



NEW! THIN-FILM LASER Q SWITCH

FOR RUBY LASERS

- ☐ Requires no controls
- ☐ Has no moving parts
- ☐ Simple alignment
- ☐ Self-synchronizing
- ☐ Pulses short as 10 nsec
- ☐ Multimegawatt power

The new device consists of an optical glass substrate supporting a thin film of passive absorbent material. Each switch allows up to twenty-five giant pulse shots with a $\frac{1}{4}$ " ruby.

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QUARTZ PRISM

MONOCHROMATOR



FOR THE VISIBLE AND ULTRAVIOLET

Miniature monochromator with uni-directional positioned entrance and exit optics for direct insertion into existing light beams and systems.

WAVELENGTH RANGE.....200-700 mμ
SLITS.....Adjustable in unison
EFFECTIVE APERTURE.....F/7.6



Model QPM 30

Custom manufacturers and designers of scientific instruments involving optics and electronics.

SCHOEFFEL
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WESTWOOD, NEW JERSEY

SCIENCE EDUCATION

Student advisor guide

The Education Department of the American Institute of Physics is currently gathering data on the doctoral physics programs at some 135 institutions in order to compile a handbook for advisors of graduate students. The final report, which is expected to be issued in the fall of 1965, will be distributed without charge to all colleges and universities offering a physics program.

Among the kinds of information to be included are the names and ranks of the graduate physics faculty, the research specialties, staff, and related facilities, the necessary undergraduate preparation, PhD requirements, examinations and dissertations, assistantships and fellowships, graduate student statistics, and the general academic environment. It is hoped that the provision of accurate information on what each department expects of and offers to its students will help reduce the number who drop out of graduate studies because of the mismatching of student and school. The handbook project is supported by a grant from the National Science Foundation.

Science TV

During the early part of this year, the American Institute of Physics and nineteen other scientific organizations are cooperating in the production of twenty half-hour telecasts "designed to keep the layman, as well as scientists and engineers, up to date on developments in the scientific and engineering fields". The project, called "Science and Engineering Television Journal," is being underwritten by the National Science Foundation and the Timken Roller Bearing Company, and coordinated by the American Association for the Advancement of Science. Distribution of the telecasts will be handled by the National Educational Television Network, which will carry the series to more than 75 stations in 32 states and the District of Columbia.

The American Institute of Physics will produce a program on high-

energy physics, entitled "The Atomic Jungle". A panel consisting of Morris H. Shamos of New York University, Maurice Goldhaber of Brookhaven National Laboratory, Leon M. Lederman of Columbia University, and Abraham Pais of the Rockefeller Institute will discuss the historical and experimental aspects of particle physics, as well as the theoretical interpretation of experimental data.

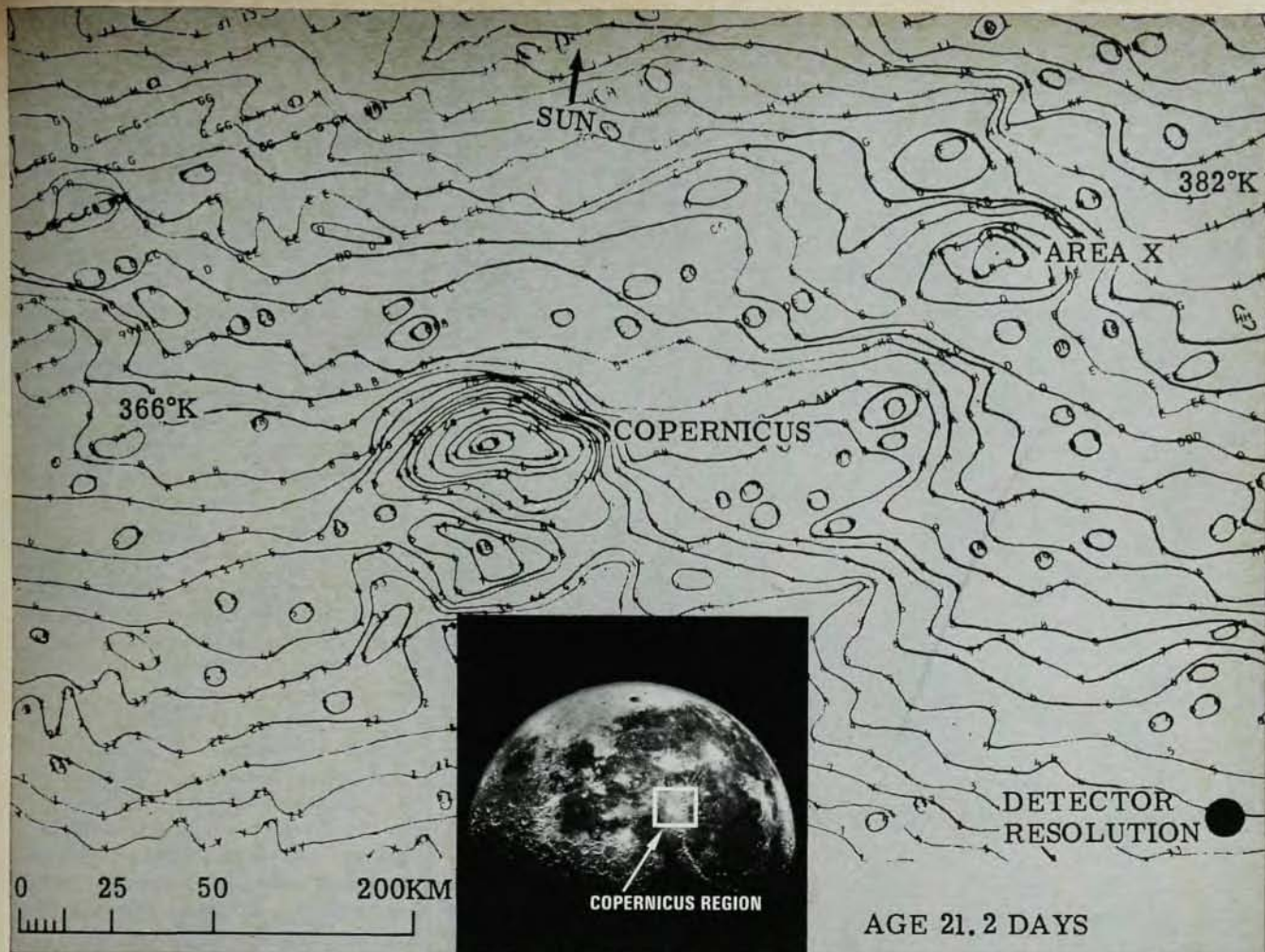
Other program topics in the series will include observatories in space by the American Astronomical Society, fiber optics by the Optical Society of America, lunar surface controversy by the New York Academy of Sciences, and topology by the Conference Board of the Mathematical Sciences.

Optics equipment grants

The Advanced Research Projects Agency has established a program of one-time equipment grants for institutions engaged in optical research of interest to the Department of Defense. Such grants are intended to strengthen the optics programs at these schools by providing funds for updating research equipment used for Defense Department programs and also by providing modern equipment for graduate-level research. Areas of significant importance to the Defense Department include geometrical and physical optics, electromagnetic waves, coherence phenomena, statistical optics, and quantum optics. Institutions which are selected for these grants should receive their equipment funds during 1965.

Departmental programs

Beginning in September 1965, the University of Miami in Coral Gables, Fla., will introduce a new physics undergraduate program designed to prepare students of outstanding promise for productive graduate careers in physics. In the first two years students will be expected to attain the level of a BS degree in the



Ph.D. for Lunar Research

Boeing Scientific Research Laboratories in Seattle, Washington, offers a scientist (Ph.D. or equivalent in Physics or Geophysics) an opportunity to join a team engaged in lunar research.

This assignment involves interpreting lunar temperature data taken by BSRL scientists utilizing the Mount Wilson 60-inch and Helwan (Egypt) 74-inch telescopes. Numerous high-resolution thermal maps have been developed at different phases in a lunation and at several stages of a lunar eclipse. Interpretive studies using lunar sur-

face models based on various geophysical and geological considerations are currently underway.

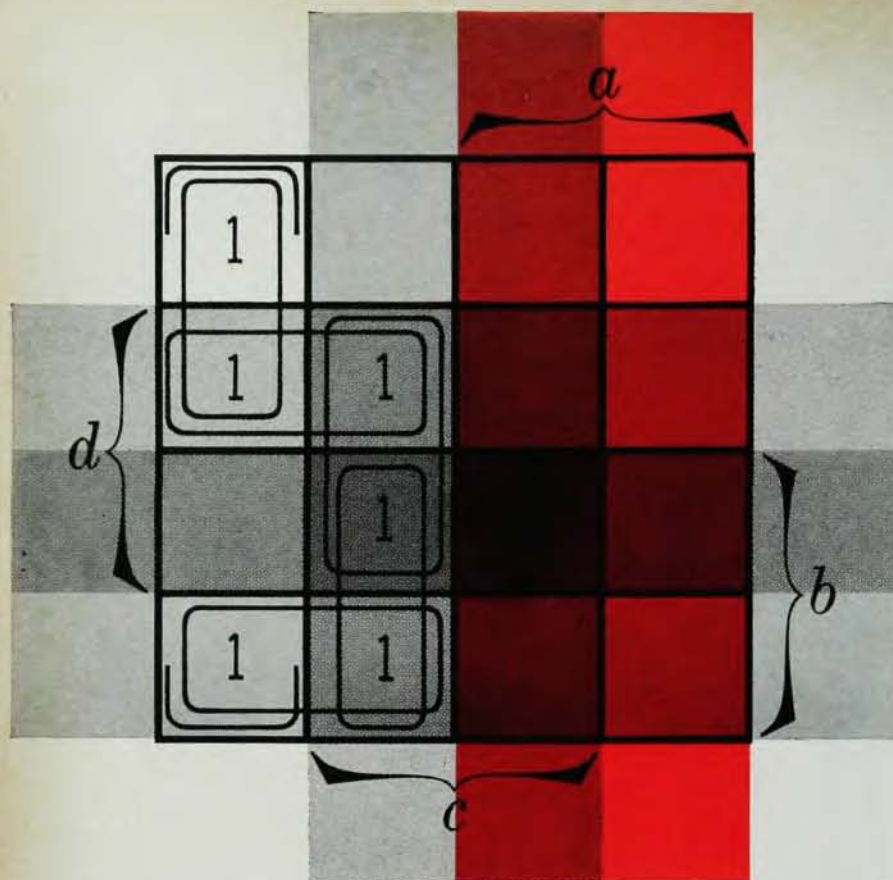
This program involves both theoretical and experimental work. If interested in participating, please send resume to:

Dr. John C. Noyes
Head, Geo-Astrophysics Laboratory
Boeing Scientific Research Laboratories
P.O. Box 3981-PT2
Seattle, Washington 98124

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Lunar Isothermal Contours in the Copernicus Region (shown above)

Infrared data at 11 microns were obtained using the Mount Wilson 60-inch telescope, stored on magnetic tape, processed through an IBM 7094 computer, and printed out on a scale such that the lunar diameter was equal to 8 feet. Large thermal gradients due to highlights and shadows in the Copernicus region are evident. "Area X," a relatively cool region, does not correspond with any visible feature. (Data by J. M. Saari and R. W. Shorthill.)



DETECTION LOGIC

Detection satellites now in orbit and under development depend on Sandia-designed logic systems to interpret and communicate what they sense. Each satellite carries a network of some 25,000 logic components which enable it to discriminate and compress data from its sensors, separating the telltale from the normal, essential from unessential, before transmission to ground stations. The logic examines data on radiation and electromagnetics and by a function of correlating and comparing decides whether these result from natural phenomena or a man-made nuclear event. Four such satellites are now in operation 50,000 miles out, transmitting reliable intelligence on the yes or no of clandestine nuclear explosions.

Sandia's scientists and engineers work in many such vital programs including: device physics; solid state; materials research; mathematical research; nuclear burst physics; and manufacturing development.

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. With Sandia you would work in Albuquerque or in Livermore in the San Francisco Bay area.

Sandia 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, Box 5800, Albuquerque, New Mexico, 87115.

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traditional physics curriculum, including modern physics. In the third and fourth years, the students will be prepared for advanced subjects in the physical sciences and may elect to study theoretical or experimental physics, applied physics and engineering, or geophysics, oceanography, and astronomy. Fluid dynamics, including turbulence, and the newer subjects of magnetohydrodynamics and plasma physics will form one of the most important areas of the curriculum. The accompanying mathematics courses will be of a similarly advanced nature and will cover such topics as statistical decision theory, probability, metric spaces and elementary topology, and modern algebra, including group theory. Total enrollment in the honors program will be limited to some twenty students.

A graduate program in sensory communication has been organized at Syracuse University for students who are interested in the study of sensory systems and who have some background in physics and mathematics. The main purpose of the program is an integration of those parts of mathematics, physics, chemistry, physiology, and psychology that are most pertinent to the study of sensory processes and their role in human and animal communication.

Administration of the program is by a committee composed of faculty members from the Departments of Electrical Engineering, Physics, Psychology, and Zoology; the executive part of the administration is provided by the director of the Laboratory of Sensory Communication, J. J. Zwillocki, and the assistant director, E. J. Kleitsky. Additional information on the program can be obtained by writing to either the director or the assistant director of the laboratory, 821 University Ave., Syracuse, N. Y., 13210.

Esso grants

The Esso Education Foundation is continuing a program, begun last year, of underwriting projects to help colleges and universities extend their undergraduate educational resources. Grants up to \$75,000 each will be awarded in support of projects in-