the Three Mile Island nuclear reactor accident. Selecting the appropriate technical level is always a difficult matter. In this instance, we intentionally geared the level a bit high to supply the type of details that had not been given in the general newspaper accounts. The story attempted to answer many of the questions we heard raised by physicists of varied backgrounds. We had hoped that, although space prevented anything but a cursory definition of terms, the diagram would help indicate the relations among the reactor components. We do agree that the diagram could have been altered to highlight key components, to indicate explicitly the primary and secondary loops and to make the terminology more consistent with the text. (Yes, the primary coolant pumps are the reactor coolant pumps).

As for ultimate fate of the reactor, that was still an open question as the story went to press. The containment building is still closed at this writing, so the extent of damage remains unknown. Metropolitan Edison has requested and received some preliminary estimates for the reconstruction of the reactor.

The Editors

Helping science libraries

More and more, libraries cannot afford to buy scientific books and periodicals, and are forced even to cancel some subscriptions. As a result fewer books are sold and they become more expensive, hence the vicious circle. Clearly this situation is detrimental to research and scholarships. A remedy would be if the funding agencies would adopt a method that would force the universities to give a certain percentage of the considerable overhead to science libraries for books and periodicals. After all, the availability of all publications is a very important ingredient of research, a relatively inexpensive, yet neglected part that would also benefit future projects and future generations. The agencies and foundations should not just encourage but stipulate such a procedure in their grants.

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10/30/79

Hall-effect omission

The article on the ferromagnetic Hall effect by G. Bergmann in August (page 25) ably reviews developments in the field in the last two decades. We feel, however, that it is most appropriate for any review of the Hall effect in ferromagnetic materials to make reference to the unique and pioneering work of Emerson Pugh, and this the article fails to do.

For over a third of a century Pugh's work on the Hall effect in ferromagnetic

metals dominated this field. During this period his publications were many dating between 1930 (Phys. Rev. **36**, 1503) and 1966 (Phys. Rev. **152**, 498). These works provided the first reliable quantitative measurements as well as the formulation of the extraordinary (or anomalous) Hall effect which appears in ferromagnetic materials (third equation in Bergmann's article), and which, incidentally he named. Most important, his work also provides much of the data upon which any of the theories is based. For example, as far back as 1954 Karplus and Luttinger leaned heavily on Pugh's data in suggesting, correctly, that spin-orbit coupling is involved in the extraordinary Hall effect.

It is perhaps, natural that as former students of Pugh we are more cognizant than most of his many contributions to the current knowledge and understanding of the extraordinary Hall effect. Nevertheless, in view of the central role played by Pugh in the elucidation of this phenomena, we feel it is imperative that Bergmann's omission be called to the attention of your readers.

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THE AUTHOR COMMENTS: I am sorry that Schindler, Ehrlich and Carter are disturbed because the important work of Emerson Pugh is not referred to. However, my article was never planned as a review. (It had originally the title "The anomalous-Hall effect, a new and versatile measuring method," which was only changed by the editors in the final version for editorial reasons.) The goal of the article was to present the anomalous Hall effect as an interesting tool for the investigation of solid-state physics. Since the number of experimental and theoretical contributions to the anomalous Hall effect is almost uncountable, I referred to two surveys (ref. 4) and citated no experimental investigations (not even my own one). I restricted myself to a theoretical paper that gives an heuristic understanding of the effect and concentrates on the applications of the anomalous Hall effect as a tool for physics.

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Wanted: papers on energy

The Forum on Physics and Society is organizing a *contributed* paper session on Physics and the Energy Crisis for the APS meeting in Washington, 21–24 April, 1980. We hope that this session will encourage many readers who have been considering the energy issues to come forward with an abstract so that they might share their ideas with the broader physics community. We are interested in all aspects of the energy problem; production/conservation, strategies, devices, environment, economics, and so on. We would encourage contributors to quantify their thoughts and results when possible, because they will be addressing an audience of physicists. The abstracts are due at the APS on 25 January 1980. We would appreciate it if a copy of the abstract could be sent to one of us (Hafemeister) so that we may have ample time to arrange the abstracts in some logical fashion.

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Poincare and Einstein

The letter by Henri Bacry (August, page 11) attributes to Einstein the idea that an atom that emits a photon undergoes a recoil. This idea predates Einstein at least to Poincare [Archives Neerlandaises des Sciences Exactes et Naturelles V, 252 (1900), page 260]. The latter wrote ". . . . si un appareil quelconque apres avoir produit de l'energie electromagnetique, l'envoie par rayonnement dans une certaine direction, cet appareil devra *reculer* comme recule un canon qui a lance un projectile." He also did calculations using the relation $mv = E/c$, where v is the recoil velocity of the emitter of mass m, E is the amount of electromagnetic energy emitted at velocity c.

Einstein was a nucleation center who brought together in a systematic way ideas that had been accumulating for decades, and in some cases centuries. When such a nucleation event occurs it becomes the new reference point, and the originators of the encompassed ideas tend to become lost in the mist of history. As an analogy one may compare the Hebraic, Christian and Islamic calendars and the corresponding views of what truths are attributed to whom.

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THE AUTHOR COMMENTS: I have never attributed to Einstein the idea that an atom that emits an electromagnetic wave undergoes a recoil. Nevertheless, the concept of photon as a particle endowed with energy and momentum is due to Einstein.

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