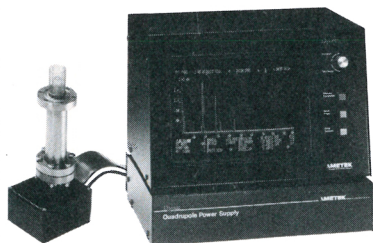


High Performance Dycor™ Quadrupole Mass Spectrometers



The Dycor Quadrupole Mass Spectrometer offers a dynamic range of 7 orders of magnitude along with a high resolution CRT, analog bar, and tabular display modes, with an RS-232 port for computer interface as standard features.

The Dycor product line is manufactured at our facility in the U.S.A. This permits us to offer it at a price which is the most cost-effective in the industry.

Whether your need is residual gas analysis, process monitoring, or leak detection, the microprocessor-based models provide you with the ultimate in performance.

Applications include:

- Residual Gas Analysis
- Process Monitoring
- Leak Detection
- Chemical Vapor Deposition
- Fermentation
- Sputtering
- Plasma Etching
- Molecular Beam Epitaxy
- Cryogenics
- High Energy Physics
- Vacuum Furnaces
- Evaporation
- Ion Beam Milling

Features:

- 1-100 or 1-200 AMU Range
- Faraday Cup and Electron Multiplier
- 9" or 12" High Resolution CRT
- Analog Bar or Tabular Display
- Pressure vs. Time Display
- Linear to 4 Decade Log Scale
- RS-232 Computer Interface
- 10^{-14} Torr Minimum Detectable Partial Pressure
- Background Subtraction
- Spectral Library
- Sample Systems for higher Pressures

For literature, contact AMETEK, Process and Analytical Instruments Div. 150 Freeport Road, Pittsburgh, PA 15238, TEL: 412-828-9040, FAX: 412-826-0399.

AMETEK
PROCESS & ANALYTICAL INSTRUMENTS DIVISION

Society for Engineering Education, and early in his career he helped found the Maine Association of Physics Professors. As physics department head at the University of Maine, he initiated one of the first accredited undergraduate engineering physics programs in the US. Bennett wrote several widely used texts for introductory courses in physics, including *First Year College Physics* (Ronald Press), *Physics Without Mathematics* (Barnes and Noble), *Physics Problems and How to Solve Them* (Barnes and Noble) and *College Physics* (Barnes and Noble).

In addition to being a popular teacher, Bennett was a good role model for many students, a concerned and available adviser, a valued colleague—both within the department and in the university at large—and a national leader in physics education.

He will be missed by his many colleagues, friends and generations of students.

CHARLES W. SMITH
KENNETH R. BROWNSTEIN
*University of Maine
Orono, Maine*

CHARLES E. ARMENTROUT
*University of Southern Maine
Portland, Maine*

Malcolm Dole

Malcolm Dole, professor emeritus of chemistry at Northwestern University and Baylor University, died on 29 November 1990, at the age of 87. He was internationally renowned for his contributions to the study of electrolyte solutions, isotope effects and polymers.

Dole received both his undergraduate degree and his PhD from Harvard University, the latter in 1928. In 1930, after spending two years as a postdoctoral fellow at the Rockefeller Institute, he joined the faculty at Northwestern University. As a professor of chemistry there, he had a distinguished career lasting almost 40 years, including a four-year term as chairman of the Materials Research Center (of which he was also a founder). In 1969 Dole moved to Baylor University to become Welch Professor. He remained there until his retirement in 1982.

Dole's research with Theodore W. Richards and Grinnell Jones at Harvard focused on the properties of solutions of strong electrolytes, and in particular on their electrical conductances and transference numbers. During intermittent sojourns at Peter Debye's institute in Leipzig, Dole, with Hans Falkenhagen, extended

Debye's electrolyte theory to explain the viscosity of dilute solutions. Working with Duncan MacInnes at the Rockefeller Institute, Dole constructed the first thin membrane glass electrode. At Northwestern Dole established an active experimental program on the glass electrode and also developed the theory behind it. His monograph *The Glass Electrode*, published in 1941, is still an authoritative source on the theory of the glass electrode.

In a study at Northwestern, Dole discovered an oxygen isotope cycle that made oxygen in air heavier than that in seas or lakes. His identification of this phenomenon—now called the Dole effect—was a major factor leading to the replacement of oxygen by carbon as the reference standard for atomic weights.

During World War II, Dole worked on a chemical warfare defense project at Northwestern, then became director of the Dugway Proving Ground operations in offensive chemical warfare, and finally joined the atomic bomb project, working on gaseous diffusion at Oak Ridge.

Back at Northwestern after the war, Dole designed and constructed exceptionally sensitive equipment for measuring specific heats and enthalpies of polymers. He discovered that polymers could be cross-linked by radiation, a phenomenon that has proved to be of great practical application. Both at Northwestern and at Baylor, Dole elaborated the fundamental molecular mechanisms in such cross-linking. He also made the pioneering steps in the development of a macromolecule mass spectrometer, a process that has only recently reached fruition in laboratories that followed up on his novel conceptions.

His personal relationships with students and colleagues were marked by the same enthusiasm and attentive interest that characterized his approach to scientific challenges. His strong views on personal rights, both his own and those of others, made him famous with the public through his legal encounters with authorities who tried to limit his rights to cycle to campus or with bandits who snatched his wallet. He was an exceptionally warm and good-humored individual who evoked admiration and affection in all who knew him. Malcolm Dole will be sorely missed by his family, colleagues, students, friends and all who had the good fortune to know him.

IRVING M. KLOTZ
MARK RATNER
*Northwestern University
Evanston, Illinois* ■