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ABSTRACT

This report presents statistical analyses of Federal obligations awarded to universities and colleges for academic science activities. Funding patterns are examined in terms of specific types of science activities, fields of science, agency sources of support, and geographic and institutional distribution of funds. (Author)

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GENERAL NOTES

- The Federal obligations in this study were reported by 9 agencies that accounted for more than 95 percent of all Federal support for academic science.
- Federal obligations are reported for the Federal fiscal year ending June 30 of the year shown.
- Enrollment and degree data cited in this report are for the academic year 1967–68.
- In all tables of this report, details may not add to totals because of rounding. Percentages were calculated on the basis of unrounded figures.
- Tables showing academic science and R&D obligations distributed by field of science include estimated data for some $110 million, representing projects for which the Department of Defense was unable to supply field of science information.
- Data in this report on Federal obligations for academic science and R&D support for fiscal year 1970 vary somewhat from data appearing in a related report entitled *Federal Support to Universities, Colleges, and Selected Nonprofit Institutions, Fiscal Year 1970* (NSF 71–28). See technical notes, p. 28.

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FOREWORD

This report presents statistical analyses of Federal obligations awarded to universities and colleges for academic science activities. Funding patterns are examined in terms of specific types of science activities, fields of science, agency sources of support, and geographic and institutional distribution of funds. The data were compiled by the National Science Foundation for the Committee on Academic Science and Engineering (CASE), Carl York, Chairman. The source of the information is the Government-wide data system established by CASE for the purpose of making available to science policymakers comprehensive information on federally funded science activities at universities and colleges.

We extend our appreciation to staff members of the cooperating agencies, without whose help this compilation would be impossible. The analysis and preparation of the report were carried out by the Division of Science Resources Studies, Charles E. Falk, Director. The Data Management Systems Office, Edgar W. Barrett, Data Management Systems Officer, was responsible for processing the data.

W. D. McElroy
Director
National Science Foundation

December 1971

acknowledgments

This report was developed in the Division of Science Resources Studies, National Science Foundation, under special guidance of Kenneth Sanow, Head, Statistical Surveys and Reports Section. The survey was conducted and the report prepared under the direction of William L. Stewart, Study Director, Federal Academic Science Studies Group. The data were compiled and the report written by Cecelia Hilgert, Robert Loycano, Xavier Puslowski, and Leonore Wagner. Irene Woodall supervised the preparation of statistical material.

CONTENTS

Text Ta

Text Tables

SUMMARY

TOTAL FEDERAL ACADEMIC SCIENCE SUPPORT

In fiscal year 1970, total Federal support to universities and colleges declined 7 percent from the level of funding reported for fiscal year 1969. The major portion of this decrease was in academic science activities which experienced an 8-percent drop in 1970 compared to the 3 percent decline in support for nonscience activities. This report deals exclusively with Federal academic science support, focusing on the pattern of funding for individual categories of science activities such as research and development, manpower development, and general science support programs, and the distribution of Federal obligations among the various fields of science. This differs from an earlier report published by the National Science Foundation [1] on fiscal year 1970 Federal obligations to institutions of higher education in which data were presented and analyzed in much less detail, concentrating mainly on three broad categories of science activities—research and development, R&D plant, and "other" science activities.

Types of activity

Research and development and manpower development support, two of the eight categories of activity used in this report, accounted for the bulk of total academic science funding. Obligations for these activities amounted to $1,396 million and $429 million, respectively. Substantially smaller amounts of $101 million and $87 million were reported for general support for science and facilities and equipment, respectively.

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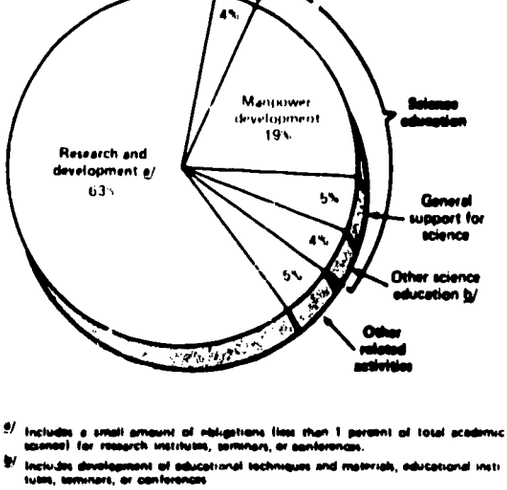
[1] The last report issued in the series resulting from the CASE I system was: National Science Foundation, *Federal Support to Universities, Colleges, and Selected Nonprofit Institutions, Fiscal Year 1970* (NSF 71-28) (Washington, D.C. 20402: Supt. of Documents, U.S. Government Printing Office, 1971.)

Fields of science

Federal academic science funding in 1970 was distributed across the major fields of science and engineering as follows: Life sciences—$834 million; physical sciences—$322 million; engineering—$165 million; environmental sciences—$126 million; psychology—$103 million; social sciences—$95 million; and mathematics—$72 million. A total of $513 million was not classified under a specific scientific field.

HEW was the leading sponsor of support in the life sciences—$689 million; psychology—$77 million; and the social sciences—$50 million. NSF led all other agencies in the funding of projects in the environmental sciences—$49 million—and mathematics—$39 million. DOD was the chief source of support for activities performed in the physical sciences—$98 million—and in engineering—$54 million.

Federal academic science obligations, by type of activity, FY 1970

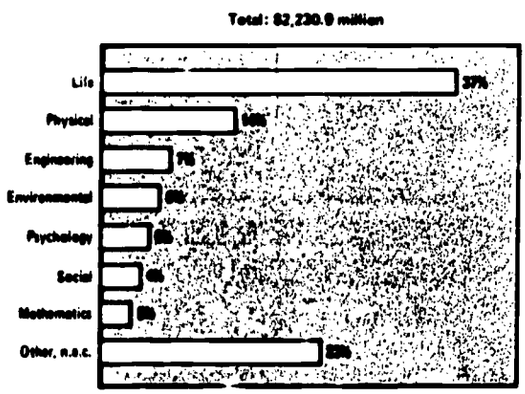


a/ Includes a small amount of obligations (less than 1 percent of total academic science) for research institutes, seminars, or conferences.

b/ Includes development of educational techniques and materials, educational institutes, seminars, or conferences.

SOURCE: National Science Foundation (CASE).

Federal academic science obligations, by field of science, FY 1970



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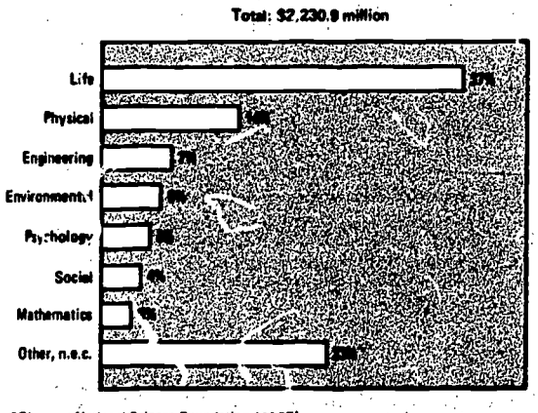
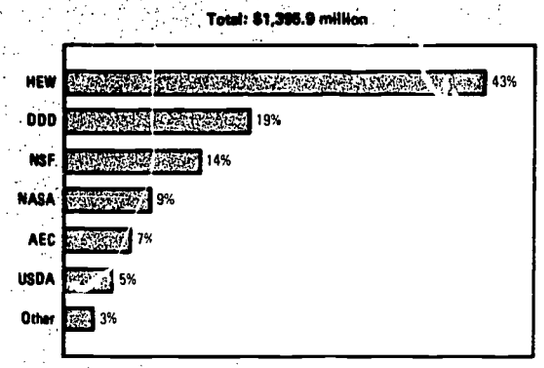


SOURCE: National Science Foundation (CASE).

Federal academic R&D obligations, by agency, FY 1970



SOURCE: National Science Foundation (CASE).

RESEARCH AND DEVELOPMENT

In fiscal year 1970, Federal R&D obligations to academic institutions totaled $1,396 million, or about 10 percent of the overall Federal R&D budget. In addition, $16 million were obligated in support of research facilities and equipment, and $1.4 million for research institutes, seminars, or conferences.

Of the nine agencies sponsoring academic R&D projects, four—HEW, DOD, NSF, and NASA—awarded 85 percent of the total. The primary source of support was HEW, whose $594 million constituted 43 percent of total R&D funding, with $464 million attributable to NIH. The second largest sponsor—DOD—obligated $265 million, or 19 percent, followed by NSF with $193 million, or 14 percent, and by NASA with $127 million, or 9 percent.

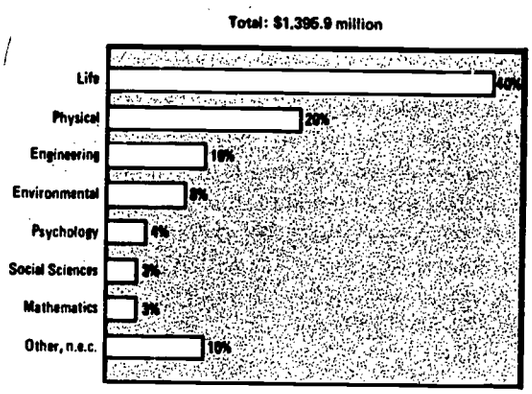
About 70 percent of academic research and development was concentrated among three of the seven major fields of science. Life science research and development, the single largest component, accounted for $565 million. Of this amount, $439 million came from HEW, and an additional $100 million came from NSF, DOD, and AEC combined. In each of the other two leading science fields—physical sciences, $283 million, and engineering, $142 million—DOD funded slightly more than one-third of the field total.

Six States, each the recipient of more than $50 million, shared $723 million, or 52 percent, of Federal R&D support and accounted for 41 of the 100 institutions receiving the largest Federal R&D support. Three of these six States received $150 million or more each—California, $200 million; New York, $164 million; and Massachusetts, $160 million.

In all, 569 institutions received R&D support from one or more Federal agencies. However, the 100 largest recipients received 86 percent of R&D funds—an amount proportional to the number of Ph.D. degrees awarded in the sciences and engineering at these institutions.

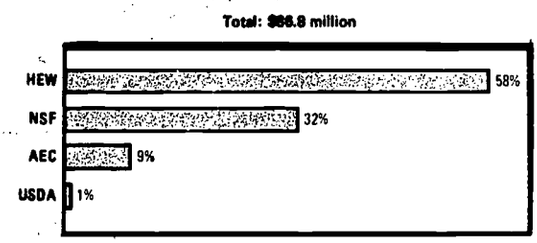
The $1.4 million allocated to research institutes, seminars, or conferences were obligated largely by NSF (79 percent), with the remainder provided by HEW—17 percent; and NASA—3 percent. More than one-half of the support funded meetings at which university and college faculty were the principal attendees.

Federal academic R&D obligations, by field of science, FY 1970



SOURCE: National Science Fo· ·tion (CASE).

Federal obligations for academic science facilities and equipment, by agency, FY 1970



SOURCE: National Science Foundation (CASE).

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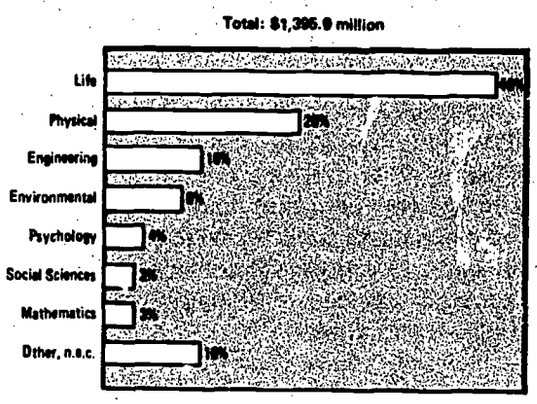
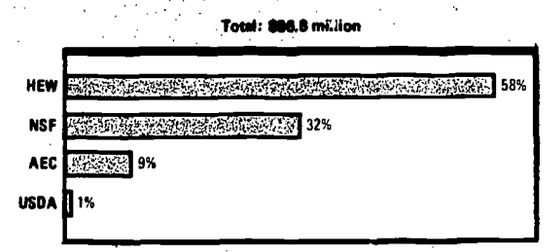
Federal academic R&D obligations, by field of science, FY 1970



SOURCE: National Science Foundation (CASE).

Federal obligations for academic science facilities and equipment, by agency, FY 1970



SOURCE: National Science Foundation (CASE)

FACILITIES AND EQUIPMENT

Federal obligations for the construction and operation of science facilities and equipment totaled $87 million in 1970. This figure represented 4 percent of Federal obligations for all academic science activities in 1970.

Facilities and equipment generally serve more than one science area. For example, a building funded by NIH might be used for research and education activities in virtually all of the major science fields. As a result more than two-thirds, or $58 million, of Federal funds for science facilities and equipment were reported under the nonspecific category, "other sciences, n.e.c." HEW accounted for four-fifths, or $49 million, of these "other science" obligations. Within the $28 million assigned to specific fields of science, NSF, the second largest agency in terms of total facilities and equipment obligations, was the only agency which reported funds for all the major fields of science. It was responsible for all funds going directly to psychology and the social sciences as well as 99 percent of the funding for environmental science.

Four States received more than $5 million for science facilities and support—California, New York, Massachusetts and Pennsylvania. HEW supplied 50 percent of the funds obligated to these States; NSF and AEC provided virtually all of the remainder.

A total of 503 universities and colleges received facilities and equipment support in 1970. Eighty-three percent of all obligations going to the first 100 of these institutions accounted for the major portion of all but one agency's science facilities and equipment funds.

SCIENCE EDUCATION

The Federal Government allocated $624 million for science education activities in 1970. HEW supported 73 percent of this total and NSF 26 percent, with four other agencies representing less than 2 percent.

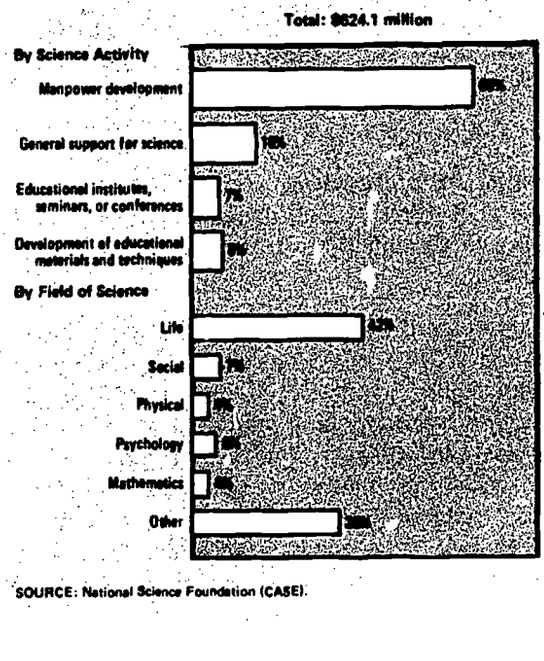
Manpower development

Nearly nine-tenths of the $429 million for manpower development supported projects sponsored by HEW in mental health and the medical sciences. NSF manpower development funds totaled $53 million.

The life sciences totaled $213 million, almost one-half of the manpower development total. Grants from the National Institutes of Health and the Health Services and Mental Health Administration comprised 92 percent of the life science total. The social sciences and psychology each represented 9 percent of the funding of manpower development projects.

The distribution of manpower development support among the geographic areas was in much the same proportions as the science and engineering degrees awarded by the universities and colleges. Eight of the first 10 States in manpower development obligations also ranked among the first 10 in the numbers of science and engineering degrees awarded.

Federal obligations to universities and colleges for science education, FY 1970



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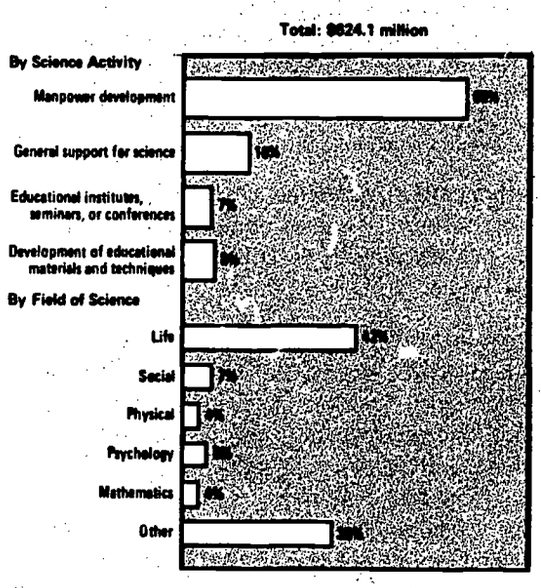

SOURCE: National Science Foundation (CASE).

General support for science

Of the $101 million total for general support for science, $57 million was obligated by NSF and $43 million by HEW. All of HEW's funds were in the life science field.

Over one-half of NSF's obligations could not be assigned to a given field of science due to awards made under the Foundation's University Science Development Program and various multidisciplinary projects.

Other educational activities

In 1970 $45 million was allocated for the support of educational institutes, seminars, or conferences. NSF supplied virtually all of the Federal funds in this area, with 90 percent of the total for programs designed for the precollege level. One-third of the total financed projects in the field of mathematics, while another one-third supported institutes of an interdisciplinary or multidisciplinary nature.

Three Federal agencies obligated $49 million for projects aimed at developing new curriculum materials, improving or strengthening existing curriculums, and implementing the instructional materials. Over four-fifths, or $40 million, was provided by the Office of Education, which was the only agency within HEW to provide obligations for this activity. Funds supporting programs designed for prebaccalaureate students accounted for 92 percent of the total.

Data contained in this report were collected from Federal agencies for the Committee on Academic Science and Engineering (CASE) of the Federal Council on Science and Technology to provide a statistical basis for evaluating Federal academic science programs and the allocating of Federal funds for these programs. These data were supplied by individual Federal agencies utilizing project-by-project reporting of Federal funds for academic science, distributed among eight categories representing the major types of science activities undertaken in institutions of higher education. A similar report by the same title covering 1969 data was published in 1971.[2]

Federal obligations for higher educational activities considered to be primarily nonscience in nature, such as general support for undergraduate education, were not included in the study. Nonscience support amounted to approximately $1 billion in fiscal year 1970. Other forms of financial assistance by Federal agencies not covered in the study include loans such as those made by the Office of Education, and agency support of Federal employee training and development activities. The report also excludes data on Federal obligations to Federally Funded Research and Development Centers (FFRDC's) administered by universities and colleges.

Details of the reporting system, including definitions of the terms used in the report are included in the technical notes (appendix A).

[2] National Science Foundation *Federal Funds for Academic Science, Fiscal Year 1969* (NSF 71-7) (Washington, D.C. 20402: Supt. of Documents, U.S. Government Printing Office, 1971.)

SCOPE AND LIMITATIONS OF DATA

This report covers data on federally funded academic science and engineering projects reported by nine Federal departments and agencies which provide the major portion of the funding for such activities. These agencies are:

Department of Agriculture
Atomic Energy Commission
Department of Commerce
Department of Defense
Department of Health, Education, and Welfare
Department of the Interior
National Aeronautics and Space Administration
National Science Foundation
Office of Economic Opportunity

Together, these agencies account for more than 95 percent of all Federal obligations for academic science made directly to U.S. universities and colleges.

Each federally funded academic science project included in this report was classified into one of the following "type of activity" categories: Research and development; manpower development; facilities and equipment; general support for science; research institutes, seminars, or conferences; educational institutes, seminars, or conferences; development of educational techniques and materials; and "other related activities."

For analytical purposes, the report is divided into two parts. Part I contains an overview of academic science activities. Part II presents a more detailed discussion of specific academic science activities organized into three principal groups:

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For analytical purposes, the report is divided into two parts. Part I contains an overview of academic science activities. Part II presents a more detailed discussion of specific academic science activities organized into three principal groups: Research and development (section 1) which includes data on R&D performance and research institutes, seminars, and conferences; academic science facilities and equipment (section 2); science education (section 3) which incorporates data on manpower development, general support for science,[3] development of educational techniques and materials, and educational institutes, seminars, and conferences.

Field of science data for total academic science and R&D obligations for the Department of Defense and "all agencies" include estimates for $110 million of DOD's total obligations of $265 million. The distribution of this $110 million among fields of science was based on the allocation of $156 million for which DOD was able to provide field of science information. Since DOD reports all of its obligations as research and development, these estimates do not affect separate figures shown for any of the other categories of academic science activities.

Statistical tables contained in appendix B show Federal agencies' obligations for the various types of activities, distributed among the leading universities and colleges (ranked in terms of amount received) and geographic divisions and States.

[3] "General support for science" programs permit recipient institutions to distribute Federal funds among various types of science activities. To the extent that such funds are used to support research and development, facilities or any of the other reported types of activities, amounts shown for these categories are understated.

total federal acade

This part of the report provides an overview of Federal academic science support in terms of types of activity, sources of support, fields of science, and geographic and institutional distribution of funds.

Federal obligations for science activities at universities and colleges in fiscal year 1970 amounted to $2.2 billion, the lowest total reported since 1966. Academic science funding as a proportion of total Federal support for higher education (including nonscience activities) declined in each of the last 6 years, from 94 percent in 1964 to 67 percent in 1970.

The combined totals of three agencies, the Department of Health, Education, and Welfare (HEW), the National Science Foundation (NSF) and the Department of Defense (DOD) comprised nearly four-fifths of the Federal Government's academic science funding in 1970. This represented all of NSF's and DOD's funds to institutions of higher education. HEW, however, awarded an additional $1 billion to universities and colleges for programs not directly related to the sciences or engineering.

PART I

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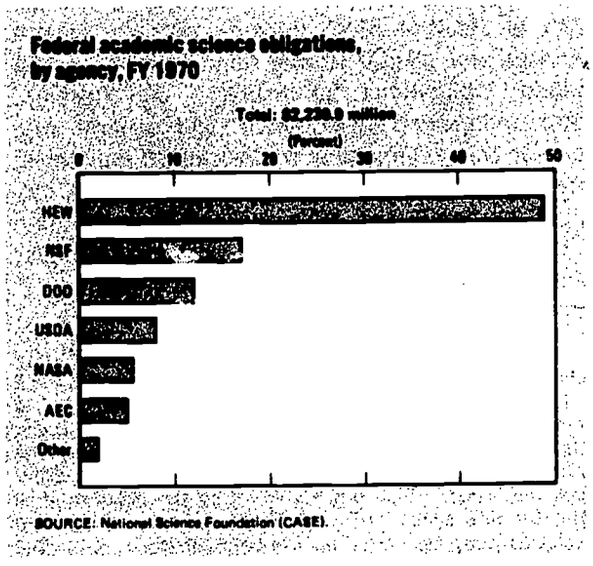


FIELDS OF SCIENCE

Federal agencies reported 77 percent of the $2,231 million obligated for academic science activities, or $1,718 million, in terms of specific fields of science. The remaining $513 million was reported under "other sciences, n.e.c." [4]

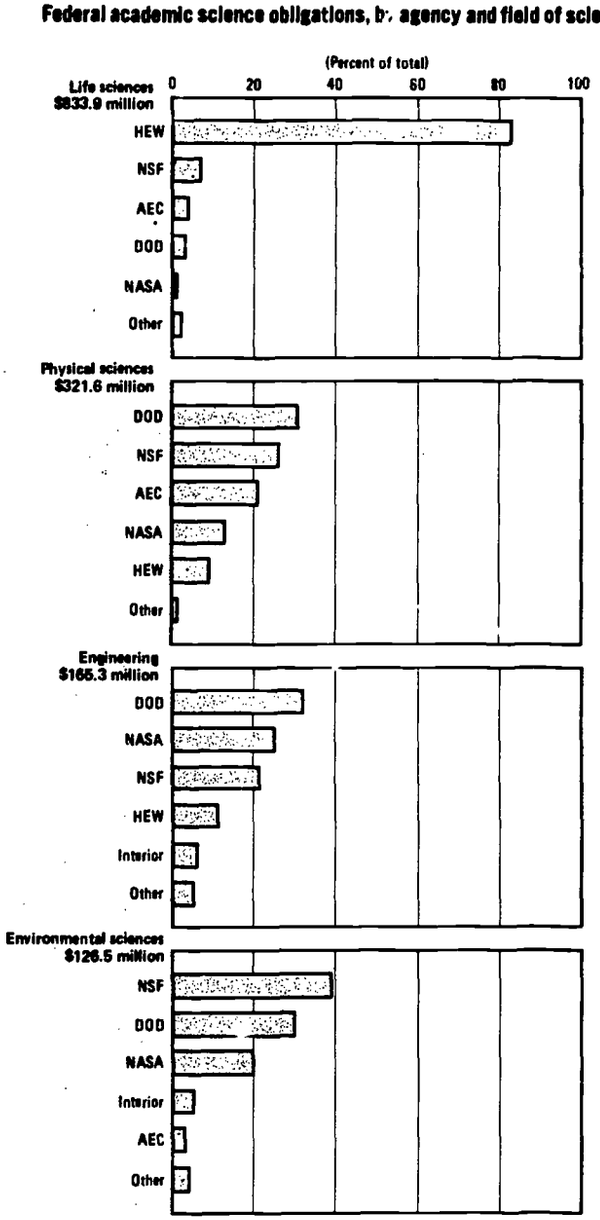
Because of the influence of research and development on total Federal academic science funding, the field of science distribution of total academic science support is closely related to the field of science distribution of R&D funding. This correlation is evidenced by the identical ranking of the seven major fields for total academic science and R&D funding.

Life sciences

The biological sciences ($408 million) and clinical medicine ($360 million), ranking 1 and 2, respectively, among the 30 specific fields of science reported for this study, together accounted for more than nine-tenths of life science funding.

Primary support came from the National Institutes of Health—$585 million—and the Health Services and Mental Health Administration—$66 million. Obligations for research and development, manpower development, and general support for science together comprised 99 percent of total support in the life sciences. The life sciences predominated by a margin of more than 2.5:1 over support for the physical sciences which ranked second in Federal obligations.

Federal academic science obligations, by agency and field of science,



[4] Projects reported under "other sciences, n.e.c." represent both interdisciplinary projects and awards that could not be classified in a specific scientific field at the time information was collected. Academic science funds totalling $513 million could not be assigned to any one field of science and were therefore reported under "other sciences, n.e.c." To avoid understating the proportion of total funding shown for individual fields of science, percentages were calculated on the basis of the sum of obligations reported for the seven specific fields ($1,718 million).

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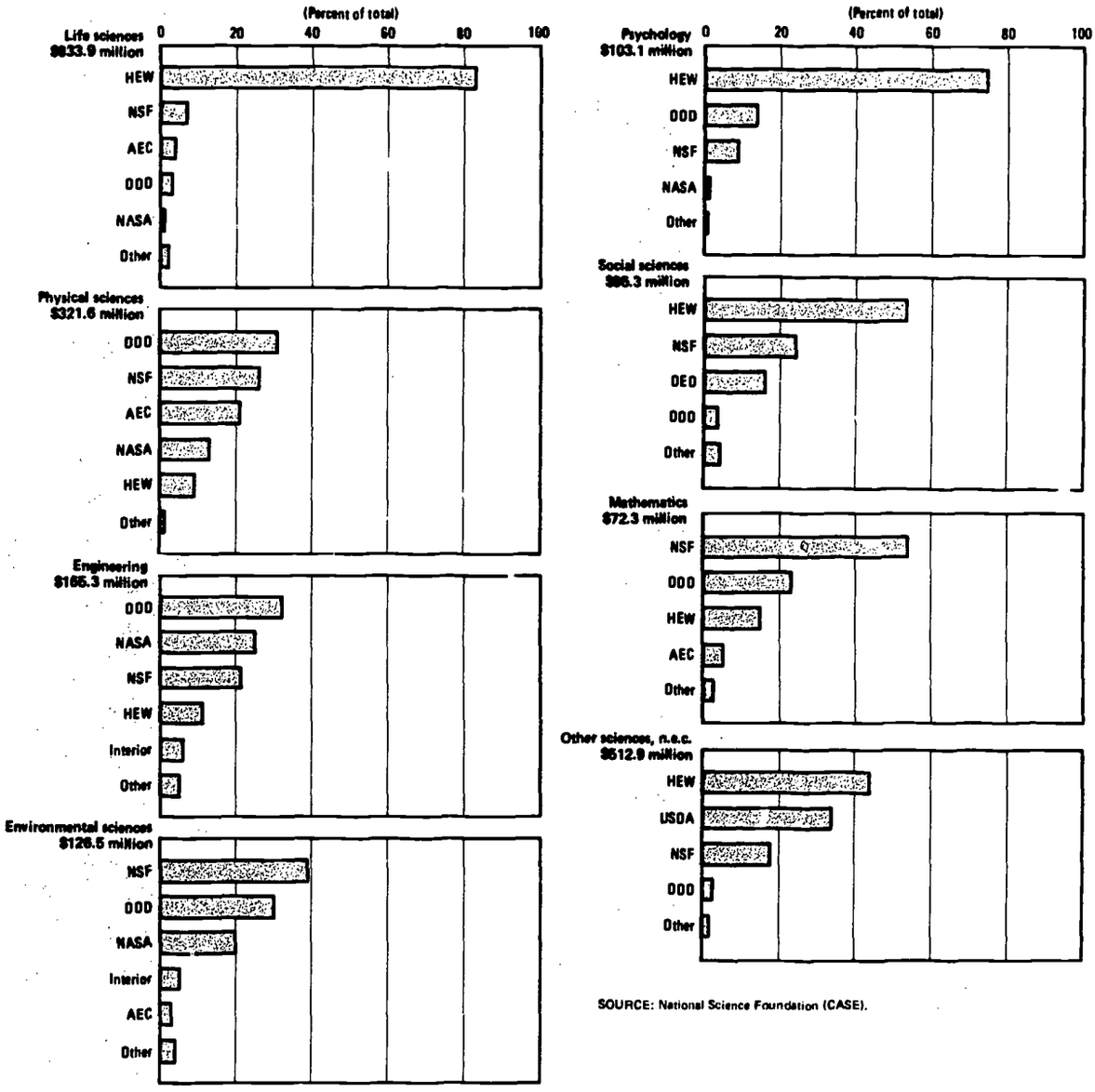

SOURCE: National Science Foundation (CASE).

Physical sciences

The physical sciences received 19 percent, or $322 million, of the total for the seven major fields in 1970.

Nearly nine-tenths of Federal support in the physical sciences went into physics and chemistry —$196 million and $86 million, respectively. The remaining funds were reported under astronomy—$33 million, and physical sciences, n.e.c. —$6 million.

The three leading agencies in total physical science support also figured significantly in the funding of physics; totals for these agencies were $79 million for DOD,[5] $55 million for AEC, and $42 million for NSF. Principal sponsors of work in chemistry were NSF—$30 million, HEW—$26 million, and DOD—$15 million.

Research and development accounted for 88 percent of total project support in the physical sciences. Astronomy showed the highest proportion of funds in the R&D category, 97 percent of its total of $33 million.

Engineering

Engineering funds totaling $165 million in 1970 were well dispersed among eight subfields, none of which accounted for less than 5 percent, or more than 27 percent, of total engineering support. Agencies classified $45 million as "engineering, n.e.c.," over three-fifths of which funded research and development. Electrical engineering received $34 million.

Together, DOD and NASA provided 58 percent of total engineering obligations.

After the physical sciences, engineering had the next highest R&D/total program support ratio. R&D activities averaged 86 percent of total support for all engineering and accounted for well over 90 percent of total activities in six of the eight engineering subfields.

Environmental sciences

Project support in oceanography totaled $40 million in 1970, making this field the leading area of environmental science activity conducted by universities and colleges. Following at somewhat lower levels were the atmospheric and geological sciences at $36 million and $34 million, respectively.

NSF and DOD provided more than nine-tenths of total Federal support for oceanography; each of these agencies awarded more than $18 million for projects in this field.

Approximately five-sixths of total obligations in the environmental sciences funded R&D projects. Nearly all of the remaining funds were divided among the following types of support: Facilities and equipment, $8 million; general support for science, $5 million; educational institutes, seminars, or conferences, $4 million; and manpower development, $2 million.

Psychology and social sciences

Although second to R&D in both psychology and the social sciences, manpower development comprised a much larger proportion of total program activities than in any of the other science fields. In the social sciences manpower development, which includes fellowships, traineeships, and training grants, amounted to 42 percent, or $40 million, of total obligations, while in psychology, manpower development activities represented 37 percent, or $38 million, of total funding. Program support in sociology exceeded that for the other social sciences.

[5] DOD dollar amounts for individual fields of science shown throughout the academic science and R&D sections of the report are estimated. See technical notes, page 28.

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Approximately five-sixths of total obligations in the environmental sciences funded R&D projects. Nearly all of the remaining funds were divided among the following types of support: Facilities and equipment, $8 million; general support for science, $5 million; educational institutes, seminars, or conferences, $4 million; and manpower development, $2 million.

Psychology and social sciences

Although second to R&D in both psychology and the social sciences, manpower development comprised a much larger proportion of total program activities than in any of the other science fields. In the social sciences manpower development, which includes fellowships, traineeships, and training grants, amounted to 42 percent, or $40 million, of total obligations, while in psychology, manpower development activities represented 37 percent, or $38 million, of total funding. Program support in sociology exceeded that for the other social sciences.

Mathematics

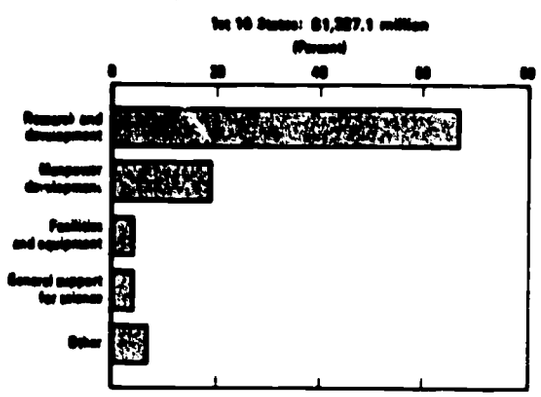
NSF and DOD together provided more than three-fourths of total Federal obligations for mathematics in 1970.

Nearly five-sixths of mathematics funding went into two types of activities: R&D projects, $45 million; and educational institutes, seminars, or conferences, $15 million.

GEOGRAPHIC PATTERNS OF SUPPORT

Universities and colleges in 10 States received $1,327 million or nearly three-fifths of Federal academic science obligations to all institutions of higher education. Led by California, New York, and Massachusetts, all of which have several prominent research institutions, these 10 States accounted for considerably higher levels of R&D support than the other States. R&D funding as a percent of total academic science in six of the 10 States exceeded the national average. Similarly, the share of academic science obligations used for manpower development projects, the second ranking activity in terms of Federal funding, was higher than the national figure in seven of the 10 leading States.

Federal academic science obligations to the 10 States receiving the largest amounts, by type of activity, FY 1970



SOURCE: National Science Foundation (CASE).

California led in Federal support for three of the eight categories of activity reported for this study: Research and development, facilities and equipment, and development of educational techniques and materials. The State also ranks first among all States in total population and total student enrollment. Principal sources of Federal support were HEW, 49 percent; and NSF, 19 percent. The University of California System accounted for nearly 60 percent of California's academic science total.

New York, placing second in total funds and population, ranked first in total number of recipient institutions (98) and in total bachelor's, master's, and Ph.D. degrees awarded in the sciences and engineering. Project support was concentrated in health and educational activities, with HEW accounting for 60 percent of the State total. Defense-related support made up only 8 percent of the State total compared to 14 percent for 1st-ranked California and 28 percent for third-ranked Massachusetts. The State University of New York System, comprising 27 of the State's 98 recipient institutions, received 14 percent of total Federal funds going to all of New York's institutions of higher education.

Massachusetts, ranking 10th in population and sixth in total science degrees awarded, was third in Federal academic science support in 1970. Nearly three-fourths of the Massachusetts total consisted of support to two institutions—the Massachusetts Institute of Technology and Harvard University. Academic science activities in Massachusetts were more heavily oriented toward research and development than in any other State. The $160 million obligated for R&D projects constituted more than three-fourths of all science obligations to academic institutions in the State. Defense-related activities amounted to $58 million—22 percent of total defense support among all States.

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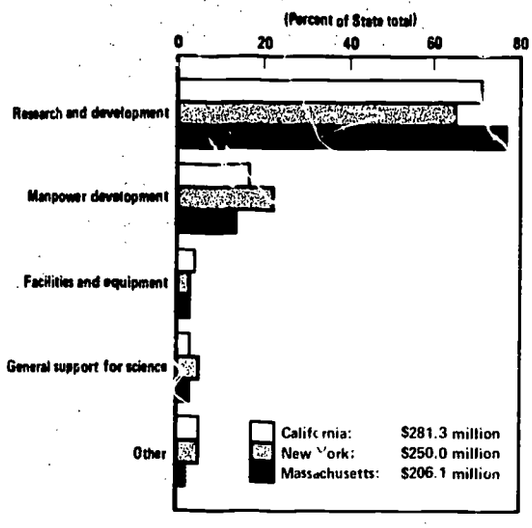


SOURCE: National Science Foundation (CASE).

The other seven States ranking among the first 10 were Illinois, Pennsylvania, Texas, Michigan, Ohio, North Carolina, and Wisconsin, with Federal support totals ranging from $119 million for Illinois to $56 million for Wisconsin. R&D funding for 6 of the 7 States accounted for 59 percent to 65 percent of each State's total. North Carolina showed the lowest share of obligations in the R&D category among the 10 States—55 percent. Funding of fellowships, traineeships and training grants, however, made up 25 percent of this State's total—the largest proportion for manpower development activities registered by any of the first 10 States and well above the U.S. average.

INSTITUTIONAL PATTERNS OF SUPPORT

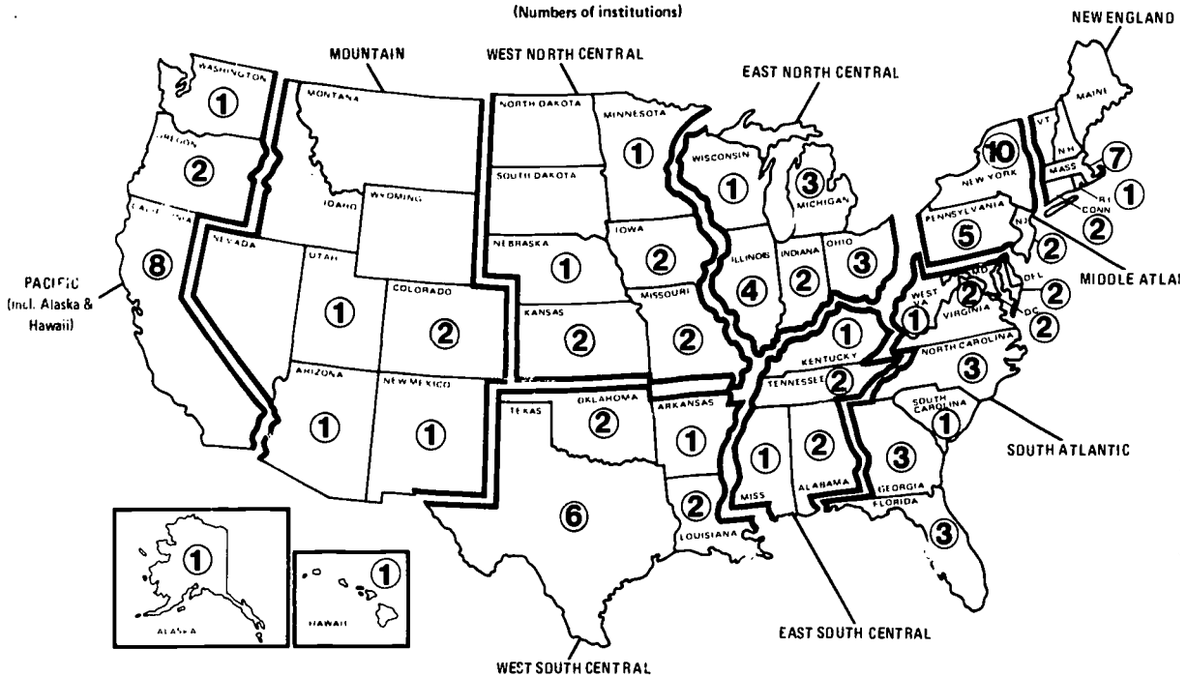
Thirty-four of the first 100 institutions were located in five States—New York, California, Massachusetts, Pennsylvania, and Illinois. These five States correspond with the leading five States in total funds received for academic science.

Six states located in the New England, Middle Atlantic, and East North Central divisions—New York, Massachusetts, Pennsylvania, Illinois, Michigan, and Ohio—placed 32 institutions on the first 100 list. The eastern regions of the United States continue to hold a wide margin over the western States in terms of representation on the top 100 list, with 63 institutions compared to 37. The eastern States, of course, also account for the predominant share of total population and total college enrollment—65 percent and 59 p cent, respectively. Ten States did not achi representation among the first 100 institutio

Federal agencies obligated 80 percent of t academic science funds in 1970 to the 100 l est recipient institutions. Research and devel ment and manpower development activities, two most heavily supported categories funded universities and colleges, proved to have highest levels of concentration with 86 perc and 80 percent, respectively, going to the 100 institutions. Much broader participat however, occurred for other programs, part larly in the development of educational techniq and materials and educational institutes, se

Geographic distribution of 100 universities and colleges receiving the largest amounts of Federal academic science support, FY 1970

(Numbers of institutions)



SOURCE. National Science Foundation (CASE).

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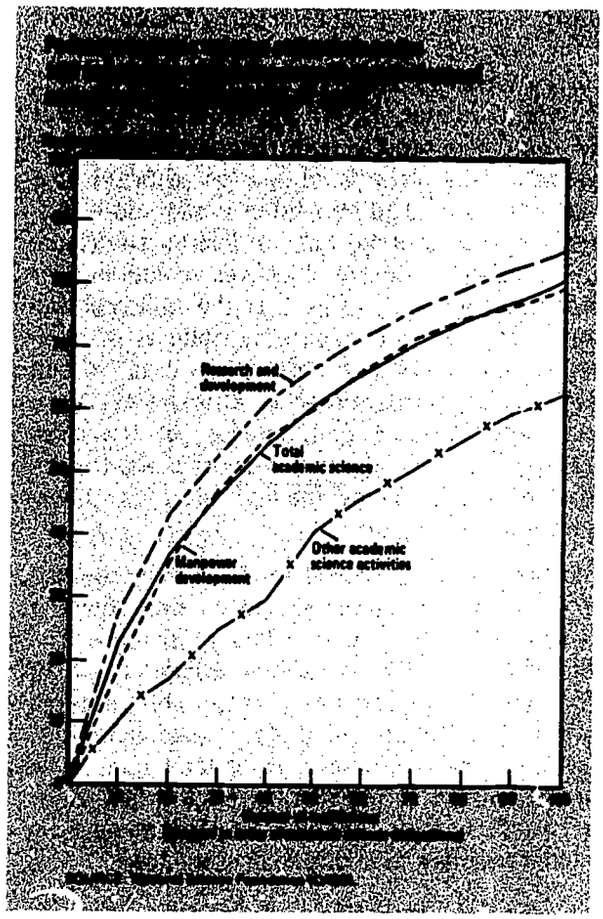
As a further indication of the relatively high level of concentration of Federal academic science funding, 23 institutions received 1 percent or more of the Federal total; six of these accounted for more than 2 percent each. Twenty-nine institutions accepted Federal R&D funds in amounts exceeding 1 percent of all Federal academic R&D obligations, nine of which received amounts exceeding 2 percent of the R&D total.

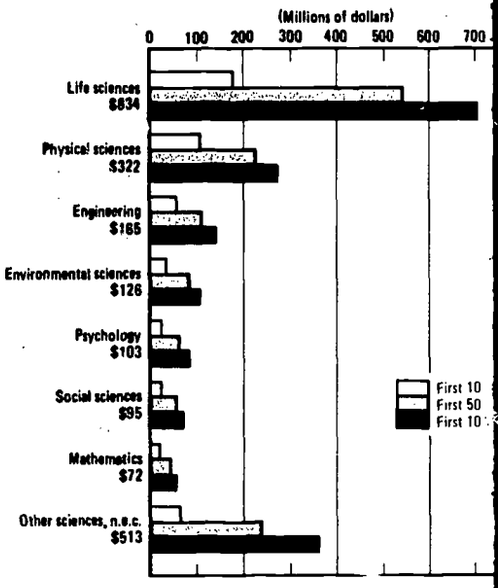
bution of 100 universities and colleges receiving the largest amounts of Federal academic science support, FY 1970



The patterns of Federal support among institutions is in large part determined by the objectives of the program activity. Agencies utilize the resources found at larger institutions for the bulk of their academic R&D requirements. Facilities and equipment and general support for science awards, on the other hand, are less concentrated among the top 100 institutions and more dispersed among a broad base of institutions (table 1). One of the primary objectives of funding for these categories of support is the building and strengthening of the science capabilities of institutions that exhibit the potential to improve and advance their academic science programs. More than three-fifths, or $121 million, of the combined funding for these two categories went to institutions ranking below the first 100 in total academic science support.

In two fields individual institutions accounted for considerably higher shares of total funding than in any of the other fields of science. The University of California at San Diego, home of one of the Nation's major oceanographic research centers, the Scripps Institute of Oceanography, received more than one-tenth of total funding in the environmental sciences. In engineering fields the Massachusetts Institute of Technology accounted for more than one-sixth of the total.

Federal academic science obligations to universities and colleges receiving the largest amounts, by field of science, FY 1970



SOURCE: National Science Foundation (CASE).

Table 1.—Distribution of Federal obligations for academic science, by group rankin

[Dollars in thousands]

Institutions (grouped in order of academic science obligations)	Total		Research and development	Manpower development	Facilities and equipment	Ge su sc
	Amount	Percent				
1- 10	$504,939	100.00	75.08	16.74	3.37	
11- 50	850,923	100.00	65.25	20.49	2.66	
51-100	434,128	100.00	60.06	19.01	2.61	
Other	440,862	100.00	45.55	19.96	8.14	

SOURCE: National Science Foundation (CASE).

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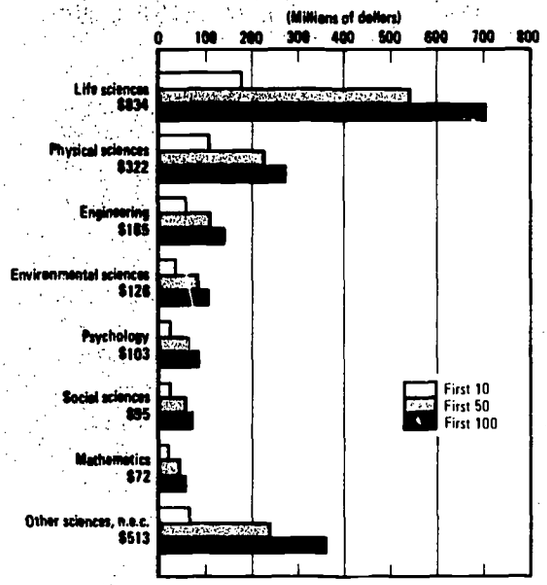
Federal academic science obligations to universities and colleges receiving the largest amounts, by field of science, FY 1970



SOURCE: National Science Foundation (CASE).

Field of science totals for the first 10 institutions in academic science support ranged from $18 million in mathematics to $174 million in the life sciences. Although life science projects were awarded the largest amount of support, they actually showed the lowest level of concentration among the seven major categories—21 percent of total life science obligations to 10 institutions. Projects in the physical sciences, amounting to $105 million, or 33 percent of total obligations in the physical sciences, showed the highest concentration of funding at the first 10 institutions.

The first 100 institutions received more than four-fifths of total Federal academic science funding. There was little deviation from this figure among the specific major science categories. Support levels ranged from 73 percent in the social sciences to 85 percent in the physical sciences and engineering.

Table 1.—Distribution of Federal obligations for academic science, by group ranking and type of activity, fiscal year 1970
[Dollars in thousands]

Total		Percent distribution							
Amount	Percent	Research and development	Manpower development	Facilities and equipment	General support for science	Research institutes, seminars, or conferences	Educational institutes, seminars, or conferences	Development of educational techniques and materials	Other related activities
$504,939	100.00	75.08	16.74	3.37	1.66	.06	.46	.38	2.25
850,923	100.00	65.25	20.49	2.66	4.12	.06	.99	.50	5.92
434,128	100.00	60.06	19.01	2.61	6.07	.06	1.85	.60	9.74
440,862	100.00	45.55	19.96	8.14	7.00	.06	5.94	9.13	4.22

ation (CASE).

PART II

major types of federally funded academic science activities

SECTION 1.

research and development

Federal R&D support at universities and colleges encompasses three elements: (a) Funds for R&D performance, with particular emphasis on basic and applied research and but a minor portion of the obligations allocated to development; (b) funds for research institutes, seminars, and conferences; and (c) funds for research facilities, i.e., for the basic construction and operation of research laboratories and equipment.

This section deals primarily with the first two of these elements; Federal support for research facilities and equipment are discussed in a later section of the report concerning Federal funds for academic science facilities of all types.

RESEARCH AND DEVELOPMENT

In 1970 the nine Federal agencies whi
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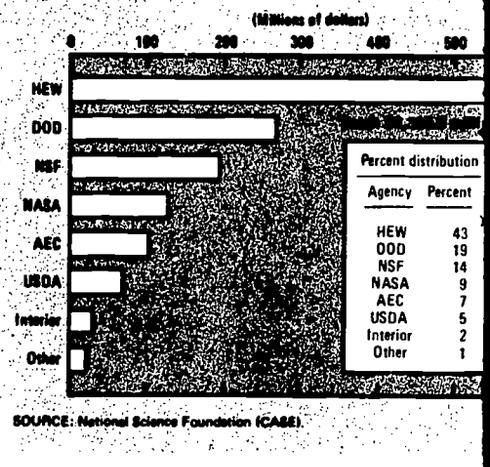
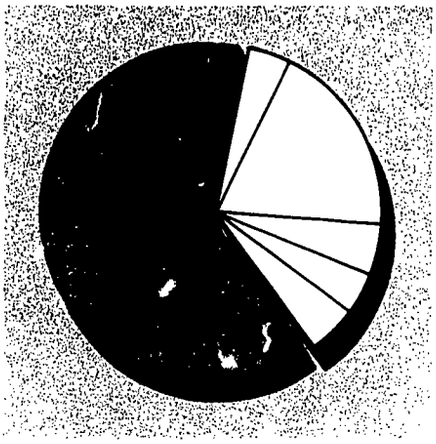
Federal academic R&D obligations, by agency, FY 1970

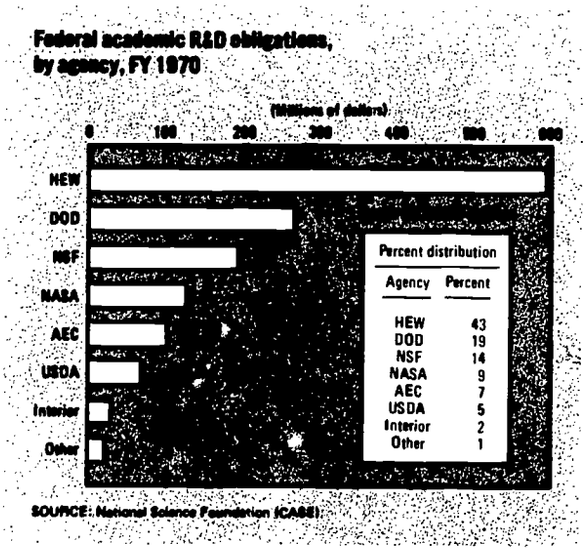


SOURCE: National Science Foundation (CASE).



RESEARCH AND DEVELOPMENT

In 1970 the nine Federal agencies which provide more than 99 percent of the Government's total support for academic R&D activities obligated $1.4 billion to universities and colleges for research and development, including $1 million for research institutes, seminars, and conferences and $16 million for research facilities and equipment.

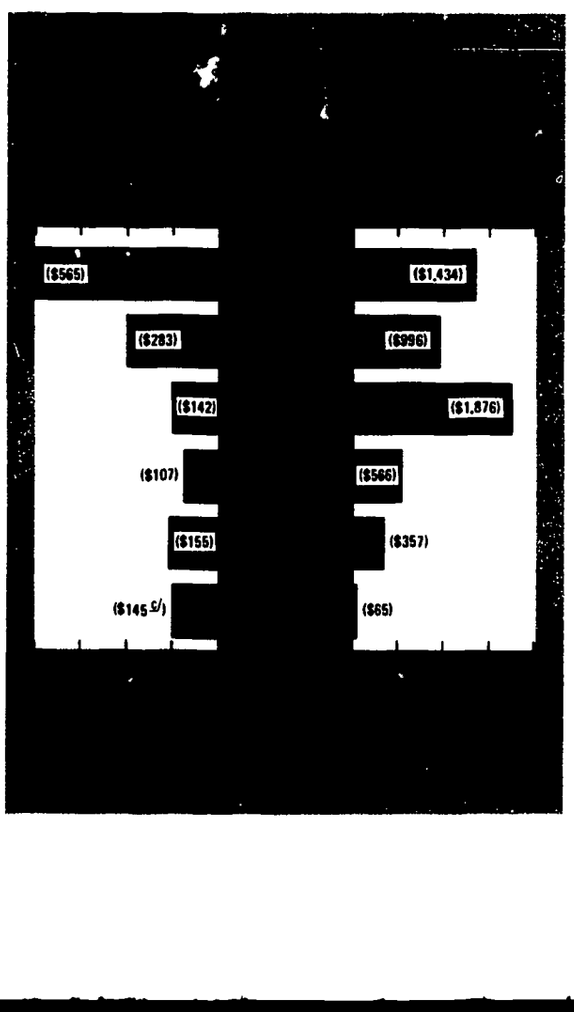


Institutions of higher education account for approximately one-tenth of the total Federal R&D budget. Among individual agencies, however, the level of funding directed toward universities and colleges for research and development amounted to about four-fifths of total R&D obligations in the case of NSF, and more than one-half of HEW. DOD and NASA, on the other hand, distributed less than one twenty-fifth of their total R&D funds to academic institutions.

NIH supplied more than three-fourths of the $594 million HEW reported for academic research and development. The components responsible for leading portions of this were the National Heart and Lung Institute, the National Cancer Institute, the National Institute of Arthritis and Metabolic Diseases, and the National Institute of General Medical Sciences.

Fields of science

The field of science distribution of Federal academic R&D support—92 percent research-oriented—showed a marked difference from the comparable pattern of overall Federal research funding. A comparison of academic performers with the Federal total shows that for the latter, engineering ranked first by a relatively large margin, receiving most of its support from DOD and NASA. Among academic performers, on the other hand, life sciences ranked first by a similarly large margin, whereas engineering was limited to 10 percent of Federal academic R&D funding.



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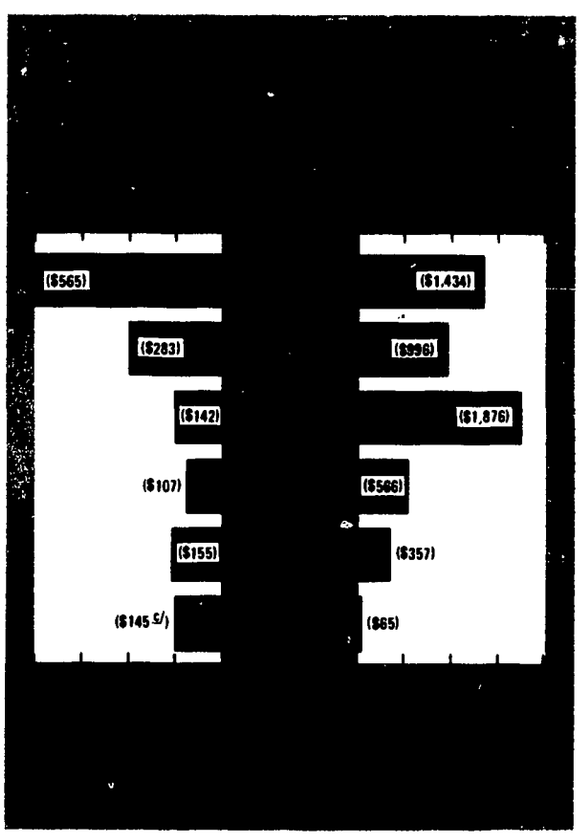
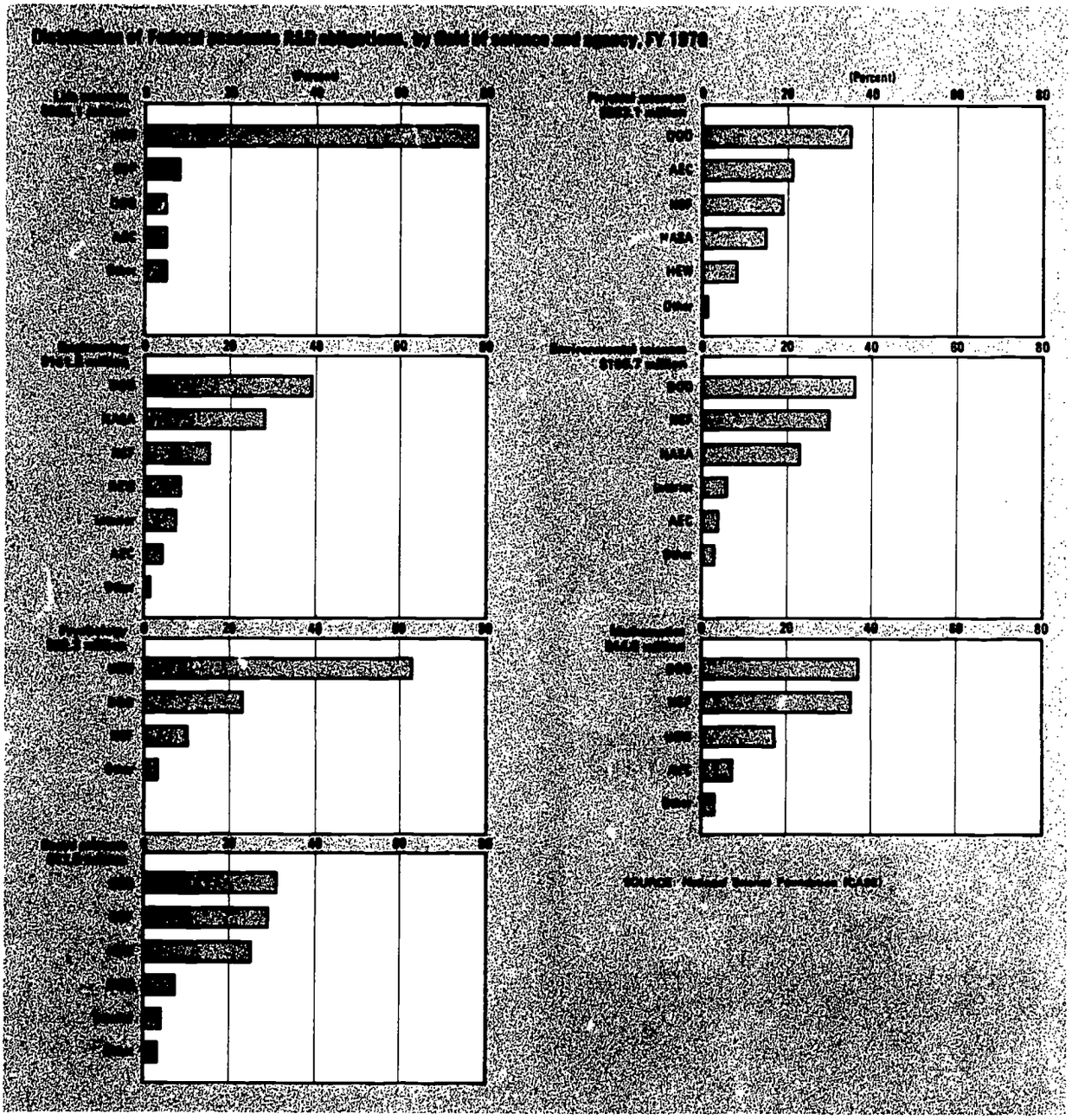


Compared to the total research effort, universities and colleges received amounts ranging from somewhat less than one-tenth (engineering) to about three-fifths (psychology) of the Federal total; mathematics and life sciences received about two-fifths of the Federal total in each field. For each of the remaining fields of science, universities and colleges received shares amounting to one-third or less of the respective Federal research funding in all sectors.

Although DOD provided only one-fifth of the R&D obligations to universities and colleges, it ranked first among Federal sponsors of R&D projects in four of the seven major fields of science. HEW headed the list of sponsors of life science and psychology research and development. Eighty percent of the Office of Economic Opportunity's (OEO) total academic R&D obligations supported projects in the social sciences, making that agency the major Federal sponsor in this field.



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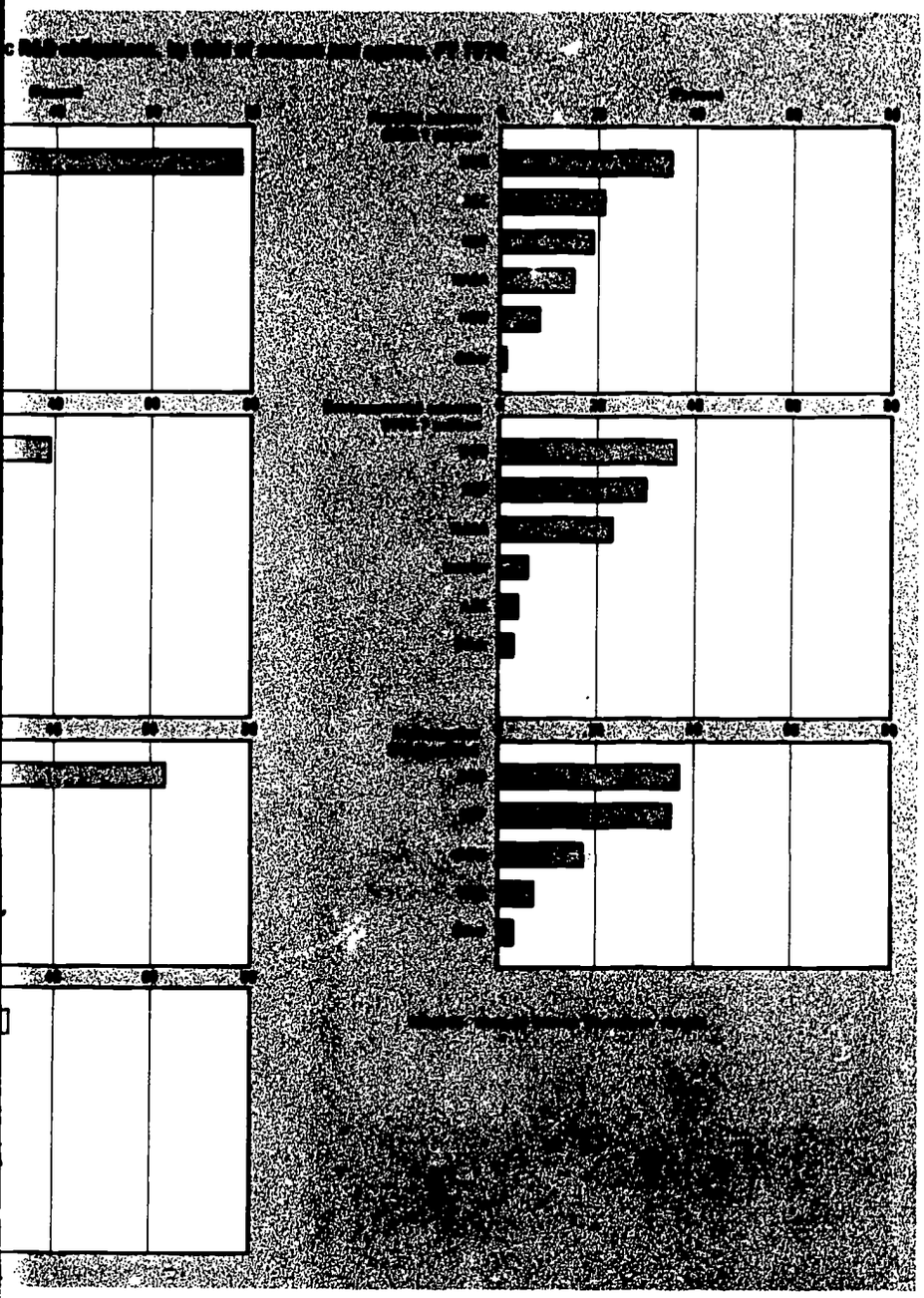


Regardless of their respective missions, Federal agencies sponsor a wide variety of R&D projects; six of the nine agencies participating in this study provided some support for work in each of the major fields of science. Of the three exceptions, AEC reported no funding in only two fields, psychology and the social sciences; the Department of Commerce confined its activities to the physical and environmental sciences, and OEO, to the social and life sciences and to psychology.

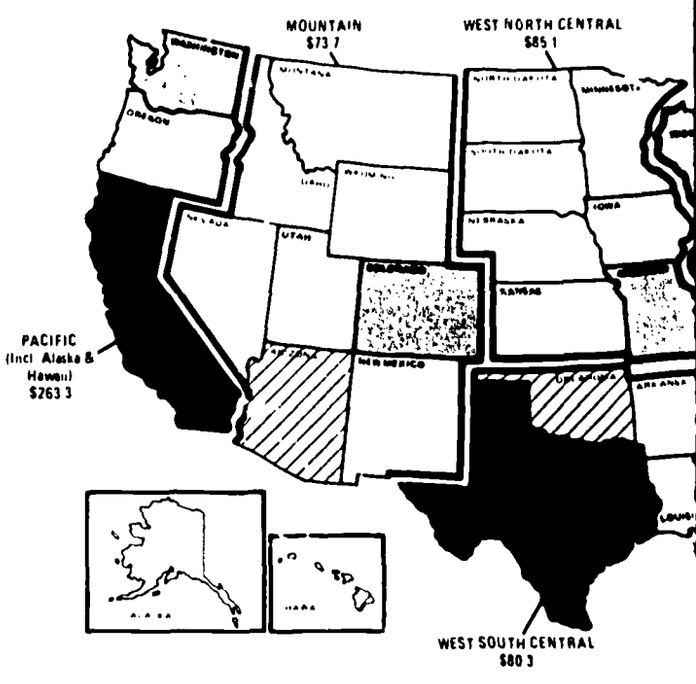
Geographic patterns of support

The geographic pattern of Federal R&D support to universities and colleges closely parallels the geographic pattern of institutions with proven science capabilities. This is clearly demonstrated by the similarity between the distributions of Federal academic R&D funding and the number of science, engineering, and medical doctorate degrees awarded, an indication of strong graduate science and engineering departments. Institutions in five of the six States receiving the largest amounts of Federal R&D obligations accounted for 40 percent of total R&D funds, and awarded 39 percent of all science and engineering Ph.D. degrees and medical and dental doctorates. The exception occurred in Massachusetts where the share of Federal R&D funds exceeded that of degrees by a ratio of more than 2 to 1. This atypical situation was caused chiefly by the large amounts obligated by DOD and NASA for defense- and space-related research and development carried on at the Massachusetts Institute of Technology.

HEW was the leading source of Federal R&D support in 39 of the 50 States plus the District of Columbia and outlying areas.

Geographic distribution of Federal academic R&D

(Millions of dollars)
Total, $1,359.9



Outlying areas (Puerto Rico, Virgin Islands, and Guam), $4.1
SOURCE: National Science Foundation (CASE)

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Geographic distribution of Federal academic R&D obligations, FY 1970

(Millions of dollars)
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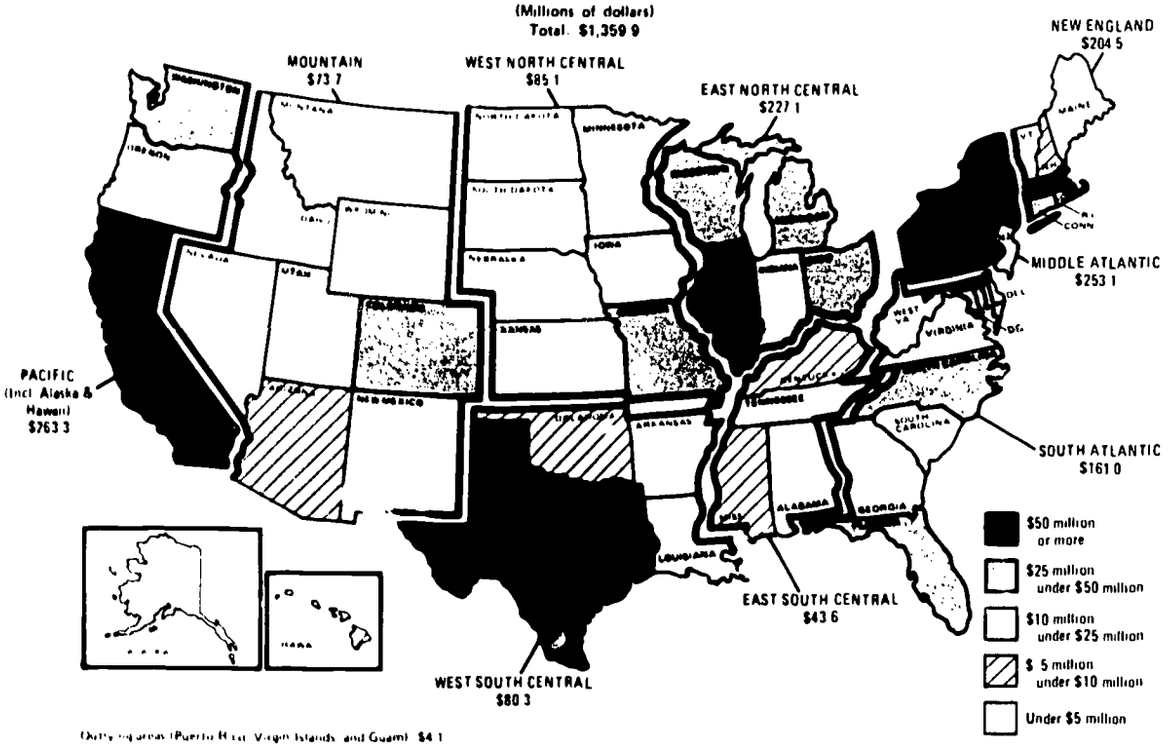


Outlying areas (Puerto Rico, Virgin Islands, and Guam) $4 1
SOURCE: National Science Foundation (CASE)

Institutional patterns of support

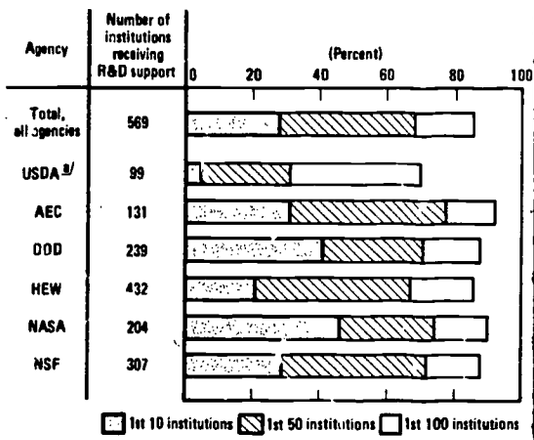
Federal agencies sponsored R&D projects at 569 universities and colleges in 1970. The leading recipient was the Massachusetts Institute of Technology which accounted for nearly 7 percent of the Government's R&D obligations to institutions of higher education; DOD obligated 17 percent of its academic R&D funds to MIT. The closest institution to MIT in terms of Federal R&D funding was Stanford University with $39 million.

Each sponsoring agency reported three-fifths or more of its academic R&D obligations distributed among the first 100 recipients of Federal R&D funds. Five agencies obligated amounts representing from 86 percent to 92 percent of their R&D totals to this group of institutions; all five agencies sponsored R&D projects at each of the 10 leading universities and at least 93 of the top 100 institutions. For HEW, which sponsored R&D projects at each of these 100 institutions, this group comprised less than one-fourth of the institutions that received funds from HEW for research and development.

A somewhat different pattern emerges when institutions are ranked according to each agency's support: AEC, NASA, and USDA each directed 85 percent or more of their respective R&D funds to 50 institutions; HEW, DOD, and NSF obligated from 72 percent to 78 percent of their respective support to 50 universities and colleges.

Eleven universities received Federal R&D support in excess of $25 million in 1970, each accounting for 2 percent or more of the Federal total. As a group, these 11 institutions received 30 percent of all Federal academic R&D funds. In contrast, the 407 universities and colleges for which total R&D support amounted to less than $1 million accounted for 4 percent of the Federal total. The majority of this latter group (285 institutions) received less than $100,000.

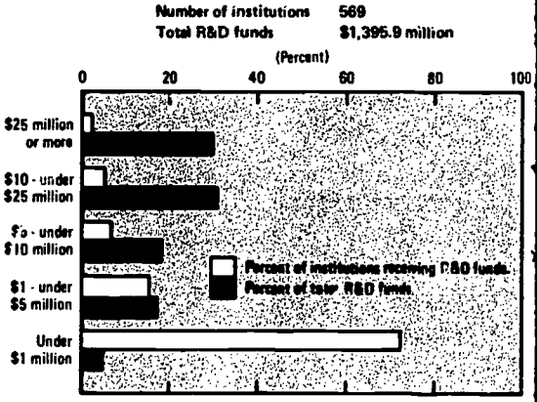
Federal R&D obligations to the 100 universities and colleges receiving the largest amounts, by agency, FY 1970



a/ Level of concentration for USDA is understated because of exclusion of a $2.2 million award to the University of California system office for distribution among the Berkeley and Davis campuses (included in 1st 100 institutions) and the Riverside campus.

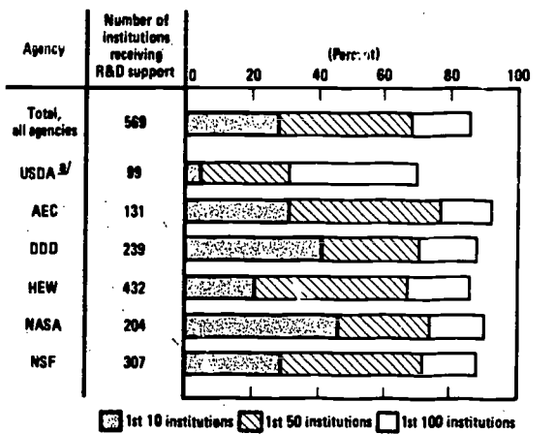
SOURCE: National Science Foundation (CASE).

Distribution of Federal academic R&D obligations and number of recipient institutions, by size of R&D program, FY 1970



SOURCE: National Science Foundation (CASE).

Federal R&D obligations to the 100 universities and colleges receiving the largest amounts, by agency, FY 1970



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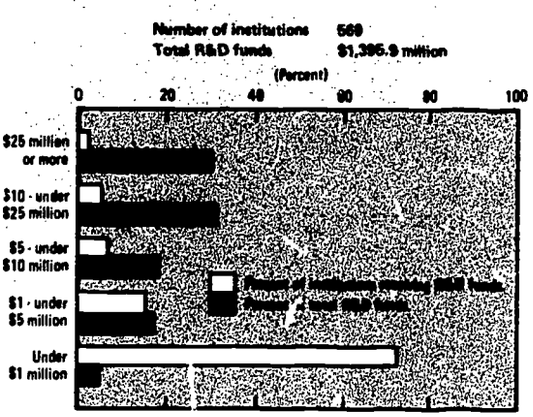


SOURCE: National Science Foundation (CASE).

RESEARCH INSTITUTES, SEMINARS, OR CONFERENCES

Research institute, seminar, or conference projects are defined as those projects supporting meetings of scientists and engineers whose objective is a fuller understanding of a specific or general problem or field of study with the primary purpose of exchanging information on current research and development. This framework encompasses a wide scope of science activities, ranging from meetings where funds are utilized to defray travel and accommodation costs of participants and administrative expenses, to longer term projects which include payment of salaries or stipends to participants. Excluded from the discussion in this section are institutes, seminars, or conferences aimed at the improvement of teaching, or activities aimed at the development of education techniques or materials, which are separately discussed in section 3.

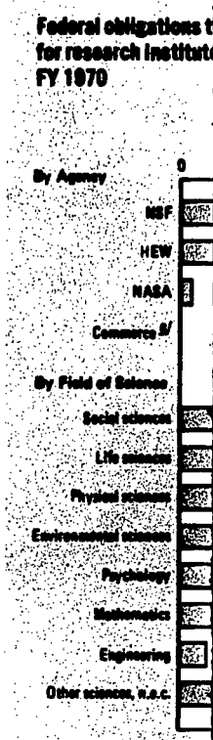
Federal support for this aspect of academic R&D activities comprised less than one-tenth of one percent of R&D obligations (including R&D plant) to universities and colleges in 1970. Two agencies, NSF and HEW, supplied the major share of these funds, with NASA and Commerce together accounting for less than $50,000.

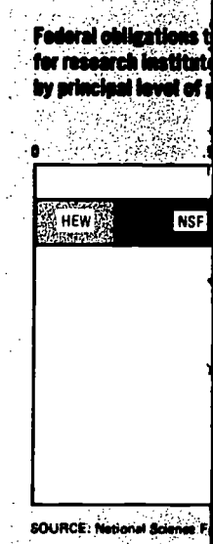
The largest share of the $1.4 million total financed meetings dealing with social sciences. NSF was the sole sponsor of the activities in this field as well as in the field of mathematics. The environmental sciences and engineering were supported almost entirely by NSF, with Commerce providing $3,000 for environmental sciences and NASA, $2,000 for engineering. The major portion of NSF environmental science support consisted of $110,000 obligated to the Woods Hole Oceanographic Institution for meetings related to oceanography.

HEW—principally the Health Services and Mental Health Administration—accounted for 76 percent of the funding in psychology and 45 percent of life science obligations. Except for some $66,000 reported under "Other sciences, n.e.c.," this was the extent of HEW's funding of research institutes, seminars, or conferences.

A total of 47 institutions participated in this type of endeavor, with financial support ranging from $111,000 to the University of Michigan for several projects to $1,000 to Stanford University.

More than one-half of the $1.4 million funded meetings at which university and college faculty were the principal attendees. Obligations for these meetings comprised all of NASA's support, 98 percent of HEW's funds and 39 percent of NSF's total. All but 5 percent of the remaining $659,000 financed meetings primarily directed toward science and engineering graduate students.





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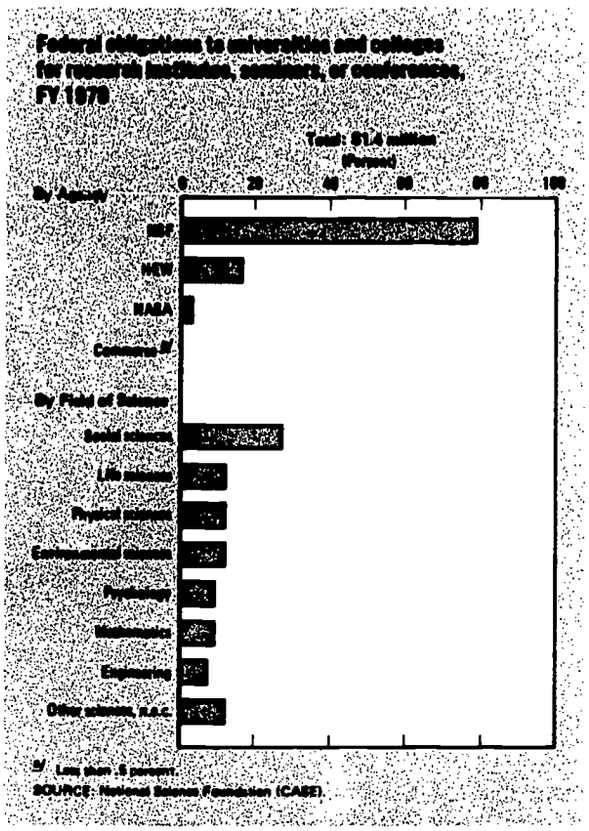
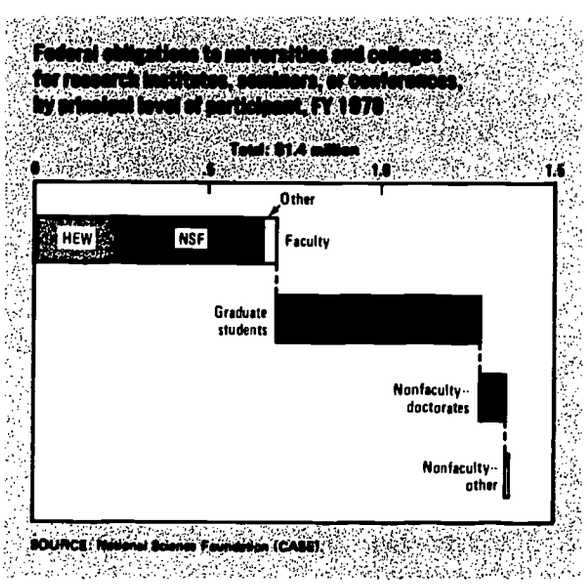
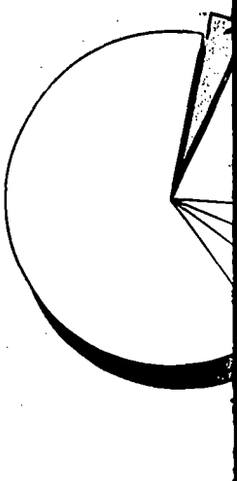




SECTION 2.

facilities and equipment



The costs of construction, renovation and operation of science facilities for research and education and related equipment continue to rise. An increasing number of institutions of higher education are unable to command the necessary financial resources to meet these costs without Federal assistance. Much of the Government's financial support for science facilities and equipment is on a "cost sharing" basis where Federal agencies provide a portion of the costs, usually 50 percent.

Included among the types of science facilities financed with Federal assistance are the following: Research laboratories and equipment, classrooms and laboratories, teaching and training equipment, computers and computer facilities, and hospital and medical facilities.

More than 98 percent of the Federal support to universities and colleges for science facilities and equipment came from three agencies. OE construction grants for graduate science facilities and NIH funding of basic operating expenses of existing facilities comprised the largest portion of HEW's $50 million total science facilities and equipment awards. All of OE's $30 million financed classroom and laboratory construction.

NSF science facilities and equipment support showed greater diversification than that of other Federal agencies, with obligations reported for each of the major research and teaching facilities categories except hospital and medical facilities.

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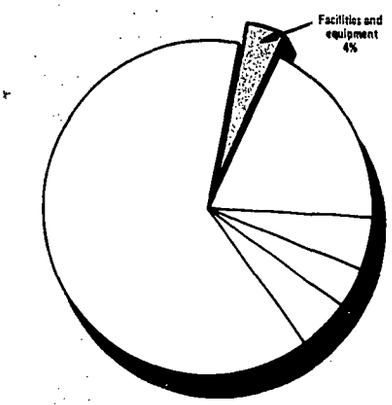

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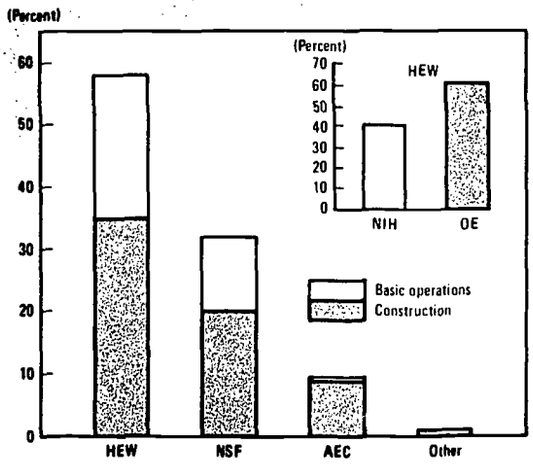
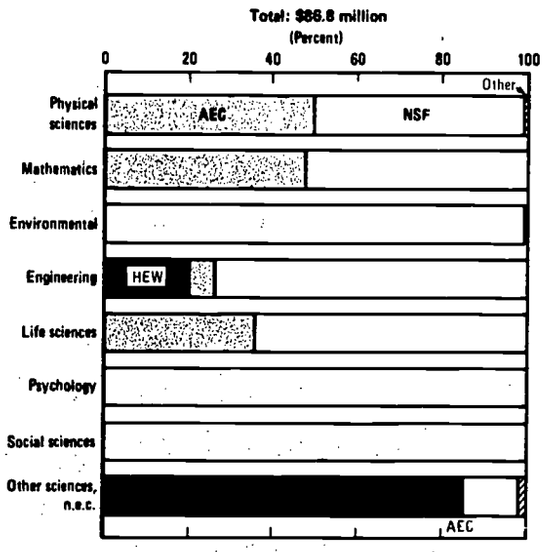
Federal obligations for academic science facilities and equipment, by type of support and agency, FY 1970



SOURCE: National Science Foundation (CASE).

Federal obligations for academic sciences facilities and equipment, by field of science and agency, FY 1970



SOURCE: National Science Foundation (CASE).

FIELDS OF SCIENCE

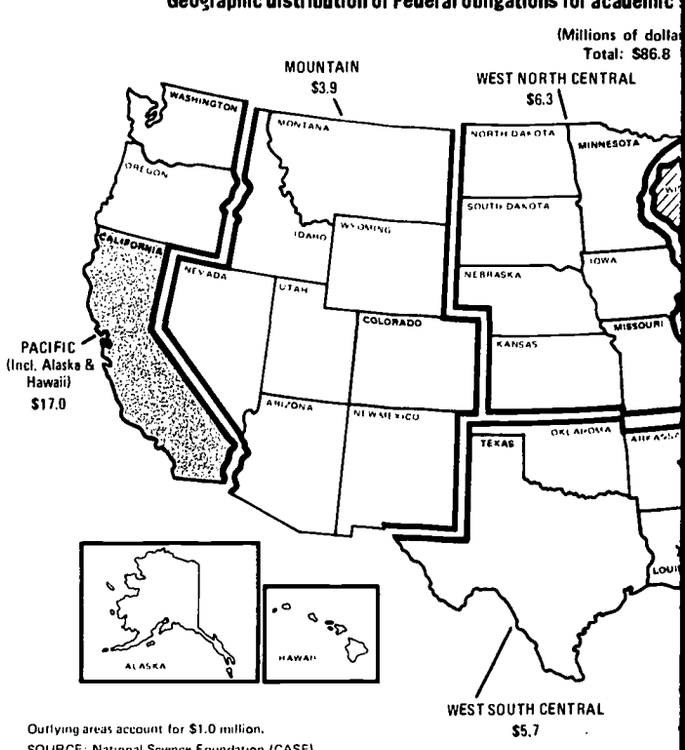
The distribution of Federal funds for science facilities and equipment among the major fields of science at institutions of higher education as reported by sponsoring agencies in this study is more a reflection of NSF and AEC obligation patterns than total Federal obligations since more than two-thirds, or $58 million, of the Federal total could not be assigned to any one specific field of science and was therefore reported under the category "other fields, n.e.c." HEW accounted for $49 million, or four-fifths, of "other science" obligations.

The distribution of the remaining funds, $28 million, showed NSF to be the only source of Federal support for facilities and equipment in psychology and the social sciences and the source of 99 percent of the funding in the environmental science field. Since HEW is the leading Federal sponsor of psychology and life sciences research and a major contributor to social science research at universities and colleges, the totals shown for these fields are in all likelihood considerably understated.

GEOGRAPHIC PATTERNS OF SUPPORT

Federal obligations for research laboratories and equipment showed the highest concentration of funds provided to universities and colleges for all types of facilities and equipment. The four States that received more than $5 million for science facilities and equipment support accounted for 52 percent of the funds for research-associated plant and equipment compared to 48 percent of computer facilities support and 24 percent of classroom and laboratory construction

Geographic distribution of Federal obligations for academic



Outlying areas account for $1.0 million.
SOURCE: National Science Foundation (CASE).

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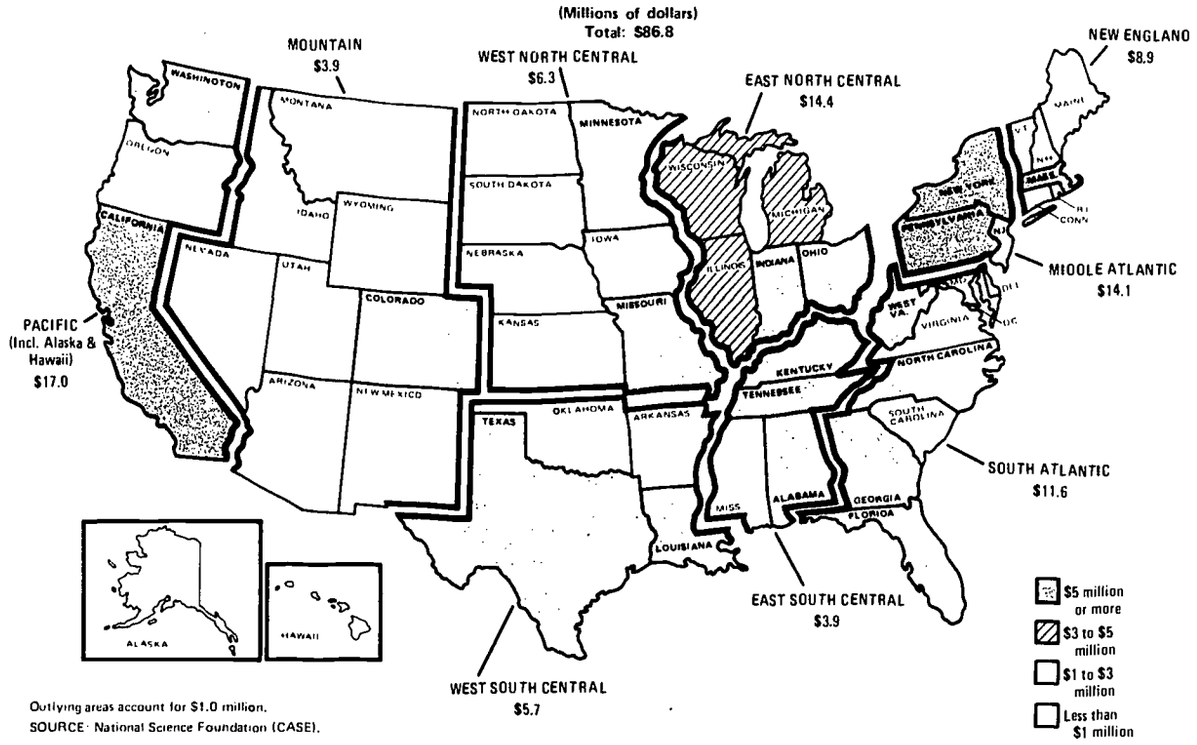
HEW supplied 50 percent of the funds obligated to the four States that received $5 million or more for science facilities and equipment. NSF and AEC supplied virtually all of the remainder—37 percent and 13 percent, respectively. In terms of the percent of each agency's total obligated to the leading four States, however, the order is reversed; AEC obligated nearly one-half, or 49 percent, of its funds to these States, followed by NSF with 41 percent and HEW with 31 percent.

Geographic distribution of Federal obligations for academic science facilities and equipment, FY 1970



Outlying areas account for $1.0 million.
SOURCE: National Science Foundation (CASE).

INSTITUTIONAL PATTERNS OF SUPPORT

Of the 503 universities and colleges receiving facilities and equipment support, the first 100 accounted for 83 percent of all obligations (table 2). The largest single recipient was the University of California-Los Angeles. Two other California

Table 2.—Facilities and equipment obligations to universities and colleges receiving the largest amounts, ranked in various groups, compared to academic science obligations and R&D obligations, fiscal year 1970

Number of institutions (ranked in order of facilities and equipment obligations)	Percent of facilities and equipment obligations	Percent of academic science obligations	Percent of R&D obligations
Total, all institutions.	100.00	100.00	100.00
First 10	24.00	17.95	21.56
Second 10	13.52	6.77	7.25
Third 10	10.31	8.31	8.78
Fourth 10	8.54	5.17	4.76
Fifth 10	6.89	6.98	7.34
First 50	63.25	45.19	49.70
Second 50	19.28	11.60	11.80
First 100	82.54	56.79	61.49
All other	17.46	43.21	38.51

SOURCE: National Science Foundation (CASE).

PATTERNS OF SUPPORT

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...	19.28	11.60	11.80
....	82.54	56.79	61.49
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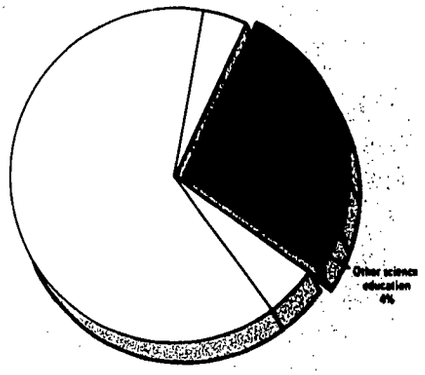
Science Foundation (CASE).

universities, University of California at Davis and at San Diego, also appeared among the top ten. Support for these three universities totaled $6.7 million, almost one-half of California's share of facilities and equipment funds and 9.3 percent of total top 100 institution funds.

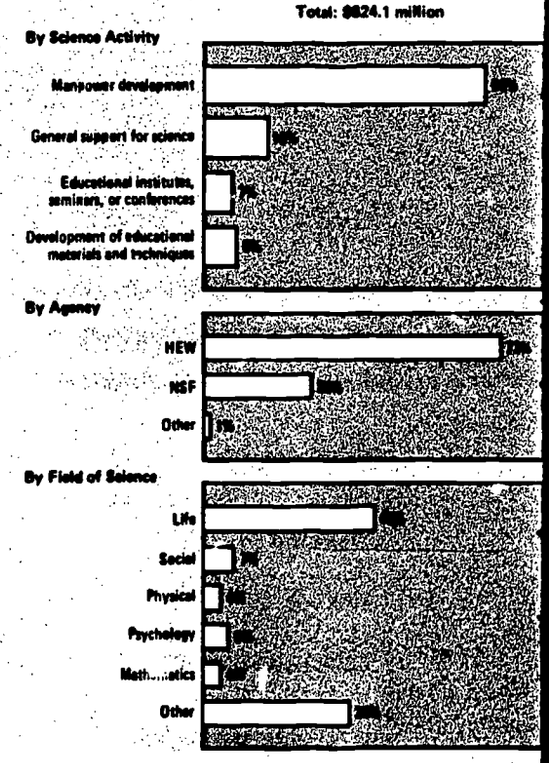
The pattern of distribution of 1970 Federal science facilities and equipment support, in terms of the amounts obligated to a specified number of institutions included in various ranked groupings, followed closely that reported for total Federal academic science funding; 80 percent of facilities and equipment obligations went to 100 institutions compared to 83 percent of total academic science support. However, since the first 100 recipients of facilities and equipment funds were not necessarily the same institutions ranking among the first 100 in terms of total academic science support, analyses based on individual institutions shows a somewhat different picture. For example, the 50 institutions that received the largest amounts of facilities and equipment funds —63 percent of the total—accounted for 45 percent of total academic science obligations and 50 percent of Federal R&D funds; comparable data for the first 100 recipients yield percentages of 83 percent, 57 percent, and 61 percent, respectively. A ranking of institutions based on total academic science obligations shows that the first 100 recipients accounted for 59 percent of science facilities and equipment support, 80 percent of total academic science funds, and 86 percent of R&D funds.



In fiscal year 1970 the Federal Government allocated $624 million for science education. This represented 28 percent of the academic science total. Science education is comprised of the following categories of support: manpower development; general support for science; educational institutes, seminars, or conferences; and development of educational techniques and materials. These efforts provide funds for: (1) training individuals in various fields of scientific endeavor; (2) strengthening institutional capabilities for science education; and (3) upgrading the quality of learning in the sciences through improved science curriculums.

Science education is also served by other types of science activities supported by the Federal Government. For example, research grants provided valuable opportunities for graduate students to learn something of the research process as well as to increase their knowledge of the particular area under study. Furthermore, the science facilities and equipment paid for with the help of Federal funds provide an important teaching resource to institutions of higher education.

Federal obligations to universities and colleges for science education, FY 1970

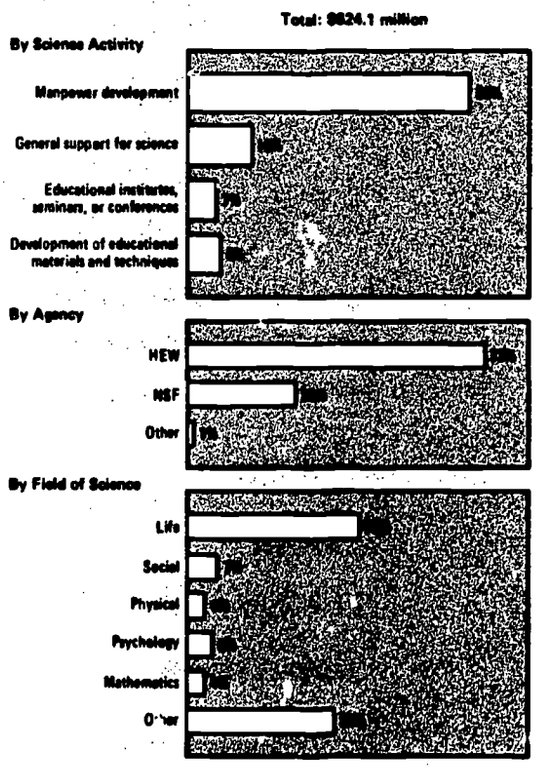


SOURCE: National Science Foundation (CASE).

SECTION 3.

science education

Federal obligations to universities and colleges for science education, FY 1970



SOURCE: National Science Foundation (CASE).

Federal sponsors of science education projects at universities and colleges directed most of their support to the training of individual students through fellowships, traineeships, or other training grants. The Federal programs chiefly responsible for the emphasis on science manpower development originated within HEW, specifically NIH and the Health Services and Mental Health Administration (HSMHA), which explains the predominance of support for the life sciences.

NSF and HEW (Office of Education) provided the major stimulus for projects concerned specifically with improvement of the quality of science education.

MANPOWER DEVELOPMENT

Federal obligations for manpower development to institutions of higher education totaled $429 million in 1970—19 percent of total academic science funding. This support provides training opportunities mostly through fellowships and traineeships for individuals at various educational levels. The purpose is to develop well-trained scientific manpower as well as to encourage individuals in their pursuit of scientific knowledge and experience.

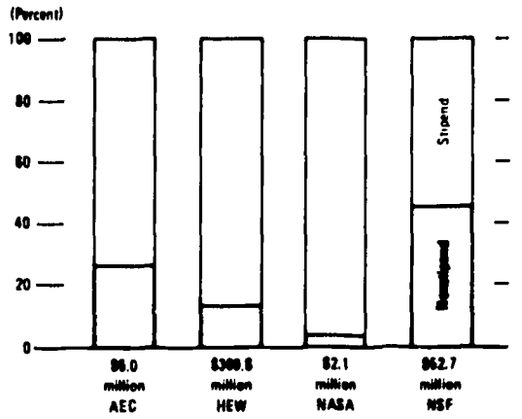
Nearly nine-tenths of the Government's manpower development funds in 1970 supported training of individuals in the areas of mental health and the medical sciences, sponsored by HEW. Fellowship, traineeship, and training grant obligations comprised 82 percent of HEW's science education support, more than two times the amount of NSF support for all science education activities.

Manpower development accounted for a smaller share of NSF's total science education support—about one-third.

The relatively small manpower development programs of AEC and NASA concentrated mainly on graduate training grants and graduate and postdoctoral fellowships in the life sciences and engineering.

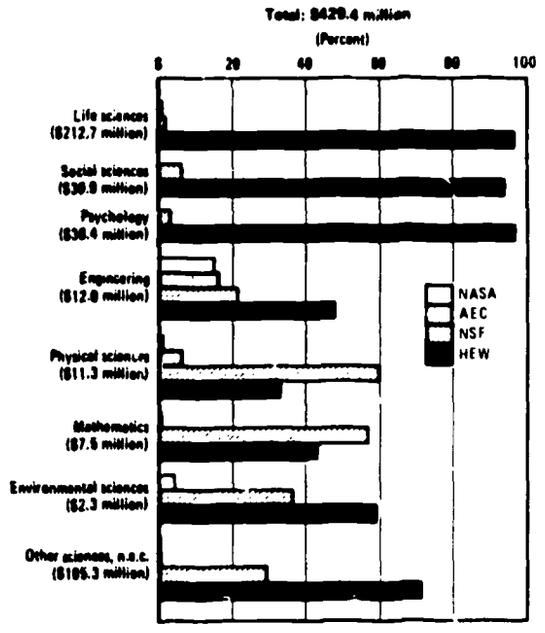
The $429 million for manpower development included funds for (1) the direct support (stipend) of the individual recipient of the fellowship or traineeship and (2) institutional support (nonstipend). The nonstipend payment covers tuition and fees for the individual recipient and other cost-of-education allowances for the institution. The cost-of-education allowances as part of the fellowship and traineeship grants are designed to strengthen an institution's graduate science program. In comparison to other agencies, NSF's nonstipend payments comprised a substantially higher proportion of its total manpower development funding.

Nonstipend payments to universities and colleges as a percent of an agency's manpower development obligations, FY 1970



SOURCE: National Science Foundation (CASE)

Federal obligations to universities and colleges for manpower development, by field of science and agency, FY 1970



SOURCE. National Science Foundation (CASE).

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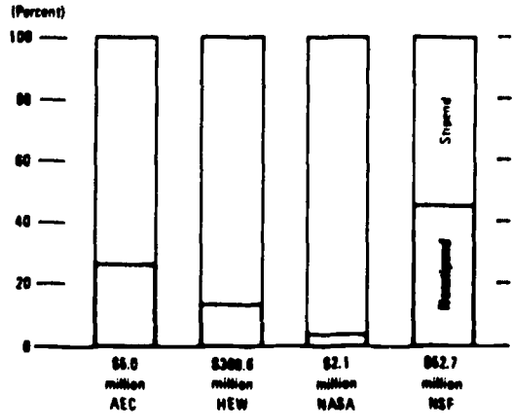

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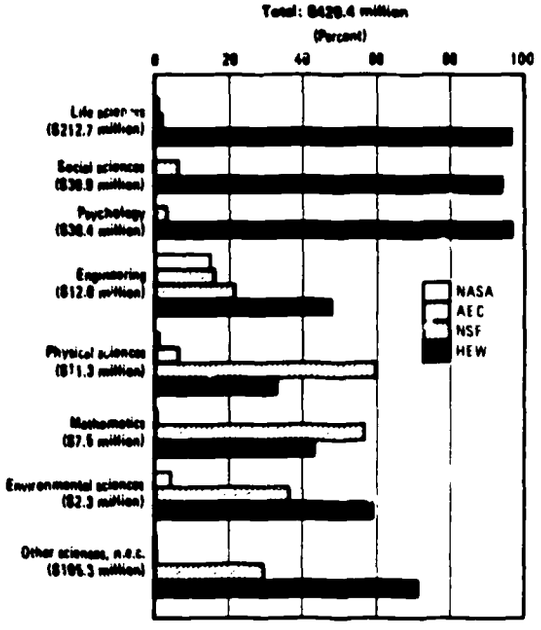


SOURCE: National Science Foundation (CASE)

Fields of science

The influence of HEW funding shows clearly in the distribution of nearly one-half of all Federal manpower development support among the life sciences. Ninety-two percent of the life science total supported manpower development grants of NIH and Health Services and Mental Health Administration (HSMHA), primarily in clinical medicine; 59 percent of NIH funds supported work in the life sciences, and 94 percent of HSMHA's funds financed training in the field of clinical medicine.

HSMHA also provided the major share of funds for the psychological sciences, namely psychiatry, behavioral sciences, and psychiatric social work.

The predominance of HEW funding among numerous fields of science points up that agency's attempt to insure competent manpower in a wide variety of science areas in order to deal effectively with today's health-related problems. Although HEW obligated more than one-half of its funds for training and fellowships in the life sciences, it still led in all but two of the other major fields of sciences, physical sciences and mathematics, and even here HEW accounted for 34 percent and 43 percent of the respective field totals.

The social sciences and psychology each represented 9 percent of the funding of manpower development projects. In each field the primary sponsor was HEW. Of this agency's $37 million total in the social sciences, $29 million, or 78 percent, was concentrated in sociology. Psychological sciences, n.e.c., received over one-half of HEW's psychology projects support.

The physical sciences and engineering each received about 3 percent of total support for manpower development. The major sponsors in the physical sciences were NSF and HEW, which accounted for 60 percent and 34 percent, respectively, of the field total. This field was the largest specified recipient of NSF projects in manpower

development. Both NSF and HEW directed their main support within the physical sicences to chemistry which received 60 percent of NSF's physical science obligations and 90 percent of HEW's. Physics projects comprised an additional 36 percent of NSF's total for the physical sciences. HEW and NSF were the principal supporters in the field of engineering, furnishing 48 percent and 21 percent, respectively. NASA obligated 85 percent of its manpower development total in the field of engineering.

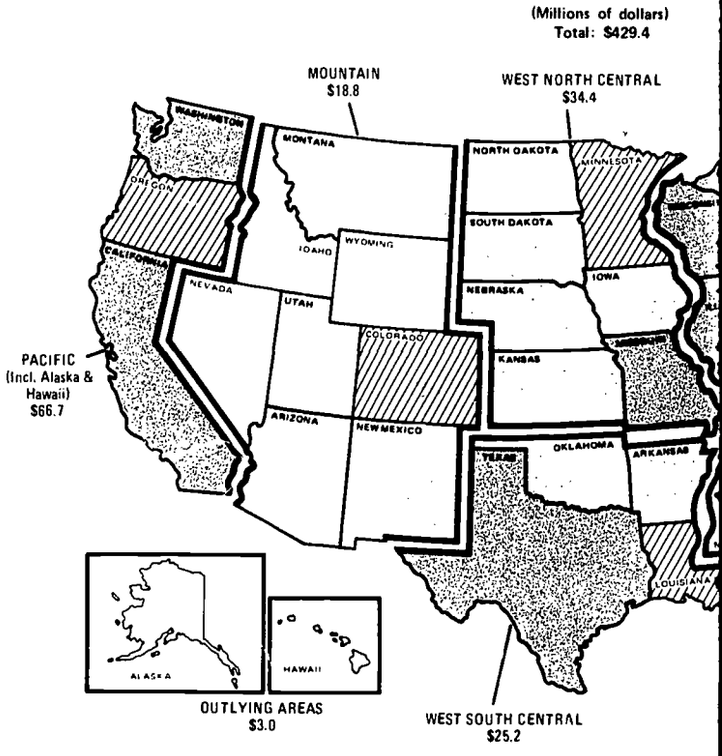
Mathematics and the environmental sciences combined accounted for 2 percent of the total funds for manpower development activities. NSF supplied 57 percent of the mathematics total; HEW furnished 59 percent of the funds for the environmental sciences.

Geographic patterns of support

The Middle Atlantic division was the leading recipient of manpower development obligations with a total of $85 million, representing one-fifth of the funding in this category. States in the East North Central division accounted for an additional 18 percent of the obligations. The next largest proportions of funds were received by the Pacific and South Atlantic divisions, comprising 16 percent and 14 percent of the total, respectively.

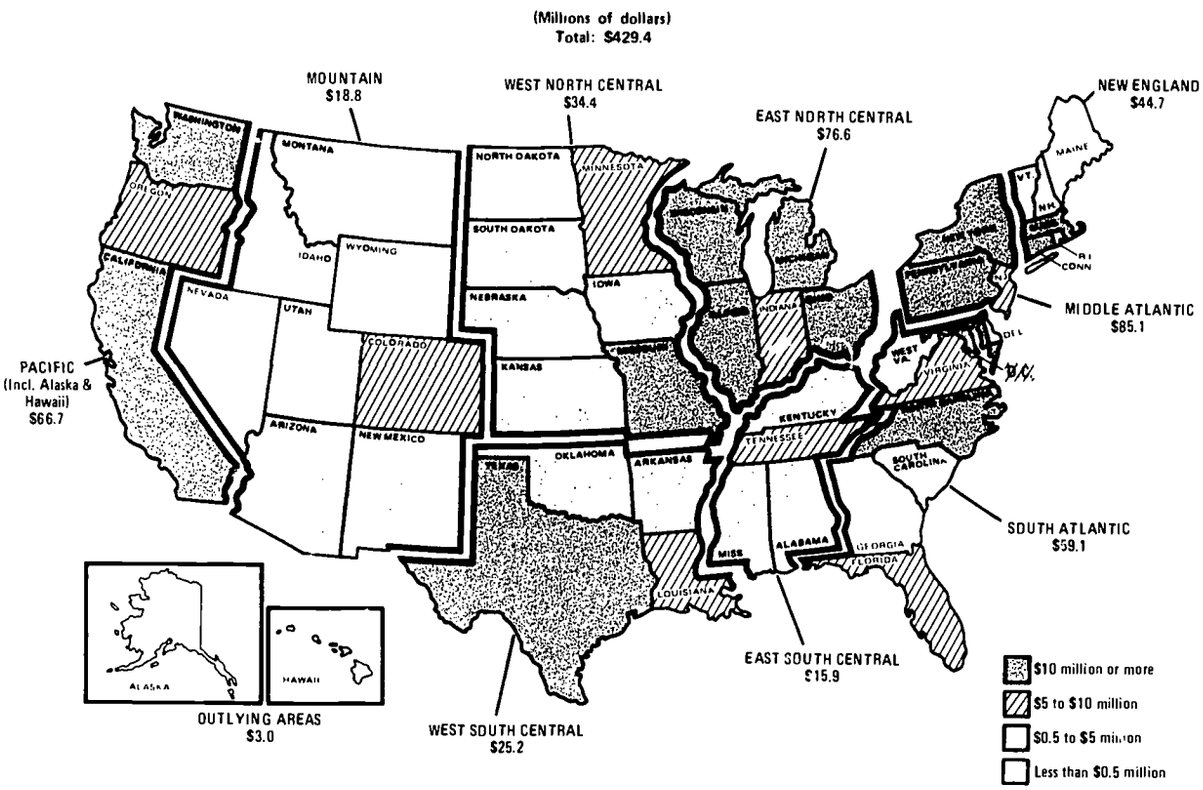
Among individual States, funds for manpower development programs to academic institutions ranged from $55 million in New York to $155,000 in Alaska. Universities and colleges in the 10 largest recipient States accounted for three-fifths, or $258 million, of the total obligations for manpower development in 1970.

Geographic distribution of Federal obligations to universities and colle



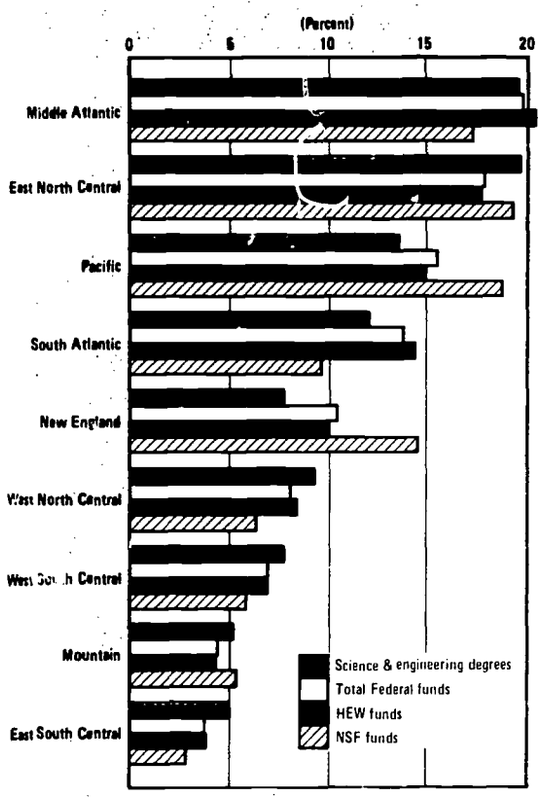
SOURCE: National Science Foundation (CASE).

Geographic distribution of Federal obligations to universities and colleges for manpower development, FY 1970



SOURCE: National Science Foundation (CASE).

Distribution of total Federal, HEW, and NSF obligations to universities and colleges for manpower development, FY 1970, and science and engineering degrees, FY 1967-68, by geographic division



SOURCE: National Science Foundation (CASE).

The Federal Government distributed manpower development support among the geographic areas of the Nation in much the same proportions as the number of science and engineering degrees awarded by universities and colleges. Eight of the first 10 States in manpower development obligations, also ranking among the first 10 in the numbers of science and engineering degrees awarded, accounted for 54 percent of the Federal manpower development support and 50 percent of the total science and engineering degrees awarded.

Of the two leading Federal sponsors of science manpower development programs, HEW funding followed more closely the geographic distribution of science and engineering degrees awarded. The influence of that agency's funding pattern is further illustrated by the close similarity between the geographic distribution of HEW funds and total Federal funding of manpower development projects. The location of large medical schools was a major factor in the geographic distribution of HEW's support. For example, the $75 million obligated by HEW in the Middle Atlantic division was actually a reflection of obligations to institutions in New York and Pennsylvania which together received $71 million, or 19 percent, of HEW's manpower development funds; these two States accounted for 19 percent of the Nation's total number of medical schools.

Table 3.—Federal obligations for manpower developme amounts, ranked in various gro

[Dollars in

Number of institutions (ranked in order of manpower development obligations)	Total
Total, all institutions	$429,408
First 10	93,808
Second 10	70,031
Third 10	47,153
Fourth 10	35,516
Fifth 10	28,645
First 50	275,153
Second 50	81,020
First 100	356,173
All other	73,235

SOURCE: National Science Foundation (CASE).

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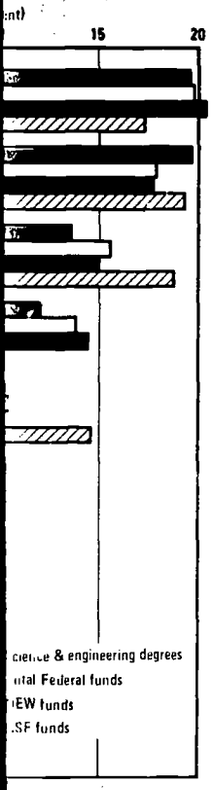

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Institutional patterns of support

The degree of concentration of agency funding of manpower development projects among the first 100 universities and colleges in 1970 became greater as the total amount obligated increased. NASA and AEC, with little more than $7 million between them for this activity, reported three-fifths of their support for institutions within the largest 100 recipients (table 3). NASA's program involved only 12 institutions, 8 of which did not rank among the first 100. AEC support went to fewer than 100, of which two-thirds ranked below the first 100. Neither of these agencies awarded more than $400,000 to any one institution. NSF and HEW, on the other hand, reported 73 percent and 85 percent, respectively, of their manpower development funding to the first ranking 100 institutions of higher education. About three-quarters of the 620 universities and colleges participating in federally sponsored science manpower development programs received support from both NSF and HEW.

Table 3.—Federal obligations for manpower development to the universities and colleges receiving the largest amounts, ranked in various groups, by agency, fiscal year 1970

[Dollars in thousands]

Number of institutions (ranked in order of manpower development obligations)	Total	Atomic Energy Commission	Department of Health, Education, and Welfare	National Aeronautics and Space Administration	National Science Foundation
Total, all institutions	$429,408	$4,956	$369,624	$2,107	$52,721
First 10	93,808	712	81,664	451	10,981
Second 10	70,031	416	63,515	107	5,993
Third 10	47,153	558	40,662	294	5,639
Fourth 10	35,516	261	31,971	96	3,188
Fifth 10	28,645	360	24,472	104	3,709
First 50	275,153	2,307	242,284	1,052	29,510
Second 50	81,020	646	71,014	200	9,160
First 100	356,173	2,953	313,298	1,252	38,670
All other	73,235	2,003	56,326	855	14,051

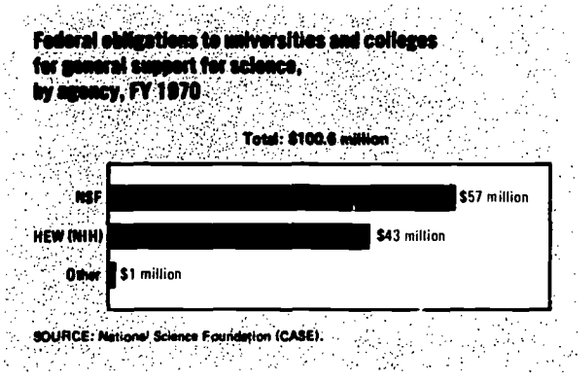
SOURCE: National Science Foundation (CASE).

GENERAL SUPPORT FOR SCIENCE

General support for science encompasses those projects aimed at broadly strengthening and sustaining the scientific capabilities of universities and colleges. Support under this category is comprehensive and allows for considerable flexibility of purpose. In 1970 these programs included NSF's Science Development and Institutional Grants for Science Programs and the National Institutes of Health's General Research Support and Biomedical Science Support grants.

It should be noted that the NSF is reducing its funding of general support programs. Its Science Development programs, which have provided support to universities and colleges totaling some $200 million since 1964, are scheduled to be phased out by June 1972. According to NSF's fiscal year 1973 budget, general support for science funding will consist of Institutional Grants for Science and a new institutional grant program to improve the research management capabilities of academic institutions that are conducting federally sponsored research programs.

All of HEW's general support for science projects were sponsored by the institutes comprising NIH, all of which offer general research grants in the biomedical research program, either in the form of formula or project grants.



Fields of science

With one major exception, the Federal-wide totals among the various fields of science are virtually a reflection of the funding pattern of NSF. The exception occurred within the life sciences, the field in which all of HEW's general support for science funds were classified (table 4).

A substantial portion of NSF's obligations that could not be assigned to a given field of science could be attributed to the Foundation's University Science Development Program which does not

Table 4.—Federal obligations for general supp by field of science and a

[Dollars in th

Field of science	Total	Depar o Comm
Total, all fields	$100,634	$1
Physical sciences	8,083	
Mathematics	2,127	
Environmental sciences	5,374	1
Engineering	6,341	
Life sciences	44,731	
Psychology	927	
Social sciences	2,008	
Other sciences, n.e.c.	31,043	

SOURCE: National Science Foundation (CASE).

Fields of science

With one major exception, the Federal-wide totals among the various fields of science are virtually a reflection of the funding pattern of NSF. The exception occurred within the life sciences, the field in which all of HEW's general support for science funds were classified (table 4).

A substantial portion of NSF's obligations that could not be assigned to a given field of science could be attributed to the Foundation's University Science Development Program which does not focus on a particular area of science. One-half of NSF's obligations for which the field was unspecified was attributable to the funding of this program. Multidisciplinary projects under NSF's other programs accounted for the remaining unassigned funds. Even for the 46 percent of the funds for which the major field was known, most of the funds were reported in the "not elsewhere classified" category of the specific field of science. A notable exception was the $3 million in the field of environmental science, classified under the subfield, geological sciences.

Table 4.—Federal obligations for general support for science to universities and colleges, by field of science and agency, fiscal year 1970

[Dollars in thousands]

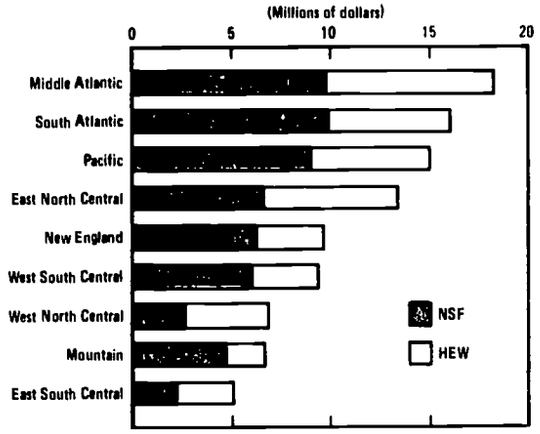
Field of science	Total	Department of Commerce	Department of Health, Education, and Welfare (National Institutes of Health)	Department of the Interior	National Science Foundation
Total, all fields	$100,634	$165	$43,017	$439	$57,013
Physical sciences	8,083	----	----	159	7,924
Mathematics	2,127	----	----	5	2,122
Environmental sciences	5,374	165	----	----	5,209
Engineering	6,341	----	----	5	6,336
Life sciences	44,731	----	43,017	78	1,636
Psychology	927	----	----	----	927
Social sciences	2,008	----	----	180	1,828
Other sciences, n.e.c	31,043	----	----	12	31,031

SOURCE: National Science Foundation (CASE).

Geographic patterns of support

The geographic pattern of general support for science funding followed the general pattern seen in total academic science funding or that of the major component of academic science support, research and development. There is, however, evidence of less concentration in general support funding than in either total academic science or R&D support. For example, institutions in the four lowest ranking divisions together received 27 percent of all general support obligations compared to 23 percent of total academic science funds and 20 percent of R&D support.

Federal obligations by HEW (NIH) and NSF to universities and colleges for general support for science, by geographic division, FY 1970



SOURCE: National Science Foundation (CASE).

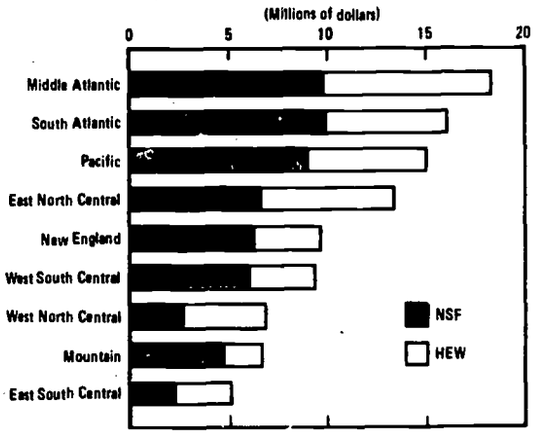
Table 5.—Federal obligations for general support for science to the universities and colleges rece various groups, by agency, fiscal year 1970

[Dollars in thousands]

Number of institutions (ranked in order of general support forscience obligations)	Total		Department of Commerce		Department of Health, Education, and Welfare (National Institutes of Health	
	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution
Total, all institutions	$100,634	100.00	$165	100.00	$43,017	100.00
First 10	22,268	22.13	154	93.33	3,227	7.50
Second 10	10,320	10.25	3	1.82	7,611	17.69
Third 10	8,738	8.68			5,688	13.22
Fourth 10	7,474	7.43	8	4.85	2,928	6.81
Fifth 10	6,596	6.55			3,887	9.04
First 50	55,396	55.05	165	100.00	23,341	54.26
Second 50	20,550	20.42			12,394	28.81
First 100	75,946	75.47	165	100.00	35,735	83.07
All other	24,688	24.53			7,282	16.93

SOURCE: National Science Foundation (CASE).

Federal obligations by HEW (NIH) and NSF to universities and colleges for general support for science, by geographic division, FY 1970



SOURCE: National Science Foundation (CASE).

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NSF sponsored general support for science programs in institutions located in every State and the outlying areas. HEW, however, reported no funding for such programs in four Mountain States—Montana, Idaho, Wyoming and Nevada. None of these States had a medical school in 1970.

Institutional patterns of support

The 100 universities and colleges receiving the largest amounts of general support for science received a somewhat smaller share of funds, 75 percent of the total, than shown for the first 100 recipient institutions based on total academic science obligations—80 percent (table 5).

Table 5.—Federal obligations for general support for science to the universities and colleges receiving the largest amounts, ranked in various groups, by agency, fiscal year 1970

[Dollars in thousands]

l ns)	Total		Department of Commerce		Department of Health, Education, and Welfare (National Institutes of Health)		Department of the Interior		National Science Foundation	
	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution
....	$100,634	100.00	$165	100.00	$43,017	100.00	$439	100.00	$57,013	100.00
...	22,268	22.13	154	93.33	3,227	7.50	10	2.28	18,877	33.11
...	10,320	10.25	3	1.82	7,611	17.69	170	38.72	2,536	4.45
...	8,738	8.68	----	----	5,688	13.22	----	----	3,050	5.35
...	7,474	7.43	8	4.85	2,928	6.81	16	3.64	4,522	7.93
...	6,596	6.55	----	----	3,887	9.04	9	2.05	2,700	4.74
...	55,396	55.05	165	100.00	23,341	54.26	205	46.70	31,685	55.58
...	20,550	20.42	----	----	12,394	28.81	229	52.16	7,927	13.90
...	75,946	75.47	165	100.00	35,735	83.07	434	98.86	39,612	69.48
..	24,688	24.53	----	----	7,282	16.93	5	1.14	17,401	30.52

oundation (CASE).

The composition of the 100 institutions receiving the largest amounts for general support was unlike that for academic science and research and development. Nearly one-fourth of the first 100 recipients in this category of support were not among the top 100 recipients in terms of either total academic science or R&D support.

While NSF supplied the largest share of support in this category, there was less than $4 million difference between that agency's and HEW's obligations to the first 100 institutions. The major difference in funding patterns between these two agencies occurred at institutions ranking below the first 200 which were funded almost exclusively by NSF; only 19 of this group of 486 universities and colleges were recipients of HEW general support for science funds.

The Universities of Rhode Island, Washington, and Alaska accounted for virtually all of the general support for science funding of the Departments of Commerce and Interior.

EDUCATIONAL INSTITUTES, SEMINARS, OR CONFERENCES

NSF supplied virtually all of the Federal Government's funds supporting science-related educational institutes, seminars, and conferences in 1970 (table 6). Major NSF activities in this area included support for separate programs at the precollege, undergraduate, and graduate levels. The programs were designed to provide opportunities for teachers at these various levels to improve their subject matter training in the sciences and engineering. Precollege level institutes have consistently accounted for the largest share of funding in this area of instructional personnel development.

Two other agencies, HEW and NASA, provided limited support for this activity, together accounting for less than 1 percent of the $45 million total. Of this amount, HEW obligated $240,000 and NASA, $72,000.

Table 6.—Obligations by the National Science Foundation to universities and colleges for educational institutes, seminars, or conferences, by level and number of attendees, fiscal year 1970

[Dollars in thousands]

Level (ranked in order of educational institute obligations)	Amount	Number of attendees
Total, all levels	$44,679	52,624
Secondary school teachers	40,011	46,818
University and college faculty	3,735	4,169
Elementary school teachers	656	586
Precollege students	106	220
Prebaccalaureate students	105	153
Nonfaculty-others	45	305
Professional school students	13	15
Graduate students	8	358

SOURCE: National Science Foundation (CASE).

EDUCATIONAL INSTITUTES, SEMINARS, OR CONFERENCES

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Professional school students	13	15
Graduate students	8	358

SOURCE: National Science Foundation (CASE).

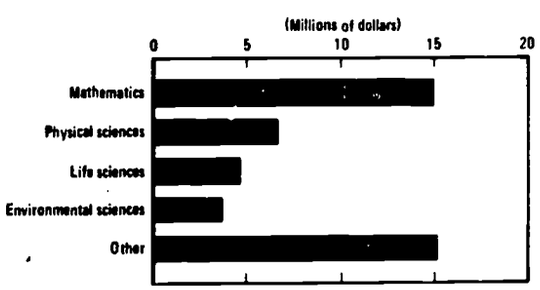
The impact of these institutes, seminars, and conferences on the quality of science education is not limited to the institutions located in the geographic areas where they were held. Teachers reached by NSF precollege institutes, for example, are selected from throughout the country in a pattern essentially proportional to the total school population.

Fields of science

Institutes, seminars, and conferences sponsored by NSF covered a wide range of science disciplines although the major portion, one-third of the total support, financed projects in the field of mathematics.

A substantial share—$11 million—of NSF's funding for educational institutes classified as "other sciences, n.e.c." can be attributed in part to the following: institutes for teacher training that are either interdisciplinary or multidisciplinary; institutes for science supervisors; and basic science institutes.

Obligations by NSF to universities and colleges for educational institutes, seminars, or conferences, by field of science, FY 1970



SOURCE: National Science Foundation (CASE).

DEVELOPMENT OF EDUCATIONAL TECHNIQUES AND MATERIALS

Consistent with the educational needs and goals of the Nation is the continuing support provided by Federal agencies for projects aimed at developing new curriculum materials and instruction techniques, improving or strengthening existing curriculums, and implementing the instructional materials in the sciences and engineering.

Federally sponsored projects in this area cover precollege through graduate and professional school educational levels with emphasis on programs directed at the prebaccalaureate level (table 7). All HEW funding was directed toward this level as was the largest portion of NSF support. NSF, however, sponsored studies at each of the educational levels.

HEW classified all of its educational techniques and materials support under "other sciences, n.e.c." accounting for nearly all of the 89 percent of total funding reported in this category (table 8).

Table 7.—Federal obligations for develo universities and colleges, by lev

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Level of utilization	Tota
Total, all levels	$49,0
Graduate	7
Professional school	2
Prebaccalaureate	44,9
Precollege	3,1

SOURCE: National Science Foundation (CASE

Table 8.—Federal obligations for devel by field of science

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Field of science	Tota
Total; all fields	$49,0
Physical sciences	1,4
Mathematics	1,6
Environmental sciences	
Engineering	4
Life sciences	1,1
Psychology	
Social sciences	4
Other sciences, n.e.c.	43,7

SOURCE: National Science Foundation (CASE

TECHNIQUES

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Table 7.—Federal obligations for development of educational techniques and materials to universities and colleges, by level of utilization and agency, fiscal year 1970

[Dollars in thousands]

Level of utilization	Total	Department of Health, Education, and Welfare (Office of Education)	National Aeronautics and Space Administration	National Science Foundation
Total, all levels	$49,066	$39,709	$680	$8,677
Graduate	706		45	661
Professional school	233			233
Prebaccalaureate	44,949	39,709		5,240
Precollege	3,178		635	2,543

SOURCE: National Science Foundation (CASE).

Table 8.—Federal obligations for development of educational techniques and materials, by field of science and agency, fiscal year 1970

[Dollars in thousands]

Field of science	Total	Department of Health, Education, and Welfare (Office of Education)	National Aeronautics and Space Administration	National Science Foundation
Total; all fields	$49,066	$39,709	$680	$8,677
Physical sciences	1,485			1,485
Mathematics	1,695		17	1,678
Environmental sciences	15			15
Engineering	460		29	431
Life sciences	1,168			1,168
Psychology	24			24
Social sciences	438			438
Other sciences, n.e.c	43,781	39,709	634	3,438

SOURCE: National Science Foundation (CASE.)

Geographic patterns of support

The distribution of Federal funds for the development of educational techniques and materials among geographic areas varied only slightly from that of total academic science funds, with one notable exception: New England States received an amount representing 5 percent of Federal obligations for science materials and techniques development compared to a 12-percent share of total academic science support. The Pacific division alone received Federal support for studies in all four educational levels; accordingly, it showed the lowest level of concentrations of funding for work in prebaccalaureate projects (80 percent). At the other extreme, all Federal support to institutions in the East South Central States involved the development of educational techniques and materials for prebaccalaureate students.

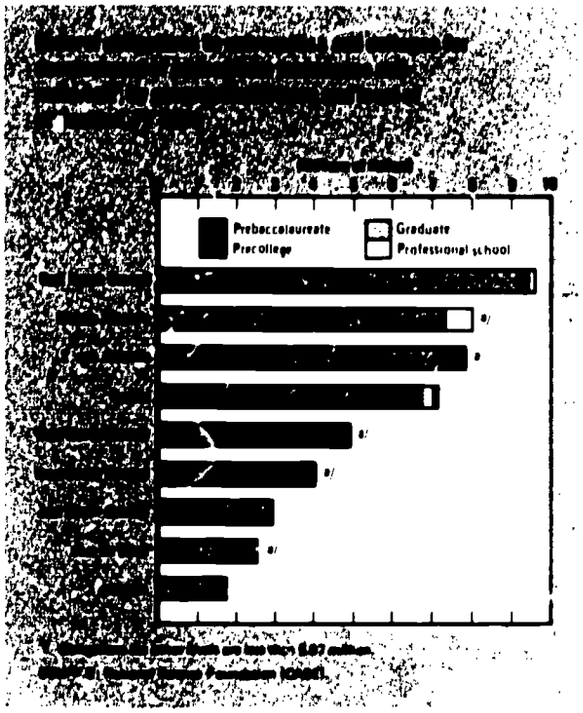
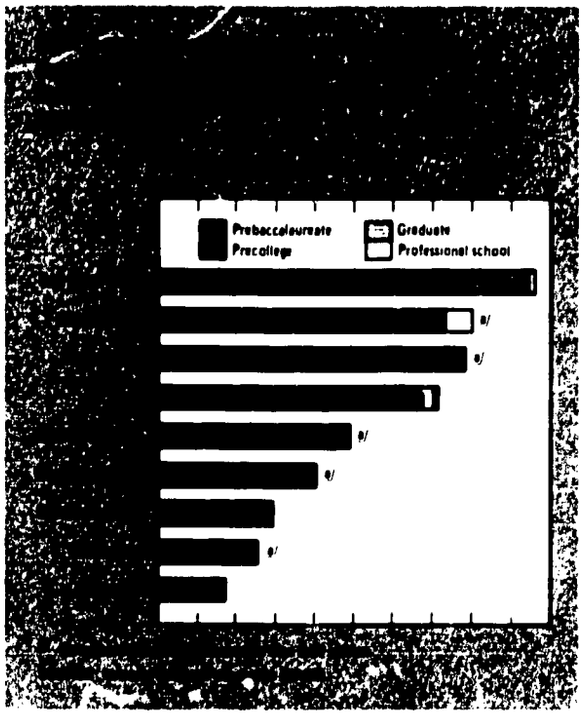


Table 9.—Federal obligations for development of educational techniques and materials to universities and colleges receiving the largest amounts, ranked in various groups, by agency, fiscal year 1970

[Dollars in thousands]

Number of institutions (ranked in order of obligations)	Total	Department of Health, Education, and Welfare (Office of Education)	National Aeronautics and Space Administration	National Science Foundation
Total, all institutions	$49,066	$39,709	$680	$8,677
First 10	13,343	11,049		2,294
Second 10	7,834	7,206	628	
Third 10	5,241	4,718		523
Fourth 10	4,563	3,705		858
Fifth 10	3,884	3,872		12
First 50	34,865	30,550	628	3,687
All other	14,201	9,159	52	4,990

SOURCE: National Science Foundation (CASE).



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...43	3,705	.....	858
...44	3,872	.....	12
...45	30,550	628	3,687
...41	9,159	52	4,990

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Institutional patterns of support

In 1970 a total of 205 institutions received Federal support for the development of educational techniques and materials from the three Federal agencies contributing to this category of academic science support. The majority of these are 2-year institutions that received funding through OE programs. Sixteen of the first 20 recipients are in this category. OE supplied 86 percent of this $21 million (table 9). Stanford University and Oklahoma State University were the only institutions of the top 20 that did not receive OE support for this activity; Stanford received $1.5 million from NSF, and Oklahoma State received $628,000 from NASA—more than nine-tenths of NASA's total support for the development of educational techniques and materials (table 10).

Table 10.—Federal obligations for development of educational techniques and materials to the 20 universities and colleges receiving the largest amounts, by agency, fiscal year 1970

[Dollars in thousands]

Institution (ranked in order of obligations)	State	Total	Department of Health, Education, and Welfare (Office of Education)	National Aeronautics and Space Administration	National Science Foundation
Total, 20 institutions	.....	$21,177	$18,255	$628	$2,294
1. Sinclair College	Ohio	2,215	2,215	-----	-----
2. Fashion Institute of Technology	N.Y.	1,500	1,500	-----	-----
3. Onondaga Community College	N.Y.	1,439	1,439	-----	-----
4. Pennsylvania State University	Pa.	1,411	1,114	-----	297
5. Purdue University	Ind.	1,192	345	-----	847
6. Essex County College	N.J.	1,189	1,189	-----	-----
7. Stanford University	Calif.	1,150	-----	-----	1,150
8. Valencia Junior College	Fla.	1,093	1,093	-----	-----
9. Bucks County Community College	Pa.	1,078	1,078	-----	-----
10. Massachusetts Bay Community College	Mass.	1 076	1,076	-----	-----
11. Lincoln Land Junior College	Ill.	1,000	1,000	-----	-----
12. Jefferson State Junior College	Ala.	995	995	-----	-----
13. Pennsylvania Valley Community College	Mo.	945	945	-----	-----
14. Willmar State Community College	Minn.	804	804	-----	-----
15. Macomb County Community College	Mich.	750	750	-----	-----
16. Seattle Community College	Wash.	719	719	-----	-----
17. Catonsville Community College	Md.	689	689	-----	-----
18. Perkinston College	Miss.	654	654	-----	-----
19. Nicolet College and Technical Institute	Wisc.	650	650	-----	-----
20. Oklahoma State University	Okla.	628	-----	628	-----

SOURCE: National Science Foundation (CASE).

oment of educational techniques and materials to the 20 universities
g the largest amounts, by agency, fiscal year 1970

[Dollars in thousands]

State	Total	Department of Health, Education, and Welfare (Office of Education)	National Aeronautics and Space Administration	National Science Foundation
.....	$21,177	$18,255	$628	$2,294
Ohio	2,215	2,215	----	----
N.Y.	1,500	1,500	----	----
N.Y.	1,439	1,439	----	----
Pa.	1,411	1,114	----	297
Ind.	1,192	345	----	847
N.J.	1,189	1,189	----	----
Calif.	1,150	----	----	1,150
Fla.	1,093	1,093	----	----
Pa.	1,078	1,078	----	----
Mass.	1,076	1,076	----	----
Ill.	1,000	1,000	----	----
Ala.	995	995	----	----
Mo.	945	945	----	----
Minn.	804	804	----	----
Mich.	750	750	----	----
Wash.	719	719	----	----
Md.	689	689	----	----
Miss.	654	654	----	----
Wisc.	650	650	----	----
Okla.	628	----	628	----

APPENDIXES

A. technical notes

B. statistical tables

APPENDIXES

A. technical notes

B. statistical tables

APPENDIX A

TECHNICAL NOTES

SCOPE

Funding data represent actual obligations incurred during fiscal year 1970 by the participating agencies for more than 40,000 federally sponsored science and engineering projects conducted at universities and colleges in the United States and outlying areas.

For the present report nine Federal agencies, accounting for more than 95 percent of total Federal support for academic science, provided data for fiscal year 1970:

Department of Agriculture
Atomic Energy Commission
Department of Commerce
Department of Defense
Department of Health, Education, and Welfare
Department of the Interior
National Aeronautics and Space Administration
National Science Foundation
Office of Economic Opportunity

Data for individual institutions represent direct support from Federal agencies and do not make allowances for amounts subcontracted to or from other institutions. Consequently, the location of actual performance of obligated amounts cannot be identified if that performance takes place at some site other than that of the institution receiving direct support from Federal agencies. In cases of interagency transfers of funds, the agency that made the final distribution of the funds to academic institutions reported the obligations.

Federal obligations for higher educational activities considered to be primarily nonscience in nature, such as general support for undergraduate education, were not included in the study. Nonscience support amounted to approximately $1 billion in fiscal year 1970. Other allocations for financial assistance by Federal agencies excluded from the study are loans such as those made by the Office of Education, and agency support of Federal employee training and development activities.

The source of data for this report is the CASE II reporting system, established to make available in a central data bank comprehensive information on Government-wide funding of science and engineering activities at universities and colleges. Data were reported at the project level, but for tabular use in this report, were aggregated to the institution, agency, and other levels. The information from which this report was derived is more detailed than data reported at the institutional level included in the current series of related reports, **Federal Support to Universities, Colleges, and Selected Nonprofit Institutions,** for which the primary source of data is the CASE I reporting system.

This report's further division of academic science support beyond that reported in the CASE I system involves: (1) The number of academic science categories; (2) fields of science; and (3) additional data on some of the more important characteristics for selected types of activity, such as facilities and equipment projects.

The present report includes data on the following major project characteristics of academic science support: (1) Sponsoring agency, (2) recipient institution, (3) type of activity, (4) amount obligated, and (5) field of science.

In addition, sections 2 and 3 contain more detailed information on various characteristics of facilities and science education support.

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In addition, sections 2 and 3 contain more detailed information on various characteristics of facilities and science education support.

LIMITATIONS

The following factors should be considered in the analysis and interpretation of data in this report:

(1) As mentioned above, data are reported at the project level. Due to limitations on the physical size of each project record reported, the instructions for reporting project characteristics, type of activity and field of science, restricted the classification of each of these elements to one category per project. Since some projects actually involve more than one type of activity or field of science, data aggregated from the project level may not reflect the precise amount of effort devoted to each area of activity and field of science. Moreover, these data can be expected to vary from comparable totals derived from the CASE I and **Federal Funds** data collection systems [1] which permit allocation of project or program funds between two or more types of activity or fields or science.

(2) The allocation of funds among the various types of activities, as reported by the agencies, may not indicate the way the funds are actually spent by the universities and colleges. For example, the entire total reported by the Department of Defense was reported under research and development, although some funds were expended for R&D facilities and equipment. A further example involving the classification of project activities

[1] For a more detailed explanation of reporting differences and other relationships between this report and the reports generated from the CASE I and **Federal Funds** data collection systems, see "Relation to other Reports," p. 32.

is the difference between immediate and ultimate objectives of support. Obligations reported as "general support for science" by the agencies are used by the institutions to fund research and development, facilities and equipment projects, and other specific scientific activities.

(3) Department of Agriculture obligations amounting to $114 million were classified as "other related activities." These funds represent lump-sum awards to land-grant institutions for which the specific type of activity could not be determined in time to be incorporated in USDA's report to CASE. Also, most USDA sponsored projects are considered multidisciplinary, accounting for the large proportion of that agency's funds classified as "other sciences, not elsewhere classified."

(4) Due to technical problems experienced by some agencies in adapting internal information systems to provide data for the CASE II system, a number of projects funded in fiscal year 1970 were not classified in terms of specific fielcs of science, in part explaining the large figure for "other sciences, n.e.c."

(5) Field of science data for the Department of Defense were estimated. DOD was able to report field of science information on projects totaling $156 million. The remaining $110 million was allocated across the science and engineering disciplines according to the percentage distribution of the $156 million. Since the rate of imputation is very high for those institutions with substantial funding from DOD, field of science data at the institution level are not shown in this report.

(6) Federal obligations to university "systems" were reported in terms of the individual institutions within a system. In cases where the final allocation of funds was not known at the time the award was made, the agencies could not identify the ultimate recipient institutions and, therefore, reported the obligations under the system's administrative office. To the extent that funds were subsequently distributed by the system's central office to one or more of the member institutions, published figures for those member institutions listed on any of the top 100 institution tables may be understated. System-wide academic science obligations, totaling $17 million in fiscal year 1970 went to the following:

University and State College of Arizona System
Freemont-Newark Junior College District System
Los Angeles City Junior College District System
Peralta Junior College District System
San Diego Junior College System
University of California System
University of Illinois System
Louisiana State University System
University of Nebraska System
University of Nevada System
City University of New York System
Columbia University System
State University of New York System
University of North Carolina System
Pennsylvania State College System
University of Tennessee System
Texas A & M University System
University of Texas System
Utah Higher Education System
University of Wisconsin System
Wisconsin State University System
University of Puerto Rico System

DEFINITIONS

General

(a) **Project.** A typical work unit used by agencies to report funding activities. A project may be funded by a single award or may be amended (increase in funds with or without additional time).

(b) **University or college.** Consists of all parts of the academic institution—such as a college of liberal arts, professional school, hospital, school of agriculture, agricultural experiment station, etc.—except an associated Federally Funded Research and Development Center. Universities and colleges include all institutions of higher education in the United States that offer at least 2 years of college-level studies in residence. The universe of institutions for this report is based

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tem's central office to one or more of the member institutions, published figures for those member institutions listed on any of the top 100 institution tables may be understated. System-wide academic science obligations, totaling $17 million in fiscal year 1970 went to the following:

University and State College of Arizona System
Freemont-Newark Junior College District System
Los Angeles City Junior College District System
Peralta Junior College District System
San Diego Junior College System
University of California System
University of Illinois System
Louisiana State University System
University of Nebraska System
University of Nevada System
City University of New York System
Columbia University System
State University of New York System
University of North Carolina System
Pennsylvania State College System
University of Tennessee System
Texas A & M University System
University of Texas System
Utah Higher Education System
University of Wisconsin System
Wisconsin State University System
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(c) **Obligated amount.** Represents the actual dollar obligation incurred during the reporting year, fiscal year 1970, regardless of when the funds were appropriated or when they are to be spent by the recipient. The amount reported includes direct and indirect costs, but excludes loans. Federal obligations to State agencies which, in turn, allocate the funds to educational institutions within the State are also excluded. In the case of an interagency transfer of funds, the agency which finally obligated the funds to the academic institution reported the award.

(d) **Fiscal year.** The Government accounting period beginning July 1 of one year and ending June 30 of the following calendar year; thus, fiscal year 1970 began on July 1, 1969, and ended on June 30, 1970.

Types of activity

Academic science consists of all aspects of research, education, and related activities in the sciences and engineering performed in universities and colleges. (See page 31 for specific information on the disciplines included in science and

engineering.) For the purpose of this study Federal agencies reported their science and engineering projects in terms of eight categories of activity:

(a) **Research and development.** Research is systematic intensive study directed toward fuller scientific knowledge or understanding of the subject studied; development is systematic use of the knowledge gained from research, directed toward the production of useful materials, devices, systems, or methods, including design and development of prototypes and processes.

(b) **Manpower development.** Includes all projects which are directed primarily toward the training of scientific and technical manpower. Included here are fellowships, traineeships, and training grants whether these are awarded to individuals or to groups of individuals. The following activities are excluded from this category: Research or educational institutes, seminars and conferences; development of educational techniques or materials; Federal agency support of Federal employee training and development; and fellowships or traineeships received by foreign nationals.

Additional data elements include **amount of nonstipend payment,** the amount of an award paid directly by the granting agency to an institution for the institution's own use, not the amount provided to the institution for direct transfer to individual fellows, trainees, or other recipients being trained on a manpower development project. Included in the nonstipend amount were funds provided by granting agencies such as tuition and fees paid to fellowship institutions, and cost-of-education allowances which are designed to enable institutions that participate in manpower development projects to strengthen their graduate science programs by providing them with an allowance for each graduate student trained in advanced degree programs. Excluded from this amount were special allowances for equipment and special travel in connection with fellowships and training programs that were retained by the individual.

Another data element is **duration of project activity**—that period of time in months during which the actual activity is to take place as distinguished from the duration of the grant or contract award itself. **Type of participation,** another element, reflects the extent to which a manpower development participant, or most of the participants in a group project, devotes his efforts toward the activity being supported by the project. A **full-time participant** is one devoting at least three-fourths of his normal full-time effort for the duration of the project; a **part-time participant** is one devoting less than three-fourths of normal full-time effort to the sponsored activity for the duration of the project. If a project supported essentially equal numbers of both full-time and part-time participants, it was reported as **mixed.**

(c) **Facilities and equipment.** Includes all projects whose principal purpose is to provide support for construction, acquisition, renovation, modification, repair, or rental of facilities, land, works, or equipment for use in scientific or engineering research, development, or education. Included also are funds for maintenance and basic operations of such facilities and equipment. A facility is interpreted broadly to include any physical resource important to the conduct of research, development, or education objectives. All costs—direct, indirect, and related expenditures —are included.

Additional data elements include **purpose of funds.** Under this heading the following definitions apply:

Construction refers to new construction, renovation, acquisition, leasing, modification, and repair of buildings, resource centers, and major equipment. Included also are planning and design studies for construction.

Basic operations refers to those costs required to maintain the capability of performing research, development, or education, and includes maintenance of a facility, resource, or major piece of equipment. For example, the cost of maintaining and operating a computer center is an example of "basic operations."

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Basic operations refers to those costs required to maintain the capability of performing research, development, or education, and includes maintenance of a facility, resource, or major piece of equipment. For example, the cost of maintaining and operating a computer center is an example of "basic operations."

Type of facility, another additional data element, indicates the principal or major function of the facility receiving project support. The following nine categories were established for this study:

Research laboratories—facilities primarily devoted to the conduct of research and development.

Instructional classrooms and laboratories—facilities primarily devoted to transfer of knowledge by lecture, course work, and laboratory experiments.

Library—a facility primarily devoted to cataloging, storage, and retrieval of documents, books, periodicals, and information in general.

Research equipment—equipment and facilities used primarily as tools to assist in research investigations and study.

Teaching/training equipment—equipment and facilities used primarily as tools to assist in the transfer of knowledge.

Land—an area of earth acquired, rented, or leased with project funds.

Computer and/or computer center—facilities and/or equipment possessing electronic data processing capabilities.

Hospital and/or medical facility (exclusive of medical schools, etc.)—facilities oriented toward study, research, diagnosis, and treatment of clinical medical problems.

Other—facilities or equipment for uses other than those listed above.

(d) **General support for science.** Includes projects that permit a significant measure of freedom to the institution in determining the purpose of support—research, construction of new facilities, faculty support, education, etc. Such support is generally aimed at the development of research and education programs within an entire department or within the institution as a whole.

The following agency programs were reported under this category in fiscal year 1970:

NIH Biomedical Sciences Support Grants
NIH General Research Support Grants
NSF Institutional Support Grants

NSF University Science Development Grants
NSF Departmental Science Development Grants
NSF College Science Improvement Grants

(e) **Research institute, seminar, or conference.** Includes all projects which support a meeting of scientists and/or engineers whose objective is a fuller understanding of a specific or general problem, or field of study. The primary purpose of such institutes, seminars, and conferences is the exchange of information on current research and development. Excluded here are educational institutes, seminars, and conferences and activities aimed at the development of educational techniques or materials.

An additional data element within this activity is **principal professional level of participants,** the professional level most representative of the individuals attending a research institute, seminar, or conference. The various levels are defined below.

College and university faculty: Individuals who are regarded by the grantee or institution where the activity is being sponsored as faculty members of a college or university.

Nonfaculty staff—doctorals: Individuals who hold a doctorate degree or its equivalent and who are not classified as college or university faculty or students.

Nonfaculty staff—others: Individuals who work at the professional level who do not hold a doctorate degree or its equivalent and who are not classified as faculty members, nonfaculty staff—doctorals, or students.

Students—graduate: Students who hold at least a bachelor's degree or its equivalent and who are enrolled in a degree program (part-time or full-time) leading to an advanced degree in science, mathematics, or engineering, degrees which are not generally regarded to be in the professional fields such as law, medicine, dentistry, etc

Students—professional schools: Students who hold at least a bachelor's degree or its equivalent and who are pursuing a program leading to a professional degree (medical, dental, veterinary, etc.) either full-time or part-time.

Students—prebaccalaureate: Students enrolled in a degree program (part-time or full-time) leading to a degree in science and engineering.

Precollege students: Individuals who have not yet become regularly enrolled undergraduate students.

(f) **Educational institute, seminar, or conference.** Includes all educational meetings aimed toward study, analysis, discussion, advancement, and improvement of the teaching of science and engineering. Included here are institutes for teachers of science, mathematics, and engineering. Excluded, however, are projects which provide support for seminars, conferences, etc., involving the exchange of current R&D information among professional scientists, mathematicians, and engineers.

An additional data element is **principal professional level of attendees,** the professional level most representative of the individuals attending an educational institute, seminar, or conference. The various levels include the seven defined under research institute, seminar, or conference and two more shown below.

Secondary school teachers: Individuals whose primary occupation is teaching at the secondary school level.

Elementary school teachers: Individuals whose primary occupation is teaching at the elementary school level.

(g) **Development of educational techniques or materials.** Includes those projects oriented toward the actual development of new or revised educational materials, techniques, or devices for use in science or engineering training. Included are the creation of new models of courses and curriculums, course content development, the design and development of instructional materials, the writing of new text books, making of films, etc.

An additional data element includes **educational level,** the principal level of students at

tal, veterinary, etc.) either full-time or part-time.

Students—prebaccalaureate: Students enrolled in a degree program (part-time or full-time) leading to a degree in science and engineering.

Precollege students: Individuals who have not yet become regularly enrolled undergraduate students.

(f) **Educational institute, seminar, or conference.** Includes all educational meetings aimed toward study, analysis, discussion, advancement, and improvement of the teaching of science and engineering. Included here are institutes for teachers of science, mathematics, and engineering. Excluded, however, are projects which provide support for seminars, conferences, etc., involving the exchange of current R&D information among professional scientists, mathematicians, and engineers.

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An additional data element includes **educational level,** the principal level of students at which the new techniques, materials, or devices are directed. The four student levels are graduate, professional school, prebaccalaureate, and precollege students.

(h) **Other related activities.** Includes all academic science projects that cannot meaningfully be assigned to one of the seven categories set forth above.

Fields of science

Science and engineering represent the sum of all fields of science and engineering. These are divided into eight broad categories each consisting of a number of fields. Shown below are definitions of each broad field together with an illustrative list of disciplines under each of the subfields.

(a) **Physical sciences** are concerned with the understanding of the material universe and its phenomena. They comprise the fields of astronomy, chemistry, physics, and physical sciences not elsewhere classified. Examples of the disciplines under each of these fields are:

Astronomy:
Laboratory astrophysics; optical astronomy; radio astronomy; theoretical astrophysics; X-ray, gamma-ray, neutrino astronomy.

Chemistry:
Inorganic; organo-metallic; organic; physical.

Physics:
Acoustics; atomic and molecular; condensed matter; elementary particles; nuclear structure; optics; plasma.

Physical sciences, n.e.c. [1]

(b) **Mathematics** employs logical reasoning with the aid of symbols and is concerned with the development of methods of operation employing such symbols. Examples of mathematical disciplines are:

Algebra; analysis; applied mathematics; computer science; foundations and logic; geometry; numerical analysis; statistics; and topology.

[1] See footnote on p. 32.

(c) **Environmental sciences (terrestrial and extraterrestrial)** are concerned with the gross nonbiological properties of the areas of the solar system which directly or indirectly affect man's survival and welfare. They comprise the fields of atmospheric sciences, geological sciences, oceanography, and environmental sciences not elsewhere classified. Examples of the disciplines under each of these fields are:

Atmospheric sciences:
Aeronomy; solar; weather modification; extraterrestrial atmospheres; meteorology.

Geological sciences:
Engineering geophysics; general geology; geodesy and gravity; geomagnetism; hydrology; inorganic geochemistry; isotopic geochemistry; organic geochemistry; laboratory geophysics; paleomagnetism; paleontology; physical geography and cartography; seismology; soil sciences.

Oceanography:
Chemical oceanography; geological oceanography; physical oceanography; marine geophysics.

Environmental sciences, n.e.c. [2]

(d) **Engineering** is concerned with studies directed toward developing engineering principles or toward making specific scientific principles usable in engineering practice. Engineering is divided into eight categories: Aeronautical, astronautical, chemical, civil, electrical, mechanical, metallurgy and materials, and engineering not elsewhere classified. Examples of disciplines under each of these engineering fields are:

Aeronautical:
Aerodynamics.

Astronautical:
Aerospace; space technology.

Chemical:
Petroleum; petroleum refining; process.

Civil:
Architectural; hydraulic; hydrologic; marine; sanitary and environmental; structural; transportation.

Electrical:
Communication; electronic; power.

Mechanical:
Engineering mechanics.

Metallurgy and Materials:
Ceramic; mining; textile; welding.

Engineering, n.e.c.: [2]
Agricultural; industrial and management; nuclear; ocean engineering; systems.

(e) **Life sciences** consist of the biological, cli
ical medical, and life sciences not elsewhere cla
sified.

Biological sciences are those which, apart fro
the clinical medical sciences defined below, de
with the origin, development, structure, functio
and interaction of living things. The agricultur
and basic medical sciences are included. Exa
ples of biological sciences are:

Anatomy; animal sciences; bacteriology; biochemistr
biogeography; biological oceanography; biophysics; ec
ogy; embryology; entomology; evolutionary biology;
netics; immunology; microbiology; nutrition and me
bolism; parasitology; pathology; pharmacology; physic
anthropology; physiology; plant sciences; radiobiolog
systematics.

Clinical medical sciences are concerned wi
the use of scientific knowledge for the identific
tion, treatment, and cure of disease. Examples
clinical medical sciences are:

Internal medicine; neurology; ophthalmology; preve
tive medicine and public health; psychiatry; radiolog
surgery; veterinary medicine; dentistry; physical medici
and rehabilitation; pharmacy; and podiatry.

Life sciences, n.e.c. [2]

Psychology deals with behavior, mental pro
esses, and individual and group characteristi
and abilities. Psychology is divided into three ca
egories: biological aspects, social aspects, an
psychological sciences not elsewhere classifie
Examples of the disciplines under each of thes
fields are:

Biological aspects:
Experimental psychology; animal behavior; clinical ps
chology; comparative psychology; ethology.

Social aspects:
Social psychology; educational, personnel, vocational ps
chology and testing; industrial and engineering psycho
ogy; development and personality.

Psychological sciences, n.e.c. [2]

Social sciences are directed toward an unde
standing of the behavior of social institutions an
groups and of individuals as members of a grou

(e) **Life sciences** consist of the biological, clinical medical, and life sciences not elsewhere classified.

Biological sciences are those which, apart from the clinical medical sciences defined below, deal with the origin, development, structure, function, and interaction of living things. The agricultural and basic medical sciences are included. Examples of biological sciences are:

Anatomy; animal sciences; bacteriology; biochemistry; biogeography; biological oceanography; biophysics; ecology; embryology; entomology; evolutionary biology; genetics; immunology; microbiology; nutrition and metabolism; parasitology; pathology; pharmacology; physical anthropology; physiology; plant sciences; radiobiology; systematics.

Clinical medical sciences are concerned with the use of scientific knowledge for the identification, treatment, and cure of disease. Examples of clinical medical sciences are:

Internal medicine; neurology; ophthalmology; preventive medicine and public health; psychiatry; radiology; surgery; veterinary medicine; dentistry; physical medicine and rehabilitation; pharmacy; and podiatry.

Life sciences, n.e.c. [2]

Psychology deals with behavior, mental processes, and individual and group characteristics and abilities. Psychology is divided into three categories: biological aspects, social aspects, and psychological sciences not elsewhere classified. Examples of the disciplines under each of these fields are:

Biological aspects:
Experimental psychology; animal behavior; clinical psychology; comparative psychology; ethology.

Social aspects:
Social psychology; educational, personnel, vocational psychology and testing; industrial and engineering psychology; development and personality.

Psychological sciences, n.e.c. [2]

Social sciences are directed toward an understanding of the behavior of social institutions and groups and of individuals as members of a group. These include anthropology, economics, history, linguistics, political science, sociology, and social sciences not elsewhere classified. Examples of the disciplines under each of these fields are:

Anthropology:
Archaeology; cultural and personality; social and ethnology; applied anthropology.

Economics:
Econometrics and economic statistics; history of economic thought, international economics; industrial, labor and agricultural economics; macroeconomics; microeconomics; public finance and fiscal policy; theory.

History:
Cultural; political, social; history and philosophy of science.

Linguistics:
Anthropological-archaeological; computational; psycholinguistics, sociolinguistics.

Political science:
Area or regional studies; comparative government; history of political ideas; international relations and law; national political and legal systems; political theory; public administration.

Sociology:
Comparative and historical complex organizations; culture and social structure; demography; group interactions; social problems and social welfare; sociological theory.

Social science, n.e.c. [2]
Research in law and education, n.e.c.; socioeconomic geography.

Other sciences not elsewhere classified for this report include single projects as well as multidisciplinary and interdisciplinary projects that could not be classified within one of the above broad fields of science.

RELATION TO OTHER REPORTS

(1) **Federal Support to Universities, Colleges, and Selected Nonprofit Institutions** is produced by the National Science Foundation as an annual report to the President and Congress on Federal obligations to academic institutions and appropri-

[2] Not elsewhere classified. This category includes multidisciplinary projects within the broad field and single discipline projects for which a separate field has not been assigned.

ate nonprofit institutions for research and development, R&D plant, and other related activities, as required by the 1968 amendment to the NSF Act. The primary source of data for this report is the CASE I reporting system.

Since CASE II is an extension of the academic science portion of the CASE I system, there should be, and is, relatively close agreement between totals generated in the two studies for the support of (1) academic science and (2) research and development. There are, however, several reasons why the figures do not agree completely. Among the principal factors contributing to reporting differences amounting to 3 percent for academic science and 5 percent for research and development, are the following:

(a) The basic reporting units under the two parts of the CASE data collection system are the **institution** in CASE I and the **project** in CASE II. Funds to institutions reported in CASE I are distributed among four types of support, including three categories for academic science activities and one for nonscience activities. This enables an agency to use a percentage allocation for an individual project or program between science and nonscience use of funds or among the three academic science categories. For each **project** reported in CASE II, however, only one type of activity may be designated by an agency. If the agency decides that the funds should be classified primarily under nonscience activities, such as funds for construction of a facility designated for undergraduate education, the entire grant would be excluded from the agency's CASE II report, which is only concerned with academic science projects. Conversely, were this project considered primarily science, the CASE II project total would exceed the CASE I figure by the amount reported as nonscience in CASE I.

(b) The differing academic science categories of support also lead to reporting differences between CASE I and CASE II. CASE I uses only three major classifications: research and development, R&D plant, and "other science activities." Some general support programs such as NSF's University Science Development Program encompass more than one of the CASE I academic science categories and are therefore, divided between them. CASE II, on the other hand, has among its eight categories of activities "general support for science," which is defined to cover programs which provide support for nonspecific purposes related to science research or education. By definition, "general support for science" covers the spectrum of academic science activities. Total obligations tabulated for each of the other categories of support in CASE II, especially research and development and facilities and equipment, are understated by that portion of the general support funds ultimately channeled into these specific activities.

(c) In many of the agencies, CASE I and CASE II data for fiscal year 1970 were provided by different offices using different information systems with varying degrees of automation and completeness. In many instances, the data collected from the disparate systems do not correspond exactly.

(d) Several agencies, including the Agency for International Development and the Departments of Transportation, Labor, and Housing and Urban Development, whose academic science support levels represent a small fraction of the Federal total, were not included in the CASE II study for 1970. These agencies, however, were included in the 1970 CASE I survey; total R&D funding, which represented all academic science obligations for each of the 4 agencies, amounted to $20 million.

(2) **Federal Funds for Research, Development, and Other Scientific Activities** is an annual publication that analyzes data on Federal obligations for research and development and R&D plant to each sector of the economy, including Government, industry, universities and colleges, and all other nonprofit organizations. Both the **Federal Funds** and the CASE II studies include data on Federal support of research by agency and field of science.

Some general support programs such as NSF's University Science Development Program encompass more than one of the CASE I academic science categories and are therefore, divided between them. CASE II, on the other hand, has among its eight categories of activities "general support for science," which is defined to cover programs which provide support for nonspecific purposes related to science research or education. By definition, "general support for science" covers the spectrum of academic science activities. Total obligations tabulated for each of the other categories of support in CASE II, especially research and development and facilities and equipment, are understated by that portion of the general support funds ultimately channeled into these specific activities.

(c) In many of the agencies, CASE I and CASE II data for fiscal year 1970 were provided by different offices using different information systems with varying degrees of automation and completeness. In many instances, the data collected from the disparate systems do not correspond exactly.

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There are a number of major points of difference between the reports, however, involving both scope and emphasis. The **Federal Funds** report analyzes research and development and related data in terms of sector totals, type of research (basic and applied) and projected trends in Federal support levels. The CASE II study, on the other hand, covers the academic sector only, and collects data at the project level for individual institutions. The CASE II report includes data on the entire spectrum of academic science activities, of which "research and development" is but one component.

Derived totals for R&D obligations to all universities and colleges, by agency, do vary between the two studies. Specific reporting differences may be traced to one or more of the following reasons:

(a) In **Federal Funds**, data were compiled from agency budgets in terms of aggregate sector totals. In CASE II data were generated from each agency's information system in terms of the smallest available reporting unit—the individual project.

(b) Tabulation of R&D totals for NIH and NSF in CASE II tended to be lower than those reported to **Federal Funds** due to the CASE II classification of certain broadly defined programs under the category, "general support for science." Some of these funds were directed into R&D activities and were reported as such in the **Federal Funds** study.

(c) In cases of interagency transfers of funds, the present study instructs the agency that actually obligates funds to an academic institution to report the total award including amounts transferred from other agencies. In **Federal Funds**, on the other hand, agencies from which the funds originate report separately amounts they obligate.

(d) Several agencies that report data for the **Federal Funds** study did not participate in the CASE II survey; these agencies accounted for approximately $27 million of the $77 million difference between the 1970 R&D totals for the two studies.

APPENDIX B

STATISTICAL TABLES

Table B-1.—Federal obligations for academic science, by agency and type of activity, fiscal year 1970
[Dollars in thousands]

Agency	Total	Research and development	Manpower development	Facilities and equipment	General support for science	Research institutes, seminars, or conferences	Educational institutes, seminars, or conferences	Development of educational techniques and materials	Other related activities
Total, all agencies	$2,230,852	$1,395,923	$429,408	$86,838	$100,634	$1,357	$44,591	$49,066	$122,635
Department of Agriculture	182,049	67,412	----	1,117	----	----	----	----	113,520
Atomic Energy Commission	114,485	101,413	4,956	8,116	----	----	----	----	----
Department of Commerce	2,362	1,611	----	18	165	3	----	----	565
Department of Defense	265,485	265,485	----	----	----	----	----	----	----
Department of Health, Education, and Welfare	1,100,117	594,368	369,624	49,979	43,017	235	240	39,709	2,945
Department of the Interior	27,150	26,943	----	----	439	----	----	----	168
National Aeronautics and Space Administration	131,243	126,783	2,107	50	----	46	72	680	1,505
National Science Foundation	389,041	193,388	52,721	27,558	57,013	1,073	44,679	8,677	3,932
Office of Economic Opportunity	18,520	18,520	----	----	----	----	----	----	----

SOURCE: National Science Foundation (CASE)

Table B-2.—Federal obligations for academic science, by detailed field of science and agency, fiscal year 1970
[Dollars in thousands]

Field of science	*Total*	USDA	AEC	Commerce	DOD	HEW	Interior	NASA	NSF	OEO
Total, all fields	$2,230,852	$182,049	$114,485	$2,362	$265,485	$1,100,117	$27,550	$131,243	$389,041	$18,520
Physical sciences, total	321,559	374	66,056	864	98,126	27,560	3,380	42,996	82,203	----
Astronomy	33,043	----	----	450	4,574	23	19	20,096	7,881	----
Chemistry	86,486	339	10,661	301	14,933	25,740	2,464	2,312	29,736	----
Physics	195,571	----	55,345	113	78,619	1,318	738	17,021	42,417	----
Physical sciences, n.e.c.	6,459	35	50	----	----	479	159	3,567	2,169	----
Mathematics	72,303	46	3,946	77	16,609	10,911	309	1,100	39,305	----
Environmental sciences, total	126,475	262	4,005	1,332	38,057	3,101	5,888	24,770	49,060	----
Atmospheric sciences	36,105	27	741	654	8,831	773	2,989	10,421	11,669	----
Geological sciences	33,824	203	911	447	10,770	100	2,488	5,286	13,619	----
Oceanography	39,830	----	2,348	50	18,456	111	378	17	18,470	----
Environmental sciences, n.e.c.	16,716	32	5	181	----	2,117	33	9,046	5,302	----
Engineering, total	165,346	713	7,372	89	53,530	17,822	9,854	41,970	33,996	----
Aeronautical	16,520	----	121	----	9,170	----	----	6,412	817	----
Astronautical	18,023	----	16	----	1,836	28	5	16,138	----	----

Department of the Interior	27,550	26,943			439				168
National Aeronautics and Space Administration	131,243	126,783	2,107	50		46	72	680	1,505
National Science Foundation	389,041	193,388	52,721	27,558	57,013	1,073	44,679	8,677	3,932
Office of Economic Opportunity	18,520	18,520							

SOURCE: National Science Foundation (CASE).

Table B-2.—Federal obligations for academic science, by detailed field of science and agency, fiscal year 1970
[Dollars in thousands]

Field of science	Total	USDA	AEC	Commerce	DOD	HEW	Interior	NASA	NSF	OEO
Total, all fields	$2,230,852	$182,049	$114,485	$2,362	$265,485	$1,100,117	$27,550	$131,243	$389,041	$18,520
Physical sciences, total	321,559	374	66,056	864	98,126	27,560	3,380	42,996	82,203	
Astronomy	33,043			450	4,574	23	19	20,096	7,881	
Chemistry	86,486	339	10,661	301	14,933	25,740	2,464	2,312	29,736	
Physics	195,571		55,345	113	78,619	1,318	738	17,021	42,417	
Physical sciences, n.e.c.	6,459	35	50			479	159	3,567	2,169	
Mathematics	72,303	46	3,945	77	16,609	10,911	309	1,100	39,305	
Environmental sciences, total	126,475	262	4,005	1,332	38,057	3,101	5,888	24,770	49,060	
Atmospheric sciences	36,105	27	741	654	8,831	773	2,989	10,421	11,669	
Geological sciences	33,824	203	911	447	10,770	100	2,488	5,286	13,619	
Oceanography	39,830		2,348	50	18,456	111	378	17	18,470	
Environmental sciences, n.e.c.	16,716	32	5	181		2,117	33	9,046	5,302	
Engineering, total	113,346	713	7,372	89	53,530	17,822	9,854	41,970	33,996	
Aeronautical	16,520		121		9,170			6,412	817	
Astronautical	18,023		16		1,836	28	5	16,138		
Chemical	8,845		77		1,843	468	1,485	591	4,381	
Civil	11,306	30		3	3,516	675	3,239	40	3,803	
Electrical	33,851		38		17,696	282	115	9,489	6,231	
Mechanical	13,228	7			5,348	614	394	1,482	5,384	
Metallurgy and materials	18,281	240	2,497		7,825	241	1,992	1,380	4,106	
Engineering, n.e.c.	45,292	436	4,623	86	6,296	15,514	2,625	6,438	9,274	
Life sciences, total	833,999	6,721	32,225		28,720	688,663	5,318	11,342	57,827	3,083
Biological	408,484	6,721	26,729		23,069	282,122	5,276	6,723	57,827	17
Clinical medicine	360,249		3,597		5,215	346,814	42	1,515		3,066
Life sciences, n.e.c.	65,166		1,899		436	59,727		3,104		
Psychology, total	103,113	35			14,384	77,469	54	1,535	9,098	538
Biological aspects	17,587				6,006	10,729	19	833		
Social aspects	30,183	32			2,863	25,901	35	180	634	538
Psychological sciences, n.e.c.	55,343	3			5,515	40,839		522	8,464	
Social sciences, tot	95,251	694			3,531	50,008	1,960	1,173	22,986	14,899
Anthropology	8,642					4,217	492		3,933	
Economics	8,954	440			130	314	958		6,221	891
History	2,095	2				792		153	1,148	
Linguistics	2,911				363	1,298			1,250	
Political science	5,265	3			2,211	776	172	174	1,929	
Sociology	42,202	246			822	32,609	294	25	2,452	5,754
Social sciences, n.e.c.	25,182	3			5	10,002	44	821	6,053	8,254
Other sciences, n.e.c.	512,906	173,204	881		12,528	224,583	787	6,357	94,566	

SOURCE: National Science Foundation (CASE).

Table B-3.—Federal obligations for academic science, by detailed field of science and type of activity, fiscal year 1970*

(Dollars in thousands)

Field of science	Total	Research and development	Manpower development	Facilities and equipment	General support for science	Research institutes, seminars, or conferences	Educational institutes, seminars, or conferences	Development of educational techniques and materials	Other related activities
Total, all fields	$2,230,852	$1,[illegible]923	$429,408	$86,838	$100,634	$1,357	$44,991	$49,066	$122,635
Physical sciences, total	321,559	283,114	11,270	9,864	8,083	167	6,530	1,485	1,046
Astronomy	33,043	32,111	271	256	114	63	177	11	40
Chemistry	86,486	70 205	7,731	2,017	3,474	11	1,994	518	536
Physics	195,571	176,629	3,159	7,547	4,374	93	2,463	837	469
Physical sciences, n.e.c.	6,459	4,169	109	44	121	----	1,896	119	1
Mathematics	72,303	44,582	7,497	1,259	2,127	119	14,911	1,095	113
Environmental sciences, total	126,475	106,722	2,267	7,547	5,374	162	3,676	15	712
Atmospheric sciences	36,105	35,399	136	295	179	19	34	----	43
Geological sciences	33,824	27,997	736	871	3,351	33	806	----	30
Oceanography	39,830	33,082	72	6,342	92	110	82	15	35
Environmental sciences, n.e.c.	16,716	10,244	1,323	39	1,752	----	2,754	----	604
Engineering, total	165,346	141,533	12,037	3,194	6,341	90	1,003	460	688
Aeronautical	16,520	16,217	293	10	----	----	----	----	----
Astronautical	18,023	18,002	16	----	5	----	----	----	----
Chemical	8,845	8,167	488	30	----	----	----	100	----
Civil	11,306	9,981	938	307	----	20	57	----	3
Electrical	33,851	31,963	987	587	40	8	222	44	----
Mechanical	13,228	11,904	396	839	20	----	69	----	----
Metallurgy and materials	18,281	17,603	242	176	----	----	9	251	----
Engineering, n.e.c.	45,292	27,696	8,677	1,185	6,276	62	646	65	685
Life sciences, total	833,899	565,094	212,718	4,977	44,731	170	4,644	1,168	397
Biological	408,484	333,386	62,675	4,426	1,714	94	4,644	1,168	377
Clinical medicine	360,249	218,429	141,473	275	----	72	----	----	----
Life sciences, n.e.c.	65,166	13,279	8,570	276	43,017	4	----	----	20
Psychology, total	103,113	52,298	38,446	607	927	122	178	24	511
Biological aspects	17,587	12,686	4,065	----	----	36	----	----	----
Social aspects	30,183	16,183	13,536	----	----	----	----	----	464
Psychological sciences, n.e.c.	55,343	33,429	20,845	607	927	86	178	24	47
Social sciences, total	95,251	47,832	39,857	892	2,008	368	3,033	438	823
Anthropology	8,643	4,144	3,723	320	77	108	66	194	10
Economics	8,954	6,772	695	----	286	40	1,018	141	----
History	2,095	1,204	773	----	----	----	81	----	37
Linguistics	2,911	2,099	776	8	----	28	----	----	----

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	604
Engineering, total	165,346	141,533	12,037	3,194	6,341	90	1,003	460	688
Aeronautical	16,520	16,217	293	10					
Astronautical	18,023	18,007	16		5				
Chemical	8,845	8,167	488	90				100	
Civil	11,306	9,981	938	307		20	57		3
Electrical	33,851	31,963	987	587	40	8	222	44	
Mechanical	13,228	11,904	396	839	20		69		
Metallurgy and materials	18,281	17,603	242	176			9	251	
Engineering, n.e.c	45,292	27,696	8,677	1,185	6,276	62	645	65	685
Life sciences, total	833,899	565,094	212,718	4,977	44,731	170	4,644	1,168	397
Biological	408,484	333,366	62,675	4,426	1,714	94	4,644	1,168	377
Clinical medicine	360,249	218,429	141,473	275		72			
Life sciences, n.e.c	65,166	13,279	8,570	276	43,017	4			20
Psychology, total	103,113	62,298	38,446	607	927	122	178	24	511
Biological aspects	17,587	12,686	4,865			36			
Social aspects	30,183	16,183	13,536						464
Psychological sciences, n.e.c	55,343	33,429	20,045	607	927	86	178	24	47
Social sciences, total	95,[illegible]	47,832	39,857	892	2,008	368	3,033	438	823
Anthropology	8,642	4,144	3,723	320	77	108	66	194	10
Economics	8,954	6,772	695		288	40	1,018	141	
History	2,095	1,204	773				81		37
Linguistics	2,911	2,099	776	8		28			
Political science	5,265	4,414	637	48	11	108	47		
Sociology	42,202	11,839	29,302	183	8		870		
Social sciences, n.e.c	25,[illegible]82	17,[illegible]260	3,951	333	1,624	84	951	103	776
Other sciences, n.e.c	512,906	144,748	105,316	58,498	31,043	159	11,016	43,781	118,345

• Table includes imputations for some $110 million in Department of Defense R&D [illegible]ations, representing grants and contracts for which DOD was unable to supply field of science breaks.

SOURCE: National Science Foundation (CASE).

Table B-4.—Federal obligations for academic science, by geographic division, State, and type of activity, fiscal year 1970
[Dollars in thousands]

Division and State	Total	Research and development	Manpower development	Facilities and equipment	General support for science	Research institutes, seminars, or conferences	Educational institutes, seminars, or conferences	Development of educational techniques and materials	Other related activities
United States, total	$2,230,852	$1,395,923	$429,408	$86,838	$100,634	$1,357	$44,991	$49,066	$122,635
New England	278,446	204,547	44,659	8,943	9,847	391	2,742	2,545	4,772
Maine	3,380	1,263	291	468	62	91	376	----------	829
New Hampshire	10,374	6,303	1,430	446	961	2	242	507	483
Vermont	5,659	3,052	1,110	277	504	----------	113	----------	603
Massachusetts	206,072	159,641	2[illegible]	6,154	5,984	250	1,485	1,197	1,614
Rhode Island	13,207	9,012	[illegible]5	642	948	----------	140	32[illegible]	374
Connecticut	39,754	25,276	10,306	956	1,388	48	386	52[illegible]	869
Middle Atlantic	395,811	253,122	85,052	14,149	18,227	36	5,973	7,991	11,261
New York	250,039	163,687	55,091	6,979	12,222	13	3,534	3,601	4,912
New Jersey	36,279	24,848	5,378	1,305	1,526	----------	676	1,213	1,333
Pennsylvania	109,493	64,587	24,583	5,865	4,479	23	1,763	3,177	5,016
East North Central	368,958	227,127	76,552	14,398	13,288	261	9,933	9,590	17,809
Ohio	70,470	41,581	15,479	1,982	3,162	23	1,882	2,268	4,093
Indiana	44,563	24,225	8,439	2,513	2,031	15	1,891	2,112	3,337
Illinois	118,807	77,206	24,701	3,032	4,681	35	3,030	2,074	4,048
Michigan	79,315	48,982	17,450	3,208	2,214	147	1,848	2,052	3,414
Wisconsin	55,803	35,133	10,483	3,663	1,200	41	1,282	1,084	2,917
West North Central	156,383	85,110	38,425	6,332	6,793	47	4,413	4,031	15,232
Minnesota	41,448	24,323	9,477	1,205	1,559	28	652	1,259	2,902
Iowa	25,917	14,545	4,992	389	1,156	----------	988	756	2,891
Missouri	47,401	25,299	11,880	2,869	2,066	----------	859	983	3,445
North Dakota	5,293	2,376	703	306	295	----------	395	47	1,171
South Dakota	5,867	2,854	640	460	195	----------	525	23	1,170
Nebraska	10,053	4,947	1,991	335	448	2	278	401	1,651
Kansas	20,404	10,766	4,742	565	1,074	17	676	562	2,002
South Atlantic	285,102	161,025	59,133	11,599	15,996	60	6,209	7,805	23,275
Delaware	3,052	1,841	458	179	52	----------	118	----------	404
Maryland	54,804	37,789	11,008	968	1,465	5	923	1,019	1,627
District of Columbia	24,555	15,892	5,954	309	1,476	----------	396	----------	528
Virginia	29,304	14,758	5,387	721	3,180	----------	1,165	800	3,293
West Virginia	10,644	4,495	1,612	1,778	410	----------	313	97	1,939
North Carolina	64,497	35,347	16,009	2,729	2,281	12	1,104	1,500	5,515
South Carolina	11,941	4,026	1,651	374	1,660	14	602	771	2,843
Georgia	37,143	17,651	7,298	2,196	3,527	----------	557	1,622	4,292
Florida	49,162	29,227	9,756	2,345	1,945	29	1,031	1,996	2,834
East South Central	88,569	43,616	15,946	3,866	5,006	----------	2,121	2,893	15,121
Kentucky	17,686	9,143	2,879	702	721	----------	226	283	3,732
Tennessee	35,731	17,771	8,118	1,[illegible]	2,255	----------	945	961	3,892
Alabama	21,892	11,180	3,548	1,013	1,115	----------	309	995	3,732
Mississippi	13,260	5,522	1,401	362	915	----------	641	654	3,765
West South Central	144,895	80,274	25,153	5,671	9,350	104	4,723	4,943	14,677
							330	459	2,829

East North Central	368,958	227,127	76,552	14,398	13,288	261	9,933	9,590	17,809
Ohio	70,470	41,581	15,479	1,982	3,162	23	1,882	2,268	4,093
Indiana	44,563	24,225	8,439	2,513	2,031	15	1,891	2,112	3,337
Illinois	118,807	77,206	24,701	3,032	4,681	35	3,030	2,074	4,048
Michigan	79,315	48,982	17,450	3,208	2,214	147	1,848	2,052	3,414
Wisconsin	55,803	35,133	10,483	3,663	1,200	41	1,282	1,084	2,917
West North Central	156,383	85,110	34,425	6,332	6,793	47	4,413	4,031	15,232
Minnesota	41,448	24,323	9,477	1,208	1,559	28	692	1,259	2,902
Iowa	25,917	14,545	4,992	589	1,156	----	988	756	2,891
Missouri	47,401	25,299	11,880	2,869	2,066	----	859	983	3,445
North Dakota	5,293	2,376	703	306	295	----	395	47	1,171
South Dakota	5,867	2,854	640	460	195	----	525	23	1,170
Nebraska	10,053	4,947	1,991	335	448	2	278	401	1,651
Kansas	20,404	10,766	4,[illegible]	55	1,074	17	676	562	2,002
South Atlantic	285,102	161,025	59,133	11,599	15,996	60	6,209	7,805	23,275
Delaware	3,052	1,841	458	179	52	----	118	----	404
Maryland	54,804	37,789	11,008	968	1,465	5	923	1,019	1,627
District of Columbia	24,555	15,892	5,954	309	1,476	----	396	----	528
Virginia	29,304	14,758	5,387	721	3,180	----	1,165	800	3,293
West Virginia	10,644	4,495	1,612	1,778	410	----	313	97	1,939
North Carolina	64,497	35,347	16,009	2,729	2,281	12	1,104	1,500	5,515
South Carolina	11,941	4,026	1,651	374	1,660	14	602	771	2,843
Georgia	37,143	17,651	7,298	2,196	3,527	----	557	1,622	4,292
Florida	49,162	29,226	9,756	2,345	1,945	29	1,031	1,996	2,834
East South Central	88,569	43,616	15,946	3,866	5,006	----	2,121	2,893	15,121
Kentucky	17,686	9,143	2,879	702	721	----	226	283	3,732
Tennessee	35,731	17,771	8,118	1,789	2,255	----	945	961	3,892
Alabama	21,892	11,180	3,548	1,013	1,115	----	309	995	3,732
Mississippi	13,260	5,522	1,401	362	915	----	641	654	3,765
West South Central	144,895	80,274	25,153	5,671	9,350	104	4,723	4,943	14,677
Arkansas	9,163	3,683	1,087	544	322	----	239	459	2,829
Louisiana	27,649	11,106	6,006	2,025	3,604	----	1,246	917	2,745
Oklahoma	16,831	6,819	3,557	492	909	----	1,324	1,304	2,424
Texas	91,252	58,666	14,503	2,610	4,515	104	1,914	2,261	6,679
Mountain	115,898	73,729	18,794	3,927	6,551	183	3,417	1,711	7,586
Montana	4,65	2,364	591	374	92	20	356	----	861
Idaho	3,365	1,358	320	166	130	----	252	260	879
Wyoming	3,633	1,963	479	192	48	----	396	----	555
Colorado	43,833	26,721	7,812	1,465	4,661	54	1,007	625	1,458
New Mexico	15,616	10,916	1,463	715	400	----	188	132	1,802
Arizona	16,143	9,983	3,313	349	423	44	732	388	911
Utah	24,785	17,571	4,475	519	709	43	437	306	734
Nevada	3,865	2,853	311	[illegible]	88	22	49	----	386
Pacific	384,689	263,291	66,719	16,992	15,350	27	5,161	7,125	9,776
Washington	49,728	31,433	10,954	2,727	1,184	29	872	946	1,583
Oregon	32,627	17,700	5,920	959	4,562	20	1,380	674	1,412
California	281,317	199,548	48,211	12,145	7,202	419	2,793	5,333	5,866
Alaska	7,189	4,978	155	358	1,358	----	10	----	330
Hawaii	13,828	9,632	1,479	803	1,044	[illegible]	106	172	585
Outlying areas *	12,101	4,082	2,975	961	226	----	299	432	3,126

* Includes Puerto Rico, Virgin Islands, and Guam. The amounts to the Virgin Islands and Guam were a small fraction of the total.

SOURCE: National Science Foundation (CASE).

Table B-5.—Federal obligations for academic science to universities and colleges receiving the largest amounts, ranked in various groups, by field of science, fiscal year 1970[a]

[Dollars in thousands]

Number of institutions (ranked in order of academic science obligations)	Total	Physical sciences	Mathematics	Environmental sciences	Engineering	Life sciences	Psychology	Social sciences	Other sciences, n.e.c.
Total, all institutions:									
Amount of obligations	$2,230,852	$321,559	$72,303	$126,475	$165,346	$833,899	$103,113	$95,251	$512,906
Percent of total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
First 10:									
Amount of obligations	504,939	105,128	18,279	34,197	55,502	174,205	25,983	24,274	67,371
Percent of total	22.63	32.69	25.28	27.04	33.57	20.89	25.20	25.48	13.14
Second 10:									
Amount of obligations	320,359	49,894	10,887	25,476	14,361	150,814	15,675	15,289	37,963
Percent of total	14.36	15.52	15.06	20.14	8.69	18.09	15.20	16.05	7.40
Third 10:									
Amount of obligations	212,000	25,368	5,353	6,102	11,645	105,922	10,568	4,765	42,277
Percent of total	9.50	7.89	7.40	4.82	7.04	12.70	10.25	5.00	8.24
Fourth 10:									
Amount of obligations	175,665	32,005	6,333	6,076	17,859	63,777	8,683	7,819	33,113
Percent of total	7.87	9.95	8.76	4.80	10.80	7.65	8.42	8.21	6.46
Fifth 10:									
Amount of obligations	142,899	12,674	2,814	10,438	7,787	45,919	3,850	4,193	55,774
Percent of total	6.41	3.94	3.89	8.21	4.71	5.51	3.73	4.40	10.87
First 50:									
Amount of obligations	1,355,862	225,069	43,666	82,239	106,654	540,637	64,759	56,340	236,498
Percent of total	50.78	69.99	60.39	65.02	64.50	64.83	62.80	59.15	46.11
Second 50:									
Amount of obligations	434,128	49,780	13,530	23,342	33,733	162,237	17,762	13,554	120,190
Percent of total	19.46	15.48	18.71	18.46	20.40	19.46	17.23	14.23	23.43
First 100:									
Amount of obligations	1,789,990	274,849	57,196	105,581	140,387	702,874	82,521	69,894	356,688
Percent of total	80.24	85.47	79.11	83.48	84.90	84.29	80.03	73.38	69.54
All other:									
Amount of obliga*	440,862	46,710	15,107	20,894	24,959	131,025	20,592	25,357	156,218
Percent of total	19.76	14.53	20.89	16.52	15.10	15.71	19.97	26.62	30.46

[a] Table includes imputations for some $110 million in Department of Defense R&D obligations, representing grants and contracts for which DOD was unable to supply field of science breaks.

SOURCE: National Science Foundation (CASE).

Table B-6.—Federal obligations for academic science to 100 universities and colleges receiving the largest amounts, by type of activity, fiscal year 1970

[Dollars in thousands]

Institution (in order of academic science obligations)	State	Total	Research and development	Manpower development	Facilities and equipment	General support for science	Research institutes, seminars, or conferences	Educational institutes, seminars, or conferences	Development of educational techniques and materials	Other related activities
Total, 100 institutions		$[illegible] 789,990	$1[illegible]25,103	$341,410	$50,971	$69,789	$1,082	$18,785	$8,832	$104,018
1. Massachusetts Institute of Technology	Mass.	98,952	91,048	4,749	2,055	605	58	.....	86	351
2. Stanford University	Calif.	52,1[illegible]3	39,936	9,108	966	879	1	289	1,150	854
3. Harvard University	Mass.	51,013	36,149	11,980	1,635	1,034	.....	208	2	5
4. University of Wisconsin-Madison	Wis.	47,066	31,765	8,522	2,651	771	41	433	7	2,876
5. University of Michigan	Mich.	47,008	33,561	10,646	1,263	1,085	111	175	167	.....
6. University of California-Los Angeles	Calif.	45,453	32,516	[illegible]900	3,440	883	36	.....	.....	278
7. Columbia University	N.Y.	43,708	32,444	8,935	1,314	8[illegible]	10	.....	15	174
8. University of Washington	Wash.	40,853	[illegible]7,727	9,543	2,0[illegible]4	925	4	215	216	149
9. University of Illinois-Urbana	Ill.	40,750	[illegible]0,379	4,297	737	465	15	868	112	3,877
10. University of Minnesota	Minn.	37,953	24,191	[illegible],829	868	906	28	156	173	2,802
11. University of California-Berkeley	Calif.	37,892	[illegible]7,929	8,[illegible]31	34	606	46	404	424	408
12. University of California-San Diego	Calif.	37,781	[illegible]3,364	2,[illegible]22	1,410	561	70	.....	.....	94
13. Cornell University	N.Y.	36,597	24,465	6,539	378	901	.....	260	.....	4,054
14. University of Chicago	Ill.	35,600	24,562	9,554	612	599	12	90	.....	151
15. University of Pennsylvania	Pa.	32,547	20,676	8,473	2,420	931	.....	30	.....	17
16. New York University	N.Y.	31,109	21,454	8,[illegible]67	656	699	.....	[illegible]52	.....	1
17. Johns Hopkins University	Md.	30,206	[illegible]1,150	7,766	224	889	.....	.....	.....	177
18. Yale University	Conn.	29,150	[illegible],940	8,218	531	70[illegible]	48	1	88	[illegible]5
19. Duke University	N.C.	24,758	[illegible],458	7,044	1,181	[illegible]32	.....	143	.....	.....
20. Ohio State University	Ohio	24,719	15,041	4,105	296	[illegible]8	19	437	.....	4,093
21. Washington University	Mo.	23,608	14,001	6,551	1,902	1,147	.....	7	.....	5
22. University of Colorado	Colo.	23,485	13,861	5,268	796	2,8[illegible]3	44	444	19	198
23. University of Maryland	Md.	22,766	16,530	[illegible] 137	260	525	5	545	314	1,450
24. University of Rochester	N.Y.	21,847	14,591	4,[illegible]0	912	1,722	3	119	.....	.....
25. Purdue University	Ind.	21,343	11,816	3,092	759	911	.....	604	1,192	2,969
26. Case Western Reserve University	Ohio	20,280	13,666	5,955	52	566	.....	41	.....	.....
27. Yeshiva University	N.Y.	20,030	13,331	4,986	.....	1,408	.....	305	.....	.....
28. University of California-San Francisco	Calif.	19,842	13,596	[illegible],[illegible]62	71	528	49	.....	.....	.....
29. Pennsylvania State University	Pa.	19,775	10 522	2,608	71	359	.....	421	1,411	4,383
30. University of Florida	Fla.	19,024	11,082	4,398	671	521	10	258	.....	2,081
31. University of Pittsburgh	Pa.	19,002	12,479	5,152	116	772	23	36	184	240
32. University of North Carolina-Chapel Hill	N.C.	18,883	11,246	6,450	48	661	.....	466	.....	12
33. Michigan State University	Mich.	18,327	10 177	[illegible],340	458	485	36	348	84	3,399
34. University of Southern California	Calif.	17,767	11,561	4,674	406	529	.....	210	.....	387

4. University of Wisconsin-Madison	Wis.	47,066	31,765	8,522	2,651	771	41	433	7	2,876
5. University of Michigan	Mich.	47,008	33,567	10,646	1,263	1,085	111	175	167	
6. University of California-Los Angeles	Calif.	45,453	32,916	7,900	3,440	883	36			278
7. Columbia University	N.Y.	43,708	32,444	8,935	1,314	816	10		15	174
8. University of Washington	Wash.	40,853	27,727	9,543	2,074	925	4	215	216	149
9. University of Illinois-Urbana	Ill.	40,750	30,379	4,297	737	465	15	868	112	3,877
10. University of Minnesota	Minn.	37,953	24,191	8,829	868	906	28	156	173	2,802
11. University of California-Berkeley	Calif.	37,892	27,529	8,141	34	606	46	404	424	408
12. University of California-San Diego	Calif.	37,731	33,364	2,282	1,410	561	70			94
13. Cornell University	N.Y.	36,597	24,465	6,539	378	901		260		4,054
14. University of Chicago	Ill.	35,600	24,582	9,554	612	599	12	90		151
15. University of Pennsylvania	Pa.	32,547	20,676	8,473	2,420	931		30		17
16. New York University	N.Y.	31,109	21,454	8,087	666	699		202		1
17. Johns Hopkins University	Md.	30,206	21,150	7,766	224	889				177
18. Yale University	Conn.	29,150	19,540	8,718	531	709	48	1	88	15
19. Duke University	N.C.	24,758	15,458	7,044	1,181	932		143		
20. Ohio State University	Ohio	24,719	15,041	4,105	296	728	19	437		4,093
21. Washington University	Mo.	23,602	14,001	6,551	1,902	1,142		7		5
22. University of Colorado	Colo.	23,485	13,861	5,268	796	2,855	44	444	19	198
23. University of Maryland	Md.	22,766	16,530	3,137	260	525	5	545	314	1,450
24. University of Rochester	N.Y.	21,847	14,591	4,500	912	1,722	3	119		
25. Purdue University	Ind.	21,343	11,816	3,092	759	911		604	1,192	2,969
26. Case Western Reserve University	Ohio	20,280	13,666	5,955	52	566		41		
27. Yeshiva University	N.Y.	20,030	13,331	4,986		1,408		305		
28. University of California-San Francisco	Calif.	19,842	13,596	5,598	71	528	49			
29. Pennsylvania State University	Pa.	19,775	10,522	2,608	71	359		421	1,411	4,383
30. University of Florida	Fla.	19,024	11,082	4,398	671	521	10	258		2,084
31. University of Pittsburgh	Pa.	18,000	12,479	5,152	116	772	23	36	184	240
32. University of North Carolina-Chapel Hill	N.C.	18,853	11,246	6,450	48	661		466		12
33. Michigan State University	Mich.	18,327	10,177	3,340	458	485	36	348	84	3,399
34. University of Southern California	Calif.	17,767	11,561	4,674	406	529		210		387
35. California Institute of Technology	Calif.	17,486	14,694	2,038	371	372			11	
36. University of Utah	Utah	17,252	12,823	3,507	265	450	20	187		
37. University of Texas-Austin	Tex.	17,187	13,053	3,142	359	238	60	315		13
38. University of Oregon-Eugene	Oreg.	17,156	8,863	3,603	37	3,564	20	580	9	190
39. Princeton University	N.J.	16,898	14,181	2,054	440	198		25		
40. Northwestern University	Ill.	15,714	9,166	4,260		2,067	8	121	96	
41. Texas A&M University	Tex.	15,516	7,131	618	719	172		381		6,495
42. University of Miami	Fla.	15,467	11,117	2,286	806	484	19			750
43. University of Georgia	Ga.	15,187	5,645	2,033	126	2,559		246	66	4,290
44. University of Iowa	Iowa	14,665	9,765	3,754	83	641		422		
45. University of Missouri-Columbia	Mo.	14,382	5,613	4,140	397	399		390	6	3,437
46. North Carolina State University-Raleigh	N.C.	14,158	6,573	1,276	686	152	12	53	100	5,306
47. University of Hawaii	Hawaii	13,276	9,632	1,479	803	1,044	7	106	172	595
48. University of California-Davis	Calif.	13,798	8,887	1,930	1,833	1,100				38
49. University of Tennessee	Tenn.	13,041	6,013	2,091	795	207		62		3,873
50. Colorado State University	Colo.	12,894	8,8[illegible]	970	639	891	10	149	112	1,260
51. University of Kentucky	Ky.	12,787	6,996	1,460	56	404			139	3,732
52. Oregon State University	Oreg.	12,381	8,000	1,264	617	788		390	100	1,222
53. Vanderbilt University	Tenn.	12,277	7,735	3,252	39	1,069		123		
54. Rutgers, The State University	N.J.	12,057	7,453	2,590	81	355		337	24	1,265
55. University of Arizona	Ariz.	12,080	8,107	2,188	226	328	44	301		886
56. University of Kansas	Kans.	11,566	7,030	3,601	59	812	17	46		1
57. Baylor College of Medicine	Tex.	11,498	8,980	2,123		395				
58. Louisiana State University-Baton Rouge	La.	11,230	4,138	707	69	2,538		616	417	2,745
59. Boston University	Mass.	10,830	4,711	4,869	27	1,058		70		
60. Tulane University	La.	10,602	5,084	3,696	1,323	447		54		

Table B-6.—Federal obligations for academic science to 100 universities and colleges receiving the largest amounts, by type of activity, fiscal year 1970 (Continued)

(Dollars in thousands)

Institution (in order of academic science obligations)	State	Total	Research and development	Manpower development	Facilities and equipment	General support for science	Research institutes, seminars, or conferences	Educational institutes, seminars, or conferences	Development of educational techniques and materials	Other related activities
61. SUNY State University-Buffalo	N.Y.	$10,588	[illegible]	$3,184	$ 4	$ 569	.....	$ 49	.....	.....
62. Indiana University-Bloomington	Ind.	10,423	[illegible]	2,327	1,196	191	.....	240	$216	$343
63. University of Virginia	Va.	10,266	6,509	[illegible]	16	644	.....	320	.....	.....
64. Woods Hole Oceanographic Institute	Mass.	9,999	8,686	25	1,178	.....	$110	.....	.....	.....
65. CUNY Mt. Sinai School of Medicine	N.Y.	9,826	7,188	2,253	.....	385	.....	.....	.....	.....
66. University of Alabama-Birmingham	Ala.	9,738	[illegible]	[illegible]	946	713	.....	12	.....	25
67. Florida State University	Fla.	9,513	5,461	2,589	60	213	.....	557	523	.....
68. Emory University	Ga.	9,456	4,414	[illegible]	1,441	378	.....	59	.....	.....
69. Iowa State University of Science and Technology	Iowa	9,013	[illegible]	1,075	46	234	.....	104	.....	2,891
70. West Virginia University	W. Va	8,956	[illegible]	1,578	981	275	.....	211	.....	1,939
71. Temple University	Pa.	8,951	[illegible]	2,310	439	381	.....	236	.....	.....
72. University of Cincinnati	Ohio	[illegible]	5,186	2,950	44	318	4	157	.....	.....
73. Virginia Polytechnic Institute	Va.	8,399	3,718	545	8	700	.....	135	.....	3,293
74. University of Arkansas	Ark.	8,201	3,591	1,008	225	310	.....	239	.....	2,828
75. University of Connecticut	Conn.	8,090	4,792	1,789	20	501	.....	52	82	854
76. George Washington University	D.C.	8,030	6,491	953	20	273	.....	142	.....	151
77. Oklahoma State University	Okla.	7,977	3,374	922	129	240	.....	260	628	2,424
78. New Mexico State University	N. Mex.	7,946	[illegible]	308	29	94	.....	43	132	1,634
79. Syracuse University	N.Y.	7,854	[illegible]	1,972	23	400	.....	425	.....	410
80. University of Massachusetts	Mass.	7,787	4,829	968	544	205	23	.....	.....	1,218
81. Brown University	R.I.	[illegible]	5,712	[illegible]	.....	333	.....	124	146	.....
82. Illinois Institute of Technology	Ill.	[illegible]	5,570	[illegible]	33	184	.....	708	12	.....
83. Auburn University	Ala.	[illegible]	2,657	714	8	60	.....	110	.....	3,700
84. University of Alaska	Alaska	7,157	4,978	127	358	1,353	.....	6	.....	330
85. Kansas State University	Kans.	[illegible]	3,642	1,006	132	174	.....	210	.....	1,965
86. Mississippi State University	Miss.	7,108	[illegible]	255	.....	53	.....	90	.....	3,765
87. Carnegie Mellon University	Pa.	6,935	6,027	526	47	155	.....	53	.....	127
88. Rice University	Tex.	6,904	[illegible]	1,027	.....	702	.....	.....	.....	.....
89. University of Oklahoma	Okla.	6,875	[illegible]	2,510	14	352	.....	857	.....	.....
90. Brandeis University	Mass.	6,872	2,847	1,923	.....	2,043	59	.....	.....	.....
91. University of Texas-Southwestern Medical School	Tex.	6,869	4,382	2,130	.....	357	.....	.....	.....	.....
92. Wayne State University	Mich.	6,857	3,719	2,474	[illegible]	339	.....	231	.....	.....
93. Georgia Institute of Technology	Ga.	6,781	5,685	[illegible]	[illegible]	191	.....	.....	74	2
94. SUNY State University-Stonybrook	Y.	6,762	4,074	494	16	2,163	.....	.....	15	.....
95. University of Nebraska	Nebr.	6,725	3,587	918	309	161	.....	100	.....	1,650
96. University of Texas-M. D. Anderson Hospital and Tumor Institute	Tex.	6,605	5,455	730	2	418	.....	.....	.....	.....
97. Clemson University	S.C.	6,377	2,132	417	46	850	.....	68	21	2,843
98. Georgetown University	[illegible]	6,365	3,756	[illegible]	105	804	.....	.....	.....	.....
99. Tufts University	Mass.	6,354	4,261	1,574	153	332	.....	34	.....	.....
100. Rensselaer Polytechnic Institute	N.Y.	6,253	4,914	739	109	105	.....	264	87	35

SOURCE: National Science Foundation (CASE).

Table B-7.—Federal R&D obligations to universities and colleges, by major field of science, fiscal year 1970

[Dollars in thousands]

Agency	Total	Physical sciences	Mathematics	Environmental sciences	Engineering	Life sciences	Psychology	Social sciences	Other sciences, n.e.c.
Total, all agencies *	$1,395,923	$283,114	$44,582	$106,722	$141,533	$565,094	$62,298	$47,832	$144,748
Percent of U.S. total	100.00	20.28	3.19	7.65	10.14	40.48	4.46	3.43	10.37
Department of Agriculture:	67,412	374	46	262	713	6,721	35	694	58,567
Percent of agency total	100.00	.55	.07	.39	1.06	9.97	.05	1.03	86.88
Atomic Energy Commission:	101,413	60,454	3,316	3,969	5,230	28,419	.....	.....	25
Percent of agency total	100.00	59.61	3.27	3.91	5.16	28.02	.....	.....	.02
Department of Commerce:	1,611	477	.....	1,129	5	.....	.....	.....	.....
Percent of agency total	100.00	29.61	.....	70.08	.31	.....	.....	.....	.....
Department of Defense: *	265,485	98,126	16,609	38,057	53,530	28,720	14,384	3,531	12,528
Percent of agency total	100.00	36.96	6.26	14.33	20.16	10.82	5.42	1.33	4.72
Department of Health, Education, and Welfare:	594,368	23,781	7,722	1,734	11,447	439,388	39,549	12,059	58,688
Percent of agency total	100.00	4.00	1.30	.29	1.93	73.93	6.65	2.03	9.87
National Institutes of Health:	463,794	20,804	6,388	560	10,206	396,853	11,113	1,037	16,833
Percent of agency total	100.00	4.49	1.38	.12	2.20	85.57	2.40	.22	3.63
Health Services and Mental Health Administration:	61,947	185	1,004	.....	47	15,103	25,341	2,211	18,056
Percent of agency total	100.00	.30	1.62	.....	.08	24.38	40.91	3.57	29.15
Environmental Health Services:	12,795	2,479	275	1,072	1,068	2,313	9	19	5,560
Percent of agency total	100.00	19.37	2.15	8.38	8.35	18.08	.07	.15	43.45
Office of Education:	29,935	313	55	102	10	9,155	1,829	5,799	12,672
Percent of agency total	100.00	1.05	.18	.34	.03	30.58	6.11	19.37	42.33
Social and Rehabilitation Service:	20,583	.....	.....	.....	65	10,854	1,104	2,993	5,567
Percent of agency total	100.00	.....	.....	.....	.32	52.73	5.36	14.54	27.05
Food and Drug Administration:	5,314	.....	.....	.....	51	5,110	153	.....	.....
Percent of agency total	100.00	.....	.....	.....	.96	96.16	2.88	.....	.....
Department of the Interior:	26,943	3,221	304	5,888	9,849	5,072	54	1,780	75
Percent of agency total	100.00	11.95	1.13	21.85	36.55	18.82	.20	6.61	2.88
National Aeronautics and Space Administration:	126,783	42,810	1,062	24,061	39,618	11,333	1,535	895	5,469
Percent of agency total	100.00	33.77	.84	18.98	31.25	8.94	1.21	.71	4.31
National Science Foundation:	193,598	53,871	15,523	31,622	21,141	42,358	6,203	13,974	8,696
Percent of agency total	100.00	27.86	8.03	16.35	10.93	21.90	3.21	7.23	4.50
Office of Economic Opportunity:	18,520	.....	.....	.....	.....	3,083	538	14,999	.....
Percent of agency total	100.00	.....	.....	.....	.....	16.65	2.90	80.45	.....

* Data for the Department of Defense, and therefore for all fields, include imputations for some $110 million representing grants and contracts for which DOD was unable to supply field of science breaks.

SOURCE: National Science Foundation (CASE).

Table B-8.—Federal R&D obligations to universities and colleges, by detailed field of science and agency, fiscal year 1970

[Dollars in thousands]

Field of science	Total[a]		USDA	AEC	Commerce	DOD[a]	HEW	Interior	NASA	NSF	OEO
	Amount	Percent of total									
Total, all fields	$1,395,923	100.00	$67,412	$101,413	$1,611	$265,485	$594,368	$26,943	$126,783	$193,388	$18,520
Percent of total	100.00		4.83	7.26	.12	19.02	42.58	1.93	9.08	13.85	1.33
Physical sciences	283,114	20.28	374	60,454	477	98,126	23,781	3,221	42,810	53,871	
Percent of field total	100.00		.13	21.35	.17	34.66	8.40	1.14	15.12	19.03	
Astronomy	32,111	2.30			425	4,574	23	19	20,052	7,018	
Percent of field total	100.00				1.32	14.24	.07	.06	62.45	21.86	
Chemistry	70,205	5.03	339	10,021		14,933	22,340	2,305	2,312	17,955	
Percent of field total	100.00		.48	14.27		21.27	31.82	3.28	3.29	25.58	
Physics	176,629	12.65		50,401	52	78,619	1,003	738	16,918	28,898	
Percent of field total	100.00			28.53	.03	44.51	.57	.42	9.58	16.36	
Physical sciences, n.e.c.	4,169	.30	35	32			415	159	3,528		
Percent of field total	100.00		.84	.77			9.95	3.81	84.62		
Mathematics	44,582	3.19	46	3,316		16,609	7,722	304	1,062	15,523	
Percent of field total	100.00		.10	7.44		37.25	17.32	.68	2.38	34.82	
Environmental sciences	106,722	7.65	262	3,969	1,129	38,057	1,734	5,888	24,061	31,622	
Percent of field total	100.00		.25	3.72	1.06	35.66	1.62	5.52	22.55	29.63	
Atmospheric sciences	35,399	2.54	27	741	459	8,831	673	2,989	10,421	11,258	
Percent of field total	100.00		.08	2.09	1.30	24.95	1.90	8.44	29.44	31.80	
Geological sciences	27,997	2.01	203	879	447	10,770	39	2,488	5,258	7,913	
Percent of field total	100.00		.73	3.14	1.60	38.47	.14	8.89	18.78	28.26	
Oceanography	33,082	2.37		2,344	50	18,456	111	378	17	11,726	
Percent of field total	100.00			7.09	.15	55.79	.34	1.14	.05	35.45	
Environmental sciences, n.e.c.	10,244	.73	32	5	173		911	33	8,365	725	
Percent of field total	100.00		.31	.05	1.69		8.89	.32	81.66	7.08	
Engineering	141,533	10.14	713	5,230	5	53,530	11,447	9,849	39,618	21,141	
Percent of field total	100.00		.50	3.70	(b)	37.82	8.09	6.96	27.99	14.94	
Aeronautical	16,217	1.16		121		9,170			6,299	627	
Percent of field total	100.00			.75		56.55			38.84	3.87	
Astronautical	18,002	1.29				1,836	28		16,138		
Percent of field total	100.00					10.20	.16		89.65		
Chemical	8,167	.59		61		1,843	267	1,485	591	3,920	
Percent of field total	100.00			.75		22.57	3.27	18.18	7.24	48.00	
Civil	9,981	.72	30			3,516		3,239	40	3,156	
Percent of field total	100.00		.30			35.23		32.45	.40	31.62	

Physical sciences	283,114	20.28	374	60,454	477	98,126	23,781	3,221	42,810	53,871	
Percent of field total	100.00		.13	21.35	.17	34.66	8.40	1.14	15.12	19.03	
Astronomy	32,111	2.30			425	4,574	23	19	20,052	7,018	
Percent of field total	100.00				1.32	14.24	.07	.06	62.45	21.86	
Chemistry	70,205	5.03	339	10,021		14,933	22,340	2,305	2,312	17,955	
Percent of field total	100.00		.48	14.27		21.27	31.82	3.28	3.29	25.58	
Physics	176,629	12.65		50,401	52	78,619	1,003	738	16,918	28,898	
Percent of field total	100.00			28.53	.03	44.51	.57	.42	9.58	16.36	
Physical sciences, n.e.c.	4,169	.30	35	32			415	159	3,528		
Percent of field total	100.00		.84	.77			9.95	3.81	84.62		
Mathematics	44,582	3.19	46	3,316		16,609	7,722	304	1,062	15,523	
Percent of field total	100.00		.10	7.44		37.25	17.32	.68	2.38	34.82	
Environmental sciences	106,722	7.65	262	3,969	1,129	38,057	1,734	5,888	24,061	31,622	
Percent of field total	100.00		.25	3.72	1.06	35.66	1.62	5.52	22.55	29.63	
Atmospheric sciences	35,399	2.54	27	741	459	8,831	673	2,989	10,421	11,258	
Percent of field total	100.00		.08	2.09	1.30	24.95	1.90	8.44	29.44	31.80	
Geological sciences	27,997	2.01	203	879	447	10,770	39	2,488	5,258	7,913	
Percent of field total	100.00		.73	3.14	1.60	38.47	.14	8.89	18.78	28.26	
Oceanography	33,082	2.37		2,344	58	18,456	111	378	17	11,726	
Percent of field total	100.00			7.09	.15	55.79	.34	1.14	.05	35.45	
Environmental sciences, n.e.c.	10,244	.73	32	5	173		911	33	8,365	725	
Percent of field total	100.00		.31	.05	1.69		8.89	.32	81.66	7.08	
Engineering	141,533	10.14	713	5,230	5	53,530	11,447	9,849	39,618	21,141	
Percent of field total	100.00		.50	3.70	(b)	37.82	8.09	6.96	27.99	14.94	
Aeronautical	16,217	1.16		121		9,170			6,299	627	
Percent of field total	100.00			.75		56.55			38.84	3.87	
Astronautical	18,002	1.29				1,836	28		16,138		
Percent of field total	100.00					10.20	.16		89.65		
Chemical	8,167	.59		61		1,843	267	1,485	591	3,920	
Percent of field total	100.00			.75		22.57	3.27	18.18	7.24	48.00	
Civil	9,981	.72	30			3,516		3,239	40	3,156	
Percent of field total	100.00		.30			35.23		32.45	.40	31.62	
Electrical	31,963	2.29		22		17,696	83	115	9,489	4,558	
Percent of field total	100.00			.07		55.36	.26	.36	29.69	14.26	
Mechanical	11,904	.85	7			5,348	529	393	1,469	4,158	
Percent of field total	100.00		.06			44.93	4.44	3.30	12.34	34.93	
Metallurgy and materials	17,603	1.26	240	2,461		7,825	158	1,992	1,380	3,547	
Percent of field total	100.00		1.36	13.98		44.45	.90	11.32	7.84	20.15	
Engineering, n.e.c.	27,696	1.98	436	2,565	5	6,296	10,382	2,625	4,212	1,175	
Percent of field total	100.00		1.57	9.26	.02	22.73	37.49	9.48	15.21	4.24	
Life sciences	565,094	40.48	6,721	28,419		28,770	439,388	5,072	11,333	42,358	3,083
Percent of field total	100.00		1.19	5.03		5.08	77.75	.90	2.01	7.50	.55
Biological	333,386	23.88	6,721	25,084		23,069	224,393	5,030	6,714	42,358	17
Percent of field total	100.00		2.02	7.52		6.92	67.31	1.51	2.01	12.71	.01
Clinical medicine	218,429	15.65		3,322		5,215	205,269	42	1,515		3,066
Percent of field total	100.00			1.52		2.39	93.98	.02	.69		1.40
Life sciences, n.e.c.	13,279	.95		13		436	9,726		3,104		
Percent of field total	100.00			.10		3.28	73.24		23.38		

Table B-8.—Federal R&D obligations to universities and colleges, by detailed field of science and agency, fiscal year 1970 (Continued)

[Dollars in thousands]

Field of science	Total [a]		USDA	AEC	Commerce	DOD [a]	HEW	Interior	NASA	NSF	OEO
	Amount	Percent of total									
Psychology	62,298	4.46	$35	----	----	$14,384	$39,549	$ 54	$1,535	$6,203	$ 538
Percent of field total	100.00	----	.06	----	----	23.09	63.48	.09	2.46	9.96	.86
Biological aspects	12,686	.91	----	----	----	6,006	5,828	19	833	----	----
Percent of field total	100.00	----	----	----	----	47.34	45.94	.15	6.57	----	----
Social aspects	16,183	1.16	32	----	----	2,863	12,535	35	180	----	538
Percent of field total	100.00	----	.20	----	----	17.69	77.46	.22	1.11	----	3.32
Psychological sciences, n.e.c.	33,429	2.39	3	----	----	5,515	21,186	----	522	6,203	----
Percent of field total	100.00	----	.01	----	----	16.50	63.38	----	1.56	18.56	----
Social sciences	47,832	3.43	694	----	----	3,531	12,059	1,780	895	13,974	14,899
Percent of field total	100.00	----	1.45	----	----	7.38	25.21	3.72	1.87	29.21	31.15
Anthropology	4,144	.30	----	----	----	----	995	492	----	2,657	----
Percent of field total	100.00	----	----	----	----	----	24.01	11.87	----	64.12	----
Economics	6,772	.49	440	----	----	130	273	778	----	4,260	891
Percent of field total	100.00	----	6.50	----	----	1.92	4.03	11.49	----	62.91	13.16
History	1,204	.09	2	----	----	----	246	----	116	840	----
Percent of field total	100.00	----	.17	----	----	----	20.43	----	9.63	69.77	----
Linguistics	2,099	.15	----	----	----	363	702	----	----	1,034	----
Percent of field total	100.00	----	----	----	----	17.29	33.44	----	----	49.26	----
Political science	4,414	.32	3	----	----	2,211	449	172	174	1,405	----
Percent of field total	100.00	----	.07	----	----	50.09	10.17	3.90	3.94	31.83	----
Sociology	11,839	.85	246	----	----	822	3,521	294	25	1,177	5,754
Percent of field total	100.00	----	2.08	----	----	6.94	29.74	2.48	.21	9.94	48.60
Social sciences, n.e.c.	17,360	1.24	3	----	----	5	5,873	44	580	2,601	8,254
Percent of field total	100.00	----	.02	----	----	.03	33.83	.25	3.34	14.98	47.55
Other sciences, n.e.c.	144,748	10.37	58,567	$ 25	----	12,528	58,688	775	5,469	8,696	----
Percent of field total	100.00	----	40.46	.02	----	8.66	40.54	.54	3.78	6.01	----

[a] Data for the Department of Defense, and therefore for all fields, include imputations for $110 million representing grants and contracts for which DOD was unable to supply field of science breaks.

[b] Less than .005 percent.

SOURCE: National Science Foundation (CASE).

Table B-9.—Federal R&D obligations to universities and colleges, by geographic division, State, and agency, fiscal year 1970

[Dollars in thousands]

Division and State	Total	USDA	AEC	Commerce	DOD	HEW	Interior	NASA	NSF	OEO
United States, total	$1,395,923	$67,412	$101,413	$1,611	$265,485	$594,368	$26,943	$126,783	$193,388	$18,52
New England	204,547	3,507	15,348	174	63,571	58,211	2,300	36,167	23,510	1,15
Maine	1,263	807	----------	----------	36	115	158	30	117	----------
New Hampshire	6,303	551	48	----------	490	2,774	193	1,480	767	----------
Vermont	3,052	545	63	----------	324	1,906	88	25	101	----------
Massachusetts	159,641	784	11,100	109	58,327	37,652	1,463	33,155	15,910	1,14
Rhode Island	9,012	466	694	----------	2,290	2,654	177	269	2,444	1
Connecticut	25,276	354	3,443	65	2,104	13,710	221	1,208	4 171	----------
Middle Atlantic	253,122	4,949	23,030	137	35,503	130,834	3,732	14,687	37,602	2,64
New York	163,687	2,050	15,570	118	21,080	88,624	2,186	7,266	24,662	2,13
New Jersey	24,848	825	2,952	19	4,781	7,408	262	4,178	4,260	16
Pennsylvania	64,587	2,074	4,508	----------	9,642	34,802	1,284	3,243	8,680	35
East North Central	227,127	9,562	22,175	25	44,900	91,536	2,398	15,065	36,050	5,41
Ohio	41,581	1,851	2,026	----------	12,605	17,957	646	1,674	4,363	45
Indiana	24,225	2,710	3,329	----------	3,382	8,567	295	1,323	4,619	----------
Illinois	77,206	1,733	9,053	25	18,589	29,277	544	4,833	13,021	13
Michigan	48,982	1,670	4,726	----------	8,757	18,849	517	5,632	8,751	8
Wisconsin	35,133	1,598	3,041	----------	1,567	16,886	396	1,603	5,296	4,74
West North Central	85,110	9,259	3,048	5	9,526	45,190	3,276	5,106	9,087	61
Minnesota	24,323	1,675	1,658	----------	2,508	13,622	838	1,475	2,337	21
Iowa	14,545	1,842	125	----------	1,690	7,128	547	1,939	1,274	----------
Missouri	25,299	1,759	449	5	3,463	15,358	212	1,046	2,747	26
North Dakota	2,376	788	46	----------	460	911	101	----------	70	----------
South Dakota	2,854	937	37	----------	12	257	1,128	57	426	----------
Nebraska	4,947	1,180	66	----------	170	2,922	111	20	478	----------
Kansas	10,766	1,078	667	----------	1,223	4,992	339	569	1,755	14
South Atlantic	161,025	11,571	8,579	201	28,835	76,341	3,557	11,815	17,389	2,73
Delaware	1,841	489	30	----------	726	158	93	9	336	----------
Maryland	37,789	971	3,111	32	5,199	20,041	294	3,702	4,335	10
District of Columbia	15,892	70	241	----------	4,691	7,187	192	1,940	1,069	50
Virginia	14,758	1,648	531	20	1,576	6,346	627	2,492	1,518	----------
West Virginia	4,495	1,038	----------	----------	340	1,440	691	228	270	48
North Carolina	35,347	2,520	1,657	29	5,439	21,072	288	887	2,825	63

Middle Atlantic	253,122	4,949	23,030	137	35,503	130,834	3,732	14,687	37,602	2,641
New York	163,687	2,050	15,570	118	21,080	88,624	2,186	7,266	24,662	2,131
New Jersey	24,848	825	2,952	19	4,781	7,408	262	4,178	4,260	16:
Pennsylvania	64,587	2,074	4,508	----	9,642	34,802	1,284	3,243	8,680	35
East North Central	227,127	9,562	22,175	25	44,900	91,536	2,398	15,065	36,050	5,41
Ohio	41,581	1,851	2,026	----	12,605	17,957	646	1,674	4,363	45
Indiana	24,225	2,710	3,329	----	3,382	8,567	295	1,323	4,619	----
Illinois	77,206	1,733	9,053	25	18,589	29,277	544	4,833	13,021	131
Michigan	48,982	1,670	4,726	----	8,757	18,849	517	5,632	8,751	80
Wisconsin	35,133	1,598	3,041	----	1,567	16,886	396	1,603	5,296	4,746
West North Central	85,110	9,259	3,048	5	9,526	45,190	3,276	5,106	9,087	613
Minnesota	24,323	1,675	1,658	----	2,508	13,622	838	1,475	2,337	210
Iowa	14,545	1,842	125	----	1,690	7,128	547	1,939	1,274	----
Missouri	25,299	1,759	449	5	3,463	15,358	212	1,046	2,747	260
North Dakota	2,376	788	46	----	460	911	101	----	70	----
South Dakota	2,854	937	37	----	12	257	1,128	57	426	----
Nebraska	4,947	1,180	66	----	170	2,922	111	20	478	----
Kansas	10,766	1,078	667	----	1,223	4,992	339	569	1,755	143
South Atlantic	161,025	11,571	8,579	201	28,835	76,341	3,557	11,815	17,389	2,737
Delaware	1,841	489	30	----	726	158	93	9	336	----
Maryland	37,789	971	3,111	32	5,199	20,041	294	3,702	4,335	104
District of Columbia	15,892	70	241	----	4,691	7,187	192	1,940	1,069	502
Virginia	14,758	1,648	531	20	1,576	6,346	627	2,492	1,518	----
West Virginia	4,495	1,038	----	----	340	1,440	691	228	270	488
North Carolina	35,347	2,520	1,657	29	5,439	21,072	288	887	2,825	630
South Carolina	4,026	1,406	116	----	493	1,332	184	130	265	100
Georgia	17,651	2,132	979	5	3,997	7,002	354	1,317	1,835	30
Florida	29,226	1,297	1,914	115	6,374	11,763	834	1,110	4,936	883
East South Central	43,616	8,156	1,954	----	4,377	22,514	888	2,386	2,317	1,024
Kentucky	9,143	2,527	95	----	1,136	3,373	211	279	716	806
Tennessee	17,771	1,663	1,766	----	1,733	10,195	323	653	1,350	88
Alabama	11,180	1,967	79	----	941	6,711	232	1,038	212	----
Mississippi	5,522	1,999	14	----	567	2,235	122	416	39	130
West South Central	80,274	6,772	3,639	68	12,980	37,323	1,055	10,170	7,549	718
Arkansas	3,683	1,390	155	----	----	1,636	139	60	303	----
Louisiana	11,106	1,306	277	----	1,164	6,003	198	715	1,336	107
Oklahoma	6,819	1,250	130	43	1,569	2,613	227	331	533	123
Texas	58,666	2,826	3,077	25	10,247	27,071	491	9,064	5,377	488
Mountain	73,729	6,000	3,122	839	16,748	20,236	5,636	7,230	12,366	1,552
Montana	2,364	880	31	----	40	427	424	----	562	----
Idaho	1,358	797	8	----	54	62	281	24	132	----
Wyoming	1,963	556	72	15	21	231	551	118	399	----
Colorado	26,721	1,042	1,149	794	4,218	9,491	1,177	2,828	5,961	61
New Mexico	10,916	715	9	20	4,908	1,079	449	2,187	816	733
Arizona	9,993	857	448	6	2,852	1,785	198	1,563	1,536	738
Utah	17,571	688	1,163	4	4,180	6,907	1,719	288	2,602	20
Nevada	2,853	465	242	----	475	254	837	222	358	----
Pacific	263,291	6,134	19,560	162	49,023	110,243	3,998	24,070	47,443	2,653
Washington	31,433	1,486	2,683	----	3,041	16,817	892	538	5,976	----
Oregon	17,700	1,173	977	----	2,198	9,068	639	499	3,746	400
California	199,548	2,402	15,078	72	39,525	82,312	1,930	21,679	34,365	2,185
Alaska	4,978	516	271	----	2,090	377	408	251	997	68
Hawaii	9,632	557	551	90	2,169	2,674	129	1,103	2,359	----
Outlying areas*	4,082	1,502	958	----	22	1,335	103	87	75	----

* Includes Puerto Rico, Virgin Islands, and Guam. The amounts to the Virgin Islands and Guam were a small fraction of the total.

SOURCE: National Science Foundation (CASE).

Table B-10.—Federal R&D obligations to universities and colleges receiving the largest amounts, ranked in various groups, by agency, fiscal year 1970

[Dollars in thousands]

Number of institutions (ranked in order of R&D obligations)	Amount	Percent of U.S. total	USDA	AEC	Commerce	DOD	HEW	Interior	NASA	NSF	OEO
Total, all institutions	$1,395,923	100.00	$67,412	$101,413	$1,611	$265,485	$594,368	$26,943	$126,783	$193,388	$18,520
First 10	388,391	27.92	3,360	30,978	219	108,638	122,709	2,919	57,820	55,689	6,059
Second 10	215,773	15.46	4,775	20,948	109	25,291	117,432	2,082	11,544	32,604	988
Third 10	140,015	10.03	1,851	14,262	477	22,365	70,279	1,016	12,274	17,166	325
Fourth 10	112,588	8.07	7,550	7,027	90	15,918	53,609	3,362	7,054	16,456	1,522
Fifth 10	86,919	6.23	3,646	5,368	191	15,530	37,046	2,524	5,301	16,913	400
First 50	943,686	67.60	21,182	78,583	1,086	187,742	401,075	11,903	93,993	138,828	9,294
Second 50	258,343	18.51	26,311	14,511	123	45,279	111,756	7,685	20,066	30,526	2,086
First 100	1,202,029	86.11	47,493	93,094	1,209	233,021	512,831	19,588	114,059	169,354	11,380
All other	193,894	13.89	19,919	8,319	402	32,464	81,537	7,355	12,724	24,034	7,140

SOURCE: National Science Foundation (CASE).

Table B-11.—Federal R&D obligations to the 100 universities and colleges receiving the largest amounts, by agency, fiscal year 1970

[Dollars in thousands]

Institution (in order of R&D obligations)	State	Total obligations	Percent of U.S. total	USDA	AEC	Commerce	DOD	HEW	Interior	NASA	NSF	OEO
Total, 100 institutions	.....	$1,202,029	86.11	$47,493	$93,094	$1,209	$233,021	$512,831	$19,588	$114,059	$169,354	$11,380
1. Massachusetts Institute of Technology	Mass.	91,048	6.52	.....	7,563	109	44,086	7,275	656	26,014	5,345	.....
2. Stanford University	Calif.	38,936	2.79	.....	662	10	10,928	15,094	134	4,013	8,020	75
3. Harvard University	Mass.	36,149	2.59	.....	1,785	.....	2,998	19,576	55	6,003	5,231	501
4. University of Michigan	Mich.	33,561	2.40	46	2,458	.....	7,710	12,659	250	5,504	4,934	.....
5. University of California-San Diego	Calif.	33,364	2.39	.....	2,027	49	10,663	7,728	.....	3,369	9,528	.....
6. University of California-Los Angeles	Calif.	32,916	2.36	.....	4,496	5	6,216	15,593	328	2,369	3,909	.....
7. Columbia University	N.Y.	32,444	2.32	20	4,639	46	7,274	13,408	120	1,866	5,071	.....
8. University of Wisconsin-Madison	Wis.	31,765	2.28	1,598	2,983	.....	1,010	14,652	340	1,603	4,833	4,746
9. University of Illinois-Urbana	Ill.	30,379	2.18	1,690	3,809	.....	12,878	5,489	408	782	5,214	103
10. University of California-Berkeley	Calif.	27,829	1.99	.....	556	.....	4,875	11,235	628	6,297	3,604	634
11. University of Washington	Wash.	27,727	1.99	207	2,390	.....	2,800	15,696	572	519	5,543	.....
12. University of Chicago	Ill.	24,582	1.76	.....	4,708	25	1,610	10,256	75	2,807	5,101	.....
13. Cornell University	N.Y.	24,465	1.75	1,895	1,653	.....	3,201	9,038	177	1,270	7,231	.....
14. University of Minnesota	Minn.	24,191	1.73	1,675	1,658	.....	2,508	13,576	828	1,475	2,261	210
15. New York University	N.Y.	21,454	1.54	25	1,658	37	2,434	14,724	64	702	1,260	550
16. Johns Hopkins University	Md.	21,150	1.52	28	953	32	2,366	15,466	65	486	1,754	.....
17. University of Pennsylvania	Pa.	20,676	1.48	.....	1,667	.....	2,539	13,365	52	259	2,570	124
18. Yale University	Conn.	19,540	1.40	.....	3,306	.....	1,631	10,678	1	694	3,230	.....
19. University of Maryland	Md.	16,530	1.18	943	2,158	.....	2,819	4,550	229	3,183	2,548	104

SOURCE: National Science Foundation (CASE).

Table B-11.—Federal R&D obligations to the 100 universities and colleges receiving the largest amounts, by agency, fiscal year 1970

[Dollars in thousands]

Institution (in order of R&D obligations)	State	Total obligations	Percent of U.S. total	USDA	AEC	Commerce	DOD	HEW	Interior	NASA	NSF	OEO
Total, 100 institutions	.....	$1,202,029	86.11	$47,493	$93,094	$1,209	$233,021	$512,831	$19,588	$114,059	$169,354	$11,380
1. Massachusetts Institute of Technology	Mass.	91,048	6.52	.....	7,563	109	44,086	7,275	656	26,014	5,345	.....
2. Stanford University	Calif.	38,936	2.79	.....	662	10	10,928	15,094	134	4,013	8,020	75
3. Harvard University	Mass.	36,149	2.59	.....	1,785	.....	2,998	19,576	55	6,003	5,231	501
4. University of Michigan	Mich.	33,561	2.40	46	2,458	.....	7,710	12,659	250	5,504	4,934	.....
5. University of California-San Diego	Calif.	33,364	2.39	.....	2,027	49	10,663	7,728	.....	3,369	9,528	.....
6. University of California-Los Angeles	Calif.	32,916	2.36	.....	4,496	5	6,216	15,593	328	2,369	3,909	.....
7. Columbia University	N.Y.	32,444	2.32	20	4,639	46	7,274	13,408	120	1,866	5,071	.....
8. University of Wisconsin-Madison	Wis.	31,765	2.28	1,598	2,983	.....	1,010	14,652	340	1,603	4,833	4,746
9. University of Illinois-Urbana	Ill.	30,379	2.18	1,696	3,809	.....	12,878	5,439	408	782	5,214	103
10. University of California-Berkeley	Calif.	27,829	1.99	.....	556	.....	4,875	11,235	628	6,297	3,604	634
11. University of Washington	Wash.	27,727	1.99	207	2,390	.....	2,800	15,696	572	519	5,543	.....
12. University of Chicago	Ill.	24,582	1.76	.....	4,708	25	1,610	10,256	75	2,807	5,101	.....
13. Cornell University	N.Y.	24,465	1.75	1,895	1,653	.....	3,201	9,038	177	1,270	7,231	.....
14. University of Minnesota	Minn.	24,191	1.73	1,675	1,658	.....	2,508	13,576	828	1,475	2,261	210
15. New York University	N.Y.	21,454	1.54	25	1,658	37	2,434	14,724	64	702	1,260	550
16. Johns Hopkins University	Md.	21,150	1.52	28	953	32	2,366	15,466	65	486	1,754	.....
17. University of Pennsylvania	Pa.	20,676	1.48	.....	1,667	.....	2,639	13,365	52	259	2,570	124
18. Yale University	Conn.	19,540	1.40	.....	3,306	.....	1,631	10,678	1	694	3,230	.....
19. University of Maryland	Md.	16,530	1.18	943	2,158	.....	2,819	4,550	229	3,183	2,544	104
20. Duke University	N.C.	15,458	1.11	2	797	15	3,283	10,083	19	149	1,110	.....
21. Ohio State University	Ohio	15,041	1.08	1,851	758	.....	3,337	5,957	466	607	2,005	.....
22. California Institute of Technology	Calif.	14,694	1.05	.....	2,558	.....	2,496	3,520	165	3,166	2,789	.....
23. University of Rochester	N.Y.	14,591	1.05	.....	4,603	.....	884	6,966	.....	233	1,905	.....
24. Princeton University	N.J.	14,181	1.02	.....	2,631	19	3,063	1,888	.....	3,933	2,647	.....
25. Washington University	Mo.	14,001	1.00	.....	352	.....	1,877	9,965	.....	686	1,121	.....
26. University of Colorado	Colo.	13,861	.99	.....	880	458	1,832	7,341	95	1,503	1,752	.....
27. Case Western Reserve University	Ohio	13,666	.98	.....	991	.....	2,523	7,935	110	697	1,410	.....
28. University of California-San Francisco	Calif.	13,596	.97	.....	659	.....	328	12,500	.....	113	.....	.....
29. Yeshiva University	N.Y.	13,331	.95	.....	135	.....	757	10,983	75	.....	1,131	250
30. University of Texas-Austin	Tex.	13,053	.94	.....	695	.....	5,272	3,224	105	1,276	2,406	75
31. University of Utah	Utah	12,823	.92	.....	1,057	4	2,898	6,339	864	161	1,480	20
32. University of Pittsburgh	Pa.	12,479	.89	.....	453	.....	1,150	8,314	212	664	1,686	.....
33. Purdue University	Ind.	11,816	.85	2,700	1,589	.....	2,222	2,229	260	711	2,105	.....
34. University of Southern California	Calif.	11,561	.83	.....	247	.....	1,785	7,212	57	1,211	1,049	.....
35. University of North Carolina-Chapel Hill	N.C.	11,246	.81	.....	462	.....	1,186	7,644	44	79	1,291	540
36. University of Miami	Fla.	11,117	.80	.....	319	86	2,367	5,423	505	375	1,983	59
37. University of Florida	Fla.	11,082	.79	1,277	388	.....	1,850	4,665	329	487	1,299	788
38. Pennsylvania State University	Pa.	10,522	.75	1,964	461	.....	992	3,065	783	1,416	1,726	115
39. Michigan State University	Mich.	10,177	.73	1,598	1,957	.....	382	2,999	220	47	2,974	.....
40. University of Iowa	Iowa	9,765	.70	11	94	.....	1,086	5,719	88	1,903	864	.....

Table B-11.—Federal R&D obligations to the 100 universities and colleges receiving the largest amounts, by agency, fiscal year 1970 (Continued)

[Dollars in thousands]

Institution (in order of R&D obligations)	State	Total obligations	Percent of U.S. total	USDA	AEC	Commerce	DOD	HEW	Interior	NASA	NSF	OEO
41. University of Hawaii	Hawaii	$9,632	.69	$557	$551	$90	$2,169	$2,674	$129	$1,103	$2,359	.....
42. Northwestern University	Ill.	9,166	.66	2	220	.....	1,488	4,818	20	1,038	1,580	.....
43. Baylor College of Medicine	Tex.	8,980	.64	.....	.....	.....	.....	8,980	.....	.....	.....	.....
44. University of California-Davis	Calif.	8,887	.64	73	2,345	.....	242	3,971	181	586	1,489	.....
45. Colorado State University[b]	Colo.	8,863	.63	1,042	269	95	1,061	1,560	807	482	3,547	.....
45. University of Oregon-Eugene[b]	Oreg.	8,863	.63	6	397	.....	816	5,842	10	277	1,115	$400
47. Woods Hole Oceanographic Institute	Mass.	8,686	.62	.....	634	.....	5,444	75	394	25	2,114	.....
48. University of Arizona	Ariz.	8,107	.58	799	360	6	2,614	1,392	198	1,543	1,195	.....
49. Oregon State University	Oreg.	8,000	.57	1,167	468	.....	1,292	1,712	629	171	2,561	.....
50. Vanderbilt University	Tenn.	7,735	.55	.....	124	.....	404	6,022	156	76	953	.....
51. Rutgers, The State University	N.J.	7,453	.53	825	109	.....	401	4,415	241	129	1,170	163
52. CUNY Mt. Sinai School of Medicine	N.Y.	7,188	.51	.....	35	.....	65	6,949	.....	.....	139	.....
53. Texas A&M University	Tex.	7,131	.51	2,629	1,005	.....	1,880	345	167	660	445	.....
54. University of Kansas	Kans.	7,030	.50	.....	341	.....	623	4,190	124	515	1,094	143
55. University of Kentucky	Ky.	6,996	.50	2,508	89	.....	856	2,375	211	279	678	.....
56. SUNY State University-Buffalo	N.Y.	6,782	.49	.....	204	.....	366	5,249	98	157	708	.....
57. University of Missouri-Columbia	Mo.	6,613	.47	1,705	39	5	1,145	2,551	149	164	855	.....
58. North Carolina State University-Raleigh	N.C.	6,573	.47	2,472	339	14	946	1,625	184	620	373	.....
59. University of Virginia	Va.	6,509	.47	6	305	.....	1,162	3,174	96	939	827	.....
60. George Washington University	D.C.	6,491	.46	.....	10	.....	1,640	2,757	47	1,500	205	332
61. University of Alabama-Birmingham	Ala.	6,277	.45	.....	.....	.....	104	6,123	.....	.....	50	.....
62. Carnegie Mellon University	Pa.	6,027	.43	.....	1,623	.....	2,440	526	122	259	1,057	.....
63. University of Tennessee	Tenn.	6,013	.43	1,644	1,540	.....	1,314	585	114	463	353	.....
64. Indiana University-Bloomington	Ind.	5,910	.42	.....	260	.....	766	2,206	22	495	2,216	.....
65. University of Georgia	Ga.	5,845	.42	2,079	630	.....	459	1,636	153	25	863	.....
66. Brown University	R.I.	5,712	.41	.....	633	.....	1,214	2,271	33	269	1,292	.....
67. New Mexico State University	N. Mex.	5,706	.41	715	.....	.....	2,515	138	418	1,760	160	.....
68. Georgia Institute of Technology	Ga.	5,685	.41	10	250	5	3,289	369	201	948	613	.....
69. Temple University	Pa.	5,585	.40	.....	106	.....	132	4,731	.....	221	280	115
70. Illinois Institute of Technology	Ill.	5,570	.40	.....	149	.....	1,950	2,992	34	159	286	.....
71. Florida State University	Fla.	5,461	.39	.....	1,166	29	1,649	1,130	.....	134	1,317	36
72. University of Texas-M. D. Anderson Hospital and Tumor Institute	Tex.	5,455	.39	.....	65	.....	70	5,066	.....	135	119	.....
73. University of Cincinnati	Ohio	5,186	.37	.....	165	.....	1,599	3,021	57	202	142	.....
74. Rice University	Tex.	5,175	.37	.....	752	.....	795	673	.....	1,949	1,006	.....
75. Tulane University	La.	5,082	.36	.....	77	.....	247	4,039	23	48	631	17
76. University of Alaska	Alaska	4,978	.36	516	271	.....	2,090	377	408	251	997	68
77. Rensselaer Polytechnic Institute	N.Y.	4,914	.35	.....	990	.....	1,279	214	1,016	818	597	.....
78. University of Massachusetts	Mass.	4,829	.35	784	225	.....	473	1,461	308	419	1,159	.....
79. Boston University	Mass.	4,811	.34	.....	31	.....	491	3,815	.....	130	326	18
80. University of Connecticut	Conn.	4,792	.34	354	93	50	425	2,785	220	276	530	.....

45. University of Oregon-Eugene[b]	Oreg.	8,863	.63	6	397	.....	816	5,842	10	277	1,115	$400
47. Woods Hole Oceanographic Institute	Mass.	8,686	.62	.....	634	.....	5,444	75	394	25	2,114	.....
48. University of Arizona	Ariz.	8,107	.58	799	360	6	2,614	1,392	198	1,543	1,195	.....
49. Oregon State University	Oreg.	8,000	.57	1,167	468	.....	1,292	1,712	079	171	2,561	.....
50. Vanderbilt University	Tenn.	7,735	.55	.....	124	.....	404	6,022	156	76	953	.....
51. Rutgers, The State University	N.J.	7,453	.53	825	109	.....	401	4,415	241	129	1,170	163
52. CUNY Mt. Sinai School of Medicine	N.Y.	7,188	.51	.....	35	.....	65	6,949	.....	.....	139	.....
53. Texas A&M University	Tex.	7,131	.51	2,629	1,005	.....	1,880	345	167	660	445	.....
54. University of Kansas	Kans.	7,030	.50	.....	341	.....	623	4,190	124	515	1,094	143
55. University of Kentucky	Ky.	6,996	.50	2,508	89	.....	856	2,375	211	279	678	.....
56. SUNY State University-Buffalo	N.Y	6,782	.49	.....	204	.....	366	5,249	98	157	708	.....
57. University of Missouri-Columbia	Mo.	6,613	.47	1,705	39	5	1,145	2,551	149	164	855	.....
58. North Carolina State University-Raleigh	N.C.	6,573	.47	2,472	339	14	946	1,625	184	620	373	.....
59. University of Virginia	Va.	6,509	.47	6	305	.....	1,162	3,174	96	939	827	.....
60. George Washington University	D.C.	6,491	.46	.....	10	.....	1,640	2,757	47	1,500	205	332
61. University of Alabama-Birmingham	Ala.	6,277	.45	.....	.....	.....	104	6,123	.....	.....	50	.....
62. Carnegie Mellon University	Pa.	6,027	.43	.....	1,623	.....	2,440	526	122	259	1,057	.....
63. University of Tennessee	Tenn.	6,013	.43	1,644	1,540	.....	1,314	585	114	463	353	.....
64. Indiana University-Bloomington	Ind.	5,910	.42	.....	260	.....	766	2,206	22	495	2,216	.....
65. University of Georgia	Ga.	5,845	.42	2,079	630	.....	459	1,636	153	25	863	.....
66. Brown University	R.I.	5,712	.41	.....	633	.....	1,214	2,271	33	269	1,292	.....
67. New Mexico State University	N. Mex.	5,706	.41	715	.....	.....	2,515	138	418	1,760	160	.....
68. Georgia Institute of Technology	Ga.	5,685	.41	10	250	5	3,289	369	201	948	613	.....
69. Temple University	Pa.	5,585	.40	.....	106	.....	132	4,731	.....	221	280	115
70. Illinois Institute of Technology	Ill.	5,570	.40	.....	149	.....	1,950	2,992	34	159	286	.....
71. Florida State University	Fla.	5,461	.39	.....	1,166	29	1,649	1,130	.....	134	1,317	36
72. University of Texas-M. D. Anderson Hospital and Tumor Institute	Tex.	5,455	.39	.....	65	.....	70	5,066	.....	135	119	.....
73. University of Cincinnati	Ohio	5,186	.37	.....	165	.....	1,599	3,021	57	202	142	.....
74. Rice University	Tex.	5,175	.37	.....	752	.....	795	673	.....	1,949	1,006	.....
75. Tulane University	La.	5,082	.36	.....	77	.....	247	4,039	23	48	631	17
76. University of Alaska	Alaska	4,978	.36	516	271	.....	2,090	377	408	251	997	68
77. Rensselaer Polytechnic Institute	N.Y.	4,914	.35	.....	990	.....	1,279	214	1,016	818	597	.....
78. University of Massachusetts	Mass.	4,829	.35	784	225	.....	473	1,461	308	419	1,159	.....
79. Boston University	Mass.	4,811	.34	.....	31	.....	491	3,815	.....	130	326	18
80. University of Connecticut	Conn.	4,792	.34	354	92	50	425	2,785	220	276	590	.....
81. Iowa State University-Science and Technology	Iowa	4,663	.33	1,831	31	.....	604	1,312	459	36	390	.....
82. Rockefeller University	N.Y.	4,642	.33	.....	202	.....	55	4,167	.....	.....	218	.....
83. Syracuse University	N.Y.	4,624	.33	17	209	.....	1,228	1,641	144	447	939	.....
84. Emory University	Ga.	4,414	.32	.....	76	.....	163	3,527	.....	344	274	30
85. University of Texas-Southwestern Medical School	Tex.	4,382	.31	.....	44	.....	.....	4,155	.....	106	77	.....
86. Tufts University	Mass.	4,261	.31	.....	390	.....	393	2,813	.....	60	339	266
87. Louisiana State University-Baton Rouge	La.	4,138	.30	1,241	200	.....	784	694	144	615	460	.....
88. SUNY State University-Stony Brook	N.Y.	4,074	.29	.....	849	.....	51	678	.....	354	2,142	.....
89. University of New Mexico	N. Mex.	4,006	.29	.....	.....	20	1,846	936	4	409	233	558
90. Utah State University	Utah	4,000	.29	687	69	.....	1,171	330	783	89	871	.....
91. West Virginia University	W. Va.	3,972	.28	1,038	.....	.....	340	1,440	691	228	235	.....
92. University of Dayton	Ohio	3,956	.28	.....	9	.....	3,830	87	.....	.....	30	.....
93. Georgetown University	D.C.	3,756	.27	.....	52	.....	578	2,690	21	25	390	.....
94. University of Texas-Dallas	Tex.	3,746	.27	.....	65	.....	128	36	.....	2,887	629	.....
95. Wayne State University	Mich.	3,719	.27	.....	140	.....	413	2,495	.....	66	525	80
96. Virginia Polytechnic Institute	Va.	3,718	.27	1,624	150	.....	199	442	528	273	502	.....
97. St. Louis University	Mo.	3,673	.26	.....	.....	.....	341	2,553	.....	129	390	260
98. Kansas State University	Kan.	3,642	.26	1,078	303	.....	600	731	215	54	661	.....
99. University of Arkansas	Ark.	3,591	.26	1,368	155	.....	.....	1,626	139	.....	303	.....
100. University of Nebraska-Lincoln	Nebr.	3,587	.26	1,180	66	.....	170	1,615	111	20	425	.....

[a] Main university only.
[b] Duplicate numbers indicate "tie" for place; e.g., same amount.

SOURCE: National Science Foundation (CASE).

Table B-12.—Federal obligations to universities and colleges for research institutes, seminars, or conferences, by geographic division, principal level of participants, and agency, fiscal year 1970

[Dollars in thousands]

Geographic division and principal level of participants	Total		Department of Health, Education, and Welfare (National Institutes of Health)		National Aeronautics and Space Administration		National Science Foundation	
	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution
United States, total	$1,357*	100.00	$235	100.00	$46	100.00	$1,073	100.00
University and college faculty	698	51.44	231	98.30	46	100.00	421	39.24
Nonfaculty-doctorates	69	5.08	4	1.70	.....	.....	65	6.06
Nonfaculty-othar	3*	.22	.....	.....	.....	.....	.....	.....
Graduate students	587	43.26	.....	.....	.....	.....	587	54.71
New England	391	28.81	63	26.81	.....	.....	328	30.57
University and college faculty	119	8.77	63	26.81	.....	.....	56	5.22
Nonfaculty-doctorates	65	4.79	.....	.....	.....	.....	65	6.06
Graduate students	207	15.25	.....	.....	.....	.....	207	19.29
Middle Atlantic	36	2.65	14	5.96	.....	.....	22	2.05
University and college faculty	17	1.25	14	5.96	.....	.....	3	.28
Graduate students	19	1.40	.....	.....	.....	.....	19	1.77
East North Central	261*	19.23	20	8.51	.....	.....	238	22.18
University and college faculty	64	4.72	16	6.81	.....	.....	48	4.47
Nonfaculty-doctorates	4	.29	4	1.70	.....	.....	.....	.....
Nonfaculty-other	3*	.22	.....	.....	.....	.....	.....	.....
Graduate students	190	14.00	.....	.....	.....	.....	190	17.71
West North Central	47	3.46	5	2.13	.....	.....	42	3.91
University and college faculty	42	3.10	5	2.13	.....	.....	37	3.45
Graduate students	5	.37	.....	.....	.....	.....	5	.47
South Atlantic	60	4.42	14	5.96	2	4.35	44	4.10
University and college faculty	31	2.28	14	5.96	2	4.35	15	1.40
Graduate students	29	2.14	.....	.....	.....	.....	29	2.70
West South Central	104	7.66	.....	.....	34	73.91	70	6.52
University and college faculty	104	7.66	.....	.....	34	73.91	70	6.52
Mountain	183	13.49	30	12.77	10	21.74	143	13.33
University and college faculty	123	9.06	30	12.77	10	21.74	83	7.74
Graduate students	60	4.42	.....	.....	.....	.....	60	5.59
Pacific	275	20.27	89	37.87	.....	.....	186	17.33
University and college faculty	198	14.59	89	37.87	.....	.....	109	10.16
Graduate students	77	5.67	.....	.....	.....	.....	77	7.18

* Includes one $3,000 award made by the Department of Commerce.

SOURCE: National Science Foundation (CASE).

Table B-13.—Federal obligations to universities and colleges for research institutes, seminars, or conferences, by detailed field of science and agency, fiscal year 1970

[Dollars in thousands]

Field of science	Total	Department of Health, Education, and Welfare	National Aeronautics and Space Administration	National Science Foundation
Total, all fields	$1,357 *	$235	$46	$1,073
Physical sciences, total	167	----	44	123
Astronomy	63	----	44	19
Chemistry	11	----	----	11
Physics	93	----	----	93
Mathematics	119	----	----	119
Environmental sciences, total	162 *	----	----	159
Atmospheric sciences	19 *	----	----	16
Geological sciences	33	----	----	33
Oceanography	110	----	----	110
Engineering, total	90	----	2	88
Civil	20	----	----	20
Electrical	8	----	----	8
Engineering, n.e.c	62	----	2	60
Life sciences, total	170	76	----	94
Biological	94	----	----	94
Clinical medicine	72	72	----	----
Life sciences, n.e.c	4	4	----	----
Psychology, total	122	93	----	29
Biological aspects	36	36	----	----
Psychological sciences, n.e.c	86	57	----	29
Social sciences, total	368	----	----	368
Anthropology	108	----	----	108
Economics	40	----	----	40
Linguistics	28	----	----	28
Political science	108	----	----	108
Social sciences, n.e.c	84	----	----	84
Other sciences, n.e.c	159	66	----	93

* Includes one $3,000 award made by the Department of Commerce.

SOURCE: National Science Foundation (CASE).

Table B-14.—Federal obligations to universities and colleges for research institutes, seminars, or conferences, by institution and agency, fiscal year 1970

[Dollars in thousands]

Institution (in order of research institute, seminar, or conference obligations)	State	Total	Department of Health, Education, and Welfare	National Aeronautics and Space Administration	National Science Foundation
Total, all institutions		$1,357 [a]	$235	$46	$1,073
1. University of Michigan	Mich.	111 [a]			108
2. Woods Hole Oceanographic Institution	Mass.	110			110
3. Bowdoin College	Maine	91			91
4. University of California-San Diego	Calif.	70			70
5. University of Texas-Austin	Tex.	60		34	26
6. Brandeis University	Mass.	59			59
7. Massachusetts Institute of Technology	Mass.	58	25		33
8. University of California-San Francisco	Calif.	49	49		
9. Yale University	Conn.	48	38		10
10. University of California-Berkeley	Calif.	46			46
11. University of Colorado [b]	Colo.	44	10		34
11. University of Arizona [b]	Ariz.	44		10	34
11. University of Houston [b]	Tex.	44			44
14. University of Wisconsin-Madison	Wis.	41			41
15. University of California-Los Angeles [b]	Calif.	36	36		
15. Michigan State University [b]	Mich.	36			36
17. University of Minnesota	Minn.	28	5		23
18. Washington State University	Wash.	25			25
19. Utah State University [b]	Utah	23			23
19. University of Pittsburgh [b]	Pa.	23	4		19
19. University of Massachusetts [b]	Mass.	23			23
22. University of Nevada-Reno Campus	Nev.	22			22
23. Montana State University [b]	Mont.	20			20
23. University of Oregon-Eugene [b]	Oreg.	20			20
23. University of Utah [b]	Utah	20	20		
26. Ohio State University [b]	Ohio	19	16		3
26. University of Miami [b]	Fla.	19			19
28. University of California-Irvine [b]	Calif.	17			17
28. University of Kansas [b]	Kans.	17			17
30. University of Illinois-Urbana	Ill.	15			15
31. Medical University of South Carolina	S.C.	14	14		
32. North Carolina State University-Raleigh [b]	N.C.	12		2	10
32. University of Chicago [b]	Ill.	12			12
34. Ball State University [b]	Ind.	10			10
34. University of Florida [b]	Fla.	10			10
34. Colorado State University [b]	Colo.	10			10
34. Columbia University [b]	N.Y.	10	10		
38. Northwestern University	Ill.	8			8
39. University of Hawaii	Hawaii	7			7
40. University of Notre Dame [b]	Ind.	5			5
40. University of Maryland [b]	Md.	5			5
42. University of Washington [b]	Wash.	4	4		
42. University of Cincinnati [b]	Ohio	4	4		
44. University of Rochester	N.Y.	3			3

11. University of Colorado [b]	Colo.	44	10		34
11. University of Arizona [b]	Ariz.	44		10	34
11. University of Houston [b]	Tex.	44			44
14. University of Wisconsin-Madison	Wis.	41			41
15. University of California-Los Angeles [b]	Calif.	36	36		
15. Michigan State University [b]	Mich.	36			36
17. University of Minnesota	Minn.	28	5		23
18. Washington State University	Wash.	25			25
19. Utah State University [b]	Utah	23			23
19. University of Pittsburgh [b]	Pa.	23	4		19
19. University of Massachusetts [b]	Mass.	23			23
22. University of Nevada-Reno Campus	Nev.	22			22
23. Montana State University [b]	Mont.	20			20
23. University of Oregon-Eugene [b]	Oreg.	20			20
25. University of Utah [b]	Utah	20	20		
26. Ohio State University [b]	Ohio	19	16		3
26. University of Miami [b]	Fla.	19			19
28. University of California-Irvine [b]	Calif.	17			17
28. University of Kansas [b]	Kans.	17			17
30. University of Illinois-Urbana	Ill	15			15
31. Medical University of South Carolina	S.C	14	14		
32. North Carolina State University-Raleigh [b]	N.C.	12		2	10
32. University of Chicago [b]	Ill.	12			12
34. Ball State University [b]	Ind.	10			10
34. University of Florida [b]	Fla.	10			10
34. Colorado State University [b]	Colo.	10			10
34. Columbia University [b]	N.Y.	10	10		
38. Northwestern University	Ill.	8			8
39. University of Hawaii	Hawaii	7			7
40. University of Notre Dame [b]	Ind.	5			5
40. University of Maryland [b]	Md.	5			5
42. University of Washington [b]	Wash.	4	4		
42. University of Cincinnati [b]	Ohio	4	4		
44. University of Rochester	N.Y.	3			3
45. Creighton University [b]	Nebr.	2			2
45. University of New Hampshire-Durham [b]	N.H.	2			2
47. Stanford University	Calif.	1			1

[a] Includes one $3,000 award made by the Department of Commerce.
[b] Duplicate numbers indicate "tie" for place; e.g., same amount.

SOURCE: National Science Foundation (CASE).

Table B-15.—Federal obligations to universities and colleges for facilities and equipment, by type of facility, purpose of funds, and agency, fiscal year 1970

[Dollars in thousands]

Type of facility and purpose of funds	Total, all agencies	USDA	AEC	Commerce	Department of Health, Education, and Welfare			NASA	NSF
					Total	National Institutes of Health	Office of Education		
Total, all facilities	$86,838	$1,117	$8,116	$18	$49,979	$19,730	$30,249	$50	$27,558
Construction	56,580	1,117	7,584	----	30,249	----	30,249	----	17,630
Basic operations	30,258	----	532	18	19,730	19,730	----	50	9,928
Research laboratories, total	7,850	1,117	1,127	----	1,221	1,221	----	----	4,385
Construction	6,111	1,117	1,127	----	----	----	----	----	3,867
Basic operations	1,739	----	----	----	1,221	1,221	----	----	518
Classrooms and laboratories, total	30,716	----	125	----	30,249	----	30,249	----	342
Construction	30,716	----	125	----	30,249	----	30,249	----	342
Basic operations	----	----	----	----	----	----	----	----	----
Research equipment, total	7,692	----	5,927	18	----	----	----	----	1,747
Construction	7,300	----	5,927	----	----	----	----	----	1,373
Basic operations	392	----	----	18	----	----	----	----	374
Teaching and training equipment, total	5,383	----	849	----	----	----	----	----	4,534
Construction	4,813	----	317	----	----	----	----	----	4,496
Basic operations	570	----	532	----	----	----	----	----	38
Computers and facilities, total	14,722	----	----	----	7,375	7,375	----	----	7,347
Construction	7,047	----	----	----	----	----	----	----	7,047
Basic operations	7,675	----	----	----	7,375	7,375	----	----	300
Hospital and medical facilities, total	88	----	88	----	----	----	----	----	----
Construction	88	----	88	----	----	----	----	----	----
Basic operations	----	----	----	----	----	----	----	----	----
Other facilities and equipment, total	20,387	----	----	----	11,134	11,134	----	50	9,203
Construction	505	----	----	----	----	----	----	----	505
Basic operations	19,882	----	----	----	11,134	11,134	----	50	8,698

SOURCE: National Science Foundation (CASE).

Table B-16.—Federal obligations to universities and colleges for facilities and equipment, by agency and field of science, fiscal year 1970

[Dollars in thousands]

		Physical	Mathe-	Environ-	Engi-	Life	Psy-	Social	Other

Basic operations	30,258		532	18	19,730	19,730		50	9,928
Research laboratories, total	7,850	1,117	1,127		1,221	1,221			4,385
Construction	6,111	1,117	1,127						3,867
Basic operations	1,739				1,221	1,221			518
Classrooms and laboratories, total	30,716		125		30,249		30,249		342
Construction	30,716		125		30,249		30,249		342
Basic operations									
Research equipment, total	7,692		5,927	18					1,747
Construction	7,300		5,927						1,373
Basic operations	392			18					374
Teaching and training equipment, total	5,383		849						4,534
Construction	4,813		317						4,496
Basic operations	570		532						38
Computers and facilities, total	14,722				7,375	7,375			7,347
Construction	7,047								7,047
Basic operations	7,675				7,375	7,375			300
Hospital and medical facilities, total	88		88						
Construction	88		88						
Basic operations									
Other facilities and equipment, total	20,387				11,134	11,134		50	9,203
Construction	505								505
Basic operations	19,882				11,134	11,134		50	8,698

SOURCE: National Science Foundation (CASE).

Table B-16.—Federal obligations to universities and colleges for facilities and equipment, by agency and field of science, fiscal year 1970

[Dollars in thousands]

Agency	Total	Physical sciences	Mathematics	Environmental sciences	Engineering	Life sciences	Psychology	Social sciences	Other sciences
Total, all agencies	$86,838	$9,864	$1,259	$7,547	$3,194	$4,977	$607	$892	$58,498
Department of Agriculture	1,117								1,117
Atomic Energy Commission	8,116	4,913	600	36	214	1,792			561
Department of Commerce	18			18					
Department of Health, Education, and Welfare	49,979				623				49,356
National Institutes of Health	19,730				623				19,107
Office of Education	30,249								30,249
National Aeronautics and Space Administration	50	50							
National Science Foundation	27,558	4,901	659	7,493	2,357	3,185	607	892	7,464

SOURCE: National Science Foundation (CASE).

Table B-17.—Federal obligations to universities and colleges for facilities and equipment, by geographic division, State, and purpose of facility, fiscal year 1970

[Dollars in thousands]

Division and State	Total	Research laboratories	Classrooms and laboratories	Research equipment	Teaching/training equipment	Computers and facilities	Hospital/medical facilities	Other facilities and equipment
United States, total	$86,838	$7,850	$30,716	$7,692	$5,383	$14,722	$88	$20,387
New England	8,943	1,451	1,810	1,455	427	556	----	3,244
Maine	468	21	419	----	28	----	----	----
New Hampshire	446	51	199	----	37	136	----	23
Vermont	277	----	210	----	45	----	----	22
Massachusetts	6,154	1,248	460	1,211	268	220	----	2,747
Rhode Island	642	7	135	----	16	200	----	284
Connecticut	956	124	387	244	33	----	----	168
Middle Atlantic	14,149	2,718	4,606	1,393	837	3,050	----	1,545
New York	6,979	1,250	2,361	1,260	402	782	----	924
New Jersey	1,305	112	726	47	138	282	----	----
Pennsylvania	5,865	1,356	1,519	86	297	1,986	----	621
East North Central	14,398	983	5,507	2,155	1,023	982	71	3,677
Ohio	1,982	125	1,395	172	163	80	----	47
Indiana	2,513	81	757	201	117	86	----	1,271
Illinois	3,032	132	1,433	774	212	343	71	67
Michigan	3,208	145	1,248	781	315	181	----	538
Wisconsin	3,663	500	674	227	216	292	----	1,754
West North Central	6,332	141	2,855	546	657	1,947	----	186
Minnesota	1,208	----	596	166	116	330	----	----
Iowa	589	----	439	56	94	----	----	----
Missouri	2,869	59	621	232	166	1,617	----	174
North Dakota	306	14	265	----	27	----	----	----
South Dakota	460	33	352	----	75	----	----	----
Nebraska	335	----	232	----	103	----	----	----
Kansas	565	35	350	92	76	----	----	12
South Atlantic	11,599	659	4,398	489	652	1,969	----	3,432
Delaware	179	10	163	----	6	----	----	----
Maryland	968	112	480	219	12	----	----	145
District of Columbia	309	----	231	----	31	----	----	47
Virginia	721	----	532	11	101	77	----	----
West Virginia	1,778	----	758	14	37	969	----	----
North Carolina	2,729	426	652	201	170	299	----	981
South Carolina	374	46	294	----	34	----	----	----
Georgia	2,196	31	522	2	125	174	----	1,342
Florida	2,345	34	766	42	136	450	----	917
East South Central	3,866	214	2,108	110	312	1,004	----	118
Kentucky	702	29	580	----	36	57	----	----
Tennessee	1,789	130	791	110	174	500	----	84
Alabama	1,013	55	433	----	78	447	----	----
Mississippi	362	----	304	----	24	----	----	34
West South Central	5,671	439	2,638	113	427	372	----	1,682
Arkansas	544	----	314	----	39	117	----	74
Louisiana	2,025	104	479	----	96	----	----	1,346
Oklahoma	492	27	357	----	86	----	----	22
Texas	2,610	308	1,488	113	206	255	----	240
Mountain	3,927	73	1,819	305	417	993	----	315

Middle Atlantic	14,149	2,718	4,606	1,393	837	3,050	----------	1,545
New York	6,979	1,250	2,361	1,260	402	782	----------	924
New Jersey	1,305	112	726	47	138	282	----------	----------
Pennsylvania	5,865	1,356	1,519	86	297	1,986	----------	621
East North Central	14,398	983	5,507	2,155	1,023	982	71	3,677
Ohio	1,982	125	1,395	172	163	80	----------	47
Indiana	2,513	81	757	201	117	86	----------	1,271
Illinois	3,032	132	1,433	774	212	343	71	67
Michigan	3,208	145	1,248	781	315	181	----------	538
Wisconsin	3,663	500	674	227	216	292	----------	1,754
West North Central	6,332	141	2,855	546	657	1,947	----------	186
Minnesota	1,208	----------	596	166	116	330	----------	----------
Iowa	589	----------	439	56	94	----------	----------	----------
Missouri	2,869	59	621	232	166	1,617	----------	174
North Dakota	306	14	265	----------	27	----------	----------	----------
South Dakota	460	33	352	----------	75	----------	----------	----------
Nebraska	335	----------	232	----------	103	----------	----------	----------
Kansas	565	35	350	92	76	----------	----------	12
South Atlantic	11,599	659	4,398	489	652	1,969	----------	3,432
Delaware	179	10	163	----------	6	----------	----------	----------
Maryland	968	112	480	219	12	----------	----------	145
District of Columbia	309	----------	231	----------	31	----------	----------	47
Virginia	721	----------	532	11	101	77	----------	----------
West Virginia	1,778	----------	758	14	37	969	----------	----------
North Carolina	2,729	426	652	201	170	299	----------	981
South Carolina	374	46	294	----------	34	----------	----------	----------
Georgia	2,196	31	522	2	125	174	----------	1,342
Florida	2,345	34	766	42	136	450	----------	917
East South Central	3,866	214	2,103	110	312	1,004	----------	118
Kentucky	702	29	580	----------	36	57	----------	----------
Tennessee	1,789	130	791	110	174	500	----------	84
Alabama	1,013	55	433	----------	78	447	----------	----------
Mississippi	362	----------	304	----------	24	----------	----------	34
West South Central	5,671	439	2,638	113	427	372	----------	1,682
Arkansas	544	----------	314	----------	39	117	----------	74
Louisiana	2,025	104	479	----------	96	----------	----------	1,346
Oklahoma	492	27	357	----------	86	----------	----------	22
Texas	2,610	308	1,488	113	206	255	----------	240
Mountain	3,927	73	1,910	305	417	807	----------	415
Montana	374	----------	320	4	50	----------	----------	----------
Idaho	166	36	113	----------	17	----------	----------	----------
Wyoming	192	17	148	----------	27	----------	----------	----------
Colorado	1,465	1	352	212	153	700	----------	47
New Mexico	715	----------	362	13	40	----------	----------	300
Arizona	349	19	275	----------	55	----------	----------	----------
Utah	510	----------	224	76	35	107	----------	68
Nevada	156	----------	116	----------	40	----------	----------	----------
Pacific	16,992	1,102	4,186	1,064	500	4,035	17	6,088
Washington	2,727	144	525	122	68	----------	----------	1,868
Oregon	959	11	343	120	65	----------	----------	420
California	12,145	807	3,110	803	340	4,035	17	3,033
Alaska	358	94	100	15	----------	----------	----------	149
Hawaii	803	46	108	4	27	----------	----------	618
Outlying areas [a]	961	70	698	62	131	----------	----------	----------

[a] Includes Puerto Rico, Virgin Islands, and Guam. The amounts to the Virgin Islands and Guam were a small fraction of the total.

SOURCE: National Science Foundation (CASE).

Table B-18.—Federal obligations to universities and colleges for facilities and equipment, by geographic division, State, and agency, fiscal year 1970

[Dollars in thousands[1]]

Division and State	Total	USDA	AEC	Commerce	HEW	NASA	NSF
United States, total	$86,838	$1,117	$8,116	$18	$49,979	$50	$27,558
New England	8,943	51	2,060	----	3,817	----	3,015
Maine	468	21	----	----	419	----	28
New Hampshire	446	8	----	----	222	----	216
Vermont	277	----	----	----	210	----	67
Massachusetts	6,154	----	1,860	----	2,167	----	2,127
Rhode Island	642	7	----	----	135	----	500
Connecticut	956	15	200	----	664	----	77
Middle Atlantic	14,149	137	1,282	----	6,583	----	6,147
New York	6,979	47	1,151	----	3,072	----	2,709
New Jersey	1,305	21	52	----	1,008	----	224
Pennsylvania	5,865	69	79	----	2,503	----	3,214
East North Central	14,398	196	1,917	----	8,474	----	3,811
Ohio	1,982	54	186	----	1,438	----	304
Indiana	2,513	56	195	----	978	----	1,284
Illinois	3,032	41	633	----	1,767	----	591
Michigan	3,208	45	730	----	1,753	----	680
Wisconsin	3,663	----	173	----	2,538	----	952
West North Central	6,332	82	373	----	4,616	----	1,261
Minnesota	1,208	----	166	----	924	----	118
Iowa	589	----	5	----	439	----	145
Missouri	2,869	----	70	----	2,042	----	757
North Dakota	306	14	1	----	265	----	26
South Dakota	460	33	----	----	352	----	75
Nebraska	335	----	19	----	232	----	84
Kansas	565	35	112	----	362	----	56
South Atlantic	11,599	165	528	3	6,523	----	4,380
Delaware	179	10	----	----	163	----	6
Maryland	968	37	164	----	607	----	160
District of Columbia	309	----	----	----	278	----	31
Virginia	721	----	21	----	609	----	91
West Virginia	1,778	----	----	----	758	----	1,020
North Carolina	2,729	7	300	----	1,039	----	1,383
South Carolina	374	46	----	----	294	----	34
Georgia	2,196	31	9	----	1,943	----	213
Florida	2,345	34	34	3	832	----	1,442
East South Central	3,866	104	135	----	2,430	----	1,197

Connecticut	956	15	200	----	664	----	77
Middle Atlantic	14,149	137	1,282	----	6,583	----	6,147
New York	6,979	47	1,151	----	3,072	----	2,709
New Jersey	1,305	21	52	----	1,008	----	224
Pennsylvania	5,865	69	79	----	2,503	----	3,214
East North Central	14,398	196	1,317	----	8,474	----	3,811
Ohio	1,982	54	186	----	1,438	----	304
Indiana	2,513	56	195	----	978	----	1,284
Illinois	3,032	41	632	----	1,767	----	591
Michigan	3,208	45	730	----	1,753	----	680
Wisconsin	3,663	----	173	----	2,538	----	952
West North Central	6,332	82	373	----	4,616	----	1,261
Minnesota	1,208	----	166	----	924	----	118
Iowa	589	----	5	----	439	----	145
Missouri	2,869	----	70	----	2,042	----	757
North Dakota	306	14	1	----	265	----	26
South Dakota	460	33	----	----	352	----	75
Nebraska	335	----	19	----	232	----	84
Kansas	565	35	112	----	362	----	56
South Atlantic	11,599	165	528	3	6,523	----	4,380
Delaware	179	10	----	----	163	----	6
Maryland	968	37	164	----	607	----	160
District of Columbia	309	----	----	----	278	----	31
Virginia	721	----	21	----	609	----	91
West Virginia	1,778	----	----	----	758	----	1,020
North Carolina	2,729	7	300	----	1,039	----	1,383
South Carolina	374	46	----	----	294	----	34
Georgia	2,196	31	9	----	1,943	----	213
Florida	2,345	34	34	3	832	----	1,442
East South Central	3,866	104	135	----	2,430	----	1,197
Kentucky	702	29	----	----	580	----	93
Tennessee	1,789	75	127	----	577	----	1,010
Alabama	1,013	----	8	----	935	----	70
Mississippi	362	----	----	----	338	----	24
West South Central	5,671	135	147	----	4,424	----	965
Arkansas	544	----	----	----	505	----	39
Louisiana	2,025	42	6	----	1,887	----	90
Oklahoma	492	27	5	----	379	----	81
Texas	2,610	66	136	----	1,653	----	755
Mountain	3,927	73	334	----	2,028	----	1,492
Montana	374	----	----	----	320	----	54
Idaho	166	36	----	----	113	----	17
Wyoming	192	17	5	----	148	----	22
Colorado	1,465	1	212	----	363	----	889
New Mexico	715	----	9	----	362	----	344
Arizona	349	19	32	----	275	----	23
Utah	510	----	76	----	331	----	103
Nevada	156	----	----	----	116	----	40
Pacific	16,992	104	1,036	15	10,511	50	5,276
Washington	2,727	----	61	----	2,003	----	663
Oregon	959	11	64	----	343	----	541
California	12,145	55	907	----	7,860	----	3,323
Alaska	358	15	----	15	179	50	99
Hawaii	803	23	4	----	126	----	650
Outlying areas [a]	961	70	304	----	573	----	14

[a] Includes Puerto Rico, Virgin Islands and Guam. The amounts to the Virgin Islands and Guam were a small fraction of the total.

SOURCE: National Science Foundation (CASE).

Table B-19.—Federal obligations for facilities and equipment to the 100 universities and colleges receiving the largest amounts, by agency, fiscal year 1970

[Dollars in thousands]

Institution (in order of facilities and equipment obligations)	State	Total, all agencies	USDA	AEC	Commerce	HEW	NASA	NSF
Total, 100 institutions		$71,672	$540	$7,295	$18	$41,243	$50	$22,526
1. University of California-Los Angeles	Calif.	3,440		478		1,962		1,000
2. University of Wisconsin-Madison	Wis.	2,651		168		1,864		619
3. University of Pennsylvania	Pa.	2,420		56		697		1,667
4. University of Washington	Wash.	2,074		26		1,425		623
5. Massachusetts Institute of Technology	Mass.	2,055		1,657		225		173
6. Washington University	Mo.	1,902				1,809		93
7. University of California-Davis	Calif.	1,833		193		1,605		35
8. Harvard University	Mass.	1,635		203		1,336		96
9. Emory University	Ga.	1,421				1,421		
10. University of California-San Diego	Calif.	1,410						1,410
11. Tulane University	La.	1,323				1,323		
12. Columbia University [a]	N.Y.	1,314		340		179		795
13. Dowling College	N.Y.	1,276				1,276		
14. University of Michigan	Mich.	1,263		533		276		454
15. Indiana University-Bloomington	Ind.	1,196				17		1,179
16. Duke University	N.C.	1,181		208		245		728
17. Woods Hole Oceanographic Institution	Mass.	1,178						1,178
18. Calvin College	Mich.	1,011				1,000		11
19. California State College at Fullerton [b]	Calif.	1,000				1,000		
19. California Institute of Arts [b]	Calif.	1,000				1,000		
21. California State College at Bakersfield	Calif.	991				991		
22. West Virginia University	W. Va.	981						981
23. Stanford University	Calif.	966		21		782		163
24. University of Alabama-Birmingham	Ala.	946		2		935		9
25. University of Rochester	N.Y.	912		252		21		639
26. Northern Illinois State College	Ill.	880				880		
27. University of Minnesota	Minn.	868		166		664		38
28. University of Miami	Fla.	806		11	3			792
29. University of Hawaii	Hawaii	803	23	4		126		650
30. University of Colorado	Colo.	796		212		230		354
31. University of Tennessee	Tenn.	795	75	119		42		559
32. Keuka College	N.Y.	788				788		
33. Purdue University	Ind.	759	56			681		22
34. SUNY State University-Albany	N.Y.	750						750
35. Bucknell University	Pa.	739						739
36. University of Illinois-Urbana	Ill.	737	41	352				344
37. Drexel University	Pa.	735				223		512
38. Texas A&M University	Tex.	719	66	99		258		296
39. Embry-Riddle Aeronautical University	Fla.	707				707		
40. North Carolina State University-Raleigh	N.C.	686	7	92		124		463
41. Marquette University	Wis.	674				674		
42. University of Florida	Fla.	671	34	6		125		506
43. New York University	N.Y.	666		451		114		101
44. Colorado State University	Colo.	639	1			133		505
45. Dregon State University	Dreg.	617	11	64		82		460
46. University of Chicago	Ill.	612		278		334		
47. University of Massachusetts	Mass.	544				460		84

16. Duke University	N.C.	1,181	—	208	—	245	—	728
17. Woods Hole Oceanographic Institution	Mass.	1,178	—	—	—	—	—	1,178
18. Calvin College	Mich.	1,011	—	—	—	1,000	—	11
19. California State College at Fullerton [b]	Calif.	1,000	—	—	—	1,000	—	—
19. California Institute of Arts [b]	Calif.	1,000	—	—	—	1,000	—	—
21. California State College at Bakersfield	Calif.	991	—	—	—	991	—	—
22. West Virginia University	W. Va.	981	—	—	—	—	—	981
23. Stanford University	Calif.	966	—	21	—	782	—	163
24. University of Alabama-Birmingham	Ala.	946	—	2	—	935	—	9
25. University of Rochester	N.Y.	912	—	252	—	21	—	639
26. Northern Illinois State College	Ill.	880	—	—	—	880	—	—
27. University of Minnesota	Minn.	868	—	166	—	664	—	38
28. University of Miami	Fla.	806	—	11	3	—	—	792
29. University of Hawaii	Hawaii	803	23	4	—	126	—	650
30. University of Colorado	Colo.	796	—	212	—	230	—	354
31. University of Tennessee	Tenn.	795	75	119	—	42	—	559
32. Keuka College	N.Y.	788	—	—	—	788	—	—
33. Purdue University	Ind.	759	56	—	—	681	—	22
34. SUNY State University-Albany	N.Y.	750	—	—	—	—	—	750
35. Bucknell University	Pa.	739	—	—	—	—	—	739
36. University of Illinois-Urbana	Ill.	737	41	352	—	—	—	344
37. Drexel University	Pa.	735	—	—	—	223	—	512
38. Texas A&M University	Tex.	719	66	99	—	258	—	296
39. Embry-Riddle Aeronautical University	Fla.	707	—	—	—	707	—	—
40. North Carolina State University-Raleigh	N.C.	686	7	92	—	124	—	463
41. Marquette University	Wis.	674	—	—	—	674	—	—
42. University of Florida	Fla.	671	34	6	—	125	—	506
43. New York University	N.Y.	666	—	451	—	114	—	101
44. Colorado State University	Colo.	639	1	—	—	133	—	505
45. Oregon State University	Oreg.	617	11	64	—	82	—	460
46. University of Chicago	Ill.	612	—	278	—	334	—	—
47. University of Massachusetts	Mass.	544	—	—	—	460	—	84
48. Yale University	Conn.	531	—	200	—	318	—	13
49. Western Washington State College	Wash.	525	—	—	—	525	—	—
50. University of Rhode Island	R.I.	503	7	—	—	—	—	496
51. University of Missouri-Rolla	Mo.	496	—	5	—	—	—	491
52. University of Tennessee-Chattanooga	Tenn.	493	—	—	—	493	—	—
53. Southern University	La.	479	—	—	—	479	—	—
54. Michigan State University	Mich.	458	45	197	—	175	—	41
55. University of Northern Iowa	Iowa	444	—	5	—	439	—	—
56. Princeton University	N.J.	440	—	34	—	282	—	124
57. Temple University	Pa.	439	—	—	—	433	—	6
58. University of Southern California	Calif.	406	—	—	—	24	—	382
59. University of Missouri-Columbia	Mo.	397	—	65	—	233	—	99
60. Glenville State College	W. Va.	395	—	—	—	395	—	—

Table B-19.—Federal obligations for facilities and equipment to the 100 universities and colleges receiving the largest amounts, by agency, fiscal year 1970 (Continued)

[Dollars in thousands]

Institution (in order of facilities and equipment obligations)	State	Total, all agencies	USDA	AEC	Commerce	HEW	NASA	NSF
61. Montclair State College [b]	N.J.	$394	----	----	----	$394	----	----
61. Millikin University [b]	Ill.	394	----	----	----	394	----	----
63. Cornell University	N.Y.	378	$47	$9	----	217	----	$105
64. University of Puerto Rico-Rio Piedras	P.R.	373	----	----	----	373	----	----
65. California Institute of Technology	Calif.	371	----	129	----	212	----	30
66. Miami University	Ohio	364	----	----	----	364	----	----
67. Eastern New Mexico University	N. Mex.	362	----	----	----	362	----	----
68. University of Texas-Austin	Tex.	359	----	22	----	50	----	287
69. University of Alaska	Alaska	358	15	----	15	179	50	99
70. Dakota State College	S. Dak.	352	----	----	----	352	----	----
71. Roanoke College	Va.	351	----	11	----	340	----	----
72. University of Montana	Mont.	340	----	----	----	320	----	20
73. Newark State College	N.J.	332	----	----	----	332	----	----
74. Tennessee Technological University	Tenn.	320	----	3	----	----	----	317
75. Arkansas Polytechnic College [b]	Ark.	318	----	----	----	314	----	4
75. University of Maine-Orono [b]	Maine	318	21	----	----	285	----	12
77. University of Notre Dame	Ind.	316	----	195	----	83	----	38
78. Salem College	N.C.	313	----	----	----	313	----	----
79. University of New Mexico	N. Mex.	312	----	9	----	----	----	303
80. University of Nebraska-Lincoln	Nebr.	309	----	12	----	232	----	65
81. Ursuline College	Ohio	306	----	----	----	306	----	----
82. College of Charleston [b]	S.C.	304	----	----	----	294	----	10
82. Millsops College [b]	Miss.	304	----	----	----	304	----	----
84. Clark University [b]	Mass.	297	----	----	----	----	----	297
84. St. Francis College [b]	N.Y.	297	----	----	----	297	----	----
86. Ohio State University	Ohio	296	54	----	----	236	----	6
87. Walsh College	Ohio	292	----	----	----	292	----	----
88. Central State College	Ohio	288	----	----	----	288	----	----
89. Ohio University	Ohio	266	----	172	----	----	----	94
90. University of Utah	Utah	265	----	76	----	107	----	82
91. Wichita State University	Kans.	261	----	----	----	253	----	8
92. University of Maryland [b]	Md.	260	37	160	----	----	----	63
92. St. Johns University [b]	Minn.	260	----	----	----	260	----	----
94. Central Michigan University	Mich.	248	----	----	----	248	----	----
95. Villa Julie College	Md.	246	----	----	----	245	----	1
96. Wilkes College	Pa.	242	----	----	----	241	----	1
97. Portland State University	Oreg.	235	----	----	----	235	----	----
97. Towson State College	Md.	235	----	----	----	235	----	----
99. Georgia Southwestern College	Ga.	232	----	----	----	232	----	----
100. Weber State College	Utah	228	----	----	----	224	----	4

[a] Main university only.
[b] Duplicate numbers indicate "tie" for place; e.g., same amount.

SOURCE: National Science Foundation (CASE).

Table B-20.—Federal obligations for manpower development to universities and colleges, by detailed field of science and agency, fiscal year 1970

[Dollars in thousands]

Field of science	Total	AEC	HEW	NASA	NSF
Total, all fields	$429,408	$4,956	$369,624	$2,107	$52,721
Physical sciences, total	11,270	689	3,777	92	6,712
Astronomy	271	----	----	----	271
Chemistry	7,731	298	3,398	----	4,035
Physics	3,159	385	315	53	2,406
Physical sciences, n.e.c	109	----	64	39	----
Mathematics	7,497	30	3,189	----	4,278
Environmental sciences, total	2,267	----	1,348	96	823
Atmospheric sciences	136	----	100	----	36
Geological sciences	736	----	61	----	675
Oceanography	72	----	----	----	72
Environmental sciences, n.e.c	1,323	----	1,187	96	40
Engineering, total	12,037	1,928	5,745	1,788	2,576
Aeronautical	293	----	----	113	180
Astronautical	16	16	----	----	----
Chemical	488	16	201	----	271
Civil	938	----	675	----	263
Electrical	987	8	199	----	780
Mechanical	396	----	85	----	311
Metallurgy and materials	242	8	83	----	151
Engineering, n.e.c	8,677	1,880	4,502	1,675	620
Life sciences, total	212,718	2,014	206,121	----	4,583
Biological	62,675	404	57,688	----	4,583
Clinical medicine	141,473	----	141,473	----	----
Life sciences, n.e.c	8,570	1,610	6,960	----	----
Psychology, total	38,446	----	37,363	----	1,083
Biological aspects	4,865	----	4,865	----	----
Social aspects	13,536	----	12,902	----	634
Psychological sciences, n.e.c	20,045	----	19,596	----	449
Social sciences, total	39,857	----	37,397	----	2,460
Anthropology	3,723	----	3,222	----	501
Economics	695	----	41	----	654
History	773	----	546	----	227
Linguistics	776	----	596	----	180
Political science	637	----	327	----	310
Sociology	29,302	----	28,996	----	306
Social sciences, n.e.c	3,951	----	3,669	----	282
Other sciences, n.e.c	105,316	295	74,684	131	30,206

SOURCE: National Science Foundation (CASE).

Table B-21.—Federal obligations for manpower development to universities and colleges, by geographic division, State, and agency, fiscal year 1970

[Dollars in thousands]

Division and State	Total		Atomic Energy Commission		Department of Health, Education, and Welfare		National Aeronautics and Space Administration		National Science Foundation	
	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution
United States, total	$429,408	100.00	$4,956	100.00	$369,624	100.00	$2,107	100.00	$52,721	100.00
New England	44,659	10.40	201	4.06	36,755	9.94	.....	.....	7,703	14.61
Maine	291	.07	4	.08	210	.06	.....	.....	77	.15
New Hampshire	1,430	.33	.....	.....	1,185	.32	.....	.....	245	.46
Vermont	1,110	.26	3	.06	1,022	.28	.....	.....	85	.16
Massachusetts	29,757	6.93	185	3.73	24,136	6.53	.....	.....	5,436	10.31
Rhode Island	1,765	.41	.....	.....	1,309	.35	.....	.....	456	.86
Connecticut	10,306	2.40	9	.18	8,893	2.41	.....	.....	1,404	2.66
Middle Atlantic	85,052	19.81	553	11.16	75,242	20.36	113	5.36	9,144	17.34
New York	55,091	12.83	478	9.64	49,405	13.37	113	5.36	5,095	9.66
New Jersey	5,378	1.25	26	.52	3,758	1.02	.....	.....	1,594	3.02
Pennsylvania	24,583	5.72	49	.99	22,079	5.97	.....	.....	2,455	4.66
East North Central	76,552	17.83	538	10.86	65,598	17.75	203	9.63	10,213	19.37
Ohio	15,479	3.60	93	1.88	13,352	3.61	203	9.63	1,831	3.47
Indiana	8,439	1.97	108	2.18	6,767	1.83	.....	.....	1,564	2.97
Illinois	24,701	5.75	148	2.99	21,492	5.81	.....	.....	3,061	5.81
Michigan	17,450	4.06	111	2.24	14,898	4.03	.....	.....	2,441	4.63
Wisconsin	10,483	2.44	78	1.57	9,089	2.46	.....	.....	1,316	2.50
West North Central	34,425	8.02	289	5.83	30,787	8.33	.....	.....	3,349	6.35
Minnesota	9,477	2.21	20	.40	8,773	2.37	.....	.....	684	1.30
Iowa	4,992	1.16	25	.50	4,274	1.16	.....	.....	693	1.31
Missouri	11,880	2.77	113	2.28	10,786	2.92	.....	.....	981	1.86
North Dakota	703	.16	.....	.....	548	.15	.....	.....	155	.29
South Dakota	640	.15	.....	.....	512	.14	.....	.....	128	.24
Nebraska	1,991	.46	.....	.....	1,846	.50	.....	.....	145	.28
Kansas	4,742	1.10	131	2.64	4,048	1.10	.....	.....	563	1.07
South Atlantic	59,133	13.77	450	9.08	53,080	14.36	552	26.20	5,051	9.58
Delaware	458	.11	.....	.....	311	.08	.....	.....	147	.28
Maryland	11,008	2.56	24	.48	10,177	2.75	104	4.94	703	1.33
District of Columbia	5,954	1.39	57	1.15	5,399	1.46	.....	.....	498	.94
Massachusetts	29,757	6.93	185	3.73	24,136	6.53	.....	.....	5,436	10.31
Rhode Island	1,765	.41	.....	.....	1,309	.35	.....	.....	456	.86
Connecticut	10,306	2.40	9	.18	8,893	2.41	.....	.....	1,404	2.66

Rhode Island	1,765	.41			1,309	.35			456	.86
Connecticut	10,306	2.40	9	.18	8,893	2.41			1,404	2.66
Middle Atlantic	85,052	19.81	553	11.16	75,242	20.36	113	5.36	9,144	17.34
New York	55,091	12.83	478	9.64	49,405	13.37	113	5.36	5,095	9.66
New Jersey	5,378	1.25	26	.52	3,758	1.02			1,594	3.02
Pennsylvania	24,583	5.72	49	.99	22,079	5.97			2,455	4.66
East North Central	76,552	17.83	538	10.86	65,598	17.75	203	9.63	10,213	19.37
Ohio	15,479	3.60	93	1.88	13,352	3.61	203	9.63	1,831	3.47
Indiana	8,439	1.97	108	2.18	6,767	1.83			1,564	2.97
Illinois	24,701	5.75	148	2.99	21,492	5.81			3,061	5.81
Michigan	17,450	4.06	111	2.24	14,898	4.03			2,441	4.63
Wisconsin	10,483	2.44	78	1.57	9,089	2.46			1,316	2.50
West North Central	34,425	8.02	284	5.83	30,787	8.33			3,349	6.35
Minnesota	9,477	2.21	20	.40	8,773	2.37			684	1.30
Iowa	4,992	1.16	25	.50	4,274	1.16			693	1.31
Missouri	11,880	2.77	113	2.28	10,786	2.92			981	1.86
North Dakota	703	.16			548	.15			155	.29
South Dakota	640	.15			512	.14			128	.24
Nebraska	1,991	.46			1,846	.50			145	.28
Kansas	4,742	1.1[illegible]	131	2.64	4,048	1.10			563	1.07
South Atlantic	59,133	13.77	450	9.08	53,080	14.36	552	26.20	5,051	9.58
Delaware	458	.11			311	.08			147	.28
Maryland	11,008	2.56	24	.48	10,177	2.75	104	4.94	703	1.33
District of Columbia	5,954	1.39	57	1.15	5,399	1.46			498	.94
Virginia	5,387	1.25	112	2.26	4,494	1.22	248	11.77	533	1.01
West Virginia	1,612	.38	1	.02	1,413	.38	69	3.27	129	.24
North Carolina	16,009	3.73	75	1.51	14,748	3.99	131	6.22	1,055	2.00
South Carolina	1,651	.38	12	.24	1,368	.37			271	.51
Georgia	7,298	1.70	104	2.10	6,458	1.75			736	1.40
Florida	9,756	2.27	65	1.31	8,712	2.36			979	1.86
East South Central	15,946	3.71	325	6.56	13,881	3.76	274	13.00	1,466	2.78
Kentucky	2,879	.67	4	.08	2,582	.70			293	.56
Tennessee	8,118	1.89	296	5.97	7,020	1.90			802	1.52
Alabama	3,548	.83	24	.48	3,020	.82	274	13.00	230	.44
Mississippi	1,401	.33	1	.02	1,259	.34			141	.27
West South Central	25,153	5.86	154	3.11	21,649	5.86	273	12.96	3,077	5.84
Arkansas	1,087	.25			941	.25			146	.28
Louisiana	6,006	1.40	17	.34	5,381	1.46			608	1.15
Oklahoma	3,557	.83	6	.12	2,936	.79			615	1.17
Texas	14,503	3.38	131	2.64	12,391	3.35	273	12.96	1,708	3.24
Mountain	18,794	4.38	234	4.72	15,804	4.28			2,756	5.23
Montana	591	.14	2	.04	443	.12			146	.28
Idaho	320	.07	24	.48	180	.05			116	.22
Wyoming	479	.11	39	.79	273	.07			167	.32
Colorado	7,842	1.83	31	.63	7,005	1.90			806	1.53
New Mexico	1,463	.34	57	1.15	1,096	.30			310	.59
Arizona	3,313	.77	34	.69	2,677	.72			602	1.14
Utah	4,475	1.04	41	.83	3,887	1.05			547	1.04
Nevada	311	.07	6	.12	243	.07			62	.12
Pacific	66,719	15.54	833	16.81	55,244	14.95	692	32.84	9,950	18.87
Washington	10,954	2.55	312	6.30	9,681	2.62			961	1.82
Oregon	5,920	1.38	68	1.37	5,080	1.37			772	1.46
California	48,211	11.23	453	9.14	39,149	10.59	692	32.84	7,917	15.02
Alaska	155	.04			123	.03			32	.06
Hawaii	1,479	.34			1,211	.33			268	.51
Outlying areas*	2,975	.69	1,379	27.82	1,584	.43			12	.02

* Includes Puerto Rico, Virgin Islands and Guam. The amounts to the Virgin Islands and Guam were a small fraction of the total.

SOURCE: National Science Foundation (CASE).

Table B-22.—Federal obligations for manpower development to the universities and colleges receiving the largest amounts ranked in various groups, by field of science, fiscal year 1970

[Dollars in thousands]

Number of institutions (ranked in order of manpower development obligations)	Total	Physical sciences	Mathematics	Environmental sciences	Engineering	Life sciences	Psychology	Social sciences	Other sciences, n.e.c.
Total, all institutions:									
Amount of obligations	$429,408	$11,270	$7,497	$2,267	$12,037	$212,718	$38,446	$39,857	$105,316
Percent of total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
First 10:									
Amount of obligations	93,808	3,075	1,773	433	2,312	53,554	7,607	9,945	15,109
Percent of total	21.85	27.28	23.65	19.10	19.21	25.18	19.79	24.95	14.35
Second 10:									
Amount of obligations	70,031	1,267	1,564	355	1,450	42,169	7,026	5,865	10,335
Percent of total	16.31	11.24	20.86	15.66	12.05	19.82	18.27	14.72	9.81
Third 10:									
Amount of obligations	47,153	1,369	650	134	1,865	24,594	4,893	3,268	10,380
Percent of total	10.98	12.15	8.67	5.91	15.49	11.56	12.73	8.20	9.86
Fourth 10:									
Amount of obligations	35,516	739	493	173	238	18,482	3,206	2,991	9,194
Percent of total	8.27	6.56	6.58	7.63	1.98	8.69	8.34	7.50	8.73
Fifth 10:									
Amount of obligations	28,645	432	307	252	821	11,452	2,949	2,372	10,060
Percent of total	6.67	3.83	4.09	11.12	6.82	5.38	7.67	5.95	9.55
First 50:									
Amount of obligations	275,153	6,882	4,787	1,347	6,686	150,251	25,681	24,441	55,078
Percent of total	64.08	61.06	63.85	59.42	55.55	70.63	66.80	61.32	52.30
Second 50:									
Amount of obligations	81,020	1,529	1,067	333	1,604	41,720	6,210	7,258	21,299
Percent of total	18.87	13.57	14.23	14.69	13.33	19.61	16.15	18.21	20.22
First 100:									
Amount of obligations	356,173	8,411	5,854	1,680	8,290	191,971	31,891	31,699	76,377
Percent of total	82.94	74.63	78.08	74.11	68.87	90.25	82.95	79.53	72.52
All other									
Amount of obligations	73,235	2,859	1,643	587	3,747	20,747	6,555	8,158	28,939
Percent of total	17.05	25.37	21.92	25.89	31.13	9.75	17.05	20.47	27.48

SOURCE: National Science Foundation (CASE).

Table B-23.—Federal obligations for manpower development to the 100 universities and colleges receiving the largest amounts, by agency, fiscal year 1970

[Dollars in thousands]

Institution (in order of manpower development obligations)	State	Total	AEC	HEW	NASA	NSF
Total, 100 institutions	.....	$356,173	$2,953	$313,298	$1,252	$38,670
1. Harvard University	Mass.	11,980	12	9,887	.....	2,081
2. University of Michigan	Mich.	10,646	99	9,301	.....	1,246
3. University of Chicago	Ill.	9,554	31	8,796	.....	727
4. University of Washington	Wash.	9,543	306	8,486	.....	751
5. Stanford University	Calif.	9,108	106	6,285	398	2,319
6. Columbia University	N.Y.	8,935	51	8,145	53	686
7. University of Minnesota	Minn.	8,329	20	8,246	.....	563
8. University of Wisconsin-Madison	Wis.	8,522	78	7,386	.....	1,058
9. University of Pennsylvania	Pa.	8,473	.....	7,962	.....	511
10. Yale University	Conn.	8,218	9	7,170	.....	1,039
11. University of California-Berkeley	Calif.	8,141	180	6,069	.....	1,892
12. New York University	N.Y.	8,087	28	7,521	.....	538
13. University of California-Los Angeles	Calif.	7,900	92	7,130	.....	678
14. Johns Hopkins University	Md.	7,766	.....	7,413	.....	353
15. Duke University	N.C.	7,044	.....	6,788	.....	256
16. Washington University	Mo.	6,551	1	6,192	.....	358
17. Cornell University	N.Y.	6,539	105	5,413	.....	1,021
18. University of North Carolina-Chapel Hill	N.C.	6,450	.....	6,138	.....	312
19. Case Western Reserve University	Ohio	5,955	1	5,319	107	528
20. University of California-San Francisco	Calif.	5,598	9	5,532	.....	57
1. University of Colorado	Colo.	5,268	16	4,795	.....	457
22. University of Pittsburgh	Pa.	5,152	16	4,862	.....	274
23. Yeshiva University	N.Y.	4,986	.....	4,891	.....	95
24. Boston University	Mass.	4,869	.....	4,718	.....	151
25. Massachusetts Institute of Technology	Mass.	4,749	163	2,463	.....	2,123
26. University of Southern California	Calif.	4,674	.....	4,081	294	299
27. University of Rochester	N.Y.	4,500	206	4,015	.....	279
28. University of Florida	Fla.	4,398	51	3,936	.....	411
29. University of Illinois-Urbana	Ill.	4,297	86	3,189	.....	1,022
30. Northwestern University	Ill.	4,260	20	3,712	.....	528
31. Ohio State University	Ohio	4,105	73	3,928	96	608
32. University of Oregon-Eugene	Oreg.	3,893	.....	3,589	.....	304
33. University of Iowa	Iowa	3,754	1	3,458	.....	295
34. Tulane University	La.	3,696	.....	3,509	.....	187
35. University of Kansas	Kans.	3,601	97	3,193	.....	311

11. University of California-Berkeley	Calif.	8,141	180	6,069	----------	1,892
12. New York University	N.Y.	8,087	28	7,521	----------	538
13. University of California-Los Angeles	Calif.	7,900	92	7,130	----------	678
14. Johns Hopkins University	Md.	7,766	----------	7,413	----------	353
15. Duke University	N.C.	7,044	----------	6,788	----------	256
16. Washington University	Mo.	6,551	1	6,192	----------	358
17. Cornell University	N.Y.	6,539	105	5,413	----------	1,021
18. University of North Carolina-Chapel Hill	N.C.	6,450	----------	6,138	----------	312
19. Case Western Reserve University	Ohio	5,955	1	5,319	107	528
20. University of California-San Francisco	Calif.	5,598	9	5,532	----------	57
21. University of Colorado	Colo.	5,268	16	4,795	----------	457
22. University of Pittsburgh	Pa.	5,152	19	4,862	----------	274
23. Yeshiva University	N.Y.	4,986	----------	4,891	----------	95
24. Boston University	Mass.	4,869	----------	4,718	----------	151
25. Massachusetts Institute of Technology	Mass.	4,749	163	2,463	----------	2,123
26. University of Southern California	Calif.	4,674	----------	4,081	294	299
27. University of Rochester	N.Y.	4,500	206	4,015	----------	279
28. University of Florida	Fla.	4,398	51	3,936	----------	411
29. University of Illinois-Urbana	Ill.	4,297	86	3,189	----------	1,022
30. Northwestern University	Ill.	4,260	20	3,712	----------	528
31. Ohio State University	Ohio	4,105	73	3,328	96	608
32. University of Oregon-Eugene	Oreg.	3,893	----------	3,589	----------	304
33. University of Iowa	Iowa	3,754	1	3,458	----------	295
34. Tulane University	La.	3,696	----------	3,509	----------	187
35. University of Kansas	Kans.	3,601	97	3,193	----------	311
36. University of Utah	Utah	3,507	5	3,240	----------	262
37. Michigan State University	Mich.	3,340	8	2,722	----------	610
38. Vanderbilt University	Tenn	3,252	77	2,923	----------	252
39. SUNY State University-Buffalo [b]	N.Y.	3,184	----------	2,960	----------	224
39. Emory University [b]	Ga.	3,184	----------	3,049	----------	135
41. University of Texas-Austin	Tex.	3,142	53	2,553	----------	536
42. University of Missouri-Columbia	Mo.	3,140	26	2,806	----------	308
43. University of Maryland	Md.	3,137	24	2,679	104	330
44. Purdue University	Ind.	3,092	93	2,196	----------	803
45. University of Cincinnati	Ohio	2,950	19	2,793	----------	138
46. University of Virginia	Va.	2,777	77	2,491	----------	209
47. Florida State University	Fla.	2,699	14	2,373	----------	312
48. Pennsylvania State University	Pa.	2,608	33	2,043	----------	532
49. Rutgers, The State University	N.J.	2,590	15	2,293	----------	282
50. University of Oklahoma	Okla.	2,510	6	2,245	----------	259
51. Wayne State University	Mich.	2,474	----------	2,235	----------	239
52. Indiana University-Bloomington	Ind.	2,327	12	1,851	----------	464
53. Temple University	Pa.	2,310	----------	2,202	----------	108
54. University of Miami	Fla.	2,286	----------	2,096	----------	190
55. University of California-San Diego	Calif.	2,282	----------	1,950	----------	332
56. Teachers College	N.Y.	2,259	----------	2,259	----------	----------
57. CUNY Mt. Sinai School of Medicine	N.Y.	2,253	----------	2,253	----------	----------
58. University of Illinois-Medical Center	Ill.	2,225	----------	2,215	----------	10
59. University of Arizona	Ariz.	2,188	33	1,781	----------	374
60. University of Texas-Southwestern Medical School	Tex.	2,130	----------	2,130	----------	----------
61. Baylor College of Medicine	Tex.	2,123	----------	2,123	----------	----------
62. University of Tennessee	Tenn.	2,091	178	1,612	----------	301
63. Princeton University	N.J.	2,054	11	1,013	----------	1,030
64. California Institute of Technology	Calif.	2,038	32	1,048	----------	958
65. University of Georgia	Ga.	2,033	19	1,743	----------	271
66. Syracuse University	N.Y.	1,972	----------	1,646	----------	326
67. University of California-Davis	Calif.	1,930	34	1,635	----------	261
68. Indiana University-Indianapolis	Ind.	1,924	----------	1,924	----------	----------
69. Brandeis University	Mass.	1,923	----------	1,713	----------	210
70. University of Connecticut	Conn.	1,789	----------	1,586	----------	203

Table B-23.—Federal obligations for manpower development to the 100 universities and colleges receiving the largest amounts, by agency, fiscal year 1970 (Continued)

Dollars in thousands]

Institution (in order of manpower development obligations)	State	Total	AEC	HEW	NASA	NSF
71. University of Alabama-Birmingham	Ala.	$1,765	----	$1,748	----	$17
72. Catholic University of America	D.C.	1,747	$28	1,573	----	146
73. Georgetown University	D.C.	1,700	----	1,597	----	103
74. West Virginia University	W. Va.	1,578	1	1,388	$69	120
75. Tufts University	Mass.	1,574	----	1,462	----	112
76. Virginia Commonwealth University	Va.	1,550	----	1,533	----	17
77. Downstate Medical Center-Brooklyn	N.Y.	1,548	----	1,520	----	28
78. University of Hawaii	Hawaii	1,479	----	1,211	----	268
79. University of Kentucky	Ky.	1,460	4	1,277	----	179
80. St. Louis University	Mo.	1,417	5	1,355	----	57
81. Brown University	R.I.	1,365	----	1,041	----	324
82. Howard University	D.C.	1,284	----	1,231	----	53
83. North Carolina State University-Raleigh	N.C.	1,276	75	679	131	391
84. Oregon State University	Oreg.	1,264	68	825	----	371
85. University of Puerto Rico-San Juan	P.R.	1,245	----	1,245	----	----
86. University of California-Irvine	Calif.	1,237	----	1,112	----	125
87. Thomas Jefferson University Hospital	Pa.	1,160	----	1,154	----	6
88. University of Louisville	Ky.	1,101	----	1,042	----	59
89. University of Vermont	Vt.	1,100	3	1,022	----	75
90. Arizona State University	Ariz.	1,092	1	896	----	195
91. University of Tennessee Medical Units-Memphis	Tenn.	1,089	41	1,042	----	6
92. Iowa State University of Science and Technology	Iowa	1,075	24	707	----	344
93. University of Mississippi	Miss.	1,056	1	999	----	56
94. University of Denver	Colo.	1,055	----	1,009	----	46
95. Hahnemann Medical College and Hospital [b]	Pa.	1,044	----	971	----	73
95. University of New Mexico [b]	N. Mex.	1,044	57	855	----	132
97. New York Medical College	N.Y.	1,040	----	1,018	----	22
98. Southern Illinois University	Ill.	1,029	----	923	----	106
99. Rice University	Tex.	1,027	19	700	----	308
100. University of Arkansas	Ark.	1,008	----	864	----	144

[a] Main university only.
[b] Duplicate numbers indicate tie for place; e.g., same amount.

SOURCE: National Science Foundation (CASE).

Table B-24.—Federal obligations for general support for science to universities and colleges, by geographic division, State, and agency, fiscal year 1970

[Dollars in thousands]

Division and State	Total		Department of Commerce		Department of Health, Education, and Welfare (National Institutes of Health)		Department of the Interior		National Science Foundation	
	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution	Amount	Percent distribution
United States, total	$100,634	100.00	$165	100.00	$43,017	100.00	$439	100.00	$57,013	100.00
New England	9,847	9.78			3,401	7.91	224	51.03	6,222	10.91
Maine	62	.06							62	.11
New Hampshire	961	.95			234	.54			727	1.28
Vermont	504	.50			222	.52			282	.49
Massachusetts	5,984	5.95			1,862	4.33			4,122	7.23
Rhode Island	948	.94			223	.52	224	51.03	501	.88
Connecticut	1,388	1.38			860	2.00			528	.93
Middle Atlantic	18,227	18.11			8,457	19.66			9,770	17.14
New York	12,222	12.15			5,380	12.51			6,842	12.00
New Jersey	1,526	1.52			463	1.08			1,063	1.86
Pennsylvania	4,479	4.45			2,614	6.08			1,865	3.27
East North Central	13,288	13.20	8	4.85	6,673	15.51	3	.68	6,604	11.58
Ohio	3,162	3.14			1,329	3.09			1,833	3.22
Indiana	2,031	2.02			1,214	2.82			817	1.43
Illinois	4,681	4.65			1,834	4.26			2,847	4.99
Michigan	2,214	2.20			1,510	3.51			704	1.23
Wisconsin	1,200	1.19	8	4.85	786	1.83	3	.68	403	.71
West North Central	6,793	6.75			4,219	9.81			2,574	4.51
Minnesota	1,559	1.55			750	1.74			809	1.42
Iowa	1,156	1.15			622	1.45			534	.94
Missouri	2,066	2.05			1,698	3.95			368	.65
North Dakota	295	.29			26	.06			269	.47
South Dakota	195	.19			34	.08			161	.28
Nebraska	448	.45			267	.62			181	.32
Kansas	1,074	1.07			822	1.91			252	.44
South Atlantic	15,996	15.90			6,053	14.07	19	4.33	9,924	17.41
Delaware	52	.05							52	.09
Maryland	1,465	1.46			1,065	2.48			400	.70
District of Columbia	1,476	1.47			643	1.49			833	1.46
Virginia	3,180	3.16			867	2.02			2,313	4.06
West Virginia	410	.41			171	.40			239	.42
North Carolina	2,281	2.27			1,680	3.91	9	2.05	592	1.04
South Carolina	1,660	1.65			142	.33			1,518	2.65

New England	9,847	9.78			3,401	7.91	224	51.03	6,222	10.91
Maine	62	.06							62	.11
New Hampshire	961	.95			234	.54			727	1.28
Vermont	504	.50			222	.52			282	.49
Massachusetts	5,984	5.95			1,862	4.33			4,122	7.23
Rhode Island	948	.94			223	.52	224	51.03	501	.88
Connecticut	1,388	1.38			860	2.00			528	.93
Middle Atlantic	18,227	18.11			8,457	19.66			9,770	17.14
New York	12,222	12.15			5,380	12.51			6,842	12.00
New Jersey	1,526	1.52			463	1.08			1,063	1.86
Pennsylvania	4,479	4.45			2,614	6.08			1,865	3.27
East North Central	13,288	13.20	8	4.85	6,673	15.51	3	.68	6,604	11.58
Ohio	3,162	3.14			1,329	3.09			1,833	3.22
Indiana	2,031	2.02			1,214	2.82			817	1.43
Illinois	4,681	4.65			1,834	4.26			2,847	4.99
Michigan	2,214	2.20			1,510	3.51			704	1.23
Wisconsin	1,200	1.19	8	4.85	786	1.83	3	.68	403	.71
West North Central	6,793	6.75			4,219	9.81			2,574	4.51
Minnesota	1,559	1.55			750	1.74			809	1.42
Iowa	1,156	1.15			622	1.45			534	.94
Missouri	2,066	2.05			1,698	3.95			368	.65
North Dakota	295	.29			26	.06			269	.47
South Dakota	195	.19			34	.08			161	.28
Nebraska	448	.45			267	.62			181	.32
Kansas	1,074	1.07			822	1.91			252	.44
South Atlantic	15,996	15.90			6,053	14.07	19	4.33	9,924	17.41
Delaware	52	.05							52	.09
Maryland	1,465	1.46			1,065	2.48			400	.70
District of Columbia	1,476	1.47			643	1.49			833	1.46
Virginia	3,180	3.16			867	2.02			2,313	4.06
West Virginia	410	.41			171	.40			239	.42
North Carolina	2,281	2.27			1,680	3.91	9	2.05	592	1.04
South Carolina	1,660	1.65			142	.33			1,518	2.66
Georgia	3,527	3.50			716	1.66	10	2.28	2,801	4.91
Florida	1,945	1.93			769	1.79			1,176	2.06
East South Central	5,006	4.97			2,774	6.45	5	1.14	2,227	3.91
Kentucky	721	.72			478	1.11			243	.43
Tennessee	2,255	2.24			1,469	3.41			786	1.38
Alabama	1,115	1.11			530	1.23	5	1.14	580	1.02
Mississippi	915	.91			297	.69			618	1.08
West South Central	9,350	9.29			3,343	7.77			6,007	10.54
Arkansas	322	.32			184	.43			138	.24
Louisiana	3,604	3.58			582	1.35			3,022	5.30
Oklahoma	909	.90			304	.71			605	1.06
Texas	4,515	4.49			2,273	5.28			2,242	3.93
Mountain	6,551	6.51			1,833	4.26			4,718	8.28
Montana	92	.09							92	.16
Idaho	130	.13							130	.23
Wyoming	48	.05							48	.08
Colorado	4,661	4.63			1,121	2.61			3,540	6.21
New Mexico	400	.40			136	.32			264	.46
Arizona	423	.42			158	.37			265	.46
Utah	709	.70			418	.97			291	.51
Nevada	88	.09							88	.15
Pacific	15,350	15.25	157	95.15	6,120	14.23	188	42.82	8,885	15.58
Washington	1,184	1.18	3	1.82	707	1.64	170	38.72	304	.53
Oregon	4,562	4.53			817	1.90	13	2.96	3,732	6.55
California	7,202	7.16			4,294	9.98	5	1.14	2,903	5.09
Alaska	1,358	1.35	154	93.33	46	.11			1,158	2.03
Hawaii	1,044	1.04			256	.60			788	1.38
Outlying areas *	226	.22			144	.33			82	.14

* Includes Puerto Rico, Virgin Islands, and Guam. The amounts to the Virgin Islands and Guam were a a small fraction of the total.

SOURCE: National Science Foundation (CASE)

Table B-25.—Federal obligations for general support for science to the 100 universities and colleges receiving the largest amounts, by agency, fiscal year 1970

[Dollars in thousands]

Institution (in order of general support for science obligations)	State	Total obligations		Department of Commerce		Department of Health, Education, and Welfare (National Institutes of Health)		Department of the Interior		National Science Foundation	
		Amount	Percent of U.S. total	Amount	Percent of U.S. total	Amount	Percent of U.S. total	Amount	Percent of U.S. total	Amount	Percent of U.S. total
Total, 100 institutions	.....	$75,946	75.47	$165	100.00	$35,735	83.07	$434	98.86	$39,612	69.48
1. University of Oregon-Eugene	Oreg.	3,564	3.54	.....	.....	707	1.64	.....	.....	2,857	5.01
2. University of Colorado	Colo.	2,855	2.84	.....	.....	942	2.19	.....	.....	1,913	3.36
3. University of Georgia	Ga.	2,559	2.54	.....	.....	149	.35	10	2.28	2,400	4.21
4. Louisiana State University-Baton Rouge	La.	2,538	2.52	.....	.....	.....	.....	.....	.....	2,538	4.45
5. SUNY State University-Stony Brook	N.Y.	2,163	2.15	.....	.....	57	.13	.....	.....	2,106	3.69
6. Northwestern University	Ill.	2,063	2.05	.....	.....	392	.91	.....	.....	1,671	2.93
7. Brandeis University	Mass.	2,043	2.03	.....	.....	78	.18	.....	.....	1,965	3.45
8. University of Rochester	N.Y.	1,722	1.71	.....	.....	421	.98	.....	.....	1,301	2.28
9. Yeshiva University	N.Y.	1,408	1.40	.....	.....	435	1.01	.....	.....	973	1.71
10. University of Alaska	Alaska	1,353	1.34	154	93.33	46	.11	.....	.....	1,153	2.02
11. Washington University	Mo.	1,142	1.13	.....	.....	1,071	2.49	.....	.....	71	.12
12. University of California-Davis	Calif.	1,100	1.09	.....	.....	1,000	2.32	.....	.....	100	.18
13. University of Michigan	Mich.	1,085	1.08	.....	.....	873	2.03	.....	.....	212	.37
14. Vanderbilt University	Tenn.	1,069	1.06	.....	.....	978	2.27	.....	.....	91	.16
15. Boston University	Mass.	1,058	1.05	.....	.....	350	.81	.....	.....	708	1.24
16. University of Hawaii	Hawaii	1,044	1.04	.....	.....	256	.60	.....	.....	788	1.38
17. Harvard University	Mass.	1,034	1.03	.....	.....	873	2.03	.....	.....	161	.28
18. Duke University	N.C.	932	.93	.....	.....	829	1.93	.....	.....	103	.18
19. University of Pennsylvania	Pa.	931	.93	.....	.....	817	1.90	.....	.....	114	.20
20. University of Washington	Wash.	925	.92	3	1.82	564	1.31	170	38.72	188	.33
21. Purdue University	Ind.	911	.91	.....	.....	682	1.59	.....	.....	229	.40
22. University of Minnesota	Minn.	906	.90	.....	.....	750	1.74	.....	.....	156	.27
23. Cornell University	N.Y.	901	.90	.....	.....	782	1.82	.....	.....	119	.21
24. Colorado State University	Colo.	891	.89	.....	.....	179	.42	.....	.....	712	1.25
25. Johns Hopkins University	Md.	889	.88	.....	.....	727	1.69	.....	.....	162	.28
26. University of California-Los Angeles	Calif.	883	.88	.....	.....	683	1.59	.....	.....	200	.35
27. Stanford University	Calif.	879	.87	.....	.....	484	1.13	.....	.....	395	.69
28. Clemson University	S.C.	850	.84	.....	.....	.....	.....	.....	.....	850	1.49
29. Columbia University	N.Y.	816	.81	.....	.....	655	1.52	.....	.....	161	.28
30. University of Kansas	Kans.	812	.81	.....	.....	746	1.73	.....	.....	66	.12
31. Georgetown University	D.C.	804	.80	.....	.....	309	.72	.....	.....	495	.87
32. Oregon State University	Oreg.	788	.78	.....	.....	75	.17	13	2.96	700	1.23
33. University of Pittsburgh	Pa.	772	.77	.....	.....	639	1.49	.....	.....	133	.23
34. University of Wisconsin-Madison	Wis.	771	.77	8	4.85	560	1.30	3	.68	200	.35
35. University of Mississippi	Miss.	733	.73	.....	.....	297	.69	.....	.....	436	.76
36. Lehigh University	Pa.	732	.73	.....	.....	.....	.....	.....	.....	732	1.28
37. Ohio State University	Ohio	728	.72	.....	.....	554	1.29	.....	.....	174	.31
38. Stevens Institute of Technology	N.J.	717	.71	.....	.....	.....	.....	.....	.....	717	1.26
39. Colorado School of Mines	Colo.	716	.71	.....	.....	.....	.....	.....	.....	716	1.26
40. University of Alabama-Birmingham	Ala.	713	.71	.....	.....	494	1.15	.....	.....	219	.38
41. Yale University	Conn.	709	.70	.....	.....	595	1.38	.....	.....	114	.20

5. SUNY State University-Stony Brook	N.Y.	2,163	2.15			57	.13			2,106	3.69
6. Northwestern University	Ill.	2,063	2.05			392	.91			1,671	2.93
7. Brandeis University	Mass.	2,043	2.03			78	.18			1,965	3.45
8. University of Rochester	N Y.	1,722	1.71			421	.98			1,301	2.28
9. Yeshiva University	N.Y.	1,408	1.40			435	1.01			973	1.71
10. University of Alaska	Alaska	1,353	1.34	154	93.33	46	.11			1,153	2.02
11. Washington University	Mo.	1,142	1.13			1,071	2.49			71	.12
12. University of California-Davis	Calif.	1,100	1.09			1,000	2.32			100	.18
13. University of Michigan	Mich.	1,085	1.08			873	2.03			212	.37
14. Vanderbilt University	Tenn.	1,069	1.06			978	2.27			91	.16
15. Boston University	Mass.	1,058	1.05			350	.81			708	1.24
16. University of Hawaii	Hawaii	1,044	1.04			256	.60			788	1.38
17. Harvard University	Mass.	1,034	1.03			873	2.03			161	.28
18. Duke University	N.C.	932	.93			829	1.93			103	.18
19. University of Pennsylvania	Pa.	931	.93			817	1.90			114	.20
20. University of Washington	Wash.	925	.92	3	1.82	564	1.31	170	38.72	188	.33
21. Purdue University	Ind.	911	.91			682	1.59			229	.40
22. University of Minnesota	Minn.	906	.90			750	1.74			156	.27
23. Cornell University	N.Y.	901	.90			782	1.82			119	.21
24. Colorado State University	Colo.	891	.89			179	.42			712	1.25
25. Johns Hopkins University	Md.	889	.88			727	1.69			162	.28
26. University of California-Los Angeles	Calif.	883	.88			683	1.59			200	.35
27. Stanford University	Calif.	879	.87			484	1.13			395	.69
28. Clemson University	S.C.	850	.84							850	1.49
29. Columbia University	N.Y.	816	.81			655	1.52			161	.28
30. University of Kansas	Kans.	812	.81			746	1.73			66	.12
31. Georgetown University	D.C.	804	.80			309	.72			495	.87
32. Oregon State University	Oreg.	788	.78			75	.17	13	2.96	700	1.23
33. University of Pittsburgh	Pa.	772	.77			639	1.49			133	.23
34. University of Wisconsin-Madison	Wis.	771	.77	8	4.85	560	1.30	3	.68	200	.35
35. University of Mississippi	Miss.	733	.73			297	.69			436	.76
36. Lehigh University	Pa.	732	.73							732	1.28
37. Ohio State University	Ohio	728	.72			554	1.29			174	.31
38. Stevens Institute of Technology	N.J.	717	.71							717	1.26
39. Colorado School of Mines	Colo.	716	.71							716	1.26
40. University of Alabama-Birmingham	Ala.	713	.71			494	1.15			219	.38
41. Yale University	Conn.	709	.70			595	1.38			114	.20
42. Rice University	Tex.	702	.70			579	1.35			123	.22
43. Virginia Polytechnic Institute	Va.	700	.70			47	.11			653	1.15
44. New York University	N.Y.	699	.69			595	1.38			104	.18
45. University of North Carolina-Chapel Hill	N.C.	661	.66			576	1.34	9	2.05	76	.13
46. University of Virginia	Va.	644	.64			540	1.26			104	.18
47. University of Iowa	Iowa	641	.64			461	1.07			180	.32
48. College of William and Mary	Va.	629	.63							629	1.10
49. University of California-Berkeley	Calif.	606	.60			317	.74			289	.51
50. Massachusetts Institute of Technology	Mass.	605	.60			177	.41			428	.75
51. University of Chicago	Ill.	599	.60			459	1.07			140	.25
52. University of New Hampshire	N.H.	592	.59			35	.08			557	.98
53. Southern Methodist University	Tex.	590	.59							590	1.03
54. SUNY State University-Buffalo	N.Y.	569	.57			515	1.20			54	.09
55. Case Western Reserve University	Ohio	566	.56			477	1.11			89	.16
56. University of California-San Diego	Calif.	561	.56			313	.73			248	.43
57. University of Southern California	Calif.	529	.53			442	1.03	5	1.14	82	.14
58. University of California-San Francisco	Calif.	528	.52			528	1.23				
59. University of Maryland	Md.	525	.52			338	.79			187	.33
60. University of Florida	Fla.	521	.52			340	.79			181	.32

Table B-25.—Federal obligations for general support for science to the 100 universities and colleges receiving the largest amounts, by agency, fiscal year 1970 (Continued)

[Dollars in thousands]

Institution (in order of general support for science obligations)	State	Total obligations		Department of Commerce		Department of Health, Education, and Welfare (National Institutes of Health)		Department of the Interior		National Science Foundation	
		Amount	Percent of U.S. total	Amount	Percent of U.S. total	Amount	Percent of U.S. total	Amount	Percent of U.S. total	Amount	Percent of U.S. total
61. University of Connecticut	Conn.	$501	.50			$231	.54			$270	.47
62. University of Vermont	Vt.	488	.48			222	.52			266	.47
63. Michigan State University	Mich.	485	.48			305	.71			180	.32
64. University of Miami	Fla.	484	.48			367	.85			117	.21
65. University of Illinois-Urbana	Ill.	465	.46			217	.50			248	.43
66. Kent State University	Ohio	459	.46							459	.81
67. University of Utah	Utah	450	.45			349	.81			101	.18
68. Tulane University	La.	447	.44			404	.94			43	.08
69. University of Texas-M. D. Anderson Hospital and Tumor Institute	Tex.	418	.42			418	.97				
70. SUNY State University-Binghamton	N.Y.	411	.41							411	.72
71. University of Kentucky	Ky.	404	.40			297	.69			107	.19
72. Syracuse University	N.Y.	400	.40			60	.14			340	.60
73. University of Missouri-Columbia	Mo.	399	.40			302	.70			97	.17
74. Baylor College of Medicine	Tex.	395	.39			395	.92				
75. CUNY Mt. Sinai School of Medicine [b]	N.Y.	385	.38			385	.89				
75. University of California-Santa Cruz [b]	Calif.	385	.38							385	.68
77. Temple University	Pa.	381	.38			337	.78			44	.03
78. Indiana University-Indianapolis	Ind.	380	.38			380	.88				
79. Emory University	Ga.	378	.38			336	.78			42	.07
80. California Institute of Technology	Calif.	372	.37			113	.26			259	.45
81. University of Illinois-Medical Center	Ill.	371	.37			371	86				
82. Pennsylvania State University	Pa.	359	.36			195	.45			164	.29
83. University of Texas-Southwestern Medical School	Tex.	357	.35			357	.83				
84. Rutgers, The State University	N.J.	355	.35			261	.61			94	.16
85. University of Oklahoma	Okla.	352	.35			205	.48			147	.26
86. Wayne State University	Mich.	339	.34			284	.66			55	.10
87. Brown University	R.I.	333	.33			223	.52			110	.19
88. Tufts University	Mass.	332	.33			270	.63			62	.11
89. University of Rhode Island	R.I.	329	.33					$224	51.03	105	.18
90. University of Arizona	Ariz.	328	.33			143	.33			185	.32
91. University of Cincinnati	Ohio	318	.32			267	.62			51	.09

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63. Michigan State University	Mich.	485	.48			305	.71			180	.32
64. University of Miami	Fla.	484	.48			367	.85			117	.21
65. University of Illinois-Urbana	Ill.	465	.46			217	.50			248	.43
66. Kent State University	Ohio	459	.46							459	.81
67. University of Utah	Utah	450	.45			349	.81			101	.18
68. Tulane University	La.	447	.44			404	.94			43	.08
69. University of Texas-M. D. Anderson Hospital and Tumor Institute	Tex.	418	.42			418	.97				
70. SUNY State University-Binghamton	N.Y.	411	.41							411	.72
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85. University of Oklahoma	Okla.	352	.35			205	.48			147	.26
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88. Tufts University	Mass.	332	.33			270	.63			62	.11
89. University of Rhode Island	R.I.	329	.33					$224	51.03	105	.18
90. University of Arizona	Ariz.	328	.33			143	.33			185	.32
91. University of Cincinnati	Ohio	318	.32			267	.62			51	.09
92. University of Arkansas [b]	Ark.	310	.31			184	.43			126	.22
92. Florida Atlantic University [b]	Fla.	310	.31							310	.54
94. SUNY-Downstate Medical Center	N.Y.	307	.31			307	.71				
95. Wofford College	S.C.	306	.30							306	.54
96. New York Medical College	N.Y.	302	.30			283	.66			19	.03
97. Virginia Commonwealth University	Va.	301	.30			280	.65			21	.04
98. Ohio Wesleyan University	Ohio	299	.30							299	.52
99. Dartmouth College	N.H.	293	.29			199	.46			94	.16
100. Furman University	S.C.	282	.28							282	.49

[a] Main University only.
[b] Duplicate numbers indicate "tie" for place; e.g. same amount.

SOURCE: National Science Foundation (CASE).

* U. S. GOVERNMENT PRINTING OFFICE : 1972 O - 463-222