

helion was known at least as early as Leverrier's work, about the middle of the last century. Toward the end of the century Newcomb, having studied the matters very extensively, concluded that there are several anomalies in the orbits of at least the four innermost planets. See Poor, Charles Lane 1922. Gravitation versus relativity. G. P. Putnam's Sons, New York. (See also Morgan, Herbert R., 1930. The observed motion of the perihelion of Mercury, *Journal of the Optical Society of America*, 20 (4): 225-229. The theory of relativity, it appears, helps with some of these anomalies, leaves some unchanged, and actually makes some worse.)

The two other effects of Einstein were not looked for evidently until the question of relativity had been raised. Actually some scientists have questioned whether the explanation given by relativity is really needed. See Poor, *Op. cit.*; also Burns, Kevin, 1930. A comparison of laboratory and solar wavelengths, *Journal of the Optical Society of America*, 20 (4): 212-224; also Poor, Charles Lane, 1930. The deflection of light as observed at total solar eclipses, *Journal of the Optical Society of America*, 20 (4): 173-211.

For an attempt at a theory of gravitation analogous to a theory of electrodynamics rather different from the Maxwellian one see Ritz, Walther, 1908 and 1909, in papers collected in his *Oeuvres*,

published in 1911 by La Société Suisse de Physique and Gauthier-Villars, Paris, pp. 419-422 and 462-492.

Further Editor's Comment

If anyone should ask what this topic has to do with Creationism, it is relevant in at least three ways. In the first place, gravitation and related matters have to do very closely with cosmology and cosmogony; and those topics clearly have to do with Creation. In the second place, it is possible that consideration of the radiation of energy through gravitational waves might help to prove the youth of the universe, by setting an upper limit on the ages of double stars, planetary systems, etc.

The third point is a little different. According to the theory proposed here, gravitation and electrodynamics are very closely analogous. When similarity is found in living beings, evolutionists often claim that it is evidence of descent. But surely no one will maintain that the electromagnetic field descended from the gravitational, or vice versa. Rather, the similarity is due to the Designer's use of one basic plan, with variations. Having seen this happen in inorganic nature, creationists shall not be surprised to see the same kind of thing among living beings. There, too, the similarities point to the Designer's methods, and have not necessarily anything to do with descent.

DARWIN DENIED: THE SUPERSTITION OF STOCHASTIC SUCCESSION

ROBERT W. BASS*

The scene is a meeting of experts to discuss the reality, or otherwise, of UFO's. The narrator is a physical anthropologist whose avocation is exobiology. Pictures, alleged to be of the crew of a UFO, have just been shown. As the curtain rises, the narrator is commenting on the pictures.

Excerpts from Fictional Novelette

"Have those artfully staged photos fooled you all? Look at the slides of the alleged UFO-nauts. Unmistakably human beings! Don't you gentlemen know what the mathematical odds are against the random evolution on another biosphere of creatures so extraordinarily like ourselves? Haven't you read George Gaylord Simpson's, "On the Non-prevalence of Humanoids?"¹ Or Harold Blum's independent corroborative calculations?²

"Even if we consider our present planet Earth to be starting all over again, back in the days when it had a reducing atmosphere, some four billion years ago, the odds against the evolution of sentient beings similar to ourselves were easily 10^{18} to one! Isaac Asimov has shown that the total number of different possible genomes existing in the visible universe is less than 3×10^{63} , while the total number of possible genomes exceeds 3×10^{622} ."

"Garrett Hardin's figure for the latter is 10^{3000} ; Hardin assumes that only one in a million million million million million gene combinations is viable, but that would still leave 10^{2970} adaptive peaks theoretically possible."³

"At any rate, no matter how you calculate it, the chances of humanoid evolution a second time anywhere else in the universe is negligibly small!"

"Excuse me," interrupted Porterhouse, "but Professor Asimov himself has partially countered that argument, by demonstrating the functional advantages of approximately humanoid form: two eyes, for stereoscopic vision; brain near eyes for rapid responses, etc. Also, Carl Sagan has pointed out that if we are considering only a single pathway, then we have to multiply probabilities, and the product soon becomes negligible; but if there are many parallel paths to an approximately similar end, then we have to add the probabilities."

"There may be only one chance in a billion of exactly human life evolving under certain conditions, but if there are a billion other possible, viable kinds of creatures who phenotypically resemble the humanoid gross morphology, to the point where a superficial external inspection would accept identity (without consideration of biochemical differences), then the probability of evolution of a humanoid being could be so high as to have order of magnitude unity."

"Your logic and mathematics are correct," I replied, "but your assumptions are completely unupportable. The well-proved principle of genetic homeostasis shows that as soon as you start to get away significantly from an adaptive genome, sterility or inviability sets in and drastically limits the amount of departure available." (See References 13 and 18.)

"Granted," replied Porterhouse, "but if you follow that line of evidence to its inevitable conclusion, you arrive at the result that the theory of macro-evolution (beyond species, genera and families to actual transformation of orders) by random point-mutations and Darwinian natural selection (differential reproduction)—that is, the conventional theory of stochastic macro-evolution—falls of its own weight as a mathematical absurdity." (See Reference 19.)

"Surely you aren't serious?"

"Indeed I am," answered Porterhouse. "Haven't you read my book, *Darwin Discredited: the superstition of stochastic succession?*"

"Teleology!" exclaimed Damsel, picking up a copy of his magnum opus, *UFO's*.

"Orthogenesis!" blurted I, grabbing a Morocco-bound gilt-edged copy of my monograph on exobiology.

"Vitalism!" snapped Arnizov, clutching a fat paperback edition of his masterpiece, *Amizov's Amazing Assorted Assertions*.

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"Mysticism!" expostulated Zagen, grasping at his latest-edited symposium proceedings, *Transactions with Unearthly Mentalities*.

"Gentlemen," interjected the chairman, "surely we all accept that every man is entitled to his own *Weltanschauung*. Obviously Dr. Porterhouse believes in Divine Special Creation. But who among us does not have his own preconceptions and unconscious biases?"

"Pardon me, Al," continued Porterhouse, "but I don't agree that my theology has influenced my biology. I keep my roles as a theist and as a scientist quite distinct. When I am operating as a scientist, I play by exactly the same rules as do the rest of you."

"Humpphh!" snorted Damsel.

"In fact, I would go so far as to say that my religious commitments may have caused me to examine neo-Darwinism far more objectively than have some of you. As a theist, I accept Creation as all important. This gives me an enormously powerful, non-scientific, emotional motivation for wanting to get to the bottom of the matter. I still use precisely the same scientific method as always, but learning the answer now takes on a life-or-death importance to me. Therefore I cannot be content with some of the superficial and slipshod modes of reasoning commonly prevalent in this field."

"How many of you are familiar with the war now raging in *Nature* in the field of molecular biology between the so-called selectionists and the neutralists?⁴ Consider amino-acid sequencing in proteins such as cytochrome C. There are variants due to point mutations in one of the corresponding DNA codons, but all biochemical, cytological and morphological investigations show that none of these variants have any selective advantages whatsoever among themselves; as regards differential reproduction they are demonstrably neutral."

"Hence the percentages of each variant appearing in different species having the protein otherwise identical should be the same, and should be proportional to the likelihood of the relevant point mutations, if the theory of stochastic evolution is true. Yet, for example, the horse has, 100 percent, one particular variant; and the donkey invariably has the other! This conclusively establishes that some force or influence other than Darwinian natural selection is at work."

"Not so fast, Dr. Porterhouse," I butted in, "let me reply to that point. You may be right. But there is recent evidence suggesting that evolution is governed, not by mutations in structural genes, but by mutations in regulatory genes. Protein-wise, chimps and humans are virtually identical, yet during morphogenesis subtle alterations in rates, sequencing and so on produce vastly different phenotypes. Until this is all unravelled, you can't make your last argument stick."

"Well, what about Lewontin's Theorem in mathematical genetics, utilizing the concept of information as precisely analogous to negative entropy, and proving that during stochastic evolution the information content of the genome cannot increase.⁵ That in itself decisively destroys macro-evolution! Have you read profound geneticist Goldschmidt's 1940 Yale lectures, *The Material Basis of Evolution*,⁶ in which he poses a score of challenges to stochastic macro-evolution that have not been resolved to this day?"

"Have you read formerly orthodox research geologist and palaeobotanist Derek V. Ager's, *The Stratigraphic Record*,⁷ in which after years of global observations he con-

cludes that, far from upholding uniformitarianism, the stratigraphic record is actually one long record of global catastrophes of such magnitude that he cannot conceive any alternative to the hypothesis of causation by extra-terrestrial phenomena?"

"Have you read Nitro-Nobel Medalist, physical chemist, Melvin Cook's, *Prehistory and Earth Models*,⁸ in which he demonstrates by nuclear physics that the long-term radiometric dating methods, the so-called U-Th-Pb clocks, yield everywhere systematic anomalies that can be explained perfectly by, but are incompatible with any other hypothesis than, a large extra-terrestrial neutron flux (e.g. from a nearby supernova); but if you accept this impressive evidence of a flux, you have to admit, don't you, that the hands of the clocks would have spun wildly, and so long-term radioactive time would be meaningless?"

"What about Cook's radiocarbon-imbalance proof that the Earth's present atmosphere can't be more than 30,000 years old? What about his anomalous terrestrial helium efflux, that so impressed the Editor of *Nature*, that likewise sets the identical upper limit to the age of this planet's atmosphere?"

"What about profound palaeontologist Schindewolf's conclusions, painstakingly demonstrated in his monumental, *Grundfragen der Palaontologie*,⁹ that the fossil record, viewed objectively, presents the diametrical opposite of the pattern that it should present if neo-Darwinism were true? Schindewolf concluded that an intellectually honest palaeontologist would have to hypothesize that one day a reptile egg-shell cracked open and a bird walked out! (This is Goldschmidt's 'macro-mutation'.)"

"What about palaeobotanist Heribert Nilsson's explicit admission (See Reference 22) after studying the fossil record for 40 years from an evolutionary viewpoint that his basic hypothesis had been mistaken and that 'the gaps are real, they will never be filled.' An equivalent admission was made implicitly in 1972 by Harvard palaeontologist Stephen Jay Gould (See Reference 23) in the 'theory of punctuated equilibria', but now that amino-acid-racemization dating has demonstrated (but see Reference 24) that the entire geological column is less than a hundred thousand years old, Gould ought to revise the title of this theory to replace the word 'punctuated' by 'collapsed'."

"What about biochemist-physiologist Kerkut's demonstration,¹⁰ in his *Implications of Evolution*, that polyphyletic genesis, rather than monophyletic genesis, is the only hypothesis reasonably compatible with the hard evidence? Shades of Yale arachnid-specialist Alexander Petrunkevich's admission that only macro-mutations could account for the origin of spiders!¹¹"

"What about the Establishment commonplace that 'if you are going to allow macro-mutations, you might as well go straight back to Special Creation and have done with it,' on the obvious grounds that a macro-mutation would not be a mere saltation, it would be a miracle. Yet what about profound geneticist-embryologist C. H. Waddington's cytological observations of gross chromosomal changes, in a single generation, of established strains *in vitro*—heresy though it be?" (See Reference 20.)

"What about Nobel Laureate Sir Francis Crick's conclusion, decades after he and Watson cracked the secret of the double-helix structure of DNA, that the absolute universality of the genetic code—identical from bacterium to mammal—can most reasonably be explained (or explained away)

by his hypothesis of *directed panspermia*, namely that life originated (never mind how) on a planet of some other molybdenum rich star, and was deliberately seeded on Earth by some higher extra-terrestrial intelligences for . . .", he paused to chuckle, ". . . 'missionary purposes'!"¹² What about molecular geneticist Ohno's demonstration, in his hard-headed *Evolution by Gene Duplication* that homeostasis is so severe and so ubiquitous that neo-Darwinism is an absurdity?"¹³

"What about population-geneticist Richard Lewontin's agonized question, in a book (See Reference 25.) called by *Bioscience* the 'most important book on evolutionary biology published in more than 10 years'; namely, 'How can such a rich structure as population genetics fail so completely to cope with the body of fact? Are we simply missing some critical revolutionary insight that in a flash will make it all come right . . . Or is the problem more pervasive, more deeply built into the structure of our science?'" "Lewontin quite explicitly admits that population genetics fails to support evolutionary theory; in his own words: 'For many years population genetics was an immensely rich and powerful theory with virtually no suitable facts on which to operate . . . Quite suddenly the situation has changed. The mother-lode has been tapped and facts in profusion have been poured into the hoppers of this theory machine. And from the other end has issued—nothing. . . . The entire relationship between the theory and the facts needs to be reconsidered.' Isn't the 'critical revolutionary insight' that Lewontin sees as missing simply the elementary conclusion that maybe the very idea of evolution itself is what needs to be 'reconsidered'?"

"As an example of the profusion of hard facts which evolutionary population genetics, to Lewontin's consternation, has been unable to assimilate, let us return to the matter of protein polymorphism, the so-called 'molecular heresy', and combine certain recent results of pre-eminent theoretical molecular geneticists Kimura (See Reference 26.), Cavalli-Sforza (See Reference 27.), and Maynard Smith (See Reference 28.), as expounded by Kalinga Medalist Nigel Calder (See Reference 29.). Briefly, these results from blood-group typology and human hemoglobin amino-acid sequencing, after rigorous mathematical analysis and computer-processing, have demonstrated that *ALL living human beings of ALL present races have descended genealogically in less than a few hundred generations from a very small number of ancestral couples—Noah's family?—who lived in the Near East and were racially Semitic!*" [This startling quantitative result contradicts received opinion so sharply that detailed documentation, starting with pages 96 and 111 of Maynard Smith (See Reference 28.) and pages 28 and 97 of Calder (See Reference 29.), is provided in the Supplementary References.]

"What about pre-eminent mathematician von Neumann's statement that stochastic evolution is as likely as the creation of a mansion by a tornado in a brickyard? What about the very explicit statements by the discoverers of quantum and wave mechanics and the physical theory of chemical valences and molecular structures, Nobel Laureates Heisenberg, Schrödinger, Pauli, and Wigner, all of whom have stated that materialist microphysics (of which they were the creators) can never explain all biological phenomena and that some type of vitalism will have to enter the picture before life and consciousness can be scientifically explained?"

"What about Evan Harris Walker's resolution of the agonizing measurement problem in quantum mechanics—

how to formulate properly any experiment, including the instantaneous 'collapse of the wave function', without inclusion of the consciousness of the observer—by a theory of consciousness as the 'hidden variables' in quantum mechanics, which concludes that consciousness is 'real' but non-physical (in the sense of non-measurable), and has proved its viability by a dozen quantitative predictions about brain physiology, and about ESP and PK experiments, which have been confirmed experimentally?"¹⁴

"What about the Einstein-Podolsky-Rosen Paradox, which demonstrates that conscious thought can instantaneously alter the spin-state of an electron over an arbitrarily great distance? What about UCLA anthropologist Birdsell's book *Human Evolution* which, in its first edition, in a nobly objective chapter on "Human Evolution at the Second Level of Abstraction" admits quite explicitly that the simplistic story of evolution of the type propagated by such widely read popularizations as the LIFE-TIME Books is an adult fairy tale, and that the few true experts are loath to show the massive counter-evidence to any but the most advanced and trustworthy students, on the grounds that it might 'confuse' the public?"¹⁵

"What about Birdsell's admirably honest attempt at a mathematical evaluation of the theory of human evolution, in which, over a three-million year Potassium-Argon dated period, he plots the cranial capacities, in cubic centimeters, of australopithecus, pithecanthropus, and homo sapiens, ending with three essentially parallel, horizontal straight lines (at, respectively, 500, 1,000, and 1,500 cc's), thus leading, by his own words, to better than a 90 percent confidence-level conclusion than none of these three creatures can have had any genealogical relationship whatsoever?"

"Wait!", I interrupted, "I know that book well. In the second edition Birdsell corrected those mistakes you are referring to."

"Could it be that he was persuaded against his better judgment? After all . . ."

"Gentlemen! Please!" intervened the chairman. "This is neither the time nor the place to attempt to settle a controversy of such formidable magnitude."

"Although, as Chairman, I will permit myself the privilege of having the last word, by pointing out that the world's pre-eminent authority on the logic of the scientific method, Sir Karl Popper, clearly does not regard the theory of stochastic macro-evolution as a viably formulated, truly scientific hypothesis, much less a 'proved fact', as he has openly demonstrated in his ringing endorsement of Norman Macbeth's biting *Darwin Retried*¹⁶ in such words as ' . . . excellent and fair . . . most meritorious . . . a really important contribution to the debate . . . a truly valuable book.'"

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SOME MEDIAEVAL THOUGHTS ON THE ARK

The shape and structure of Noah's Ark are subjects on which something has been written from time to time, both in the C. R. S. *Quarterly* and in other creationist literature. It may be of interest to notice some early writings on the subject.

Hugh of St. Victor, a theologian and teacher who lived around 1100 A. D., seems to have been much interested in the Ark. Some of his views have been set forth by Zinn, Grover 1971. Hugh of St. Victor and the Ark of Noah: a new look, *Church History*, 40 (3): 261-272. There is also a book: Hugh of St. Victor: selected spiritual writings. Translated by a Religious at C. S. M. V. Published 1962 by Faber and Faber, London. See especially pages 60-63.

Early in the Christian era Origen had set forth his views on the Ark. He considered that it was a sort of pyramidal structure. For a long time people were content to accept this view. St. Augustine, in accepting it, granted that such an Ark would have been most unseaworthy. But he supposed that it was kept safe by God's intervention.

Hugh, however, maintained that, where it is not stated that there was a miracle, then no appeal should be made to a miracle, until more understanding can be gained of what could be done in the order of nature. Apparently he studied the construction and use of ships, and came up with a completely different interpretation.

In fact, the Ark as Hugh envisaged it seems to have looked rather like the Arks of Noah which used to be so com-

mon as toys. He considered it to have been something like a house boat; it was a boat below, but had a house-like, or at least roof-like top. Hugh had some thoughts about the arrangement of the interior; one idea, which later writers do not seem to have taken up, was that aquaria for such animals as seals were in parts of the interior. He also suggested some considerations about the size, and how it would contain all the animals.

It is true that Hugh's interest in the Ark was not primarily along lines of naval architecture. Like most mediaeval theologians, he was very interested in the allegorical meanings of Scripture; and was able, of course, to find many in the account of the Ark. That there was a tendency for the mediaeval writers to be carried away by their allegories can hardly be denied.

It should be noticed, though, that they held, in theory at least, the validity of allegorical meanings was derived from the literal. Thus anyone who wanted to draw allegorical meanings from Scripture needed to be sure that the accounts were true to literal meanings; and, of course, Hugh and his contemporaries never doubted the literal truth of Scripture, including the story of the Ark.

In investigating how these accounts, accepted as literally true, can be in harmony with the nature of things, Hugh seems to have been a pioneer in the work which has later been taken up by modern creationists.

—Editor Armstrong