

# The 1984 Pittsburgh Conference: A Special Instrumentation Report

*The 35th annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy continued its remarkable growth. This year's attendance totaled 24,648, a 13.5 percent jump from 1983. Nearly 800 of those were students. Some 636 companies occupied 1607 booths, both increases of about 9 percent. Part of the growth could be attributed to an increased foreign presence among both exhibitors and conferees. Several companies from Australia, for instance, were present for the first time. Beyond the hoopla over laboratory*

*software, there were few discernible trends at the show. There were a few more molecular biology-oriented instruments, a few more instruments with the capacity to diagnose their own defects, and, because of increased use of computer workstations in the laboratory, a small number of instruments with no knobs, keyboards, or screens began to appear. This last trend may die aborning, however. Says one salesman who insisted on anonymity: "Chemists like to have something on the instrument to fiddle with."*

## Personal Computers Attract Lab Software

As the computerized laboratory evolves, most forecasters are touting the idea of a distributed computing network. A laboratory workstation built around a powerful 16- or 32-bit microcomputer is an essential ingredient in this scheme. The workstation can control several instruments, can gather data from the instruments and analyze them, and can pass appropriate information to larger computers in the network that are responsible for overall laboratory management or can receive instructions from these computers. "The time has arrived when the scientist has at his desk a computer with all the power he needs," Frederick Putnam of Laboratory Technologies Corporation told *Science*.

In parallel with this evolution, scientists have been bitten by the personal computer bug along with everyone else. As a result, laboratories are crawling with the various versions of the Apple II and increasingly with the IBM PC, by far the two most popular models of the personal computer. The upshot is that, in pondering how to automate their laboratories, scientists possessing Apple and IBM personal computers have discovered they have the makings of a workstation already in hand.

This situation has opened the way for a new wave of laboratory automation software written for these two personal computers to complement the enormous amount that exists for other purposes. Along with this trend, numerous instrument manufacturers are now offering controllers and data stations built around these personal computers rather than specially built dedicated machines or larger minicomputers.

A number of these companies exhibited their wares at the Pittsburgh Conference. Nelson Analytical is a scientific software house that was started up about 4 years ago by ex-Hewlett-Packard marketing manager David Nelson. Not surprisingly, the company specialized in software to run on Hewlett-Packard machines. The software itself is for the automation and management of chromatography laboratories. Last August, Nelson Analytical introduced its Model 3000 multi-instrument data system for gas and liquid chromatography for the IBM PC. "Two winners. Our chromatography software and the IBM Personal Computer," trumpeted an ad in a magazine distributed at the conference.

The reasoning behind the switch, according to John Blunden, a sales manager at Nelson Analytical, starts from the observations that the IBM PC is a reasonably powerful machine and that it is already in many laboratories. Since it may have been bought originally for other purposes, its use to automate a chromatography laboratory is a big bonus. "We expect a lot of business selling software and interfaces," says Blunden.

The Model 3000 can simultaneously handle up to six chromatographs with two detectors each, even with each instrument connected to an autosampler, while running off-line programs unrelated to chromatography. The software, which includes the same features as previous Nelson Analytical chromatography offerings, is written in BASIC. An interface device that collects data from the instrument and passes them on to the computer, either immediately or after temporarily storing them, is also includ-

ed. Blunden says costs are typically of the order of \$6,000 if the buyer already has a PC and \$11,400 if not.

Dynamic Solutions Corporation (DYSC) has been personal computer-oriented from the start. Its products are designed to run on Apple II+ or IIe machines. According to David Strand, the president of DYSC, the company's software is aimed at the scientist who already has laboratory instruments but does not have extensive data-handling capability. The idea is also to make the software, which has the generic title Appligratation II, as easy to use as possible. The user makes his way through by means of the now nearly universal menus displayed on the video monitor. "We are trying to extend the business spreadsheet capability into the scientific world," says Strand.

DYSC software comes in three forms. The Appligratation II Starter Set contains certain hardware enhancements to be added to the user's existing Apple computer so that the software will run. The user can construct programs from a library of quite powerful commands. Only one command, for example, is needed to detect peaks and correct the baseline of a spectrum. Rather than programming every detail of a procedure, the user need only string together a sequence of these commands in the desired order. Cost of the starter set is \$1995.

In addition, there are four application software packages for chromatography, continuous flow colorimetry, spectroscopy, and thermal analysis, which cost \$495 each. A unique feature of these programs is the ability to scroll through graphically displayed data. The user can