

College of Sciences

DEPARTMENT OF PHYSICS AND ASTRONOMY



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Dr. Arnold A. Strassenburg, DD/MDRI
National Science Foundation
Washington, DC 20550

Dear Dr. Strassenburg:

Thank you for sending me a copy of your memorandum to members of the *Ad Hoc* Committee to review the AAPT Metrologic Contest. As I mentioned in our recent telephone conversation, I had just learned of the existence of this committee and its charge. Naturally, I am eager to work with the committee to resolve the questions raised in your memorandum. Let me address briefly some of those issues.

There apparently has been a need for some oversight of the testing activities of the AAPT, and the Executive Board has responded by creating an Examinations Editorship. I was appointed as the first Examinations Editor by the Executive Board last fall. This editorship is under the jurisdiction of the Publications Committee and is in parallel with editorships of *AJP*, *TPT*, *The Announcer*, Instructional Materials Center, Executive Office Publications, and Resource Letters and Reprint Books. The publications Committee has instructed me to form an Examinations Editorial Board and to nominate members for that board. I shall present nominations to the Publications Committee at the San Luis Obispo meeting. When the editorial board nominees are approved by the Publications Committee and appointed by the Executive Board, the full oversight mechanism will be in place. Thus, issues such as the Metrologic Contest activity can be considered by the Association using established procedures.

In collaborative efforts between the Association and a for-profit organization such as Metrologic, there is always a difficulty in drawing the line between what is and what is not an appropriate relationship. The Metrologic Contest, by its very name, provides some marketing benefit to the Metrologic Corporation. If the name were changed to exclude the word Metrologic (so that the Metrologic sponsorship would be recognized, but not in the name of the contest), would that represent a substantial change? Perhaps it is important to consider the nature of Metrologic's support of the contest. To my knowledge, that support consists solely of the promise to donate a pointer (or similar) laser to the school that achieves the highest score in each participating section of the AAPT. In return, Metrologic's name appears on the certificates that are presented to the higher scoring students and on the advertisements that appeared in *TPT* and in *The Announcer*. The costs of producing, distributing, scoring, and analyzing the test are borne by the Association and are partially offset by

the \$1.00 per test fee and by voluntary contributions of time and effort from individuals. If the contest continues in some form under this sponsorship, I believe that Metrologic should provide more financial support for the program.

One of the tasks of the Examinations Editorial Board will be to develop the examinations produced by the AAPT (and the NSTA for the AAPT/NSTA Introductory Physics Examination). The "Metrologic" test, if it continues, will be developed under the procedures used for other tests or examinations. These procedures include pretesting of questions and forms, careful reviewing by practitioners, and balancing of level of difficulty to help provide discrimination of accomplishment. All AAPT examinations are likely to remain the multiple choice type until a better, inexpensive testing method becomes available. Despite their limitations, multiple choice examinations can be effective instruments for determining students' understanding of physics.

An essential question to be addressed is this: Does the Metrologic Contest provide useful benefits to an important segment of the constituency of the AAPT, and can the benefits be enhanced or improved? Almost 2000 physics students from more than 80 schools participated this year. With more effective promotion, I believe that the number could easily be doubled, so that an important segment is being or can be served. But is it useful? My role in this year's contest is primarily in the end stages of scoring and analyzing the responses. Prior to receiving the score sheets and notes from participating teachers, I was less than convinced that the contest had significant merit. My attitude has changed, however, with the recognition that such a contest can make a valuable contribution to the high school physics community. Whether by design or by accident, the Metrologic Contest seems to be viewed by the participants as a low pressure competition that extends beyond a given school's boundary, although each school has its winners. It provides a competition that ordinary students can enter, not being limited to super-student types who, for example, compete for positions on the IPhO team. Such a contest can help make taking high school physics a fun experience and perhaps help to encourage higher enrollments. As a contest, and not an achievement test, the competition can have objectives that are different from those of, say, an AP test or the AAPT/NSTA test. I now believe that the Metrologic Contest does serve the physics community usefully.

Here is what I would like to see as the outcome:

1. The Examinations Editorial Board (through the Publications Committee) and the *Ad Hoc* Committee submit the same recommendations to the Executive Board.
2. The Metrologic Contest continues, with some changes:
 - (a) The test is to be developed using the same procedures as for the other AAPT tests to provide content and quality control.
 - (b) The Metrologic Corporation provides financial support for the contest and is recognized as its sponsor. (This would require Metrologic's assent.)
 - (c) The Examinations Editorial Board recommends changes in some of the details of the competition. Presently, for example, there is inequity between large sections and small sections of the AAPT in that greatly

different numbers of schools may be competing for the single prize that is awarded in each section.

(d) Modest but effective advertising be undertaken to increase the number of participating schools. Such advertising would emphasize the nature of the contest and would merely recognize Metrologic's role as the sponsor.

I hope that my views are not greatly different from yours and those of the committee and that we can come to unanimity on all of the issues. Please call on me if I can provide more information. I would be pleased to meet with your committee at San Luis Obispo, if appropriate. In any event, I hope to see you there.

Best regards,

W. Edward Gettys
Professor of Physics
AAPT Examinations Editor

cc: Ms. Maria Elena Khoury