ALL EXTERNALLY SPONSORED ACTIVITIES

(Research, Training, Education)

Fiscal Year Ending August 31, 1968

U. S. Government Agencies	*Total Expenditures**
Atomic Energy Commission (except SLAC)	$ 524,000
Department of Defense	17,839,300
NASA	5,724,000
National Science Foundation	9,979,800
Public Health Service	16,646,200
Office of Education	5,751,900
Other Agencies (Interior, Peace Corps, etc.)	2,439,000
Non-Government	
(e.g., Ford Foundation, American Cancer Society)	6,466,000
SLAC	$28,617,000

* *Includes Construction Grants & Contracts; $2,179,000.*

Of this $65.4 million total expenditure for these 1,600 projects, 16 were considered classified under the Research Policy Committee's definition and accounted for expenditures of $3 million.

CAMPUS REPORT

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14 Classified Research Projects, Financial Reports Filed in Library

The University has filed in the Meyer undergraduate library a pamphlet containing information on the 14 classified research contracts on which work is being conducted at Stanford, the 1967–68 financial report on all sponsored projects, and the annual University financial report for the year ended August 31, 1968.

The classified research pamphlet includes the title of the project, the contract number, the sponsor, the school or department engaging in the research, the principal investigator, approximate annual funding, and a brief description of the objectives, type work being done, and the reason the work is regarded as classified.

It is the responsibility of the Committee on Research Policy to keep the list of projects up to date by withdrawing those which have expired and adding new ones. Because of this, 14 projects are filed instead of the originally announced 16.

The Sponsored Projects Report includes current data and 10-year comparative summaries by school or laboratory, by contract, grant, and government agency.

The 323-page annual financial report contains detailed information on sources of income and operating expenditures for instruction, research, libraries, and institutes, student aid and services, physical plant, administration, and auxiliary activities. The latter covers such things as student residence halls and Stanford clinics.

Income and expenditures for the Stanford Linear Accelerator Center are given, but independent and affiliated organizations, such as the Bookstore and Stanford Research Institute, are not included.

The projects in the classified research document *generally fall* into one of three categories:

1. Research that itself has no classified aspects but is affected by a non-Stanford project which involves classified information (such as a launch date of a moon probe).

2. Security clearance for some Stanford personnel is necessary so they may have access to research in a classified field. The results of this type work might not be classified, but without access to classified material, the specific project could not be done.

3. Projects that might produce some results which may themselves be classified or may generally be used by others in connection with classified work.

'Classified' Explanation

"In a substantial portion of the 'classified' projects at the University, it is necessary that someone hold a clearance only for purposes very tangential to the research involved," the Committee on Research Policy points out in the foreword to the classified research pamphlet.

The foreword also explains:

"Stanford University has long followed the practice of making available to any interested member of the University community the type of information regarding 'classified' contracts that is contained in this pamphlet. Indeed, since 1967, there has been in effect a general regulation that, 'The University should enter no contract and accept no grant to carry out research under circumstances that restrain the freedom of the University to disclose (1) the existence of the contract or grant or (2) the general nature of the inquiry to be conducted or (3) the identity of the outside contracting or granting entity . . .'"

tempt to make more easily available to the University community information that has long been available to any member of that community who was sufficiently interested to inquire; it represents no change in basic policy."

List of Projects

Following are the projects listed, and, in order, are title, contract number, sponsor, school or department, principal investigator, approximate annual funding level, excerpts from the project description, and reason for classification:

ASEE—NASA Faculty Fellowship Program; No. NSR-05-020-088; NASA; Aero & Astro; Max Anliker; $160,000. Summer faculty fellowship programs since 1964 for research and study at the Ames Research Center and Stanford by about 40 young engineers and scientists. NASA stipulates that the fellows be eligible for minimal security clearance because of access to classified laboratory areas even though none is expected to work on classified projects.

Microwave Acoustic and Bulk Device Technique Studies; No. F30602-68-C-0074; Air Force; electrical engineering (Hansen Labs.); Marvin Chodorow; $210,000. To advance new theory and techniques of microwave acoustic, magnetoelastic, and bulk semiconductor devices for application to communications, radar, and instrumentation systems. Clearance for some personnel is necessary so they may have access to research done elsewhere and to classified data about military communications systems. Research findings are wholly unclassified.

Infrared Studies

Infrared Spectrometry Studies; No. NASA-7313; NASA; earth science; R. J. P. Lyon; $75,000; fundamental research on the spectra emitted by rocks and soils of various types in order to differentiate from aircraft and spacecraft the characteristics of geological phenomena. The Stanford contract is affected by classification for one type of supplemental data received from NASA and because state-of-the-art detectors are used, the absolute numeric values for which are classified at a low level.

Applied Research Electromagnetics; No. DAAB07-68-C-0149; Army; Stanford Electronics Labs; D. J. Grace; $210,000; Microwave tropospheric propagation, microwave and solid-state components, circuits and devices, and data and signal processing. Classified background data is received from the sponsor and this could cause some research results or some possible operations to be classified. The more general findings are unclassified.

Application of Plasmas to Microwave Amplification and Generation; No. DA-28-043—AMC-02041 (E); Army; Stanford Electronics Labs; F. W. Crawford; $85,000. Research on the application of plasmas to microwave amplification and generation. The need for any researcher on this project to hold a security clearance did not develop and no research personnel obtained clearances. All technical papers flowing from the work have been published as unclassified.

Techniques of Imaging

Techniques of Imaging Through a Random Medium; No. AF33615-67-C-1756; Air Force; Stanford Electronics Labs; J. W. Goodman; $100,000. Developing techniques for obtaining high resolution imaging at long ranges through a random medium. Security clearance necessary because classified background data are received from the sponsor and this could cause some research results or their possible applications to be classified. No classified technical reports have resulted.

Research in Electromagnetic Techniques; No. AF 33(616)-3589; Air Force; Stanford Electronics Labs.; W. R. Rambo; $575,000. Receiver techniques, signal sorting, pattern recognition and data processing; electronic techniques applicable to systems for emitting small amounts of energy of complex nature to interfere or interact with subject radar system; creation of new electronic devices having wide application not only to the areas heretofore mentioned, but also to a variety of uses such as solid-state physics, vacuum technology, and electron-beam dynamics; less than 20 per cent of the technical reports published under this contract will be classified.

Aerospace Application

Theoretical Studies of Nonlinear Aspects of Hypersonic Panel Flutter; No. NGR05—020-102; NASA; Aero & Astro; K. Karamcheti; $38,000. Relationships between the "flutter" response of panels on aerospace vehicles to atmospheric flow past the panel, and such variables as low versus high mach numbers, panel size, method of panel mounting, and boundary layer thickness. Background data which were classified were delivered to the researchers at the inception of the research; findings are expected to be unclassified.

Adaptive Hydrophone Arrays; No. N00024-68-C-1076; Navy; Stanford Electronic Labs; B. Widrow; $80,000. Develop the principles of information-processing systems that self-improve or adapt to their own environments and antennas which "learn" to eliminate unwanted noise. Classified background data were received from the sponsor and this can cause some research results, or their possible applications, to be classified.

Engineering Research Program in Noncommunication Naval Electronics Techniques; No. NONR-225 (59); Navy; Systems Techniques Labs.; W. R. Rambo; $250,000. Techniques for reception, sorting, and processing of electromagnetic energy; and techniques for generation and control of electromagnetic energy. Classified background data are received from sponsor, and they can cause some part of the research findings, or their possible application, to be classified. The more general findings are unclassified.

Outer Space Consideration

Research in Electronic Techniques, Micron Wavelength Receivers, and Propagation Problems; No. F0471-67-C-0110; Air Force; Systems Techniques Labs.; D. J. Grace; $270,000. Electronic circuits utilizing new solid-state devices configured to withstand the rigors of operation in an outer-space physical environment; theoretical and experimental investigation of micron wavelength receivers; and propagation characteristics of millimeter waves passing through the atmosphere. Classified background data are received from the sponsor and some of the research findings possibly applicable to problems of the sponsor may be classified. The more general findings are always unclassified.

Lunar Seismic Experiment; No. NAS g-5632; NASA; Earth Sciences; R. L. Kovach; $108,000. Design and development of percussing and sensing devices and analysis of data generated for a seismic experiment on the moon to be conducted as part of the manned exploration program; determine the elastic properties of the lunar surface and interior to a depth of 500 feet. Launch dates are classified; research itself has no classified aspects.

Outer Space Measuring

Ionospheric Dynamics; No. NONR-225 (64); Navy; Stanford Electronics Labs; O. J. Villard; $800,000; concerned with the atmosphere 50-200 miles high; the result is a technique for continuously measuring the outer atmosphere that is cheap compared with balloons, rockets, or space probes. Useful to have knowledge of classified research going on in other laboratories which aids in the selection of basic research problems; prevents time and effort loss.

Applied Mathematical and Statistical Research; No. NONR—225(52); Navy; Statistics; H. Solomon; $57,000. Basic statistical theory and new statistical methodology in areas regarded to have intellectual and general scientific merit and by the sponsor to have application to current Department of Defense problems. Clearance necessary so investigator may be informed of current DOD problem areas that have stimulated interest in the statistical problem. Of the 140 technical reports issued to date, eight are classified, the most recent one in 1954.