



THE CHESAPEAKE CHEMIST

MARYLAND SECTION
AMERICAN CHEMICAL SOCIETY

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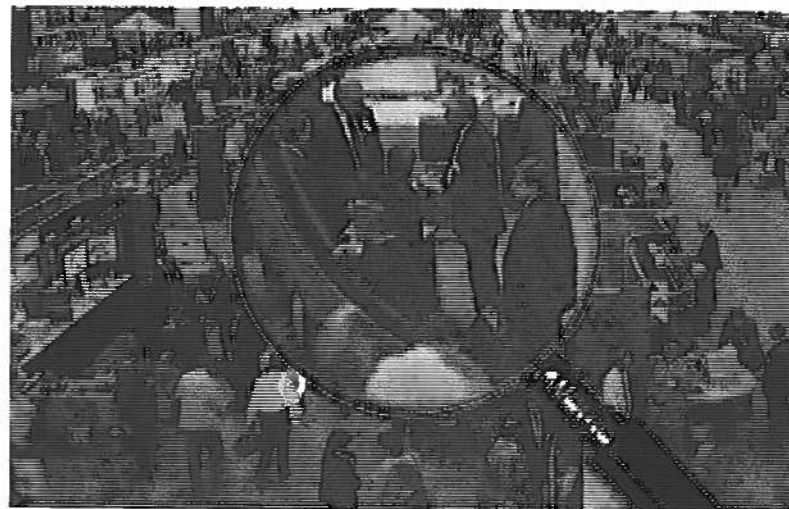
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FOR THE NATIONAL TECHNOLOGY MEDAL

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Nomination documents may be obtained by contacting the staff liaison to CP&RM, Ms. Nancy Todd (202/872-4476). The deadline for submitting nominations is February 28, 1992.

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All ACS members are invited by the Society's Committee on Patents and Related Matters (CP&RM) to make suggestions to the Committee on possible candidates for induction into the National Inventors Hall of Fame. The inventor may or may not be a U.S. citizen, but the invention upon which the nomination is based must be covered by a U.S. patent. The invention must have contributed greatly to the national welfare, and significantly promoted progress in science and the useful arts.

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DATE:

Tuesday, February 18, 1992

PLACE:

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Dinner reservations should be made
by mailing checks, payable to
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Dr. Stephen M. Gregory
College of Notre Dame
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by February 14; answering machine
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Dinner price is \$16.00 per person,
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COCKTAILS & DINNER:

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Dinner 7:00 pm

SPEAKER & TOPIC:

8:00 pm
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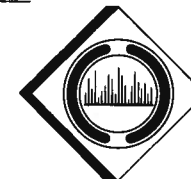
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Preliminary Report of the Ad Hoc Committee on

HIGH SCHOOL CHEMISTRY EDUCATION

Maryland Section of the American Chemical Society

1 December 1991

As a result of numerous conversations with students, educators, and parents; we concluded that there is a unanimous feeling that there are very serious problems in chemistry education and that difficulties are more severe in chemistry than other sciences and math. Many books and articles blame the general problems in education on the federal and local government, school administrations, taxpayers, and parents, but each of these groups has many very grave problems of their own that will not be quickly corrected. Thus, the question is what can the American Chemical Society (ACS) and its members do now?

Over many decades, we have met dozens of chemists who admit that their interests in chemistry was first ignited by pyrotechnics. For example, Thomas Edison as a child burned down a barn and set a train on fire while developing his interests in chemistry. Needless to say, modern concerns with safety and environmental protection are diminishing such opportunities for young people in exploring pyrotechnic chemistry and, thus, developing a broader interest in chemistry. While there is little we can or should do about this problem, we should not forget that it has always taken excitement to initiate young peoples' interest.

Many high school educators are correctly trying to respond to the needs of the students. Some are well tuned into the problems encountered by their graduates. With regards to chemistry, they try to prepare students for college and specifically to succeed in college chemistry courses. This requirement plus the demands of teaching advanced placement chemistry tends to force high school chemistry to follow the subject matter taught in college chemistry. At the same time, the basic college course seems to be drifting more and more toward physical chemistry or chemical physics. Nearly all college students for the last forty years have regarded physical chemistry as a notoriously hard and uninteresting course that few people liked. This negative attitude toward college physical chemistry seems to have been transferred to high school chemistry.

In the 1950s, high school and basic college chemistry courses covered some theory, but included mainly industrial inorganic chemistry. While first year college chemistry courses seem intended to prepare chemistry majors for graduate school, few who take it actually major in chemistry in graduate school. Although a very few of us more mature chemists may find considerable excitement in physical chemical principles, we must face the fact that we are a small minority. We cannot expect high school students' interest to be ignited by such subject matter.

We believe that both first year college and high school chemistry should move away from physical chemistry and should include more environmental, agricultural, medicinal, consumer, and applied chemistry. There is a unanimity of opinion that the fun should be put back into chemistry. This is an area where the National ACS should provide vigorous leadership, and is, in fact, already working.

Over the years the ACS has tried to deal with the problems of high school chemistry education by bringing high school teachers closer to the ACS and encouraging them to join. This idea has not worked well. Only about 3% of high school chemistry teachers belong to the ACS. When one examines the problem, there are good reasons for this lack of interest: many belong to several other professional groups, many are not chemists, most have time and money problems, most are not aware of local section activities, etc. Bringing high school chemistry teachers into the ACS is a worthwhile goal, but we should not expect too much success. A more fruitful ACS section objective might be to expand our efforts at making high school chemistry teachers more aware of local section activities. Visits by ACS members to the schools would help. Chemistry teachers need to see more relevance to their needs.

After a careful review of teacher's problems, we must conclude that teachers need to be given more power and time. Yet with the financial problems our nation faces, we must conclude that this can only be done with greater utilization of modern technology. Computer and video technology is not being used as extensively in schools to perform routine lecturing and drills as is possible. The national ACS should make sure that there is an abundant supply of free or low cost chemistry videos and drill software available to all high schools. In the business, scientific, and game areas there are thousands of groups that exchange free software. The formation of the same kinds of groups for chemical education software and video tapes could be encouraged by the ACS. Also the ACS should encourage colleges and universities to assure that all teachers are well trained in the newest personal computer and video technology. The ACS might consider workshops aimed at aiding teachers in using technology to become more efficient.

A number of chemists and organizations have adopted elementary schools, junior high schools, and high schools to contribute demonstrations, analytical tests, and other types of support. While there are nowhere near enough organizations or interested chemists to adopt more than a small fraction of schools, where the interest exists the ACS should encourage adopt-a-school programs. Local sections could train chemists in scientific demonstration techniques and in analytical methodology relevant to specific areas. For example, inner city chemists could perform lead paint analysis on samples brought in by students and rural chemists might do the analysis of family well water. Such activities would have both educational value and serve the community in poverty stricken areas. The national ACS could serve as a clearinghouse for such activities.

This report contains little that is completely new or original. This committee has tried to distill, organize, and summarize the best suggestions of dozens of students, teachers, administrators, chemists, and parents who shared their thoughts with us.

At the 5 December 1991 Section Executive Committee meeting, there was a real interest in the Section doing more in the education area. To pursue some of these ideas, it was felt that there is a requirement to reorganize the Section committees and to obtain some new vigorous leadership. Most of those in attendance felt they were already over-extended. Volunteers would be welcomed.

Further comments and suggestions would be appreciated. Mail to: Committee on High School Chemistry Education, c/o Elwin C. Penski, 2515 Jerusalem Road, Joppa, MD 21085.

Committee members: Alvin Bober, Donald Hoster, and Elwin Penski, Chairman.

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Title: "Your Laboratory's Chemical Hygiene Plan"
Date: March 28, 1992 8:00 a.m. - 2:00 p.m.
Place: College of Notre Dame of Maryland, Knott Science Center
Price: \$45.00 per person
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Contact for Registration by March 15, 1992:

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Chemistry Department
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AGENDA

8:00 - 8:30 Registration, coffee, doughnuts
8:30 - 9:15 Keynote: Overview, update, future perspective
9:15 - 10:00 Policies
10:00 - 10:15 Break
10:15 - 11:00 Procedures
11:00 - 11:45 Record keeping and access
11:45 - 1:00 Lunch
1:00 - 1:45 Panel Discussion

For further information:

Chemical Education and Lab Safety Committee
Dr. Shirish Shah - Chair (410) 532-5712
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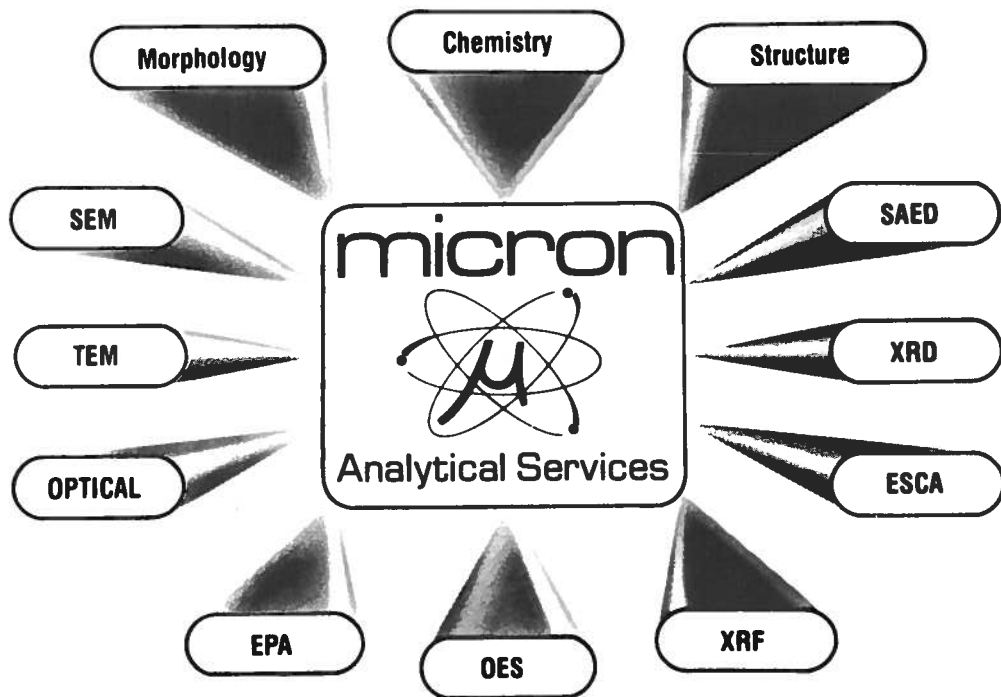
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