in the school curriculum. For example, consider the rainbow. Newton explained that the rainbow is caused by sunlight being separated into the familiar spectrum of colors by drops of rain which act as a prism. By contrast, Genesis 9:13 gives a completely different explanation, namely, that the rainbow is of divine origin, a miraculous creation of God whose function is to give assurance to mankind that all life will never again be destroyed by a flood. Yet, one never hears of creationists insisting that the Newtonian theory of the rainbow be taught in schools as “merely a theory,” and that equal time be devoted in the classroom to the biblical explanation of the rainbow. What is so offensive in their eyes about evolution that generates such spirited opposition?

HELIOCENTRIC SOLAR SYSTEM

There is another scientific issue that, in its time, generated even more controversy. This is the question of whether the sun revolves about the earth, or vice versa. As is well known, the seventeenth-century Italian astronomer Galileo was put on trial by the Catholic Church for championing the heliocentric theory. Under threat of death, Galileo was forced to recant. However, even after stating publicly that the heliocentric theory was
completed in daylight (Joshua 10:12-13). Since Joshua was
nevertheless sentenced by the Inquisition to life
imprisonment to do penance and his books were placed
on the Index, restricted reading for all good Catholics. It
was only his long - time friendship with the pope and his
infirm old age that saved Galileo from life imprisonment,
when Pope Urban VIII commuted his sentence to house
arrest (Redondi, 1987). Opposition to the heliocentric
solar system was not limited to the Catholic Church.
According to Encyclopedia Judaica (1972), “The Jewish
writings on astronomy of the eighteenth century and the
rabbinical literature of the nineteenth century are
basically derived from the geocentric theory. In his book,
Ma'aseh Tuvia (Venice, 1708), Tuvia Cohn presents the
distinctive view in its classic form. The heliocentric view
is also analyzed, but is rejected on religious grounds.”

The religious controversy regarding which heavenly
cuerbodies are stationary and which move, is very strange.
The Genesis account of creation does not contain a
single word favoring the geocentric system. Just where in
the Bible is it written that the sun revolves around a
stationary earth? This matter is touched upon in a
passage in the Book of Joshua. During the battle in the
Valley of Ayalon, Joshua asked God to command the sun
and moon “to stand still” so that the victory could be
completed in daylight (Joshua 10:12-13). Since Joshua
had asked God to command the sun and moon to stand
still, it follows - so goes the argument - that under
ordinary circumstances, the heavenly bodies are not
stationary, but revolve about the earth. On the basis of
this flimsy exegesis, the Church condemned Galileo to
life imprisonment and ordered his books to be burned!
Surely, there must be something far deeper here.

AGE OF THE UNIVERSE

The third phenomenon that arouses great passion in the
creationist camp is the age of the universe. Many
creationists are opposed to the multibillion -year - old
universe of the cosmologists, and insist that the Six
Days of Creation of Genesis are to be taken literally, as
meaning six 24 - hour periods of time. It is easy to show
that the creationist insistence on this point is not based
on the view that every word in the Bible must be
understood literally (Numbers, 2006). Consider, for
example, the “light” mentioned on the First Day of
Creation. The famous biblical commentator Rashi (lived
in France in the eleventh century) brings the explanation
from Kabbalah that the Genesis “light” was not physical
light at all, but rather spiritual light (Lancaster, 1993).
No creationist seems troubled by the fact that the literal
meaning of the biblical text has thereby been set aside in
favor of a figurative interpretation. In fact, creationists do
not hesitate to interpret many biblical verses as meaning
something very different from the literal text.

What do the creationists find so unacceptable about an
ancient age for the universe? Why do they refuse to
understand the Six Days of Creation figuratively, as
spiritual days, just as Rashi explained the Genesis light
figuratively as spiritual light? What impels them to insist
that the Days of Creation must be understood literally, as
24-h periods of time, thus leading to a head-on collision
with modern science?

MAN’S SPIRITUALITY

It is a principle of the Bible that man is the ultimate
purpose of God’s creation - that human beings are the
most important creatures in the world. This is an article
of faith for the religious person. What are the implications
for human beings? If mankind is of central importance
spiritually, must he also be of central importance
physically? If the answer is in the affirmative - that is, if
the spiritual importance of human beings must be
reflected in their physical importance - then it would be
sacrilegious to believe the principles of evolution,
according to which, man developed from a simple
bacterium. If mankind shares similar physical origins with
the cockroach and the crocodile, it would seem to imply
that we are equally devoid of any spirituality.

If spiritual importance requires physical importance, it
also follows that the planet we inhabit must lie at the very
center of the universe, with the other heavenly bodies
whirling around us. Placing the earth among the other
planets - just another astronomical body that revolves
around the central sun - would be an affront to the dignity
of man. As a uniquely divine species, it is inconceivable
that mankind should occupy so undistinguished a
dwelling place. It is quite clear that it was not for scientific
reasons that the geocentric theory of the solar system
went unquestioned for 1400 years. The appeal of this
tory was based on other considerations. According to
one book on the history of science (Clarke, 1954):

“The universal popularity of the geocentric theory of
the universe was due largely to the important place it
gave man in the general scheme of things. This
theory was not developed in order to account for the
observed astronomical facts. The geocentric theory
added immensely to man’s already fairly developed
sense of his own importance. As time went on and
astronomical observations increased in accuracy,
more and more complicated assumptions were
simply added to the geocentric hypothesis to explain
the astronomical data.”

Further support for the view that the medieval geocentric
tory of astronomy was not based on scientific
considerations, is to be found in the trajectories assumed
for the heavenly bodies. It was taken for granted that the
sun, moon, planets, and stars all revolved about the
developed from simpler forms. Scientists had already
panorama of animals and plants, including man, all
by natural selection. This theory asserts that the vast
center of the universe. Just when the creationists became
mankind was relegated to a "minor" planet, far from the
heliocentric theory gradually carried the day, and
community finally came to realize that the geocentric
observed facts is a tribute to their mathematical ability
no matter how many new epicycles were added. The
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spoke of the two Books of God: the Book of words (Bible)
and the Book of works (Nature). Faith in God is enhanced
world, which was assumed to be a window to God. The
universe. Since it was assumed that God Himself
controlled the motion of the heavenly bodies, their orbits
must be "perfect." The ideal geometric figure is the circle.
It followed, therefore, that the divinely controlled orbits of
the heavenly bodies must be circles. Even when it
became obvious that circular planetary motion was
inconsistent with astronomical observations, the circle
was never abandoned. It was still taken for granted that
the planets moved in circles, but it was now assumed that
the center of the circle (called an "epicycle") moved on a
different circle. And when even this more complicated
theory proved inadequate to explain the ever more
accurate data, it was assumed that the circular epicycle
must revolve around yet another circular epicycle which
itself moved in a circle. Planetary trajectories could never
be anything but various combinations of circles, however
complicated, because theological considerations
restricted medieval astronomers to ideal geometric
figures.
"By the year 1500, over 80 epicycles were required to
account for the motions of the five known planets, the
sun, and the moon. That astronomers of that day were
able to devise so intricate a picture to account for the
observed facts is a tribute to their mathematical ability
and ingenuity, but not to their scientific judgment” (Clarke,
1954).

This astronomical theory was but one aspect of a
comprehensive theological approach to the physical
world, which was assumed to be a window to God. The
term “natural theology” denotes the study of God through
the study of nature. Theologian Francis Bacon (1605)
spoke of the two Books of God: the Book of words (Bible)
and the Book of works (Nature). Faith in God is enhanced
by studying His universe. With the invention of the
telescope in the early seventeenth century, the scientific
community finally came to realize that the geocentric
theory simply could not explain the detailed observations,
no matter how many new epicycles were added. The
heliocentric theory gradually carried the day, and
mankind was relegated to a "minor" planet, far from the
center of the universe. Just when the creationists became
reconciled to this unhappy state of affairs, another blow
came. In 1859, Charles Darwin published his famous book,
The Origin of Species, introducing the theory of evolution
by natural selection. This theory asserts that the vast
panorama of animals and plants, including man, all
developed from simpler forms. Scientists had already
shown that human beings did not occupy a special planet
in the physical world. And now scientists were claiming
that man is not even a special species in the biological
world. The creationists eventually did come to terms with
the heliocentric solar system; indeed, it would be quite
absurd to deny it today. But, with regard to evolution, they
continue to assert the biological uniqueness of human
beings. As the preceding discussion makes clear, it is not
the Genesis text that underlies the creationist opposition
to evolution, but a matter of weltanschauung.
The creationist perception of human spirituality requires
for mankind a different physical origin from that of the
"lower" animals. This perception sees human dignity as
degraded by the implication that "man’s ancestor was a
monkey." The creationist concept places each species in
its divinely assigned niche, thus maintaining the unique
spiritual position of mankind. The creationists are also
opposed to the idea of a very ancient universe. Human
civilization, the only subject of interest in the Bible, began
only a few thousand years ago. If the universe has
existed for more than 10 billion years, then the extremely
long period before Adam and Eve accounts for 99.9999%
of the history of the universe. This presents a serious
problem for the creationist. If man is really so important,
as Genesis implies, why was his creation delayed for
billions of years?

This question shows how the existence of an ancient
universe appears to cast doubt on the spirituality of
human beings. Once again, it is not the text of Genesis,
but the creationist outlook, that prevents acceptance of
modern cosmology. This outlook implies that the physical
absence of mankind over such a large part of history
would indicate that man lacks spiritual worth. Moreover,
why would God have permitted the universe to exist for
so many billions of years without any purpose whatsoever? Therefore, it follows that the universe
cannot be as ancient as cosmologists maintain. The
conflict over the heliocentric theory differs in an important
respect from the conflict over evolution and an ancient
universe. In the twenty - first century, our knowledge of
astronomy and our achievements in space flight make it
impossible to deny the heliocentric theory. However, the
origin of the universe and evolution deal with events that
occurred in the far distant past, when no human beings
were present. Therefore, so the creationists claim, who
know what really happened? Perhaps evolution took
place, and perhaps not. It’s all “merely a theory,” and the
creationists will not alter their basic religious beliefs
because of an unproven theory.

PHYSICAL AND SPIRITUAL

All these theological problems disappear once one
recognizes that the physical importance of an object and
its spiritual value are unrelated. Indeed, both Judaism
and Christianity stress that spirituality can be found in the
most humble surroundings. The recognition that Genesis deals with the spiritual rather than the physical qualities of mankind, suggests that the biblical phrase, “God created man” refers to the spiritual features of man, and not to creation in the physical sense (that is; the creation of something from nothing). Thus, the verb “created” in reference to mankind (Genesis 1:27) refers to the unique intellectual, moral and spiritual capabilities that characterize human beings. The Jewish commentators Rashi, Sa‘adiah Gaon, Sforno, Radak, and Nachmanides all emphasize that man’s superiority over other species lies in the areas of speech, knowledge, intellect, and creativity. Indeed, physically, human beings are quite ordinary creatures.

CHIMPANZEES AND HUMAN BEINGS

The importance of distinguishing between physical characteristics and spiritual characteristics is well illustrated by a comparison between chimpanzees and human beings. At one time, the similarities between different species were determined by morphological studies of tissues, skeletons, and physiological systems. Such comparisons between species could only lead to qualitative assessments that were sometimes not much more than educated guesses. In the 1970s, however, advances in molecular biology yielded a quantitative method, known as the “molecular clock for DNA,” for measuring the similarities of different species. Studies in this area have produced some surprises. For example, the primate species most closely resembling human beings (Homo sapiens) is now known to be the chimpanzee, whereas previously it was generally thought to be the gorilla (Wilson, 1985).

The new quantitative method for determining the relationship between different species is based on analyzing the proteins found in cells. Each protein consists of a long chain of several hundred amino acids, of which there are twenty different types. The production of the protein (“stringing” the amino acids on the protein “chain”) is orchestrated by the gene, which consists of a very long chain of elementary units called DNA base-pairs (Solomon et al., 1996). Consider the protein hemoglobin, which is present in the blood and plays a key role in transferring oxygen to the cells. The gene for producing hemoglobin contains 861 DNA base-pairs. By comparing the DNA base-pairs of the hemoglobin gene of two different species, one can determine the similarity between these species without ever examining the animals themselves. For example, horses are quite different from humans, and correspondingly, it is found that 20% of the DNA base-pairs of the equine hemoglobin gene is different from those of the human gene (Wilson, 1985). As expected, the hemoglobin genes of humans, orangutans, and chimpanzees are very similar to each other, but differ significantly from the gene of cats, which in turn is quite similar to that of lions. In some cases, however, the genes of quite different species are very similar. For example, swine insulin was widely used for diabetics because it differs from human insulin in only one amino acid. Such studies of the DNA base-pairs of many different genes have established that the chimpanzee, and not the gorilla, is the primate most similar to humans. In fact, the complete array of DNA base-pairs of chimpanzees is 98.5% identical to that of humans, which demonstrates a close physical similarity between chimpanzees and human beings (de Waal, 1995). This scientific finding troubles some people, who interpret it as showing that humans are not much different from apes. However, such an interpretation completely misses the point. Anyone can observe the enormous difference between humans and apes. In the important spiritual realms of creativity, intellect, understanding, and morality, the accomplishments of chimpanzees are totally negligible compared to those of humans. No chimpanzee ever wrote a book, painted a picture, developed a scientific theory, expounded a philosophical thought, or has given help of any sort to a different species. Indeed, since the physical characteristics of the apes are so very similar to those of human beings, one cannot help wondering why their spiritual characteristics are so very different.

What can one say about man’s physical capabilities? Humans cannot run like the deer, cannot fly like the bird, cannot swim like the dolphin, cannot climb like the squirrel, cannot chisel like the beaver - the list extends forever. Quite obviously, mankind has no special physical talents. Thus, there is a clear distinction between the spiritual and the physical. In the former realm, mankind excels, whereas in the latter realm, we are quite ordinary. The divine creation described in Genesis maintains this dichotomy between the spiritual and the physical. Therefore, there is nothing degrading in the fact that mankind occupies a very ordinary planet that revolves around a very ordinary star, and that humans share a common evolutionary history with all other animal species. Man’s uniqueness, created in the image of God, is not expressed in the location of his planet or in the genes that reside within his cells. Man’s uniqueness is to be found in his spiritual qualities. It follows that there is no reason for the devout person to oppose the heliocentric theory or to denounce evolution. The scientific discovery of a very ancient universe is also not a problem for the believer. The scientific time scale - billions of years without man, followed by only a few thousand years of human civilization - seems so skewed only because of our human perception of time. We are all busy people who would consider it extremely wasteful to wait billions of years before getting to the point. But divine considerations are very different. It is not at all a defect in human spirituality if mankind did not exist for the vastly greater part of the history of the universe. The importance of human beings is not to be measured temporally by the
length of time until our appearance. The crucial point is that now we are here, and within an amazingly short time mankind has assumed the mastery of the physical world, precisely as stated in Genesis 1:28:

God blessed mankind, and He told them to be fruitful and multiply, and fill the land and conquer it, and rule over the fish of the sea and the birds of the heaven and all the creatures that inhabit the land.

THE SECOND CHAPTER OF GENESIS

This idea of the separation of the physical from the spiritual also appears in the second chapter of Genesis, which presents an alternate creation story. Rabbi Joseph Soloveitchik (1965) explains that the two versions of creation, which he denotes as Genesis 1 and Genesis 2, do not indicate two different traditions later joined by an anonymous editor, as claimed by adherents of biblical criticism. Rather, the two versions of creation refer to man’s dual nature. Genesis 1 deal with the physical - what happened? - Whereas Genesis 2 deals with the spiritual - why did it happen?

Consider the following example, If asked by my physics students why water boils, I will talk about the distribution of molecular velocities, intermolecular forces, the thermodynamic phase transition - the elements of the scientific theory of boiling. However, if asked the same question by my wife, I explain that the water is boiling because I want to drink a cup of coffee. The same person may give differing explanations to serve different purposes. In the same way, Genesis 2, which deals with the why of creation, is the natural complement to Genesis 1.

CREATION OF MAN

The Genesis account of the “creation of man” is given in verse 2:7:

“God formed man from the soil of the earth, and He blew the soul of life into his nostrils; and man became a living creature.”

This verse stresses the dual nature of man, telling us that man was formed by adding spirituality (soul) to a physical creature (formed from the soil). The physical creature, mentioned first, could have been formed by evolutionary processes that extended over millions of years. That is of no interest. The essential qualities of man lie in his spirituality, which was infused into the already existing physical entity (“He [God] blew the soul of life into his nostrils”). It is this combination - physical and spiritual - that is the essence of “man”.

Are there any signs that human beings possess spiritual uniqueness? In fact, the uniqueness of the enormous intellectual and creative abilities of human beings could not be more obvious. This has been illustrated in a very interesting way by the success of primatologist Sue Savage - Rumbaugh (1992), after considerable effort, in teaching a bonobo chimpanzee (the species most similar to man) to recognize as many words as are learned, completely effortlessly, by every two - year - old human child. Such an “intellectual achievement” on the part of the chimpanzee emphasizes the vast chasm that separates the mental capabilities of man from those of every other species.

EVOLUTION

Two different verbs appear in Genesis to describe the origin and formation of the animal kingdom. Regarding the primeval sea creatures, Genesis 1:21 states that God “created” them (Hebrew: vayyivrav), whereas regarding the subsequently formed land creatures, Genesis 1:25 states that God “made” them (Hebrew: vaya’as). The verbs “create” and “make” denote two quite different processes. “Creation” implies the formation of something fundamentally new, either physically (creation ex nihilo) or conceptually (a completely new type of entity, such as life). By contrast, the process of “making” implies the fashioning of something complex from something simple (making furniture from pieces of wood).

The foregoing discussion suggests the following interpretation of the Genesis text. The first expression (God created) refers to the creation of life itself, which first appeared as marine species. The second expression (God made) refers to the later formation of terrestrial species. This understanding of the biblical text is consistent with the scientific idea that present - day animals evolved from earlier species.

CONCLUSION

We have discussed the two subjects regarding which the creationists oppose the accepted scientific position: evolution and an ancient universe. To these may be added the sharp disputes in the middle Ages about the heliocentric solar system. In each case, the creationist opposition is not based on the biblical text, but rather on their worldview, which holds that the spiritual importance of human beings requires a corresponding physical importance. By contrast, Genesis views physical and spiritual characteristics as being unrelated. It follows that the believing person has no cause to oppose the scientific findings about evolution.

REFERENCES
