Creation Matters

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Darwin, Gardiner, and the Fuegians

by Dave Woetzel

As 2016 came to a close, I had the opportunity to visit the "bottom of the world" (southern Chile, Argentina and even Antarctica). I was struck with the natural beauty of Patagonia, where the birds fly north for the winter. Tierra del Fuego's picturesque islands (Figure 1), Antarctica's glistening white sculptures, the massive unafraid flocks of penguins, the soaring Andes, and the rugged people all made the trip unforgettable. But the story of European contact with the native Fuegians captivated my attention like very few have ever done. It is the tale of natives, who had lived their lives in constant warfare, fear, and superstition, coming to Christ. It is a story of the Lord's garnering "his praise from the end of the earth" (Isaiah 42:10).

FIGURE 1. Tierra del Fuego and surrounding islands (adapted from Google Maps),

The *Beagle* Voyages

In 1826, HMS *Beagle*, under the command of Captain FitzRoy, was sent to explore the coast of South America. Having discovered the Indians of Tierra del Fuego, he took four natives with him back to England. After being introduced to the wonders of 19th century England for two years, the Fuegians were again taken onto the Beagle, this time to be taken home. Aboard this same ship, for its second voyage to Tierra del Fuego, was the young naturalist Charles Darwin. After a voyage of about a year, the crew safely returned the South American natives to their home. But the Fuegian tribes made a lasting negative impression on Darwin, who wrote:

> These poor wretches were stunted in their growth, their hideous faces bedaubed with white paint, their skins filthy and greasy, their hair entangled, their voices discordant, their gestures violent and without dignity. Viewing such men, one can hardly make oneself believe they are fellow-creatures, and inhabitants of the same world. It is a common subject of conjecture what pleasure in life some of the less gifted animals can enjoy: how much more reasonably the same question may be asked with respect to these barbarians.[1]

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Robert FitzRoy: Creationist and Leading Scientist

by Jerry Bergman, PhD

Vice-Admiral Robert FitzRoy (1805–1865) was an English Royal Navy officer and a highly accomplished scientist. He is best known as the captain of *HMS Beagle* during Charles Darwin's famous five-year-long voyage (1831 to 1836) to South America and other places (Jackson, 2013). FitzRoy was an exceptionally skilled surveyor and hydrographer, and a pioneering meteorologist who, for the first time, achieved fairly accurate daily weather predictions, which he called by a term that he coined: "forecasts" (Moore, 2015).

In 1854, he established in London what was later known as the Meteorological Office. He also invented several different barometer types that continued in production into the 20th century. Each one was engraved with Admiral FitzRoy's meteorology help, such as: "When rising: In winter the rise of the barometer presages frost" (Mellersh, 1968).

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FIGURE 1. Vice-Admiral Robert Fitzroy (1805-1865)

More than a scientist, he was also a humanitarian. As Governor of New Zealand, serving from 1843 to 1845, he attempted to protect the Maori people from illegal land seizures by British settlers. FitzRoy also developed strategies to make weather information more widely available to marine vessels and fishermen.

Education

In February 1818, at the young age of 12, FitzRoy

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Math Matters

by

Don DeYoung, PhD

666

This cryptic number is found in Revelation 13:18. It is the symbolic number or sign of the beast or Antichrist, the Satanic imposter who appears on earth in the last days. For some people, this number is unsettling because of its evil connotation.

On a lighter note, a highway in the Four Corners area of the U.S. formerly was named U.S. Route 666. The road signs were frequently stolen on this "Devil's Highway," whether by pranksters or those enamored with occult symbols. Eventually the problem was solved by renaming the route U.S. 491.

Since the number seven in scripture often symbolizes perfection or completion, the value 666 may be a picture of the opposite, or extreme imperfection. The number 666 also shows up other places, such as in the addition of the six Roman numeral symbols l, V, X, L, C and D. Note, however, that M = 1000 must be excluded. The sum of the squares of the first seven prime numbers also adds up to 666,

$$2^2 + 3^2 + 5^2 + 7^2 + 11^2 + 13^2 + 17^2.$$

In Dan Brown's 2003 novel *The Da Vinci Code,* the pyramid entrance at the Paris Louvre Museum is said to have 666 glass panes, with some mystical meaning. However, both the novel and the stated number of glass panes are fictional.

There has been much speculation on identifying the mystery person named the Antichrist. Typically, letters in names are given numerical values which are then added together, a technique called gematria. Various suggestions for the Antichrist have included the Roman Emperor Nero, Muhammad, numerous Popes, Martin Luther, Adolf Hitler, Winston Churchill, the Ku Klux Klan, Ronald Reagan, Saddam Hussein, and a host of others.

The biblical number 666 is intriguing; however, the associated person is not explicitly identified. Each of the suggested identifications breaks one of two important rules in prophecy study: First, do not set end-times dates, and second, do not name the Antichrist.

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It seemed that as soon as the Fuegians were back among their own people, they resorted to their native ways. After 15 months of researching coastal South America, the Beagle stopped once again at Tierra del Fuego. Only one of their native companions could be found, a young man who had been christened "Jemmy Button"(Figure 2). But even Jemmy had returned to being a "wild-looking savage," naked except for a loin cloth. Darwin noted this complete failure to "civilize" the Fuegians.

Moreover, Darwin's limited exposure to the Fuegian language left him unimpressed. They seemed to repeat the same phrases over and over again, and he theorized that their whole language was limited to 100 words.[3] So, Darwin concluded that the Fuegians were "missing links" and, in his book *Descent of Man*, he cited the Fuegians as evidence that "man is descended from a hairy, tailed quadruped,"[4] claiming that the "Fuegians rank amongst the lowest barbarians…"[5]

Enter Allen Gardiner

From earliest childhood, Allen Gardiner (Figure 3) was thrilled by stories of adventure and strange lands. When he was 14, Gardiner left home and entered the Naval College at Portsmouth, England. Though he had an exciting career in the British Royal Navy, it seemed that God had bigger plans for him. He accepted Christ as Savior while in the Navy and became an avid Bible reader. Soon Gardiner became acutely aware of the Lord's desire to be glorified among all nations. He ended his naval career in 1826 to pursue evangelistic work "unto the uttermost part of the earth" (Acts 1:8).

Gardiner felt called by God to reach Indian tribes in South America. His first effort was in the Andes mountains in 1838. He crossed the mountains on muleback to reach remote indigenous tribes. But all of his evangelistic attempts there failed. Then in the early 1850s, Gardiner and six other men attempted to reach tribes in Patagonia, the entire region comprising the southern tip of South America, including Tierra del Fuego. The team included a surgeon by the name of Richard Williams, a young Bible teacher named John Maidment, a carpenter, and three strong Christian fishermen. These Anglican missionaries had learned about the Fuegian tribes because of the four natives brought to England by Captain FitzRoy on the HMS *Beagle.*

The ship HMS *Ocean Queen* transported Gardiner and the others to South America, dropping them off on Picton Island. Their sole mission was to bring the word of God to the Yaghan Indians of Tierra del Fuego. Gardiner hoped to find Jemmy Button to help with translation. Immediately upon arriving, serious problems arose. As their ship sailed away, they realized that they had forgotten their stock of gun powder. Then they failed to locate Button, and the Fuegians that did come to meet them became increasingly hostile, wanting to steal all their possessions.

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FIGURE 2. Jemmy Button, from R. FitzRoy Narrative *(London, 1839), Vol. 2.2.*

Rather than fight the Indians, the missionaries loaded their small sailboats, saving what they could, and sailed away from Picton. The Fuegians chased Gardiner incessantly with their canoes. Finally, the team found protection in Spanish Harbor of Tierra Del Fuego. But it was a rough, unforgiving location, and one of their sailboats was destroyed on landing. Lack of food quickly led to health problems. An unusually high wave splashed into the cave where they were living, taking almost everything with it, including their Bibles. A very harsh winter followed. One by one, the missionaries succumbed to the elements. Gardiner's journal contained the prayer "Let not this mission fail!" and another plea, "Grant O Lord, that we may be instrumental in commencing this great and blessed work…"

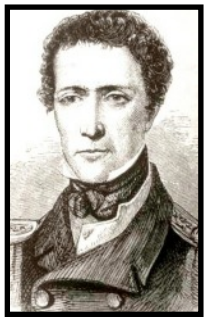

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FIGURE 3. Allen Gardiner (1794–1851)

In January, 1852 the British ship HMS *Dido* found the small sailboat and the dead missionaries. The crew buried Gardiner and rescued his water-soaked mission diary. Since all of the missionaries had died of hunger, cold, and sickness, one would expect the dominant themes of Gardiner's journal to be grief and despair. But remarkably, Gardiner's words radiated a contagious joy. When he was in the final stages of starvation, he was focused on the future. He coined a new name for his mission society. He proposed that the Patagonian Missionary Society should expand its field of work to the entire continent and be renamed the South American Missionary Society (SAMS).

As Gardiner died, his heart seemed to overflow with thanksgiving for God's many mercies. "Great and marvelous are the loving kindnesses of my gracious God. He has preserved me hitherto, and for four days, although without bodily food, without any feelings of hunger or thirst."[6] Dr. Richard Williams, the physician of the missionary team, described the same peace that passes understanding. He wrote from "Pioneer Cave" these remarkable words shortly before his passing:

> Should anything prevent my ever adding to this, let all my beloved ones at home rest assured that I was happy beyond all expression the night I wrote these lines, and would not have changed situations with any man living. Let them also be assured that my hopes were full and blooming with immortality; that heaven and love and Christ, which mean one and the same divine thing, were in my heart; that the hope of glory, the hope laid up for me in heaven, filled my whole heart with joy and gladness, and that to me to live is Christ, to die is gain. I am in a strait betwixt two, to abide in the body, or to depart and be with Christ, which is far better.
>
> …I am happy day and night, hour by hour. Asleep or awake, I am happy beyond the poor compass of language to tell. My joys are with Him whose delights have always been with the sons of men, and my heart and spirit are in heaven with the blessed. I have felt how holy is that company; I have felt how pure are their affections; and I have washed me in the blood of the Lamb, and asked my Lord for the white garment, that I, too, may mingle with the blaze of day, and be amongst them one of the sons of light. Much more could I add, but my fingers are aching with cold, and I must wrap them up in my clothes; but my heart, my heart is warm, warm with praise, thanksgiving, and love to God my Father, and love to God my Redeemer.[7]

When news of the missionaries' deaths reached England, the *London Times* carried

a critical editorial decrying the loss of life and resources for so foolish a cause. However, the story of the missionaries' deaths caught the attention of the nation, and a book on their mission, which included Gardiner's journal, was a bestseller. Biblically-minded churchmen responded to the criticism of the mission with contributions to the South American Missionary Society (SAMS). New missionaries were recruited and a second team planned to set out in 1859. Their schooner was christened the *Allen Gardiner*. This team was better equipped. Using the Falkland Islands as a base, the missionaries first took time to learn a bit of the Fuegian language.

Another setback

Armed with rudimentary linguistic skills, eight missionaries were prepared to contact the Fuegians. The *Allen Gardiner* landed in Tierra del Fuego and initial outreach began. But during a Sunday service on shore, the missionaries suddenly found themselves under attack. Within minutes, all eight missionaries were clubbed and speared to death by covetous, rowdy natives (including the jealous Jemmy Button). Only a cook who stayed aboard the ship survived. The field director of SAMS, George Despard, who was stationed at the Falklands, was crushed by the loss of this second missionary team. Two missionary teams had gone out with high hopes, and the results were 15 dead, 7 by starvation and 8 murdered by the Fuegians. All seemed to be lost.

But 17-year-old Thomas Bridges (Figure 4), who had been stationed in the Falklands, volunteered to remain behind and carry on. His surname was given because he was found as a baby, abandoned on a London bridge. Despard had taken Thomas in and reared him as his own child. Bridges remained in the Falklands and eventually traveled back to Tierra del Fuego alone.

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FIGURE 4. Thomas Bridges (ca. 1842–1898)

Because of his complete vulnerability and his command of the Fuegian language, the natives allowed Thomas into their settlements. They eventually were moved by the forgiveness and kindness that he showed. In subsequent years, Bridges baptized many of the same people who had killed his friends. After decades of faithful service, the SAMS team would see nearly the whole Yaghan tribe turn to Christ. Moreover, Bridges authored a Yaghan-English Dictionary, which contained 32,000 words.[8] It turned out that the Fuegian language was far more complex and precise than English!

The most dramatic demonstration of the change in the people whom Darwin had labeled as the lowest form of man, took place when an Italian ship was sinking offshore from Fuegian territory. Formerly, the Fuegians would most likely have killed the sailors and helped themselves to booty. But as followers of Christ, the Fuegians risked their lives to rescue these complete strangers. The King of Italy was so moved by their heroism that he had a medal struck in their honor, and in honor of Bridges and SAMS. Darwin himself was so impressed with the change in the Fuegians that he became a financial supporter of SAMS for the rest of his life. So, while Darwin drifted towards atheism and wrote about evolution, one wonders how he would have responded to the query: What power would your naturalistic worldview and evolutionary teachings have offered to transform these darkened, hopeless people?

Lesson taught

Through the gospel, the Fuegians were transformed into being a people whose heroism and altruism were internationally acclaimed. This missionary story teaches us that we all have an important role to play in God's work and that ultimate success or failure doesn't depend on us. Allen Gardiner was greatly used by God, despite apparent failure. We should walk in faith such that our joy is dependent only on our relationship with God, not on our circumstances or the apparent fruitfulness of our efforts. While Christians ought to do their best to plan, we must resign to the fact that God may perform his work quite differently from what we expect. "As the heavens are higher than the earth, so are my ways higher than your ways and my thoughts than your thoughts" (Isaiah 55:9).

What God accomplished in Tiera del Fuego went far beyond what the missionaries had expected, but at a far higher cost than anyone expected. In retrospect, we can see that:

- Without their starvation, Gardiner and his companions couldn't have shown Christendom the depth of Christian joy amid fruitless service.
- Without the murder of his missionary peers, Bridges couldn't have shown the radical nature of God's forgiveness to the natives.
- Without the storm at sea, the Fuegian Christians couldn't have shown the world God's rescuing love that had taken up residence in their hearts.

When things go wrong, we are tempted to think that God has failed us, or that evil has triumphed over good. But God may be bringing about fruit of a more enduring quality than that which is born in the placid seasons. Starvation, murder, and storms provided the canvas on which God painted a self-portrait, revealing His joy, forgiveness, and rescuing love. When we face setbacks, we need to cling to the knowledge that the Lord is still at work, even though we may not be able to see how. "Then said Jesus unto his disciples, if any man will come after me, let him deny himself, and take up his cross, and follow me" (Matthew 16:24).

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entered the Royal Naval College, Portsmouth, and in the following year entered the Royal Navy. At the age of 14, he became an apprentice aboard the frigate *HMS Owen Glendower*, and, while on the vessel, was promoted to midshipman. He completed his course with distinction and passed the examination with a perfect score, the first time this had ever occurred. He was promoted to lieutenant on 7 September 1824. The *HMS Beagle* was then assigned to complete a hydrographic survey of Tierra del Fuego. When the ship returned to England on 14 October 1830, FitzRoy had established his reputation as a superior surveyor and commander.

Soon after the Beagle's return from the voyage with Darwin, FitzRoy married a young woman to whom he had been engaged. Under the influence of his devout wife, FitzRoy had undergone a religious conversion (Keynes, 2001). Through her influence, FitzRoy openly dissociated himself from many of the evolutionary deep-time ideas of Charles Lyell and Charles Darwin, which he had partly accepted during the voyage.

FitsRoy's account

FitzRoy wrote his account of the voyage, published in May 1839, as the *Narrative of the Surveying Voyages of H.M.S. Adventure and Beagle*, in four volumes that included in the third volume Darwin's *Journal and Remarks*, *1832–1836*. About this volume, Taylor (2008, p. 180) wrote that:

> FitzRoy felt personally let down by his former *Beagle* companion when he viewed Darwin's proofs for the third volume of the *Narrative*. In the preface Darwin had failed to fully acknowledge the significant role of the captain and officers in terms of his own personal success experienced during the voyage. Darwin…did not take kindly to the diplomatic rebuke from his 'beau ideal of a captain.'…In this regard Darwin was wrong: he owed a huge debt of gratitude to many people, not least to his old messmate.

Having admitted that he had read works "by geologists who contradict, by implication, if not in plain terms, the authenticity of the Scriptures," FitzRoy's account included a section in which he explained in detail his commitment to a literal reading of the Bible. He also listed many reasons for concluding that the six days of creation could not have extended over eons (FitzRoy, 1839; Keynes, 2001).

FitzRoy was "thrown into an inner turmoil" when *The Origin of Species* was published in 1859, and felt guilty for his part in the theory's development. Darwin's book also "destroyed what was left of their friendship" (Gribbin and Gribbin, 2004, p. 264).

… FitzRoy's account included a section in which he explained in detail his commitment to a literal reading of the Bible.

On June 30, 1860, FitzRoy presented a paper on British storms at the meeting of the British Association for the Advancement of Science at Oxford, at the same time when Samuel Wilberforce attacked Darwin's theory. During the debate involving Huxley, FitzRoy stood in the center of the audience and explained that Huxley's arguments were not a logical conclusion based on the facts (Gribbin and Gribbin, 2004, p. 268). FitzRoy also felt that "he [FitzRoy] was to a large extent to blame … for unleashing this evil upon the world" (Gribbin and Gribbin, 2004, p. 266).

Forecasting the weather

As the protégé of Francis Beaufort, on the recommendation of the President of the Royal Society, in 1854 FitzRoy was appointed chief of what became the Meteorological Office to deal with collecting weather data. He also at this time arranged for ship captains to provide information about the instruments loaned to them for this purpose (Mellersh, 1968).

A devastating storm in 1859 inspired FitzRoy to develop charts to allow weather predictions, which he called "forecasting the weather," thus coining the term "weather forecast" (Mellersh, 1968). In response, fifteen land stations were established to transmit via telegraph daily weather reports. The first daily weather forecasts were published in *The Times of London* in 1861 (Moore, 2015). In addition, the Crown distributed storm glasses, then known as "FitzRoy's storm barometers," to the many fishing communities around the British Isles to help them better cope with inclement weather.

In 1860, FitzRoy introduced a system of hoisting storm warning cones at the principal ports when a gale was expected. His *The Weather Book*, published in 1863 (FitzRoy, 1863), was far advanced of the scientific knowledge of the time. In it, FitzRoy debunked Lieutenant Stephen Martin Saxby's lunar weather forecasting system, showing that it was pseudoscience. Saxby unsuccessfully attempted to counter FitzRoy's arguments in the second edition of his weather book (Saxby, 1864).

After many fishing fleet owners objected to posting gale warnings because fleets were then not allowed to leave the ports, FitzRoy's system was abandoned for a short time. In 1874 a simplified form of the system was resumed. As a result, the fishing fleet owners believed that FitzRoy was a hero because his system was responsible for saving many lives.

Many awards and honors

FitzRoy was awarded a gold medal by the Royal Geographical Society in 1837 and, in 1841, was elected the Tory Member of Parliament for Durham. In 1850 FitzRoy retired from active service, partly due to ill health. The following year he was elected to the Royal Society with the support of 13 fellows, including Charles Darwin.

In 1863 FitzRoy was promoted to Vice-Admiral, but internal and external troubles at the Meteorological Office, financial concerns, as well as failing health, all took their toll. Sadly, he took his own life. When FitzRoy died he had exhausted his entire fortune (£6,000, the equivalent of almost one million dollars today) on public projects. In order to prevent his wife and daughter from living in destitution, his friend and colleague Bartholomew Sulivan succeeded in getting the government to pay back £3,000 of this sum, and Darwin contributed a further £100 (Nichols, 2003, p. 328). Queen Victoria also, as a special favor to FitzRoy, allowed his widow and daughter the use of Hampton Court Palace apartments for the remainder of their lives.

FitzRoy was buried in the churchyard of All Saints' Church in south London. On 4 February 2002, when the shipping forecast sea area was renamed, the new name chosen by the UK Meteorological Office was "FitzRoy," in honor of their founder. FitzRoy was also commemorated by naming the School of Earth, Ocean, and Environmental

Science Building at the University of Plymouth after him. In honor of his work, Vice-Admiral Robert FitzRoy was commemorated on two Royal Mail postage stamps, and his gravesite memorial was restored in 1981 by the Meteorological Office. He is also one of the many scientists who, although intimately connected with Darwin as a man, openly rejected his theory called Darwinism.

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Matters of Fact

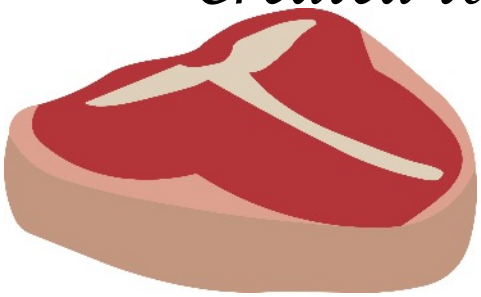
by

Jean K. Lightner, DVM, MS

Created to Eat Meat?

Editor's note: You may submit your question to Dr. Jean Lightner at jean@creationresearch.org. It will not be possible to provide an answer for each question, but she will choose those which have a broad appeal and lend themselves to relatively short answers.

Q Does the structure of a dog's digestive system prove it was designed to eat meat?



A No. Dogs have a monogastric digestive system, similar to that of humans and pigs. While meat can make up part of a healthy diet, that does not imply that these creatures were created to eat meat. The underlying assumption when this topic is brought up within the creation/evolution debate, is often that the digestive system is deterministically set, either through natural selection or by a creator, so that animals can survive well *only* on a predetermined diet. Nothing could be further from the truth.

Ruminating on gut development

Some of the most extensive studies on the development of the digestive system following birth have been done in calves. Beef calves are often left with their mothers on pasture until after they have naturally weaned themselves onto an exclusively forage diet. In contrast, dairy calves are commonly separated from their mothers, and weaned, as early as possible, onto a diet high in concentrates (e.g., grains, which are much denser energy sources). Calves are very adaptable, being able to be weaned through a relatively broad window of time, and with a broad range of forage to concentrate ratios.

Cattle are ruminants, having a complex, multi-chambered stomach. When calves are born, the major stomach compartment, the rumen, is underdeveloped and non-functional. In the mature animal, the rumen serves as a large fermentation vat where certain microorganisms digest plant material, making otherwise unavailable nutrients available to the animal. As non-liquid food sources are introduced, they affect rumen development. The end products of starch fermentation (from grains) provide the chemical stimuli for epithelial proliferation. Forages are important for the muscular development of the rumen, increasing saliva flow, and promoting rumination. These effects of forages are important to prevent the rumen pH from dropping too low and causing harm, as can happen when too much concentrate (grain) is fed (Khan et al., 2016).

Digestion — a cooperative endeavor

In all mammals, microbes colonize the digestive system soon after birth. The composition of the microbiota is established during the first year of life, being comprised of bacteria, protozoa, and other microorganisms. The species of microbes that become established are greatly affected by diet (Yatsunenko et al., 2012; Khan et al., 2016; Leulier et al., 2017; Shankar, et al., 2017). It is not only the source of food (grains, forages, meat, etc.) that affects the species making up the microbiota, but also how the food source is processed (e.g., whole grain vs. grinding; particle length of forage; fresh vs. extruded) (Khan et al., 2016; Sandri et al., 2017). In addition to being essential for the healthy development and maintenance of the gastrointestinal (GI) tract, the gut microbes play many other important roles. For example, they synthesize important nutrients, such as vitamins and amino acids, and are required in the development of adaptive immunity (Yatsunenko et al., 2012; Khan et al., 2016; Chin et al., 2017).

Interestingly, early diet not only affects the development of the microbiotic community, but it can also shape future food preferences. It was found, for example, that calves would pick different components out of a total mixed ration; the portion that they chose was related to what they had been fed around weaning (Khan et al., 2016). This phenomenon may be widespread, and is perhaps based on the cooperative microbial environment which had been established early on. It was found that pheasants, though they can be raised on commercial chick feed in captivity, experienced lower mortality after release in reintroduction programs when their early diet included

greater variety that more closely resembled the diet available in the wild. Several factors contributed to this lower mortality, including the difference in gut development resulting from the different diet (Whiteside, et al., 2015).

Are dogs carnivores?

Dogs belong to the order Carnivora based on characteristics of their skull and teeth. Teeth in the upper jaw (the fourth premolar) and the lower jaw (first molar) are shaped so they work like scissors as the jaw closes. However, not all members of this order are carnivorous. For example, the kinkajou is not attracted to meat, but instead eats plants, especially fruit (Catchpoole, 2004). Bears vary from the panda, which feeds almost exclusively on bamboo, to the polar bear, which is primarily carnivorous. Most other bears are omnivorous, relying on both plant and animal food sources.

Dogs belong to the family Canidae, as do wolves, coyotes, and foxes. As mentioned previously, they have a monogastric (single-stomached) digestive system. This means that they do not develop a rumen like cattle, regardless of diet. Also, they do not have a large fermentation vat in the region of the GI tract after the stomach, like horses and rabbits (post-gastric fermenters). Thus, it is clear that canids were not designed to live primarily on forages, like grass. However, there are a variety of diets that can provide adequate nutrition, and they do not require meat (Feuer, 2006).

There is evidence that dogs, like humans, have adapted genetically to diets higher in starch. Starch is broken down by amylase, which is produced in the pancreas and salivary glands. Humans from cultures where high starch diets are eaten carry extra copies of a salivary amylase gene. Compared to wolves, their putative wild ancestors, dogs carry extra copies of a pancreatic amylase gene. These extra copies seem to be the result of gene duplication, increasing the amylase available to digest starch. There also appear to be several other genes related to starch digestion and absorption that have changed in the dog as compared to the wolf (Arendt, et al., 2016).

Original diet of dogs

It is interesting that people hold many different ideas about the original diets of humans, dogs, or other creatures. These beliefs can be heavily influenced by a person's worldview, since we cannot directly observe this. However, God, the Creator, tells us what he originally gave his creatures to eat:

> Then God said, "I give you every seed-bearing plant on the face of the whole earth and every tree that has fruit with seed in it. They will be yours for food. And to all the beasts of the earth and all the birds of the air and all the creatures that move on the ground — everything that has the breath of life in it — I give every green plant for food." And it was so.
> **Genesis 1:29-30** NIV

From this passage, we can conclude that the created ancestors of the dog ate a plant-based diet, devoid of meat.

However, the Bible makes it clear that this harmony in nature was broken at the Fall, and that all life was affected by the Curse (Genesis 3:14). It appears that there was an almost immediate shift in the human diet to the plants of the field (Genesis 3:17). Carnivory could have arisen at any point after this; perhaps in many animals it arose after the Flood when humans were permitted to eat meat (Genesis 9:1–3).

Did carnivores lose something?

Research has shown that a plant-based diet, with plenty of variety, is among the healthiest for humans (whfoods.org; Shankar et al., 2017). Yet in our world today, meat offers a readily digestible source of protein, essential amino acids, and vitamin B12 that can be challenging to obtain through a strictly vegetarian diet. Creationists have proposed that, since the Fall, plant food sources may have lost the array of nutrients found in meat. This could be from certain plants becoming extinct, or genetic loss in the plants we have today.

A second possibility is a loss of the ability to use dietary nutrients to meet bodily needs. The increased need for protein in

Miracle meat diet?

Jerry Bergman tells of a dramatic change in the health of his dog when he, on the advice of his veterinarian, switched his dog's diet from a commercial grain-based diet to one comprised of raw meat supplemented with other animal products (bone, liver, and raw eggs). Within a month, many of his dog's health problems seemed to have cleared up. Friends claimed that this was because dogs were created to eat meat (personal communication). Others involved in this increasingly popular trend promoting raw meat diets, propose that dogs have not had time to evolve away from their ancestors' all meat diets (Knueven, 2014). Generally, professional veterinary organizations discourage this type of diet, partially over concerns of pathogens which may be carried in raw meat. However, there has been a lack of good scientific research that adequately addresses the risks or benefits of raw meat-based diets (Schlesinger and Joffe, 2011; Freeman et al., 2013).

Yet scientific research suggests that the idea that dogs were created carnivorous is presumptuous. Jerry's dog is 12 years old, and it is recognized that the protein requirements of older dogs often increase by as much as 50% (Feuer, 2006). Meat is a good source of readily digestible, high quality protein, and the change to an animal-protein-based diet may have made up for an age-related decline in the dog's ability to effectively use dietary protein. As my college nutrition professor used to say, when a deficient nutrient is added to a diet, the result will always seem like a miracle cure. It is important to note that meat alone lacks important nutrients required by dogs (Feuer, 2006). The diet used in a recent study investigating the use of fresh meat as a food source for dogs, still included a plant-based supplement as 30% of the diet (Sandri et al., 2017).

— JL

older dogs appears to be from an age-related loss of the ability to digest and/or use protein from the diet (Feuer, 2006). The well-known requirement of meat in the diet of cats is ostensibly the result of dysregulation or loss of various metabolic enzymes (Morris, 2002). So, regardless of where else loss has occurred, there is good documentation supporting that it has occurred in this situation.

A third possibility is the loss of microorganisms that aid in acquiring nutrients from the diet. An interesting example involves cattle and a legume known as Leucaena. This shrubby tree was poisonous to cattle until they acquired the microbe necessary to break down the toxin. Once the right microbe was introduced into their digestive systems, this plant became a valuable food source (Batten and Wieland, 1998). Gut microbes not only play an important role in detoxification, but also in amino acid and vitamin synthesis (Yatsunenko et al., 2012). It is possible that some microbes were lost that originally enabled monogastrics, such as humans and dogs, to more readily acquire the necessary nutrients from plant sources.

In conclusion, animals and humans were created with the ability to adapt to a wide variety of diets, both within an individual's lifetime (physiologically) and, to a degree, genetically. The Bible tells us that all animals were originally vegetarian, and this is fully consistent with everything we know from science.

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Speaking of Science

from the Creation-Evolution Headlines

by David F. Coppedge

*Editor's note: These S.O.S. (Speaking of Science) items have been selected from "**Creation-Evolution Headlines**" by David F. Coppedge at http://crev.info and are used by permission. Unless otherwise noted, emphasis is added in all quotes.*

Human Body Curiosities

Things you didn't know about your ambulatory vessel (body), and things you may have wondered about.

Why do we get hiccups? Once in a rare while, a scientific paper will actually explore something everybody wants to know: what are hiccups, and why do we get them? In *PLoS One*,[1] the word jumps out of the jargon: "Analysis of factors associated with hiccups based on the Japanese Adverse Drug Event Report database." This paper by Japanese scientists is primarily concerned about medications that induce hiccups, especially during chemotherapy. For some reason, males tend to get hiccups more than females, the paper says.

A lay article in *Medical Xpress*[2] came out about the same time. The scientific name is "singultus," an expert on hiccups tells us. It's not a disease, but a symptom of some other cause, he says. "And we all have them, even before we are born." They are described as "an involuntary contraction of the diaphragm (the muscle that separates your chest from your abdomen), followed by the sudden closure of the vocal chords, which produces the 'hic' sound." In rare cases they can be chronic; most cases last just a few minutes. Unfortunately, there is no cure, but some of the home remedies actually might help if they stimulate the vagus nerve. Neither source mentions whether hiccups have a function. Perhaps they are just warning calls of some underlying condition.

How does a baby in the womb grow tubes? From a single zygote, a baby grows a digestive tract with many feet of tubular processes. How does that happen? A partial answer is published in *PNAS*.[3] Some of it has to do with signals from BMPs (bone morphogenetic proteins), that control buckling forces as loops in the intestine grow and push on each other. At least it happens that way in chicks (baby birds, that is).

> The present work identifies BMP signaling as a key pathway in controlling looping of the small intestine, a process driven by mechanical buckling due to elongation of the intestine against the constraint of a neighboring tissue, the dorsal mesentery.

Surely there is much more going on than that. How does a clump of cells start growing tubes? This paper doesn't say.

Why are we right or left handed? Certainly our handedness is one of the most distinctive things about us, with southpaws having to compensate in a predominantly right-handed world. A fundamental change in understanding about handedness is coming, says *Science Daily*.[4] Biophysicists "have demonstrated that gene activity in the spinal cord is asymmetrical already in the womb." The decision in the 8th week of gestation appears to come from epigenetic influences based on environmental factors. So far, this sounds like only a very paltry, preliminary answer to the question. Speaking of pregnancy, this opening paragraph in "Secrets of Life in a Spoonful of Blood" by Claire Ainsworth in *Nature*[5] deserves a pulpit and a microphone:

> Life starts with a puzzle. Out of sight in a mother's womb, 3 billion letters of DNA code somehow turn into 3Dbodies, all in the space of a mere 40 weeks. Fetuses form eyes, brains, hearts, fingers and toes — in processes that are meticulously coordinated in both time and space. Biologists have pieced together parts of this puzzle, but many gaps remain.

Why do we have smell receptors in the heart? That's right; we have olfactory receptors in our hearts, believe it or not. Why? *Science Daily*[6] says, "Researchers have for the first time identified the function of olfactory receptors in the human heart muscle, such as are also present in the nose." We're all dying to know. Well, at least one of the receptor types attaches to fatty acids in the bloodstream. When triggered, "the heart rate and the force of muscular contraction are reduced." There must be a reason for this. What they're finding may have treatment implications for diabetes patients, the article says.

How does an eye develop? Scientists are studying the development of eyes in zebrafish to learn about the amazing sequence of events in an egg or womb that result in vision. Words fail to describe what goes on. Here's just a quick glimpse from *Phys.org*,[7] as Sarah Wong writes on "Seeing the world through fresh eyes":

> There are many different structures in our eyes that work in conjunction to allow us to see. These structures are strikingly similar between different species, from zebrafish to humans. The growth of ocular tissues **must be tightly controlled** in order to maintain the **correct eye size and shape** that allow us to see. This **tight regulation** has intrigued developmental biologists for decades.
>
> The lens of the eye focuses incoming light on the retina, which then converts the light into electrical signals allowing us to see. **Two distinct cell types comprise the lens**: epithelial cells, which cover the front, or anterior, portion of the lens, and fiber cells, which populate the back, or posterior, portion. It has been shown that epithelial cells proliferate in the anterior half of the lens and move towards the posterior half, differentiating, or transforming, into fiber cells when they reach the equator between the two halves.…

Why do we get sore after exercise? Muscle soreness may be a protective response, telling you to slow down. That's the upshot of an article in *Medical Xpress*,[8] "Research uncovers **mechanism, protective purpose** of muscle soreness following exercise." Physiologists knew what happened before, but nobody knew why. "The soreness a person feels **is the body saying it is fatigued, that the muscles are vulnerable, and it's time to rest.**"

Is stress all bad? We usually hear that stress kills, but *Science Daily*[9] invites curiosity with this headline: "**What doesn't kill you makes you stronger:** Research identifies cellular recycling process linked to beneficial effects of enduring mild stress." Further reading, though, shows that research involved roundworms. Those worms subjected to temporary heat stress seemed to become more resilient to later stresses. The researchers at Sanford Burnham Prebys Medical Discovery Institute think that the same principles apply to human cells.

Why don't animals write poetry? Language is perhaps the greatest human distinctive. *Medical Xpress*[10] asks, "Is the human brain hardwired to appreciate poetry?" This seems to be a matter beyond the capabilities of science. Researchers publishing in *Frontiers of Psychology* found the obvious: people seem to have a liking for rhymes and meter. The brain seems able to connect with the thoughts of a poem even before understanding it, but that's about it. What the blinking lights mean on the brain electrodes is anyone's guess.

How do butterflies get in our stomach? (*The Conversation*[11]). It's a figure of speech, of course, but Bradley Elliott proposes to explain the fluttery semi-nauseous feeling we get when nervous, such as when rising to give a speech. It has to do with "clever body systems," he says. Our autonomic nervous system helps to prepare us for what it thinks is about to happen. It shunts blood to the muscles and away from the digestive system, causing the fluttery feeling. Whether this provides us with an "evolutionary advantage" as Elliott claims is a topic for debate.

There's more going on under our skins than we can possibly imagine. It's a terrible shame to waste a body and mind on vain things. It's insulting to our Maker to mistreat this great gift we have. Your body may not be working perfectly, but the parts that do work are worthy of protecting and nourishing. Is there any pleasure, any joy? Give thanks to the Creator for even the little things. Think of those ALS patients who have lost all movement yet still say they are happy.[12]

We so often take health for granted. Even Christians at prayer meetings often spend more time requesting prayer about sickness than praising God for health. "Does anyone have a prayer request?" the leader asks, and like Pavlov dogs, out comes the sick list. Let's get out of that habit and spend more time in thanksgiving. By all means, pray about major things, but not every cold and itch needs to be brought up. Be humble, and surround your physical request with joyful thanks. Those who trust in the Lord Jesus have an amazing upgrade — Body 2.0 — coming in heaven. If God can make a body work this well in a fallen, disobedient world, just imagine how beautiful and perfect our dwellings can be in the new heavens and new earth.

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Bizarre Bursts in Space

Astronomers don't know what they are, or where they come from, but big blasts from space have opened up a new field of research.

In a mature science like deep space astronomy, it seems hard to discover something brand new. But ten years ago, *Nature News*[1] reports, an astronomer saw a burst of radio waves lasting only 5 thousandths of a second. What was it? Since then, some 75 of these "fast radio bursts" (FRBs) have been detected. In her *Nature*[2] article "Astronomers grapple with new era of fast radio bursts," Elizabeth Gibney discusses a recent conference in Aspen, Colorado that laid out a strategy for studying the phenomenon. If FRBs are indeed extragalactic — as the majority of astronomers believe — they must be enormously powerful.

> One of the most perplexing phenomena in astronomy has come of age. The fleeting blasts of energetic cosmic radiation of unknown cause, now known as fast radio bursts (FRBs), were first detected a decade ago. At the time, many astronomers dismissed the seemingly random blasts as little more than glitches. And although key facts, such as what causes them, are still largely a mystery, FRBs are now accepted as a genuine class of celestial signal and have spawned a field of their own.

It may seem to some people in the era of the Hubble Space Telescope that astronomers had found everything to be found in deep space, and the rest is fine-tuning. But FRBs follow in a long line of mysterious objects never before imagined: radio galaxies, quasars, pulsars, neutron stars, blazars, magnetars, and gamma-ray bursts. As astronomers begin to build more sensitive detectors to study these enigmatic bursts of energy, no one knows where FRB astronomy will lead in the next decade.

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Quarterly Research Matters

Summaries of Cutting-edge Research from the Creation Research Society Quarterly*

Creation research that engages the current scientific literature and builds the creation model is crucial; CRS exists to support and publish such research. Only through high quality research can we equip others with strong, sound apologetics arguments that show the robustness of the creation model over that of evolution.

Comets and Apologetics

Comets are fascinating icy objects that travel into our solar system, often putting on a stunning display as they pass near the sun. Based on calculations of the loss of mass as they move around the sun, scientists have recognized that there is a problem explaining their existence in an allegedly 5-billion-year-old solar system.

Comets can be divided into types based on orbital period: **short-period** (which pass the sun in less than 200 years) and **long-period** (much longer than 200 years). Dr. J. Hartnett examines key details of comets, trans-Neptunian objects that have been identified in the Kuiper belt, and the hypothesized, yet-to-be-observed Oort cloud. All observations are fully consistent with a 6,000-year-old solar system.

What is not clear, is whether the argument that the Kuiper belt cannot be a source of short-period comets is a realistic proposal. An increasing number of variable-sized objects have been found, suggesting that we may eventually find sufficient objects to account for cometary cores. Dr. Hartnett discusses this in detail, as well as other factors affecting such a hypothesis. He concludes that it may be premature to rule out the Kuiper belt as a source of short-period comets. In contrast, evolutionary explanations for long-period comets require the existence of the Oort cloud, which has never been observed.

Hartnett, J.G. 2016. Comets, the Kuiper Belt, and the Oort Cloud. *Creation Research Society Quarterly* 53:5–13.

CRS Members & Research

In July of 2016, the Creation Research Society held its sixth conference, on the campus of Concordia University in Ann Arbor, Michigan. It was tremendously successful with nearly 130 CRS members attending. These meetings are designed to promote creation research. They provide a forum for presenting and discussing research, allow participants to become more intimately aware of what research is being done, and allow for collaborative relationships to form that will further future research.

The published abstracts from the conference can be found in the Summer 2016 (Vol. 53, No. 1) issue of the *Creation Research Society Quarterly*. This issue provides a taste of the broad range of research topics that are important to the creation model, from biblical analysis of specific passages, to genomics; from experiments investigating tissue preservation, to finding underlying assumptions and data manipulation that mitigate against the supposed "evidence" promoted by some evolutionists.

This year's CRS conference will be held July 28–29 on the campus of Bob Jones University in Greenville, South Carolina. For those interested in presenting research, the abstract submission deadline is April 15, 2017. There will also be sessions highlighting the two CRS research initiatives: iDino and eKINDS, as well as discussions on how more people can become involved. Don't miss out.

Conference Reports. 2016. CRS conference abstracts. *Creation Research Society Quarterly* 53:58–67.

Continued creation research is made possible by the generous gifts (time, money, and prayers) of our many supporters.
Thanks to all who have contributed!

*Summaries composed by J. Lightner

CM

eKINDS

Examination of Kinds In Natural Diversification and Speciation

The Creation Research Society is pleased to announce a new research initiative—eKINDS.

How did we get the wide variety of today's species from a small number of animals preserved on the Ark? How do new species form, and how does this fit within biblical creation? Can we trace the spread of the created kinds from the Ark to where they live today? These and similar questions will be addressed by the *eKINDS* initiative.

The Society is seeking donors willing to help fund this initiative. For more information on how you can help, please contact the Creation Research Society at (928) 636-1153 or crsvarc@crsvarc.com.

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All by Design

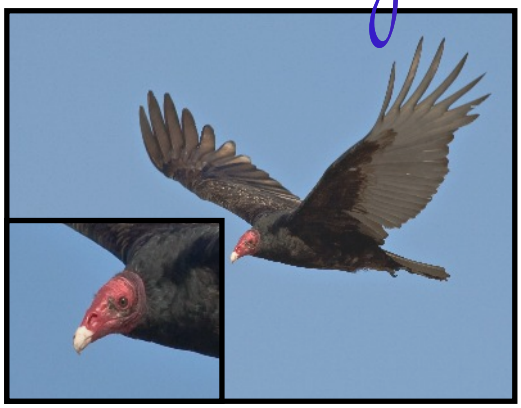
by Jonathan C. O'Quinn, D.P.M., M.S.

Scavenger Deluxe

No matter where we look in nature, we find plants and animals that are perfectly matched to the habitats in which they live. Nowhere will you see any living creature that is not suited to its environment. Take, for example, turkey vultures, *Cathartes aura*, whose name means "cleansing breeze."

Turkey vultures have wingspans up to six feet across, by which they are able to catch thermal updrafts, allowing them to glide in wide circles as they look and smell for their main food source, carrion. This gliding behavior enables turkey vultures to search large areas for food with minimal energy expenditure. Turkey vultures have dense photoreceptors in their retinas, equating to very sharp visual acuity.

These creatures also have enlarged olfactory bulbs within their brains, which connect via sensory nerves to the nasal cavities. Turkey vultures can smell well enough to detect a few parts per billion of the ethyl mercaptans released in gasses from distant decaying carcasses. With this ability they can hone in on something as small as a dead rodent rotting under a pile of leaves.



Turkey vultures also have large nostrils with no nasal septum in between, permitting air to flow more easily into their nasal cavities from both sides. This prevents food from getting stuck in their nostrils when they feed, which could cause blockages and infection. Finally, turkey vultures have no feathers on their heads, since they have to reach into carcasses to eat.

These amazing birds are perfectly designed for their way of life. Vultures are endowed with many specialized features that could not have developed by random accidents.

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