

Schizophrenia can be cured!

I read with interest Eric Wright's article about schizophrenia. What struck me forcibly was his claim that the real cause had not been found nor an effective treatment. This is the standard view, but there is well documented evidence of a treatment found separately by two psychiatrists and a psychologist working in three different mental institutions some years ago. They achieved a very high measure of success, but their results have been completely ignored by the psychiatric/psychological professions today. I am very deeply concerned that as many people as possible should be made aware of its existence, particularly those dealing with its treatment. If anyone wishes to find out more, they are free to email me on mb@mbowden.info.

Malcolm Bowden
Bromley, Kent
UNITED KINGDOM

Some spacetime clarifications

Some clarifications of Don DeYoung's recent article in this journal, 'Creation and curved space-time',¹ are offered, plus a tangential comment. The term 'curved space' should rather be 'curved space-time'. It is at least theoretically possible that our universe is *spatially* flat yet is curved space-time. It is not Minkowski spacetime (Special Relativity) by any means; for one thing, Minkowski spacetime cannot theoretically start from or end in a singularity.

Many readers would naturally think of a 'flat space' universe as analogized by an infinite Euclidean plane. However, General Relativity does not determine the topology of the universe. We usually assume

'maximal topology', so that the zero and negative cases discussed in the article are perforce 'open', but that is not necessarily so. For all we know the universe could be like a tire tube yet be spatially flat or negatively curved at every point. 'Flat, yet closed', Tom Sawyer says flatly (sorry, couldn't resist such inflated wit). Moreover, it seems possible to argue that not even the maximal topology of Minkowski spacetime is the maximal topology of ordinary Euclidean four-space. The latter space does not possess null geodesics.

The article appears to be based on the idea that the universe can be modelled by a Friedman-Lemaître-Robertson-Walker (popularly a.k.a. big bang) cosmos. See D. Russell Humphreys' reply to S. O. Campbell's letter^{2,3} and John Hartnett's excellent articles^{4,5} in the same issue of *TJ*; these works scold that idea.

The author writes, 'If space curvature indeed occurs, we cannot observe it because we are embedded in space.' That shows another reason we should be careful to speak of space-time curvature not just space curvature. We can observe/measure the curvature of space-time—at any rate its effects. Think of the moon and earth as test particles and measure the separation between them, as in lunar laser ranging. (Remember the corner reflectors placed on the moon?) Even the tides on Earth betray the curvature in Earth's corner of the solar system. (We need to be mindful that time is a dimension, just as the spatial ones are.) We would not observe these effects in Minkowski space-time, which has zero curvature.

The term 'curvature' does not refer to the extrinsic curvature of say a Euclidean sphere embedded in four-space; rather it refers to the intrinsic curvature of spacetime. It is similar in a few ways, yet is a different animal, so to speak, in non-Euclidean geometry.

Incidentally, whether the cosmos is open or closed is an important issue for General Relativity. If the cosmos is open, then General Relativity is incomplete at least as regards the origin of inertia; it would require

supplementary principles or general hypotheses to yield determinate results. To be sure, if the cosmos is indeed closed, General Relativity would still be incomplete, but it would require much less supplementary principles.

For more details, see a textbook such as Misner, Thorne and Wheeler, *Gravitation*, W.H. Freeman, San Francisco, 1973. Nevertheless, I enjoyed DeYoung's article.

Samuel Odell Campbell
Bellingham, WA
UNITED STATES of AMERICA

References

1. DeYoung, D., Creation and curved space-time, *TJ* 17(2):5-7, 2003.
2. Campbell, S.O., Einstein says that cosmological expansion is not locally detectable, *TJ* 17(2):67, 2003.
3. Humphreys D.R., Humphreys reply: only the big bang says that, *TJ* 17(2):67-68, 2003.
4. Hartnett, J. G., The heavens declare a different story! *TJ* 17(2):94-97, 2003.
5. Hartnett, J. G., A new cosmology: solution to the starlight travel time problem, *TJ* 17(2):98-102, 2003.