Illusory absolutism

THE RELEVANCE OF PHYSICS. By Stanley L. Jaki. 604 pp. U. of Chicago Press, Chicago, 1966. $12.50.

by Richard Schlegel

Do you believe that physics is a true account of nature, unmixed with additions that may come from human vagaries; that ethical principles will become clear and effective when they have been based on established scientific knowledge; that metaphysics is ponderous nonsense, happily and wisely avoided by the physicist; that science gives the essential mode of man's gaining wisdom and the good life? These and other strongly pro-science attitudes on general questions of importance to mankind are the target of Jaki's book. His concern is to demonstrate that physics, which is wondrous enough in its achievement of natural knowledge, should not be given illusory properties of metaphysical absolutism or of guiding relevance in ethical, social, political and religious matters.

Jaki is a Roman Catholic priest and a Benedictine, with doctorates in both physics and theology. A research professor of the history and philosophy of physics at Seton Hall University, he has been a visiting member at the Institute for Advanced Study.

Jaki's method in his long book is everywhere one of appeal to history: citation of developments in physics and quotations from physicists or physicist-philosophers. In the opening chapters he discusses three different concepts that have served at different periods as an organizing theme for physics: the world as an organism in Greco-Roman and medieval cultures; the world as a machine; and, in our century, the world as a pattern of numbers. (The presentation of the organismic world view is, I thought, particularly successful.) Then there are chapters devoted to physicists' exploration of the atomic and elementary-particle structure of matter, to the successive expansions of our knowledge of the cosmos and to the significance of improvements in precision of measurement. In all of these evidence of the historic past of physics is called upon as witness to the tentative and changeable nature of science.

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In four chapters on relations of physics to biology, metaphysics, ethics, and theology, respectively, the argument for the limitation of physics to its own content of established knowledge is relentlessly carried on. In a chapter devoted to physics and scientism Jaki uses aspects of Auguste Comte's positivism and of Marxism-Leninism as supports for the statement that a complete reliance on science as the ultimate authority leads even to a throttling of the intellectual freedom that is essential for a thriving science. He makes a plea, in the final chapter, for study of the history of science, for the perspective that history gives on the role and validity of the accepted science of any given day and also, in the closing pages, he stresses the need for careful popular interpretation of physics by physicists, as contrasted with journalistic sensationalism. (There are quotations in the book that give ample evidence that physicists are themselves often the source of the latter.)

Many kinds of people, certainly, can gain wisdom with respect to what science is by reading this book. Much of its material could be helpful, I would judge, in connection with general education courses in the sciences, including physics courses in which there is an attempt to give some notion of science beyond its explicitly technical content. And, even for the technical doing of physics there is need, as Jaki asserts, for the historical knowledge that shows how the ideas of physics have had their origin in human situations, and should not be canonized as unalterably valid.

So, in all, I believe this book is one to be welcomed and applauded for its exposition of commonly held errors with respect to the role of physics. But I must also record the demurrer that I believe there are elements of the story that Jaki has overlooked. Physics does influence our way of viewing the world, in virtually all of its aspects. It is not easy to distinguish between the effects of physics that arise, on the one hand, because it is the basic, albeit partial, science of the natural world and, on the other hand, those influences of physics that are a result of illicit extension of its competence. But the very fact, emphasized by Jaki, that physics is not independent of metaphysics, means that the content of physics will influence our total outlook, and hence that ethics and theology, as well as engineering and biology, are domains for which there is a relevance of physics.

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Richard Schlegel, who is professor of physics at Michigan State University, has published books and papers on topics relating to philosophical questions in physics.