

LETTERS

national curriculum projects and the apparent decline in physics enrollments would be obtained.

References

1. F. Boercker, *Preliminary Data on Enrollments in Science and Mathematics in US Public High Schools, 1964-65*, National Research Council Communication, Washington, DC (3 Dec. 1966).
2. *Independent Offices Appropriations for 1966*. Hearings before a Subcommittee of the Committee on Appropriations, 89th Congress. Document no. 5-828, US Government Printing Office, Washington, DC (1965), p. 797.
3. W. W. Welch, *The Impact of National Curriculum Projects—The Need for Accurate Assessment*, unpublished manuscript, Harvard University, Cambridge, Mass. (1967).

WAYNE W. WELCH
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Labs for nonscientists

I am somewhat at a loss to account for Enos R. Wicher's concern (PHYSICS TODAY, July, page 9) about the "paradox" between the PSNS (Physical Science for Nonscientists) emphasis on experiment in its course *An Approach to Physical Science* and Robert I. Hulsizer's statement (PHYSICS TODAY, March, page 55) about the place of laboratory work in introductory courses. In these days when introductory or general courses are often plagued with large numbers of students, there is a tendency to defer laboratory work to later more specialized courses. The situation is particularly troublesome with courses in general physics and general chemistry. One may question the advisability of the present tendency, but this is not the question here.

The PSNS course is not intended to be an introductory course. It is designed as a terminal course for students who may have a very limited background in secondary-school science, but who may later have the responsibility of introducing young minds to the nature of physical science and to the thinking and working habits of physical scientists. I do not wish to repeat the arguments of the article. It seems to me that the second and third paragraphs of the section of

the article which present the philosophy of the project are quite clear in explaining the emphasis on experiment in a course such as ours.

LEWIS G. BASSETT
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Work for master's candidates

The March issue of PHYSICS TODAY carries further discussion regarding the purpose of the master's degree in G.W. Brindley's letter (on page 11). Having completed a master's degree in physics and one in mathematics before doing the PhD degree, I have strong feelings that the quality of the master's degree should be upheld. However, it may be that the purpose of the master's-degree research should be changed to conform to the more crowded conditions in graduate school and the growth of physics. Therefore I have the following suggestions for those who would direct master's-degree candidates and who desire to make these candidates contributors to the field of physics while doing respectable theses.

Noting that the first step in PhD research work is a survey of the literature of the field together with a study of the instrumentation needed to do work in the field, I suggest that problems for master's-degree candidates may be profitably assigned if they constitute a review of the literature in a field or a study of instrumentation for research in a given field. As an encouragement to master's-degree candidates to do an outstanding work, it might be good to establish an annual publication containing those reviews that are judged best to meet the needs of the physics community and to be of high quality.

I recognize that this is the reverse of the procedure normally used in obtaining review articles; for the desire to have an expert to do the critical review of an area is, indeed, strong. However, a fresh, unbiased review of the work that has been done in an area of physics could lead to interesting results. Of course, the time limits placed on the supervision of a master's candidate must be considered whatever type problem is chosen.

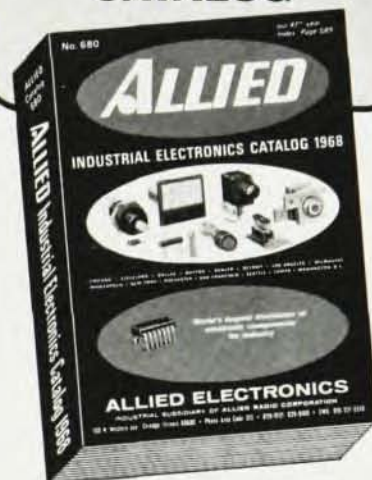
There is one other area of thesis ma-

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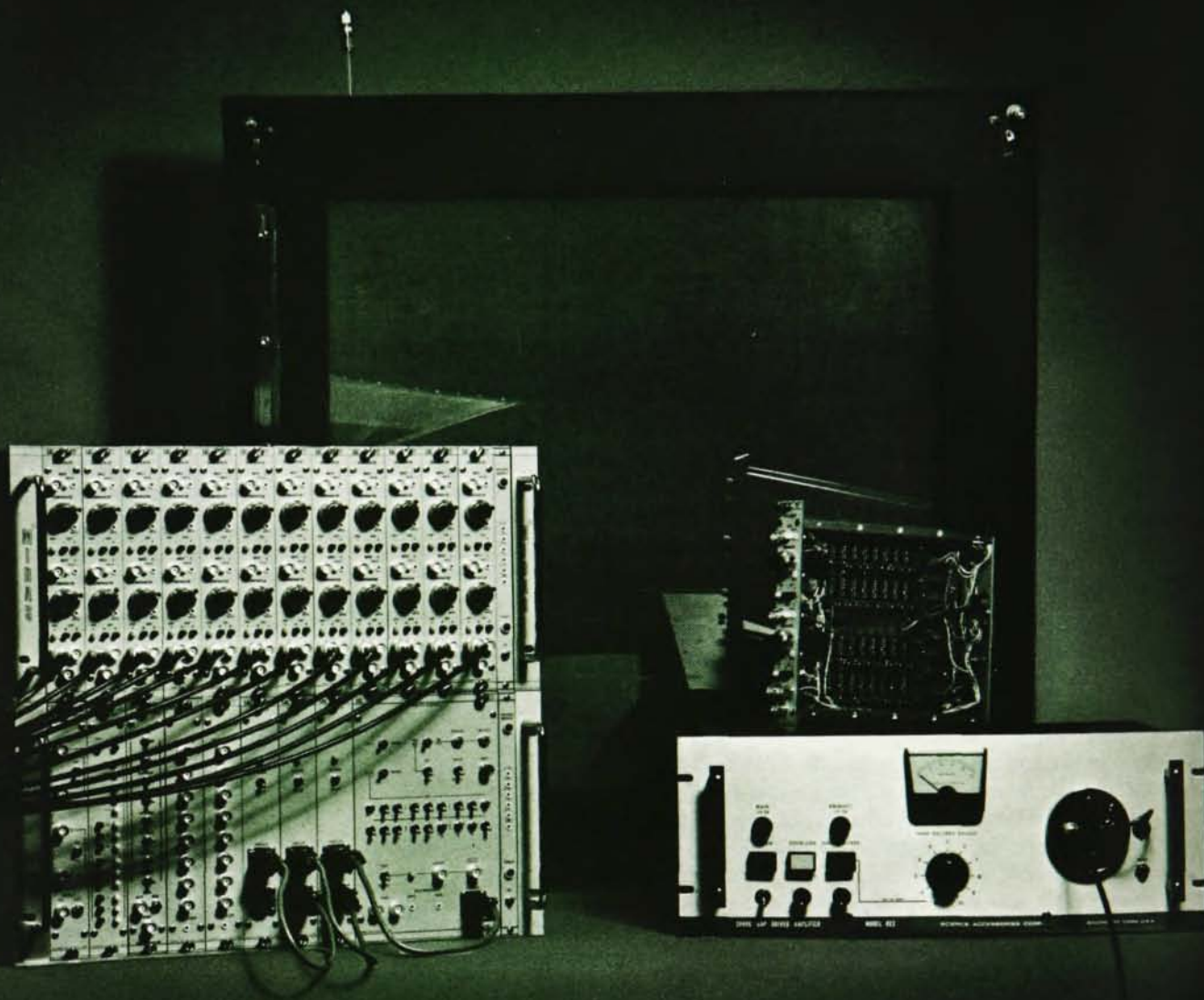
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terial that physicists should take less for granted and that area is physics education. What could be of more importance to the production of physicists than the analysis and review of the methods for teaching the techniques of measurement of the fundamental constants, for example? If these areas of physics training are used for the master's degree, the individual who does the thesis has made some steps toward his PhD research work, and he may feel that he has made a contribution to the field of physics as well.

I agree with Brindley that the master's-degree candidate should critically examine his abilities after the master's degree is completed and before he has invested much time in a PhD problem. If the master's degree itself is a contribution to physics, there is no need for one who terminates his work at the master's degree to look on his degree as a consolation prize for failing to qualify as a PhD candidate. As Brindley notes, this view does, indeed, depreciate the academic currency and is detrimental to all.

Perhaps these suggestions will be useful to those who spend a major portion of their time directing master's-degree students and will give some discouragement to those who would use the master's-degree candidate selfishly as a sounding board for potential PhD problems.

MOODY L. COFFMAN
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Nagaoka to Rutherford

I receive your magazine *PHYSICS TODAY* through my membership in the Optical Society of America. I always read it with interest. The article "Nagaoka to Rutherford, 22 February 1911" by Lawrence Badash in the April issue (pages 55-60) especially interests me because I have known personally several of the physicists named therein:

Alexander Pflueger, former professor of theoretical physics at Bonn University, was one of my examiners in the oral doctor's examination in 1932. Later I worked in a group which, under the direction of Geheimrat

Heinrich Kayser, emeritus professor of physics, prepared a new edition of his handbook on spectroscopy.

The principal inspiration for my letter, however, was your entry "Clemens Schaefer (1878-???)?" on page 57. Prof. Dr. phil. Dr. phil. nat. hc Schaefer lives in Köln-Marienburg, at Mehlemer Str. 21. After the last war he still held a lectureship at Cologne University, and was named Honorary Member of the German Association for Applied Optics. On the occasion of a visit by Ludwig Bergmann (in the Leitz Works in Wetzlar) I also met Schaefer personally, after his various textbooks had helped me a great deal as a student. Through our discussions (about 1957) he showed himself an expert in optical literature, and also in my special subject—technical optics.

Ernst Gehrcke who, after the war, worked for the German Office for Weights and Measures in East Berlin, frequently visited our optical colloquium here in Charlottenburg, after I had acquired my professorship here in 1952. He still participated very actively with his own lectures, so that we were surprised, despite his great age, by his death.

H. SLEVOGT
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Berlin Technical University*

Who has seen the clouds?

I refer to the paper in the February *PHYSICS TODAY* by J. Wesley Simpson on "Dust Cloud Moons of the Earth" and subsequent correspondence in the May 1967 issue. Simpson, particularly in the May letter, makes statements that imply NASA agreement with his interpretation of the NASA CV-990 flight data.

We wish to make clear that Simpson speaks only for himself, and we want to disassociate NASA completely from his opinions. In particular, there is no reason to believe that the observers on R. G. Roosen's team were in any way less competent than those aboard the NASA aircraft.

Photographic records obtained by the NASA scientists on the flight were analyzed densitometrically and failed to reveal any dust clouds; a brightness of 5% above sky background would have been detected. A paper describ-

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