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letters

TODAY, November 1978, (page 112) and an interview with Abdus Salam, the director of the Centre since its inception in 1964, in *Impact of Science on Society*, volume 25, number 1 (1975). Additional information may be obtained by writing directly to Salam or to the Associate Director, Paolo Budini, at the Centre.

ROSCOE B. WHITE

Princeton Plasma Physics Laboratory
10/16/80 (ICTP 1964-1966)

APS policy on references

Virgil Highland (September, page 15) has written to protest the use of truncated references ("Michelson, *et al.*") in our publications, and asks if there is a policy for such usage in American Physical Society publications.

Yes, Dr Highland, there is a policy. It is the policy of our journals (*Physical Review*, *Physical Review Letters*, *Reviews of Modern Physics*) to request that authors, at least in their list of references, if not in text, provide complete citations for n authors where $n \leq 4$. We do not discourage complete citations for larger values of n than 4, but authors may reasonably be forgiven if they do not furnish the complete list of authors for some papers (*Physical Review Letters* just received a manuscript in particle physics with 90 authors!).

The problem is not in our policy or expectations, but rather in the fact that many authors do not furnish the complete citations, even when so requested. Neither we nor the American Institute of Physics have the time or staff to provide the missing names when they are omitted by the authors. We have not, as a matter of policy, considered such lack of compliance as a sufficiently grievous sin to merit denial of publication.

I myself have solved this problem by being a solid-state experimenter who almost never gets his name on a paper with more than two authors. Any recruits?

DAVID LAZARUS

Editor-in-Chief

9/26/80 The American Physical Society

Universal language again

Various people continue to advocate adoption of a universal language for the sciences. Esperanto and Latin have been proposed recently in this journal,¹⁻³ although considerably earlier Leibnitz elsewhere advocated Chinese as the ideal language for philosophy. Of course, much of physics already has such a language in its

mathematics, and many would agree with Robert Feynman that "physicists cannot make a conversion to any other language."⁴

What the Esperanto, Latin and other proposals seem to ignore is the profound effect the language has on the types of thinking that are possible. The relationship is subtle but not trivial. As Misner, Thorne and Wheeler wrote:

All the laws and theories of physics... have this deep and subtle character, that they both define the concepts they use... and make statements about these concepts... Any forward step in human knowledge is truly creative in this sense: that theory, law, and method of measurement—forever inseparable—are born into the world in union.⁵

Werner Heisenberg especially has written with passion on the biases inherent in our Western languages, in particular our use of the word "particle."⁶

Thus, changing the language of physics could radically alter the paradigms of the field. Besides which, my personal candidate for a universal language is Hopi!

References

1. E. S. Barr, *PHYSICS TODAY*, June 1980, page 78.
2. A. Heck, *PHYSICS TODAY*, January 1980, page 102.
3. B. Sherwood, *PHYSICS TODAY*, July 1979, page 9.
4. R. Feynman, *The Character of Physical Law*, M.I.T. Press (1965), page 65.
5. C. W. Misner, K. S. Thorne, J. A. Wheeler, *Gravitation*, W. H. Freeman (1973), page 71.
6. See, for example, W. Heisenberg, *Am. J. Phys.* 43, 389 (1975).

DAVID HARRISON

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9/2/80

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In June, page 78, F. Scott Barr suggests re-introducing Latin as an international language. Attempts to revive Latin have never completely ceased. The Vatican had (and may still have) a linguist with the special task of constructing Latin words for modern objects. I agree that Latin deserves any support it can get.

However, the man who suggested Esperanto instead knew why. I myself have learned both Latin and Esperanto (and some other languages). After four years of dedicated teaching of Latin, I am still a beginner, and a rather poor performer. After only two months of Esperanto lessons, however, I was completely fluent in reading, speaking, writing and understanding. An international language should be fit to be the second language for everybody and

in addition be an adequate means for scientific exchange.

Furthermore, Esperanto is a very flexible language. It has more words than Latin (even more than English) and allows adaptation to very fine differences in meaning, with the added advantage that every Esperantist will understand these differences (that is, achieved by an ingenious system of prefixes and affixes). Esperanto can easily create new words, at least as easy as any other language—including names for scientific objects.

The amount of reading material available now in Esperanto may approach or even surpass that in Latin. This includes much high-quality material, because many of the masterworks of international literature have long ago been translated into Esperanto. Excellent teaching material, using a variety of methods, is in existence; some of its uses no other language than Esperanto itself, other books are based on all leading modern languages (including Japanese and Chinese).

Referring to Barr's suggestion: Experience shows that by first learning Esperanto, the interest in other languages is often increased, and access to them facilitated—Latin included.

HANS DOLEZALEK
Alexandria, Virginia

More on physics spirit

In his letter (August, page 62) Julius Sumner Miller stated that there was once-upon-a-time in his own younger years another atmosphere where the spirit of physics prevailed. He thinks it is now all gone. The position-open ads make him laugh! I disagree.

"PhD required..." I have.

"Good lecturing ability..." I have. student evaluation to prove it.

"Strong commitment to teach undergraduate courses..." exactly what I am doing right now.

"Commitment to research..." I have been doing it. Several publications can attest to that.

"The candidate will be measured by his ability to teach at all levels—lower and upper, undergraduate and graduate—while carrying on effective research..." If given an opportunity, I am confident that is attainable.

The problem is not that no one is qualified, it is entirely opposite! Too many people are qualified but yet the number of openings is only one among 100 applicants. For a young PhD, the competition is extremely keen. I am teaching in a small college on the East Coast and enjoy doing research with the help of two to three students in the laser spectroscopy and microelectronics area. The undergraduates told me they really like my courses and the

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