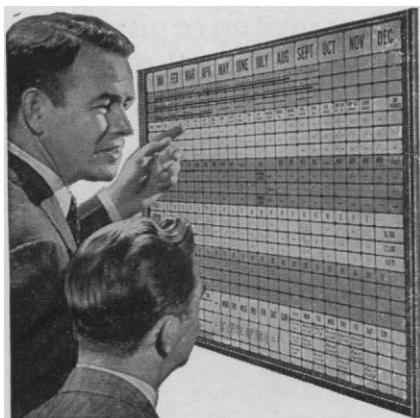


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point. Opportunity was provided for numerous small conferences and meetings, permitting valuable discussions and interchange of ideas and viewpoints. It was a conference that no one who was present is likely ever to forget, and it is to be hoped that the place and time of the second such conference may be decided soon.

Forthcoming Events

December

7-10. American Inst. of Chemical Engineers, annual, Cincinnati, Ohio. (F. J. Van Antwerpen, 25 W. 45 St., New York, N.Y.)

8-10. American Nuclear Soc., winter, Detroit, Mich. (ANS, P.O. Box 963, Oak Ridge, Tenn.)

9-10. Conference on Learning Effectiveness, Univ. of Pennsylvania, Philadelphia, Pa. (Air Force Office of Scientific Research, Air Research and Development Command, U.S. Air Force, Washington 25.)

10-16. American Acad. of Optometry, annual, Boston, Mass. (C. C. Koch, 1502 Foshay Tower, Minneapolis, Minn.)

12-13. Association for Research in Nervous and Mental Disease, annual, New York, N.Y. (R. J. Masselink, 700 W. 168 St., New York 32.)

15-17. American Soc. of Agricultural Engineers, winter, Chicago, Ill. (J. L. Butt, American Soc. of Agricultural Engineers, St. Joseph, Mich.)

15-19. Radiation Biology, 2nd Australian conf., Melbourne, Australia. (J. H. Martin, Physics Dept., Cancer Inst. Board, 483 St. Lonsdale St., Melbourne, Victoria.)

17. Institute of Aeronautical Sciences, Washington, D.C. (R. R. Dexter, IAS, 2 E. 64 St., New York 21.)

18-20. American Physical Soc., Los Angeles, Calif. (K. K. Darrow, APS, Columbia Univ., New York 27.)

26-31. American Assoc. for the Advancement of Science, annual, Washington, D.C. (R. L. Taylor, AAAS, 1515 Massachusetts Ave., NW, Washington 5.)

27-29. American Economic Assoc., Chicago, Ill. (J. W. Bell, AEA, Northwestern Univ., Evanston, Ill.)

27-29. Econometric Soc., Chicago, Ill. (R. Ruggles, Box 1264 Yale Station, Yale Univ., New Haven, Conn.)

27-30. American Folklore Soc., New York, N.Y. (MacE. Leach, AFS, Univ. of Pennsylvania, Philadelphia, Pa.)

28-30. Archaeological Inst. of America, Cincinnati, Ohio. (L. A. Campbell, AIA, Dept. of Classics, Brooklyn College, Brooklyn, N.Y.)

29-30. National Council of Teachers of Mathematics, New York, N.Y. (M. H. Ahrendt, NCTM, 1201 16 St., NW, Washington 6.)

28-30. Western Soc. of Naturalists, Seattle, Wash. (J. P. Harville, San Jose State College, San Jose 14.)

(See issue of 17 October for comprehensive list)

Erratum: The American Rocket Society will meet in New York 17-21 Nov. 1958, and not 1-5 Dec. 1958.

Letters

Science Teaching

Many people will be interested in "1958 Parliament of Science," published in *Science* of 18 April [127, 852 (1958)], reporting the Washington, D.C., convention of the parliament on 15-17 Mar. 1958, conducted by the American Association for the Advancement of Science. However, the problems and recommendations must be supplemented by a practical program for the achievement of the aims and must reach those who have power to put the recommendations into effective practice, or the parliament has substantially failed.

Recommendations 51 through 55 stress the need to increase the subject-matter knowledge of people who are now teaching science and who propose to teach science. This can be accomplished in two ways: (i) Existing teachers must be given the credit which leads to higher salary if they take subject-matter courses in the liberal arts departments; (ii) prospective teachers must be permitted to substitute liberal arts courses for the education department courses presently required for certification. These reforms involve changes in university management and changes in the various state regulations, and both changes must be accomplished through political rather than scientific channels.

Recommendation No. 55 is the masterpiece of understatement in the whole report: "We believe that in many cases it is possible to reduce the number of hours in professional education courses required for certification or graduation, and that the corresponding increase in opportunity for other courses would improve teaching effectiveness." Every educated person knows that the world's great teachers, from Buddha, Aristotle, and Jesus Christ down to include most of our finest contemporary teachers, never had any courses in an education department.

We need a drastic reduction in the number of hours in professional education courses required for teacher certification or graduation. Science departments, not education departments, should select science teachers! A science-department teaching recommendation should be accepted legally as a substitute for, and in lieu of, education department courses. It is certainly not in the public interest that capable scientists, including even the President's science adviser, should be barred from teaching in the public schools by legal requirements imposed through the political influence of those less competent to judge qualifications of a science teacher.

A first step in improving science education and teaching is to get rid of the

arbitrary regulations which prevent the use of the potential talent we have. This will be difficult if not impossible under present conditions. The professional educationists now have political control of (i) the curriculum (what shall be taught) and (ii) teacher certification (who shall teach it). Published articles by educationists indicate that efforts to reduce this control will be resisted.

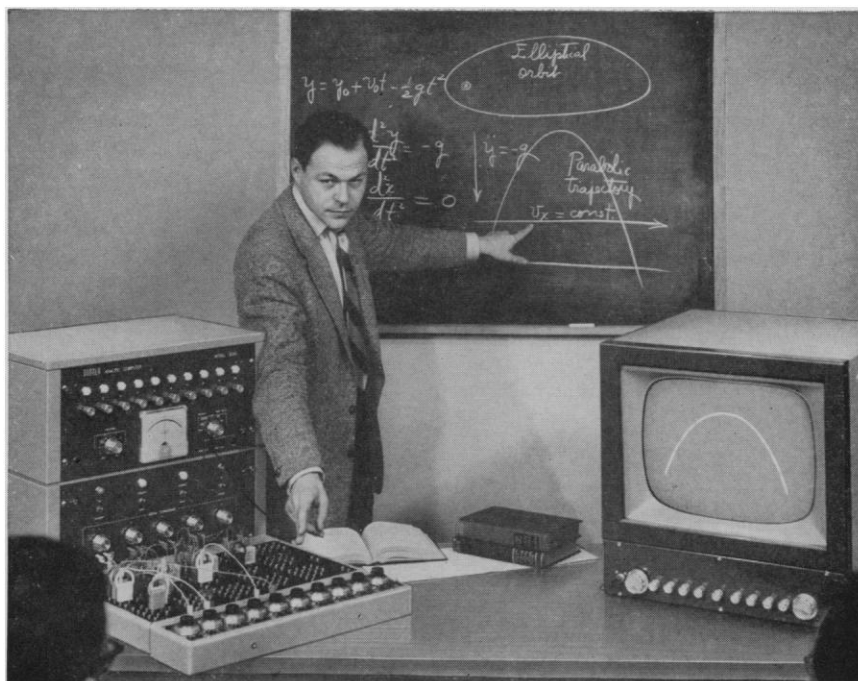
The United States education problem is too big to depend on the efforts of only one department (the education department) of the universities. The policy-making level and control must be widened to include representatives of all departments of American education—all university departments and all the learned professions. The narrow and limited background of the education department alone (or of any other single department) is inadequate. This plan has been tried and found wanting; yet California teachers wishing to improve their status encountered the following situation at the University of California (Los Angeles) summer session for 1958, as set forth in the official catalog: Department of education and physical education, 70 faculty members, 102 courses; department of physics, 6 faculty members, 14 courses; department of mathematics, 7 faculty members, 20 courses; department of chemistry, 8 faculty members, 11 courses. It is clear, here, that mere money and salary increases alone will not further the parliament's aims regarding improving science teaching. The education department would get ten times as much money as the mathematics department—and with no improvement in the teaching of mathematics.

The situation calls for a realistic, practical, and aggressive program by the American Association for the Advancement of Science, directed toward informing the public and appropriate officials that (in most states) the education department courses required for high-school teaching credentials are unnecessary and excessive and that the maintenance of such requirements is an obstruction to improved science education and teaching.

WILLIAM W. PORTER II
Los Angeles, California

Too Many Authors

A letter from Z. I. Kertesz [*Science* 128, 610 (1958)] deplores references which use "et al." after the first author's name, particularly when more than three authors are involved. There is cogent argument that, for anything short of a monographic treatment, the indication of more than three authors is not justifiable, in general. In fact, minor contributors should be listed—and their spe-



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