

200BR

November 2, 1970

Mr. Lorne W. Ellis  
 Room 265 Estabrooke Hall  
 University of Maine  
 Orono, Maine

Dear Mr. Ellis:

This is in response to your letter of October 16, 1970 requesting information concerning university research sponsored by the Department of Defense.

An excellent source for the information that you have requested can be found in a series of annually published reports by the National Science Foundation titled, "Federal Support to Universities and Colleges." These reports should be available in your University library.

The type of data presented in these reports is shown on the enclosed selected pages from the 1968 report.

Additional sources which should prove useful in your research project will be found in the reference documents listed in the enclosed bibliography.

Through your research of Federal funding history you will become aware of several significant facts. Before other Federal mission-oriented agencies became heavily involved, the Department of Defense pioneered in the support of almost all branches of academic science and engineering. For example, in 1955 the Department of Defense provided 47 percent of all Federal funds for research and development in universities. However, during the past ten years, the Department of Defense fraction has continually declined as the country has taken up a range of scientific challenges through other agencies such as Department of Health, Education, and Welfare; National Science Foundation; Atomic Energy Commission; and National Aeronautics and Space Administration.

RECORDS

WNRC: 13 Jan 95  
 RG: 330  
 ACCESSION# 75-0047  
 BOX# 12  
 FILE NAME: 200 Basic Research

# Contents

	<i>Page</i>
SUMMARY	vii
I. INTRODUCTION	1
Background	1
Scope and Limitations of Data	1
Relation to Prior Reports	2
II. TRENDS IN FEDERAL SUPPORT	3
Total Federal Obligations	3
Distribution of Support, by Agency	3
Categories of Support	4
III. GEOGRAPHIC DISTRIBUTION OF FEDERAL SUPPORT	7
Distribution by Geographic Division and State	7
Distribution in Relation to Population and Selected Educational Variables	10
Distribution of R&D Obligations	17
IV. DISTRIBUTION OF FEDERAL SUPPORT BY INSTITUTION	22
Total Federal Obligations to Individual Universities and Colleges	22
Academic Science Obligations to Individual Universities and Colleges	25
R&D Obligations to Individual Universities and Colleges	29
Federal Obligations to 2-Year Institutions	35
V. FEDERALLY FUNDED RESEARCH AND DEVELOPMENT CENTERS ADMINISTERED BY UNIVERSITIES AND COLLEGES	37
Support by Agency and Institution	37
Trends in Federal Support	41
APPENDIXES:	
A. Technical Notes	44
B. Statistical Tables	49

# Text Tables

TABLE	Page
1. Federal obligations to universities and colleges, by type of program, fiscal years 1963-68 .....	3
2. Distribution of Federal obligations to universities and colleges, by agency and type of program, fiscal years 1963 and 1968 .....	5
3. Growth of Federal obligations to universities and colleges, by type of program, fiscal years 1963-67 vs 1967-68 .....	7
4. Federal obligations to universities and colleges, by type of program and agency, fiscal years 1963-68 .....	6
5. Average annual growth rates, fiscal years 1963-67, and percent changes, fiscal years 1967-68, of Federal obligations to universities and colleges, by geographic division and type of program .....	7
6. Federal obligations to universities and colleges, by geographic division, State, and type of program, fiscal years 1963, 1967, and 1968 .....	9
7. Total Federal obligations to universities and colleges, by geographic division, State, and agency, fiscal years 1963, 1967, and 1968 .....	11
8. Distribution of Federal obligations to universities and colleges and degrees awarded by universities and colleges, by geographic division and State, various years .....	16
9. Rankings of Federal obligations to universities and colleges, population and selected educational data, by State, various years .....	18
10. Federal obligations to universities and colleges for research and development and R&D plant, by geographic division, fiscal years 1963, 1967, and 1968 .....	19
11. Federal obligations to universities and colleges for research and development with average annual growth rates, fiscal years 1963-67, and percent change, fiscal years 1967-68, by geographic division, and State .....	20
12. Number of universities and colleges receiving Federal obligations, ranked by size of Federal program, fiscal year 1968 .....	22
13. Federal obligations to 100 universities and colleges receiving the largest amounts, fiscal year 1968 .....	23
14. Federal obligations for academic science to universities and colleges, fiscal year 1968, by level of highest degree conferred in the sciences and engineering, fiscal years 1963-66 .....	26
15. Federal obligations for academic science to the 100 universities and colleges receiving the largest amounts, fiscal year 1968, and percent of degrees awarded, 1963-66 .....	27
16. Academic science obligations to universities and colleges receiving the largest amounts, ranked in various groups, compared to degrees awarded in the sciences and engineering, various years .....	29
17. Federal obligations for research and development to the 100 universities and colleges receiving the largest amounts, by agency, fiscal year 1968 .....	30
18. Federal obligations for research and development and R&D plant to universities and colleges receiving the largest amounts, ranked in various groups, compared to degrees awarded in the sciences and engineering, various years .....	33
19. Research and development and R&D plant obligations as a percent of total Federal obligations for each of the 100 universities and colleges receiving the largest amounts, fiscal year 1968 .....	34
20. Geographic distribution of Federal obligations to 2-year institutions, by type of program, fiscal years 1967 and 1968 .....	36
21. Federal obligations to Federally Funded Research and Development Centers administered by universities and colleges, fiscal years 1963-68 .....	38
22. Federal obligations to Federally Funded Research and Development Centers administered by universities and colleges, by agency, institution, and type of support, fiscal year 1968 .....	40

## Summary

- Total Federal support to institutions of higher education amounted to \$3,367 million in fiscal year 1968. A slowdown in growth that began in 1967 became more evident in 1968, with total support increasing by less than 2 percent over 1967.
- Academic science obligations rose by \$17 million to \$2,340 million in fiscal year 1968, but continued to decline in relation to total support. Between 1964 and 1968 the ratio of Federal academic science support to total Federal support to universities and colleges dropped from 94 percent to less than 70 percent. The \$17-million increase from 1967-68 is the net result of an increase of \$92 million in research and development, and decreases of \$15 million and \$60 million in R&D plant and other science activities, respectively.
- Federal obligations for research and development totaled \$1,416 million in fiscal year 1968. As a percent of total Federal support, research and development increased to 42 percent, after declining steadily from 60 percent to 40 percent between 1964 and 1967. Federal funds for R&D plant in 1968 dropped to \$102 million, the lowest level since 1964.
- Government support for nonscience activities at institutions of higher education passed the billion-dollar level in fiscal year 1968, totaling \$1,027 million. Increasing nearly tenfold since 1964, nonscience activities now claim more than 30 percent of total Federal dollars to academic institutions.
- The concentration in Federal obligations to universities and colleges in the various geographic divisions has continued to diminish. The proportion accounted for by the four divisions receiving the largest amounts declined by 6 percentage points during the 1963-68 period. Of the four only the Pacific division increased its proportionate share of total Federal support. In general, the distribution of population, degrees awarded in the sciences and engineering and student enrollment among the States was quite comparable to the distribution of Federal obligations.
- Over 2,100 universities and colleges received Federal support in fiscal year 1968, and the distribution of the funding showed less concentration than in previous years. The 100 institutions receiving the largest amounts accounted for 69 percent of the U. S. total, compared to 85 percent in 1963. The dispersion was less evident among institutions receiving academic science obligations; the top 100 institutions in this category received 80 percent of these funds, declining from 87 percent in 1963

- Federal obligations to 2-year institutions decreased to \$120 million in fiscal year 1968 from over \$122 million in 1967. While the amount of support declined, the number of junior colleges receiving funds increased to 719 from 640 in 1967. Federally Funded Research and Development Centers associated with academic institutions received \$945 million in Federal obligations during 1968, surpassing 1967's total by \$38 million.

- In fiscal year 1968 the Department of Health, Education, and Welfare awarded \$2,212 million to universities and colleges—nearly twice as much as all other agencies combined. Since 1963 HEW awards have increased from 47 percent to 66 percent of total Federal support to academic institutions.

TABLE A-6

TOTAL FEDERAL OBLIGATIONS  
TO ALL UNIVERSITIES AND COLLEGES BY GEOGRAPHIC DIVISION,  
STATE, INSTITUTION, AND AGENCY, FISCAL YEAR 1968  
(THOUSANDS OF DOLLARS)

DIVISION, STATE AND INSTITUTION	TOTAL	AGR	AEC	COM	DOD	HEW	INT	NASA	NSF	OTHER
<b>NEW ENGLAND</b>										
<u>CONNECTICUT</u>										
ALBERTUS MAGNUS COL	41	0	0	0	0	41	0	0	0	0
ANNUHURST COL	19	0	0	0	0	19	0	0	0	0
BRIDGEPORT ENG INST	18	0	0	0	0	18	0	0	0	0
CENTRAL CONN ST COL	719	0	0	0	0	717	0	0	2	0
CONNECTICUT COL	241	0	0	0	38	120	0	0	15	68
EASTERN CONN STATE COL	582	0	0	0	0	582	0	0	0	0
FAIRFIELD UNIV	605	0	0	0	0	491	0	35	55	24
GREATER HARTFORD COMM COL**	24	0	0	0	0	24	0	0	0	0
HARTFORD COL FOR WOMEN**	288	0	0	0	0	288	0	0	0	0
MANCHESTER COMM COL**	45	0	0	0	0	45	0	0	0	0
MATTATUCK COMMUNITY COL**	10	0	0	0	0	10	0	0	0	0
MITCHELL COL**	41	0	0	0	0	41	0	0	0	0
NEW ENGLAND INST	121	0	71	0	0	0	0	0	50	0
NEW HAVEN COL	297	0	0	0	0	297	0	0	0	0
NORTHWESTN CONN COMM COL**	41	0	0	0	0	41	0	0	0	0
NORWALK COMM COL**	80	0	0	0	0	80	0	0	0	0
NORWALK STATE TECH COL**	5	0	0	0	0	5	0	0	0	0
POST JR COL**	40	0	0	0	0	40	0	0	0	0
QUINNIPIAC COL	99	0	0	0	0	99	0	0	0	0
SACRED HEART UNIV	46	0	0	0	0	46	0	0	0	0
SILVERMINE COL OF ART**	9	0	0	0	0	9	0	0	0	0
SOUTH CENTRAL COMM COL**	8	0	0	0	0	8	0	0	0	0
SOUTHERN CONN STATE COL	1,148	0	0	0	0	1,132	0	0	16	0
ST JOSEPH COL	118	0	0	0	0	66	0	0	52	0
THAMES VALLEY ST TECH COL**	321	0	0	0	0	321	0	0	0	0
TRINITY COL	320	0	10	0	0	182	0	0	128	0
UNIV OF BRIDGEPORT	499	0	0	0	0	451	0	0	48	0
UNIV OF CONNECTICUT	23,195	835	72	0	284	20,327	129	72	1,311	165
UNIV OF HARTFORD	503	0	0	0	0	283	0	0	193	27
WATERBURY STATE TECH COL**	5	0	0	0	0	5	0	0	0	0
WESLEYAN UNIV	2,081	0	0	0	70	495	0	0	1,405	111
WESTERN CONN STATE COL	552	0	0	0	0	550	0	0	2	0
YALE UNIV	31,893	0	3,673	0	1,222	21,101	6	540	4,925	426
TOTAL CONNECTICUT	64,014	835	3,826	0	1,614	47,934	135	647	8,202	821
<u>MAINE</u>										
AROSTOOK STATE COL	37	0	0	0	0	37	0	0	0	0
BATES COL	57	0	0	0	0	57	0	0	0	0
BOWDOIN COL	509	0	0	0	0	66	0	0	356	87
COLBY COL	163	0	0	0	0	51	0	0	112	0
FARRINGTON STATE COL	397	0	0	0	0	397	0	0	0	0
FORT KENT STATE COL	23	0	0	0	0	23	0	0	0	0
GORHAM STATE COL	668	0	0	0	0	580	0	0	0	88
HUSSON COL	76	0	0	0	0	76	0	0	0	0
MAINE MARITIME ACADEMY	21	0	0	0	0	21	0	0	0	0
MASSON COL	71	0	0	0	0	69	0	0	0	2
NORTHERN CONSERV OF MUSIC	12	0	0	0	0	12	0	0	0	0
RICKER COL	30	0	0	0	0	30	0	0	0	0
ST FRANCIS COL	73	0	0	0	0	73	0	0	0	0
ST JOSEPHS COL	31	0	0	0	0	30	0	0	0	1
THOMAS COL	529	0	0	0	0	529	0	0	0	0
UNIV OF MAINE ORONO	3,827	1,290	0	0	0	1,745	287	75	292	138
WASHINGTON STATE COL	246	0	0	0	0	246	0	0	0	0
WESTARODK JR COL	76	0	0	0	0	76	0	0	0	0
TOTAL MAINE	6,846	1,290	0	0	0	4,118	287	75	760	316
<u>MASSACHUSETTS</u>										
AMERICAN INTL COL	128	0	0	0	0	102	0	0	26	0
AMHERST COL	1,029	0	0	0	0	440	0	0	589	0
ANNA MARIA COL FOR WOMEN	47	0	0	0	0	47	0	0	0	0
AQUINAS SCHOOL**	11	0	0	0	0	11	0	0	0	0
ASSUMPTION COL	269	0	0	0	0	232	0	0	37	0
ATLANTIC UNION COL	207	0	0	0	0	207	0	0	0	0
HARSON INST OF BUS ADMIN	22	0	0	0	0	22	0	0	0	0
DAY PATH JR COL**	14	0	0	0	0	11	0	0	3	0
DAY STATE SCH OF BUSINESS	15	0	0	0	0	15	0	0	0	0
BECKER JR COL**	7	0	0	0	0	7	0	0	0	0
BENTLEY COL OF ACCT & FIN	194	0	0	0	0	194	0	0	0	0
BERKSHIRE CHRISTIAN COL	13	0	0	0	0	13	0	0	0	0
BERKSHIRE COMM COL**	70	0	0	0	0	70	0	0	0	0
BOSTON ARCHITECTURAL CTR	7	0	0	0	0	7	0	0	0	0
BOSTON COL	4,262	0	99	19	470	2,780	0	0	437	457

See footnotes at end of table.

The total Federal obligations for FY 1970 for research and development are estimated at about \$16 billion. Of this amount, less than 10 percent, or about \$1.4 billion, is provided to academic institutions for performance of research and development. Today, only 15.7% of Federal support for university research and development comes from the Department of Defense. The Department of Defense provided this research support totaling \$223 millions to approximately 225 universities through some 5,000 research contracts and grants. These contracts and grants were provided to develop specific scientific knowledge relevant to our technological needs.

In addition, some of our research is performed through university-managed Federal Contract Research Centers (FCRC's). These special research organizations meet needs which can not be met either within the government or within other parts of the private sector. For FY 1971, five defense-sponsored FCRC's will be administered by universities. These are: Lincoln Laboratory (Massachusetts Institute of Technology), Applied Physics Laboratory (Johns Hopkins University), Center of Naval Analyses (University of Rochester), Ordnance Research Laboratory (Pennsylvania State University), and Applied Physics Laboratory (University of Washington). Total estimated funding for these FCRC's is estimated to be 139.7 millions.

I trust this information will assist you in the preparation of your research paper.

Sincerely,

**SIGNED**

S. L. Wilhelm  
LTC USA  
Military Assistant to  
Assistant Director (Research)

Enclosures a/s

DDR&E Control #3793

Prep. by: *S. L. Wilhelm*  
LTC Wilhelm/bk/11/2/70  
#3C128 x 74198