LETTERS

(Continued)

was issued in that year under the title "A waveguide theory of piezoelectric resonance."[1]

This work was done with the main purpose of damping the untrapped modes so that the spectrum of a frequency-modulated quartz-crystal oscillator (Marconi "FMQ" system) should be clean enough to satisfy the British Broadcasting Corp. for use in their high-fidelity Wrotham transmitter (the first of the VHF chain).

Since then an article was published in *Wireless World*[2] on this system in 1951 and an IEE paper[3] was read in 1957, the latter describing the basic energy-trapping theory first given in the above report. This particular application of the theory (which we called the "waveguide theory") was very successful indeed, and we were unable to detect any unwanted modes at all. Although it might appear from the simple concept of trapping that trapping alone is adequate to suppress unwanted modes, it is only so for a constant frequency. When the oscillator is directly modulated, the sidebands spread into the untrapped spectrum, and although it can be arranged that the energy is small (by choosing the frequency of cutoff), resonances can be excited in the outer part of the plate and are noticeable during constant-frequency audio-modulation tests. No hi-fi engineer could permit this! Therefore we absorb these resonances, and from some of the energy-trapping quartz filter characteristics we have seen it would be a good thing if the American workers incorporated similar absorbers and gave acknowledgement to the Marconi Co.!

Perhaps we should say that we have used the waveguide approach to the design of frequency substandard oscillators (for example, in the TME 2 frequency-measuring equipment and in the Italian broadcasting system). In such cases we do *not* add absorbers.

References

1. W. S. Mortley, "A waveguide theory of piezoelectric resonance," Marconi internal report RD. 756 (1946).
2. W. S. Mortley, "F.M.Q.," Wireless World **57**, 399 (1951).
3. W. S. Mortley, "Frequency modulated quartz oscillators for broadcasting equipment," Proc. IEE **104B**, 15 (1957).

W. S. Mortley
The Marconi Company Limited

Adapting journal practices

My qualifications for commenting on the discussion in your June issue of the proposed Physics Information Exchange [S. Pasternack, M. Moravcsik, *A Debate on Preprint Exchange*] are that I work primarily as a librarian but also have responsibility for production of publications in a research establishment.

Before making some points "con" the exchange I should like to point out that Moravcsik's arguments in his rebuttal are based on a false analogy. The exchange is not a scientific experiment but an administrative proposal: the effects and results of adopting such proposals need not be pure guesswork; they can be assessed with fair accuracy in the light of previous experience.

If the two advantages of PIE are speed of publication and ability to obtain comments, appraisals and criticisms of papers, I would suggest that two new periodicals be published: *Physics Papers: Unreviewed* (journal A) and *Physics Papers: Comments* (journal B).

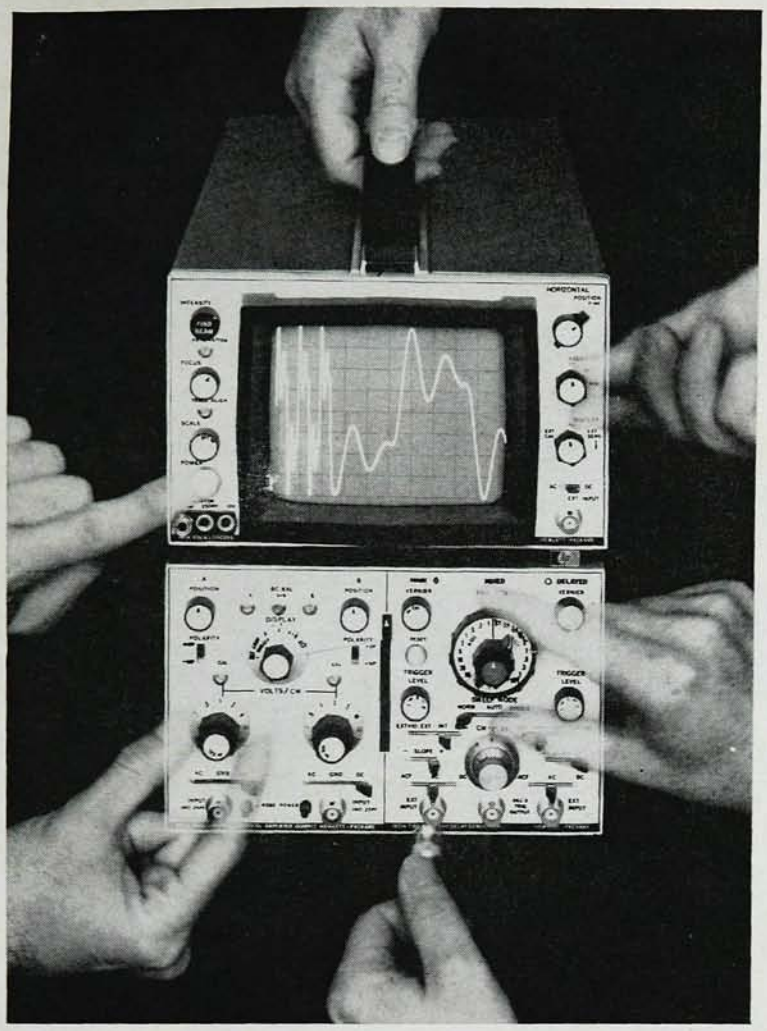
Both of these journals could use the principle proposed for production of PIE preprints, photoreproduction of the original. The only additions required would be a cover and numbers stamped on the pages before copying. Both could be issued weekly.

The advantages of this system over PIE would be: (a) wider availability (any person or institution could subscribe); (b) avoidance of the introduction of a new category of literature (also, proper citation could be made); (c) the journals may be economically viable if not profitable.

The ideas for these journals are not original; indeed journal B was inspired by a letter in the same issue of PHYSICS TODAY (Mendel Sachs, page 12).

I have three additional suggestions about production of these journals:

See More! Do More!



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LETTERS

(Continued)

(1) A quarterly cumulating list of the papers in journal A showing the papers in journal B that refer to each. A similar list should also be issued of items in journal B showing later comments. (These indexes need not, indeed do not, replace standard author and subject indexes.)

(2) The individual papers should be removable (perforated in the margin) without destroying the journal. Personal users will find this convenient. Librarians with uncoöperative readers will probably find it a menace, but it does give them the opportunity, after a period, of removing papers no longer of current interest and keeping only those that seem likely to be of fairly permanent value so reducing the bulk.

(3) Papers in journal A that prove to have some permanent value might eventually be made available together with any commenting items in journal B in microform or as a third journal.

Some of your readers may think that by proposing journals as an alternative to PIE I have missed the point. Please be assured that this is not so. I appreciate the disadvantages of the present preprint and publication methods and that PIE offers one solution to them. What I wish to suggest is that adaptations of existing methods may be preferable to introduction of a completely new system.

D. Alasdair Kemp
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A CORRECTION: On page 103 of the November issue of PHYSICS TODAY an editorial change altered the meaning of one of the sentences of Edwin McMillan's obituary of Vladimir Veksler. McMillan's independent discovery of the principle of phase stability did not take place at Berkeley as stated but at the Los Alamos Scientific Laboratory, where he was on leave from the University of California. The work was submitted for publication on his return to Berkeley after the end of the war. □