

Was There Really a Big Bang?

by

Robert W. Bass

donquixote@innoventek.com

I believe in the Big Bang for two independent sets of reasons: one is “forensic” and of the type which might convince a judge & jury in a court trial, and the other is “scientific” and of the type which I would hope might persuade an open-minded professional astrophysicist.

Having been told that this magazine’s readership is predominantly interested in the political, economic, historical and “social” sciences, I shall begin with my forensic evidence:

The God of the Abrahamic religions “showed His hand” on October 13, 1917 when He intervened in human history to prevent Portugal (and probably thereafter Spain & Italy, like falling dominoes) from going Communist!

What is the most startlingly unexpected event of my lifetime? At age 75 I can confidently assert that NO ONE (save for 3 shepherd children below the age of 11 in 1917), particularly during the Cold War era 1950-90, had foreseen that someday Russia would re-institute freedom of religion, allow the reopening of 50,000 churches, and rename Leningrad the historic city of *St. Petersburg!*

Few today remember that in 1917, Lenin, around the time that he had dispatched a troop of Bolshevik horsemen to trample alive the congregation of an Orthodox Church, had stated that Lisbon was the second-most Marxist capital of the world, and that Portugal was then governed by a secular, socialist, strongly anti-clerical government. But I have held in my own hands a book actually printed in 1943 in which Lucia dos Santos, by then a grown nun, tells how she had been directed by the Virgin Mary to ask her Priest to send a message to the Pope which contained the prophecy “Russia shall spread her errors throughout the world ...” but that eventually “the Holy Father will consecrate to me Russia, which will be converted, and some time of peace will be given to the world.”

Today’s secular humanists complain that the Portuguese villagers of 1917 “lacked the capacity for critical thought.” But Benedictine Fr. Stanley Jaki, a trained physicist and theologian who has extensively investigated the matter and interviewed over 100 witnesses, reports [1]

http://www.findarticles.com/p/articles/mi_m1141/is_26_36/ai_62087489#continue that the crowd of more than 50,000 people, who observed the meteorological “miracle of the Sun” at precisely the time predicted months earlier by the 3 children, included Joseph Garrett, Professor of Natural Sciences at Coimbra University, and the previously skeptical/dismissive editor of *O Seculo*, Avelino de Almeida, who reported in this anti-clerical Lisbon newspaper that he had himself at Fatima witnessed an event of “Biblical” proportions in which the sun “trembled [and] made sudden incredible movements outside of any cosmic laws,” following which a nationwide wave of religious revival swept the secularists out of office and halted persecution of the Church [<http://members.aol.com/bjw1106/marian6.htm>]. Fr. Jaki’s final conclusion, with which I concur, is that the event at Fatima is arguably **the most important event of the 20th century!** This event provides “objective” forensic evidence for the existence of a personal God, who has chosen at certain times to “reveal” Himself though both His deeds and his Word. And we are all familiar with the opening words of the Book of Genesis, as revealed to the Prophet Moses, according to which **time** in our universe had a **beginning**.

Moreover, just as the ancient pre-Socratic philosopher Democritus (c. 460-c.370 B.C.) formulated the dichotomy between endless divisibility of matter and the existence of **atoms**, by pure reason alone, so the medieval Islamic theologians with their *Kalam* argument [2] agreed with Aristotle’s earlier strong arguments against the possibility that an actually infinite magnitude can exist, and held that a realized infinity, such as an actual infinite temporal regress, is impossible. It is this type of neo-Democritian dichotomous *a priori* argument which has been revived by astronomer Dr. Tom Van Flandern in his admirable book [4] and wonderful website <http://www.metaresearch.org/> but I have no choice but to

admit that, in my considered view, my old friend Tom has chosen the wrong side of some of the dichotomous alternatives which he explores!

In this genuinely friendly “debate” with self-described “ex-Catholic” Tom Van Flandern, I have had the “unfair advantage” of seeing an advance copy of his essay on a universe infinite in both space and time, and of seeing his “50 Biggest Problems With the Big Bang” on his truly splendid website, which I heartily recommend as embodying its claim of “Scientifically viable challenges to mainstream paradigms.” Since Tom is presently wholly involved in relocating his MetaResearch Foundation offices from the US East Coast to the Pacific Northwest, he will have to respond to me next month, if he wishes, using his own website. (I have just started my own website <http://innoventek.com> and will have posted certain items cited below by the time that this appears in print.)

With equal fervor and sincerity I applaud Tom’s remarkable dissent from mainstream astrophysics [4], which *inter alia* contains such a splendid exposition of why all too often portions of “established science” are little more than a **consensus mythology** and why some of the most elite and powerful scientists frequently behave “like high priests of a **corrupt priesthood** engaged in enforcing current dogma by ruthless suppression of all dissent,” that I believe that no one can legitimately bear with honor the title of Doctor of *Philosophy* in one of the physical sciences unless he has internalized the sad observations on pages xvii-xviii of Tom’s *magnum opus* [4], which I applaud so extravagantly that I shall place them on my own website as a signpost pointing toward little-appreciated but lamentable truths!

Furthermore Tom has at least half-way convinced me that he has made a seemingly conclusive peer-reviewed case [5] for the proposition that the force of gravity, and also the forces of electrostatic attraction & repulsion, travel at so many orders of magnitude faster than the speed of light that they are essentially instantaneous! Since this contradicts an almost universally-accepted fundamental postulate of the Einstein-Podolsky-Rosen (EPR) Paradox, namely that “reality is local,” /** it is clear that were [5] to become widely accepted it would be hard for the Swedish Royal Academy to deny Tom Van Flandern the ultimate recognition of a Nobel Prize in basic physics!

That being said, I have no choice but to explain why I do not agree with ALL of the challenges to mainstream science which Tom has so ably expounded in both his book and his website.

Tom’s lyrically-expressed, rather poetic essay on “The Real Infinity” contains many selections from competing dichotomous alternatives based solely upon his own personal aesthetic preferences and intuitions, which are then presumptuously referred to as “logical.” This leads me to begin by summarizing my own epistemological inclinations and considered, differing, *Weltanschauung*.

Notwithstanding unresolved and sometimes passionate current disputes about the foundations of mathematics, I hold to the position of the *naïve realist*, that arithmetic is objectively true and somehow relates reality to seemingly universally verifiable “laws” of nature.

But arithmetic fails (indeed, one can then “prove” that $2 + 2 = 3$) if one denies Aristotle’s **Law of the Excluded Middle: a proposition P and its denial “not-P” cannot both be true at the same time and the same place.** Consequently I regard Aristotle’s Law as the bedrock foundation of all of science, and indeed of all rational thought! But notice that we had to bring in an undefined concept of “time,” for otherwise we have the famous paradox that the proposition “Einstein is learned” is **true** when Einstein is 60 but is **false** when Einstein is 6.

Now consider what the “correct” formulation of Aristotle’s Law illuminates: we have to assume that the concept of “time” is more fundamental than rational thought!!! Unless this undefined and rigorously unexplainable **prior** concept is assumed to be understood already, it makes no sense to attempt to engage in logical argument!

Accordingly I opt for “absolute Newtonian time” and, the currently near-universal acceptance of the logically incoherent Minkowskian “spacetime” concept notwithstanding, I find it perfectly possible to interpret all of the well-established theories of “modern physics” in a way that would satisfy the allegedly naïve realism of Euclid, Newton & Maxwell. Rather than the Minkowskian “**spacetime**” interpretation of Einstein’s Special Relativity (SR) and General Relativity (GR), I accept those of the SR equations which have predictive value, but prefer the logically rigorous derivation of Ives [6] in which one replaces the orthodox interpretation of SR by the Lorentz-Fitzgerald/Lorentz/Larmor/Ives interpretation. Hence I am

pleased to see that (although his terminology is slightly different) in this matter Tom Van Flandern and I agree that the majority view is quite mistaken.

Moreover I would like to bring out the little-appreciated fact that the Milne-McCrea Theorem (of the Christian philosopher/mathematician/cosmologist Edward A. Milne [7], late Fellow of my *alma mater* Wadham College, Oxford University) shows that the standard GR equations of Big Bang theory (the **Friedman-LeMaitre Equations** of the expanding universe) can be derived rigorously from Newtonian gravity in a “flat” Euclidean space-time! (Simply model the galaxies as “dust particles” in an exploding cloud of gravitationally-attracting particles, and average over them [as in the kinetic theory of gasses] to get macroscopic properties such as density & pressure.)

Although these GR equations had previously been published as a mathematical exercise unrelated to physical cosmology by Alexander Friedman, it was a Catholic Priest, Fr. Georges LeMaitre, who independently rediscovered them and was the first to postulate a “Big Bang” Cosmology and to support it via GR equations two years **before** Hubble published, in 1929, observational evidence, based upon the standard interpretation of the observed galactic redshifts, which soon convinced the professional astronomical community of the validity of the Big Bang idea [9]. Since I was raised from birth in 1930 with virulent anti-Catholicism, and only saw the light sufficiently to be received into the Roman Catholic Church by adult Baptism (after RCIA) at Easter 2001, it pleases me greatly to know that the real “father” of the Big Bang was entitled to be addressed as a clerical “Father” by the faithful!

There is one feature of Einsteinian GR gravitational theory on which it seems that Tom Van Flandern and I more or less agree, and that is that the logically incoherent Minkowskian interpretation of the allegedly “curved,” supposedly melded “spacetime” can be readily dispensed with in terms of Euclidean space & Newtonian time, as first showed by H. A. Wilson [10] in 1921. Indeed, if one assumes that the magnetic permeability and electric permittivity at any point of empty space is slightly modified in proportion to its distance from the nearest mass of ponderable matter, then Einstein’s celebrated GR equations are a mere corollary of Maxwell’s classic equations of ordinary electromagnetism! (This has been further developed by the late Princeton University astrophysicist R.H. Dicke and still more recently by H. Puthoff [11].)

Now having confessed that I find decisively superior **neo-classical** interpretations of the supposedly revolutionary concepts of SR & GR, it seems appropriate to confess that I also find neo-classical interpretations of Quantum Mechanics (QM) and Quantum Electrodynamics (QED) decisively superior to the current logically-incoherent, admittedly “weird” and paradoxical Copenhagen Interpretation of QM & QED! I wish to thank Oxford University theoretical nuclear physicist Peter Hodgson, a Fellow of Corpus Christi College and President of the Science Secretariat of Pax Romana, for calling to my attention, via [12] and personal correspondence, the all-important posthumous papers of Thomas Brody [13] exposing the logical errors in the standard version of the EPR Paradox/** and, in the present context, even more important papers of Profs. Luis de La Peña-Auerbach and his wife Prof. Ana Maria Cetto [14a,b] which show that the sole defect [15] in the Fenyès-Nelson Stochastic Mechanics (SM) of Princeton University mathematician Edward Nelson [16a,b], as a neo-classical replacement for QM, is remediable by application of the Stochastic Electrodynamics (SED) [17] of Boyer *et al* as a replacement for QED.

The replacement of QM/QED by SM/SED will permit a return to classical Laplacean **determinism** (for inanimate matter) and therefore cause the abundant evidence for the reality of parapsychological phenomena such as ESP [http://www.parapsych.org/members/h_puthoff.html] to force a stark choice between the denial of our subjectively experienced **free will** or the acceptance by mainstream science of a non-material component of **consciousness** [<http://www.tcm.phy.cam.ac.uk/~bdj10/psi/tucson.html> and <http://www.tcm.phy.cam.ac.uk/~bdj10/>].

SED consists of simply writing Maxwell’s Equations in homogenous form and replacing the zeros on the right-hand sides by zero-mean stochastic processes with a power spectral density varying like the cube of the frequency (to preserve Lorentz invariance). The initially unknown randomizing process has already been identified by de la Peña & Cetto as the sum of the EM radiation from all of the dipole oscillators created by every pair of vibrating charged particles in the visible universe [14a,b].

Before I had learned about the earlier work [14a] I had already posted on the internet, in January 1995, and later published [18], an independent attempt to identify the unknown “background force” which enables Schrödinger’s Equation of wave mechanics to be derived from a Newtonian model of the atom in SM, as simply the net effect of all of the electrostatic forces from all of the charged particles in the visible universe at the present epoch of cosmic time. Laplacean determinism still holds, but it is not practical to compute the myriad of forces from all of the 10^{80} “jittering” atoms in all of the stars and so one necessarily must resort to Max Born’s interpretation of the wave function as the **probability** density of the position of a particle jiggling in a “non-smooth” path which follows a Newtonian orbit only in some mean-square averaged sense. Therefore Einstein is right in denying, and Bohr & Heisenberg are wrong in surmising, that nature is “spontaneously random” at rock bottom. The validation of my 1995 formula for Planck’s constant h as proportional to the mean number density of protons in the visible universe at the present epoch of cosmic time is that this formula predicts [19] not only the correct value for Hubble’s constant from Josephson-Junction measurements in an earthly laboratory, thus supplying the “missing link” between micro-and macro-physics called for by the Astronomer Royal, Sir Martin Rees [20], but it also predicts 3 other astrophysical discoveries so startling that they appeared on the front pages of national newspapers 1998-2001, one of which Cambridge cosmologist John D. Barrow has called “the biggest discovery in the past fifty years!” Following the usage of [14a,b] I have called my 1995 formula an Electrostatic Mach’s Principle.

The original Mach’s Principle (which actually goes back to Newton and Bishop Berkeley) is that the mass (hence inertia) of every body in the universe is a function of the sizes and present locations of all other masses. The best formulation of this concept in GR, which Einstein strongly opined is “incomplete” without it, is that of Jordan, Brans & Dicke, and Wagoner, in which the supposedly “constant” Newton-Cavendish gravitational parameter G is allowed to vary in space and time. In 1975 I wrote, and had unjustly rejected by *Nature* (though I recently recovered from the archives of the Gravity Research Foundation, courtesy of their President, George M. Rideout, Jr.) a series of papers [21] reworking everything in the variable- G theory under the assumption that the Eddington-Robertson parameter γ is greater than unity (by any amount, no matter how small), or, equivalently that the Dicke coupling-constant ω is negative. Last month an internet search showed that the two “latest” values of γ are greater than unity! But this corrected Mach’s Principle not only implies that true Black Holes cannot exist, but that ordinary pulsating stars in their outer layers can have **arbitrarily** large red-shifts!!

Tom Van Flandern is utterly correct that mainstream astronomers are grievously at fault for having neglected the “anomalous redshifts” of unfairly-suppressed astronomer Halton Arp [24], and justifiably places this at the head of his list of problematic aspects of the Big Bang theory. Since I am an “unknown old nobody” (to quote a Boston U Professor whom I tried to debate on the internet), and yet via [21] demonstrably the only person in the world able to give a substantial rebuttal to the strongest known objection to “the doctrine of creation, [which] is the most basic of all Judeo-Christian beliefs” [25], it seems that my unexpected invitation to this discussion is rather providential, which leaves me quietly confident that Tom’s remaining 49 objections will sooner or later be equally well resolved.

*****_-----
 /*** Despite the generally accepted opinion that local reality has been experimentally refuted in the "Bell test experiments", there are in fact known loopholes in all tests to date. Exploiting these loopholes, it is possible, as people such as Trevor Marshall [<http://homepages.tesco.net/~trevor.marshall>] and Caroline Thompson [<http://freespace.virgin.net/ch.thompson1/>] have repeatedly shown, to find local realist explanations for all the observations. Quantum mechanics may, in this area, be wrong
 *****_-----

References

[1] Fr. Stanley Jaki, *God and The Sun at Fatima*, Real View Books, 1999, 381 pages; recently reprinted: <http://www.sljaki.com/>

- [2] William Lane Craig, *The Kalam Cosmological Argument*, Library of Philosophy and Religion, London: Macmillan, 1979; cf. also the debate between Craig and an atheist in [3].
- [3] William Lane Craig & Quentin Smith, *Theism, Atheism and Big Bang Cosmology*, Clarendon Press, Oxford, 1993.
- [4] Tom Van Flandern, *Dark Matter, Missing Planets & New Comets: Paradoxes Resolved, Origins Illuminated*, North Atlantic Books, Berkeley CA, 1993.
- [5] T. Van Flandern & J.P. Vigiier (2002), "Experimental Repeal of the Speed Limit for Gravitational, Electrodynamic, and Quantum Field Interactions", *Found.Phys.* vol. 32, 1031-1068
- [6] Dean Turner & Richard Hazelett, eds. *The EINSTEIN Myth and the IVES Papers*, Devin-Adair Publishers, Old Greenwich, CN, 1979.
- [7] E. A. Milne, *Kinematic Relativity: A Sequel to 'Relativity, Gravitation & World-Structure,'* Oxford University Press, 1948 [revised ed. referencing [8], 1951].
- [8] Edward A. Milne, *Modern Cosmology and the Christian Idea of God*, Oxford University Press, 1952.
- [9] Simon Singh, *Big Bang: The Origin of the Universe*, Fourth Estate, 2004.
- [10] H. A. Wilson, "An Electromagnetic Theory of Gravitation," *Phy. Rev.*, vol. 17, 54-59 (1921)
- [11] H. E. Puthoff, "Polarizable-Vacuum (PV) Approach to General Relativity," *Found. Phys.* vol..32, 927-943 (2002).
- [12] Peter E. Hodgson, "Quantum Mechanics and Reality," *International Studies in the Philosophy of Science*, Vol.11, No.1, pp. 1-53, 1997.
- [13] Thomas Brody (edited posthumously by Luis de la Peña and Peter Hodgson), *The Philosophy Behind Physics*, Springer-Verlag, 1993.
- [14a] L. de la Peña & A. M. Cetto, "A cosmological implication of stochastic electrodynamics," preprint *IFUNAM*, 1984, of which the following is a "small reelaboration & updating":
- [14b] L. de la Peña & A. M. Cetto, "Estimate of Planck's Constant from an Electromagnetic Mach Principle," *Foundations of Physics Letters*, vol. 10, No. 6 (1997), pp. 591-598.
- [15] David Wick, *The Infamous Boundary: Seven Decades of Heresy in Quantum Physics*, Springer-Verlag, 1996.
- [16a] Mark Davidson, "A model for the stochastic origins of Schrödinger's equation," *Journal of Mathematical Physics*, Vol. 20, Issue 9, September 1979, pp.1865-1869.
- [16b] Mark Davidson, "A generalization of the Fenyès-Nelson stochastic model of quantum mechanics," *Lett. in Math. Phys.*, vol. 3 (1979), pp. 271-277.
- [17] Luis de la Peña & Ana María Cetto, *The Quantum Dice: An Introduction to Stochastic Electrodynamics*, Kluwer, 1996.
- [18] Robert W. Bass, Dean Zes, "The physical basis of zero-point energy?," *Journal of New Energy*, vol. 4, no. 3 (Fall, 1999), pp. 8-13. Also online at <http://innoventek.com>.
- [19] Robert W. Bass, "Evidence of an Electrostatic Mach's Principle?," *Journal of New Energy*, vol. 7, no. 1 (Winter, 2003), pp. 43-47. Online at <http://innoventek.com/ESMach.pdf> .
- [20] Martin Rees, *Just Six Numbers: the Deep Forces That Shape the Universe*, Basic Books, 2000.

[21] Robert W. Bass, *The Most Viable Gravitational Theory*, submitted to the 1975 Gravity Awards Contest, Gravity Research Foundation, P. O. Box 81389-0004, Wellesley Hills, MA 02181. The concept of $\omega < 0$ had been previously and independently studied by Dehnon & Obregón [22], and was subsequently further studied by Smalley & Eby [23], who referenced this paper by Bass, now online at <http://innoventek.com/AnomRedShft.pdf> .

[22] H. Dehnon & O. Obregón, “Exact cosmological solutions in Brans and Dicke’s scalar-tensor theory,” *Astrophysics & Space Science*, vol. 14 (1971), pp. 454-459.

[23] L. L. Smalley & P. B. Eby, “Scalar-tensor theory of gravitation with negative coupling constant,” *Il Nuovo Cimento*, vol. 35 B (1976), pp. 54-60.

[24] Halton Arp, *Seeing Red: Redshifts, Cosmology and Academic Science*, Apeiron, Montreal, 1998.

[25] Peter Hodgson, “Cosmology and Theology,” *The Second Coyne Lecture on Theology and Science*, Pontifical Academy of Theology, Cracow, Poland, 21 March, 1995; Corpus Christi College, Oxford, Revised, 1999.