Book Review: Newton versus Einstein

Peter and Neal Graneau, *NEWTON versus EINSTEIN: How Matter Interacts with matter* (Carlton Press, New York, 1993), 219 pages, 135 references, $14.95

This book, without the use of mathematical formula or diagrams, treats the current controversy in physics between the vast majority of modern scientists who hold to contact theories of matter interacting with matter (as championed by Einstein) and the action at a distance theories of a few researchers which originated with Isaac Newton. The authors begin with a historical background of this controversy starting with Aristotle's which as far as is known originated the contact action theories of physics. Aristotle states that for a piece of matter to act on another they must be in contact with each other. Since, for example, there is no contact between the earth and the sun, the modern physicist has invented a field of force which is something that through contact with a piece of matter causes a (gravitational) force to be exerted on this matter. (Originally, Newton simply said that two bits of matter experienced a mutual force which caused them to attract each other-action at a distance.) Similarly, the modern physicist speaks (following Maxwell) of electric and magnetic fields causing forces, and the old laws of electrical and magnetic action at a distance as advocated by Coulomb, Ampere, Neumann, and Weber are considered to be of historical interest only.

Then the two authors branch out in two directions. They first investigate the force of inertia and explain it in terms of Mach's principle and the work of A.K.T. Assis. Mach's principle asserts that the inertial force on particles and bodies on the earth and in the solar system is due to their acceleration relative to all matter residing outside the solar system. Assis uses a new law of gravitation, one term of which is given by Newton's law of universal law of gravitation, to obtain the result that the force of inertia on body A, as given by Newton's second law, is due to the inertia-gravity interactions between A and the isotropically distributed matter in the cosmos. It follows from Assis's analysis that inertia-gravity must be the result of accelerations, as in Newton's theory, but more specifically the relative acceleration between objects on the earth and in the distant universe.

The second direction which the authors branch off into is the laws governing electricity and magnetism. They bring the far action theories of Coulomb, Ampere, Neumann, and Weber up to date for the case of electric currents in metals and briefly describe several experiments performed by themselves and others which show the existence of "Ampere forces" predicted by Ampere's law but not by the modern theory of electrodynamics. This is a sharp point of contention between those who hold to the modern theories and the authors; the modern theorist believes that Ampere's law predicts the same phenomena as does his theories while the authors point out that this is incorrect.

Finally, the authors discuss in their last chapter some problems that the modern theorists have run into in quantum mechanics (which they outline so as to make their book as self contained as possible) in their attempt to apply field theory as opposed to the theories of far action. This book ends with an outline the authors' alternative approach to these problems based on their far-action theories.

This reviewer was very favorably impressed by the book, and, in fact, the only part that he really disliked was their rejection of the Newtonian concept of "absolute space". It seems ironic to him that they should use so many words in praising Newton and his approach to physics and then turn around and attempt to remove a pillar of his magnificent theoretical edifice. But this is a minor point. In our opinion, the authors have succeeded very well in making this important subject intelligible to those of the general public who are interested in physics.

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The Bookshelf

New Publications on Physics and Astronomy

Newton versus Einstein: How Matter Interacts with Matter, by Peter and Neal Graneau, (Carleton Press, N.Y., 1993), ISBN 0-8962-4514-X, 219 pages, hardcover, $14.95US. Orders: Dr. P. Graneau, Centre for Electromagnetic Research, Northeastern University, Boston, Mass. 02115 USA.

Absurdities in Modern Physics: A Solution, by Paul Marmet, (Les Editions du Nordir, Ottawa, 1993), ISBN 0-921272-15-4, 146 pages, hardcover, $24.95CDN. Orders: Dr. Paul Marmet, Dept. of Physics, University of Ottawa, Ottawa, Ontario K1N 6N5 Canada.

The Natural Philosophy of Quantum Mechanics, by S.X.K. Howusu, (Jos University Press, Nigeria, 1993), ISBN 978-166-073-2, 72 pages, softcover, $5.00US. Orders: A small number of copies are available from *Apeiron*.

Progress in New Cosmologies: Beyond the Big Bang, Proceedings of the 13th Cracow Summer School of Cosmology, edited by Halton C. Arp, C. Roy Keys and Konrad Rudnicki, (Plenum, N.Y., 1993), ISBN 0-306-44635-9, 361 pages, hardcover, $60US. Orders: A small number of copies are available from Apeiron.

Vector Particle Physics: Mathematically consistent models for the structure of subatomic particles, by T.N. Lockyer, (TNL Press, Los Altos, CA, 1991), ISBN 0-9631546-1-3, 102 pages, softcover. Orders: TNL Press, 1611 Fallen Leaf Lane, Los Altos, CA 94024 USA.