

# Some things are changing for the better.

*Many people know us as an instrument manufacturer: we make more than 2000 products for measurement, test and analysis. Others know us as a computer company: more than 10,000 own our programmable calculators and computers. We prefer to think that our business is to serve measurement, analysis and computation needs . . . in science, industry, medicine and education. This is the rationale behind every new instrument, computer or system that we tell you about in these ads. This month:*

## **Nuclear waste assayed automatically for isotope inventories.**

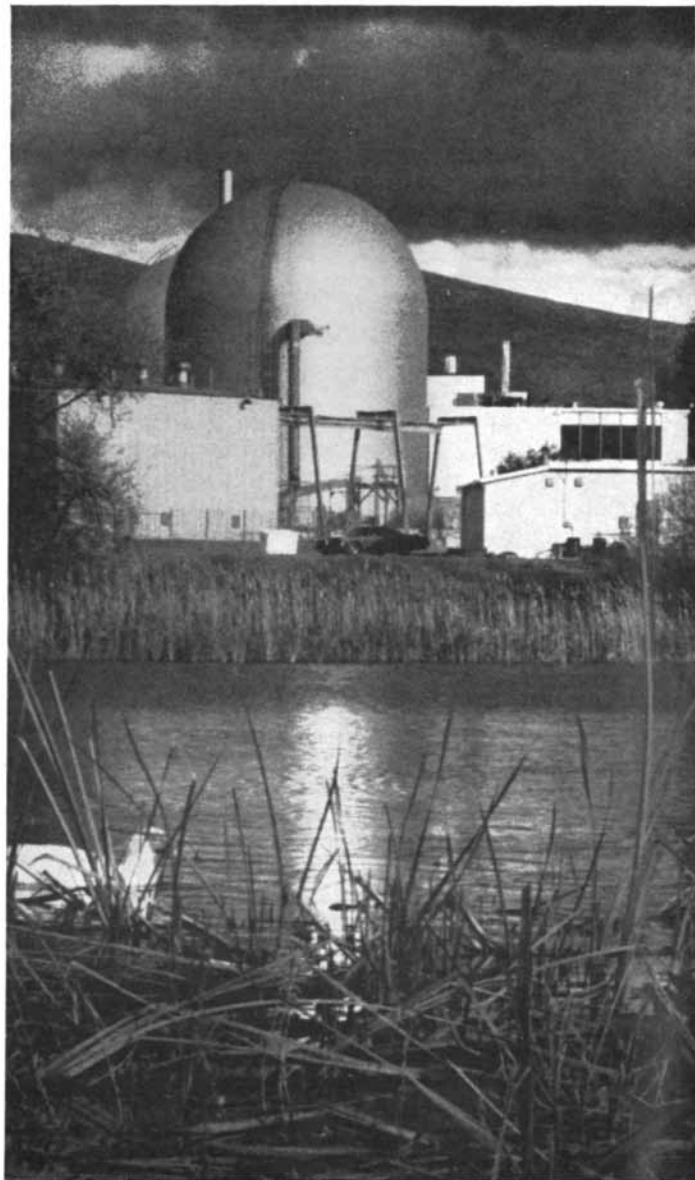
Of all industrial waste products, none requires more care than radioactive materials. And the assay of radioactive wastes is uncommonly time consuming and expensive.

In a significant simplification of this problem, Gulf Energy and Environmental Systems, Inc. has developed a mobile automatic assay system with the help of Hewlett-Packard computerized nuclear instrumentation. Briefly, the system produces a penetrating beam of nuclear particles to induce gamma rays and measures the radioactivity without removing the material from its container. The computer analyzes the measurement, compares it with the known characteristics of nuclear materials, and automatically determines the types and quantity of isotopes present.

The Gulf system is better than previous techniques on at least two scores. Because it computerizes the intricate analysis, the system is easily operated by technicians. Results are immediate and accurate to 1%.

Similar HP nuclear measurement systems, beginning at \$30,000, continuously monitor atomic power plant effluents and print out the type and amount of radioactivity. Detailed information is yours for the asking.

*Pollution-free nuclear power generating plants now have added assurance they will stay that way. A Hewlett-Packard computerized measurement system helps by making a careful accounting of nuclear waste materials.*





*Keeping power generating equipment operating at capacity, especially during periods of peak demand, is vital. To insure against downtime, a new tool from HP can "look inside" key machinery and predict when it will need service or maintenance.*

## **"Transformation Machine" converts fuzzy signals into sharp answers for power systems.**

One user of the HP 5450 Fourier Analyzer acquired it after spending 18 frustrating months on a central computer trying to develop a method for the identification of load and machine characteristics in a power system. In his own words: "The 5450 makes practical the use of mathematics to do things that scientists and engineers have wanted to do for 20 years. Using a central computer isn't satisfactory. It takes too long and you cannot see the results during your experiment. With the 5450 you can 'play' with the measurement signal to find out what's really going on. One session with the 5450 is worth 3 to 4 months on the central computer."

Scientists in many other fields have been confronted by measurement signals so complex that they look as useless as noise. Until recently, the best solution was to use the complex mathematics of the Fourier transform and program a computer to do the complex signal analysis computations off-line.

With the HP 5450 Fourier Analyzer, any scientist can perform these complex mathematical operations rapidly, while he's conducting his experiment. A computerized system that makes fundamental measurements of complex waveforms, the 5450 transforms signals from time to frequency domain and measures transfer function, coherence function, power spectrum and cross-power spectrum . . . at the touch of a keyboard. It unscrambles the waveforms into their individual frequency components and identifies the phase and amplitude of each component. The theory and use of the 5450 are described in the June 1970 issue of the HP Journal.

## **A design-your-own calculator: plug-in solutions to particular problems.**

A user in virtually any discipline now can customize a powerful new programmable calculator to his specific computational needs.

An engineer at a utility company, for example, can use the Model 10 to design a transmission line or do a complete rate analysis. A broad spectrum of complex and tedious calculations common to the power industry now can be performed quickly and easily — often by simply entering the raw data and hitting a single key. Similarly, a chromatographer can obtain per cent concentration and relative retention time of each component on his chromatogram . . . at a single keystroke. A physicist completes a sequence of acceleration, velocity, force and work . . . and a clinical pathologist computes a full blood gas analysis . . . at a single keystroke. Et cetera.



*Whatever your job, here's a calculator that speaks your language. You can customize its keyboard, memory size, display, programs and peripherals to suit your number-crunching tasks.*

This is possible because the new Model 10 calculator has interchangeable function blocks which can define its keyboard to meet varying needs. One standard plug-in block emphasizes powerful statistical computations, another gives higher mathematics capability, and the third is completely user-definable. This block provides single keystroke solutions to multiple-step calculations commonly encountered by the user. Once programmed, each key performs its customized function whenever he strikes it.

For more on tailoring the \$2,975 Model 10 to your particular profession (full alphanumeric printing capability, expandable memory, a wide line of peripherals, etc.) write for our brochure.

For more complete information, write Hewlett-Packard, 1502 Page Mill Road, Palo Alto, California 94304. In Europe: 1217 Meyrin-Geneva, Switzerland.

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