Thus while recognizing that Humphreys only intended his age-distance curves to illustrate a general principle, *viz*. the visibility of extremely distant objects in a young-Earth cosmology, the conclusion seems inescapable that his published results to date do not meet criterion 4 above. In the absence of anything in print satisfying Humphreys' own requirement for age-distance curves to 'be more like a straight line with a slope of 1/c' near the Earth, we cannot yet claim to have a possible solution to the distant starlight problem. I point this out, not to discredit Humphreys' cosmological approach, but partly to correct the impression given by recent creationist advertising[18] that the distant starlight problem has been solved, and partly to encourage suitably-qualified creationist researchers to invest serious effort in finding more realistic models and thus help to realize the undoubtedly great potential of Humphreys' approach.

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X	cos(X)	Z	TR	TR/X²	DIST (bly)	AGE (by)	LBAGE (by)	Feature
0.000E+00	1.000000	0.707106781	0.00E+00	0.14486	0.0	0.00E+00	6.00E-06	
3.750E-07	1.000000	0.707106781	2.04E-14	0.14475		2.22E-11	-9.00E-06	M13
5.500E-05	1.000000	0.707106782	4.38E-10	0.14486	0.00220	4.78E-07	-2.19E-03	M31
2.275E-04	1.000000	0.707106799	7.50E-09	0.14486	0.0091	8.19E-06	-9.09E-03	M81
1.750E-03	0.999998	0.707107864	4.44E-07	0.14486	0.070	4.84E-04	-6.95E-02	Virgo Cluster
5.000E-02	0.998750	0.707991586	3.62E-04	0.14486	2.0	0.395	-1.605	
1.500E-01	0.988771	0.715136999	3.26E-03	0.14481	6.0	3.558	-2.442	
2.250E-01	0.974794	0.725390907	7.33E-03	0.14472	9.0	8.000	-1.000	
5.000E-01	0.877583	0.805743883	3.56E-02	0.14252	20.0	38.905	18.905	
7.854E-01	0.707107	1.000000000	7.43E-02	0.12051	31.416	81.171	49.755	

Table 1. *Calculated age in 'proper time', AGE = T(χ), for selected astronomical distances (DIST = λ ≡ χ a_m) based on Humphreys' equation 24 of Ref. 2. Look-back time, LBAGE, is calculated from T(χ) – λ + 6000. This example uses the same parameters as Humphreys, Ref. 2, p. 208; viz.* $\chi_e = 45°$ *which gives* $z_e \equiv \cos \chi_e = 0.707107$ *and the maximum radius of curvature,* $a_m = 40$ *billion light years. TR, an intermediate step in the calculation, = T(χ) /* τ_m. *The value of* τ_m *is 1091.93 to make the AGE curve pass through a 'proper age' of 8 billion years at a distance of 9 billion light years.*

References

1. Humphreys, D.R., *Starlight and Time: Solving the Puzzle of Distant Starlight in a Young Universe*, Master Books, Green Forest, Arkansas, 1994.
2. Humphreys, D.R., New vistas of space-time rebut the critics, *CEN Tech. J.* **12**(2):195–212, 1998.
3. Conner, S.R. and Page, D.N., Starlight and time is the big bang, *CEN Tech. J.* **12**(2):174–194, 1998.
4. Ross, H., Humphreys' new vistas of space, *CEN Tech. J.* **13**(1):49–50, 1999.
5. Humphreys, D.R., Russell Humphreys replies, *CEN Tech. J.* **13**(1):50–53, 1999.
6. Duff, K.J., More on vistas, *CEN Tech. J.* **13**(1):53–54, 1999.
7. Humphreys, D.R., Russell Humphreys replies, *CEN Tech. J.* **13**(1): 54–56, 1999.
8. Conner, S.R., Vistas—one more, *CEN Tech. J.* **13**(1):56–58, 1999.
9. Humphreys, D.R., Russell Humphreys replies, *CEN Tech. J.* **13**(1):59–60, 1999.
10. Hunter, M.J., Starlight and time, *CEN Tech. J.* **13**(1):60–61, 1999.
11. Humphreys, D.R., Russell Humphreys replies, *CEN Tech. J.* **13**(1):61–62, 1999.
12. Conner, S.R. and Page, D.N., Starlight—time and again, *CEN Tech. J.* **14**(2):69–73, 2000.
13. Humphreys, D.R., Starlight and time: a response, *CEN Tech. J.* **14**(2):73–76, 2000.
14. Fackerell, E.D. and McIntosh, C.B.G., Errors in Humphreys' cosmological model, *CEN Tech. J.* **14**(2):77–80, 2000.
15. Humphreys, D.R., Errors in Humphreys' cosmological model: Humphreys replies, *CEN Tech. J.* **14**(2):81, 2000.
16. Worraker, W.J., Private communication, 1999.
17. Humphreys, D.R., Private communication, 1999.
18. Anon, Relativity and distant starlight, *Creation* **23**(1):53, 2000.

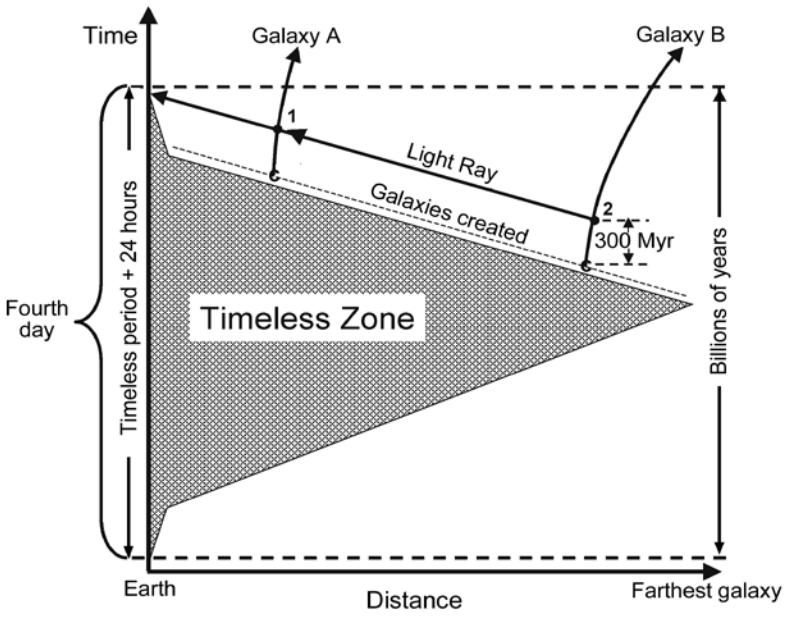
Russell Humphreys replies:

I'm delighted to see Mr Worraker thinking about my proposal for a young-world cosmology. Furthermore, I agree with him that it does not solve *in detail* the problem of distant starlight in a young universe. I have said many times that my proposal is only a preliminary outline.

By making small adjustments to the rate of expansion, one can make the shape of the curves in his figure practically any shape one wants them to be. Furthermore, the second form of time dilation ('timeless zone'), as I mention in my 1998 *TJ* article, adds new possibilities.

For example, if the expansion rate and timeless zone were similar to what I show in my Figure 1, then we solve many problems. We not only get the proper look-back times and ages occurring within one ordinary day here on Earth, but also we get a way for spiral galaxies to acquire a few hundred million years worth of winding-up in the images we see of them, a topic many people have asked me about (see Appendix, next page).

My main point is that we should move beyond my outline, which can branch out in many directions. I suggest that creationist cosmologists pick whichever branch appeals to them the most, fill it in with mathematical details, and publish it for critiquing.



Broad outline of Humphreys' model.

This is much too big a job for one man to do. So creationist theorists, get out your pencils and equations and start exploring this new territory!

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Appendix

In idealised form, the graph depicts the broad outline of my cosmological model of Creation. Shortly after sunrise at the future site of Eden on the fourth day of creation, a shiny black sphere expands out from the centre of the Earth and quickly engulfs the whole planet. Inside the sphere, nothing happens. No light, no rotation of the Earth, no tree sap flowing, no breeze blowing, no ocean waves lapping—nothing. That's why I call it a 'timeless' region.

If you had been on Earth then, you would perceive nothing— not even the passage of time, while being inside the sphere.

At or very near the speed of light, the sphere expands out billions of light-years into empty space. It reaches a maximum size and begins to contract, again at or near the speed of light. Just outside the shrinking sphere, God creates galaxy B as a straight 'bar' of stars, each star orbiting around the centre of the bar. The distance away from Earth is, say, 10 billion light years. Each star is emitting light in all directions, and some of the light follows the surface of the black sphere inward toward Earth. Eventually those photons reach a point 2 million light-years from Earth, where God creates galaxy A, the one we call Andromeda, also a whirling bar of stars. Those stars also emit light, and some of their photons also head toward Earth, following the surface of the black sphere as it shrinks inward.

About 50,000 light-years from Earth, the black sphere slows down. The photons following immediately behind the sphere run into it and (I think) are extinguished. The sphere continues inward toward Earth at the slower speed. After 300 million years (as measured by clocks outside the sphere), the sphere radius contracts to less than 6,000 km, and the Earth's surface re-appears. The black sphere shrinks to zero radius at the Earth's centre and disappears.

On the surface of the earth, at the future site of Eden, it is still early and dark on the fourth day. If you had been there, you would (I think) not have noticed the timelessness interval at all. At most it would have seemed like the blink of an eye. However, you can now see the Moon, planets, stars, the Milky Way, and the Andromeda galaxy. (Or the Magellanic Clouds, if Eden was in the Southern Hemisphere.) And of course, during the day the source of daylight is the Sun.

Now let's go back in time and 10 billion light-years outward in space, back to the location of galaxy B at the moment when God created it. The whirling bar of stars starts forming spiral arms. The fabric of space is expanding outward, so the path of galaxy B curves outward away from Earth. We stay with galaxy B for 300 million years, by which time it has become a clearly-defined spiral. All its stars have been emitting light hitherto, but we choose this moment to start following a flock of photons inward toward Earth.

When clocks at galaxy B have registered 9,998,000,000 more years, our group of photons reaches galaxy A. Lo, we discover that galaxy A has existed for 300 million years and is also a clearly defined spiral. More photons from it join our flock journeying inward toward Earth.

After clocks at galaxy A have registered 2 million more years (those at galaxy B having registered 10 billion years from departure of these photons) our little flock of photons hits the Earth early on the fourth day, just after the black sphere shrinks beneath the Earth's surface. Photons from both galaxies arrive together and in the darkness you can see photons from the nearer one, galaxy A. On Earth, only twelve hours of physical events have elapsed since sunrise.

If you happened to have a Hubble space telescope handy on this grand fourth day, you could also see the more distant galaxy B. If we could see galaxy B as it now is, it would no longer be a spiral. All the spiral arms would have overlapped, making galaxy B into a smooth disk of stars, an elliptical galaxy.