

Book Review

Paul Marmet, *Einstein's Theory of Relativity versus Classical Mechanics* (Newton Physics Books, 2401 Ogilvie Road, Gloucester, ON, K1J 7N4 Canada, ISBN 0-921272-18-9), U.S. \$30.00.

I was told a story recently about how government funding of the U.S. hot fusion program acquired its character: it was asserted that certain officials knew perfectly well from the start that the only practical chance of success lay in directed-energy schemes, but that the sheer number of physicists adhering to the thermonuclear religion, coupled to matters of congressional representation, made it necessary to ship the bulk of the millions to Princeton in order that a few thousand might trickle down to the outsiders investigating physically likelier approaches. (But of course predictable cutbacks soon froze out the latter, while the thermonucleacs sail on in state—to nowhere.)

True or not, this story about the experimental side of Big Physics seems even more appropriate in application to the theoretical side. There, the relevant coinage is to be reckoned more in prestige, "recognition," or reverence than in money. All the big reverence shipments go to the East Coast Ivy League academies, wherein it is a recognized condition of employment to evidence right-thinking in response to such Inquisitorial test questions as, Was Einstein right? Any original thinking on such matters is a closet activity too rare and dangerous to be shared even among consenting adults. As our ideological disciplinarians torque up their definitions, the right-thinkers sail on to their boreal Ultima Thule, and original thought about fundamentals is progressively frozen out. Indeed, the retreat of pluralism has come to be the working definition of "progress" along the new road to Truth—the one that proceeds through *consensus of authorities*. Older physicists in the days of tangible progress would have laughed at this new road, as leading straight to antisience. Their names we honor, but not their precepts.

Now we come to the book in hand, which gives the lie to everything I have just said. Here, in the heart of academia, or in one of its ventricles, the physics department of the University of Ottawa (albeit not in the Ivy league), we find enjoying the blessings of recent (albeit no longer full) employment an individual, Paul Marmet, who is as fearless a heretic as any nonconformist could wish to meet—one who dares to raise his voice against even Einstein. (If Einstein is ever to acquire the status of Christ in Western culture, it must become socially permissible to doubt him.)

Professor Marmet, an astrophysicist, is favored with exceptional scientific credentials (as I mention for the confusion of authority worshiper), including the Order of Canada, fellowship in the Royal Society of Canada, and past presidency of the Canadian Association of Physicists. A paper of his,⁽¹⁾ appearing in the maiden issue of this journal, written while he was in the physics department of Laval

University, Quebec, proposed a "new non-doppler redshift" mechanism that still strikes this reviewer as the likeliest explanation of the observed cosmic evidence employing *no new physics*. Others have offered Hubble redshift explanations ranging as far afield as nonzero mass of the photon; but Marmet is unique in doing the job without what Newton called "hypotheses." I would wager (sadly) that this Occamist approach has won few adherents. We live in times that shed simplicity the way a duck sheds water.

The present book is not Marmet's first crusading effort to bring light to those already suffering enlightenment at the threshold of pain. His earlier exposure,⁽²⁾ on "absurdities in modern physics," forms a worthy companion to this volume. Such wielding of the lance of skepticism is a daunting and lonely task for any single critic to take on, without the help of so much as a Sancho Panza. Let us recognize raw courage, mounted on its Rosinante, when we meet it in the road.

This new book exhibits the author's essential conservatism (already apparent in his redshift explanation), which sustains and informs his approach to all topics of physics. This is expressed in the opening words, "The aim of this book is to demonstrate that...classical physics can explain all the observed phenomena attributed to relativity." Yet, as happens so often when scientific "conservatism" is pursued with logical consistency, we readers barely have time to grab our hats before radically new things—projectiles potentially lethal to our preconceptions—are whizzing past our ears. For instance, Planck's constant is not a constant, but "scales" like time and space variables. I suggest that such radicalism, which is the flip side of conservatism, deserves our closest attention and respect. For those who doubt it, I point out that that was the kind of radicalism Einstein employed—and would be employing today to knock down our most cherished totems if (contrary to the desire he himself sagely expressed late in life) he had to start all over again today.

Marmet's underlying theme is that of *mass-energy conservation*, an assumption employed to treat a surprising range of subjects, beginning with "the physical reality of length contraction" (and not only length but sideways dimensions as well!) and including energy transformations both external and internal to atoms, as well as a demonstration of the Lorentz equations "without Einstein's relativity principles." Some of the author's findings are disturbing to this reader's pet presuppositions, but in at least one major area I felt a strong resonance between his approach and my own prejudices: I refer to his insistence on paying close attention to *units* and to the relationship between units and the corresponding *numbers* assigned to variables in physics.

Einstein was shockingly lax in this department, since he paid almost no attention to the specifics of calibration of his coordinate axes. In 1905 (and he never did better later) he hypothesized two coincident inertial systems, in which metersticks are standardized. Then he "set into motion" one

of these systems, without a care to the *details* (the ones that "God" is supposed to inhere in) of how this was to be done. Were equal forces to be applied to all particles of the meterstick, in order to assure its permanently strain-free acceleration? No—glancing ahead—that prescription would lead unavoidably to the "wrong" (Newtonian) answer. In fact, before the public could blink, it turned out that the special theory had nothing whatever to do with acceleration, and anyone who raised the subject was either an ignoramus or a provocateur! Ah, but what about Einstein's own original "setting into motion," which took place *logically prior* to his derivation of any equations that might provide the answer (the *post facto* answer being that one does not leave it to nature; rather, one dutifully pushes harder on the back of the meterstick than one pulls on the front, in accordance with a *formula* provided by the Lorentz transformation)? Adherents of the Einstein system chop every form and aspect of logic but that one.

A showpiece of the book, for which several of the initial chapters pave the way, is an entirely new derivation of the accepted value of Mercury's "anomalous" perihelion advance. This is quite a tour de force, and I admit I could detect no weak links in the reasoning. Perhaps others will be more perceptive of difficulties than I was. In any case historians must add number $(n + 1)$ to the existing n solutions⁽³⁾ of this problem, all different in their physical premises and all leading to the same mathematical formula.

Other topics covered in entirely unique ways include the Doppler effect, simultaneity, the principle of equivalence (Einstein's elevator being taken for a new ride), and phenomena inside atoms. Marmet insists that mass-energy conservation forbids light, in passing near massive bodies in space, to deviate from a straight path. This view has led him to reexamine the claims of empirical evidence for gravitational deflection of light, beginning with the famous 1919 Eddington solar eclipse expedition to verify the curvature. His account, based on original sources, is given in an appendix. This footnote to history will surely shock the starry-eyed—if any young physicists of today fit that description, having failed as yet of corruption by professionalism. That an astrophysicist of major standing could question light curvature *as an empirical fact* I find highly revealing of the delicate, not to say tenuous, relationship between modern physical theory and the factual world. In a concluding chapter Marmet applies his astrophysical expertise to a discussion of "pseudo blackholes." I found this interesting but am in no

position to judge its status as physics.

A theme running through the book, based on the author's conception of mass-energy conservation, is that all matter depends for its size on the Bohr radius, which in turn depends on electron mass, which in turn depends on location in a gravity field and on state of motion. In referring motion to "outer space" he assumes that velocities are absolute with respect to an absolute space, presumably identifiable with that inertial system in which the cosmic background radiation is at rest. This is a view that seems to be steadily gaining in advocacy. I suspect that many readers, like me, will wish to argue with the author here and there, and will regret the one-way nature of book communication that forbids the asking of questions.

This work is superbly thought-provoking and a valuable addition to the growing literature of knowledgeable dissidence in physics. Physics needs more Marmets and needs to preserve, honor, and *read* the one it has. Who knows? Dissidence thus represented might even acquire a good name. Recommended for all who do not feel their tenure threatened by the intrusion of original ideas into the foundations of physics.

References

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Dr. Phipps studied physics at Harvard University as an undergraduate and as a doctoral student under Professor Norman Ramsey, for whom he wrote a molecular beam experimental thesis. His subsequent work for the U.S. Navy included various forms of operations research (systems analysis) and research administration. Upon retirement he has turned his interests once more to experimental physics, primarily in the area of electromagnetism, and to conceptual problems such as alternative relativity theories. [A more complete résumé appears in *Phys. Essays* **8**, 274 (1995).]