SECTION V: INTRODUCTION TO THE CHAPTER

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Related Papers:

A Spacetime Map of the Universe (full text)
A Spacetime Map of the Universe (original diagram)
A 4-dimensional spacetime map of the cosmos (updated pdf diagram)
A Spacetime Map of the Universe: Implications for Cosmology and the Theory of Inflation (symposium volume short talk)

Paper: "A Spacetime Map of the Universe"

Abstract

It is often painfully evident (at least to me) from reading published articles that most people, including most journalists, astronomers, and cosmologists, have an "inside-out" mental image of how we see the Cosmos. We continue to hear and read that "far off galaxies" are seen "at the very edge of spacetime", whereas in fact we the observers are at the very edge of the Cosmos, and the "far off galaxies" are near the center, that is, near their Big Bang origin. This simple and common misconception has disastrous consequences when carried into professional theoretical arguments, including the bogus "horizon" problem and perhaps also the "inflationary" view of the Universe, and who knows how much else that is couched in the impenetrable jargon and mathematics of the scientific "establishment". This effect is all too evident in the *Scientific American* article cited in the appendix of

the Spacetime Map. In my opinion, this is a classic case of "The Emperor Has No Clothes", but history, not I, must make that judgment.

For more than ten years, this has been far and away the most popular paper on my website. I thank all those who have expressed interest in this paper. Recently, however, public interest has shifted to the humanistic papers on my website.

The first version of this paper was written in the summer of 1981. It was and is simply a personal attempt to understand how we see the Universe from the perspective of Earth. While the paper has evolved and been added to, the original core remains much as it was conceived. The only unique construction I had to figure out in the map was how to draw the "light line" between Earth and the "Big Bang". Other than this line there is nothing special about this map. If the reader can grasp how this line was drawn, he will have understood the essential feature of the map. (The light line is the line representing our observational view of the Cosmos in the "present moment", a line which divides the Universe (from our point of view) into reciprocal halves of "historic past" and "manifest future".)

I have presented the map in lectures many times at "CPSI", (the Creative Problem Solving Institute (CPSI)) in Buffalo, NY (first reading June, 1983). Audiences almost always understand and enjoy the map. While it is not particularly difficult to understand, it is profoundly revealing, especially with regard to the connectivity and unity of the Cosmos, and the various types of reality found in it. I have lived with the map for almost 30 years and it still amazes me with its simple, classical elegance; and I continue to find new relevance in the map for the other papers and topics on this website. For a long time the map seemed to stand apart from the rest of my work, but as my understanding of gravitation, causality, "karma", and the function of historic spacetime evolved, the spacetime map became both a natural and a necessary complement to the remainder of my work.

In 1986-7 I submitted the map to two popular astronomy magazines; both rejected it. I haven't tried again. Professional astronomers/cosmologists have shown no interest in the map (so far as I can tell). For years, this puzzled me until I realized how naive I was to expect a welcome from the "competition". Furthermore, people don't want their world view stood on its head, even if it's wrong - just look at the continuing, unreasoning resistance to Darwin's evolutionary theory. As with the rest of my work, I rely on the democracy of the internet to eventually bring these views to the notice of the "establishment": as anyone who has followed cosmology recently can appreciate, they are badly needed. On 27 Nov. 1999 the paper was submitted to the Archives of Physics; an Appendix table was submitted on 7 May 2001. That May I had realized how to calculate redshift "Z" values from the map, and added a table of expected and observed galaxy positions to the paper, fully confirming the validity of the map as a working model of the Cosmos. The map is constructed properly and real observational data can be plotted on it and compared with predictions calculated from the map. These tabular data were finally graphed and added to the paper and website on July 21, 2002. Nevertheless, in its current presentation, the map is only a "proof of concept" demonstration, and does not pretend to complete accuracy, which would require 3-D bending and stretching (if spacetime is "curved").

However, the map has some small triumphs, even in terms of accuracy. If the reader will look at the table of Z values for Universes of various ages (page 12 as my browser prints it out), notice that the value for the Hubble constant calculated from the map for a 14 billion-year-old Universe is given as 69.8 km/sec/mpc. In Feb. 2003 NASA announced the results of its WMAP satellite probe, which found a value for the Hubble constant of 71 plus or minus 4 km/sec/mpc for a Universe of age 13.7 plus or minus 0.2 billion years. This is essentially identical to my result, but mine cost a lot less. This is another observational datum confirming the validity of the map's construction. Curiously, this suggests there is very little gravitational force acting in the Universe (if we accept this result at face value), since my table is calculated for the no-gravity case.

However, this result, as suggested in the paper, may simply be due to the curious way nature forces us to see the Cosmos.

Cosmology is and has always been one of the most contentious subjects in all of science - mainly because it is not an experimental science, and observations are difficult, expensive, scarce, and ambiguous. There is much in this paper and map that is controversial - see the paper's last section regarding the *Scientific American* article. Stephen Hawking discusses a map of this type in several of his books (but in "imaginary time", and without a "light line" - see: The Illustrated A Brief History of Time pages 176-7, Bantum, 1996). The utter simplicity of this map and the plain fact that observations plot precisely according to its calculated predictions (see graphs, and the Hubble constant, as noted above), give me great personal satisfaction and confidence in its validity. However, the full interpretation of these results, and the philosophical implications of the map, remain an open issue.

As if to confirm this assessment, another spacetime map, drawn from the perspective of time rather than space, and with a "light line", has been quite independently produced by Dr. Richard D. Stafford, who is mathematically far more knowledgeable and technically adept than I. Although his map looks nothing like my own, due to the reversed perspective, I have studied it and confirmed to my own satisfaction that it is essentially identical in its metric and conclusions. Dr. Stafford has likewise reached the same conclusion regarding my map. Dr. Stafford's map was brought to my attention in January 2003, and I have provided a link to it in my paper and below.

[For a corresponding diagram and text of relativistic time dilation as it affects our view of very distant galaxies, see: Dr. Richard D. Stafford's "Spacetime Map".]

Postscript:

Curiously, the Map has made its way into a modern opera composed by Pauline Oliveros and Moira Roth - "The Library of Maps: An Opera in Many Parts". At least the musicians and poets (bless them)

seem to be taking the map seriously.

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