In reviewing the above paper, I must agree with the authors that training of the people involved in the design, supervision and operation of incinerators is essential in today's rapidly changing technology. Particularly, with the increase in the complexity of incinerator design, the managers and operators of these incinerators must be adequately trained in order to achieve the design capacity of an incinerator.

In 1966 and 1967, a program on Incinerator Technology was given in White Plains, N.Y., sponsored by the Incinerator Committee of ASME and the New York State Department of Health. The course was well received and was ably described at the 1968 National Incinerator Conference by Calvin E. Weber. However, the program was discontinued until in 1969 it was decided to resume an Incinerator Technology Program aimed at eventual licensure of incinerator operators. It was decided to attempt to give future offerings at a local university. The Long Island Sanitation Officials Association contacted Hofstra University and through its efforts, the first Incinerator Technology Program was given during the Spring of 1970. The program was co-sponsored by the American Society of Mechanical Engineers, the New York State Department of Health, the Long Island Sanitation Officials Association and the American Public Works Association. The program was divided into a basic course and an advanced course, offered on Wednesday afternoons from 2:00 to 4:00 p.m. for 15 weeks. The basic course consisted of 18 hours devoted to a discussion of fundamental incinerator operations such as scales, cranes, electrical, furnaces, fly ash collection, stokers, grates, plumbing, charging gates, fly ash disposal, instrumentation, chimneys and stacks. The last six lectures, comprising the advanced course, were devoted to the discussion of the management of municipal incinerators and covered such topics as plant maintenance, basic plant design, safety, housekeeping and records, personnel and staffing, and trends in incineration.

This course was attended by 37 individuals, most of whom were associated with incinerator operations on Long Island, New York City and Westchester. The course was very well accepted and attendance was required as a prime prerequisite for a certificate. In each course, a take-home final examination was given on the next to last period. The examinations demonstrated that the persons attending the lectures absorbed an essential portion of the material presented. Thus, one criticism of the White Plains course, as discussed by J. Coffey in the Discussions of the 1968 National Incinerator Conference paper by C. E. Weber, have been eliminated. Based on examinations, and class attendance, certificates are being issued to 32 of the 37 registrants for the course. It was found that the course provided an ideal place for exchange of ideas and discussion of mutual problems. A complete evaluation of this course, which only ended about three weeks ago, has yet to be completed.

There is one major drawback in offering a course which is spread over 15 weeks. It requires considerable traveling time for many individuals and generally precludes any person from taking the course who lives outside of normal commuting distances. Consequently, a concentrated one-week offering of the same material is planned for the week of June 8, 1970. Advance registration has already exceeded 20 individuals. Applications have been received from many persons from as far west as Illinois and as far south as Florida. The offering of these two courses on a completely different time basis will permit an evaluation of the best way to proceed with future offerings. At present, a two-week expanded course is planned for June 1971 with the assistance of the New York State Department of Health. The aim of this course will be to provide a two-week operator's course similar to those presently
required in New York State for the operators of water treatment and sewage treatment plants. In connection with this program, a basic manual on incinerators must be developed.

It is sincerely hoped that this type of program is what is needed in the industry and that it will fulfill the training requirements suggested in the authors' paper.

DISCUSSION by Fred W. Trautwein

I wish to elaborate on the Introduction.

Over the past many years there have been two fields of thought regarding personnel when designing an incinerator:

1. Design to fit the geographically available personnel,
2. Design the most modern unit to fit locality needs and import necessary personnel.

Graduate-level programs in all Universities are in most instances more than five years behind the various Task Force groups of our own varied committees from which Designers can secure “up-to-the-minute” findings.

Here in the Metropolitan New York area we have had four Technology Incinerator Programs. The only deficiency has been a prepared teaching manual for all Supervisors taking said course in order for them to conduct satisfactory “on-the-job” training programs. This is now being corrected.

Refuse disposal management must consider the four basics: 1) Planning, 2) Organizing, 3) Directing, and, 4) Controlling.

“On-the-job” training programs are a large factor in speeding up both directing and controlling personnel.

In conclusion I recommend the following for new plants:

1. The contract document should call for at least one year of operation by the Consultant engineer.
2. The Consultant engineer should supply the Plan Supervisor for this period. Said person should plan, organize, direct and control.
3. The plant supervisor should hire ALL personnel for this period.
4. The plant supervisor should conduct “on-the-job” training programs for ALL personnel.