

state—it now seems to be located in Maine! (See page 49.)

I knew that Maryland was strong in mathematical physics, but I wonder if our department is one of the 78 considered "active experimentally" in this subfield, or perhaps it has the distinction of being the only one "active theoretically" in mathematical physics? (table 3.)

The well-known US propensity for experimental work is even more remarkable in the subfield "History and Philosophy of Physics." According to your table 3, none of the ten departments that include this area of research are "active theoretically" in it: All are experimental. I am therefore glad to inform you that we are now starting a program in the history of science here that will, I hope, be "active theoretically" as well as "active experimentally"—thereby helping to correct the shocking imbalance of other American universities.

STEPHEN G. BRUSH
University of Maryland

THE EDITORS APOLOGIZE for two uncaught slips of the pen. One interchanged column headings in table 3; another put the line between Maine and Maryland one line too high in table 2.

How many master's degrees?

Your special issue on the graduate student was well organized and will doubtless be much consulted by prospective graduate students, faculty members and educational administrators. For this reason I was sorry to see how unreliable the data in Arnold Strassenburg's and Margaret Llano's long table of graduate programs in physics and astronomy must be, if the treatment of our institution is any guide.

We are shown as having granted 0.06 degrees per year per professor, whereas the correct number is 0.63. This error is the result of several misconstructions, all of which were avoidable. To begin with, we are listed as having produced no MS's during the relevant years. This is true because we grant MA's, and there were 27 of those. Second the number of professor-years in 1962-67 was obtained by multiplying the 1968-69 faculty by five, a procedure appropriate only in

the case of a static institution. In our case, however, the actual number of professor-years during those five years was 52, rather than the 105 obtained by your procedure.

The consequence of these two oversights is to reduce our apparent output of degrees by more than a factor of 10, just because we are a growing institution that gives MA's instead of MS's. Finally, it is worth noting that we granted no PhD's at all until 1966. There must be others similarly mistreated in your table, and I note with some amusement that the University of California at Berkeley is listed as having granted 276 PhD's and no masters' degrees, which seems just a bit unlikely.

Please discriminate less against growing institutions. Things are hard enough in the cold cruel world.

H. W. LEWIS
University of California, Santa Barbara

The second Ovshinsky effect

It seems to me that the interchange between Kasturi L. Chopra, Stanford R. Ovshinsky and the editors of *Physical Review Letters*, (PHYSICS TODAY, March, page 9) does not pay sufficient attention to the second Ovshinsky effect: the new breakthrough method of achieving publication in *Physical Review Letters*. S. A. Goudsmit and George L. Trigg report that they changed their ruling on publication due to receipt of "unsolicited letters from two prominent fellows of our society" urging publication.

Our society and the editors should formulate a position as to whether this second Ovshinsky effect is a desirable one. Should it be a frequent occurrence for the editors to receive unsolicited letters from prominent physicists concerning a manuscript that has been rejected by the referee? Should the editors ever again pay attention to such letters?

J. S. LEVINGER
Rensselaer Polytechnic Institute

The reply to Chopra's letter by Goudsmit and Trigg removes once and for all the long cherished myth of "scientific objectivity" as the criterion for the publication of papers. They make it clear that in physics, as in so many other places, it is not what you know but who you know that counts.

They admit that the ruling by their own referee was overruled solely on

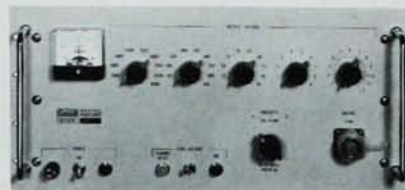
FLUKE

If the
Fluke 410B
HVPS won't
do your job,
cool it.
Fluke's
got one
that will!

Designed to meet the most exacting DC power supply requirements, the Fluke 410B is an extremely well regulated, high gain, low noise instrument. Features include:

- Output, 0 to 10,000 volts at 0 to 10 ma
- Adjustable overcurrent trip
- 0.001% regulation
- 5 mv resolution
- All silicon transistor amplifiers
- Modestly priced at \$975.

For complete information on the Fluke 410B as well as other Fluke power supplies, please address Fluke, P.O. Box 7428, Seattle, Washington 98133. Phone 206-774-2211. TWX 910-449-2850. Cable: FLUKE.



FLUKE

Believe it or not, it's an electron microscope.
Our JEM-50B. Easy to learn on. Easy
to teach from.

With 100A resolution (20 times better than
any optical scope). And up to 30,000X magnifi-
cation photographically.

With an air-locked specimen holder. Electro-
magnetic lenses. A built-in 35mm camera.



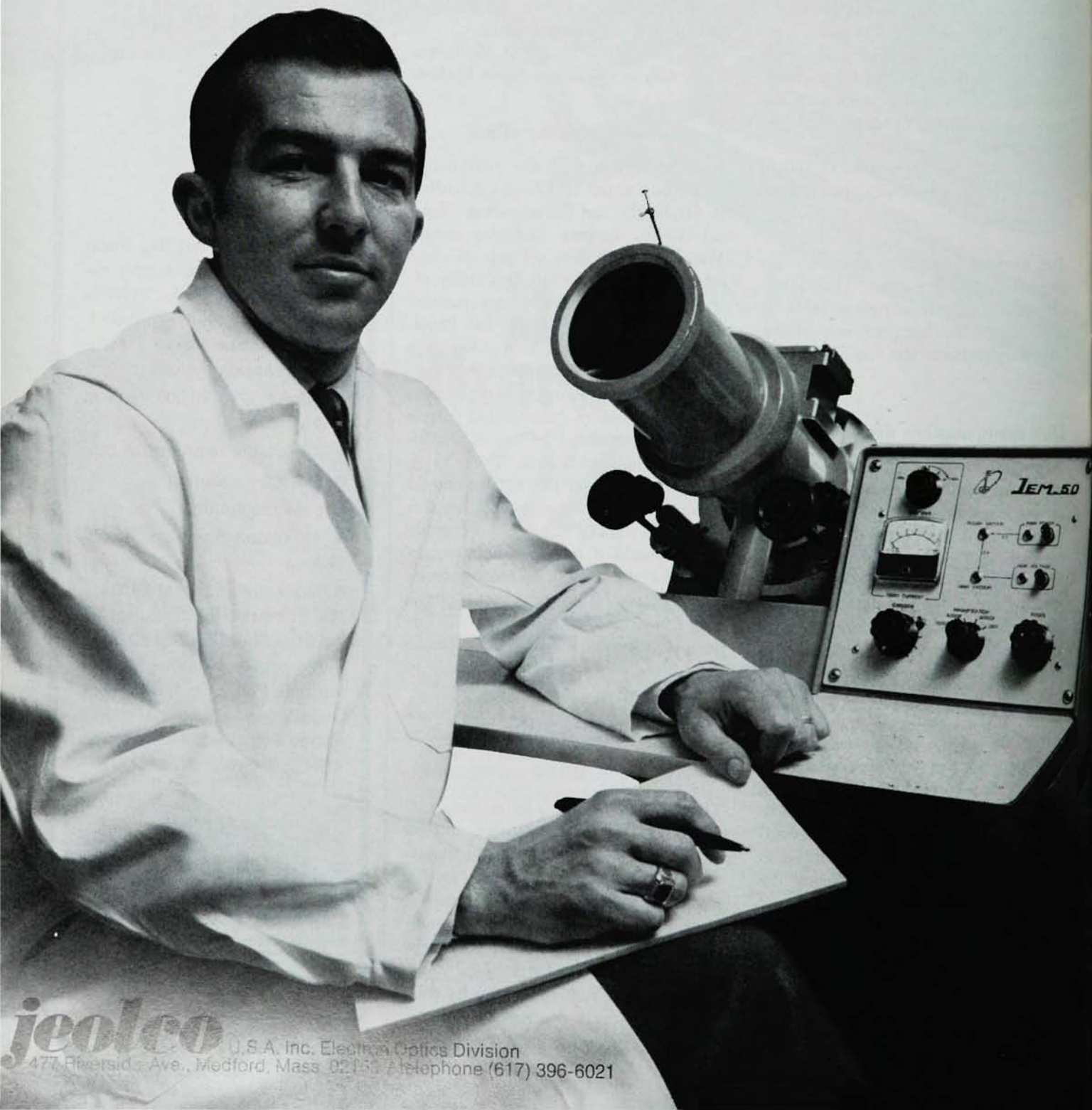
And optional anti-contamination and electron
diffraction accessories.

All of which come in a compact, single-
cabinet package that runs on ordinary 110V
house current, and requires no cooling water.

Just plug it in and watch it go to work.

There's only one thing our JEM-50B won't
magnify. Its \$8760 duty-free price.

Our \$8760 aid to education.



jeoleo

U.S.A. Inc. Electron Optics Division

477 Riverside Ave Medford, Mass. 02155 Telephone (617) 396-6021

the basis of unsolicited letters from "two prominent fellows of our society" but give no indication of why they did so except to give in to pressure. I think it is important for the members of the physics community to know who these fellows are and what interest, if any, they have in this paper. Could they perhaps be stockholders in Energy Conversion Devices Inc?

Another question that comes immediately to mind is: How are those of us who do not know prominent fellows of the society to get our research published, if the journals are to be filled with questionable work because of outside pressure? This is an especially important question in view of the recent announcement that *Physical Review Letters* will be restricted to 3000 pages this year.

The editors had better address themselves to these and other questions aroused by this controversy if they wish to regain the confidence of the physics community.

JOSEPH SCHAEFER
Evanston, Illinois

The decision to print the Ovshinsky paper because of pressure from "two prominent fellows" of the American Physical Society sets a poor precedent that is clearly prejudicial to those physicists who do not have influential friends to go to bat for them when they submit papers to this journal. Papers should be selected according to the objective judgment of impartial referees, not according to the prestige of the authors' colleagues.

One can argue that journals should bend over backward to publish unusual or controversial papers in order to avoid the possibility that the report of an important and disquieting discovery might be suppressed by a disbelieving referee or editor. However, papers not meeting the criteria for publication in *Physical Review Letters* can be published in other equally fine journals more suited to their nature, as has been pointed out several times by Goudsmit and Trigg in their editorials.

The large amount of newspaper publicity on Ovshinsky's work, apparently timed to coincide with the appearance of the paper in *Physical Review Letters*, has led to suggestions that this paper was submitted for reasons other than those for which sci-

entific papers are normally published. Although the editors could not have been aware of the possible ramifications of their decision, it would seem that more careful consideration at that time could have avoided an unfortunate situation.

PAUL D. HAMBOURGER
Northwestern University

GOUDSMIT AND TRIGG REPLY: Our presentation of the facts of the Ovshinsky case appears to have been poorly formulated, as evidenced by the misinterpretation given it by Levinger, Schaefer and Hambourger. In the first place, there was not "a new breakthrough method of achieving publication." The use of letters of recommendation is an age-old custom and already "a frequent occurrence." An author often asks a knowledgeable colleague to send us a letter supporting his view of his work, particularly in response to an unfavorable review. Thus in the Ovshinsky case, a referee had rejected the paper for *Physical Review Letters* primarily for the reason that the subject was more appropriate for an applied-physics journal. We subsequently received the two letters mentioned in our earlier presentation. The complete text of one of them follows:

Dear Dr Goudsmit:

I learned from Mr S. R. Ovshinsky that his paper "Reversible Electrical Switching Phenomena in Disordered Structures" was returned to him by your office with the recommendation that it be submitted to *Applied Physics Letters*.

Since I advised Mr Ovshinsky to submit his paper to the *Physical Review Letters*, I would like to explain my arguments to you with the aim of convincing you that the *Physical Review Letters* are the appropriate place for this publication.

One of the least understood fields of solid state physics is that of amorphous materials, disordered structures, and glasses. The question in brief is what happens to the electronic structure and to the transport properties of solids when there is no long range order. This question has turned out to be a most difficult one to answer for both theorists and experimentalists. It is a very fundamental question because it illuminates, at the same time, which of the concepts in solid state physics

FLUKE®

If the Fluke 412B HVPS won't do your job, relax. Fluke's got one that will!

Here's a high voltage power supply using silicon transistor amplifiers and series pass tubes to give you a solid 0 to 2100 volt, 30 ma output. As in every Fluke precision power supply, you get the user oriented benefits of design and high performance synonymous with the Fluke name on the front panel including:

- Overcurrent protection
- 1 mv peak-to-peak ripple
- 0.001% regulation
- 5 mv resolution
- 3½" panel height
- Economically priced at \$410.

For complete information on the Fluke 412B as well as other Fluke power supplies, please address Fluke, P.O. Box 7428, Seattle, Washington 98133. Phone 206-774-2211. TWX 910-449-2850. Cable: FLUKE.



FLUKE®



Shape
isn't all
our models have



We're not selling shape. Our models have that already—hands down. It's all the additional features that make Acquidata models the shapliest all the way around.

For example, our model 3010 (active filter shaping linear amplifier) is designed for scintillation spectrometry systems and amplification and shaping of semiconductor detector pre-amplifier outputs. It utilizes active filters and pole-zero cancelled shaping, and provides both unipolar and bipolar outputs.

Another sharp little number is our model 3020. Versatile, high performing, the 3020 is designed to fulfill the requirements of most high resolution experiments. In addition to active filter shaping, the 3020 has prompt and delayed outputs (2.5 usec delay line); internal BLR (front panel switch selectable for Active, Passive and Off-Modes); low noise operation; wide range gain selection: 0-3072 in binary steps with 0.5-1.5 precision vernier adjustment; and adjustable pole-zero cancellation.

The model with all the "additional" is the 3030. It is the shapliest all the way around. For example,

this active filter shaping amplifier incorporates the latest in baseline restoration techniques, in addition to complete flexibility in gain and shaping time constant control. Eight different shaping time constants for near-Gaussian pulse shape are provided by the front panel rotary switch and time constant controls. Input can be operated in three different modes: inverting, non-inverting and differential. The modular construction throughout guarantees reliability and ease of servicing. The 3030 has wide range output offset adjustment to allow DC coupling to instruments with biased inputs and very wide gain selections between 0 and 3072 (in binary steps) and 0-307 using the vernier fine gain control. If this isn't enough "additional", the 3030 has individual switches which control independently the polarity of either the unipolar or the bipolar character of both the prompt and delayed outputs.

We're not in the health club business, but we can improve your shape. With our models—3010, 3020, 3030—on your team, you couldn't be in better shape!



Call us collect at (512) 454-6777 or write for additional information concerning amplifiers or our complete electronic systems.

ACQUIDATA • DIVISION OF SCIENTIFIC ENGINEERING CO., INC. • 910 JUSTIN LANE • AUSTIN, TEXAS 78757 • (512) 454-6777

require the presence of long range order.

The recent work of N. F. Mott, Owens, and Hubbard in England, of the late A. F. Ioffe, B. T. Kolomiets, and A. I. Bugarov in Russia, of Kubo in Japan, of Jan Tauc in Czechoslovakia, of D. Turnbull, M. H. Cohen, and Stuart A. Rice here in this country shows the growing interest in this new field and the fact the questions raised are indeed of fundamental nature.

The development in this field is strongly related to the quality and novelty of the experimental information available. In contrast to crystalline solids many elegant and fruitful experimental techniques cannot be employed in disordered structures because of the extremely short mean free path of the electrons in these materials.

The high electric field phenomena observed by Mr S. R. Ovshinsky and reported in the paper submitted to you, constitute important new contributions in two respects.

First, Ovshinsky's discovery is, I believe, the first nondestructive electrical breakdown phenomenon in a homogeneous solid. This is of great interest to physicists like J. Bok (France), B. K. Ridley (England), K. W. Böer, B. Ancker-Johnson, and E. M. Conwell (USA), who have worked in the field of instabilities in solid state plasmas.

Secondly, Ovshinsky's work represents a new experimental tool for the study of amorphous semiconductors. As a result of this, and after hearing about these phenomena at the 1968 Gordon Conference, N. F. Mott has included a session on switching phenomena in the program of the International Conference on Disordered Structures to be held at Cambridge, September 1969.

I hope that these arguments are of help to you for reconsidering your decision and that you will accept Mr Ovshinsky's paper for publication in the *Physical Review Letters*.

The other was similar. Both writers are experts in this field who had often served as competent referees. We have no reason to doubt their judgment and sincerity, and we believe that any editor would have accepted the paper on the basis of these recommendations.

Second, and perhaps much more important, is the question of the editors giving in to pressure. We do not regard ourselves as having done so. When we described the letter writers as "prominent fellows," we meant to imply only that they were men who had been recognized by the society for their achievements in physics, corroborating our recognition of their expertise by our using them as referees. They did not and do not hold positions that would enable them to exert pressure on the editors. We have never been exposed to any attempt at undue influence on our functioning as editors; we would resent and resist it if we were.

In sum, we feel that nothing we have done in this affair should cost us "the confidence of the physics community."

S. A. GOUDSMIT

GEORGE L. TRIGG

Physical Review Letters

Unsupported publication

The "new policies for unsupported publishing" adopted by the American Institute of Physics and the American Physical society (*PHYSICS TODAY*, February, page 69) appear to be reasonable and promise to be helpful in increasing support of publication expenses. However, one secondary consideration should enter to some extent in the administration of the new policies.

Delay of publication of unsupported papers tends to pose a greater hardship on some authors than on others. Those whose direct research support and departmental support do not permit payment of publication costs will suffer more than those sufficiently well funded to pay them. Better supported authors and departments would have the option to pay and get rapid publication or not to pay. Those with less support would not have this option.

The policy could be modified to reduce this hardship.

The editor of a journal could say to each author of a manuscript, after the manuscript had been judged acceptable, "We find that your manuscript is worthy of publication. We would be pleased to publish it. For it to be published, however, the costs of its publication must be supported. Please indicate the complete address to which these costs are to be billed. If you have no available source of

FLUKE®

**If the
Fluke 415B
HVPS won't
do your job,
rest easy.
Fluke's
got one
that will!**

The Fluke 415B combines the high reliability of silicon transistor amplifiers with the high voltage capability of series pass tubes to provide a conservatively rated 0 to 3100 volt, 30 ma power supply. Other features include:

- Overcurrent protection
- 100 μ v RMS ripple (1 mv peak to peak)
- 0.0005% regulation
- 5 mv resolution
- 3½" panel height
- priced at only \$525

For complete information on the Fluke 415B as well as other Fluke power supplies, please address Fluke, P.O. Box 7428, Seattle, Washington 98133. Phone 206-774-2211. TWX 910-449-2850. Cable: FLUKE.



FLUKE®