APPARATUS for EDUCATIONAL INSTITUTIONS

The Report of a Committee of the American Association of Physics Teachers

TWO years ago, the American Association of Physics Teachers appointed a Committee on Apparatus for Educational Institutions to study the serious shortage of good teaching apparatus in this country. The committee has explored many of the problems related to improving the supply of apparatus for the teaching of physics. The committee feels that it can do much more good if the majority of those interested in physics realize the type of problems it is concerning itself with and for that reason it is attempting to draw the attention of those interested to these problems. The members of the committee are: Sanborn C. Brown, Chairman, Massachusetts Institute of Technology; Vernet E. Eaton, Wesleyan University; Gerald Holton, Harvard University; and William C. Kelly, University of Pittsburgh.

1. *Co-operation with apparatus manufacturers.* Apparatus especially designed for physics teaching is produced by four large companies and several small ones in the United States. The committee has met representatives of two of the largest of these companies and of a number of smaller ones to help them interpret trends in the teaching of physics and, in general, to act as a liaison group between physics teachers and apparatus manufacturers. Foreign apparatus manufacturers have also sought the committee's advice about ways in which they can serve the American market.

2. *A detailed study of the needs of physics departments.* The committee is conducting a study of apparatus for the teaching of physics made possible by a grant from the Welch Manufacturing Company of Chicago. The study will yield specific information about the apparatus needs of about 100 representative physics departments so that the apparatus manufacturers will have guidance in planning the production of new apparatus. For further information, see *American Journal of Physics,* October, 1956, p. 499.

3. *Information about apparatus.* The committee has gathered information about the offerings of most of the apparatus supply houses in the world. To inform physics teachers about apparatus that is relatively less well-known, particularly new developments, the committee has arranged for "reviews" of apparatus to be written by physicists after using the apparatus in their laboratories. The first of these evaluations will appear shortly in the *American Journal of Physics.*

Since many excellent experiments can be performed with simple homemade apparatus, the committee has asked physics teachers with special interest in this kind of apparatus to prepare articles for the *Journal.*

As a sample of what can be done with a particular experiment, the committee undertook the evaluation of the Boyle's law and Charles' law apparatus made by the Central Scientific Company and the Welch Manufacturing Company and are advising them on what pieces seem to be superfluous with an eye toward reducing their diversity. These companies feel that they could offer apparatus at lower cost if they can sell more of fewer types of equipment.

The committee also has underway a study to determine the most satisfactory frequencies which should be available in tuning forks for teaching purposes.

4. *US tariff on imported educational apparatus.* The duty on physics apparatus imported into the United States ranges up to 45% or more and the committee is making a careful study of the effects of this high tariff barrier upon the teaching of physics and upon the apparatus industry in the United States. After consulting with members of Congress, industrialists, leaders of educational and scientific organizations, and the Executive Committee of the AAPT, the committee submitted a lengthy memorandum on this subject to the House Subcommittee on Customs, Tariff, and Reciprocal Trade Agreements for its hearing in September 1956 at the request of the House Subcommittee.

5. *Interesting more companies in our needs.* Attempts were made to get large companies (like the General Electric Company) to supply some of the physicists' special needs at a price equal to or less than the actual cost of production. Organizational complexity of these huge companies seems to rule out any real help to the general physics teacher from this source even though individuals in the companies would like to be of assistance.

As a result of some national publicity which the committee got in connection with the tariff problem, a number of small companies have offered their services in producing special pieces of equipment. How to use these sources effectively, and how to stimulate more interest from small companies, is becoming a major concern of this committee.

6. *Surplus property.* Surplus property agencies in the United States could become a valuable source of apparatus for physics laboratories if physicists made their needs known to the state directors of these agencies. An article summarizing procedures for obtaining surplus property has been prepared by the committee and is published in the *American Journal of Physics,* January, 1957, p. 4.