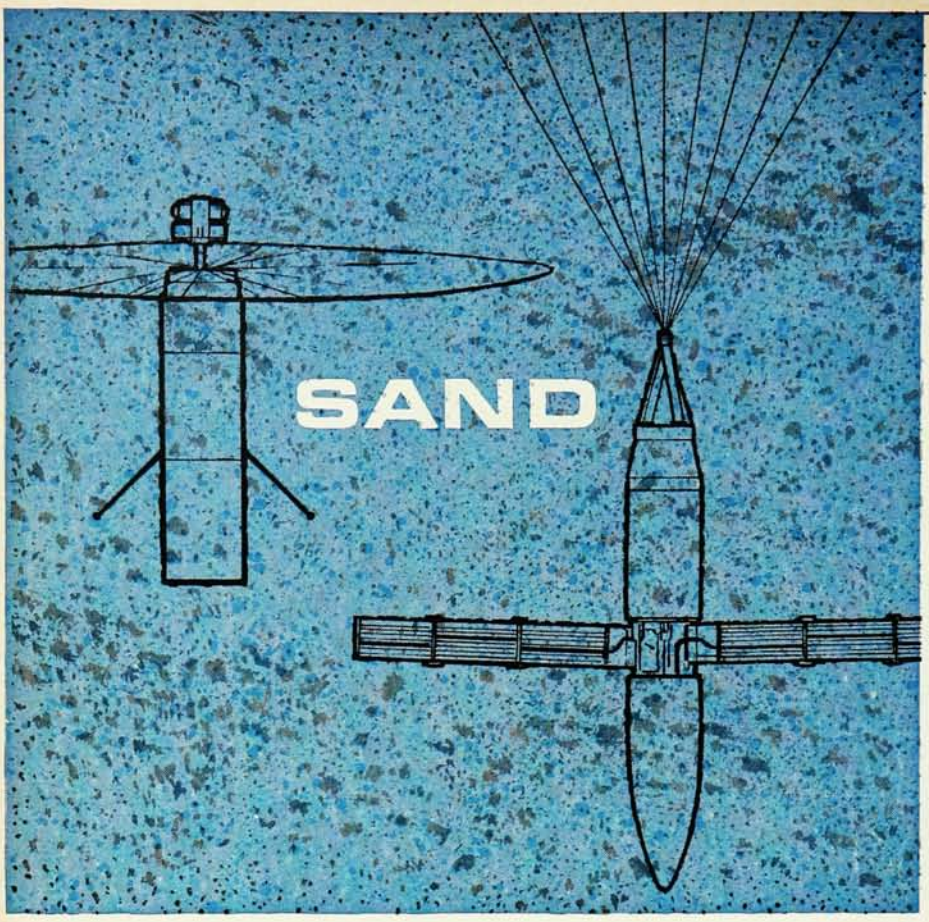

Among recent developments in upper atmosphere research at Sandia are rocket-boosted particle samplers called SAND (Sampling Aerospace Nuclear Debris). SAND will explore the regions between balloon ceilings and satellite perigees to enable radioactive debris inventories and to develop forecasting schemes for debris dispersal. SAND-LO will extract particulate matter by filters in 8 ft. long whirling vanes during parachute retarded descent from 225 to 100 kft. SAND-HI, operating from 200 to 600 kft or higher, looks to condensation of near-molecular particles upon a 10 ft. circular mylar sail deployed by centrifugal force. Both will hermetically seal the sample for recovery and laboratory analysis. Flight tests are now underway. When operational, SAND will also augment other systems in an international program of high altitude geochemical and geophysical studies.

Sandia scientists and engineers do related work in many diversified fields including: Aerothermodynamics; Polymers, Plastics and Foams; Solid State Physics; Human Factors Engineering; Aerospace nuclear safety; Electronic and mechanical design and development of systems and components.

Sandia Corporation is a Bell System subsidiary and a prime contractor of the Atomic Energy Commission engaged in research, design and development of the non-nuclear phases of nuclear weapons. At Sandia you would work in Albuquerque or in Livermore in the San Francisco Bay area.

Sandia Corporation recruits on many major campuses and is primarily interested in recent and current outstanding graduates in many of the engineering and scientific disciplines at all degree levels. Consideration of applicants is based solely on qualifications and without regard to race, creed, color or national origin. U. S. citizenship is, however, required. For current opportunities, contact the Sandia recruiter at your college or write Professional Employment Organization 3151, Ref. 559-6, Sandia Corporation, Post Office Box 5800, Albuquerque, New Mexico, 87115.

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Sciences, University of Colorado, Boulder, Colo., or Prof. M. I. Budyko, Main Geophysical Observatory, M. Spasskoya 7, Leningrad K-18, USSR.

Space and Vacuum Techniques

The French Society of Vacuum Technicians and Engineers, with the endorsement of the National Center for Space Studies, is organizing an international congress on vacuum techniques in space research to be held in Paris from June 29 to July 4.

A series of invited papers dealing with vacuum techniques in space physics will review physical and chemical factors, radiation in space, the electrical state, and micrometeorite fluxes. In addition, papers on space simulation will deal with ultrararefied media, temperature, thermal exchanges and associated radiations, and experiments on ionized media. There will also be a program of contributed papers on development of materials, components, and devices used for obtaining low pressures.

All correspondence should be addressed to the Technical and Administrative Secretariat, Mme. J. Mainier, 147 Blvd. de Strasbourg, Nogent-sur-Marne, Seine, France.

Astronautics

The International Astronautical Federation will hold the fifteenth International Astronautical Congress in Warsaw, from September 7 to 21. In addition to the general sessions, which will cover bioastronautics, power systems, celestial mechanics, re-entry, systems, and ground installations, the meeting will devote a major part of its program to the problems of manned lunar exploration. These sessions will include flight programs, propulsion techniques, navigation, and an invited panel discussion of a possible international lunar laboratory. Other special events will include a discussion of education in astronautics and an invited symposium on space vehicles in ionized media.

Information regarding the submission of summaries of contributions, due before April 15, can be obtained from the International Astronautical Federation, 250 rue Saint-Jacques,

When your project requires crystal or solid state technology

it's time to contact HARSHAW

Harshaw Crystal-Solid State Division Capabilities:

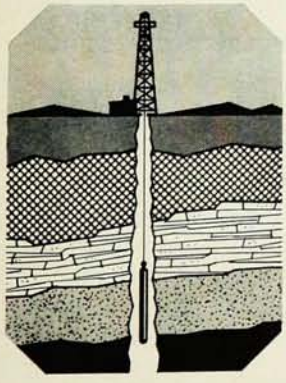
1

Nuclear Radiation Detectors

Harshaw produces Scintillation Crystals for the detection of Alpha and Beta particles, and Neutron and Gamma radiation.

Silicon Surface Barrier Charge Particle Detectors and Gas-Filled Radiation Detectors (boron-10 trifluoride neutron counters and halogen-quenched G-M tubes) are offered to complete the line of radiation detectors.

Lithium Fluoride Thermoluminescent Dosimeter Powder is available for medical research and X-ray therapy dose measurement. Lithium-6 Fluoride, and Lithium-7 Fluoride Thermoluminescent Dosimeter Powder provides discrimination between neutron dose and gamma dose received in a mixed radiation field.

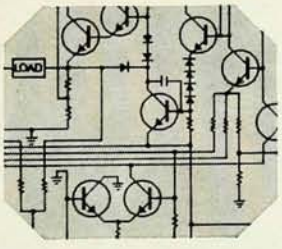


2

Thin Film Solid State Technology

Harshaw is marketing radiation-resistant, flexible cadmium sulfide solar cells offering longer space life, more watts per pound, and lower fabrication cost. Flexibility of these thin cells permits a wide variety of compact configurations which may be readily assembled or unfolded in space.

At present we are engaged in development studies on photoconductors, phosphors, thermistors, thin film transistors, and other solid state effects.

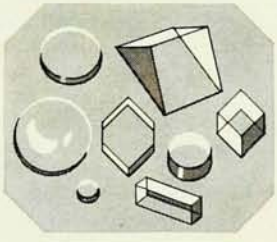


3

Infra Red & Ultra Violet Transmitting Materials

ROUGH BLANKS AND POLISHED OPTICS.

Harshaw Alkali Halide Crystals span the wavelength range from the far vacuum ultra violet to the far infra red. Harshaw high purity vacuum-grown lithium fluoride has the shortest known cut-off wavelength, approximately 1040 Angstroms, while cesium iodide and thallium bromide-iodide offer transmission out to about 40 microns. Windows, prisms lenses, and polarizing elements are available from Harshaw's Optical Polishing Facility. Now available . . . T-12, a new crystalline compound transmitting 1 to 12 microns. *Developed specifically to resist thermal and mechanical shock.*

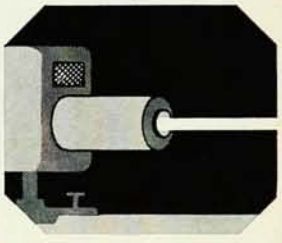


4

Materials

II-VI Compounds—Cadmium Sulfide, Cadmium Selenide, Zinc Sulfide, Zinc Selenide, and Zinc Telluride are offered in both powder and single crystal form. As a service, single crystals will be provided with the desired orientation.

Laser Crystals—CaF_2 and BaF_2 rare earth activated. Tungstate and molybdate crystals are also available. In-house research on new Laser materials is continuing.



You are invited to contact CRYSTAL-SOLID STATE DIVISION, the Harshaw Chemical Company if any of your present or future endeavors embrace the science of crystal or solid state technology. Our large staff of physicists, scientists, and technicians will be pleased to work with you.

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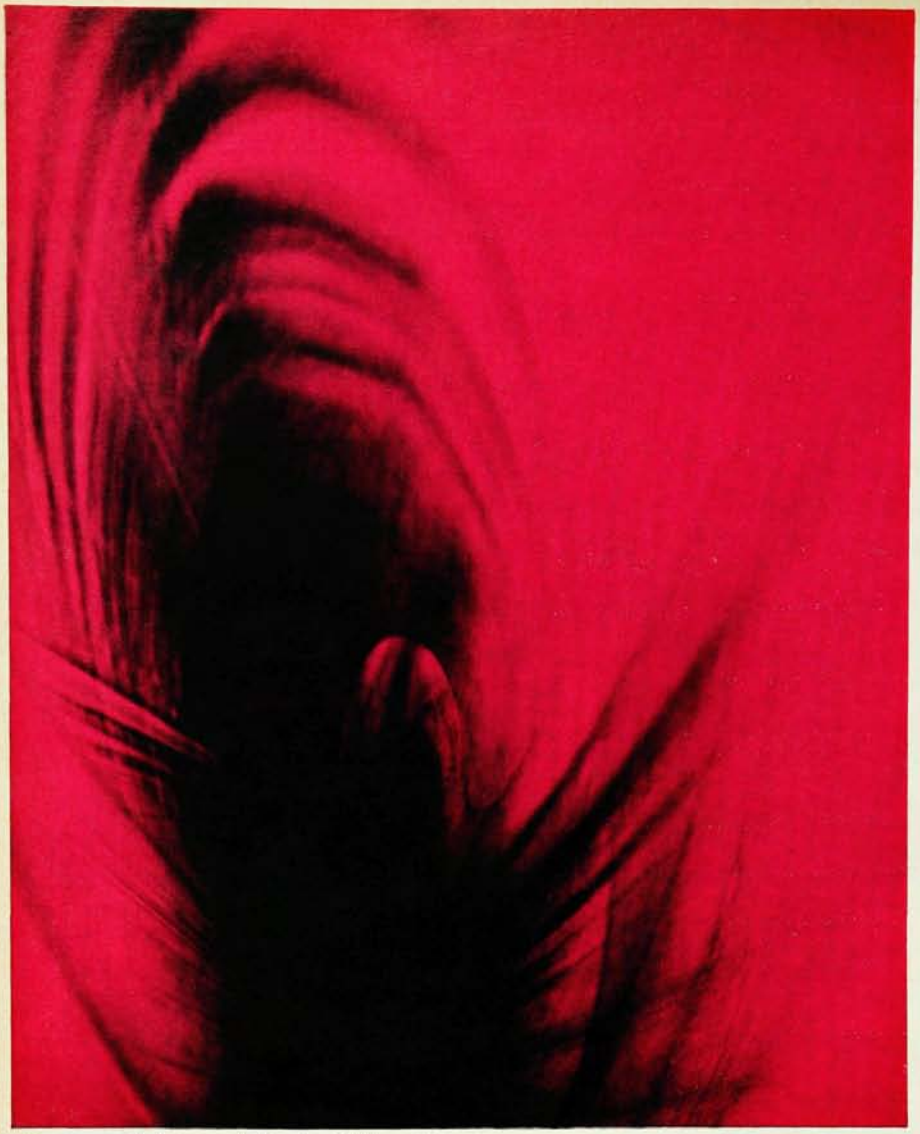

Photographic interpretation by William Thonson

Since 1944, when Los Alamos scientists developed the world's first homogeneous reactor as a research tool, they have maintained a lively interest in special purpose reactors. Interest now centers on novel fuel systems, such as use of molten plutonium in high-temperature, high-efficiency devices. Other objectives are the development of low-cost nuclear fuel for high-temperature gas-cooled reactors, and thermionic converters for space applications.

Qualified applicants interested in research at Los Alamos are invited to send resumes to: Director of Personnel, Division 64-49

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All qualified applicants will receive consideration for employment without regard to race, creed, color or national origin. U.S. Citizenship required.

Paris 5, France. Registration and accommodation information can be obtained by writing to Astronaut, P.K.i.N., p. 23-18, Warsaw, Poland.

Space Simulation

The National Science Foundation and the National Aeronautics and Space Administration, through the Virginia Associated Research Center, are sponsoring a conference on the role of simulation in space technology. The meeting, to be held at Virginia Polytechnic Institute from August 17 to 21, will cover space environment, structural dynamics, real-time dynamic simulation, hypersonic flight simulation, and simulator studies of physiological processes.

Attendance is by invitation. All correspondence should be addressed to F. J. Maher, Director, Space Conference, Virginia Polytechnic Institute, Blacksburg, Va.

Spread-F

The Ionospheric Research Committee of the Avionics Panel of NATO's Advisory Group for Aeronautical Research and Development is holding its ninth technical meeting in Copenhagen, August 26 to 29. The subject of the meeting will be Spread-F and its effects on radiowave propagation and communication. Persons wishing to contribute to the program should write to the program chairman, Dr. Philip Newman, CRU, Air Force Cambridge Research Laboratories, Laurence G. Hanscom Field, Bedford, Mass.

The meeting is unclassified, but attendance is by invitation and limited to participants from NATO countries. Requests for information should be sent to Lt. Col. E. F. Dukes, Executive, Avionics Panel, AGARD, 64, rue de Varenne, Paris 7, France.

Gordon Research Conferences

Fifty areas of scientific research are scheduled for coverage by this year's Gordon Research Conferences, to be held between June 15 and September 4 at various locations in New Hampshire. Designed to stimulate research by fostering an exchange of ideas