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Send dues, along with name, address, phone number, and email address to: Red River Freethinkers, P.O. Box 405 Fargo, ND 58107-0405.

Your membership dues to the Red River Freethinkers for 2010 have been paid.

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<http://www.redriverfreethinkers.org>

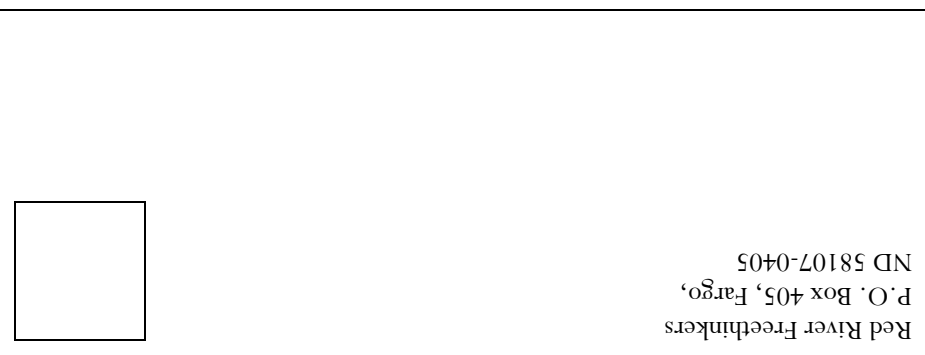
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The mission of the Red River Freethinkers is to promote freethinking through education and activism

Red River Freethinkers is a 501(c)(3) non-profit organization.

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RED RIVER FREETHINKERS

THE RED RIVER RATIONALIST

ISSUE 134 MAY 2010

BOOK REVIEW: DISBELIEF 101

The author begins right away (well, after an introduction by Tom Flynn) by assuring young people who may be nervous reading such a book that he understands their fears. S. C. Hitchcock (writing under a pseudonym for the safety of his family) tells such readers that, if they take nothing else from the book, and if they are unable or unwilling to read anything else, to remember that there is no God. "Religion," he says, surely striking a nerve with everyone in his intended audience, "survives and is a huge force in the world because it relies on the indoctrination of children." It was this observation, Hitchcock noted in an interview, that drove him to write the book.

The book is divided into several brief chapters that build on each other, explaining the absurdity of believing in god(s). The book endeavors to shine light on the flaws of all religions, dwelling primarily on the three 'great' monotheisms.



Disbelief beautifully addresses concerns and fears a young person may have regarding casting aside faith. It even advises youths on how to deal with their rational thinking, should they happen to live in a household where dissenting opinions are forbidden. For example, Hitchcock spends three pages calming his readers & telling them it's okay to set such ideas aside until they are free of well-intentioned care-givers who would likely not understand.

Additionally, the book devotes a chapter to debunking a few of the tired objections to evolution, such as the arguments that things are too complex to have evolved, that life violates thermodynamics, and the particularly silly argument that it's "just a belief".

Sprinkled throughout are references to things young people will understand. *Disbelief* includes dialogues between fictitious people to help illuminate more difficult ideas. It is also replete with examples that pointedly, simply, and humorously demonstrate the absurdity of religion - and especially the damaging belief that one religion is superior to all others. And, should all of this still be too much for a young person to grasp, Illustrator Leslie White's fifteen drawings interspersed in the book drive home each major point in an unforgettable (and often hilarious) manner.

Before ending with a helpful bibliography, Hitchcock makes the argument that, while

physical abuse is not tolerated in this country, mental abuse gets a free ride: punch your kid in the face, he says, and the cops will come to your door. Tell them that god will burn them forever in hell if they don't accept Jesus into their heart, and everyone ap-

plauds your faith. Comparing religions to the marketing strategy of the fast-food industry, Hitchcock reiterates his original argument that if religions did not indoctrinate children, religion would cease to exist. That was a thought that even I - someone who left the teenage years behind quite a while ago - found stunning and insightful.

Do yourself a favor: buy a copy of this book. If you're too old to benefit from its arguments, give it as a gift to the young person in your life.

Visit www.disbelief101.com for more information, and to order the book. ■

James Zimmerman
St. Paul, MN

POINTS OF INTEREST

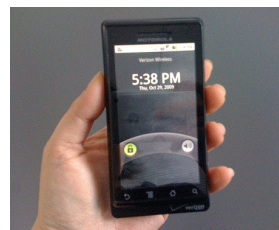
- The June Red River Freethinkers meeting will be a potluck held at the Rogne farm in Kindred, ND from 1:00pm-3:00pm on Sunday June 20. Directions to the Rogne farm are on the front page of the RRF website. The RRF website address is on the back page of this newsletter. Everyone is welcome!
- Every Saturday morning from 11-12pm on KNDS 96.3 FM in Fargo, catch Kent and Brian on "The Amplified Atheist".
- Check out the *Center for Inquiry* (CFI) podcast "Point of Inquiry" at pointofinquiry.org

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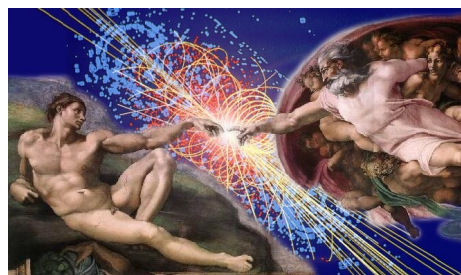
INFORMATION UNDERLOAD

I admit it, I am spoiled. When I wish to find out an obscure fact, when my memory (increasingly) fails to immediately come up with an item of information I used to know, when I am simply too inertia bound to walk over to my reference books across the hall- or across the room, I just tap the Wiki bookmark on my computer and facts appear. At a recent public talk, the excellent speaker mentioned the element Americium while talking about radio-metric dating and stated he could not recall the atomic number (number of protons). With droid phone in hand, I powered up, flicked over to the screen with my informational applications, touched the Periodic table icon, touched the index icon and touched the entry Americium (tucked between Aluminum and Antimony) and read the atomic number of 95. Yup, spoiled!



We live in a world of cheap knowledge, and like supermarket shoppers, may not always know or appreciate from whence the knowledge (or foodstuffs) came- or their cost. Let's look at Americium. It was discovered in 1944 by a team of chemists headed by Glen Seaborg working at Metallurgical Laboratory (now Argonne Laboratory) at the University of Chicago. This is a leading laboratory in energy research and, before Fermilab, with its own atomic accelerator, was a leader in high energy physics research. It takes a whole laboratory and a team of researchers to discover an element these days.

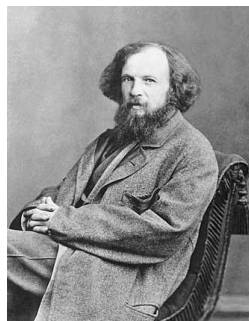
What is an element? The modern day answer is: an element is a substance made up of only one type of atom. Which leads to two more questions: what is an atom and how do we differentiate types of atoms. The first question has its roots in ancient Greece. Democritus (470-380 BCE) or his mentor Leucippus proposed that everything was made of atoms. They had a simple logical proof: take a cone, slice it parallel to its flat face, the difference in the diameters of the two new exposed faces is the 'diameter' of an atom- the smallest piece into which matter could be cut. Democritus believed everything was composed of atoms- even gods if there were any. For Democritus, there really was a 'god particle.' Unlike modern atomic theory, Democritus believed that atoms were eternal, indestructible and, by their physical shape interacted mechanically with other atoms. Here we also have an early concept of an element.



The second question was addressed by British chemist/ physicist Robert Boyle (1627-1691) who was the first to state a definition of an element in the modern sense. His view was that any substance that could not, by experimentation, be broken down into other substances, was an element. And although Benedict Spinoza tried to persuade him that pure reason was superior to experimentation, Boyle seems to have disregarded this argument. He was a charter member in the newly formed Royal Society in 1663 whose motto was "*nullius in verba*" (nothing by mere authority). Ironically, when terrified by a thunderstorm at an early age, he became a devout believer and his will bequeathed monies that funded a series of talks known as the Boyle lectures- defending Christianity against non-believers.



Let's take the story of the elements and atoms further. Dimitri Mendeleev (1834-1907) was one of many scientists to notice something about peculiar about the elements (of which there were 58 in 1863). He noticed that their reactivity, physical properties such as appearance, melting and boiling points varied in a periodic manner and that they could be arranged in a table according to their weights in such a way that highlighted those other properties. He published his Periodic Table of the Elements in 1869, others before and



shortly after did the same, but his was the only one which left blank spaces for elements he believed existed, based on gaps in atomic weights, but had not yet been discovered. Elements were later found to fulfill Mendeleev's predictions and named Germanium, Gallium and Scandium. He saw that the key to understanding elements was their atomic weights.

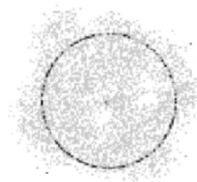
Jumping forward, we know that atoms are made of nucleides (subatomic particles= protons, neutrons and electrons- and that these are composed of quarks (but to go that far is information overload). Each subatomic particle has mass and weight. How did we find out, there are many experiments paving the way, I'll mention work by two principle researchers.

Madam Sklowdowska Curie using an electrometer (a device for measuring electric charges invented by her husband Pierre Curie), applied it in a novel way after hearing that Uranium salts give off 'energy rays'- work by Henri Bequerel



(1896). She found that the air around Uranium salts was electrically charged. She then tested two other substances (Torbernite and Pitchblende) and found that they too had this property, but also that the atmosphere around these substances was charged proportionately two times and four times more than around Uranium. Madam Curie's conclusion (1898) was that these substances each contained an unknown different element. Later she isolated and named Polonium and Radium from the second and is given credit (by Ernest Rutherford) for identifying Radon from the first. Her work showed that atoms are not eternal, they decompose. She coined the term radioactivity to describe the charged air, Bequerel's energy rays, around these elements and was, tragically, the first known victim of her discovery. She died at age 66 of aplastic anemia- a result of exposure to radioactivity. Her original manuscripts are literally too hot to handle as is her cook book. To visit the Curie museum in Paris, one must wear protective clothing. The price of knowledge can be very high.

Ernest Rutherford, with co-researchers Marston and Geiger at Manchester in 1909, performed an experiment which had a startling result. Using a cathode ray tube (predecessor to our now defunct analog TV), he 'shot' alpha particles (hydrogen atoms) at a piece of gold foil. Gold foil is so malleable that it can be formed into sheets only 100 atoms thick. Rutherford's cathode ray tube had 'phosphor' screens placed fore, aft and on each side. He expected the alpha particles to strike the screens aft, behind the gold foil and give off that characteristic glow- and most of them did. But some particles bounced off the foil to strike the screens placed at the front, near the particle emitter. He likened this to firing cannon at a piece of tissue paper and having the shell bounce back and hit you. What did this experiment establish? It showed that atoms have a lot of nearly empty space with a dense center. They have a positively charged nucleus which contains most of their mass and a negatively charged outer region. Rutherford's was the first modern model of the atom with (+) charged protons in a nucleus surrounded by a (-) charged electron 'cloud.' He postulated the existence of Neutrons and went on to show that his alpha particles were hydrogen atom nuclei.



Rutherford Atom

Rutherford did so much more. He 'shot' an alpha particle at a Nitrogen atom and made an Oxygen atom. Not as good as the alchemists trying to change iron to gold, but his result was based on his atomic model and it worked. Rutherford made yet one more outstanding contribution: he quantified Madam Curie's discovery of radioactivity, realizing that if atoms decay and the decay pathway is known (see picture) then, the age of the rock containing those radioactive (daughter and parent) elements can be calculated by the proportions of the elements

present. He found a clock of the earth, and found the world to be so very much older than the 6,000 years claimed by Archbishop James Ussher in 1650 and ascribed to a bronze aged book. Rutherford was also the first to split the atom- and we know where that can lead.



These are only some of the highlights of the progress in chemistry and physics. I probably should have mentioned John Dalton and proportionality of chemical reactions or Antoine Lavoisier and the importance of reliability in measurements, or even Benjamin Franklin and the controversy about electricity- far too many crucial contributions by a multitude of brilliant people over the centuries to do more than cover salient points in a short essay. My simple act of looking up the atomic number of Americium rests on literally centuries of contributions of others, from Democritus to Rutherford via Boyle and the Curies, these giants- among many others were necessary for my 'flicking of the screen' to yield results. But wait, as the ads say there [could be] more. I did not even address the development of technology making my phone possible, but it all rests on the discovered physical and atomic properties of matter. All of the models must be substantially correct for my phone to work.

So, what is information underload? Most of what I have written came from memory (education), supplemented by my college General Chemistry textbook (refreshed and updated by Wikipedia) and Asimov's Biographical dictionary of Scientists. This is mostly easily accessible knowledge. So, when a person asserts the world to be only 6,000 years old, it is not the bronze-age book they tout or even a 15th century priest who is at fault. Bronze-age scribes were not armed with present day knowledge of chemistry and physics, nor had they the vocabulary to express these concepts were they somehow 'revealed' to them. They were as trapped in their time as we are in ours. James Ussher could not know of element #118 (Ununactium) with a half life of 0.005 seconds discovered in 2006- and neither did I back in 1974 when I took college chemistry. But the readers of such Bronze aged texts, they live in our time and are *not* trapped by such texts as I was not trapped by my (outdated) college chemistry book. Knowledge advances. If our models of matter and matter interaction at the chemical or atomic level were in substantial empirical error in the present time, my phone would not have worked, your TV would not work, radio-metric dating of the earths' age could not work and the atomic bomb blast the killed 70,000 people at Hiroshima in 1945 (200,000 by radioactivity as of 1950) could not have happened. Willful ignorance of easily available and accessible knowledge is information underload- or a more insidious kind of denial. ■

Jerry Fauske
 Fargo, ND