

seldom that Mathematicians can be found engaged in a controversy such as that which raged for forty years in the Eighteenth century. The object of the dispute was to determine how the force of a body in motion (Impedo) was to be measured . . . All Europe was divided between the rival theories. Germany took part with Leibnitz and Bernoulli while England combated their arguments. France was divided, an illustrious lady, the Marquise de Chatelet, being first a warm supporter and then an opponent of Leibnitzian opinion (mv^2) . . . The controversy was at last closed by D'Alembert, who showed in his treatise on Dynamics that the whole dispute was a mere question of words."

So the word Impedo, and the monumental argument that swirled around it, faded from the language of physics to be replaced by the dual expressions: "Quantity of Motion" and "Vis Viva," which later became "Momentum" and "Energy." Galileo saw the illusive Impedo but only the shadow it cast upon the time or the space axis could be mathematically gripped. And thus it is laid before us in first-semester physics: mv describes the time integral and half mv^2 the space integral of force. Yet in the day of the celebrated debate this distinction was not apparent nor at all appreciated, and it was difficult for anyone to realize the two different descriptions were even compatible. What a familiar ring Routh's following comment¹ must have in an ear tuned to the quantum-duality question: "It was most strange in the great dispute that the same problem, solved by geometers of opposite opinions, had the same solution."

Physicists' education contains pitifully little history, but innocent of history we relive it.

References

1. Edward John Routh, "The Elementary Part of a Treatise on the Dynamics of a System of Rigid Bodies," Chapter 7, page 272, Seventh Edition, Macmillan, London (1905, first edition 1860).

Lewis Epstein

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LAMPF-classified area

The February issue (page 19) carried a schematic diagram of the experimental areas of the Los Alamos Meson Physics Facility. As recently as August 1970, I have seen a diagram of the LAMPF project with a proposed classified-weapons research area. It should appear on the right-hand bottom of your diagram, but is deleted as you've drawn the diagram.

Marvin Resnikoff

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Los Alamos comments: Resnikoff is

correct that the diagram of the experimental area entitled "LAMPF meson factory calls for beam-time proposals" was truncated on the bottom so as to exclude the "Future Pulsed Beam Line," which in fact did appear on the drawing submitted by LASL to *physics today*. The truncation was made by *physics today* and was not reviewed by us.

The area to be served by this beam line lies a considerable distance to the south of the main experimental area, and will house experiments using pulsed neutrons. The primary purpose of the area is to develop information relevant to national defense needs. A preliminary layout appears in the *LAMPF Users Handbook* and in the *Proceedings of the Fourth Meeting of the LAMPF users*, October 1970. It is also expected that basic research will be carried out in the area; however, the facility has not been authorized. Obviously LAMPF is not now calling for proposals for beam time in this area.

Darragh E. Nagle

Los Alamos Scientific Laboratory

New look complaint

You are right. I did not realize until I read the editorial at the end of the September 1970 issue (page 92) that the vertical spacing of the lines of text had shrunk in the ratio 11 to 12. I had been aware only of undue strain in reading the text. The typography used in the editorial is pleasant to read.

George B. Yntema

East Hartford, Conn.

Corrections

April 1971, page 20, right-hand column—Reference 3 to the story on x-ray parametric conversion should have included: I. Freund, B. Levine, *Phys. Rev. Lett.* 25, 1241 (1970).

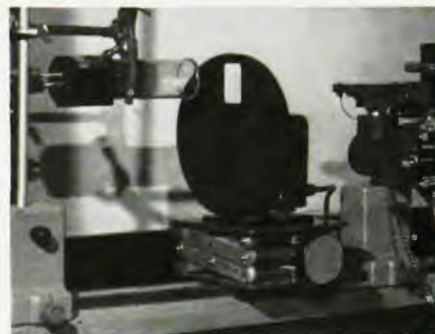
May 1971, page 71—Our report on the award of a National Medal of Science to Allan Sandage failed to make clear the fact that the Hale Observatories are operated jointly by the Carnegie Institution of Washington and California Institute of Technology.

May 1971, page 59—Price of *A Training Manual for Nuclear Medicine Technologists* should read \$1.75 (\$0.95 in microfiche). It is available from the Superintendent of Documents, US Government Printing Office, Washington, D. C. 20402.

May 1971, page 64—The name of one of the members of the "Committee to Study the Fundamentals of Amorphous Materials" was misspelled. *John Tauc* should be corrected to read Jan Tauc. □

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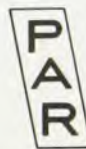


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