



Robert D. Branson

Science, the Bible, and Human Anatomy

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Both young earth and old earth creationists maintain that their interpretations of Genesis 1–11 are scientifically valid because God inspired the account and God cannot lie. This article intends to test their basic presuppositions by examining how scientifically accurate the Bible is in describing human anatomy, specifically the kidneys and the heart. First, the Old Testament references to the kidneys are examined; then, those to the heart; and finally, the New Testament references to the heart, including statements of both Paul and Jesus. The results demonstrate that God inspired the writers of scripture to use the terms that were common to their wider cultures, even though they are not scientifically correct. Since God did not inspire the writers to write scientifically about the human body, this calls into question the assumption that the writer of the creation account was inspired to write scientifically about the rest of creation.

While young earth creationists (YEC) such as Ken Ham and old earth creationists (OEC) such as Hugh Ross continue to argue over the correct interpretation of the account of creation in Genesis 1–11, they have some fundamental points of agreement. (1) The account is historically correct because God inspired it. (2) God's Word is inerrant and thus true. (3) The scripture is scientifically accurate because every word has been inspired by God and God cannot lie (Heb. 6:18).¹ Both sides are continuing to produce literature arguing that their interpretation of Genesis 1–11 is correct and the other's is false, or at least problematic. Where the two approaches disagree is at the starting point.

Young earth creationists start with a specific interpretation of Genesis 1–11 that includes a recent creation of the universe (6,000 to 10,000 years ago) and the laying down of the geological column during the flood.² Scientific findings at odds with this position are either dismissed or reinterpreted.³ Old earth creationists accept that the Genesis account is inspired, but begin with the findings of science, for example, the earth was created 4.5 billion years ago, and then interpret the scrip-

tures according to scientific findings.⁴ Both use claims of science to help prove that their interpretations are correct. Science and history are thereby intertwined to validate their interpretations.⁵

A key question that challenges both positions is whether or not the biblical account, because it is inspired by God, must be scientifically accurate. For a test case, how scientifically accurate are the biblical claims about human anatomy, specifically the internal organs of the heart and kidneys?

Kidneys *kělāyôt*

Since the Hebrew word for kidneys (*kělāyôt*, always in the plural) is used in contexts that refer to humans only eleven times,⁶ we will examine it first. The function of the kidneys is to filter the blood and remove the wastes in the form of urine. The kidneys are never mentioned in the Bible with this function. Four major

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versions (NIV [2011], NAB, TANAKH, and NRSV⁷) are reviewed to give a limited variety of translations for *kēlāyôt* (for complete listing, see appendix, p. 234).

The translations of *kēlāyôt* in Job 19:27 read “heart” (NIV, NRSV, TANAKH) or “inmost being” (NAB). In the other texts, *kēlāyôt* is most commonly translated “heart” or “mind.” However, the TANAKH three times uses “conscience” (Pss. 7:9[10], 16:7, 139:13). Kidneys and heart (*lēb*) appear together or in parallel six times (Pss. 7:9[10], 26:2, 73:21 (*lēbāb*); Jer. 11:20, 17:10, and 20:12). The versions are not themselves internally consistent translating *kēlāyôt* both as “mind” and “heart” and *lēb* also as “heart” and “mind.” Proverbs 23:16 is perhaps the most unusual in that the versions read that the “inmost being” (NIV, NAB), “soul” (NRSV), or “heart” (TANAKH) will “rejoice.”⁸

What conclusions can we draw from this brief survey? First, the versions never translate *kēlāyôt* literally. To do so would not make sense to a modern audience. They have to adjust their readings to make sense for a modern, scientific culture. Second, the Old Testament (OT) writers had no understanding of the function of the kidneys, and thus use the word *kēlāyôt* according to the context, with meanings other than the actual function of kidneys, and therefore nonscientifically.

Old Testament *lēb(āb)*

Next let’s look at *lēb(āb)*, which occurs 853 times in the OT.⁹ The human heart is the organ that pumps blood throughout the body by means of the circulatory system. The heart is never mentioned in the Bible with this function.

Hans Walter Wolff begins his discussion of *lēb* by citing the account of Nabal’s death in 1 Samuel 25:37–38: “His heart died within him: he became like a stone. About ten days later the LORD struck Nabal, and he died” (NRSV).

The modern reader finds this confusing. In the first sentence he thinks that when the heart stopped beating the man died, and *rigor mortis* set in. But then he learns that Nabal went on living for another ten days.¹⁰

The writer was not thinking in a modern medical manner. The functions attributed to the “heart” actually take place in the brain. And while the beat of

the heart is felt, there is no recognition that it is connected to the circulatory system or to the pulse.

Wolff continues by describing the acts of the heart, beginning with “the irrational levels of man.” A person’s mood or temperament arises in one’s heart (Prov. 23:17) and it is “the seat of certain states of feeling, such as joy and grief” (1 Sam. 1:8, 2:1; Prov. 15:13). Courage and fear are related to the status of the heart. Yahweh may strengthen one’s heart, that is, give courage (Ps. 27:14). Fear may overcome a person as the “heart ‘goes out’ (Gen. 42:28), it leaves him (Ps. 40:12) and drops down (1 Sam. 17:32).”¹¹

A brief discussion of the desires and longings of the heart follows. A man is not to desire in his heart—that is, lust after—his neighbor’s wife (Prov. 6:25). “Just as the heart can ‘fall’ into despondency (1 Sam. 17:32), so it can also ‘rear up’ into arrogance” (Deut. 8:14; Hos. 13:6).¹²

Wolff notes that “in by far the greatest number of cases it is intellectual, rational functions that are ascribed to the heart—i.e., precisely what we ascribe to the head and, more exactly, to the brain; cf. 1 Sam. 25:37.” The heart is the place for understanding (*lāda’at*) and insight (*bīn*). Thinking (1 Sam. 27:1) and inner reflection (Gen. 17:17) take place in the heart.¹³

In a final section, Wolff describes how decisions of the will—the planning (Prov. 16:9), intentions (2 Sam. 7:3), and decision making (2 Sam. 7:27; Prov. 6:18)—all take place in the heart.

There are three other significant studies of *lēb(āb)* in addition to Wolff’s. Heinz-Josef Fabry’s work is the most thorough, surveying almost every occurrence of *lēb(āb)*.¹⁴ Andrew Bowling’s article is also informative as it supports both Wolff’s and Fabry’s conclusions.¹⁵ Alex Luc does suggest that “the words have a dominant metaphorical use in reference to the center of human psychical and spiritual life, to the entire inner life of a person.”¹⁶ Luc does not identify in what way the words are metaphoric. He does, however, describe the functions of the heart in a similar manner as the other authors.¹⁷ Thus, the four studies of the use of *lēb(āb)* or “heart” in the OT are consistent with each other. The heart is the source of emotion, intellectual and cognitive functions, and decision making. No mention is made of it pumping blood throughout the body.

New Testament *kardia*

Let us now turn to the usage of *kardia* (heart) which occurs 148 times in the New Testament (NT).¹⁸ A major source here is that of Friedrich Baumgärtel and Johannes Behm in the *Theological Dictionary of the New Testament*.¹⁹ The first section written by Baumgärtel reviews the use of *lēb(āb)* in the OT.²⁰ The rest of the article, written by Behm, includes the use of *kardia* by Greek writers, its appearance in the LXX (Septuagint), its occurrence in Hellenistic and Rabbinic Judaism, and finally its usage in the NT. Behm notes that “the heart is the centre of the inner life of man and the source or seat of all the forces and functions of the soul and spirit as attested in many different ways in the NT.”²¹ He then lists four categories of the heart’s function, each followed by an inclusive listing of texts. The four categories are the following:

- a. In the heart dwell feelings and emotions, desires and passions.
- b. The heart is the seat of understanding, the source of thought and reflections.
- c. The heart is the seat of the will, the source of resolves.
- d. Thus the heart is supremely the one centre in man to which God turns, in which the religious life is rooted, which determines moral conduct.²²

Another source is that of T. Sorg’s article on “Heart” in the *New International Dictionary of New Testament Theology*. After briefly reviewing the use of *kardia* in secular Greek, Sorg describes, again briefly, the OT uses of *lēb(āb)* in their literal and metaphorical senses, the latter meaning “the seat of man’s intellectual and spiritual life.”²³ Moving to the NT use of *kardia*, Sorg states that the heart is “the centre of physical life and man’s psychological make up.” The “powers” of the spirit, reason, and will “have their seat in the heart.”²⁴ The subsequent section of the article deals with the spiritual aspect of the use of *kardia*, how it is the center of spiritual life, its corruption by sin, and how God works to convert it to faith.²⁵ Sorg’s analysis is not that different from that of Behm, in that the heart is the center of the person where intellectual, emotional, and spiritual life is rooted. While the spiritual life may, in some sense, be metaphorical, the heart is still, in the literal sense, the center of the person’s emotional, intellectual, and decision making function.

Why Not “Brain”

In what sense can the Hebrew and Greek words for the heart and kidneys be seen simply as metaphors or figures of speech, not literal locations of the intellectual life of a person? Both YEC and OEC accept that the Bible does contain metaphors and figures of speech. They are not ultraliteralists, maintaining that every word must be taken literally. It is possible that these usages are metaphors, as they are often so used in cultures influenced by the Bible. The heart is often referred to as the seat of emotion and thinking. We commonly hear such expressions as, “I love you with all my heart,” or “What does your heart tell you?” It would be helpful, however, if the Bible gave the metaphor’s referent, but it does not. In over a thousand usages, there is not one instance in which the word for heart or kidneys refers to or describes their physical functions. While the Israelites were aware that the head did house an organ, there is no word in the Hebrew Bible for the brain.²⁶ This lack of knowledge of the function of the brain is in keeping with the other cultures in the Ancient Near East.²⁷

In Akkadian, the language used in Mesopotamia until the eighth century BC, there is a word for the brain, but in the literature there is no reference to its actual function.²⁸ The Egyptians were aware of the existence of the brain as early as the seventeenth century BC. It is mentioned in the sixth case of the “Edwin Smith Surgical Papyrus.”²⁹ However, its function was not known. During the embalming process, the lungs, intestines, stomach, and liver were preserved in canopic jars. The heart was placed back into the body to preserve it for judgment in the afterlife. The heart, being considered by the Egyptians to be the center of the person and seat of the emotions and intellect, was weighed against a feather representing the goddess of truth. The brain, however, was removed through the nose cavity and thrown away.³⁰

The Greek word for the head is *kephalē*; the word for the brain, *enkephalē*. This word does not appear in the NT. However, prior to and during the first century AD, there was a philosophical debate about the location in the body of its intellectual functions. Aristotelians and Stoics located them in the heart, whereas followers of Plato and some followers of Hippocrates located them in the brain.³¹ This debate was settled in the following century by the

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experiments of Galen (AD 130–217). In his *De placitis Hippocratis et Platonis*, he refers to his vivisections (live dissections) of animals such as pigs and monkeys, an alternative chosen since dissection of human bodies was forbidden by law. His experiments, at times done in public, proved that it was the brain by means of the nervous system that controlled the body as well as being the source for intellectual activity.³² His “scientific” demonstrations ended the philosophical debate as they proved that the brain, not the heart, was the location of the mind.³³ His work, however, was accomplished in the century after Jesus’s life.

New Testament Writers: Cardiologists or Neurologists?

Troy Martin examines, in his article “Performing the Role of the Head: Man Is the Head of Woman,” the question of which party did Paul follow in locating the intellectual activity of the person, the cardiologists or neurologists? He cites five texts:

Romans 1:21, “For although they knew God, they did not honor him as God or gave thanks to him, but they became futile in their thinking and their senseless heart (καρδία) was darkened.”

1 Corinthians 2:9, “What no eye has seen, nor ear heard, nor the heart (καρδίαν) of a human conceived, what God has prepared for those who love him.”

1 Corinthians 4:5, “Therefore do not pronounce judgment before the time, before the Lord comes, who will bring to light the things now hidden in darkness and will disclose the purposes of the hearts (καρδιῶν).”

2 Corinthians 3:15, “Yes, to this day whenever Moses is read, a veil lies over their heart (καρδίαν).”

2 Corinthians 9:7, “Each one must do as he has determined in his heart (καρδία), not reluctantly or under compulsion, for God loves a cheerful giver.”

In each text, Paul identifies the heart as the location of thinking, purpose, lack of perception, decision making. Martin concludes, “These texts clearly place Paul on the side of the cardiologists.”³⁴

This same question may be asked about Jesus: was he on the side of the cardiologists or neurologists? In Matthew 15:18–19, Jesus says, “But the things which come out of the mouth come from the heart (*kardias*), and defile a man. For out of the

heart (*kardias*) come evil thoughts (such as) murder, adultery, sexual immorality, theft, false testimony, slander” (cf. Mark 7:20–21). Mark 11:23 records Jesus saying, “Truly I tell you, if anyone says to this mountain, ‘Rise up and throw yourself into the sea,’ and does not doubt in his heart (*kardia*) but believes that what he says will happen, it will be done for him” (cf. Matt. 21:21). In Luke 5:22, Jesus confronts the Pharisees by asking, “Why are you thinking these things in your hearts (*kardias*)?” (cf. Matt. 9:4; Mark 2:8).³⁵ Jesus’s statements reflect OT usage which views the heart as the place where mental functions take place. These texts clearly place Jesus on the side of the cardiologist.

It is at this point that we touch upon one of Christianity’s greatest mysteries. How could the one who is truly God have become also truly human? We know that Jesus was not only limited to time and space, having a human body, but was also limited in knowledge, that is, he was not omniscient. He did not know who had touched his garments to be healed (Mark 5:30–32; Luke 8:45–46), nor did he know the time of the coming of the Son of Man (Matt. 24:36; Mark 13:32).³⁶ Jesus became incarnate as a first-century Jew who spoke Aramaic (Mark 5:41) and Hebrew (Luke 4:17–19), possibly also Greek (Matt. 8:5–7), functioned as a rabbi, and accepted that culture’s understanding of the function of the human body.

Conclusions

The ramifications of this study are significant. First, it has been demonstrated that the writers of both the OT and NT attributed the intellectual functions of the brain to the heart. God did not, by means of inspiration, correct their understanding of the human anatomy; rather, he adapted his message of redemption to the common, though often mistaken, understandings of the ancient cultures. Thus, even though the scriptures are inspired by God, they are not therefore necessarily scientifically accurate.

Second, the Bible’s references to the kidneys and the heart are not scientifically accurate. This does not necessarily mean that the Bible does not inerantly address all matters of faith and practice. Nor does it mean that God lies. It does mean that God accommodates his message of salvation to the ability of humans to understand. Cultural factors such as language, view of the physical world, and political

practices are not overridden or corrected. While some statements may be scientifically and/or historically accurate, God's purpose is to reveal inerrantly his work of redemption and his will for how his people are to live: namely, by faith and practice.

Third, Jesus's references to the heart reflect a first-century understanding of its functions. This indicates that there was a real incarnation of Jesus as a first-century Jew. This does not mean that Jesus was not also truly God, for he walked on water, healed the sick, opened the eyes of the blind, and resuscitated the dead. The church has always rejected the extremes of Ebionism and Docetism, while confessing that Jesus was truly God and truly human.³⁷ By extension, we should also understand that Jesus's references to Moses³⁸ and to Adam and Eve³⁹ were in keeping with the accepted Jewish historical and literary traditions of that day, not divine statements asserting historical and/or literary facts.

Fourth, since the Bible is not scientifically accurate in its statements concerning the human body, it calls into question whether the account of creation should be understood as scientifically accurate. One could posit that God, having created the universe, inspired a scientifically and historically accurate account of creation while not supplying a scientific description of the human body. However, this leaves us with

two different levels of inspiration: one scientifically accurate, the other reflecting a culture which based its understanding of the creation, including the human anatomy, on common observation—inaccurate though it may have been. Further, why would God inspire an account of creation that contained information that would, millennia later, be discovered to be scientifically accurate, yet leave no clues to the scientifically understood function of human anatomy?

In the light of this study, the better choice appears to be that God utilized the cultural understandings of the people as a means of communicating his message of salvation. As the writers utilized the common concepts of the body, so the writer of the creation account made use of the cultures of the ancient Near East as a vehicle for a clear theological statement that there is only one God and that this one God is the Creator of all that exists.⁴⁰ This would mean that interpretations of both the young earth and old earth creationists are faulty for they impose on the biblical text modern concepts not available to either the writers or the target audience of God's revelation. The methods God used in creating the universe and its history are to be found by scientific inquiry, not by imposing on the texts of scripture interpretations inconsistent with its contextual settings. ✧

Now the Bereans were of more noble character than the Thessalonians, for they received the message with great eagerness and examined the Scriptures every day to see if what Paul said was true.

Acts 17:11, NIV

Appendix: Kidneys (*kělāyôt*)

(Translations of *kělāyôt* are in italics)

Job 19:27, kidneys

NIV: How my *heart* yearns within me!
NAB: my *inmost being* is consumed with longing.
TANAKH: My *heart* pines within me.
NRSV: My *heart* faints within me!

Psalm 7:9 [10], hearts and kidneys

NIV: who probes minds and *hearts*.
NAB v. 10: who tries hearts and *minds*.
TANAKH v. 10: he who probes the mind and
conscience ...
NRSV: you who test the minds and *hearts*,

Psalm 16:7, kidneys

NIV: *heart* instructs me
NAB: *heart* exhorts me
TANAKH: *conscience* admonishes me
NRSV: *heart* instructs me

Psalm 26:2, kidneys and heart

NIV: examine my *heart* and mind;
NAB: search my *heart* and mind
TANAKH: test my *heart* and mind
NRSV: test my *heart* and mind

Psalm 73:21, heart and kidneys

NIV: When my heart was grieved
And my *spirit* embittered,
NAB: Since my heart was embittered
And my *soul* deeply wounded,
TANAKH: My mind was stripped of its reason,
My *feelings* were numbed.
NRSV: When my soul was embittered,
When I was pricked in *heart*,

Psalm 139:13, kidneys

NIV: For you created my *inmost being*;
NAB: You formed my *inmost being*;
TANAKH: It was you who created my *conscience*;
NRSV: For it was you who formed my *inmost parts*;

Proverbs 23:16, kidneys (heart in v. 17, but not parallel)

NIV: my *inmost being* will rejoice
NAB: And my *inmost being* will exult,
TANAKH: I shall rejoice with all my *heart*
NRSV: My *soul* will rejoice

Jeremiah 11:20, kidneys and heart

NIV: test the *heart* and mind,
NAB: searcher of *mind* and heart,
TANAKH: Who test the *thoughts* and the mind,
NRSV: who try the *heart* and mind,

Jeremiah 12:2, kidneys

NIV: but far from their *hearts*.
NAB: but far from their *inmost thoughts*.
TANAKH: But far from their *thoughts*.
NRSV: yet far from their *hearts*.

Jeremiah 17:10, hearts and kidneys

NIV: I the LORD search the heart and examine the
mind,
NAB: I, the LORD, alone probe the mind and test
the *heart*,
TANAKH: I the LORD probe the heart, Search the
mind—
NRSV: I the LORD test the mind and search the
heart,

Jeremiah 20:12, kidneys and heart

NIV: and probe the *heart* and mind,
NAB: who probe *mind* and heart,
TANAKH: who examine the *heart* and the mind,
NRSV: you see the *heart* and mind;

Notes

¹Ken Ham states, "In the original autographs, every word and letter in the Bible is there because God put it there." See "Could God Really Have Created Everything in Six Days," chap. 8 in *The New Answers Book 1*, ed. Ken Ham (Green Forest, AR: Master Books, 2006), Kindle edition, loc. 2110. Hugh Ross views "Genesis 1–11 as the inerrant, inspired Word of God" in *Navigating Genesis: A Scientist's Journey through 1–11* (Covina, CA: Reasons to Believe, 2014), Kindle edition, loc. 12, 3666. Ross accepts that the Bible is "verbally inspired" and that "God is truthful and does not lie in word or deed (see Num. 23:19; Ps. 119:160; Isa 45:18–19 ... Heb. 6:18 ...)" in *More Than a Theory: Revealing a Testable Model for Creation* (Grand Rapids, MI: Baker Books, 2009), 72–73.

The theological basis of both positions is that of the nineteenth-century Princeton Seminary theologians who maintained that inspiration guaranteed absolute inerrancy and infallibility of scripture in everything it asserts, not just for those statements that pertain to faith and practice. See Charles Hodge, *Systematic Theology*, 3 vols. (New York: Scribner's Sons, 1889), 1:163. See also my article "Creationism and Science: The Continuing War," *Biblical Research* 57 (2012): 53–56.

²The basic work for this position is still that of John C. Whitcomb and Henry M. Morris, *The Genesis Flood* (Phillipsburg, NJ: Presbyterian and Reformed Publishing, 1961). See also Ken Ham and Tim Lovett, "Was There Really a Noah's Ark and Flood?" in *The New Answers Book 1*, particularly loc. 2666.

³See Randy Isaac, "Assessing the RATE Project," *Perspectives on Science and Christian Faith* 59, no. 2 (2007): 143–46, a review of Larry Vardiman, Andrew A. Snelling, and Eugene F. Chaffin, eds., *Radioisotopes and the Age of the Earth*, vol. 2 (Waco, TX: Institute for Creation Research, 2005).

⁴See Ross, *Navigating Genesis*, loc. 788–99, where Ross redefines the Hebrew words *zera'* ("seed" becomes "the embryos of any plant species"), *'ēṣ* ("tree" becomes "any large plant containing woody fiber"), and *pēri* ("fruit" becomes "the food and/or embryos produced by any living thing") to fit "plant species scientists have identified as the earliest land vegetation."

⁵Ken Ham and Jason Lisle state that "the Bible's historical account has been confirmed by archaeology, biology, geology, and astronomy." See *The New Answers Book 1*, chap. 1, loc. 357. Ross also maintains that Genesis 1–11 is scientifically and historically accurate, in *Navigating Genesis*, loc. 65, 110.

⁶Job 19:27; Pss. 7:9 [10], 16:7, 26:2, 73:21, 139:13; Prov. 23:16; Jer. 11:20, 12:2, 17:10, 20:12. Animal kidneys are mentioned fifteen times, usually in the context of sacrifice, and once as wheat.

⁷These four translations were chosen as they represent a broad spectrum of religious points of view: (1) *The Holy Bible, New International Version* (Grand Rapids, MI: Zondervan, 2011), Evangelical Protestant; (2) *New American Bible: Catholic Study Bible* (New York: Oxford University Press, 1990), Catholic; (3) *TANAKH: The Holy Scriptures: The New JPS Translation according to the Traditional Hebrew Text: Jewish Study Bible* (New York: Oxford University Press, 1999), Jewish; and (4) *New Revised Standard Version Bible: HarperCollins Study Bible* (New York: HarperCollins, 1989), National Council of Churches.

⁸As a 74-year-old male with an enlarged prostate, I do not want to consider what it might mean that my kidneys rejoice.

⁹H. J. Fabry, "*lēb lēbāb*," *Theological Dictionary of the Old Testament*, vol. 7, ed. G. Johannes Botterweck, Helmer Ringgren, and Heinz-Josef Fabry, and trans. David E. Green (Grand Rapids, MI: William B. Eerdmans, 1995), 399.

¹⁰Hans Walter Wolff, *Anthropology of the Old Testament*, trans. Margaret Kohl (Philadelphia, PA: Fortress Press, 1974), 40–41.

¹¹*Ibid.*, 44–45.

¹²*Ibid.*, 45–46.

¹³*Ibid.*, 46–51.

¹⁴Fabry, "*lēb lēbāb*," *Theological Dictionary of the Old Testament*, vol. 7, 399–437. Fabry does add another section on the religious and ethical function of the heart, including its functioning as the conscience, and the seat of vices and virtues, p. 426. Wolff incorporated these functions throughout his discussion.

¹⁵Andrew Bowling, "*lēb*," *Theological Wordbook of the Old Testament*, vol. 1, ed. R. Laird Harris, Gleason L. Archer Jr., and Bruce K. Waltke (Chicago, IL: Moody Press, 1980), 466–67.

¹⁶Alex T. Luc, "*lēb*," *New International Dictionary of Old Testament Theology and Exegesis*, vol. 2, ed. Willem A. VanGemeren (Grand Rapids, MI: Zondervan, 1997), 749.

¹⁷*Ibid.*, 749–54.

¹⁸T. Sorg, "*kardia*," *New International Dictionary of New Testament Theology*, vol. 2, ed. Colin Brown (Grand Rapids, MI: Zondervan, 1986), 182.

¹⁹Friedrich Baumgärtel and Johannes Behm, "*kardia*," *Theological Dictionary of the New Testament*, vol. 3, ed. and trans. Geoffrey W. Bromiley (Grand Rapids, MI: Wm. B. Eerdmans, 1965), 605–13.

²⁰*Ibid.*, 606–607.

²¹*Ibid.*, 612.

²²These categories with their supporting lists of texts can be found in *ibid.*, 612–13.

²³Sorg, *New International Dictionary of New Testament Theology*, 180–81.

²⁴*Ibid.*, 182.

²⁵*Ibid.*, 182–83.

²⁶"The heart is mentioned frequently as the seat of emotion and intellect, and the functions now ascribed to the brain were then thought to emanate from the heart. No word for brain is mentioned; the word *mo'ah* in Job refers to marrowbone." See "In the Bible: Anatomical Knowledge," *Encyclopedia Judaica: Medicine, Jewish Virtual Library: Everything You Need to Know from Anti-Semitism to Zionism*, accessed December 9, 2015, http://www.jewishvirtuallibrary.org/jsource/judaica/ejud_0002_0013_0_13493.html.

²⁷*Ibid.* "The Hebrews [Israelites] were doubtlessly influenced in their medical concepts and practices by the surrounding nations, particularly by Egypt, where medical knowledge was highly developed."

²⁸Private communication (October 24, 2015) by JoAnn Scurlock, an independent scholar and author of *Writings from the Ancient World: Sourcebook for Ancient Mesopotamian Medicine* (Atlanta, GA: SBL Press, 2014).

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²⁹Robert H. Wilkins, "Neurosurgical Classic-XVII: Edwin Smith Surgical Papyrus," Cyber Museum of Neurosurgery, accessed October 27, 2015, <http://www.neurosurgery.org/cybermuseum/pre20th/epapyrus.html>.

³⁰"Weighing of the Heart," accessed June 10, 2016, http://www.carlos.emory.edu/RAMESSES/3_weighheart.html.

³¹Troy W. Martin, "Performing the Role of the Head: Man Is the Head of Woman," *Biblical Research* 57 (2012): 75–77.

³²Claudius Galenus, *On the Doctrines of Hippocrates and Plato*, 3 vols., trans. and com. Phillip De Lacy (Berlin: Akademie-Verlag, 1980), 2:VI 3.4, 3.5, 3.9; 2:VII 1.4, 1.19, 3.2, 3.4, 5.13; 2:VIII 1.4, 1.18, 1.22, 8.11.

³³One might suggest that since the NT refers to the "mind," the writers knew that it was the brain, not the heart that was the center for mental activity. Two words, *dianoia* and *nous*, in the NT are translated "mind." However, the mind is an abstract concept referring to thinking, decision making, attitude, psychological state. The question is, where do these functions take place? It is common in western culture to attribute them to the brain, but in the OT and NT times, they were considered the function of the heart.

³⁴Martin, "Performing," 78–79. The translations are those of Martin.

³⁵Similar statements of Jesus can be found in Matt. 5:28, 9:4, 13:19; Mark 4:15, 11:23; Luke 6:45, 12:45, 16:15, 24:38.

³⁶If Morris's statement, "if Jesus is the infallible and omniscient Creator—and he is" referred to the ascended Lord (Rev. 5:9–13), he would be correct. However, the context of the statement is that of the incarnate Jesus who according to his own words was not omniscient. As such, his statement tends more toward Docetism than Orthodoxy. Henry M. Morris, *Scientific Creationism* (Green Forest, AR: Master Books, 1985), 251.

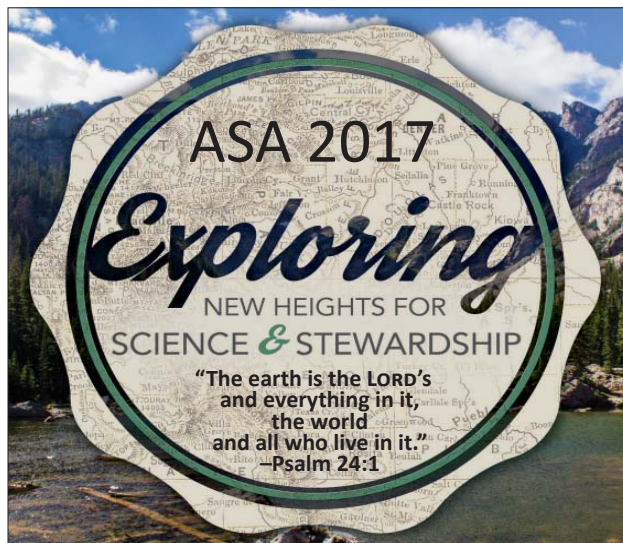
³⁷The early church struggled to explain how Jesus could be both truly God and truly human. A number of orthodox theologians attempted an explanation only to have their work rejected. Apollinaris of Laodicea (d. 390) was orthodox in his understanding of the consubstantial nature of Jesus with the Father and with his humanity. However, his concept "that Christ's nous is *atrepτος*, 'immutable' was rejected for he would not be fully human and thus could not 'earn the salvation of mankind.'" See Harold J. Brown, *Heresies: The Image of Christ in the Mirror of Heresy and Orthodoxy from the Apostles to the Present* (Garden City, NY: Doubleday, 1984), 164–65.

³⁸Matt. 8:4, 19:7–8; Mark 1:44, 7:10, 10:3, 12:26; Luke 5:14, 24:27, 44; John 3:14, 5:45–46, 6:32, 7:19, 22, 23.

³⁹Fazale Rana with Hugh Ross, *Who Was Adam?* (Colorado Springs, CO: NavPress, 2005), 44.

⁴⁰Two excellent books which work with the ANE cultures to interpret Genesis 1 are Johnny V. Miller and John M. Soden, *In the Beginning ... We Misunderstood: Interpreting Genesis 1 in Its Original Context* (Grand Rapids, MI: Kregel, 2012); and John H. Walton, *The Lost World of Genesis One: Ancient Cosmology and the Origins Debate* (Downers Grove, IL: InterVarsity Press, 2009). For a fuller discussion of both the cultural background and modern scientific findings, there is the work of Denis O. Lamoureux, *Evolutionary Creation: A Christian Approach to Evolution* (Eugene, OR: Wipf and Stock, 2008).

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- All-day Denver Front Range Geology Tour
- All-day Rocky Mountain National Park Tour
- Possible morning hikes in the foothills
- Morning trip to the National Renewable Energy Laboratory (NREL)
- Afternoon workshop on Energy: Basics and the Cutting Edge presented by Brent Nelson, Senior Scientist at the NREL
- Afternoon Coors Brewery Tour

Post-Meeting Monday Activity

- Afternoon Climate Change Tour Package: a 90-min. tour of the National Center for Atmospheric Research, Boulder, followed by a 30-min tour of the National Ice Core Laboratory, Lakewood

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