AUTHORS AND PAPERS

The highly condensed summaries of papers and technical notes (below) are intended to assist the busy reader in determining the order in which to read the technical material. Biographical comments are for human interest.

NERVA NUCLEAR SUBSYSTEM CONTROLS

Nuclear controls and instrumentation for the NERVA experimental engine consist of several updated KIWI-type controllers and new automatic startup and override controllers.

Roy E. Crews (right), a Senior Engineer at Westinghouse Astronuclear, is stationed at NRDS, Jackass Flats, Nevada. Garold L. Hohmann is Department Manager, Controls Systems Engineering at Westinghouse Astronuclear Laboratory in Pittsburgh. Both were formerly associated with the NERVA Project.

LIMITERS IN NERVA REACTOR CONTROL

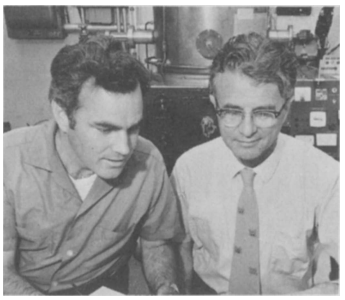
Limiter circuits that override spurious signals from nuclear rocket controllers operate when their inputs (e.g., power or temperature) exceed predetermined setpoints, thus avoiding spurious scrams.

G. L. Hohmann (center) is a co-author of the preceding paper. J. M. Walsh (right) and E. K. Honka are engineers concerned with development of advanced reactor control systems in the Control Systems Engineering Section at Westinghouse Astronuclear Laboratory.

ISOTOPE REVENUES

The costs of present and future isotope production by fission or irradiation of target materials, and by processing of power reactor fuels are analyzed.

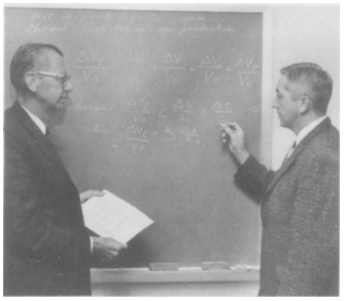
L. W. Lang (left), now a consulting engineer with Douglas United Nuclear, specializes in reactor products and economic analysis. C. A. Rohrmann (center), a Senior Research Associate at Battelle Northwest, is concerned with waste disposal problems, isotope production, and radioisotope heat source development. D. E. Deonigi, Manager of BNWL's Fuel Cycle Analysis Section, has developed computer codes to analyze isotope production and fuel cycles.



FISSION METALS IN PYROLYTIC CARBON

The diffusion of strontium through thin layers of pyrolytic carbon at 1000 to 1700°C is shown to be orders of magnitude higher than the diffusion of cesium under the same conditions. The difference is attributed to steric effects.

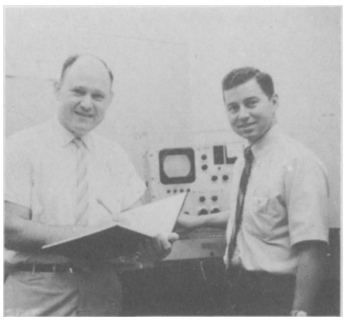
Paul Gethard (BS, 1960, Rutgers University), at left, with the Chemistry Department at General Atomic since 1960, has studied product release mechanisms. L. R. Zumwalt, formerly in charge of reactor chemistry at General Atomic, recently joined North Carolina State University as Professor of Nuclear Engineering.



FAST-NEUTRON DAMAGE TO ALUMINUM OXIDE

Exposure of aluminum oxide to $>3 \times 10^{21}$ fast n/cm^2 caused crystal fracture as a result of anisotropic expansion that, in turn, was produced by defect agglomerates too large to affect lattice parameters.

G. W. Keilholtz (PhD, Oregon State University), shown on left, studied radiation damage and several aspects of nuclear safety at ORNL's Reactor Chemistry Division. He has taught chemistry at several universities. R. E. Moore (PhD, University of Chicago), at ORNL since 1950 and in the Reactor Chemistry Division, specializes in the chemistry of boron, molten salts, and radiation damage.



SILICON DIODE NEUTRON MONITORS

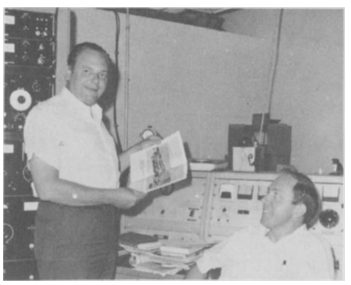
Silicon diode monitors were found to operate effectively in an integrated fast-neutron flux of 4.6×10^{15} n/cm^2. Their use for reactor monitoring and control in space appears promising.

Lawrence M. Epstein, shown on left, and Robert R. Ferber were staff members at Westinghouse's Radiation and Nucleonics Laboratory where they were involved in radiation effects and detection studies. Epstein has recently become Associate Professor of Chemistry at the University of Pittsburgh, and Ferber is completing his PhD requirements at Carnegie Institute of Technology.

BOW AND ELONGATION MEASURING TOOL

Bow and elongation of TRIGA fuel elements in four-element bundles are measured remotely with an underwater tool.

R. J. Cashwell, shown on left, and R. C. Walsh are at the University of Wisconsin. Mr. Cashwell (BS, North Carolina State University) is supervisor of the University's reactor. Mr. Walsh is responsible for operation of the machine shop, having joined the staff after retiring from the US Navy as a Master Chief Machinery Repairman.



OXYGEN DETERMINATION IN ROCKS

A fast-neutron activation analysis followed by a rigorous statistical evaluation of experimental data is used to determine oxygen in rocks with greater accuracy than that obtainable from available chemical data.

Alex Volborth (left), Professor of Geology at the University of Nevada, built a computerized x-ray emission and neutron activation laboratory at the Mackay School of Mines. His PhD (1954) is from Helsinki University, and he is the author of "Elemental Analysis in Geochemistry." Harold A. Vincent, an associate chemist with the Nevada Mining Analytical Laboratory and the Nevada Bureau of Mines, studied at the Universities of Iowa and Nevada and received his PhD from the University of Arizona.