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Scientific Instruments and Analytical Techniques

America's largest annual scientific meeting and instrument show was held on 7 to 11 March at Convention Hall in Atlantic City. Total attendance was 21,728. As many as 575 companies were represented and they occupied 1480 booth spaces. Tens of millions of dollars worth of equipment was on display, much of it for the first time. The meeting, titled the 34th Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, has outgrown small beginnings and its original home in Pittsburgh, where it was organized by a group of enterprising scientists. The large attendance in Atlantic City was especially impressive in view of the out-of-the-way setting.

So many scientists were in Atlantic City because advances in separations and analytical techniques are a major factor in the continuing progress of the natural sciences. Improved instrumentation is crucial to many branches of industry, for it facilitates improvements in productivity and quality control. In addition to viewing the new equipment, scientists in some instances could obtain hands-on experience in operating it and avail themselves of expert advice from the scientific staff of the vendors. In other instances, they could have samples analyzed on the spot. In addition to the instrument show, 107 formal sessions were devoted to various analytical techniques. The book of abstracts included 986 items. The greatest numbers of papers were on high-performance liquid chromatography, gas chromatography, Fourier-transform infrared spectrophotometry, and plasma (inductively coupled, directly coupled, or microwave) emission spectrometry.

Why do exhibitors participate in this expensive show? The sum of all the direct and indirect costs comes to more than $10 million. Rental of booth space (about $1 million) and the cost of preparing the exhibits and setting them up in Atlantic City (about $3 million) were small in comparison to expenses for staffing the show. Major companies had as many as 40 booth spaces and were represented by 100 or more scientists, engineers, and marketing people. Some came from California, Europe, and Japan. A typical policy for an instrument company is that costs of promotion should not exceed 5 percent of sales. On this basis exhibitors in the show anticipate that sales due to this exhibit alone will be in excess of $200 million. These sales will presumably be made later, for it is a rule of the show that hard sell is out of bounds. When several of the exhibitors were asked why they were there, they replied, "We can't afford not to be." They explained that this was the one show attended by many of the major purchasers.

The goods displayed ranged from commonplace glassware and chemicals to very complex and costly equipment. Thousands of items were shown. An exposition directory provided information about fashions in equipment and their use. As many as 102 of the companies exhibiting listed liquid chromatography equipment as one of their products. This is a testimonial to the versatility of the method and the different variants of packings, solvents, and detectors that are employed. Second in abundance (87 companies) was equipment for automated analysis. Third in abundance were gas chromatographs. This equipment usually included a mass spectrometer and associated computer. Two other categories of equipment that were much advertised were ultraviolet/visible spectrometers (61) and laboratory computers (60).

Such numbers measure only one facet of the show. Some major pieces of equipment, such as nuclear magnetic resonance spectrometers, were shown by only a few companies, but that does not diminish their significance. One of the most important features of the show was the display of laboratory information management systems, which were exhibited by fewer than ten companies. These are discussed by Arthur Robinson in this issue.

In sum, the Conference and Exposition provided an illuminating vista of the evolution of instrumentation and analytical techniques. Through their enterprise and organizing skills, the Pittsburgh group is making an important contribution to science and industry.—PHILIP H. ABELSON