

Article

Genesis 1 as a Sign of the Evolutionary Record: Art and Implications

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J. Raymond Zimmer



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*Artistic
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The semiotics of C. S. Peirce permits a new way of constructing relations between the sign systems of theology and the evolutionary sciences. Signs are constructed using phrases in the Genesis 1 text as sign-vehicles and aspects of corresponding evolutionary epochs as objects. The artist connects the pair on the basis of natural sign interpretants, thus constructing a sign where a passage in the biblical text stands for an aspect of a corresponding evolutionary era. The accumulation of signs yields a global sign that operates according to the logic of Steven Meyer's "God hypothesis." Both Genesis 1 and the evolutionary record belong to a single reality.

Concordism attempts to find harmony between the biblical and evolutionary "origins stories" without favoring one story at the expense of the other.¹ In this article, I will follow the intuition expressed in Robert C. Newman and Herman J. Eckelmann Jr.'s *Genesis One and the Origin of the Earth*² by comparing, through a day-epoch correspondence, the creation story and the evolutionary record.

Newman and Eckelmann Jr. were among the first to construct a detailed match between passages in each Genesis 1 "day" and phenomena in the modern evolutionary record. They assumed that words were representations. Phrases in the Genesis 1 text represented evolutionary phenomena.

In our scientific age, the term "representation" has been defined as an index; a sign based on pointing or contiguity.³ For example, the symbol-word "copper" indicates a particular metal with particular properties.

The indexicality of "representation" gives science its greatest strength. Every symbol-word in science stands for "something that can be pointed to" and examined. However, the indexicality also gives science its greatest weakness. How much of the human imagination can be reduced to indexes? Human thoughts are not like thermometers indicating temperatures. Nor are all of the phrases of Genesis 1 indicators of the epic of evolutionary history.

The index is one of the three types of natural signs. According to Charles Sanders Peirce, the founder of (post)modern triadic semiotics, the icon, index, and symbol reflect the three categories of existence: possibility, actuality, and mediation.⁴ These are listed in Table 1. Each sign in Table 1 is defined by the same formula. That formula constitutes the definition of "sign." In semiotics, as well as in this article, the word "sign" denotes Peirce's relational formula.

Peirce's sign contains three elements: a sign-vehicle, an object, and an interpretant. Scientific representation contains two: the word and the thing indicated. The sign allows choice. Choice is inherent in the selection of the interpretant. Representation allows no choice. The possibility of choice is not an option when words are index-based repre-

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sentations. When we step into the hybrid world of modern Christian concordism, we must ponder: How do phrases in the Genesis 1 text signify aspects of the modern evolutionary record? Do they signify them as icons, indexes, symbols, or all three? Or do they signify them as representations?

Artistic concordism steps out of the world of science-inspired representation and into the world of semiotics. We take one foot out of modernism and set it in post-modernism. In the modern scientific world of representa-

Science	
Term	Definition
Representation	Word or symbol indicates "something that can be pointed to"
Semiotics	
Term	Definition
Icon (sign in category of possibility)	A sign-vehicle stands for an object to an interpreter on the basis ... of similarity or imagery
Index (sign in category of actuality)	... of contiguity or pointing
Symbol (sign in category of mediation)	... of definition or convention

Table 1. Terms and Definitions for Science and Semiotics

tion, we tended to think of the interaction between God and nature in terms of indexes. Indexes belong to the category of actuality. Christians aspired to demonstrate the actuality of God's action in evolutionary history.⁵ The lively debate about God's action in nature continues in the pages of this journal,⁶ as well as in others.⁷

In the postmodern milieu of signs, we have blasted ourselves out of the cannon of representation and are now flying, with great uncertainty, toward what we hope is a net. We realize that we made the cannon. We are making the net. We are doing so through our choices. More than ever, we are inspired to think of the interaction among ourselves, God, and nature in terms of choices. We construct our world and that requires choice: a mediation that turns a possibility into an actuality. Now, if we step back and squint our eyes, we might see that this is also what art accomplishes: Art turns possibilities into actualities through choices.

The Nature of Artistic Concordism

Christian concordism in this scientific age addresses the question: If the biblical origin stories and the evolutionary record pertain to a single reality, then how do they match? Modern scientific concordisms viewed the match through the lens of representation. Postmodern artistic concordism (of which there is only one at the moment) constructs the match through the medium of signs.

The biblical and evolutionary origin stories belong to two distinct sign systems: theology and science. The sign operations of both systems are shown in figure 1, using the three-spoke figure favored by semiotician Floyd Merrell.⁸

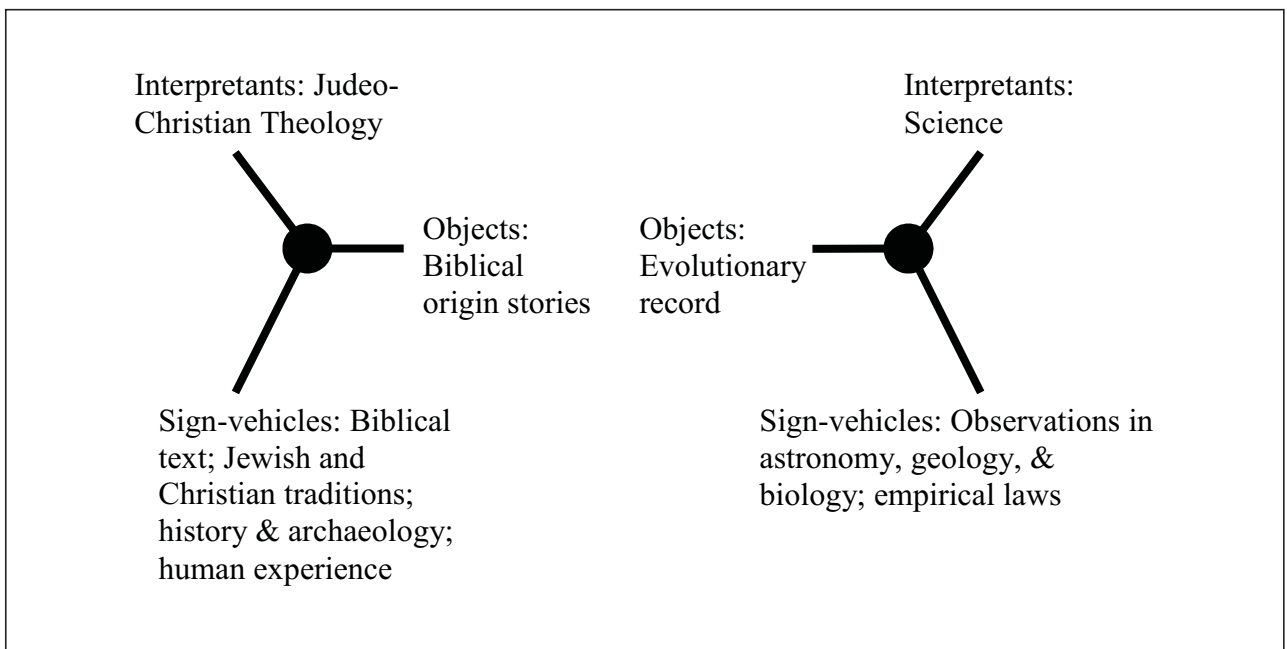
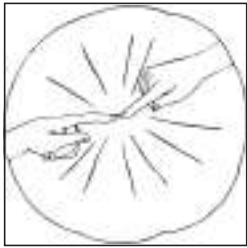


Figure 1. Two Sign Systems of Theology and Science



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Figure 1 juxtaposes the objects of each sign system, so the concordist question becomes obvious. Concordism matches the objects of each sign system.

How these objects are conceived will influence the character of a match. For theology, the sign-vehicles include the Genesis text, the entire biblical text, the history of the Jews, Jewish and Christian traditions, the archaeology of southwest Asia, our human experiences, and so forth. To the theologian, these sign-vehicles stand for the biblical origin stories in regard to theological interpretation. When theologies differ, the “biblical origin stories” differ. For some, the Genesis stories are ancient myth. For others, they are revelations to Moses. In the first case, the creation story matches an old, intuitive, now discredited view of nature that should not be compared to our current scientific knowledge.⁹ In the latter case, the words of Genesis 1 represent nature, irrespective of current scientific consensus.¹⁰

For the evolutionary sciences, the sign-vehicles are observations in astronomy, geology, and biology; laws from the empirical sciences; and other scientific works. To the scientist, these sign-vehicles stand for the evolutionary record in regard to evolutionary theories. If theories differ, the evolution-

ary record differs. For example, divergent interpretations of the prehistoric Indo-European expansion predict different evolutionary records. However, investigations (the gathering and interpreting of sign-vehicles) have not been able to distinguish among the predictions.¹¹

In the modern world of representation, there is no sign system beyond these two sign systems. The only way to establish harmony between the two sign systems is to favor one interpretant at the expense of the other. Two permutations are possible, science-favored or theology-favored concordism. As shown in figure 2, traditional biblical theology is replaced by some form of “evolutionary theology” in science-favored concordism. The “biblical origin stories” are correspondingly objectified as myths, explanations of the unknown, contrasts to the Babylonian god-filled mythos, and the like. While these objects may be valid, they are often peripheral to traditional biblical theologies that regard the creation story as somehow real.¹²

In theology-favored concordism, shown in figure 3, a “creation-inspired science” attempts to displace the traditional evolutionary sciences. The resulting “creation-inspired evolutionary record” matches, in

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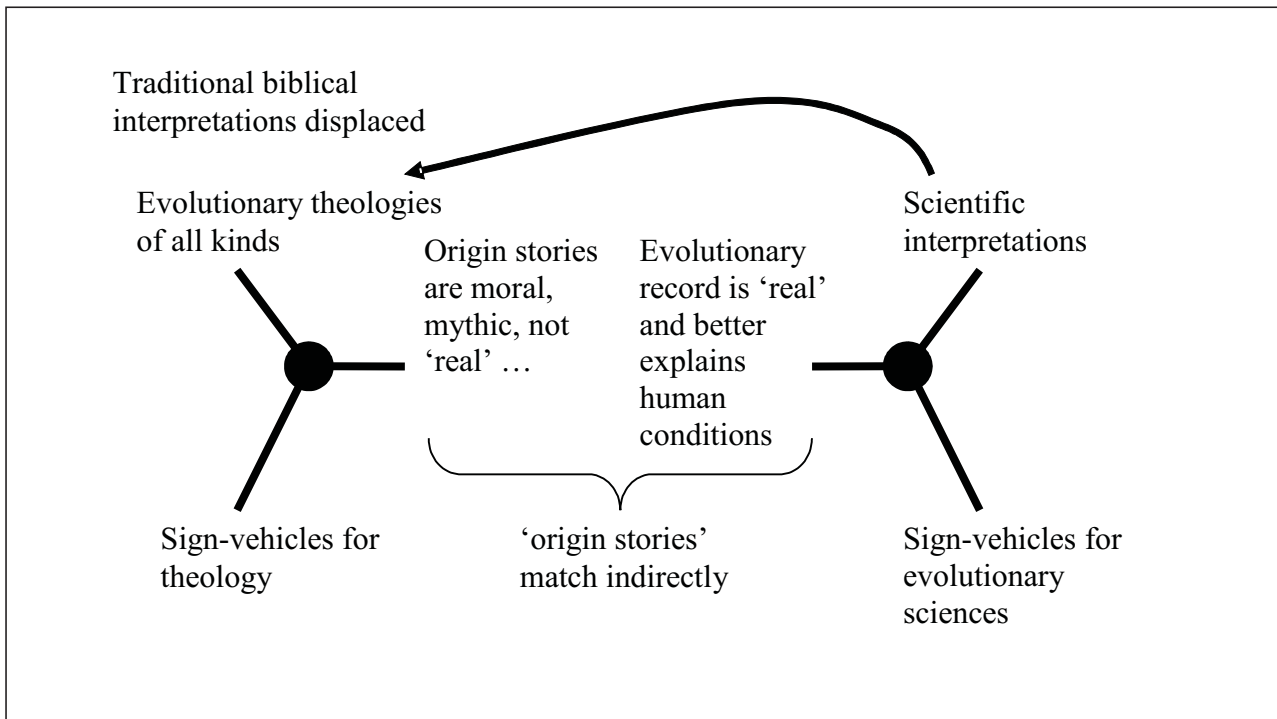


Figure 2. Science-favored Concordism

one way or another, the biblical origin stories. The “creation-inspired evolutionary record” has been problematic for centuries. For example, during the founding of the field of geology, many investigators unwittingly assumed some form of theology-favored concordism as they (mis)took the sign-vehicles of theology as belonging to geology. The result was a mix of valid and invalid theories, which were sorted out with painful consequence by the elimination of sign-vehicles belonging to theology.¹³ Today, theology-favored concordisms, which may include Intelligent Design,¹⁴ are no longer the accidental inclusions of Christian traditions in scientific inquiry.¹⁵ Rather, they appear to be attempts to dislodge atheistic-evolutionary world views that seem intent on dislodging traditional biblical theologies.¹⁶

The two types of concordism depicted in figures 2 and 3 appear to be in conflict, even though, according to Ian Barbour’s scheme, individual efforts may be classified in terms of independence, dialogue, or integration.¹⁷ For example, Howard Van Till’s thoughtful Robust Formational Economy Principle¹⁸ (RFEP) gives us a fruitful way to reflect upon the single reality implied by Genesis 1, and therefore should be classified as integration. However, it does not give us a way to picture God’s creation story as an expression of that single reality. Therefore, it appears as science-favored concordism.¹⁹

Similarly, the Intelligent Design (ID) project provides a valuable critique of the presumption by the sciences that there is no need to postulate divine action for the emergence of evolutionary phenomena.²⁰ As such, ID may be classified as dialogue. But, the project explicitly distances

itself from the sacred text (which inspires its efforts) in order to avoid the theology-favored concordist position.²¹

Despite the labels of “integration” and “dialogue,” charges that the RFEP is science-favored concordism and that ID is theology-favored concordism are effective. Why? No one has figured a way beyond figures 1, 2 and 3.

Artistic concordism appears at first to belong to a broad group of concordist works that Karl Giberson and Donald Yerxa, in *Species of Origins*, label the “via media” or the “middle way.”²² However, it differs from “middle way” concordisms by mediating between the objects of the two sign systems, rather than the interpreters. This is shown in figure 4. For the most part, “middle way” concordisms are interested in the relationship between the interpreters of the two sign systems; that is, the relationship between theology and science.²³ Artistic concordism, in contrast, creates interpreters that hybridize the objects of the two distinct sign systems.

The “art” of artistic concordism consists in choosing which natural sign interpreter links a sign-vehicle (a descriptive phrase in the Genesis 1 text) to an object (an aspect of a corresponding evolutionary epoch). The interpreter may be based on imagery and similarity (icon), pointing and indication (index), or definition and naming (symbol). As soon as an interpreter is identified, that phrase in Genesis 1 becomes a sign of the evolutionary record.

The act of creating interpreters (in figure 4) differs from the act of substituting interpreters (in figures 2 and 3).

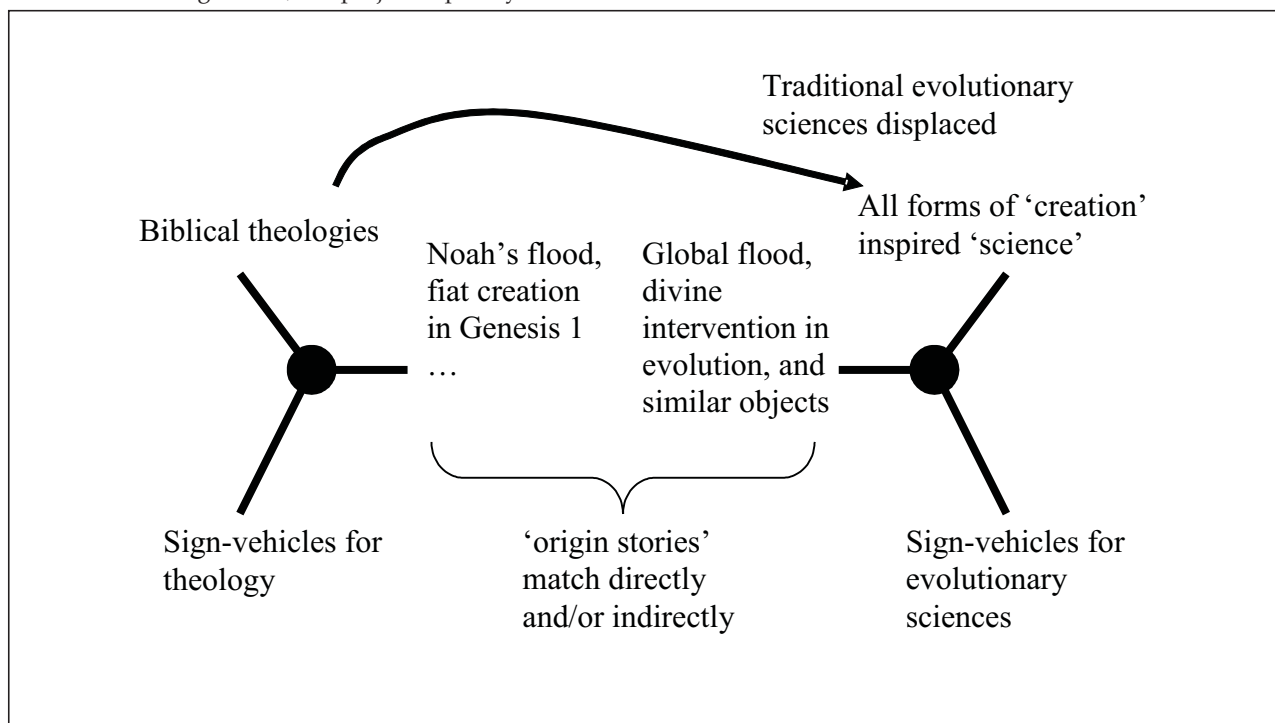
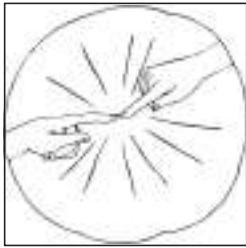


Figure 3. Theology-favored Concordism



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The generation of an interpretant requires an interpreter. Substitution does not. Artistic concordism needs the participation, involvement, and work of an artist; that is, "someone who chooses." Theology- or science-favored concordisms need effective advocates. Artistic concordism manifests itself as play and choice. The other two concordisms partition the world into competing alternatives, complete with conflicts between vested interests, power plays, and rhetorical excess.

The Evolutionary Record as Epochs

My construction of a match begins by dividing the evolutionary record in a manner conducive to a day-age correspondence. The evolution of the solar system, of the Earth, of life, and of humanity consists in a sequence of emergent phenomena.²⁴ These emergences are classified as different evolutionary epochs, eras, or periods. Different fields of study are relevant to each epoch. For example, astronomy studies the formation of solar systems, and biology examines the evolution of life systems.

To some extent, the division of evolutionary history is both "arbitrary" (in that we are dividing a continuum that could be divided in many ways) and "not arbitrary" (in that certain processes dominate during particular portions of the continuum). However, what science has divided on the basis of its own interests, the text of Genesis 1 images as "days." This remarkable coincidence was becoming apparent by 1977, the year that Robert Newman and Herman Eckelmann Jr. first published *Genesis One and the Origin of the Earth*. Table 2 is adapted from figure 6 and Table 4 of the *Genesis One* text.²⁵ Against each "day of creation" are listed the corresponding epoch from Newman and Eckelmann Jr. and from my more recent work.²⁶ The amazing progress in the evolutionary sciences during the intervening two decades did not alter the basic pattern. The works of Hugh Ross²⁷ as well as Held and Rust²⁸ also key into similar "Genesis day" to "scientific age" correspondences.

Constructing a Match

In order to show the richness of the correspondence within Table 2, the details of the day-one match are shown in Table 3.

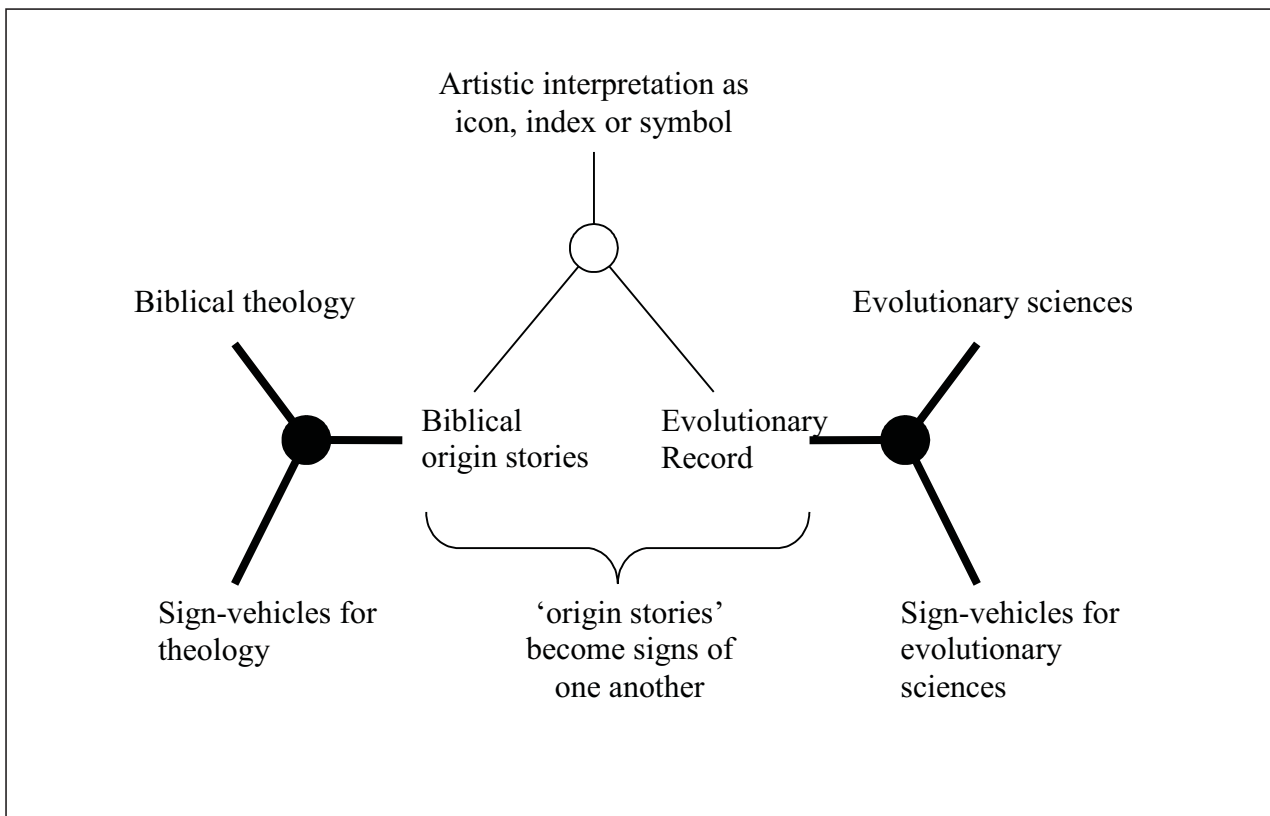


Figure 4. Artistic Concordism "Matching" Objects of Theology and Science

Newman and Eckelmann Jr. wrote *Genesis One* as the revolution in the evolutionary sciences was just beginning. Ninety percent of their day-one references were published after 1960. By 2002, the match was even more apparent. Astronomical discoveries since the 1970s provide images for phrases that were previously interpreted as divine acts. Also, the “naming of the day and night” now appears more symbolic, since the Earth was probably not formed during this epoch.

The construction of a match is best seen using the two most problematic days in Genesis. Days 3 and 4 have been interpreted as depicting the formation of plant life before the making of the sun. Some theologians have advised against all concordist interpretations on the basis of this obvious inconsistency with scientific knowledge.²⁹

For the artistic match pictured here, these days correspond to the Archean and Proterozoic eras, as seen in general in Table 2 and in detail in Table 4. In day three, God commands the earth to bring forth vegetative life, plants bearing seed and fruit trees bearing fruit, and the earth does so. While the image of vegetative life is easily an icon of Archean bacterial formations, the passages about “plants bearing seed” obviously do not belong to the Archean on the basis of similarity. However, the passages do point to the early Archean as the start of photosynthetic, hence vegetative, life. Furthermore, the passages describe why the appearance of photosynthetic life is important to us now. The passages depict the ways we experience this evolutionary development. “Plants bearing seed” may be regarded as a symbol of the emergence of life during the early Archean.

Phrases that were once problematic in a day to epoch match resemble the importance of the corresponding era. In other words, they are symbols of the corresponding epoch. Every apparently descriptive phrase in Genesis 1 matches an aspect of a corresponding age when classified as icon, index, symbol, or a combination thereof. The association is open-ended. If future scientific discoveries render now-accepted portions of the evolutionary record invalid, a match to the new evolutionary information may still be attempted. Thus, this art-work, like science itself, will always be a work in progress. Such open-endedness reflects the nature of signs, which are not things, but relations.

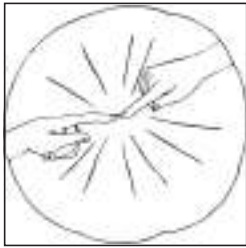
From Construction to Performance

If Genesis 1 is a sign of the evolutionary record, then what does that imply? The match implies that the two distinct sign systems of theology and science somehow belong to a single reality. That “somehow” is similar to Steven Meyer’s “God hypothesis” in that an abduction constructs a sign that is then performed.³⁰

Meyer wrote: “Scientific evidence ... provide(s) epistemological support (but not proof) for the theistic world view affirmed by Christianity.”³¹ What was meant by “support (but not proof)”? Meyer turned to the aforementioned Peirce to explain that the “support” follows the logic of abduction, that is, of hypothesis. A hypothesis is a possible or plausible explanation for an observed state of affairs. Meyer gave the following abduction as an example: If it rains, then we would expect the streets to get wet.

Biblical Material	Scientific Theory (1977: Newman & Eckelmann Jr.)	Scientific Theory (2000: Zimmer)
Day One	Formation of Solar System	Formation of Solar System
Day Two	Formation of atmosphere and ocean	Accretion of the planets, especially Earth
Day Three	Formation of dry land & land vegetation	Formation of earliest continents & appearance of bacterial photosynthetic life
Day Four	Long-term change in composition of atmosphere due to continental weathering and photosynthesis	Long-term change in composition of atmosphere due to continental weathering and photosynthesis
Day Five	Age of multicellular life to age of mammals	Age of multicellular life to end of dinosaurs
Day Six	Age of mammals	Age of mammals
Verse 26		Evolution of <i>Homo</i> genus
Verse 27		Appearance of <i>Homo sapiens</i>
Verse 28		Paleolithic era
Verse 29		Early Neolithic (invention of agriculture)
Verse 30		Developed Neolithic (fodder for animals: agriculture combined with stockbreeding)

Table 2.



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Artistic concordism generates the impression that the many individually-constructed signs add up ... We begin to sense ... [that] Genesis 1 is a sign of the evolutionary record.

The streets are wet. Therefore, perhaps it rained.³²

From the semiotic point of view, the hypothesis also constructs a sign: Wet streets stand for rain to an interpreter concerning this abduction. This sign is then performed whenever one says: "Observe! The streets are wet!" So we grab the umbrella, even when the streets are just washed.

We may apply this concept of hypothesis, sign construction, and performance explicitly to Meyer's line of argument. First, the abduction: If God created, then we should see evidence of that creation. The anthropic principle and biological irreducible complexity are evidence. Therefore, perhaps God created.³³ Second, the sign: The anthropic principle and biological irreducible complexity stand for divine creation to the interpreter concerning the "God hypothesis." Finally, the performance: Observe! The anthropic principle and biological irreducible complexity are interpretations of scientific discoveries.

The founding question of artistic concordism tracks the same line. First, the abduction: If the creation story and the evolutionary record pertain to a single reality, then

we would expect them to match. We may choose natural-sign interpretants that render a match. Therefore, perhaps both pertain to a single reality. Second, the sign: The artistic match between Genesis 1 and the evolutionary record stands for a single reality to the artist concerning the abduction in artistic concordism. Finally, we can observe the match being performed.

Tables 2, 3 and 4 are performances. They support (but do not prove) the traditional Christian theological view that there is one "reality" and that "truth cannot contradict truth." The correspondences along the rows in Tables 2, 3 and 4 involve aesthetic choices. Some of the choices are obvious and some are not. Each choice constructs a relationship that is more or less recognizable as a sign. Rather than the intellectual assent procured by Meyer's "God hypothesis," artistic concordism generates the impression that the many individually-constructed signs add up. They intertwine, like threads in a rope. The stronger signs give strength to the weaker. As the signs accumulate, we begin to sense a more global sign, a sign that can carry weight. Genesis 1 is a sign of the evolutionary record. Both belong to a single reality.

Biblical Material	Scientific Theory (1977)	Scientific Theory (2000)
Day One	Formation of Solar System	Formation of Solar System
Gen. 1:1	A beginning—the "big bang" perhaps	Interstellar medium, nebula where dense cores form, see Hubble views of "stellar nurseries"
Gen. 1:2 (darkness)	Earth an amorphous, tenuous nebula	Dense core, prior to collapse, outside light occluded in center of core
Gen. 1:2 (wind)	(Providential oversight and occasional intervention)	Swirling nebula appears in center of core as gravitational collapse begins
Gen. 1:3 (let there be light)	Further contraction causes cloud to glow	Core collapses from inside out, light emitted as falling debris hits nebula, heat radiated
Gen. 1:4 (separation of light from darkness)	Planetary material thrust outside glowing cloud	Magnetically driven bipolar winds allow protostar to lose angular momentum and/or solar wind after fusion starts
Gen. 1:3 (there was light)	...	Solar fusion begins
Gen. 1:5 (call light, day; darkness, night)	Planet condenses from planetesimals, sun and rotation give day-night sequence	Symbols of the epoch of solar formation: How we experience this age

Table 3.

From Performance to Sensibility

The sense of a single reality is common to both ancient and postmodern views of the creation story. We may (perhaps controversially) assume that the story in Genesis 1 was originally performed in a family or tribal context as an oral proclamation that signified both nature and God. In ancient Mesopotamia, the story would have matched a static world view where nature, like society, was a hierarchy of powers. At this time, modern distinctions between nature and society (as well as between faith and reason) had not been articulated. The “single reality” was sensed in a cultural world that divided “reality” differently from our own.

Various proposals for how Genesis 1 was interpreted reflect this. Stanley Jaki suggested that the creation story depicted the making of the “tent of the heavens and earth.”³⁴ That is, the divine making of nature was confounded with humans building a tent. Meredith Kline argued that the story in Genesis 1 was understood as creations in the heavens echoing creations on the earth.³⁵ That is, the heavens and the earth were mutual reflections. The diverse features of nature, described as gods in contemporaneous cultures, were demystified and put into order through the words of the one true God.³⁶

In writing the oral tradition down as Genesis 1, Moses changed the context of the original performance. Instead of a speech, it became a text that could be examined and parsed as well as proclaimed. Moses’ writing made modern concordism possible. Modern concordism necessarily takes Genesis 1 out of its ancient context.³⁷ With the birth of science, Christians have been forced to ask the questions: Do God and nature belong to a single reality? And if so, how?

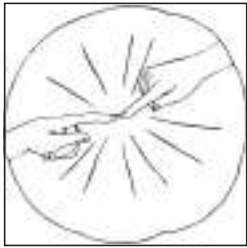
The many proposals that fall under the categories of science- or theology-favored concordism do not return us to the original sensibility inherent in the proclamation that “this story is a sign of nature and a sign of God” because they are concerned with advocating the priority of one sign-system interpretant over the other. They are trapped in figures 1, 2 and 3.

Conclusion

The art-work performance of artistic concordism lets us re-enact the original sensibility of the creation story. The point-by-point construction of signs that span the systems as icons, indexes, and symbols culminates in a sign that signifies by way of abduction. “Genesis 1 as a sign of the evolutionary record” makes vivid the single reality that

Genesis 1	Class of sign	Evolutionary Record
⁹ Let waters gather and dry land appear	icon	Formation of earliest continents in early Archean
¹⁰ call dry land “earth,” waters “seas”	symbol	How we experience the results of this age
¹¹ let the earth put forth vegetation	index, icon	Appearance of earliest photosynthetic bacterial life
¹¹ plants yielding seed, trees bearing fruit	symbol	How we experience the results of this emergence
¹¹ bearing according to its kind	index	DNA mediated reproduction
¹² earth brought forth vegetation	icon	Spread and evolution of bacterial life
¹² plants yielding seed, trees bearing fruit ...	symbol	As in verse 11 ...
¹⁴ Let there be lights in the firmament of the heavens, to separate day and night, to be signs for seasons and years, ¹⁵ to give light upon the earth	index, symbol	Stated purposes point to “looking up” from surface of planet and describe how we experience the results of this epoch
¹⁶ And it was so. God made the two great lights and the stars	icon, index	Progressive loss of cloud cover (and atmospheric opacity) due to long-term global cooling following the reduction of atmospheric greenhouse-gas carbon dioxide as well as removal of atmospheric reduced-organic and nitrogen compounds by increasing levels of oxygen due to photosynthesis and carbon burial
¹⁷ And God set them in the firmament ...	index, symbol	As in verses 14 and 15

Table 4.



The point-by-point construction of signs that span the systems as icons, indexes, and symbols culminates in a sign that signifies by way of abduction. "Genesis 1 as a sign of the evolutionary record" makes vivid the single reality that encompasses both theological and scientific sign systems.

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Since the performance alters neither the biblical text nor the scientific literature, a wide variety of artistic media may be employed, from stodgy tables to flashy multimedia imagery. Each performance is a proclamation that inspires us to feel the "single reality" studied by both theology and science. Each performance fills the air with a sense of unity that seems so long forgotten. Such is art. Just as Giotto's perceptive frescoes heralded the arrival of a new cultural perspective,³⁸ so the matches of artistic concordism ignite our awareness of the coming "fourth age of understanding," the age when we come to terms with signs.³⁹ ♦

Notes

- ¹J. Raymond Zimmer, "Artistic Concordism and the Generation of Scientific Hypotheses," (paper presented at the annual meeting of the ASA, Pepperdine University, Malibu, CA, August 2002).
- ²Robert C. Newman and Herman J. Eckelmann Jr., *Genesis One and the Origin of the Earth* (Hatfield, PA: Interdisciplinary Biblical Research Institute, 1977).
- ³For a more nuanced discussion, see John Deely, *The Human Use of Signs or: Elements of Anthroposemiosis* (Lanham, MD: Rowman and Littlefield, 1994), 51-63.
- ⁴Floyd Merrill, *Peirce, Signs, and Meaning* (Toronto: University of Toronto Press, 1997), 298.
- ⁵Ronald L. Numbers, "The Creationists," in *God and Nature: Historical Essays on the Encounter between Christianity and Science*, ed. David C. Lindberg and Ronald L. Numbers (Berkeley, CA: University of California Press, 1986), 391-423.
- ⁶For example, March 1997, March 2002, and December 2002 issues of PSCF.
- ⁷For example, December 2003 issue of *Zygon*.
- ⁸Merrill, *Peirce, Signs, and Meaning*, 3-16.
- ⁹Jean Pond, "Independence: Mutual Humility in the Relationship Between Science and Christianity," in *Science and Christianity: Four Views*, ed. Richard F. Carlson (Downers Grove, IL: Intervarsity Press, 2000), 85-90.
- ¹⁰Karl W. Giberson and Donald A. Yerxa, *Species of Origins* (Lanham, MD: Rowman and Littlefield, 2002), 67-104.
- ¹¹James P. Mallory, "The Homelands of the Indo-Europeans" in *Archaeology and Language 1: Theoretical and Methodological Orientations*, ed. Roger Blench and Matthew Spriggs (New York: Routledge, 1997), 93-121; and Colin Renfrew, "World Linguistic Diversity and Farming Dispersals," in *Archaeology and Language 1: Theoretical and Methodological Orientations*, 82-90.
- ¹²Giberson and Yerxa, *Species of Origins*, 17-45.
- ¹³Norman Cohn, *Noah's Flood: The Genesis Story in Western Thought* (New Haven, CT: Yale University Press, 1996), 47-129.
- ¹⁴J. P. Moreland, "Complementarity, Agency Theory and the God-of-the-Gaps," *PSCF* 49, no. 1 (1997): 2-14.

¹⁵Giberson and Yerxa, *Species of Origins*, 105-49.

¹⁶Donald A. Yerxa, "Phillip Johnson and the Origins of the Intelligent Design Movement 1977-1991," *PSCF* 54, no. 1 (2002): 47-52; Giberson and Yerxa, *Species of Origins*, 217-34.

¹⁷Ian Barbour, *When Science Meets Religion* (New York: HarperCollins, 2000), 7-38.

¹⁸Howard J. Van Till, "The Fully Gifted Creation ('Theistic Evolution')," in *Three Views on Creation and Evolution*, ed. J. P. Moreland and John Mark Reynolds (Grand Rapids MI: Zondervan, 1999), 159-218. and "Partnership: Science and Christian Theology as Partners in Theorizing," in *Science and Christianity: Four Views*, 195-234.

¹⁹Van Till, "Partnership," 203-5.

²⁰Giberson and Yerxa, *Species of Origins*, 193-215.

²¹*Ibid.*, 217-34.

²²*Ibid.*, 151-92.

²³*Ibid.*, 172-9.

²⁴*Ibid.*, 17-42.

²⁵Newman and Eckelmann Jr., *Genesis One and the Origin of the Earth*, 83-8.

²⁶J. Raymond Zimmer, "The Creation Story and Evolution," *Journal of Interdisciplinary Studies* 5 (1993): 77-92 and "The Creation of Man and the Evolutionary Record," *PSCF* 48 (1996):16-27.

²⁷Hugh Ross, *The Genesis Question: Scientific Advances and the Accuracy of Genesis*, 2d ed. (Colorado Springs, CO: Navpress, 2001), 17-58.

²⁸Armin Held and Peter Rust, "Genesis Reconsidered," *PSCF* 51, no. 4 (1999): 231-43.

²⁹Stanley L. Jaki, *Genesis 1 through the Ages* (London: Thomas More Press, 1992), 196-7, 270.

³⁰Stephen C. Meyer, "The God Hypothesis," *Journal of Interdisciplinary Studies* 11, no. 1/2 (1999): 1-38.

³¹Stephen C. Meyer, "Qualified Agreement: Modern Science and the Return of the 'God Hypothesis,'" in *Science and Christianity: Four Views*, 130.

³²*Ibid.*, 162-8.

³³*Ibid.*, 141-62, 167-74.

³⁴Jaki, *Genesis 1 through the Ages*, 259-301.

³⁵Meredith G. Kline, "Space and Time in the Genesis Cosmogony," *PSCF* 48, no. 1 (1996): 2-15.

³⁶Karen Armstrong, *In the Beginning: A New Interpretation of Genesis* (New York: Alfred A. Knopf, 1996), 7-17.

³⁷Paul H. Seely, "The First Four Days of Genesis in Concordist Theory and in Biblical Context," *PSCF* 49, no. 2 (1997): 85-95.

³⁸E. H. Gombrich, *The Story of Art*, 3rd ed. (New York: Oxford University Press, 1950), 144-8.

³⁹John Deely, *Four Ages of Understanding: The First Postmodern Survey from Ancient Times to the Turn of the Twenty-first Century* (Toronto: University of Toronto Press, 2001), 609-63.

Upcoming ASA Conferences

Aug. 5-8, 2005:

Location: Messiah College, Grantham, PA
Program Chair: Kenell Touryan
Local Arrangements Co-Chairs: Ted Davis and Jerry Hess

July 28-31, 2006:

Location: Calvin College, Grand Rapids, MI
Local Arrangements Chair: Hessel Bouma III

August 5-8, 2007:

Location: Edinburgh, Scotland