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that underlie such classifications of the data. If we are fortunate enough to learn how to generate nuclear energy from water, as extremely important as this might be for society's present energy-crisis problems, it probably would not help one iota in the quest of physics to *understand* the laws of nature that underlie these processes. While I fully support such activities by physicists, I do not believe it should be advisable that their continuance and growth should be at the expense of sacrificing research effort aimed at the fundamental principles of physics. While many of my colleagues may disagree with me on this, I still maintain that extremely little effort is being expended today on fundamental problems in physics—in spite of the huge outpouring of printed pages in the journals.

I think that the basic reason for this is the state of content that most physicists have reached—at least outwardly—with our present state of *basic knowledge*. There appears to be a consensus today that we have already discovered essentially all of the fundamental principles that are to be discovered, and our only remaining obligation, as physicists, is to apply these principles. There is some agreement (in print) that if all of the presently accepted principles of physics are not mutually compatible, and if their mutual acceptance implies a certain degree of irrationality along with the laws of nature, then indeed we should accept some irrationality as the way the real world is! There are even some who propose a return to the medieval notions of astrology and witchcraft—*in the name of science!*

In spite of the great amount of activity and sums of money spent on physics research today, the combination of (my view of) what a physics problem is, and the rigidity with which fundamental ideas are being held today, leads me to the belief that at this stage, physics, though not dead, is in a state of suspended animation. Thus it is potentially capable of revivification. To this end, we must re-create a climate in which people recognize physics for its own sake, rather than for the sake of phenomenological descriptions, as ends in themselves, or for the sake of possible applications, whether immediate or in the future. However small the activity of fundamental physics research may become, *it should be allowed to exist—without strings!* My suggestion, then, is that a foundation be established, with a budget, for the purpose of supporting fundamental physics, for its own sake.

I suggest that this should be an *international science foundation*—dedicated to sponsoring "unsafe research" on fundamental problems. That is, research that does not claim the answers to problems before the problems have been investigated, nor necessarily backed by prestigious institutions of people, so long as they are backed by technically sound proposals.

The existence of an ISF could create an international intellectual atmosphere in which physicists might start to believe that they are not being cranks when they think freely and critically about the basic problems of physics, so long as they follow through with technically competent methods. To move in the direction of establishing such a foundation, I suggest that the leading physics organizations of as many nations as possible (the AIP in the US) should jointly approach the United Nations, as the proper seat for such a foundation. I believe that the existence of such a foundation could help to accomplish the job of reviving free thinking in physics, thereby restoring the potential for real progress in fundamental knowledge.

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Error in lithium

We wish to point out an error in the value of the atomic weight of lithium, as published in some of the scientific community's most widely used reference works.[1,2] The atomic weight on the chemical scale, based on the C^{12} standard, is given as 6.939 amu. However, when one calculates this figure from the nuclide masses and relative abundances listed in the same works, it is found to be 6.9417 amu. Further, the nuclide mass figures are self-consistent in all the usual reference sources,[1,2,3,4] as are the relative abundance values.

The error might well be explained by the following scenario in which we derive the incorrect figure:

The contributions to the chemical atomic weight from the two naturally occurring isotopes are as follows:

Li^6: (6.015123) (0.0742)
= 0.446322 amu
Li^7: (7.016004) (0.9258)
= 6.49544165 amu

If at this point we make the mistake of transposing 0.4463 to 0.4436, we get the sum 6.9390 amu for the chemical atomic weight.

It would appear likely that this error originated at the time of the adoption of the C^{12} standard, and has proliferated ever since. It can even be found in Webster's *Third New International Dictionary*.

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2. *Handbook of Chemistry and Physics*

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3. C. M. Lederer, J. M. Hollander, I. Perlman, *Table of Isotopes*, Wiley, New York (1967), 6th ed., page 3.
4. J. Mattauch, W. Thiele, A. Wapstra, Nucl. Phys. **67**, 1 (1965).

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Lick and Henry

In his excellent article in December (page 32), Richard Berendzen does not mention the important role Joseph Henry, Secretary of the Smithsonian Institute, played in advising James Lick on the founding of the Lick Observatory. This information can be found in a book by Rosemary Lick.[1] The date of Joseph Henry and James Lick's first meeting and subsequent correspondence was obtained by her from letters in the Smithsonian Archives.

The mystery for the motivation behind Lick's decision to build the most powerful telescope in the world in 1873 is not solved by any of the letters, according to Nathan Reingold, Editor, Joseph Henry Papers, Smithsonian Institution.

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1. Rosemary Lick, *The Generous Miser*, Appendix 87–95, Ward-Ritchie Press, Los Angeles (167).

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No first for SIN

In reporting progress at the new meson factories (February, page 17) your reporter was all too quick to attribute a "first" to SIN. I am referring to the "first direct measurement of a nuclear spectroscopic quadrupole moment." The first measurement, which involved pionic tantalum,[1] was published about eight years ago by a group working at the now closed Carnegie Tech (later Carnegie-Mellon University) cyclotron. I am surprised that the original work was not cited in the recent SIN paper,[2] since Wade Sapp participated in both experiments. I find it sad how quickly we forget the work that has come before us.

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