

Challenging Science

Simple Explanations to Some Complicated Science Enigmas

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by

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ABSTRACT

After a decade of its being in print, the author is making "Challenging Science" free so its ideas can be received more easily by a larger audience.

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The INTRODUCTION Section from "Challenging Science"

Students of the physical sciences and mathematics are constantly reminded to seek the simplest answer that satisfies the problem at hand. In practice, however, this motto is seldom followed. The sciences are particularly vulnerable as accepted doctrines become embellished with complex mathematics. Theoreticians become so removed from reality that they are no longer able or willing to view an issue from square one. Practitioners simply take the theoretician's word for many issues as they find the mathematics too difficult to follow. As a result, theories take on an inviolable persona. It took a millennium and a half for the earth-entered universe to fall. How long will it take for some of the current scientific models — notably the spdf/nlms electron model of atoms — to fall?

Several years ago, I.M. Klotz of Northwestern University wrote of mankind's fascination with numbers (The Mathematical Intelligencer, 17, 43 (1995)): he called it "the mysticism of numbers". I believe that the number 666 is illustrative of that mysticism. I can see a group of men squatting in a dusty biblical alley. The shooter tosses the bones for three boxcars. "Oh, hell. How the devil am I going to make

that? I'm in BIG trouble." Wagers are piled on. Losing his home, he knows 666 is bad news all right. He passes the bones to someone else, but watches in dread of the hell he'll catch from the missus when he gets home. Talk about a living hell. Soon the new shooter rolls Cyclops (111), falls to his knees, and cries, "Oh god, help me". Fellow wagers heap deeds into the pot for a SURE thing. After a few tosses, cyclops strikes again. The shooter falls on his knees in thankful prayer. Miracle of miracles. Numbers go mystic. Interestingly, Klotz excludes QUANTUM NUMBERS from this fascination and obsession with numbers. Unlike the above, these are said to be BASED ON scientific fact and thus the absolute TRUTH. To many scientists, these quantum numbers are solid as "The Rock", gospel so to speak; some view them with quiet agnosticism; most listen and don't give a hoot — no more quizzes; no more orals. As I figure it, scientists are part of mankind, too; except maybe for a few aliens who reportedly came out of the European woods in the first half of the last century to give us those quantum numbers. Have scientists been shooting a little craps [mysticism of numbers] here, too?

I spent most of my childhood in a house whose number was 629. This number does not seem very remarkable until one looks at it from an operator point of view. The number two (2) can be visualized as an operator that allows the number six to flow into the number nine [6²9]. Do 6 and 9 have any special relationship? Probably not, but an operator can be envisioned even if no relationship exists. Does a similar relationship exist for the Chinese Yin-Yang? Is there a simple operator between moronic and genius behavior?

The intent of this book is to take a fresh view of several scientific problems. In each case, the object is to look at the issue from a simple, practical view while aware of the many years of mathematical treatment. Short treatises will be given to practical approaches to Avogadro's number, radioactivity, tunneling and gravity. Quite extensive treatments will be given to the electronic structure of atoms and the resulting structure of covalently bonded molecules, to a simple organic reaction, to superconductivity, and to the critical state of matter. This book is written to have each topic stand alone. In each case, the object has been to follow the KISS (KEEP IT SIMPLE SCIENCE) principle for each topic.

The entire book, as published in hardcopy, is in an 18Mb pdf file that can be downloaded at the Author's website at no cost. The Author's website also provides updates to a number of the topics that have been made in the decade after the book was first printed. At the website you will find information about the Author's 2nd book - "Rethinking the Atom". Topics covered by "Rethinking the Atom" are given there.

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