

Red River Rationalist

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redriverfreethinkers.org

Old Books; New Books

Davis Cope

Reviews books or anything else interesting to Cope.

Cherry Lewis. *The Dating Game: One Man's Search for the Age of the Earth*. 2000.

The Dating Game is a biography of Arthur Holmes (1890-1965), the geologist who developed the use of radioactivity for measuring the age of rocks and provided geology with a quantitative time scale.

During the 1800s, geologists developed an extensive qualitative time scale based on the discovery that the Earth's surface contains layers or strata that show a well-defined order and distinctive fossils. A qualitative time scale results from the principle that the lower strata are older than the upper. But the strata provide no information about absolute ages, the quantitative measure of the time for their formation, nor for the associated issue, the age of the Earth. Holmes laid the basis for today's knowledge that the dinosaurs died out 65 million years ago and that the Earth is 4,550 million years old. In describing his life, Lewis gives a picture of science at work, as techniques, discoveries, data slowly refined, some eliminated, hypotheses over a period of decades. A geologist herself, she provides helpful context for the general reader, for example, that the Cambrian period refers to the first stratum where fossils with hard shells are found, that is, fossils that could be detected by nineteenth century geologists and thus an easily identifiable time point. This apparent transition from "no life" to "life" became known as the "Cambrian explosion", hence a special interest in the date of the start of the Cambrian ("a geological period named after the Latin word for Wales where these ancient rocks are typically exposed").

The question of measuring geological time and, in particular, the age of the Earth goes back at least to the beginning of modern science. In 1715, Edmond Halley of comet fame proposed regular measurements of the salinity of the ocean. He hypothesized that it was gradually increasing and that, over some decades or so, the rate of increase could be determined, then extrapolated back to determine the time at which the water was saltless, thus determining the age of the Earth (or the ocean, at least). This delightfully simplistic approach is a prototype of what are called "hourglass methods", where the present amount of sand in the bottom corresponds to a situation in Nature (such as the depth of a canyon cut by a river), the rate at which the sand runs through is measured or estimated (such as the average number of inches cut by the river per century), and dividing the amount by the rate gives the time (age of the canyon). Obviously, this approach has many problems, such as whether the rate has been constant over millions of years.

But it was a straightforward idea and much used as geological data accumulated during the nineteenth century. Lewis describes one of the last efforts in this direction: "In 1925 [John] Joly published a book on *The Geological Age of the Earth*, which favoured an age of between 160 and 240 million years to the Base Cambrian. This he deduced from his own method for measuring the age of formation of the oceans, which he still calculated to be 80-100 million years .. ."

While geologists had been concentrating on hourglass methods, physicists proposed another

approach. This was based on the "molten globe" assumption, that the Earth was initially a melted, fluid mass. This accounted for its spherical shape, the shape such a "molten globe" would assume under gravitational action, and for rocks such as granite, a crystalline mineral evidently formed by cooling from a molten state. In 1862, Lord Kelvin, "the world's expert on thermodynamics", felt that there was sufficient knowledge to formulate such an approach, which would be based on the initial temperature of the molten rock, the rate of cooling, and mathematical analysis that would determine when the surface of such an enormous sphere would have cooled to the point to permit a solid crust and then to present temperature levels. His initial conclusion in the 1860s: "I think we may with much probability say that the consolidation cannot have taken place less than twenty million years ago, or we should have much more underground heat than we actually have, nor more than four hundred million years ago, or we should not have so much". The broad range of that first estimate had little impact, but further information shortly led Kelvin to fix the age of the Earth at 100 million years. Then, in 1893, experiments found the melting point for "rock" was 1200 degrees C. rather than the 4000 degrees C. originally assumed, leading Kelvin to a final conclusion around 1900 that the point at which the Earth was cool enough "to support some sort of vegetable and animal life" (that is, the age of the "Base Cambrian") was 20-40 million years ago.

Becquerel discovered radioactivity in 1896. The term is so familiar today that it may be hard to understand why it was so staggering and so important (and led to so many Nobel prizes so quickly). At the time of its discovery, the atomic theory, the theory that all matter is made up of tiny particles called "atoms" (Greek for "indivisible"), was well established and provided the theoretical basis for chemistry. There were hints that atoms had structure: about 90 types were known, corresponding to the known elements, and their properties showed consistencies that allowed them to be grouped in a "periodic table", which was so successful that gaps in the table had led to the successful prediction of new elements (later discovered). But there was no known means of getting at that "atomic structure". Its nature was a complete blank until the discovery of the electron in 1897 and its recognition as an atomic component.

Radioactivity was energy apparently spontaneously generated by certain materials. This was incredible enough, as it seemed to violate the law of conservation of energy. Investigators quickly found that it was associated with specific elements, such as uranium or thorium, and that it was independent of chemical combination with other elements and independent of physical form (dissolved, melted, vaporized, etc.). In other words, it was taking place at a level deeper than anything known at that time, indeed, at the atomic level itself, a spontaneous change in an element's atoms. The phenomenon obviously would provide new insight into atomic structure, and "alpha particles" emitted in such decay could themselves be aimed at other elements to act as probes of their atomic structure. and, of course, there was excited speculation about "atomic energy" as a new energy source.

Radioactivity invalidated Kelvin's estimate of the age of the Earth. He made the natural assumption of no energy source affecting the Earth's rate of cooling, but radioactive minerals were just such a source.

Since the radioactive decay rate is not affected by chemical or physical processes and since the law of radioactive decay (determined by Rutherford and Soddy in 1902) is simple, radioactivity was quickly realized to have a potential for geological dating that would be superior to the usual methods with their estimated and variable rates. That was the starting point of radiometric dating, and Holmes dedicated his life to it. It was literally a matter of decades of work because nuclear physics itself was in the process of coming into being.

For example, an Age of the Earth Committee (established in 1926 to monitor techniques and measurements) published a report in 1931 reviewing "the sedimentological, the palaeontological, the astronomical and the radioactive points of view". Holmes summarized the radioactive findings as: "No more definite statement can be made at present than that the age of the Earth exceeds 1460 million years, is probably not less than 1600 million years, and is probably much less than 3000 million years".

But that report was almost immediately out of date because the conclusions were based on one of the most commonly used techniques, the decay of uranium into lead (it was first postulated that lead was the final decay product in 1907). This is a process that involves multiple decay steps, not one, steps which had to be fully discovered and studied. The fact that the atoms of a single element actually consist of several types (called isotopes) was only demonstrated in 1919, although it had been hypothesized a few years earlier. The isotopes of an element behave the same chemically but have different properties at the subatomic level, in particular, some isotopes can be radioactive while others may not be, and the radioactive ones typically have very different decay rates. By 1929, enough was known to recognize that the isotope of "ordinary lead" had to be a decay product itself, and Rutherford calculated that it had to result from a hitherto unknown isotope of uranium, U-235, different from the known isotope, U-238. The predicted isotope was discovered; it had not been previously noticed because it formed less than one percent of ordinary uranium. Of course, the continued intensive study of uranium isotopes and the detailed knowledge we have of them today were conducted for other reasons than geological dating.

So knowledge and measurement techniques continued to accumulate. In 1947, Holmes published a new quantitative age scale, placing the start of the Cambrian at 510 million years (the current value is 544 million -- compare Joly's 1925 estimate mentioned above). New spheres of activity were added, such as the dating of meteorites. The date of 4,500 million years for the age of the Earth was first announced in 1953 and confirmed in 1956 by agreement between measurements on meteorites and ocean basin samples. That date for the age of the Earth (indeed, the Solar System) has continued to hold for over 50 years with a slight refinement to 4,540-4,550 million, remaining consistent with further meteorite studies and even lunar samples.

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***"War is God's
Way of Teaching
Americans
Geography"***

Ambrose Bierce

Thoughts on "The God Delusion" by Richard Dawkins and Arguments of His Critics

Part II:

This portion deals with Dawkins' ideas about the role of religion in fostering evil, so called proofs of God's existence as well as the origin and universality of religion and the relation of religion to morality.

The most common criticism of "The God Delusion" is that Dawkins concentrates on extremist religion and then calls all religion evil. He characterizes the Christian god as: "arguably the most unpleasant character in all fiction: jealous and proud of it; a petty, unjust, unforgiving control-freak; a vindictive, bloodthirsty ethnic cleanser; a misogynistic, homophobic, racist, infanticidal, genocidal, filicidal, pestilential, megalomaniacal, sadomasochistic, capriciously malevolent bully". It is peculiar that Christians ignore these evil and pornographic aspects of the bible that would lead to calls for banning were they present in other books. That the Abrahamic religions (Christianity, Islam and Judaism) have a common foundation in the particularly brutal and sadistic Old Testament may explain why those religions seem most prone to violent excess. This raises a question. What does Dawkins consider moderate religion? My understanding is that moderate does not mean mainline. Promotion of irrational ideas associated with religious belief has evil consequences in the real world. Dawkins' critics have used the Nazis as an example of an irreligious group that committed crimes much worse than those committed by Christians. The Nazis were largely faithful Christians and Hitler was an enrolled Catholic until his death. The Church excommunicates a doctor for performing one abortion but never excommunicated Hitler.

The connection between the Nazis and the Catholic Church in WWII provides the best recent example of mainline religion abetting evil. This is well documented, despite continuing efforts to rewrite history. The religiosity of the Nazis is seen in the bewildering array of pins, metals and patches combining the swastika and the Cross, including enlisted men's buckles reading "Gott mit uns" (God with us) in large letters (see <http://www.nobeliefs.com/mementoes.htm>). The oath sworn to Hitler by all German soldiers was "I swear by God this sacred oath that I shall render unconditional obedience to Adolf Hitler, the Führer of the German Reich and people, supreme commander of the armed forces, and that I shall at all times be ready, as a brave soldier, to give my life for this oath."

Both the Catholic and Lutheran churches taught faith-based hatred of the Jews for hundreds of years before the Holocaust, so the Germans were primed to respond positively to Hitler's program. The Reichskonkordat between the Vatican and the 3rd Reich was signed in 1933 by Cardinal Pacelli (later to become Pope Pius XII). This concordat was essentially a nonaggression pact between the Nazis and the Church. The Church agreed to stay out of politics and the Nazis gave the Catholic Church in Germany a number of benefits including the right to levy taxes, and the right to teach the Catholic religion in schools using only teachers approved by the local bishop. However, before bishops took possession of their dioceses, they had to swear an oath of loyalty to the 3rd Reich. This was well after the inhuman evil of the Nazis was clear. Since the Reichskonkordat furthered God's work, what could possibly be wrong with supporting a racist, murderous madman so that the Church could collect barrels of cash and have a free hand with millions of young minds? Many Nazi themed Catholic and Lutheran churches were constructed. Almost all were destroyed, but the Martin Luther Memorial Church in Berlin has survived for 60+ years. Nazi symbols are everywhere in this church. Der Spiegel has a nice set of photographs of the church on their web site:

<http://www.spiegel.de/fotostrecke/0,5538,12941,00.html>, including one storm trooper carved on the altar to the right hand of Jesus. Swastikas are illegal in Germany so they were removed, but the spaces they occupied are obvious. Photos of Catholic Bishops and priests giving the Nazi salute in honor of Hitler can be seen at <http://www.nobeliefs.com/nazis.htm>. It seems that immoderate religion is most evil when it seeks political power.

Another criticism of Dawkins is that he ignores "proofs" of the existence of God. Arguments by Behe and others claim that aspects of life have an "irreproducible complexity" that implies the existence of a designer. They avoid the logical necessity of applying this same principle to the obviously more complex designer. Where did he/she/it come from? Since the fossil record shows that life has existed for about 3,500,000,000 years, Dawkins points out that there has been ample time for slow systematic evolution to produce complex organisms and organs like the eye. The whole range in complexity of light sensitive structures ("eyes") is found in creatures alive today. He also discusses some theological "proofs" of the existence of God, but these examples of circular reasoning using an artificial vocabulary and irrational assumptions seem too silly to spend time discussing.

Dawkins considers the peculiar and essentially universal penchant of humans to create religions including a nice discussion of the cargo cult religions that sprang up independently more than four times on different Pacific islands during World War 2. He suggests that religion is the unfortunate side effect of inheritance of a brain wired so that children unquestioningly accept indoctrination by their elders. This receptiveness to learning would have great survival value for primitive tribes that lived in the presence of much stronger and faster predators. However, to encourage their formation and survival for long periods, religions must offer some other positive benefits to followers, such as reducing fear of death. Many Christian sects certainly seem to be preoccupied by death and threatening their followers with purgatory or hell if they deviate from their doctrines. Dawkins also suggests that gods may be an extension of the comforting imaginary friends that many children create and continue to believe in regardless of massive evidence that they do not exist.

There is remarkable agreement on moral codes between most major religions, even though their doctrines are in sharp conflict. This suggests that morality has a far older origin than any religion. Christian apologists cite this as evidence for the hand of God at work. However, it would take a perverse god who enjoyed human suffering to give humans the same moral code but a vast array of conflicting doctrines. Dawkins argues for morality based upon evolutionary biology, which he considers more hopeful and firmly founded than relying on ancient conflicting texts. He discusses kindness and generosity as innate in all human beings, as they have been found to be in other social animals. The survival value of these "moral" traits that leads to their propagation was discussed in detail in his earlier book, "The Selfish Gene".

I think that Dawkins is overly optimistic in believing in the possibility of eliminating all irrational religious belief. However, a practical goal might be to foster the survival of many conflicting beliefs, so that no one religion achieves predominant political power. In the USA, a good start might be to expand legal immigration and access to citizenship for people who practice the less violent non-Abrahamic religions.

Science recognizes the splendor and complexity of the universe while religions lead to easy but meaningless answers. "Is there no more than just this life?" asks Dawkins and answers: "How much more do you want?" We are fortunate to be here, and should make the most of our time. Atheism can lead to a sense of personal responsibility that can never arise from a childish dependence on a mythical "big daddy" god whose "truths" are all too often used to justify evil behavior.

- Charles Sawicki

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Letter to the Editor

Illegal Immigrant Charged With Homicide In Deadly Minnesota School Bus Crash

I was very concerned by the media frenzy about the school bus crash that recently occurred in Minnesota involving an illegal immigrant. The problem is that the tragedy had nothing to do with the fact that the perpetrator was an illegal immigrant. It seems to be simply another example of the use of a tragedy to push emotional buttons, and make a political point, by passing blame for the actions of a single individual to an entire group.

This is happening more and more in the conservative media such as Fox news and their current target seems to be illegal immigrants. They take a tragedy that happens very frequently in a country of this size, such as a car accident involving child deaths, and use it as a tool to make a conservative political point. It is all the more dangerous when people who aren't normally concerned about illegal immigrants become emotionally charged by the story and find themselves agreeing when the blame is placed on that entire collection of people.

A quick Google search of 'illegal immigrant charged' returns a large number of recent hits all around the country where the media attacks illegal immigrants with stories such as 'Illegal immigrant charged with raping teen', 'Illegal alien charged with vehicular homicide', and the list goes on to include illegal immigrants arrested after bar fights, shootings, etc.

It seems to me that a bar fight would not even make news if it couldn't be used it as a tool to instill fear of immigrants in the population. The reality is that the majority of illegal immigrants are simply normal people who are trying to escape the poverty, and sometimes chaos, of their own country and seek a better life in America. Because they are often without money and education they are relegated to maid service, gardening and other temp jobs without the benefits and protections provided to citizens. They work hard, for very small wages, and it can be argued that they provide an essential service to the country whilst trying to better themselves and their standard of living. Is this not the foundation of the American dream? So although I agree that there may be a need for immigration reform, it is a separate issue. Perhaps we shouldn't be so hasty in pointing the finger at these people as a group when one of them gets into trouble.

How would we feel about the equivalent blame being passed to other groups under identical circumstances? What would be the reaction of a reader of the Rationalist to headlines such as 'Atheist student guns down twenty', 'Gay man robs liquor store' 'Woman of Irish decent involved in another sex scandal' or 'Man with Jewish grandmother arrested after bar fight'. The point is, the attributes of Atheist, Gay, Irish or Jewish had nothing to do with the crime. Similarly, we shouldn't misdirect our blame on the entire group of illegal immigrants when one of them commits a crime -- regardless of our opinion on their status in this country. Hating a group of people for the actions of an individual is not only wrong, it is irrational.

- Dr.

Terry Pilling Dept. of Physics, NDSU

David Johnson tells us the book he has "been writing forever" is going to the publisher. David says that his book is about war and religion's place in what creates war and is not your usual "I went to war and came home a hero." On the contrary, it got him to a place he'd rather have not gone -- and what that means for all of us. David would like to know how many might be interested in this book

Progress

**Just imagine, if you can,
That our whole World is nothing more
Than just exactly what it seems --
Our Earth a tiny scrap of stuff
Adrift in boundless space --
A Junior Member of a mighty Universe
Of galaxies and clouds of dust
And rocks and ice
And, here and there, a planetary body
Such as ours,
Where what we know as Life
Could come about and thrive --
A world where Universal Laws apply
To energy in all its forms
And matter, from the tiny atom
To the greatest galaxies
And all that lies between.**

**Behold then, all these Universal Laws
That Man may fathom, if he can
And thus reveal the workings of his World.
But Humankind, yet in its infancy,
Unable then to comprehend these Laws
Peopled it with gods and ghosts and demons
And other phantoms of the mind.**

**Soon, then, a Priestly Class arose
To claim exclusive knowledge of these gods
And through fear and sleight-of-hand
Gained great wealth and power
So to set themselves above
The Common Man.**

As centuries passed

A few brave Men dared brave the bloody wrath
And, working in defiance of the Priests,
Began to understand
Some workings of the Universe
And with agonizing patience prove
The Natural Laws our World was subject to.

Grudgingly, the Priests lost ground
As, bit by bit, our knowledge grew
And we began to lay to rest
The supernatural view.

The Priests though, now so well-entrenched --
Much loathe to give up any power,
Still using fear and sleight-of-hand,
Ignoring overwhelming evidence,
Were able to convince the Common Man
Those age-old myths must still be true --
The old gods still must have their due.

So now, in this somewhat enlightened time,
The Priestly Class still have their wealth,
Still command respect and power.
The land is dotted everywhere
With temples, churches, synagogues,
And more being built and added on
And should a Non-Believer glance
In passing at these palaces
'Tis hard indeed that he not think,
"Now there's just one more monument
To superstitious ignorance."

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A Plethora of Stimulating Reading Material

A trio of books that are critical of religion have recently been published. Surprisingly, two have achieved best-seller status (the third has just been published). The books are *The God Delusion* by Richard Dawkins, *God is Not Great: How Religion Poisons Everything* by Christopher Hitchens, and *Away With All Gods: Unchaining the Mind and Radically Changing the World* by Bob Avakian.

Both Dawkins and Hitchens voice the thought that indoctrinating a child with a particular religious belief, before the child is capable of making decisions of this nature, constitutes child abuse. To quote Dawkins: "Suicide bombers do what they do because they really believe what they were taught in their religious schools: that duty to God exceeds all other priorities, and that martyrdom in his service will be rewarded in the gardens of paradise. And they were taught that lesson not necessarily by extremist fanatics but by decent, gentle, mainstream religious instructors, who lined them up in their madrasas,

sitting in rows rhythmically nodding their innocent little heads up and down while they learned every word of the holy book like demented parrots. Faith can be very, very dangerous, and deliberately to implant it into the vulnerable mind of an innocent child is a grievous wrong." (Dawkins' next chapter is "Childhood, Abuse, and the Escape From Religion;" one of the chapters in Hitchens' book is "Is Religion Child Abuse?")

I just received Avakian's book and have yet to read it. I was interested to note that Avakian is a Marxist. The four parts of his book are "Where did God Come From...And Who Says We Need God?" "Christianity, Judaism, and Islam -- Rooted in the Past, Standing in the Way of the Future" "Religion -- A Heavy, Heavy Chain" and "God Does Not Exist -- We Need Liberation Without God." It should be interesting.

- **Chuck Crane**

Monument Wars, Etc.

(1.) Your executive committee has decided to wait about a month to start court proceedings against the City of Fargo concerning their refusal to allow installation of our Sister Monument.

(2.) Several of us were lucky enough to attend the conference of the American Atheists in Minneapolis. We bought T shirts with the Treaty of Tripoli quote and a picture of George Washington.

- **Jon Lindgren, Pres.**

The Red River Freethinkers is organized by freethinkers to be a nonprofit educational organization. We are a group of nonreligious people skeptical of religious dogma. We advocate Intellectual Freedom and the use of Reason. Articles and letters in this newsletter present ideas and opinions of individual writers and do not necessarily reflect those of the Red River Freethinkers organization.

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Red River Freethinkers Calendar

Regularly scheduled meetings are held at 2:30 p.m. on the third Sunday of each month.

This month's meeting will be held in the Atomic Coffee shop on 222 Broadway N, in Fargo, next to Monte's restaurant from 1-4 p.m. on Sun. Apr. 20.

Our speaker for the April meeting will be **Lilie Schoenack**, whose topic is, "A Review of Richard Dawkin's Book *The God Delusion*." Dawkins was the keynote speaker at the American Atheist Convention this year.

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