

# Days by a cosmic clock?

A review of  
*The Science of God:  
The Convergence of  
Scientific and Biblical  
Wisdom*

by Gerald L. Schroeder  
The Free Press,  
New York, NY 1997

Frank DeRemer

Gerald Schroeder sees a ‘convergence’ between the Bible and science. According to Pat Robertson on the jacket cover, this ‘*fascinating* book finds no conflict between the Bible account of Genesis and science’. Michael J. Behe there opines,

‘Schroeder vindicates the fruits of *sophisticated biblical scholarship* with the tools of modern science. Using Einstein’s theory of relativity, Schroeder demonstrates the surprising compatibility of the ancient universe revealed by science with the six-day creation timetable of Genesis. Religious skeptics, biblical literalists, and everyone in between will find much to think about in Schroeder’s persuasive writing [emphasis added].’

Schroeder has B.S., M.S., and Ph.D. degrees in physics from M.I.T. With such accolades and degrees, I had high expectations. For I have similar degrees from M.I.T., although mine are in electrical engineering and computer science with a minor in physics and a specialty in ‘programming linguistics’.

I especially had high expectations for ‘sophisticated biblical scholarship’ because Schroeder has long worked at the Weizmann Institute in Israel and he lives in Jerusalem. Surely he would have a good grasp of the Hebrew text of Genesis. But, I was disappointed—not in his cleverness and ingenuity, but very much in his Hebrew. His book is definitely fascinating and persuasively written, but there is no ‘sophisticated biblical scholarship’ except to twist

Scripture to fit yet another interpretation.

## Schroeder’s premise

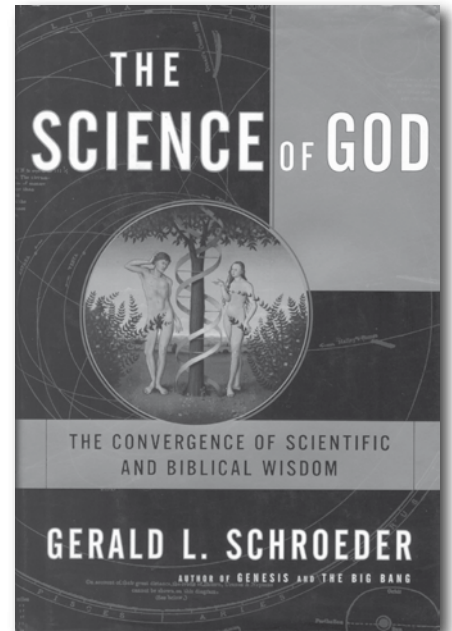
Schroeder’s model is based on his observation that the human (Jewish) calendar begins with the first man, not with the creation of the heavens and the earth (p. 45). He asserts, therefore, that the days of Genesis really *are* to be taken literally, but according to a different clock until the first man appears when the man-based calendar applies.

What clock? The cosmic background radiation (CBR) left after the big bang<sup>1</sup> (p. 53). As the universe expands, CBR wavelengths increase, thus reducing its frequency or rate of ticking. Hence, processes were happening at a much faster speed in the past. Since the rate of change is exponential, the cosmic ‘days’ defined by CBR are getting exponentially shorter, ‘*as measured by our perception of time*’ (p. 58). The cosmic-time ‘days’ of Genesis 1, then, are of exponentially decreasing length as measured in Earth rotations.

Schroeder’s Day 1 is 8 Ga (10<sup>9</sup> Earth years), Day 2 is 4 Ga, 3 is 2 Ga, 4 is 1 Ga, 5 is ½ Ga or 500 Ma (10<sup>6</sup> Earth years), and Day 6 is 250 Ma, in length. While acknowledging the Cambrian explosion and other problems with evolutionary theory, he claims ‘a test to this theory’ (p. 59) is to show how the evolutionary timescale fits these ‘days’ of exponentially decreasing length. For example, God makes man late on Day 6, about 6,000 years ago, by breathing spirit into a Cro-Magnon man (p. 141).

Hence, Schroeder has hatched an exponential variation on the old day-age theory, so I call it the Exponential Day-Age Theory. It is very clever indeed and, as presented, superficially appears to fit the evolutionary timeline pretty well, but it has major problems with the Bible’s timeline:

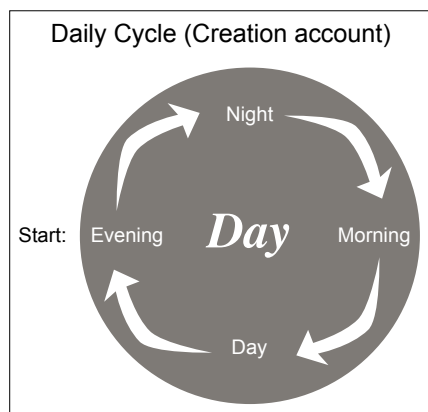
1. The Creation Account (CA), Genesis 1:1–2:4a, tells of 7, not 6, days, and is clearly a complete unit of narrative history. Hence, God



rested (past tense) for Day 7, or 125 Ma according to Schroeder’s model applied to all seven days of the story. Adam, therefore, would have had to be 125 Ma old before he lived the 930 years stated in Genesis! Schroeder says the Bible switches from cosmic to earth-bound time at the making of Adam (p. 51), but there is no textual indication of such a switch and every indication that the CA is a single story. We expect the whole story to be told according to a single clock unless the text clearly indicated otherwise. No fallable, man-made calendar starting at man’s creation would override the clear message of inspired Scripture.

2. Schroeder’s ‘literal’ days have no evenings and mornings, nights and daytimes, darkness and light, contrary to six repeated statements in the CA text (figure 1). His ‘literal days’ are simply periods measured by his CBR clock. He rationalizes this away by saying, ‘Literalism is simply not an effective way to extract meaning from the Bible’ (p. 10). Thus, he cherry-picks, being literal when it suits him and not when it doesn’t. He also knocks down a straw man, since biblical creationists are not ‘literalists’ but accept the meaning the author intended, as determined by the type of

- literature (history as history, poetry as poetry, etc.).
3. Schroeder arbitrarily reorders the event sequence specified by the CA text to fit evolution. To do this he has to run roughshod over the Hebrew conjunctions or *waw*'s. He treats the *waw*-consecutive ('then [verb]') as a *waw*-disjunctive (non-sequential 'and'), and vice versa as needed to fit his model.<sup>2</sup> For brevity and simplicity in this review, I use 'THEN' for the *waw*-consecutive and 'AND' for the *waw*-disjunctive hereafter. This major reinterpretation is the most essential ingredient in his 'interpretation' of Scripture to make his model seem to work.
  4. He arbitrarily changes from CBR clock to Earth rotations just after the creation of man, with no such indication in the text. Hence, the first Sabbath is 24 hours rather than 125 Ma, as his model should predict.
  5. He has the sun ruling over the 'day' starting on 1Ga-long Day 4, and then, without a hint in the text, ruling over Earth-rotation 'days' starting with Day 7.
  6. He has man made from a Cro-Magnon man rather than directly from the dust or elements of the earth, and woman made from a Cro-Magnon woman rather than from the first man.
  7. His model is also unacceptable to evolutionists, as a web search for other book reviews will show.



**Figure 1.** Schroeder's cosmic 'day' has no evening or morning, nothing to distinguish day from night.

Schroeder tries to justify his ideas by saying the biblical interpretation he uses came from the 13<sup>th</sup> century (Nahmanides) or earlier (the Talmud), long before modern scientific ideas could have been an influence, and the science he uses is not his own but just the peer-reviewed conclusions of modern scientists (pp. 52, 58, 60–61). However, long-age ideas date back at least to Aristotle, and Nahmanides was a kabbalist most likely heavily influenced by the Greco-Arab philosophies permeating Jewish communities in Spain and France at the time.

Schroeder seems to be unaware that he adds his own twisting of Scripture (especially 3 above) to make his model work. I address these and other problems by laying out Schroeder's proposed order of events and relating them to the biblical text. 'Schroeder's scientific descriptions' (SSDs) below are quoted from his table on page 67, titled 'The Six Days of Genesis'.

### Comparison with Genesis 1:1–2:4a (NASB<sup>3</sup>)

**Day 1, 15.7–7.75 Ga BC:**

**SSD: The big bang marks the creation of the universe; light literally breaks free as electrons bond to atomic nuclei; galaxies start to form.**

Schroeder follows Nahmanides<sup>4</sup> in recognizing that v. 2 describes the raw material that will form the universe. It is initially unformed, unordered, huge (deep), and fluid-like ('waters'), with a dark surface being hovered over by the Spirit of God. But Schroeder ignores the 30 transitive verbs in the CA text indicating that God was actively involved at each step of the development process. Instead, he has God building into the raw material a strong tendency toward structuring itself, and he allows God to be actively involved only when a 'jump in nature' is required, such as at the Cambrian explosion later.

Day 1 starts with an explosion of nothing into the beginning of a self-ordered universe. He claims this is reasonable based on quantum theory, but before a quantum fluctuation can

occur, there must be something to fluctuate. For perhaps the first 'second' on the cosmic clock, the universe is dark (night), but then light 'breaks free' and the universe is lit (day) thereafter. A one-second First Night and no other nights doesn't sound much like Genesis 1.

Schroeder's timing here is at odds with the text, because he says v. 1 denotes the big bang, and *then* an 'instant' later, light and particles form and time starts at 'void' (Hebrew *bohu*) in v. 2 (p. 57). But v. 2 starts, not with THEN, but AND (and *bohu* is preceded by AND); hence there is no indicated time lapse between the two verses. Rather, v. 2 describes the initial state of that 'earth'. Besides, one cannot talk about 'before' until after time starts, and Schroeder says the big bang happened 'before' light and particles formed and time began (p. 57).

Like all enthusiasts for the evolutionary cosmic timeline, Schroeder has a large portion of the galaxies and stars in our universe fully functional by the end of Day 1, i.e. in well less than the first 8 Ga. This is contrary to the plain meaning of the CA text, which has no stars (including the sun) existing as such until Day 4. He 'fixes' that problem by borrowing from the gap theory: even after Earth is formed on Day 3, it starts with a cloud of debris around it that prevents light from reaching its surface, and the cloud thins to reveal the sun, moon, and stars on Day 4. Although the text would allow for some preliminary development of the luminaries during the first three days, it clearly states that they were not 'lights' as such until Day 4. It is *they* that God 'worked on' or 'made' on Day 4, not some cloud.

**Day 2, 7.75–3.75 Ga BC:**

**SSD: Disk of Milky Way forms; Sun, a main sequence star, forms.**

On Day 2, according to the CA text, God makes the expanse between the 'waters above' and the 'waters below'. Schroeder has that expanse starting on Day 1 with the big bang, spreading the raw material of the universe out over the universe, and still continuing to spread. According to Schroeder's

story, it was arbitrary to mention the expanse on Day 2 because there was nothing unique to his Day 2 in regard to the expanse. Day 1 would have been the right day to reference.

There is no hint of the Milky Way or the sun in the CA text describing Day 2. They do not appear until Day 4. While nothing in the text prohibits the raw material from already moving toward the final making of the galaxies on Day 4, the text is clear that there were no galaxies or stars, as such, at this juncture.

Rather, God's focus here is on expanding the initial space (heavens) he created on Day 1. He simultaneously separates the 'waters', or fluid. He was 'stretching out the heavens' and 'spreading out the earth' (Is.42:5; Ps. 104:2b, etc.).

#### Day 3, 3.75–1.75 Ga BC:

**SSD: The earth has cooled and liquid water appears 3.8 Ga ago followed almost immediately by the first forms of life: bacteria and photosynthetic algae.**

Schroeder agrees with the CA text that planet Earth was formed from 'the waters below the expanse' and that its surface separated into cool land and water on Day 3. The THEN starting v. 9 indicates that both happened subsequent to Day 2, and the AND in what God is quoted as saying indicates that the two happened together, not sequentially. That is, the 'gathering' resulted in the 'appearing'. Schroeder gets the next THEN right: he says that almost immediately after the appearance of liquid water on the planet, life in the form of vegetation arose.

However, the CA text doesn't even hint at 'bacteria and photosynthetic algae'. Instead, it specifies full-grown, mature plants on Day 3, even trees ready to bear or bearing fruit. 'AND it was so'. Schroeder requires another couple of 'days' (about 3 Ga) to get to that point because his model is driven by the evolutionary fairytale rather than the Bible.

#### Day 4, 1.75–0.75 Ga BC:

**SSD: Earth's atmosphere becomes transparent; photosynthesis produces oxygen-rich atmosphere.**

Atmosphere? The atmosphere is not even referenced here. It *is* referenced in v. 20 (Day 5), and no earlier: the birds fly 'above the earth' *in* 'the face (surface) of the expanse of the heavens' (same word, surface, as in v. 2, Hebrew *pane*). Birds fly in the atmosphere, in contemporary terminology, but only in the surface of outer space, according to the CA text. The air is only the bare surface of the vast space out there, *in* which God placed the luminaries. The subject of Day 4 is not the air but the lights placed in space.

In this case, Schroeder cherry-picks the Talmud over Nahmanides, which are at odds (p. 69). The Talmud says the luminaries already existed and now *became visible*. Nahmanides endorses what the text clearly states (v. 16): God *made*, formed, or worked on (Hebrew *asah*) the luminaries. Note that this transitive verb has the luminaries as object, as shown by the direct-object marker 'et. He worked on the luminaries, not the atmosphere or a cloud therein. Like a potter, God started with some raw material from which to *make* the luminaries.<sup>5</sup>

The Talmud, which Schroeder chooses to fit his model, is contrary to the clear wording: 'be' means 'exist' and 'made' means they needed at least some finish work to become lights, as such; '*asah*' cannot mean 'made visible'. If God had *meant* that the luminaries 'appeared' when a cloud dissipated, then He presumably would have *used* the Hebrew word for appear (*ra'ah*), as when the dry land 'appeared' as the waters gathered in one place on Day 3 (Genesis 1:9). Also, the latter is an Earth-based perspective, and yet Schroeder claims the whole story is from a cosmic perspective (I agree) with a cosmic clock (no).

Schroeder offers no explanation for God's appointing the sun to rule over the 'day' on Day 4. If 'day' in the

CA means a cosmic day, each lasting a billion years more or less, then how could the sun rule over one of these cosmic 'days'?

The CA text clearly means the sun 'rules over' an Earth-rotation day. It is the dominant object in the daytime sky. There is no distinction drawn among the various instances of 'day' in the CA. Rather they are all patterned after Day 1, the prototype. So it is clear that they are all Earth-rotation days, not the claimed cosmic 'days'. This, of course, is confirmed by Exodus 20:11 and 31:17, which equate the creation 'workdays' with man's workdays and the creation Sabbath with the weekly Sabbath that God commanded the Israelites to observe.

#### Day 5, 750–250 Ma BC:

**SSD: First multicellular animals; waters swarm with animal life having the basic body plans of all future animals; winged insects appear.**

V. 21 says God created 'great sea monsters' AND (not sequentially) 'all winged birds' (Hebrew *oph*), not multicellular animal life with the basic body plans or even complex insects. The Hebrew means not just wings, but also feathers, and not just *little* birds (Hebrew *tsippor*)—a word which the Author could have used. Even if we bought the CBR clock idea, and a length of 500 Ma for this Day 5 to evolve *great* sea monsters and *all* birds, we would have a major problem with evolutionary theory, which has fish crawling up on land, evolving into animals, and only then developing into birds: that is, animals must come between fish and birds, but the CA text saves the animals until Day 6, out of their evolutionary order.

Schroeder tries to skirt this major problem with his theory by ignoring the ANDs (three times, in vv. 20–21) linking God's creation of the fish AND birds. That is, the text specifically avoided saying the fish were created before the birds, when it could have done so easily by using THEN instead. Next Schroeder does the opposite: he ignores the THEN



**Figure 2.** Does God have his own clock; or is God's time also man's time, made by God?

that begins v. 24, indicating that the fish and birds were already created before the land animals. He says the animals came in between the two, per the just-so story of evolution. (See figure 2).

**Day 6, 250 Ma–4,000 BC:**

**SSD: Massive extinction destroys over 90% of life. Land is repopulated: hominids and then humans.**

Here Schroeder departs from even trying to give a semblance of being consistent with the CA text. There is not a hint in the CA text of any such extinction.

Vv. 24–25 start with THEN, indicating an action after the mature fish and birds were made, and present the origin of land creatures after their kind: cattle, creeping things, and (wild) beasts. Vv. 26–27 start with THEN, indicating a distinct action next in sequence, and present the origins of mankind, not after their own or hominid's kind but after God's kind, i.e. in His image. V. 2:7 reports that man was made not from hominids, in turn from animals, but straight from the earth (dust or elements; also v. 3:19).

No depopulation by death, then repopulation, is mentioned or even hinted at in this text. Indeed, any death in Chapter 1 would be antithetical to a primary Judeo-Christian doctrine that

death resulted from sin, 'In the day you eat of it, you shall surely die' (v. 2:17). If man came into being through a struggle-death-survival mechanism, as Schroeder proposes, then God's threat was vacuous: man was already going to die. Instead, there is no reported animal death in the CA until God provides animal-skin clothing for Adam and Eve (v. 3:21). The implied death was needed only after sin and illustrates God's grace in providing a substitute sacrifice so Adam would not

have to die immediately after all. (God initially provided animals vegetation only to eat (v. 30), not each other.)

Schroeder thinks God started the human race from a Cro-Magnon man toward the end of Day 6, which he claims was (biblically) about 6,000 years ago. Well, he got the latter part right!

He implies that Eve was made the same way Adam was, by breathing spirit into a Cro-Magnon woman. He never explains how that is supposed to fit the story of woman being made from a part of the side of the man, thus becoming 'bone of my bone and flesh of my flesh' (v. 2:23). He says the Bible is literal, narrative history, as confirmed by archaeology regarding things after Adam was made, but apparently Genesis 2 is an exception.<sup>6</sup> What evolutionist would agree that the first woman was specially made from a part of the side of the first man while the man was asleep?

This is yet another example where Schroeder simply interprets the words of the CA text as he pleases to fit his model, and he cannot, in this case, appeal to the Talmud or Nahmanides. So much for 'all biblical interpretation used here was recorded centuries, even millennia, in the past and so was not in any way influenced by the discoveries of modern science' (p. 70). (Notice also the biased viewpoint that modern science consists of discoveries, i.e. undisputed facts, not the interpretations

of fallible scientists with a non-biblical worldview).

**Day 7, should last 125 Ma, ending about 4000 BC, but is left out:**

**SSD: None. (Schroeder says this day is on the earth-rotation clock rather than the CBR clock, so this first Sabbath is not a part of his model.)**

The CA is the record of a seven-day period, all of which is past, and God rested on Day 7. If the days of the CA were cosmic days, God would have rested for 125 Ma after He made Adam! Hence, Adam would have lived for a total of 125,000,930 years! Oops.

There is not a hint in the text that the Sabbath was a different kind of 'day' than the previous six, that it is measured by Earth rotations rather than CBR frequency. Indeed, the text is clear that all seven days were the same kind of 'day', defined and established on Day 1 and 'ruled by' the lights made on Day 4 from then on. Exodus 20:11 and 31:17 use God's workweek and Sabbath here are a model for believers to follow in his 'days'. This equates His creation days with our normal days. Following Schroeder, we could say to God, 'You worked for almost 16 Ga and then rested for 24 hours, so I guess I can work for seven days per week and honour you by resting for one Sabbath second'!

**Additional problems**

**Convergence**

Schroeder's argument for convergence illustrates nicely the real story of divergence. He argues that (1) science has moved toward the Bible by recognizing that there was, indeed, a beginning to the universe, as stated clearly in the Bible all along, and (2) our interpretation of the Bible has moved toward science by our ceasing to be so doggedly literal. His proffered evidence is:

1. Aristotle and almost all scientists in 1959 thought that the universe had no beginning, but the next 30 or so years of quantum theory develop-

ment proved that the universe *did* have a beginning; and

2. religionists have realized that the CA can accommodate a story somewhat like evolution.

But (1) science has only come kicking and screaming toward anything resembling the Bible's story, such as only belatedly responding to the overwhelming amount of data indicating the Cambrian explosion. And (2) the new interpretations of the Bible that he has in mind, are 'achieved' at the expense of the overwhelming amount of data to the contrary, namely the text itself, as demonstrated in the present review.

### Divergence

Aristotle was not by any stretch of the imagination an empirical scientist in modern terms, but the founders of modern science, men such as Newton, Boyle, Faraday, Maxwell, etc., were Bible believers. It was their biblical worldview that led them to expect to find order in the universe, which they saw as having been designed by God for a purpose. Hence, they did not find the 'unreasonable effectiveness of mathematics'<sup>7</sup> to be unreasonable or unexpected. Rather they expected to find mathematically describable form and structure, and they did do just that. Likewise, the founding geologists were catastrophists, e.g. Woodward and Steno, seeing the geologic column and the fossil record as evidence of the worldwide flood of Noah's time.

So, starting after the founding of modern, empirical science by those mentioned above, we do not find a convergence but a divergence between the opinions of scientists and the plain sense of the Bible. Although modern operational science eventually led to revolutions in technology because of a biblical worldview, that biblical worldview was abandoned and divorced from the scientific method along the way. This was due to getting enamoured with the effectiveness of mathematics and the empirical method, thus focusing on natural law itself, and attributing the structure of the universe to nature rather than the Maker of nature. From there the biblical worldview was replaced

by a secular view. This view involves billions of years of gradual cosmic evolution, along with accompanying evolutionary theories of psychology, sociology, etc. The result is a general religious philosophy that claims to explain all of life, with no need for God or the Bible. It is itself a religion, as even the atheistic evolutionary philosopher Michael Ruse admits.<sup>8</sup>

Religionists who twisted Genesis 1 to make it seem to mean what it had never before been interpreted to mean facilitated that replacement.<sup>9</sup> Hence, in that regard, the Enlightenment was, in fact, an *Endarkenment*: we learned how to understand and make lots of material improvements, but we also lost our way in terms of origin, purpose, and destination, as well as whom to thank for it all.

No, Schroeder chose two convenient historical events to 'prove' his point, but many other events expose it as a lie.

### Plasticity

If we follow Schroeder by arbitrarily replacing ANDs with THENs, and vice versa, we can make the CA fit most any origins story we like: just reorder the elements to suit ('will build to suit'). Then it becomes wonderfully plastic, and we can keep modifying it to keep up with the year-to-year changes in science orthodoxy. Indeed, we can make the text just as plastic as is the hypothesis (oops, fact) of evolution.

Of course, then the cat will be out of the bag: the CA can have every meaning; hence it has no meaning at all. Then we'll be the laughing stocks of unbelievers, and rightly so, but more importantly, we'll have God shaking His head in disgust! No, I think we should follow Schroeder's counter-advice: 'We are not here to rewrite the Bible. We are trying to understand it as it is' (p. 57, footnote).

### Jumps in nature

At least Schroeder acknowledges the Cambrian explosion and the impossibility of gradual evolution of all 34 body plans (his characterization) in that 5 Ma period (pp. 30, 36, 89, 113),

as well as other problems with gradualism. However, he leads his readers to make a logical jump of gigantic proportions. He notes that quantum theory was discovered when it was noticed that heating an object results in jumps in temperature, hence we should expect would-be 'evolution' to involve such 'insufficiently caused events' (p. 74). Thus, with this wave of the hand, the Cambrian explosion and the missing transitional forms are dismissed as jumps we should expect in nature. And we are to seek no explanation of any force or reason why they occur at such a macro level.

Schroeder says scientists too have doggedly held onto a flawed paradigm: gradual evolution. They have only reluctantly acknowledged that famous Cambrian explosion and the missing transitional forms. But it's okay now because more of them are coming to grips with this, and because the quantum-theory analogy applies, so we should expect such gaps as a natural phenomenon. Now that's sweeping a major problem under the rug!

### Paradigm shifts

Schroeder also acknowledges the tendency of those presiding over the current orthodoxy to protect that paradigm at all costs. He uses as an example Charles D. Walcott, the first director of the Smithsonian not necessarily as a villain, but at least as having, for whatever reason, stashed in storage in 1909 the Burgess-shale fossils that he discovered which would have been a major blow to the gradual-evolution idea then. Instead, they were not publicized until after his death when associates found them some 80 years later (p. 37).

### Conclusion

Schroeder seems genuinely to want to help those who haven't come to grips with the purpose and meaning of life to see that there is harmony between *true* science and *true* Bible. But his effort is far from helpful.

He says he does not *want* to twist Scripture, but is blind to his doing exactly that. As usual, the reason is presuppositions. Mainly he presumes

that modern science orthodoxy is basically correct, admitting a few flaws, so he freely modifies what the CA text actually says to make it fit what he ‘knows’ is true. The result is a model that does not fit what Genesis 1:1–2:4a actually says.

Isn’t it strange how so many believe everything that magazines, newspapers and science textbooks say, but question the Word of God?

### References

1. Schroeder, G., *Genesis and the Big Bang*, The Free Press, New York, NY, 1990.
2. ‘Seven years of plenty THEN seven years of famine’ would be the *waw*-consecutive, indicating a total of 14 years. ‘I dreamed about fat cows AND skinny cows’ would be the *waw*-disjunctive: both were dreamed about but we are not told any order—could be interleaved, simultaneous, or sequential in any order.
3. *New American Standard Bible*, The Lockman Foundation, La Habra, California, 1960–1973. Wording exceptions are noted.
4. Nahmanides, commentary on Genesis 1:1, 2, referenced by Schroeder on pp. 57 and 210.
5. What material was that? The only raw material left unused is ‘the waters above’. God apparently (1) formed the luminaries from the ‘waters above the expanse of the heavens’, much as He had formed planet Earth from the ‘waters below’ (v. 9), (2) simultaneously ignited them, and (3) *placed* them (v. 17) ‘in the expanse of the heavens’ (vv. 14, 15c, 17).
6. As is the Flood Story, which Schroeder dismisses in Appendix F as a local flood. He ignores nine occurrences of ‘all’ (Hebrew *kol*), as in ‘*all* flesh ... *all* mankind ... *all* that was on the dry land (continents) ... *all* ... life, died’ (vv. 8:21–22). A single *kol* is occasionally non-universal, but not a **double** *kol* like ‘*all* the high mountains under the *entire* heavens were covered’ (Gen. 7:19). I would have thought that a physicist would understand the impossibility of a flood 6 m over the highest mountains being contained for over 150 days. The water would run out of the local half-bowl topography of Mesopotamia well before then.
7. Hamming, R.W., The unreasonable effectiveness of mathematics, *American Mathematical Monthly* 87(2), February 1980, <pascal.iseg.utl.pt/~ncrato/Math/Hamming.html>.
8. Ruse, M., How evolution became a religion: creationists correct? *National Post*, pp. B1, B3, B7, 13 May 2000.
9. <www.creationontheweb.com/content/view/3598>.