

ATTAINABLE UTOPIAS

by Alberto Bolognesi

In “Brave New World Revisited” (1958), English writer Aldous Huxley outlined a series of possible scenarios that might result from an autocracy governed solely by scientists: “...most men and women will grow up to love their servitude and will never dream of revolution.” With chilling brusqueness, Huxley concludes that “...there seems to be no good reason why a thoroughly scientific dictatorship should ever be overthrown”.

If in the meantime this prophecy had not been fulfilled at least in the realm of Cosmology, it would be impossible to understand why the only examples of rigorously observational evidence (galaxies of different ages and morphologies, quasars and other objects visually linked to systems with highly discordant redshifts, etc) have been written off without any further examination or accurate attempt at verification. The sudden and miraculous illumination of the universe’s entire stock of cosmic matter (the Big Bang) in which galaxies have apparently completely different ages would be cause for insuperable contradictions: nothing in fact would appear more far-fetched than a fundamental constant (H_0) that links redshift with the distance and speed of objects formed in different epochs, a “constant” that to avoid conflict with actual measurements then needs to change itself into a variable that is even capable of accelerating...

To circumvent the observational incoherence of the celebrated expanding universe, the heterogeneity of the ages of galaxies shown by their different dynamics, chemical composition and stellar populations has been “resolved” by hypothesizing that those galaxies composed prevalently of young stars have been the subject of repeated “remixes” caused by random collisions and fusions with other galaxies wandering through cosmic space. The clearly evident discordances in the distribution of redshift between contiguous celestial objects, often linked by bridges of material that can be seen

in the visual spectrum and detected in x-ray and gamma-ray radio spectra, have instead been “rationalized” as accidental errors of perspective, mere illusions in deep space produced by statistical overlaps along the line of sight. “The proof of their accidental nature,” as has been affirmed even in prestigious journals, “lies precisely in the incongruous percentages of spectral shift that these false associations display.” Meaning that the associations are false precisely because they are false.

“Random collisions” and “statistical perspective alignments” have therefore kept vigilant watch on the most intransigent and grotesque cosmological solution, the “Ball of Fire” that emerged from nothing 14 billion years ago. This radical creationism in many ways unfathomable to its very proponents decrees that *either God or destiny* (“*Darwin*”) materialized everything instantaneously starting out from nothing. But since *ad hoc* adjustments were not by themselves sufficient *to reaccelerate expanding space starting from a certain cosmic epoch deduced from the redshift of unexpectedly weak supernovas*, or in other words to explain the observational deviations from Hubble’s law, the control booth rummaged through the errors declared by no less than Einstein and quite literally reinvented a new force of physics, labeling it “mysterious dark energy”. As was already the case with elusive “dark matter” (necessary to condense galaxies from the “initial magma” and to justify the disproportionate discrepancies of velocity inside the clusters), its experimental discovery has even been announced, finally creating the most formidable of free parameters: what is not dark matter is dark energy, and vice versa. One (invisible) hand washes the other. In total coherence with ancient astrology, what’s not there has become the discovery, and is confirmed by the resulting argument.

The magical key that has opened all doors is the hypothesis that every luminous point of the extragalactic universe must be located at the distance of its shift towards red. Applying the inverse square law to the additional condition that the distance of an object

is always directly proportional to its recessional velocity, the result is that a “typical” galaxy with luminosity equivalent to a quarter of that of another galaxy of the same luminosity must be at twice the distance and receding at twice the speed, so that a third galaxy of the same type but with only one-hundredth the luminosity must be receding at ten times the speed and be ten times as far away. And so on. In passing, it would be worth remembering that in the absence of other indicators, absolute luminosities are obtained from *apparent* magnitudes (distance according to luminosity), and that the effect described in physics as the Doppler-Fizeau Effect has nothing to do in any way at all with distance.

As is nevertheless known, the only way to escape the conclusion that our galaxy lies at the center of a universe that is rushing away from us is to posit that it is not the galaxies that are moving directionally as they hurry into hyperspace, but that it is space itself – intergalactic space – that is growing, increasing cosmic distances as it expands.

However, even if we were willing to accept that empty space can expand, at the same time dragging the galaxies with it and dilating their distances (“dark energy”), instrumental verification of this supposition would be impossible, and indeed is directly refuted by observations. Even discounting the great qualitative diversity of the galaxies, meaning in practical terms the impossibility of distinguishing between weak and distant objects if these objects are intrinsically weak or very distant, it is amply known that the relationship between the effective (real) angular dimensions of an object and apparent dimensions according to distance in a cosmic space presumed to be expanding follows a distinctively peculiar pattern. In the simplest possible terms, the apparent dimensions of a galaxy reach a minimum value at a certain distance, *and then increase at greater distances, as if these galaxies were in fact closer*. Whilst magnitude normally continues to decrease with the inverse of the square, the angular diameters of cosmic objects tend instead to grow, for the reason, not immediately intuitable, that they are seen in epochs in which, according to the Big Bang model, they should have been nearer. As Professor

Renato Falomo writes in a note published in *Coelum* 119, 2008 (“...possible changes”, p.43), “This difference in behavior between luminosity and angular dimension leads to the inevitable result that the surface brightness SB of an extended object must decrease notably with the increase in distance. The dramatic consequence is that since this brightness varies with $(1+z)^4$, a galaxy located at a redshift of $z = 5$ should show an SB of some 8 magnitudes weaker than its “twin sister” situated in the local universe.”

In practice, then, and in contrast to the observational data we collect, it would no longer be possible to see galaxies with redshifts greater than about $z = 4$, if redshift really is a function of distance and speed. It should also be said that since the period of the waves originating in light sources must increase if these are moving away from the observer at increasing speed with the progressive dilation of the distances, their wavelengths would translate into a further lowering of frequencies, due to the very evident fact that in the unit of time (e.g. a second), fewer should arrive.

In the end the correct conclusion should be that the cosmological hypothesis has left us. However, for those who stumble across articles like this and are unwilling to discuss once again about whether there was ever a moment in history in which the entire boundless mass of the Cosmos could be contained in a clenched fist, this argumentation seems instantly provocative, and even blasphemous. How could, indeed, why should scientists of unmistakable fame and competence, often honored by the most prestigious awards and not infrequently indicated as shining examples of ethics and moral integrity, how could these icons of universal historiography deliberately hoodwink the international community, endorsing as scientific discoveries contradicted theories and exasperated extrapolations that involve precarious concepts like the *beginning* and the *end* of the universe? *Honi soit qui mal y pense*. But, given that they can, *how* can they?

“How can they, and from what Olympian heights,” Amleto Pezzati, the great Palermo enthusiast of the starry skies, was still asking himself only a few days before he died, “decide that the entire universe, finite or infinite as it may be, is able to conserve an

‘average’ temperature, or a ‘background’ or ‘fossil’ temperature, and then that this ‘black body of globality’ is perfectly deducible using probes located in space so close to our minuscule village, and so far from the ‘background’ they’re supposed to measure? It’s like trying to find the average temperature of the Pacific Ocean,” he went on to tell me in his faltering voice, ”by throwing a thermometer onto the foreshore at Mondello.”

And how can they extrapolate from a *local* thermal scan, inside our own galaxy, inside our own solar system, within spitting distance of our planet, just a million kilometers away, the “acoustic oscillations of the primordial fluid of Creation”, a scan which after multiple laboratory processing is certified as the “Thunder of the Big Bang”, destined for press agencies and science journalists first and finally to MP3 players for the ringtone market for the mobile phones of the poor kids who’ll inherit this world?

What’s happened to the respectable academics of the celestial sphere, even more than to the purveyors of extreme technology or the fabricants of virtual economies?

Surprisingly, the answer is quite simple, and even reassuring. There is no plot, no intrigue, no conspiracy, no vile stratagem. They *can* because, after all, cosmology is not a science. Everyone knows it. It resembles more an open marketplace of speculations, a semi-authorized and semi-clandestine fairground of the mathematical imagination, where minds with a highly refined background read fortunes from rotating black holes, which exist however only on the rigorous condition that from the viewpoint of the observer, an infinite time is necessary for them to form. No surprise: “If you play with hypotheses assumed by hypothesis,” warned Nobel prize-winner Sheldon Glashow as early as twenty years ago, “the game never stops.” Everyone knows it. “And if you apply the healthy reductionism of the scientific method that was once learnt in school,” and this is Paolo Maffei, “it’s obvious that inflation is an invention.” Space that’s inflating is an invention. Black holes that are “super-massive” (but just sufficiently super-massive and always and only in the right degree) are an invention. Dark energy is an invention, the accelerated universe is an invention, the Ball of Fire is an invention, or

rather, it's a vision. Everyone knows it. And nothing like a science of conjectures has ever existed, there has never been a logic of knowledge from circumstantial evidence or a theory of fudge factor or of insufficient reason. There has never been a scientific or mercantile right of pre-emption that permits astrophysics departments in half the world to liquidate Kant's antinomies and to conclusively decree that "the origin of distances coincides with a point in which all distances were reduced to zero". Everyone knows it. But do they? Professional cosmologists have every interest in ignoring these criticisms "from the rearguard", which are also increasingly rare. They have every interest in making no distinction between real and virtual, between imagination and bogus science. Anyway, they say, shooting themselves in the foot, no-one can actually tell us what this *reality* is. It even looks like a solid argument, and in fact they've never been stronger: because they're the ones who tell the universe that it's been born, how it was born, and how it must exist, and they're the ones who decide today what the discoveries of tomorrow will be.

Utopias, as Huxley feared, have become attainable, they are all within easy reach, by now there is nothing that cosmology and technology together cannot accomplish. If the system that finances this institutional mythology needs a million astronomer clones to be able to celebrate the legend of the explanation of the universe, it is not the mythology, but rather the system, that should be thrown out.

Whoever will publish this scandalous article?