

4 *Speed of Light*

Speed of Light Argument

One of the most persistent claims in 2008 to prove a young earth is that the speed of light decays.

This was first popularized in Chapter Eight of *It's A Young World After All* (1993). Ackerman says that the speed of light has been proven to decay. If so, then the fact light could only reach us in millions or billions of years from certain parts is based on a false assumption of a constant rate for the travel of light.

However, in 1994, the technical journal of the Institute of Creation Research (ICR) acknowledged the decay hypothesis had not answered the criticisms raised by other Christian scientists.¹ Then in 2000, for the first time ICR published an author who directly disproved the validity of the decay in starlight argument.²

Still, ICR has not given any general acknowledgment from their popular magazines that the argument is wrong. Hence, the decay-in-starlight argument persists and has not been renounced with the same vigor (although meagre) that ICR threw out the helium and moon dust arguments.

1. See text accompanying Footnote 9 on page 32.

2. See "ICR Retraction in 2000" on page 36.

*Ackerman Concedes Appearance of Age
Argument Was Wrong*

Ackerman begins by telling us how young earthers have used speed of light in other arguments that now are discarded. He says that previously young earthers (mostly ICR people) invented the idea that God had left “light trails” from the stars to earth. In other words, stars were all created with the appearance of age, much like Adam had the appearance of a full-grown adult. Ackerman concedes the notion that God created stars with the appearance of age “implies that much of what we see in the night sky never really happened, since it is a record of events that would have occurred before the creation of all things.” Ackerman agrees further that this argument “on the surface at least, lay[s] God open to a legitimate charge of deception.”³ This was an amazing concession and backing off in 1993 by Institute of Creation Research colleagues from the appearance of age argument.

Previously, ICR from its inception insisted that since God created Adam with the appearance of age, God could have created the universe with an appearance of age. The flaw is obvious: if Adam died with an adult form die and you could measure the radiometric date of his atoms, his radiometric date would still be one day. The appearance of age

3. When first proposed by young earthers, they did not realize that star light and galaxy light give direct indications of their travel distances. The spectral lines light waves at various frequencies of stars/galaxies are broadened in direct proportion to the distance they travel. So had the light only traveled for 10,000 years, then we would see a broadening and reddening of the light exactly equal to 10,000 years. We do not see that. We see the light traveled 14 or 15 billion years. The young earther then felt compelled to insist that ***God artificially broadened and reddened the light individually from 10 billion plus stars and 100 billion galaxies*** (see Hartman, *Astronomy, supra*, at 585). This means, if true, that God deliberately is deceiving us. Ackerman was signaling in 1993 that ICR colleagues finally had retreated from that appearance-of-age argument, but only because they then felt they could argue that the speed of light decays.

argument was misplaced when applied to Adam regardless of whether it opened God up to a charge of deception when applied to starlight.

Eventually, to avoid making God out to be a deceiver on par with Satan, ICR and its colleagues next argued that *physical reality is mere illusion*. By 1987, they claimed star distances were mere illusions.⁴ However, this does not spare God of the charge of grand deceiver. If star light trails were illusions, Ackerman concedes that impliedly God is again a liar. This previous ICR-argument implied God deceives us by the illusion of great age by artificially red-shifting in varying degrees billions of stars to appear older than they truly are.

Speed of Light Decay Argument Avoids God-As-Deceiver Problem

Ackerman finally provides a solution that avoids such unpalatable options that the ICR previously offered the Christian public. Ackerman says that Barry Setterfield “looked” into this problem to find a scientific solution that avoids making God out to be a liar. So Setterfield asked: does the speed of light decay?

Setterfield, according to Ackerman, examined the speed-of-light rates given in 1675, 1728, and then in the mid-1800’s, and finally the 1940’s. By comparing the rates, Setterfield realized “to his amazement and in spite of everything he

4. Gary North, a prominent reconstructionist who says the Bible excludes giving science any weight, said in 1987:

The Bible’s account of the chronology of creation points to an illusion.... ***The seeming age of the stars is an illusion***.... Either the constancy of the speed of light is an illusion, or the size of the universe is an illusion, or else the physical events that we hypothesize to explain the visible universe changes in light or radiation are ***false inferences***.

Gary North, *The Dominion Covenant: Genesis* (Tyler, Texas: Institute for Christian Economics, 1987) at 254-55.

had learned from his professors and textbooks the figures showed *a clear and distinct pattern of decay with the passage of time*. The speed of light has not been constant: it was faster in the past.” (*Id.* at 74.)

Ackerman then says that “a number of scientists in the past... saw the trend and concluded that light must be slowing down. Articles to this effect have appeared in the scientific literature over the years.” (*Id.* at 74.)

Ackerman fails to cite a single scientist to corroborate this fantastic claim that the speed of light is slowing down!⁵ But it gets even more interesting.

Ackerman continues. Setterfield put the slowing down on a chart, and among numerous “decay curves,” he says “one stood out clear as the best fit.” Do you wonder which one? This curve “indicated an origin of the universe about *six thousand years ago*—the traditional figure [for creation] based on analysis of biblical chronologies and genealogies.” (*Id.* at 75.) In this passage, Ackerman slipped by the reader a statement that “traditionally” the origin of the universe is dated in the Bible as 6,000 b.c. (or thereabouts). This is wrong, as we discuss elsewhere.⁶

Is there any truth to Setterfield’s analyses on the speed of light decaying in the past? None.

5. But he asks us to write to Australia to obtain the monograph by Setterfield. It is curious that he does not cite to Barry Setterfield and Trevor Norman, “The Atomic Constants, Light, and Time,” *Stanford Research Institute International, Technical Report* (August 1987). Why? Dr. Hugh Ross, an astrophysicist and Christian opponent of young earth claims, points out that “This report was published without permission of SRI International.” (Ross, *Creation and Time* (1994) at 174 n. 12.) Perhaps Ackerman did not want to cite to a source that *renounced the propriety of the report* being included under its name.

6. See Dr. Hugh Ross, *Creation and Time* (1994) Ch. 2.

Any Validity To Slowing Light Theory?

Setterfield published his results in an article entitled “The Velocity of Light and the Age of the Universe,” *Ex Nihilo* [ICR’s magazine] 1 (1982) at 52-93. The same claim of the speed of light decaying actually originated with David M. Harris’ article “A Solution to Seeing Stars,” in *Creation Research Society Quarterly* 15. (Sept. 1978) at 112-15. ICR has long persisted in advancing these claims. See Prokhovnik & T. Morris, “A review of the speed of light measurements since 1976,” *Creation Ex Nihilo Technical Journal* (1994) Vol. 7 No. 2 at 181 et seq.⁷

These claims are all wrong. Other young earth scientists rebuffed Setterfield’s claims as obviously in error.⁸

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7. To its credit, CEN published a letter to the editor from Mats Molén of Sweden that says the “list of c-measurements [*i.e.*, light speed]” utilized lack “critical evaluation of the data, corrections are left out, there is no comparison of measurements made by different methods at a time (to account for systematic errors), and not all measurements are reported.” Molén concludes that: “It is just a table of raw data!” (*CEN* Vol. 8, No. 1 (1994) at 23.) Another letter from Mr. Dolphin points out that many data points are left out in this CEN article. It also includes data points that are no longer considered reliable. And it uses methods (quartz & radar values) that are “no longer regarded as accurate.” However, Mr. Dolphin is confident that by being more careful and using several statistical methods that he can show light has been decreasing. He cites L.T. Dolphin & A. Montgomery, “Is the velocity of light constant in time?,” *Gallilean Electrodynamics* (1993) Vol. 4 at 93-97, but he appends this cite with the words “plus 7 pages obtainable from Lambert T. Dolphin.” Were these pages unable to pass peer review?
8. Gerald E. Aardsma, “Has the Speed of Light Decayed Recently?” *Creation Research Society Quarterly* (1988) vol. 25, #1 (June 1988) at 36f; D. Russell Humphreys, “Has the Speed of Light Decayed Recently? - Paper 2,” *Creation Research Society Quarterly* (1988) vol. 25, #1 (June 1988) at 40-45. This journal can be found online at <http://www.creationresearch.org/crsq.html>.

Even the editors of *Creation Ex Nihilo* in 1994 signaled a semi-retreat. The editor wrote: "Setterfeld has, unfortunately, so far *not been able to answer all criticism of his theory in this or any other creationist journal.*"⁹

The disproofs of this light-decay hypothesis are abundant.

Disproof of Light Decay Theory

First, how do astronomers determine the distance to stars? They start with Cepheid variable stars. These are two twin stars circling each other, so you can get a fix on real relative brightness of two stars. Then you measure the period of light variation for the two stars to yield their true brightness. Comparing the true brightness with the observed brightness of other stars gives the distance of the star from the observer. Then adjusting for the interstellar dust, you get the true distance often expressed in terms of light years for the light to reach us. Then it was demonstrated that light while it travels does not tire or slow down.

The "tired light" hypothesis was disproved as of 1964 by the demonstration of the (a) absence of the smearing of light; (b) the broadening of spectral lines that increases with distance; (c) a red shifting of radio light a million times more than visible light; and (d) a dimming of radio light a million times more than that of visible light. Observations clearly show that none of the effects consistent with light slowing occur anywhere in the universe.¹⁰

9. Editor reply to letter, *Creation Ex Nihilo Technical Journal* (1994) Vol. 8 No. 1 at 24.

10. Ya. B. Zel'dovich, "The Theory of the Expanding Universe as Originated by A.A. Friedmann," *Soviet Physics Uspekhi* 6. (1964) at 475-94.

Thus, light has traveled to us at a single speed (*i.e.*, 299,792,458 miles per second), never tiring since transmission. Did it ever get emitted at a faster speed? If it did, then it would be noticed in the spectral lines smearing or not smearing in the stars close by. What are the facts? Astronomer and Christian, Hugh Ross, explains these light speed decay theories are “ludicrous.” He explains one disproof:

Not only is their proof *scientifically ludicrous*, but the 21-cm hydrogen spectral line shows no variation in the velocity of light among galaxies as far away as 14 million light years. Since the light from these galaxies took 14 million light years to reach us, the velocity of light, therefore, has not changed during the last 14 million years.¹¹

The source of Ackerman’s and Setterfield’s errors is they not only ignored all the disproofs of their hypothesis, but they also relied upon outdated measurements from the 1600’s, 1700’s and early 1800’s. We have much more precise methods available today. (The speed of light is now measured by “the time interval necessary to communicate with a distant spacecraft.”)¹²

When Olaus Römer, a Danish astronomer, first calculated the speed of light, he derived a figure three percent greater than modern measurements. But his experiments turn out to have a built-in error ratio greater than 3 percent. In

11.H. Ross, Ph.D. *The Fingerprint of God* (1991) at 83 note e, citing Hugh Ross, “Making Light of Apologetics,” *Facts & Faith* Vol. I, no. 2 (1987) at 1-2; Edward Fackerell, “The Age of the Astronomical Universe,” *Ex Nihilo Technical Journal* 1. (1984) at 87-94.

Dr. Hugh Ross in *Creation and Time* (1994) cites two articles as proof that the spectral lines in very distant galaxies confirm it travelled 14 billion years. See John Peacock, “Fresh Light on Dark Ages,” *Nature* 355 (1992) at 203; J.M. Usom, D.S. Bagri, and T.J. Cornwell, *Physical Review Letters* 67 (1991) at 3328-3331.

12.Hartman, *Astronomy, supra*, at 94.

1973, three American physicists reworked Röhmer's figures. They demonstrated that if Röhmer had more precise modern data in just one part of his equation, his speed-of-light experiment would have agreed with modern measurements to within .5 percent — a tolerable variance.¹³

Neither Ackerman nor Setterfield discuss this 1973 re-analysis of Römer. It preceded the first Creation Research Society article by five years. It preceded Setterfield's work by fourteen years. How could it have been overlooked?

This ignoring of facts continues. For example, in the ICR's journal *Creation Ex Nihilo* Vol. 12, no. 1 (1998), Malcolm Bowden argues the speed of light issue proves a young earth. His article, however, does admit: "There are more creationists who have written against [speed of light decay] than for it." Yet, despite this constant friction in their own ranks — only available in their technical journals, no one ever withdraws these light-speed decay claims from the books intended for public consumption. Thus, speed-of-light decay claims persist in the many young earth books and within the Internet ether.

Impact of Alleged Slowing of Speed of Light

Let's assume, for argument sake, that there is something to the hypothesis that light speed is slowing. What is the point of this attack?

Ackerman in *It's A Young World After All* (1993) says radiometric dating is invalidated by the alleged fact that the speed of light has been decaying. That is his goal behind attacking light speed.

13.S.J. Goldstein, J.D. Trasco, and T.J. Ogburn III, "On the Velocity of Light Three Centuries Ago," *Astronomical Journal* 78 (1973) at 122-25.

Setterfield, the young earth scientist who claims light speed has decayed, says the speed of light is built into every equation that relies upon radiometric dating.

The link between radiometric dating and light-speed.

Question: Is there a direct link between radiometric dating and the speed of light?

Setterfield: Yes, there is. 'c' the speed of light, is in the numerator of every reduced radio decay rate equation.¹⁴

However, it is that link to radiometric processes that provides proof that starlight has never slowed down. As one Christian scientist, Dr. Roger C. Wiens,¹⁵ explained in 2002: "However, the astronomical evidence mentioned above also suggests that the speed of light has not changed, or *else we would see a significant apparent change in the half-lives of these ancient radioactive decays.*"¹⁶

Another critic of young earth points out that because there is no basis to believe the speed of light has ever varied, "there is no evidence to suggest that the speed of light (in vacuo) is a variable" in radiometric dating to be concerned about.¹⁷

14.<http://www.setterfield.org/000docs/RadiometricDating.htm#datin-glink> (last accessed 1/20/2008).

15. "Dr. Wiens has a PhD in Physics, with a minor in Geology. His PhD thesis was on isotope ratios in meteorites, including surface exposure dating. He was employed at Caltech's Division of Geological & Planetary Sciences at the time of writing the first edition. He is presently employed in the Space & Atmospheric Sciences Group at the Los Alamos National Laboratory." (See <http://www.asa3.org/ASA/RESOURCES/WIENS.html> (accessed 10/6/2008).)

16. Dr. Roger C. Wiens, "Radiometric Dating A Christian Perspective," reprinted at <http://www.asa3.org/ASA/RESOURCES/WIENS.html> (accessed 10/6/2008).

17. See Joe Meert, *Were Adam and Eve Toast?* (2002) reprinted at <http://gondwanaresearch.com/hp/adam.htm> (last accessed 1/20/2008).

However, based on the alleged slowing of the speed of light, Setterfield says “the higher the light speed, the faster the decay rate, in the same proportion.” (*Id.*)

Thus, Setterfield claims that because light speed was faster 6000 years ago than it is now, the decay rate was faster in the past than it is now. Hence, the earth is supposedly really young. We are led to the old earth conclusion by supposedly not realizing the speed-of-light variable was much higher 6,000 years ago.

Earth Would Have Been Inferno

However, Setterfield never addresses that if decay rates were indeed much faster in the past, then earth was experiencing extreme temperatures (65,000 degrees Centigrade/km) at the time of Adam, and no life would be possible 6,000 years ago and for a long time thereafter.¹⁸ As Meert points out: “At 6000 years ago, it is pretty obvious that the entire Earth would be molten and Adam and Eve’s goose was cooked.” Even with a global flood at 4,000 years ago, Meert says this would lower the temperature to at best 40,000 degrees!

ICR Retraction in 2000

In 2000, even ICR in a book it published, set forth the same impossibility of what Setterfield’s claims about light speed would imply. If Setterfield’s claim about light speed being faster in the past were true, and thus decay rates were much faster in the past, this would generate an enormous additional amount of heat in the time of Adam. Thus, Don De

18. See Joe Meert, *Were Adam and Eve Toast?* (2002) reprinted at <http://gondwanaresearch.com/hp/adam.htm> (last accessed 1/20/2008).

Young writes in ICR's treatise of 2000: "If the decay rate was accelerated at the Fall, then the *heat and radiation would have killed all life.*"¹⁹

Hence, even ICR admitted finally in 2000 that Setterfield's entire endeavor to prove light speed was faster in the past was a Quixotic venture. It leads to a supposedly hellish earth when we know instead that the Garden of Eden was on earth. Thus, ICR itself has disproven Setterfield's claims.

Ackerman's 1993 Synopsis of Setterfield

It is useful now to go back and hear the nonsense spouted by young earthers in reliance on Setterfield before even ICR regarded it all as bunk and withdrew (obliquely again) by means of publishing De Young's book.

The reason this is important is that it shows the poverty of thought involved in young earth science, and how myths are advanced instead of science. For Setterfield's claims are still regarded almost everywhere in Christian circles as still plausible.

Ackerman in *It's A Young World After All* says that since the speed of light has been supposedly decaying (but remember this claim is false), its "slowing down through history raises a whole new and devastating problem for all radioactive-dating methods, since a key factor in all such rates of decay is the speed of light." (*Id.* at 76.)²⁰

19. Don DeYoung, "Radioisotope Dating Review," Chapter Two in *The Bible and Science: Radioisotopes and the Age of the Earth* (Vardiman, Snelling, and Chaffin, editors) (ICR & CRS, 2000), summarized at <http://www.bibleandscience.com/science/radioisotopes.htm> (accessed 1/20/2008).

20. For example, he says "Physicists know that the rate of decay for radioactive elements is directly related to the speed of light. The faster the speed of light, the more rapid the decay of radioactive elements, and vice-versa."

From this position, Ackerman then concludes: “This means that all dating calculations published in the past must be refigured with the corrected and ever-decreasing value for light speed. When this is done, all radioactive dates fall within a time frame of a few thousand years!” (*Id.* at 76.)

Ackerman then says that “*no one has been able to debunk [Setterfield’s] findings*, and corroboration of Setterfield’s work seem to be piling up.” Ackerman closes by saying that “the odds against such matching data trends in support of Setterfield’s theory occurring by mere chance are astronomical.” (*Id.* at 77.)

What was supposedly amazing to Ackerman in 1993 was acknowledged in ICR’s technical journal in 1994 as a thesis unable to overcome Christian scientist criticism,²¹ and was abandoned by ICR in 2000. What is truly amazing is how this keeps happening, but no one calls this movement to account for its irresponsibility of making claim after claim that are (a) false when made and (b) proven by Christian scientists as false soon after announced.

Conclusion

The speed of light argument has persisted for some time. It remains in Ackerman’s book available online for free. It appears from time to time in ICR literature, and was only abandoned by ICR in 2000. (This was done obliquely again, by publishing De Young’s book in which the refutation appears.) The decay in starlight speed argument was based upon totally false and unreliable facts. As Dr. Ross, a Christian astrophysicist says, the claim that light slows was always ludicrous. The ancient data upon which ICR young earthers relied was fully reconciled in 1973 to the current values for the speed of light. The disproofs of light slowing were

21. See text accompanying Footnote 9 on page 32.

Conclusion

accepted in 2000 by ICR, for it would mean the earth was super-heated when Adam walked on earth several thousand years ago. Yet, many young earth faithful, unaware of the ICR's oblique withdrawal of this claim, keep writing as if such re-analysis never took place. Absent that ostrich-head-in-the-sand approach to writing, young earthers would never even have originally proposed their theories which all post-date that 1973 reanalysis. Young earth science is obviously an unreliable research program, which boldly pronounces or promotes theories but when disproven they meekly withdraw them.

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