Flaws In The Big Bang Point To **GENESIS**, A New Millennium Model Of The Cosmos: Part 1 — Is The Scientific Community In For A Big Surprise About The Big Bang?

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Abstract

Cosmologists who have promoted the Hubble redshift relation and the 2.7K Cosmic Blackbody Radiation as virtual proof of the big bang have led the rest of the scientific community to consider it one of the outstanding scientific triumphs of all time. Witness, for example, the recent claim that the big bang is bang on because CBR measurements at $z = 2.34$ bracket big bang's prediction of $T = 9.1K$. Despite this, some of history's greatest surprises have occurred when apparently well-established scientific theories were overturned after long-overlooked critical testing revealed flaws in their cornerstone postulates. In this instance the scientific community at large has been unaware of cosmologists' failure to verify big bang's cornerstone postulates. This lapse may yet become known as one of the greatest faux pas in the history of science because this series of papers reveals that big bang's cornerstone postulates have always been seriously flawed. Disproof of big-bang cosmology directs attention to GENESIS, a new model of the cosmos that has a nearby universal Center, one whose astrophysical framework is equally 'bang on' because its $T(z) = 2.73(1+z)$ prediction duplicates big bang's predictions at both $z = 2.34$ and $z = 0$, plus accounting for the Hubble relation, but with Doppler and gravitational redshifts instead of F-L expansion redshifts.

1 The Big Bang: Scientific Truth Or Cultural Icon?

The recent Cosmic Blackbody Radiation (CBR) temperature measurement at $z = 2.34$, reported [1] to be between 6.0K and 14K, is a tour de force experimental result that is capturing wide attention as confirming big bang's prediction of 9.1K. Bahcall, for example, recently extolled the big bang is *bang on* because it has passed the crucial test of showing the CBR was hotter much earlier in the history of the universe [2]. He emphasizes the big bang would have been abandoned if a lower temperature had been found. On the other hand, he laments that things have turned out so well, saying both he and certain rebellious colleagues would secretly have wished otherwise, because then it would have been more exciting to have begun to look for a new model of the evolution of the Universe. Bahcall's enthusiasm is understandable because for seven decades cosmologists have engaged in the practice of affirming the big bang by pointing out the remarkable agreements with its predictions. But has this practice led to a correct conclusion? In particular, will Bahcall and his rebellious colleagues now be equally excited to learn of even more definitive proof the big bang is flawed, if it is also true that a new cosmic model is developed which can be identified with a fairly recent Genesis creation?

If so, they should now be exuberant because in this series of papers I herein document major flaws in big-bang cosmology and also have reported that the New Redshift Interpretation (NRI), a relatively new astrophysical model [3] capable of being identified with the literal Genesis creation record, is equally 'bang on' because its $T(z) = 2.73(1 + z)$ equation exactly duplicates big bang's 2.73K at $z = 0$ and its 9.1K CBR at $z = 2.34$. In the big bang this equation represents a *temporal* difference in redshift conditions. In the NRI it results from a *spatial* difference. I could also say the NRI is very much 'bang on,' first, because it has already been shown to account for the Hubble redshift relation in terms of relativistic Doppler and Einstein gravitational redshifts, all within the framework of a finite, inhomogeneous, vacuum-gravity universe with a nearby cosmic Center (C), and second, because discovery of its vacuum density, $\rho_{vac} \simeq 8.9 \times 10^{-30}$ g cm^{-3} — which leads to $\Omega_\Lambda = 8\pi\rho_{vac}G/3H^2 \simeq 1$ — was published in late 1997 [3], prior to the 1998 Type Ia supernovae reports of cosmic expansion and $\Omega_\Lambda \simeq 0.7$ [4-7]. Other compelling reasons why the NRI is even more 'bang on' are given later in this series of papers. There, in addition to responding to certain criticisms, I show how it duplicates six of big bang's other major predictions.

In the NRI, vacuum gravity repulsion causes Hubble-type recession of the galaxies away from C, which means it represents a genuine 'expanding universe,' even though the NRI's astrophysical framework disavows big bang's cornerstone postulates. Could those postulates be defective? What seems to have been overlooked is that our observations of the cosmos are but a snapshot in time. A code is needed to decipher them. For the big bang, that code consists of its linchpin assumptions — two of which are (1) the universe is formatted, relativistically speaking, by the Friedmann-Lemaitre spacetime expansion solution of the field equations and (2) the Cosmological Principle. It is well- known that many observations can be fitted to a code's predictions, even if it is defective. Thus, the many successes of the big bang are actually only a necessary condition for the code's validity, not a sufficient condition. Sufficiency requires agreements that specifically test the code's cornerstone postulates. And herein lies the fatal defect in big bang cosmology.

In times past certain astronomers and cosmologists have come tantalizingly close to identifying it. Trefil, for example, acknowledges modern cosmologists strongly believe there is a rational, mathematically expressible solution for every problem, even the creation of the universe from an initial singularity [8]. But he cautions that in prior times others have believed just as strongly in their assumptions, only to be disappointed when they later were falsified. Disney's recent exposé of modern cosmology showed it to be a tentative, unconfirmed hypothesis [9], but he did not question its code. On the other hand, Ellis has warned against the cosmological bandwagon effect and strongly suggested big bang's postulates should be tested [10]. He did not describe how this should be done but did go so far as to admit a new paradigm would be needed if they failed the tests [10].

I have followed up Ellis' suggestion and, surprisingly, have discovered what appear to be two of the greatest faux pas in the history of science. First, at no time during its seventy-year period of development did big-bang cosmologists ever stop and confirm its cornerstone postulates. Second, in testing these postulates I have discovered they are fatally flawed. In this series of papers I enumerate these discoveries in the context of unveiling some extraordinary contradictions about the big bang that long ago should have alerted astronomers and cosmologists that something was wrong.

A prerequisite for an undertaking of this magnitude is to lay the foundation for what is to follow using terminology that the scientific community at large should be able to comprehend. Therefore, before specifying the contents of the papers themselves, it is expedient to first provide an overview of the big bang and how it differs from the New Redshift Interpretation [3], which now forms the astrophysical framework of GENESIS. Such an overview has already been given in ref. [3]. Part of it is abstracted here because it does provide, in rather easily understood terms, the scientific and historical framework needed to understand the issues treated in this series of papers.

2 An Overview Of The New Redshift Interpretation, Which Is GENESIS's Astrophysical Framework (Adapted From Ref. [3])

In late 1997 I reported the discovery of a New Redshift Interpretation (NRI) of the Hubble redshift relation and 2.7K CBR (3), without assuming big bang's Friedmann-Lemaitre wavelength expansion hypothesis or its Cosmological Principle, the latter being long acknowledged as [11] *"...the one great uncertainty that hangs like a dark cloud over the standard model."* Whereas the standard big-bang model and the NRI both interpret *nearby* galactic redshifts as Doppler shifts, they differ significantly in their interpretation of *distant* redshifts. This difference can be traced to two fundamentally different views of the cosmos. The big bang utilizes expansion shifts based on a universe governed by expanding-spacetime general relativity whereas the NRI utilizes Doppler shifts based on a universe governed by static-spacetime general relativity. A brief review of early twentieth-century astronomy and cosmology assists in focusing more precisely on the nature of this difference.

In 1917 Einstein applied his newly developed static-spacetime general theory of relativity to cosmology [12], and introduced a cosmological constant to maintain the universe in what was then thought to be a static condition. But Edwin Hubble's momentous 1929 discovery that galactic redshifts increase in proportion to their distance challenged the static universe concept [13]. His discovery confronted cosmologists with two surprises, and they were initially unprepared to deal with either. First, they were unaware of any static-spacetime redshift interpretation which could account for increasing galactic redshifts in a real, finite-density universe. Secondly, if Hubble's results were interpreted as Doppler shifts they implied omnidirectional galactic recession, which in turn implied the existence of a universal Center near the Galaxy.

Whatever efforts cosmologists might have put forth to obtain a static-spacetime interpretation of Hubble's discovery were effectively cut short when their attention was soon directed to the potential cosmological implications of the hitherto virtually unnoticed results of Alexander Friedmann [14] and Georges Lemaitre [15], both of whom had found expanding-spacetime solutions of the Einstein field equations in the early and mid-1920s. (In this series of papers the static-spacetime and expanding-spacetime frameworks are distinguished as follows: In the former there is no spatial coordinate expansion with time; in the latter the spatial coordinates are time dependent.)

Friedmann and Lemaitre's results were attractive for two reasons. First, it was thought that uniform spacetime expansion showed promise for eliminating the implication of the Galaxy occupying a preferred position in the universe. Hubble spoke for most cosmologists of his time when he forthrightly admitted an extreme distaste for such a possibility, saying it should be accepted only as a last resort [16].

Second, Lemaitre hypothesized that, apart from the well-known redshift due relative motion of source and observer, expanding-spacetime should cause photons everywhere to experience continuous, in-flight wavelength expansion proportional to the expansion itself [15]. Thus was born the concept of spacetime expansion redshifts, given by $z_{\exp} = \Re_o/\Re_e - 1$, where $\Re_o$ and $\Re_e$ represent the magnitudes of the postulated Friedmann-Lemaitre spacetime expansion factors at observation and emission [15].

Despite its critical role in big-bang cosmology, the foregoing expression for $z_{\exp}$ is unique in that the physical existence of $\Re$ has never been verified by experiment; the reason is that no method has yet been proposed to measure $\Re$, either past or present. Even so, expansion redshifts have become the cornerstone of the standard model for two reasons—namely, (1) because the experimentally determined Hubble redshift relation, $z = Hr/c$, can be developed as a theoretical consequence of spacetime expansion theory if the hypothesized expansion redshifts, $z_{\exp} = \Re_o/\Re_e - 1$, are assumed to be identical with $z_{obs} = \lambda_o/\lambda_e - 1$, the observed redshifts of distant galaxies, and (2) because of their key role in providing what has previously been thought to be a unique interpretation of the 2.7K CBR. That interpretation assumes the much earlier existence of a primeval fireball radiation wherein matter/radiation decoupling occurred at about 3000K when the expansion redshift was about 1000 compared to the present. It follows that a 1000-fold redshifting of such a radiation by spacetime expansion would result in the presently observed 2.7K CBR. The Hubble relation and 2.7K CBR scenarios are widely understood as confirming the existence of expansion redshifts. Part 5 of this series of papers will show that this conclusion was premature, however, because the crucially important expansion factor, $\Re$, was never experimentally verified.

Big bang's second fundamental assumption is known as the Cosmological Principle — namely, that in the large scale the universe is homogeneous and isotropic, or put in simpler terms, that it is everywhere alike. This Principle was earlier noted to be [11] *"...the one great uncertainty that hangs like a dark cloud over the standard model."* Uncertainty exists because, even though the Hubble relation is powerful evidence for large-scale isotropy about the Galaxy, we simply cannot confirm universal homogeneity because we lack knowing whether the Hubble relation would result if redshift measurements were made from points of observation on other galaxies.

Nevertheless the standard model requires homogeneity because in it galaxies are assumed to be co-moving bodies in expanding spacetime. That is, since spacetime expansion is assumed to be uniform, co-moving galactic separation must likewise be uniform, which implies that all observers, regardless of location, should see the same general picture of the universe. This is what the standard model requires, and it is observationally unprovable.

In summary, then, our mini-review of twentieth century astronomy and cosmology have revealed two reasons why we cannot be absolutely certain of Friedmann-Lemaitre expansion redshifts and big bang's cornerstone postulate of a no-center universe governed by expanding-spacetime general relativity. First, the universal homogeneity required by standard model is acknowledged to be observationally unprovable. Second, despite the fact that in theory all photons in the universe should be synchronously experiencing in-flight wavelength expansion in direct proportion to the instantaneous value of $\Re$, until now little attention has been given to finding a method to test this prediction. More on this later in Part 5 of this series. For the present we say only that the foregoing uncertainties are sufficient to suggest the possibility that the universe may not be governed by expanding-spacetime general relativity required by the standard model. As far as is known this paper is the first attempt to seriously explore the cosmological and geophysical consequences of such a possibility and, as will now be seen, the results do appear quite surprising.

The foregoing account provides the basis for understanding why the NRI attempts to account for the Hubble relation and the 2.7K CBR by using Doppler and gravitational redshifts embedded in a universe governed by static-spacetime general relativity. Without expanding spacetime there can be no Cosmological Principle, and without this Principle the Hubble relation implies the existence of a Center in the NRI. In it the Hubble redshifts are now interpreted solely in terms of relativistic Doppler and Einstein gravitational redshifts, all cast within the framework of a finite, nonhomogeneous, vacuum-gravity universe with Universal center (C) near the Galaxy.

The NRI framework assumes the widely dispersed galaxies of the visible universe are enclosed by a thin, outer shell of hot hydrogen at a distance R from the Galaxy. Thus, the volume of space enclosed by this luminous shell—assumed, for ease of calculation, to have a nearly uniform temperature of 5400K—would completely fill with blackbody cavity radiation. But the radial variation of gravitational potential within this volume means the cavity radiation temperature measured at any interior point would depend on the magnitude of the Einstein gravitational redshift between that point and the outer shell. By including relativistic vacuum energy density, ρ_v, and pressure, p_v, into the gravitational structure of the cosmos we can show how 5400K radiation emitted at R could be gravitationally redshifted by a factor of 2000 so as to appear as 2.7K blackbody cavity radiation here at the Galaxy [3].

In particular, if p_v is negative, then, as Novikov shows [17], ρ_v will be positive, and the summed vacuum pressure/energy contributions to vacuum gravity will be $-2\rho_v$. So, excluding the spherical hydrogen shell at R, the net density throughout the cosmos from C to R would be $\rho - 2\rho_v$, where ρ is the average mass/energy density. Beyond R both densities are assumed to either cancel or exponentially diminish to infinitesimal values, which effectively achieves for the NRI framework what Birkhoff's theorem did for standard cosmology. This framework is sufficient to compute the gravitational potentials needed to calculate both Hubble and 2.7K CBR redshifts in the NRI [3], which is the astrophysical framework for GENESIS. Reference [3] and Part 9 of this series provide more details on how the NRI, or GENESIS, framework can account for: (i) the Hubble redshift relation, (ii) the 2.73 CBR, (iii) a $\mathrm{T}(z) = 2.73(1+z)$ CBR temperature variation with redshift, (iv) the $(1+z)^{-4}$ Tolman effect, (v) the $(1+z)^{-1}$dilation of SNe Ia light curves, (v) the Sunyaev-Zeldovich effect, (vi) Olber's paradox, (vii) observationally consistent (m, z) and $(\Delta\theta, z)$ relations and, (viii) an apparent brightness relation which predicts that $z > 2$ galaxies will appear more luminous because of the NRI's $\mathrm{I}_v = \mathrm{I}_o(1+z)^{-1}(1+z_{dopp})^{-2}$ redshift dependence, instead of big bang's $(1+z)^{-3}$ prediction.

It is expected that the foregoing Overview has provided a sufficient basis for initiating a more in-depth analysis of the big bang and GENESIS. Reviewers who criticized the NRI performed a valuable service for the scientific community in publishing their ideas [18], for otherwise I would not have continued the investigation begun in ref. [3] and obtained the results presented in this series of papers. Because each paper is designed to be a more or less stand-alone entity, there is a degree of overlap between those papers that deal with closely related topics. This reinvestigation purposes to make new answers concerning the origin and history of the Universe accessible to as wide a scientific audience as possible. To accomplish this I have included considerably more explanatory material than required for a readership composed primarily of astronomers, astrophysicists and cosmologists

[19].

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[19] Many thanks to Dave Gentry for very useful discussions.

A DVD promoting the big bang only highlights the many problems in this atheistic alternative to Genesis and belief in God.Â The first time a literal reading of Genesis 1 is mentioned (in Part 2 of The Cosmos), the concept is attacked by theist William Lane Craig (see this response to Craigâ€™s straw man attacks on YEC). We dispute that true neutrality is possible, cf. â€œWhoever is not with me is against me, and whoever does not gather with me scatters.â€ (Matthew 12:30). The programme does not define the beliefs of any of the participants, but the belief system of some of the theists (although not every one of them) chosen by Search for Truth Enterprises Ltd to take part appears to be deism, for all practical purposes.