



The **BEACON**

News from The Coalition for Excellence in Science and Math Education

Volume XVII, No. 1 *Queries? email M. Kim Johnson (next page) Copyright © June 2013*

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EDITOR'S MESSAGE

There Is More Going on Out there than You May Realize

Our President is in Europe—Having Fun, I'll Bet!

CESE President, Ken Whiton, has been having a good time in Europe on vacation while the rest of us are slaving to keep the world from falling apart. So, his punishment is that he must read an introduction to this issue of the *Beacon* from me, Kim Johnson. Actually, I am glad that he is having some fun after many years of hard work to reach his retirement – and even more hard work as an excellent CESE president.

CESE Annual Meeting Announcement With a Special Guest Speaker

We are having our annual meeting on Saturday, June 29th at 1:00 PM. It will be held at UNM's Northrop Lecture Hall (see map, page 7). As shown on the map, parking is available just to the west of Northrop Hall.

We are especially lucky to have a very special guest speaker this year, Zack Kopplin. Who is Zack? I'm glad you asked. He is a 19 year old Rice University student from Louisiana. He has decided to take on the pro pseudo-science politicians in Louisiana who passed the absurd law several years ago that allows for the teaching of creationism (non-extant evidence against evolution). Nineteen years old! What were you doing when you were 19 that could help the world to be a better place? I was having fun and going to school. Zack has been on a campaign of pro-science and has made national television to push his agenda. We very

much look forward to his talk, and we hope that there are many in attendance to hear this young man. Perhaps some of his zeal will be added to ours and inspire people to really try to fix some of the messes in public understanding of science that we have been working on since our founding in 1997. We hope to see you there.

What About All These Mandatory Tests?

On another topic, we have been hearing much about the effects of the "high stakes" testing in schools. But we hear little about the rather significant toll that ensues when standardized testing causes student time in class to suffer rather significantly, and sometimes with rather dubious testing to begin with. This does not mean that testing is bad or should be done away with, but perhaps, just perhaps it should be revisited with respect to how it is administered and how much class time it consumes, and how it is formulated. Our own Lisa Durkin, Past President of CESE writes about this topic, and we present it in this issue.

The Religious Beliefs of Darwin and Wallace - the Real Story, not the Creationists' Version

Then there is a rather specific subject that is generally mis-characterized by essentially all creationists, young earth, old earth, intelligent design people, and whoever else gets involved with creationist beliefs. Even many real scientists do not understand Darwin's and Wallace's positions on religion. Our own Paul Braterman

The Beacon is published by the Coalition for Excellence in Science and Math Education (CESE). A 501(c)3 nonprofit corporation, we are incorporated in the State of New Mexico. Visit our web site at <http://www.cese.org>.

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CESE annual dues are \$25 for individual, \$35 for family, and \$10 for students. Please see last page for membership form. Email Beacon submissions to Editor, M. Kim Johnson, kimber@comcast.net.

addresses what Darwin and Wallace actually did believe personally in terms of religion. If you do not recall, Alfred Russel Wallace, a near contemporary of Darwin, independently came up with selection of the fittest as the overview mechanism for evolving life forms. Darwin got to the right place first, but he held off on publication until it became clear that Wallace was going to beat him to the press. Both were geniuses. Both are generally very much misunderstood relative to their religious beliefs. Paul will clarify this. He gets it right, as usual.

Darwin, Wallace, Evolution, and Atheism

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Peter Hitchens, younger brother of the late Christopher, says in the notorious London Daily Mail¹ that the implication of evolution “is plainly atheistical, and if its truth could be proved, then the truth of atheism could be proved. I believe that is its purpose, and that it is silly to pretend otherwise.” Pat Robertson claims that “the evolutionists worship atheism.”² Richard Dawkins tells us that he lost his faith in God when he learned about evolution. The claim that evolution is intrinsically atheistical is used repeatedly by advocates of creationism, and the Discovery Institute’s Wedge Document³ describes it as part of a malignant materialism that debunks traditional views of both God and man.

Yet from the very outset there have been believers who actively welcomed evolution. Asa Gray, the botanist to whom Darwin dedicated his own book, *Forms of Flowers*, saw evolution as the natural process through which God worked. Charles Kingsley, the Christian



DARWIN-WALLACE MEDAL
1st July, 1908.

social reformer and historian now best remembered for *The Water Babies*, wrote to Darwin that a Deity who created “primal forms capable of self development” was “a loftier thought” than one who had created each kind separately. In our own time, we have evolution theology and Evolution Sunday. Ken Miller, a committed Catholic, is prominent as molecular biologist, textbook writer, and legal witness on behalf of evolution, while Dennis Venema’s postings on the website of BioLogos,

an organization dedicated to the acceptance of science from a Christian perspective, are model expositions of evolutionary science.

Against this background, it may be helpful to look at the religious views of Charles Darwin himself, and also those of Alfred Russel Wallace, the two independent originators of the concept of evolution as the inevitable outcome of natural selection.

Darwin's private autobiographies include a short but revealing chapter on religious belief. Darwin initially contemplated becoming a clergyman. He "did not then in the least doubt that strict and literal truth of every word in the Bible" and was much impressed by Paley's argument from the perfection of individual organisms to the existence of an intelligent creator. He was still quite orthodox while on the *Beagle* [which sailed around the world allowing Darwin to collect numerous samples ranging from fossils to live animals and plants ed.]. But in the two years after his return, he reconsidered his position, and gradually came to reject conventional religion on historical, logical, philosophical, and indeed moral grounds. Old Testament history was manifestly false, and presented God as a vengeful tyrant. Different revelations contradicted each other. And, as he later wrote:

I can indeed hardly see how anyone ought to wish Christianity to be true; for if so the plain language of the text seems to show that the men who do not believe, and this would include my Father, Brother and almost all my best friends, will be everlastingly punished.

And this is a damnable doctrine.

As for the implications of science, Darwin's conclusions are interesting. "The old argument of design in nature, as given by Paley ... fails, now that the law of natural selection has been discovered.... Everything in nature is the result of fixed laws." Regarding what he called, despite the deaths of three of his children, "the generally beneficent arrangement of the world", this is itself the result of evolution, since a predominance of suffering, "if long continued, causes depression and lessens the power of action." On the other hand,

evolution avoids the theological problem of suffering, since all organic beings must learn to avoid what harms them, and the balance between the perceptions of pleasure and pain is itself an evolved adaptation.

Darwin also made a clear distinction, which today's "Intelligent Design" advocates systematically blur, between Paley's argument from the design of particular things, and the more powerful argument from what he called "the extreme difficulty or rather impossibility of conceiving this immense and wonderful universe... as a result of blind chance or necessity." While discarding the former, he still found the latter convincing enough to say, at the very time that he was composing On the Origin of Species, that "I deserve to be called a Theist."

Later, however, he writes "can the mind of man, which has... been developed from a mind as low as that possessed by the lowest animal, be trusted when it draws such grand conclusions? ... The mystery of the beginning of all things is insoluble by us, and I for one must be content to remain an Agnostic." This term, "Agnostic", had been newly coined by his friend and prominent supporter, Thomas Huxley, and refers, not to a wishy-washy uncertainty, but to the principled conviction that there was no adequate way of deciding the question.

Alfred Russel Wallace is a much more complicated case. He seems to us self-contradictory and changeable, an opponent of the supernatural who nonetheless took Spiritualism seriously. He was also much more wordy than Darwin; his autobiography runs to two thick volumes. I have therefore relied mainly on secondary sources⁴, together with his review⁵ of Lyell's writings on geology, in the April 1869 issue of "The Quarterly Review," and his 1871 reply to critics⁶.

In his teens, Wallace came into contact with the reformist ideas of Robert Owen, and abandoned conventional religion, with its emphasis on original sin, for a belief in human improvability based on the natural sense of justice. He seems to believe in a Creator, and indeed advances, as an argument in favour of evolution, that separate design for every creature would reduce that Creator to the level of a second-rate craftsman⁷. However, only two years before formulating his own ver-

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sion of the theory of natural selection, he had expressed the opinion that the beauty and diversity of the forms of living things went far beyond what could be explained in terms of their biological requirements⁸.

This last conclusion may help make sense of his 1869 review of Lyell, in which he asserted that there were things about humanity, in particular, that could not be explained by natural selection. Abstract thought, moral sense, and the design of the hand, all as much present in what he called the savage as in civilized man, seemed to him superfluous to the requirements of the savage's life. This despite having lived among such savages while collecting specimens, and observing the demanding nature of their lifestyles, the skill of their toolmaking, and the subtleties of their social organization. He also makes the linked arguments that evolution cannot explain the development of consciousness (for contrary opinions, see Dennett's *Kinds of Minds* and Cairns-Smith's *Evolving the Mind*), and that materialism cannot explain how consciousness could exist at all. (Here, I think, Wallace is referring to a problem that we are no nearer solving now than we were then.)

But does this mean that Wallace was willing to embrace the supernatural? Quite the reverse! In his answers to critics, he makes it clear that he does no such thing. What he does do, is reject materialism. There is more in the universe than matter, but nothing that is beyond the scope of natural science.

So what of Peter Hitchens's (and, for what it's worth, Pat Robinson's) claim, given that neither Darwin nor Wallace could be pigeonholed as atheists, and that in matters of science Wallace was not even a materialist? Simply false. Also grossly insulting to scientists, as if we (like Peter Hitchens?) chose our positions in order to further some external ideological agenda. Also yet another example of an anti-scientific conspiracy theory (see the November 2012 Beacon). And also a warning to all of us; if this is typical of journalistic comment in areas that we know about, like science, how should we regard such comment on topics that we are not experts on, like Syria?

There remain some serious questions. Is it possible to accept evolution without being an atheist? Quite obviously, yes, as Darwin, Wallace, and many examples listed here clearly show. But human psychology is notoriously quirky and tolerant of self-contradiction. So, as a matter of logic, is religious belief compatible

with the acceptance of the fact of evolution? (Note that I am not discussing here the truth or falsehood of any religious beliefs, which is outside the scope of this publication.)

The answer, surely, must depend on the kind of religion, and here my sympathies lie entirely with the Evolution Sunday crowd. For the reasons spelt out over the past 150 years by Kingsley, Darwin, and many others, evolution poses no new problems for religion in general, and indeed may blunt some of the traditional arguments used against it.

What is not consistent, either with present-day scientific knowledge, or with any kind of scientific approach to reality, is an overriding belief in the literal truth of one particular sacred text. That kind of religion renders impossible any sensible discussion of evolution, or of nature in general, or, indeed, of God.

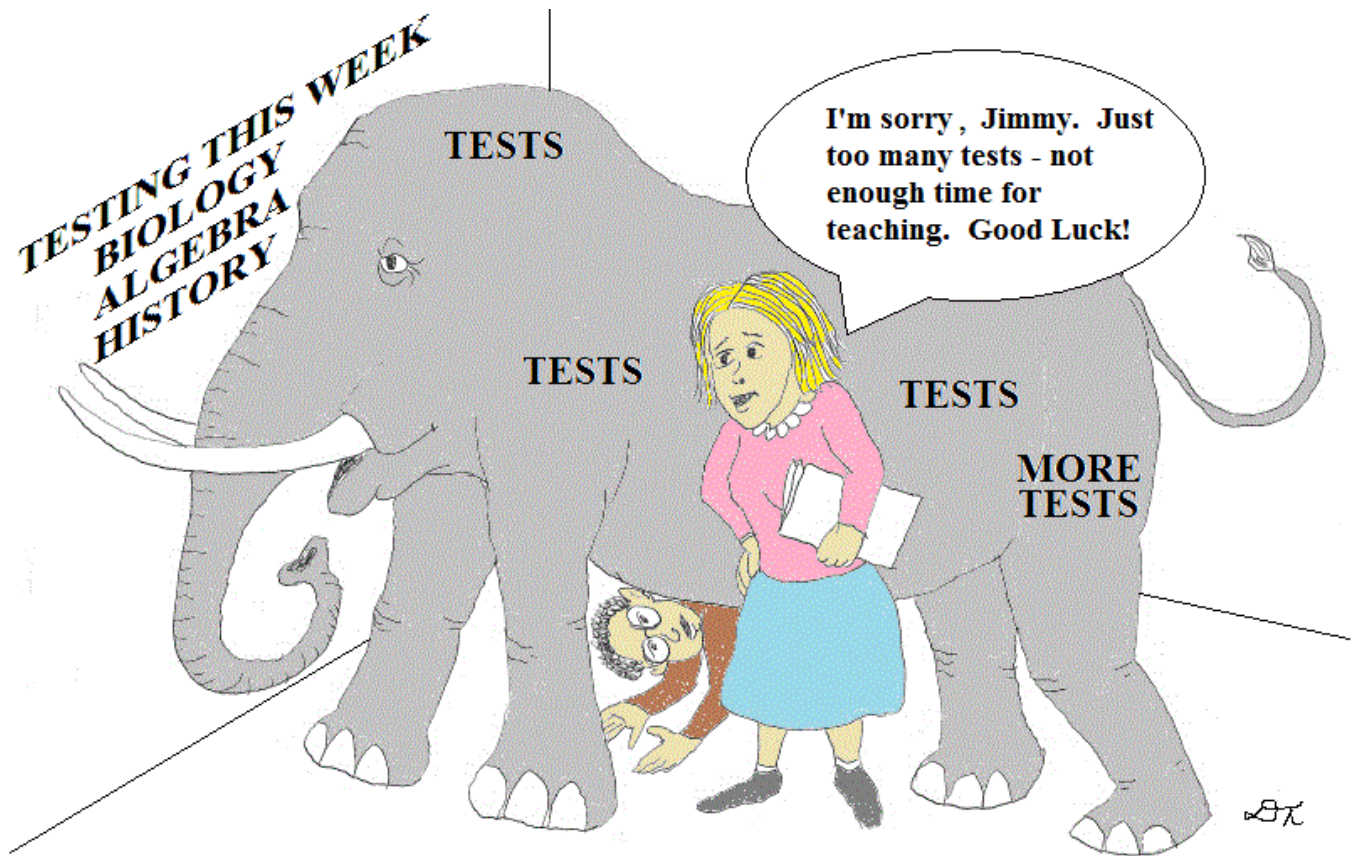
End Notes

1. <http://hitchensblog.mailonsunday.co.uk/evolution/>
2. <http://mediamatters.org/video/2005/12/19/robertson-claimed-evolutionists-worship-atheism/134479>
3. <http://www.antievolution.org/features/wedge.pdf>
4. Especially *Natural Selection and Beyond*, ed. Charles H Smith and George Beccaloni,.
5. Confusingly indexed in QR under Lyell, not Wallace.
6. Through <http://people.wku.edu/charles.smith/wallace/S716note.htm>
7. Smith and Beccaloni, p. 327.
8. *Ibid* p. 370.

Paul Braterman

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Editor's Note: Dr. Braterman's article provides background that can be useful when speaking to either individuals or to a group of people. One of the ever-present assertions many of us have heard from creationists is that Hitler's (excuse me for bringing him into this) belief in evolution was the cause of the Pogrom. I have seen this story briefed by a school board member at a board meeting. It was rather sickening. But whoever says this out loud, should be answered. Hitler's religious beliefs are not well understood, and there are many opinions by historians. However, he was raised a Roman Catholic when young, and though his father was skeptical, his mother was devout. Hitler believed that Jesus was a great Aryan, and that the Jews were responsible for his death. That is generally agreed on. He hated Jews, almost certainly well before he had a reasonable understanding of evolution. He already had an excuse to commit genocide. Evolution of the fittest turned into that excuse for him. Perhaps he even believed it. But evolution did not cause Hitler to do what he did. Please, if a creationist ever confronts you with this false statement, jump down their throats with both feet and real data about Darwin, Wallace, and Hitler's insanity.



Can Anyone See The Elephant in the Room?

Testing and Its Frustrations

By Lisa Durkin, high school science teacher at Los Lunas Public School and Past President of CESE

Imagine you have a business; it could be anything from a medical practice to a car dealership. Envision that every week your clients are either missing for a couple of days or only a portion show up. As with any business, client presence is crucial for success. Consider that the performance of your clients will serve for the measure of, not only your business, but also your personal effectiveness. Also, the performance of your clients will be publicly published and scrutinized. The results will be used to forge public policy that will not only affect your business but will also will be used to justify opinions about your personal job performance and pay. Your business policy makers have never set foot in your business, but they have the ability to micromanage the way that you conduct your business. Here's the ironic part; the reason that your clients have patchy attendance is because the policy makers have demanded that the clients spend time in an exercise to measure the performance of your business. Are you beginning to feel a little panicky or frustrated? It's like icy fingers reaching into your chest, squeezing until it's a labor to breathe.

Measuring student performance is a necessary "evil" in the educational world. Just ask teachers and students! Tests not only take from instructional time, but they need to be graded as well. No one likes them, but they are essential to the educational process. Testing is essential for determining student progress and studying school and teacher effectiveness. There is no doubt about that. The problem is one of excess. We spend so much time testing kids that we don't have time to teach the material they are tested on. Here is the high school spring schedule: Week one, all English Language Learner (ELL) students take the assessment for English language learners for a day. Week two, the New Mexico Standards Based Assessment (NMSBA) is a two day exam for sophomores and three day exam for juniors. Week three, short cycle testing is conducted for freshmen and sophomores where students are pulled out individually for reading and math tests. Week four, sophomores and juniors are pulled out for end of course (EOC) exams in five subjects. Teachers of those five courses must grade the exams. Week five, any student taking an advanced placement (AP) course has the opportunity to take the AP exam. Week six, students take their regular finals. Testing for sophomores interrupts a full third of the spring semester. My biology final exam results for this spring semester were so dismal

Continued from page 5

they were painful to view despite the fact that less material was taught, and the exam was shorter as a result. It is absurd that the schools would ever willingly subject their students to all these state Public Education Department (PED) testing requirements, but schools will surely pay the price for the diminished results in student performance.

The response from Education Secretary Designate Hannah Skandera is that individual course exams were supposed to provide double duty as both an EOC exam and a final. Districts were supposed to submit final exams in October for approval as EOCs, and 18 out of 89 districts managed to comply. Those schools that did not submit their tests were given an exam to administer. The administration window fell a full month before the end of school, yet the test covered a full year of content. It's not clear if this test window was designated by PED or was simply the only opportunity for my district to administer it given all the other test windows. For the EOC to serve as a course final exam, logistics would provide enough time for teachers to administer, grade and record the results of the EOC before the end of the semester. As of the last day of school, there were so many issues with grading the EOCs that results had yet to be tallied. It is a good thing we didn't attempt to use these tests for final exams. Besides, in my opinion, the biology exam was poorly written and a poor measure of student proficiency. It was less than 50 questions and was supposed to cover a year's worth

of biology. I have never given a final with less than 70 questions for a semester's content. The grading rubric was rife with errors. The lesson learned is that we will submit our science tests to PED well before the deadline next year.

It is frightening to think that the bulk of results for these high stakes tests are mostly for school and teacher accountability; meanwhile, students can fill in any bubble to any answer randomly without much, if any, repercussion. Many students don't take these exams seriously and very few study for any of them. A solution would be to administer tests during summer months. This would solve all of the disruption involved in testing. If students were held accountable for their results, then they might even study for them, which would mean they might learn more as a result. The problem with summer exams would be the expense. Suddenly, the "What's one more test?" mentality is exposed for the inability to understand consequences that it is.

It appears that ubiquitous testing for testing sake, with no mind for the ill effects, is the wave of the future as long as Secretary Designate Skandera is at the helm of the PED. How else are teachers to be gauged by the new teacher evaluation system? What a nightmare.

The school reform requirements demand that schools improve. **The real question is: how are all these tests providing an improvement to education?**

Announcement for an Upcoming Special Talk at the New Mexico Museum of Natural History

Dr. Dagmar Llewellyn will speak at a special joint meeting of New Mexicans for Science and Reason (NMSR), the New Mexico Academy of Science (NMAS), and the New Mexico Museum of Natural History (with a tip-of-the-hat from CESE) on Wednesday, July 10th at 7:00 PM, at the DynaTheater in the New Mexico Museum of Natural History and Science. Dr. Llewellyn's topic is "Potential hydrologic impacts of climate change in the Upper Rio Grande (headwaters to Elephant Butte) basin: adaptation and mitigation strategies." She is a hydrologist, with an educational background in geosciences and civil engineering, and post-graduate studies in climate dynamics, paleo-climatology, river restoration, GIS, and water law and management. Mark your calendars for this important talk!



Please Join Us for Our 17th Annual CESE Meeting with Zack Kopplin, a Rising Star in the Science Activist Community!



Our Annual Meeting will be held on Saturday, June 29th, 1:00-4:30 in Albuquerque, New Mexico, in the main lecture hall at Northrop Hall on the University of New Mexico campus. Our speaker is noted Louisiana activist Zack Kopplin, who will be speaking on the topic “Why we need a Second Giant Leap.”

Zack is one of the most effective and young pro-science activists at 19 years of age we have come across. He has organized a fight against the Louisiana anti-science, creationist friendly statute. Zack has been interviewed by multiple local and national news outlets, including MSNBC (Hardball), Vogue Magazine, the Washington Post, PBS, Etc. There are too many to mention here, but a web search will get them for you. He has also organized petitions with 78 Nobel laureates and gathered supporters ranging from NCSE to Dr. Ken Miller. We could go on. Instead, please join us on June 29th and let’s let Zack tell us his story in person!

Please come and bring a friend. Open to the public at no charge!

Directions and Parking: The map below shows Northrop Hall and the Lecture Hall (white circle near the center of the map.) The Lecture Hall is at the far, northeast end of Northrop Hall and has an entrance right by the hall. Follow the sign saying “Room 122” or use the main entrance shown on the east side of the west wing of building 24. Parking areas are shown on the map (get there early for a close one just west of the building!). Street parking on Redondo is also allowed.



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