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There is no love lost between Mr. Bridgman and myself and so I will make no pretensions to the contrary.

Bridgman's comments are rather superfluous, and quite futile. His remarks on 'infalling matter' have little relevance to the issue of whether or not General Relativity predicts black holes, and so are of no consequence.

Concerning the centre of mass, here is what I wrote in the paper cited by Bridgman:

'Setting $R_{uv} = 0$ imposes upon an observer in the alleged gravitational field, a consideration of the perceived source of the field in terms of its centre of mass, and so $g_{00} = 0$ is not a physically meaningful condition. In other words, the notion of gravitational collapse to a point-mass is not justified: it is ill-posed. A centre of mass is not a physical object, only a mathematical artifice. This same artifice occurs in Newton's theory as well, and in Newton's theory it is not a physical object either, and nobody, quite rightly, considers it a physical object in Newton's universe. Oddly, the centre of mass is taken, by unconscious assumption or blind conviction, to be a real object in Einstein's theory.'

It is obvious from the above that I address the issue of centre of mass in Newtonian physics as well. What is my point? Simply this: that the alleged infinitely dense point-mass singularity of the alleged black hole is misconstrued by the proponents of the black hole to be a real object, when at the very best it can only be conceived of as a centre of mass, which is not a physical object, merely a mathematical artifice, just as it is in Newton's theory. Nonetheless, the astrophysical scientists would have us believe that a centre of mass is a physical object, at least in the form of their alleged infinitely dense point-mass singularity of their black hole. The quote from my paper makes this quite clear, but is apparently beyond the ken of Mr. Bridgman. The matter is thus not a 'red herring'; and Bridgman's herrings have nothing to do with the price of fish. Here is what a major representative of the black hole tells us:

'The work that Roger Penrose and I did between 1965 and 1970 showed that, according to general relativity, there must be a singularity of infinite density, within a black hole.'
[Stephen W. Hawking, 'The Theory of Everything, the Origin and Fate of the Universe', New Millennium Press, Beverly Hills, CA, 2002.]

So the astrophysical scientists do indeed claim infinitely dense point-masses, when at best they can only claim a centre of mass, which is not physical. The argument given in my paper is accurate.

Concerning line-elements for the interior and exterior of a star, here is what I wrote in the paper cited by Bridgman:

'Gravitational collapse is a conceptual anomaly in General Relativity that has no basis in the physical world or in General Relativity. It is built upon a false idea as a result of not realising that $R_{uv} = 0$ imposes consideration of the perceived source of the alleged gravitational field in terms of its centre of mass only, and so can say absolutely nothing about the size or mass of the source of the field.'

'In view of the foregoing, a single line-element is insufficient for the full description of the gravitational field of an object such as a star. One needs two line-elements: one for the interior of the object and one for the region outside it. These line-elements, although different, are not disjoint, being coupled by quantities that are determined from the line-element for the interior of the star and by a common Gaussian curvature at the surface boundary of the object, as the study by Schwarzschild [18] (and my generalisation thereof [5]) for the ideal case of a homogeneous incompressible sphere of fluid teaches us.'

Contrary to Bridgman's assertion, there is nothing 'strange' in the two required line-elements. The distribution of matter inside a star is vastly different to that outside it. Consequently, the line-element for the interior of a star is necessarily very different to that which might describe the region outside the star. There would have to be a smooth transition across the boundary between the two regions. I illustrated this situation by the solution obtained by Schwarzschild for the idealised case of a sphere of homogeneous incompressible sphere of fluid. There is no 'single function' that can describe the two regions, despite Bridgman's claims. Bridgman does not give us his 'single function' for such a scenario - and for good reason, there is none!

The remainder of Bridgman's comments on incompressible fluids are of little relevance.

Concerning the electron, it is not a point-mass. Bridgman even gives values for the spatial extent of the electron. Furthermore, even though mathematical physics and engineering use the concept of point-mass and point-charge in mathematical analysis, it does not follow that the point-mass and the point-charge are physical. In circuit analysis, for instance, complex numbers are often used to make calculations, but no circuit element is a complex number, and one cannot count a complex number of pebbles on the beach. Mr. Bridgman confuses mathematical concepts with physical objects, which is what the proponents of black holes always do too. His argument here is quite meaningless.

Mr. Bridgman has confirmed in this post that he is quite an ignorant fellow. He confesses that he really doesn't apprehend the salient issues in my papers: he has not addressed them. I will therefore make it plain for him, notwithstanding that my papers really do clearly give my arguments and state my views.

1) Black holes are not predicted by General Relativity at all. The black hole has been spawned by invalid mathematics and misapplication of the physical principles of General Relativity. Newton's theory does not predict black holes either, since the Michell-Laplace dark body is not a black hole. Since black holes were conjured up by theory, not observation, the failure of the theory of black holes obliterates the notion. Despite the now almost daily claims by astrophysical scientists for black holes being discovered here, there and everywhere, usually supermassive, as if the term 'supermassive' lends greater 'weight' to their claims, nobody has ever found a black hole - no infinitely dense point-mass singularity and no event horizon, anywhere. All claims for discovery of black holes are just wishful thinking on a phantasm, sold to the public at large as snake oil to the gullible. All attempts to detect black holes are destined to detect none.

2) The so-called 'Schwarzschild solution' is not Schwarzschild's solution at all. Bridgman has admitted in his post that until he read my papers he was completely unaware of this fact. This is the usual state of affairs for astrophysical scientists. The irrefutable fact is that Schwarzschild's actual solution forbids black holes. So, contrary to Bridgman's assertions, what Schwarzschild did and said is of the utmost relevance to physics. Anybody can verify

these facts for themselves by simply reading Schwarzschild's actual paper, here (in English translation):

www.sjcrothers.plasmareources.com/schwarzschild.pdf

3) The astrophysical scientists have never correctly identified the quantity 'r' that appears in their so-called 'Schwarzschild solution'. They have perhaps a dozen or more notions for what they think it is, none of them correct. Their plethora of names for what 'r' is betrays their ignorance. By and large they think that it is a distance, (usually a radial distance, by virtue of their treatment) in the spatial section of their 'Schwarzschild solution'. Indeed, one particular value of it they even call the 'Schwarzschild radius' which they claim is the radius of the black hole event horizon surrounding an infinitely dense point-mass singularity at the 'origin' (since they also think, quite erroneously, that $r = 0$ is their 'origin'). Here is the description of the 'Schwarzschild radius', given in the Collins Encyclopedia of the Universe, HarperCollins Publishers, London, 2001:

'Schwarzschild radius: the radius of the event horizon of a black hole of mass M . For a non-rotating black hole with no charge the Schwarzschild radius is given by $2GM/c^2$ where G is the gravitational constant and c is the speed of light.'

However, it is easily proven, as I do in my papers, that their 'r' is not even a distance, let alone a radial one, in their spacetime, and so their $r = 0$ is certainly not an 'origin therein and their 'Schwarzschild radius' not a radius of anything. In the so-called 'Schwarzschild solution, the quantity 'r' is the inverse square root of the Gaussian curvature of the spherically symmetric geodesic surface in the spatial section, and so is not a distance at all - Gaussian curvature is a bending invariant and is an intrinsic property of a surface (and a spherical surface is a surface which has a positive constant Gaussian curvature - precisely that in 'Schwarzschild' space). The proof is unassailable and therefore completely immune to infection by black holes. This simple geometric fact completely subverts all claims that General Relativity predicts black holes, no matter how vigorously the astrophysical scientists jump up and down in frustration and rage. The question then arises as to what quantity determines radial geodesic distance from the point at the centre of spherical symmetry of the spatial section. The astrophysical scientists have never identified that quantity either - I do so in my papers. Since they don't even know the geometric identities of the mathematical entities they are talking about, the astrophysical scientists don't know what they are talking about, Bridgman included. And it is no use pleading plaintively from the sinking ship that thousands of astrophysical scientists can't be wrong, because they are wrong, have always been wrong, demonstrably wrong, and irrefutably so, since the question is one of pure mathematics. *Res ipsa loquitur*.

4) According to Einstein and his followers, his Principle of Equivalence and his laws of Special Relativity must manifest in sufficiently small regions of his gravitational field. Such regions can be located anywhere in his gravitational field. Since Special Relativity forbids infinite density, General Relativity must therefore also forbid infinite density, and hence forbid the infinitely dense point-mass singularity of the black hole, and consequently forbid black holes. Now the Principle of Equivalence and the laws of Special Relativity are each defined in terms of the a priori presence of multiple arbitrarily large finite masses, and so neither the Principle of Equivalence nor the laws of Special Relativity can manifest in a spacetime that by construction contains no matter. But $Ric = 0$, the spacetime from which black holes have been conjured, is a spacetime that by construction contains no matter. Thus,

$Ric = 0$ violates the physical principles of Einstein's gravitational field, and so it is inadmissible.

5) Einstein's theory is non-linear and so the Principle of Superposition does not apply. In other words, one cannot, by an analogy with Newton's theory, simply pile up masses in a given spacetime. Furthermore, there are no known solutions to Einstein's field equations for two or more masses, and there is no existence theorem by which it can even be asserted that his field equations contain latent solutions for such configurations of matter. In addition, all 'black hole solutions' pertain to spacetimes that allegedly contain only one mass. In the case of Schwarzschild spacetime, for instance, it is claimed by the astrophysical scientists that there is one mass present in an otherwise empty universe. It is therefore nonsense to assert, as the astrophysical scientists do, that a 'Schwarzschild' black hole, obtained from $Ric = 0$, can be inserted into the spacetime of another 'Schwarzschild' black hole, obtained separately from $Ric = 0$, so that the two black holes mutually persist in and mutually interact in a mutual spacetime that by construction contains no matter ! The claims by the astrophysical scientists for black holes in multitudes, sucking in surrounding matter, colliding or merging, are just plain claptrap.

6) Linearisation of the field equations, although routinely practised by the astrophysical scientists, to get for instance their gravitational waves propagating with the speed of light in vacuum, is inadmissible, because linearisation of the field equations implies the existence of a tensor which, except for the trivial case of being precisely zero, does not otherwise exist ! Furthermore, the speed of propagation of 'gravitational waves' is coordinate dependent, and Einstein and his followers just choose coordinates deliberately to make it so. Their argument is circular, and therefore invalid. Gravitational waves have not been detected. All attempts to detect them are destined to detect nothing.

7) It immediately follows from 4) that Einstein's field equations violate the usual conservation of energy and momentum as determined by experiment, and so, if the usual conservation of energy and momentum is valid, then Einstein's General Theory of Relativity is invalid. General Relativity cannot be saved from this catastrophe by Einstein's ad hoc invention, his pseudo-tensor, because his pseudo-tensor (which behaves as a tensor only under linear transformations) is easily proven to be a meaningless concoction of mathematical symbols. Assuming the validity of Einstein's pseudo-tensor, which according to Einstein describes the energy-momentum components of his gravitational field, it is easily demonstrated that it implies the existence of what the mathematicians call a first-order intrinsic differential invariant, i.e. an invariant which depends only upon the components of the metric tensor and their first derivatives. But the pure mathematicians proved, in 1900, that such invariants do not exist ! Thus, by reductio ad absurdum, Einstein's pseudo-tensor is rubbish, and so is everything that the astrophysical scientists have constructed from it.

The foregoing issues are covered in my papers, but Mr. Bridgman is silent on all of them (except for infinite density, upon which he pontificates erroneously), and instead accuses me of not understanding. Furthermore, I have no theory, I favour no theory, and I do not 'interpret' General Relativity. All my work is restricted to what is and what is not consistent with General Relativity, according to the claims of Einstein and his followers - I work wholly within the confines of the tenets of General Relativity which they propound. It is not my fault that the astrophysical scientists have committed so many stupid errors; but they certainly take umbrage at my revealing them, and my use of the vernacular (owing to my working-class vulgarity, I suppose, and my unsophisticated, irreverent, colonial, wicked wicked ways).

Instead of being honest, they resort instead to unscientific methods in attempts to protect their reputations, jobs, and 'research' grants. But their resistance is futile. It is impossible for the black hole, big bangs and Einstein gravitational waves to avoid falling headlong and irresistibly into the dustbin of scientific history, where they rightly belong. They are dead and have always been dead, since they were still born.

Bridgman's claim that I must account for the putative observational 'verifications' of General Relativity is rot. Simply because I reveal gross errors in the consensus theory does not oblige me to explain observational data. I'm not obligated to invent a alternative theory either. Observations cannot be rightly accounted for by a theory that is false by virtue of its internal inconsistencies, and the democratic vote of scientists does not make scientific facts, despite how large the consensus. It is unscientific to cling to a demonstrably false theory simply because it is a consensus gravy-train. And General Relativity itself is in conflict with the experimental evidence on the deepest of levels - the usual conservation of energy and momentum. Perhaps Mr. Bridgman could apply to himself the strictures he wishes to impose upon me, and explain how a theory that violates the usual conservation of energy and momentum can be used to account for anything.

Mr. Bridgman, stop beating around the proverbial bush and deal instead with the salient issues. I now give you, Mr. Bridgman, a recipe for proving me a mug and you not merely a legend in your own lunchtime:

- a) Prove that 'r' in the so-called 'Schwarzschild solution' is not the inverse square root of the Gaussian curvature of the spherically symmetric geodesic surface in the spatial section;
- b) Prove that the laws of Special Relativity and the Principle of Equivalence can manifest in a spacetime that by construction contains no matter;
- c) Prove that Einstein's pseudo-tensor is not a meaningless concoction of mathematical symbols;
- d) Prove that my identification of the radial geodesic in the 'Schwarzschild solution' is erroneous.

Mr. Bridgman, if, upon attempting to discredit me by means of this short recipe, you realise that the astrophysical scientists are wrong, perhaps you could admit that, publicly, here on your wesbpage. But given your track record, I have my doubts.

A detailed exposition of the salient facts, for the mathematically inclined, is located here:

www.sjcrothers.plasmaresources.com/NPA-paper.pdf

A detailed exposition of the salient facts for those who are not mathematically inclined is here:

www.sjcrothers.plasmaresources.com/article-1-1.pdf

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(Gardener and home handyman)
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