

Cigar Box Bulletin

September 2014
Volume 17 Issue 9

September Speaker

Reporter
Bill Beebee



Dr. James Metcalf is a retired program manager from the Air Force Research Laboratory at Hanscomb AFB. His technical field is atmospheric physics and he holds a PhD in Geophysical Sciences from the University of Chicago.

Jim has been interested in evolution for many years. In this talk, he describes the religious and scientific histories and the bases of the evolution debate. He calls for respect and honesty by both sides in maturing that discussion.

Jim does not focus on the biological details of the evolutionary theory. Rather he discusses its historical context and the controversy that still surrounds it after more than a century and a half of supporting research. As an introduction, Jim presents the following quotes:

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September Minutes

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Ship's Bell rang at 10:00 AM

Bill Ely called the meeting to order and **Ray Graunas** led the Pledge of Allegiance followed by the singing of the Star Spangled Banner. Cell phone silence was requested.

Dave Calder was thanked for the coffee setup; **John Iberg** was thanked for the Stop & Shop donuts; and **Richard Smith** was thanked for handling the badges. **Bill Beebee** was thanked for reporting on the Speaker and doing the Minutes. **Bob Curtiss** was thanked for doing the slide show and video.

Wally Hart reported for the Membership Committee. Two guests were introduced. John

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Romeo Report :

15 members of the RMA and the speaker enjoyed lunch at new Bertucci's restaurant in Wayland. The restaurant is new and the the food very good.

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The Cigar Box Bulletin

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and surrounding communities.*

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O'Hern was presented by **Ted Bially**, and **Joe Bausk** introduced Peter Anderson. Sadly, **Jack Bushman** is preparing to move to Ohio.

Travelers included **Arnold Barns**, who visited at granddaughter in Middlebury, VT, for a parade and farm show. He then proceeded to discover a fine Vermont restaurant at Burlington. **Frank Lyons** also visited a granddaughter, but much farther away in Incline Village, CA. Her 4-year-old B-Day party was held at a bowling alley with gutters blocked for nonzero scores.

Ray Atkins noted that the RMA Annual Dinner will be on Oct. 15 at the Marlboro CC. The fee, \$50 per person (up due to increased food cost), will include a special gift. **Bill Ladoulis** will do his usual superb job with the violin during preliminaries. A new band will be featured, replacing the (dissolved) former one but still with Celtic music. Any new-member sponsor may want to invite the member and his companion to the dinner, with same-table seating doable.

Gerry Brody discussed the Retiree's School Volunteer Association (RSVA) Annual Meeting, to occur from 1:30 – 4:30 PM, also on Oct. 15. RMAers are invited to attend at the Raytheon Global Headquarters in Waltham, MA. It will feature speakers from the Governor's office and the Metrowest Education Network and will be followed by an hour of refreshments and networking. Directions to Raytheon are posted on the RSVA website, www.rsva.org. The RSVA is a non-profit dedicated to improving science and math skills of pre-college students. It has mentored students in both in-class and after-school activities such as science clubs, robotics competitions, math clubs, science fairs and homework helper sessions in over 20 school districts in eastern Massachusetts. Contact Mel Weinzimer at melweinzimer@yahoo.com to attend.

Chris Hammer discussed special events. He is looking for ideas for future outings, but on Monday the 15th, RMA is invited to a 2-hour private tour of the Collings Foundation in Stow, MA. The cost is \$15 per person and the tour begins at 10 AM.

Gerry Brody discussed the members' vital statistics and **Bill Ely** relayed health news. This time, **Charlie Raskin**, who normally presents health information, is himself a news subject with spine surgery. **Jack Finlay** is having back surgery and both Charlie and Jack would appreciate phone calls. **Rick Dugan** wants e-mail instead of phone calls because his vocal cords are being fixed. **Karl Geiger** is getting a knee replaced and e-mail may be best to spare him from "running for the phone". A happier camper is **Mark Luby**, who has returned from surgery.

It is one thing for folks our age to have health problems. It is quite another for one of our children to be stricken. Tragically, **Don Sherman's** daughter recently passed away while still in her 40s. Don would very much appreciate phone calls at this especially hard time.

Neil Kaufman told some jokes, appropriately about doctors. **Frank Lyons** announced the RO-MEO lunch at Bertuccis in the new Wayland Center outdoor mall on Rt. 20.

Bob Cooke's fine photography was shown at the back of the stage. It can also be seen at Emerson Hospital.

1. “In the beginning God created the heaven and the earth. . . . And God saw every thing that he had made, and, behold, it was very good. And the evening and the morning were the sixth day.” [Genesis 1:1, 31, KJV]

These are the first and last verses of the first chapter of the Book of Genesis in The Bible. This Book was written perhaps 3000-4000 years ago, probably incorporating an earlier oral tradition.

2. “There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been and are being evolved.” [Darwin]

This is the concluding sentence in Charles Darwin’s book, *The Origin of Species by Means of Natural Selection*, published 155 years ago.

Key ideas at the heart of the resistance to evolution are creationism and so-called “intelligent design theory.” Gallup has been polling the evolution question for over 30 years, including as recently as this past May. (Pew and Harris have found similar results.) Creationism is currently accepted by about 42%, who believe that human beings were divinely created in their present form somewhat less than 10,000 years ago. (This percentage has not changed much over time.) Intelligent design is accepted by about 31%. They partially accept the theory of evolution but believe that intelligent guidance was necessary for the emergence of certain biological processes. At the cellular and molecular level, they characterize this as irreducibly complex, that is, too complex to have evolved by random genetic variation and natural selection. Although they do not always identify God as the intelligent agent, the implicit meaning is usually clear. (Among the remaining polled, 19% say that evolution took millions of years without divine guidance.)

As a scientist, Jim is troubled that many people reject the conclusions of science solely because those conclusions are inconsistent with a literal reading of a religious text. As a religious person, he is troubled that there are religious people who promote as scientific a religiously-motivated alternative explanation of the origin of species. (An unfortunate hidden goal may be the reinstatement of religion into public schools.)

Fortunately, there are many religious people who take a different approach and seek to reconcile their faith with scientific knowledge. Among them is Dr. Eben Alexander, the neurosurgeon who spoke at Temple Shir Tikva in Wayland in March last year. In his book *Proof of Heaven*, after describing his vivid near-death experience, he wrote, “Science doesn’t contradict what I learned up there. But too many people believe it does, because certain members of the scientific community, who are pledged to the materialist worldview, have insisted that science and spirituality cannot coexist. They are mistaken.” [pp. 72-73]

Dr. Alexander’s position is consistent with that of the blogger Rev. Michael Dowd, who suggested that Gallup add a fourth option, namely, “Human beings emerged naturally from a long process of

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physical and biological creativity that can be spoken of religiously as ‘God's creation’ or scientifically as ‘evolution.’”

Science is based on observations, either from the natural world or from experiments. Observations lead to hypotheses, which lead to further observations or experiments to either support or disprove the hypotheses. A useful hypothesis is one that provides not only a plausible explanation of a process or event but also an expectation of what one might observe in a related process or event, or in the same process or event under different conditions. A hypothesis that survives extensive observations and experiments becomes accepted as a scientific theory. The theory is subjected to further experimentation, which may lead either to modifications or to new hypotheses. The key point here is that in science a theory is a formal description of some aspect of the natural world based on extensive experimentation and analysis. It is not just a casual idea, as the word is often used in everyday conversation.

As an example of the scientific process, consider the similar coastlines of western Africa and eastern South America. The German meteorologist Alfred Wegener, in 1912, was the first to propose in a scientific paper that they had once actually been joined. His hypothesis of continental drift was initially dismissed by geologists, in part because he proposed no mechanism for it. Investigations of plant and animal species and of the structure of rocks along the two coastlines found similarities that supported the hypothesis. But it was not until the 1960s, after much further research, including investigations of the Mid-Atlantic Ridge, that the theory of plate tectonics was accepted as the foundational theory of geology.

Other areas of science include the Copernican theory of the solar system, Newton's theory of universal gravitation, the germ theory of disease, the atomic theory of matter, Einstein's theory of relativity, and quantum theory. As described with the theory of plate tectonics, any hypothesis that challenges either an existing scientific theory or long-held beliefs, even if it is supported by observations, is not readily accepted, either by scientists, by political or religious establishments, or by the general public. All of the above theories were strongly resisted before finally being accepted. (Einstein initially opposed quantum theory, because it contradicted his view of the universe as deterministic. He said that “God doesn't play dice with the world.”)

Now consider the theory of evolution. No scientific theory is entirely the product of an individual scientist. Theories typically have histories of preliminary discoveries and hypotheses leading up to the main event, and so it is with the theory of evolution.

Careful observers of the natural world in antiquity knew that the world had not always been the way it was. Fossils of marine creatures found in eroded rocks high above sea level were clues of an earlier time that was different from the present. Fossils of creatures that bore no resemblance to living creatures suggested that not only the topography but also the biosphere had changed over time. The 17th century saw the beginnings of what we could call modern science, that is, the systematic quest to understand the natural world by means of observations. Among the discoveries relevant to evolution was the observation of spermatozoa by the Dutch scientist Antonie van Leeuwenhoek.

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wenhoek in 1677. Van Leeuwenhoek was to the microscope what Galileo was to the telescope.

In the 17th century the Protestant Reformation was well underway in Europe. The break from the long-standing authority and traditions of the Roman Catholic Church encouraged philosophers and naturalists to view the mysteries of the natural world no longer as the exclusive domain of God but rather as opportunities for observation and discovery.

By the 18th century, as the Age of Enlightenment was underway, philosophers and naturalists began to wrestle seriously with the question of origins. In 1749 the French philosopher Denis Diderot presented a rudimentary presentation of a theory of biological variation and natural selection. The French naturalist Jean Baptiste Chevalier de la Marck, in the course of his study of mollusks, became convinced that species change over time. He presented his ideas on evolution in a lecture at the National Museum of Natural History in May 1800.

Interest in prehistoric animals increased greatly in the 19th century. With the industrial revolution came the building of new roads, canals, and railroads, and the resulting deep cuts through hills revealed many layers of ancient rock. Dinosaur teeth were discovered in England in 1822, and prehistoric fossils were discovered in various places. In the late 1800s the American anthropologists Othniel Marsh and Edward Cope searched for fossil dinosaur skeletons in the American West.

Charles Darwin entered this arena as a largely self-taught naturalist and perhaps the best known subjects of his observations are the finches of the Galapagos Islands. He noticed in particular that their beaks were adapted to the different kinds of food they ate on the different islands. He perceived that the natural environment was shaping populations in the wild, selecting for certain characteristics, in much the same way as breeders of domestic animals, but on a much longer time scale.

One of the deficiencies of Darwin's hypothesis was his inability to identify a mechanism of inheritance. (Failure to identify a key causal mechanism was also a problem with Alfred Wegener's hypothesis of continental drift.) A major step toward filling that deficiency was the discovery of nucleic acids in cells by the Swiss biologist Friedrich Miescher in 1869. Attempts to describe the chemical structure of this material culminated in the discovery of the double helix in 1953 by James Watson and Francis Crick. This was the long-sought inheritance mechanism.

In Darwin's time there was no reliable estimate of the age of the earth. It was thought to be perhaps a few hundred million years old. Another of the objections to Darwin's hypothesis was that the earth was not old enough to have allowed evolution to work as he envisioned it. However, later, stromatolites were found that are mineral deposits laid down by single cell organisms, similar to blue-green algae. The oldest known examples of these are about 3.5 billion years old. Of course, the existence of single cell organisms at that time implies that their constituent organic molecules must have been present much earlier. In our own evolutionary ancestry, the recently-publicized discovery of 1.8 million-year-old skulls in the Republic of Georgia, in the Caucasus, illustrates that knowledge of human evolutionary history is not static.

In ancient times, many things that people did not understand about the natural world were attributed to God. The Letter to the Hebrews in the Bible says, “Faith is the assurance of things hoped for, the conviction of things not seen. . . . By faith we understand that the worlds were prepared by the word of God.” As early as the 4th century, however, Christian theologians such as St. Augustine cautioned against a literal interpretation of the Bible. The rise of modern science in the 17th century challenged people of faith to wrestle with the role of human reason much more than had been necessary in the past. Some people saw in the findings of science something like a new religion that rendered traditional religion obsolete. In reaction, some religious people took a more fundamentalist posture, and so the battle lines were drawn.

As Darwin anticipated, there was immediate opposition by the church to his hypothesis of evolution by natural selection. Not all religious people were opposed, however, and some actually supported his idea. Darwin quoted one of them in the final chapter of the second edition of *The Origin of Species* [page 638]. Darwin left open the ultimate question of origins. In his concluding sentence, which Jim quotes above, he imagines “the Creator” breathing life into a few simple organisms.

The so-called “Huxley-Wilberforce debate” in 1860 was actually a discussion during the annual meeting of the British Association at Oxford University. Thomas Huxley, a largely self-taught biologist, and Samuel Wilberforce, the Bishop of Oxford, were the principal speakers. Wilberforce’s criticism mainly focused on Darwin’s inability to identify a mechanism for the variations on which natural selection might act. Darwin had acknowledged that deficiency.

The interpretation of the Bible is really at the center of the controversy about the theory of evolution. Is the Bible to be taken literally, or can at least portions of it be taken symbolically? You may remember the scene in Rodgers’ and Hammerstein’s musical play *The King and I* where Anna finds the king in his library reading the Bible. The king declares, “Mrs. Anna. I think your Moses shall have been a fool. . . . Here it stands written by him that the world was created in six days! You know and I know it took many ages to create world. I think he shall have been a fool to have written so. What is your opinion?” Anna replies, “Your Majesty, the Bible was not written by men of science, but by men of faith. It was their explanation of the miracle of creation, which is the same miracle – whether it took six days or many centuries.”

Religious opponents of the theory of evolution often say “It’s only a theory,” implying that the formal scientific use of the word is equivalent to the casual use of the word in everyday speech. Thus, they make the religious explanation of the origin of species of equal validity to the scientific theory. As Jim emphasizes above, in science a casual idea, or hypothesis, becomes a theory only after it has been subjected to exhaustive experimentation and analysis. Evolution is, indeed, only a scientific theory. As such, like any scientific theory, it is open to revision or replacement if, but only if, new observations contradict it. Opponents speak of the scientific controversies surrounding the theory of evolution as if those controversies cast doubt on the theory itself. There are indeed scientific controversies, but they pertain to the details of how evolution works, not whether it works.

SEPTEMBER

Anniversaries

			Day	Year	Years
Harry	Ainsworth	Mary	12	1953	61
Russell	Fraleigh	Jill	15	1953	61
Sam	Brody	Eleanor	26	1954	60
Robert	Curtiss	Dolly	4	1954	60
John	Blair	Connie	10	1955	59
Joseph	Bausk	Jacqui	15	1956	58
Dan	McCarthy	J.M.	14	1957	57
Michael	Patterson	Kay	13	1957	57
Edwin	Larsen	Betty	9	1961	53
Douglas	Gifford	Jan	7	1963	51
Bradford	Conant	Mary	3	1966	48
Larry	Vifquain	Carol	15	2012	2

SEPTEMBER

Birthdays

		Day	Year	Age
Ken	Slowman	12	1924	90
Charles	Pepper	21	1925	89
Ed K.	Thomas	4	1926	88
Robert	Curtiss	10	1927	87
Clifford	Card	21	1929	85
Gail V.	Drake	25	1930	84
George J.	Wiedenbauer	17	1930	84
Bert	Snyder	30	1931	83
Raymond G.	Fryer	24	1932	82
J. Stanley	Waugh	30	1932	82
Gerald	Morse	11	1933	81
Robert	Trocchi	11	1933	81
Barry	David	22	1934	80
Barton	Skeen	25	1936	78
T. Nelson	Baker III	17	1937	77
Peter	Rhoads	15	1937	77
H. Ronald	Riggert	14	1937	77
Keith	Sims	5	1940	74
Charles	Woodard	24	1945	69



The Harbor Bhoys

RMA Annual Dinner

Wednesday October 15, 2014

Marlbororgh Counrey Club

\$50.00 per person

Send check to RMA box 261 Wayland, Ma 01778

Send reservations to:

Ray Atkins at Rayatkins@onebox.com



Songbirds

Human babies learn to talk by listening to the adults and copying what they hear. If the adults around them speak German then they will learn German. They will learn German with the same accent the adults around them have.

This has been studied extensively and what has been learned is that the first seven years are critical, especially for developing a “proper” accent.

Dr. Wilder Penfield, a neurosurgeon who mapped out the various functional areas of the brain, wanted his children to learn multiple languages. He and his wife set up their home so that one language was spoken in one room and only that language. Another language was spoken in a separate room, and so on. They had their children exposed to various languages by having various people in their lives speak different languages. Their parents spoke English and the house keeper spoke German. Their children did not end up confused. Other children raised in such environments do well as long as things are done in a consistent way.

Other creatures learn in the same way. Others lack the ability to learn to “speak”. The monkey and apes do not have the ability to learn to “speak”. They make sounds but are like dogs; they just make noise. They add meaning by increasing the loudness of the sound or the speed of their sounds.

Many birds just make a noise which we refer to as a call. Others have the ability to learn to “talk”. The song birds learn to utter sounds by copying the adults around them. If one raises a song bird with an adult of another species it will learn the song of the species it grew up with and not the song of its own species. Cowbirds lay their eggs in the nests of other birds. Their young are raised by the parents of the nest they hatched in. They learn the song of the parents who raised them.

Songbirds, like humans, not only develop the “language” of their species, but have accents. Those who have studied the sounds of particular birds can tell where a bird comes from by the accent of their song. These studies also indicate that after two years of age songbirds do not have the ability to learn a new accent.

Whales also utter sounds which are learned. One can teach a baby whale to “speak” by sending it low pitched sounds. It will then return the sounds. If it hears the sounds later in life it will respond as it did as a child.

Many creatures have had their brains studied and it appears that this ability to learn to speak is present in the brains of some creatures and not others. If one lays out the “evolutionary pattern” of those that can speak and compares it to those who cannot speak one is unable to a common pathway of evolution. It is thought that the ability to speak has developed by evolution in various creatures independently.

by Al Persson

Next RMA meeting

Bob Steele

Big-Time Gambling

Seduction of a Small New England Town.

Friday

October 10, 2014



First Class Mail

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