

PHYSICS TODAY is admirable, not only for the excellence of its technical articles but also for the regular historical features, such as the reminiscences of Felix Bloch in the December issue ("Heisenberg and the early days of quantum mechanics", page 23). I would like to point out that the identification of the founder of wave mechanics is incorrect. It was not *Maurice de Broglie*, but his younger brother Louis.

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Thanks to Laurence Johnson for pointing out the error made by our staff in carrying out our usual practice of inserting the first names of people mentioned in manuscript. Maurice de Broglie (1875-1960), also a physicist, became president of the French Society of Physics and a member of the French Academy of Sciences in 1924, the year his more famous brother got his doctorate at the Sorbonne.

EDITOR

Welfare costs

The dispute about welfare costs between Carl Friedberg and Eugene Wigner (December, page 13) is explained by the fact that they do not agree on the meanings of words like "income maintenance" and "welfare." In point of fact, they are both correct.

The 30 million or so Americans over 65 years of age together with a much smaller number of the disabled, dependents of disabled, and widowed (if assumed to receive a reasonable average of \$300 per month in Social Security benefits) receive quite a bit over \$108 billion per year from the Social Security system, which the recipients have in the past put into the system. A recent piece in *The New York Times*, on the other hand (I don't remember the exact reference, only the bottom-line figure) states that actual welfare in the nation adds up to approximately \$12 billion per year. The sum, perhaps also adding some reasonable value for unemployment insurance, gives us Wigner's \$182 billion. The welfare figure alone explains why Friedberg was shocked at Wigner's figure.

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Ether drift debate

Referring to the letter by J. W. Haslett (January, page 11) let me point out that the readily available basic paper,¹ which preceded the PHYSICS TODAY letters on this subject, quoted T. S. Jaseja *et al* at some length; in fact their paper was a major basis for certain calculations. I would suggest that before denigrating

your correspondents, as in the Haslett letter, it might be well to check the literature, or at least permit those who are knowledgeable on a subject to make pre-publication comments, to try to prevent such irresponsible shooting from the hip.

The Michelson-Morley experiments, and others seeking to find an "ether drift," were basically attempts to establish a method for determining absolute motion of the Earth, that is lateral motion without reference to any other celestial body. This was first accomplished by E. Conklin² in determining the diurnal variation of the 3.5-cm electromagnetic-radiation flux. If we assume this flux to be locally isotropic, the motion of the Earth is described as being along a line defined as declination 32 degrees, right ascension 13 hours. The velocity is approximately 160 km/sec. Suggestions have been made that optical studies be done using various techniques, *with the apparatus oriented to determine the possible effects of the Earth's motion about our galactic center.* This velocity is approximately 220 km/sec.³

Such experimental studies are now in progress, both in the US and in Europe. An international meeting will soon examine in detail these findings, as well as the theoretical significance of this updated approach to modern physics.⁴ Time (and physics) marches on!

References

1. H. C. Dudley, *Nuovo Cimento* **4B**, 68 (1971).
2. E. Conklin, *Nature* **222**, 971 (1969).
3. H. C. Dudley, *Bull. Atomic Scientists*, January 1975; page 47.
4. *New Scientist*, 23 September 1976; page 662.

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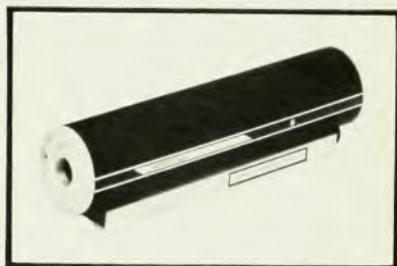
THE AUTHOR COMMENTS: From time to time, attempts are made to exhume and revitalize an ether theory. Whether help is sought from the neutrino-sea hypothesis of Steven Weinberg, as proposed by H. C. Dudley in 1971, or from a sort of continuous radiation of Conklin, as referred to by Dudley in his letter (February 1975, page 73), it appears that any ether theory in old or new dress dies easily and resurrects hard these days. This is not altogether surprising in view of the satisfactory explanations of null results of ether-drift type experiments (such as that of C. H. Townes *et al*¹) which are offered by the theory of relativity usually attributed to Albert Einstein.

If an ether theory based on a neutrino sea or on some other consideration is to be acceptable, it will, in addition to any positive comments that it may make, have to offer satisfactory explanations for the null results that have been obtained by

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