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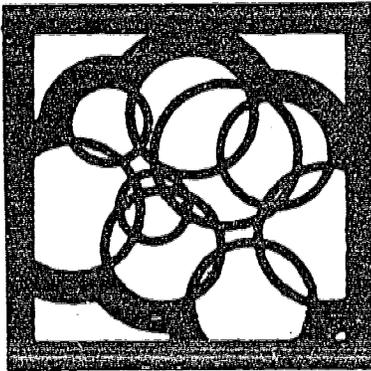
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ABSTRACT

During fall 1974, the University of Maryland at College Park evaluated its research programs as part of the decennial accreditation process. Data were collected on a comparison group of 35 state universities in order to place the Maryland activities in a national context. Most of the data presented in this report extend over a 10-year period, 1965 to 1974. During this period, federal support for scientific research reached a peak and then declined; all the universities had an opportunity to expand their research programs. Four kinds of indicators for scientific research were used: National Science Foundation grants, publications in frequently-cited journals (in mathematics, physics, and chemistry), prestige of graduate programs, and members of advisory panels that review applications for research grants. For social sciences and humanities, other fellowships and grants awarded were also included. General information is given for the 35 universities on number of doctoral degrees granted, faculty compensation and state support, library resources, prestige of graduate programs, and total federal funding. The highest ranking universities are then cited for each of these areas: mathematics, physical sciences, an engineering; life sciences; and behavioral and social sciences, and humanities. (LBH)

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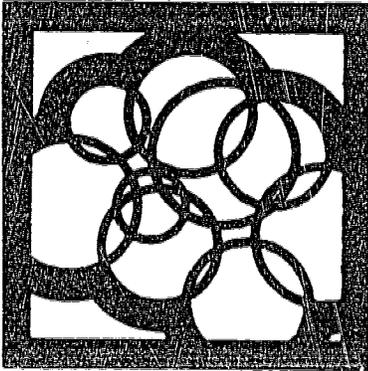
Research In Major State Universities: Some Quantitative Measures

By
Stephen G. Brush
Robert E. Menzer
Robert S. Beale

The Graduate School
University Of Maryland, College Park
September 1976

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Introduction

In the fall of 1974 the University of Maryland's College Park campus undertook an evaluation of its research programs as part of the decennial accreditation process. In order to place our own activities in a national context, we collected various kinds of data on a comparison group of 35 state universities. These were simply the public universities on the list of 50 institutions granting the largest number of doctoral degrees during 1970-71. It was a convenient group for our purposes since UMCP comes out somewhere near the middle on most quantitative measures, with many individual departments showing significant deviations above or below the average but still remaining within the range determined by the highest and lowest of the group.

We believe that this group of 35 universities is also a useful population for more general studies of research and graduate programs. Each produces several hundred Ph.D.'s annually and offers a wide range of subjects at an advanced level; thus each can be expected to maintain respectable research programs in a variety of scientific and scholarly fields. Selecting the major state universities thus yields a relatively homogeneous group that can be judged by a common set of criteria, thereby avoiding the criticisms that apply to attempts at ranking all institutions -- public or private, large or small -- on the same scale.* Moreover, our group of 35 could not usefully be enlarged by much,

* W. Patrick Dolan, The Ranking Game (Lincoln, Nebraska: Evaluation of Higher Education Committee of the Study Commission on Undergraduate Education and the Education of Teachers, 1976).

because many of the quantities we have tabulated (such as number of panel members or amounts of research grants in certain fields) are either zero or not easily available for the smaller universities. On the other hand a group with fewer members would lack the broad geographical distribution of this one (29 different states).

Most of the data presented here extend over a ten-year period, 1965-1974. This is probably not long enough to reveal any major trends or changes in the relative strengths of members of the group, except in a few cases where a university started a major new effort in a subject it had previously neglected. During this period federal support for scientific research reached a peak and then declined; all the universities had an opportunity to expand their research programs, and the resulting increase in publications was so great that a department which only doubled its output would fall behind the rest (see Tables 2B and 3B). The impact of the "retrenchment" of the early 1970s is not yet evident in these figures.

We used four kinds of indicators for scientific research: National Science Foundation grants, publications in frequently-cited journals (in mathematics, physics, and chemistry), prestige of graduate programs, and members of advisory panels that review applications for research grants. For social sciences and humanities we do not have publication counts but we have used fellowships and grants awarded by the National Endowment for the Humanities, American Council of Learned Societies and Social Science Research Council, in addition to NSF grants.

It is not surprising that the same institutions rank high on each scale. The exceptions are more interesting since they suggest that the system is not completely rigid: a new program may first acquire substantial funding and produce important publications, then after a lag of a few years acquire prestige and place its faculty members on government advisory panels. Older programs in the elite universities may continue

to rank high in "quality" surveys and dominate the federal panels long after they have declined in research productivity. Whether such patterns occur can only be determined by extending these tabulations over longer periods of time.

There has been much debate about whether quantitative measures such as the ones presented here give a valid indication of the "quality" of scientific departments. It seems to be fairly clear that a large part of the variation among institutions can be explained simply by the sizes of the departments, and that no credit is earned for imaginative deviations from the approved way of doing things. A prospective graduate student or foundation program officer who wanted to know whether a department is alive with exciting innovations or merely grinding out competent work within the established paradigm would not find the answer in these statistics. Nevertheless we claim that, taken all together, they measure overall strength of a department and its standing within the scientific community. If a scientist can consistently obtain research grants (especially in the 1970s) one may conclude that the community is satisfied with his or her past research performance; and if a scientist publishes frequently in the prestigious refereed journals it demonstrates that some kind of research (whether brilliant or pedestrian) is being done. Drew and Karpf have shown that their departmental publication index, which we tabulate here, is highly correlated with ratings on the ACE (Cartter and Roose-Anderson) surveys of graduate programs.* Insofar as these ratings also correlate with grants and membership on panels, it is evident that we are dealing with a real

* See Note [b] to Table 2.

property of departments, even if that property has intangible and subjective components.

The fact that the people who judge prestige in ACE surveys, and the people who sit on advisory panels that review grant applications, and the people who edit and referee the major journals, are affiliated with the same small group of elite universities that enjoy the lion's share of funding and produce a disproportionate number of publications, has been taken as evidence of inbreeding and favoritism in the system. There may indeed be inbreeding and favoritism but this correlation does not prove it; it is just as logical to say that it proves the existence of a hierarchy based on merit. In any case we believe it is useful to describe this hierarchy and its evolution, before trying to reach conclusions about whether it reflects real scientific achievement and competence or only success in a power struggle. A student embarking on a scientific career needs to know which universities have the strongest departments in his subjects -- where "strength" may mean influence in the academic job market as well as prestige based on valuable research -- even though he may choose to attend a "weaker" university which suits his own needs better.

In most disciplines no quantitative publication index is easily available. Moreover, in the humanities and some of the social sciences, some of the best research is accomplished with little or no outside funding and may result in only a single monograph after a decade of labor. We are therefore less confident that our quantitative measures are reliable guides to the strength of departments.

Finally it should be noted that this report is incomplete -- the reader will easily think of many other things we could have counted --

and lacks any sophisticated statistical analysis or profound interpretation. The reason is simply that we were not able to do any more in the available time and with the assistance we could obtain for the project.

* * *

On looking at the results in Table 2 we find that it is fairly easy to pick out 11 universities that are strong in most areas of the physical sciences and engineering.^{*} Regardless of how one wishes to weight the four measures, these universities would be the leaders:

California-Berkeley
 California-Los Angeles
 Colorado
 Illinois
 Maryland
 Michigan
 Minnesota
 Purdue
 Texas
 Washington
 Wisconsin

They are listed in alphabetical order because we do not feel that any definite ranking within the group can be defended.[Ⓞ]

In the life sciences and chemistry,^{*} it is a little harder to draw a clear line between the strongest universities and the others. Ten

* Note that Chemistry has been placed with the life sciences, because of the divisional structure at UMCP. Medical and other professional schools have been excluded for all universities, since those of the University of Maryland are not located at the College Park campus.

are clearly outstanding:

California-Berkeley
 California-Los Angeles
 Illinois
 Indiana
 Michigan
 Michigan State
 Purdue
 Texas
 Washington
 Wisconsin

Minnesota follows close behind, but is only a little ahead of several others.

In the social sciences and humanities there is even more difficulty in distinguishing between strong and moderately strong universities with the information available to us. There is no doubt that the following eight head the list:

California-Berkeley
 California-Los Angeles
 Illinois
 Indiana
 Michigan
 Minnesota
 Washington
 Wisconsin

but five others should also be mentioned: Kansas, North Carolina, Ohio State, Virginia and Texas.

There are six universities which emerge from these comparisons with strength in all areas:

California-Berkeley

California-Los Angeles

Illinois

Michigan

Washington

Wisconsin

These are also the six universities with the highest average ratings on the 1969 ACE survey (Table 1D). Seven others are strong in some areas: Colorado, Indiana, Maryland, Michigan State, Minnesota, Purdue and Texas.

At this point we can turn to Tables 1E and 1C and ask whether the strongest universities are the best financed ones or have the largest libraries. It appears that no single measure of financial support is highly correlated with research strength. Wisconsin, California and Washington rank high on the scale of "state appropriations for higher education as share of personal income." Michigan and California pay fairly good salaries to professors, but fall behind New York, New Jersey and Virginia. Illinois is distinguished mainly for the size of its library, an indication of past support for the university. The six strongest universities (as listed above) all rank in the top ten for total library holdings and current periodical subscriptions; and, of the 15 universities having the largest libraries, nearly every one is fairly strong in at least one area. We suspect that it is not so much the number of books that makes a university good in a subject like mathematics, but rather that a large library reflects a long-term commitment by the state and the university to academic research.

* * *

We thank Nancy King and Denise Brush for performing some of the tabulations included in this report. David Drew's permission to reproduce some of his results is gratefully acknowledged.

Table 1. General Information [a]
(notes are on page 14)

1A. Number of Ph.D.'s
granted 1970-71 [b]

Arizona (Tucson)	245	28
California (Berkeley)	759	4
California (Los Angeles)	570	9
Colorado (Boulder)	252	26
Florida (Gainesville)	303	18
Florida State (Tallahassee)	314	16
Georgia (Athens)	256	25
Illinois (Champaign-Urbana)	870	2
Indiana (Bloomington)	623	7
[Indiana] Purdue	498	10
Iowa (Iowa City)	389	14
Iowa State (Ames)	311	17
Kansas (Lawrence)	260	23+
Louisiana State (Baton Rouge)	221	34
Maryland (College Park)	339	15
Massachusetts (Amherst)	263	22
Michigan (Ann Arbor)	809	3
Michigan State (East Lansing)	731	5
Minnesota (Minneapolis)	613	8
Missouri (Columbia)	296	19
Nebraska (Lincoln)	222	33
[New Jersey] Rutgers	233	30
[New York] SUNY at Buffalo	249	27
North Carolina (Chapel Hill)	278	21
Ohio State (Columbus)	676	6
Oklahoma (Norman)	224	32
Oklahoma State (Stillwater)	218	35
Oregon (Eugene)	260	23+
Pennsylvania State (University Park)	436	12
Tennessee (Knoxville)	286	20
Texas (Austin)	468	11
Utah (Salt Lake City)	238	29
Virginia (Charlottesville)	226	31
Washington (Seattle)	432	13
Wisconsin (Madison)	915	1

Table 1 (cont.)

	1B. Faculty compensation(\$1000) 1974-75 AAUP Survey			Per capita income for state, 1973 (\$1000)		Ratio of Prof.'s compensation to per capita income		
	Prof.	Assoc.	Asst.					
Arizona	25.2	21	19.4	16.4	4.7	22	5.39	13
Cal-Berk.	29.5[c]	5+	20.6[c]	17.1[c]	5.5	6+	5.34	17
Cal-L.A.	29.5[c]	5+	20.6[c]	17.1[c]	5.5	6+	5.33	18
Colorado	23.5	27	18.5	16.0	5.0	17	4.66	32
Florida	23.3	29	17.4	14.5	4.9	21+	4.73	29
Fla. St.	25.3[d]	19+	18.0[d]	14.4[d]	4.9	21+	5.13	19
Georgia	24.5	24	18.3	15.4	4.4	29	5.58	10
Illinois	27.1	10	19.2	16.0	5.8	2	4.72	30
Indiana	26.8	13	19.6	16.5	5.0	19+	5.39	13
Purdue	27.7	9	20.2	16.0	5.0	19+	5.57	11
Iowa	25.5	18	19.8	16.4	5.3	10+	4.84	25
Iowa St.	24.8	23	19.0	15.9	5.3	10+	4.71	31
Kansas	23.1	30	17.8	14.8	5.3	9	4.36	34
La. St.	23.6	26	17.8	14.9	3.9	35	6.00	3
Maryland	26.2	16	19.6	16.4	5.5	8	4.77	27
Mass.	28.2	7	21.1	16.4	5.3	13	5.38	15+
Michigan	29.8	4	22.0	18.0	5.6	4+	5.38	15+
Mich. St.	26.7	14	20.8	17.3	5.6	4+	4.82	26
Minnesota	26.4	15	19.6	16.1	5.1	15	4.93	22+
Missouri	22.3	33	17.7	14.8	4.8	24	4.61	33
Nebraska	22.5	32	17.8	15.3	5.3	12	4.28	35
Rutgers	32.7	2	23.2	17.3	5.8	1	5.60	8+
SUNY-Buff.	33.7	1	23.9	18.2	5.7	3	5.91	5
N. Car.	28.1	8	19.9	16.9	4.3	32	6.58	1
Ohio St.	25.3	19+	19.1	15.3	5.1	16	5.0	21
Oklahoma	21.4	35	16.9	14.4	4.3	30+	4.93	22+
Okla. St.	21.8	34	17.6	14.6	4.3	30+	5.03	20
Oregon	23.0	31	18.0	15.0	4.8	25	4.76	28
Penn. St.	26.9	11+	20.3	16.4	5.0	18	5.39	13
Tenn.	23.4	28	18.7	15.5	4.1	33	5.72	6
Texas	25.6	17	18.5	15.5	4.6	28	5.60	8+
Utah	24.3	25	18.8	16.3	4.1	34	5.98	4
Virginia	29.9	3	21.1	16.2	4.9	23	6.12	2
Wash.	25.0	22	18.4	15.0	5.2	14	4.85	24
Wisconsin	26.9	11+	19.8	17.0	4.8	26	5.67	7

Table 1 (cont.)

	IB (cont.). State appropriations for higher education as share of personal income (%) [e]		as share of state general revenue(%) [e]		Appropriations per student [f]	
Arizona	1.61	2	18.9	13	\$1,610	33
Cal-Berk.	1.46	4+	16.7	23+	2,080	16+
Cal-L.A.	1.46	4+	16.7	23+	2,080	16+
Colorado	1.20	9	20.7	8	1,750	30
Florida	0.94	18+	18.0	15+	1,990	18+
Fla. St.	0.94	18+	18.0	15+	1,990	18+
Georgia	0.92	22	15.6	26	2,180	13
Illinois	1.00	15	15.0	27	2,380	7
Indiana	0.90	25+	22.3	5+	2,380	7
Purdue	0.90	25+	22.3	5+	2,380	7
Iowa	0.95	16+	17.6	19+	2,780	3+
Iowa St.	0.95	16+	17.6	19+	2,780	3+
Kansas	1.04	12	21.5	7	2,220	12
La. St.	0.92	21	11.3	30	1,830	28+
Maryland	0.78	30	13.0	28	1,970	20+
Mass.	0.64	34	8.3	35	1,630	31+
Michigan	1.02	13+	17.8	17+	1,930	24
Mich. St.	1.02	13+	17.8	17+	1,930	24
Minnesota	0.93	20	10.1	33	2,260	10
Missouri	0.88	27	16.4	25	1,960	22
Nebraska	0.92	24	32.3	1	2,250	11
Rutgers	0.69	33	10.5	32	1,930	24
SUNY-Buff.	1.25	7	11.3	31	3,550	1
N. Car.	1.23	8	16.9	22	2,330	9
Ohio St.	0.62	35	12.4	29	1,840	27
Oklahoma	0.76	31+	24.8	3+	1,370	34+
Okla. St.	0.76	31+	24.8	3+	1,370	34+
Oregon	1.14	10	26.5	2	1,970	20+
Penn. St.	0.80	28	9.5	34	2,991	2
Tenn.	0.92	23	20.1	9	1,630	31+
Texas	1.07	11	20.1	10	2,160	14
Utah	1.47	3	18.9	14	1,830	28+
Virginia	0.79	29	17.3	21	1,850	26
Wash.	1.31	6	19.3	11	2,100	15
Wisconsin	1.67	1	19.0	12	2,497	5

Table 1 (cont.)

	1C. Library resources (1974) [g]				1D. Prestige of Graduate Programs	
	Number of volumes (1,000,000)		Current periodicals subscriptions (1,000)		Weighted means of all departments	
					1964	1969
Arizona	1.58	21	17.5	26	30	27
Cal-Berk.	4.48	3	96.0	2	1	1
Cal-L.A.	3.40	7	49.9	3	6	5
Colorado	1.81	15	25.3	12	19	16
Florida	1.71	20	20.2	20	23	22
Fla. St.	1.08	34	12.4	33	25	29
Georgia	1.44	25	24.4	13	35	31
Illinois	5.33	1	96.8	1	4	4
Indiana	3.67	4	33.4	8	9	9
Purdue	1.09	33	18.9	23	13	15
Iowa	1.81	14	22.8	17	14	13
Iowa St.	1.01	35	15.1	31	17	21
Kansas	1.75	17	24.2	14	16	17
La. St.	1.48	23	15.9	30	25	30
Maryland	1.38	26	17.2	27	21	24
Mass.	1.29	27	16.2	29	31	25
Michigan	4.55	2	46.2	4	2	2
Mich. St.	2.08	11	27.8	11	12	10
Minnesota	3.48	6	29.1	10	5	8
Missouri	1.75	16	21.6	18	33	28
Nebraska	1.16	31	18.8	25	26	35
Rutgers	1.74	19	19.3	22	20	20
SUNY-Buff.	1.48	22	14.2	32	29	19
N. Car.	2.04	12	23.3	16	11	12
Ohio St.	2.91	8	24.2	15	10	11
Oklahoma	1.24	28	10.5	35	28	32+
Okla. St.	1.12	32	11.8	30	34	34
Oregon	1.22	29	18.9	24	18	18
Penn. St.	1.74	18	31.5	9	15	14
Tenn.	1.17	30	20.7	19	32	32+
Texas	3.52	5	40.8	7	8	7
Utah	1.45	24	16.2	28	24	26
Virginia	1.95	13	19.4	21	22	23
Wash.	2.10	10	41.2	6	7	6
Wisconsin	2.78	9	44.3	5	3	3

Table 1 (cont.)

Table 1E. Federal Research and Development Funds,
FY 74 (\$1,000,000) [i]

	Total		Phys.Sci. (astr.phys. & chem.)		Math.		Envir. Sci.		Engr.	
Arizona	12.4	18	2.6	17	0.1	29	1.4	9	1.8	13
Cal-Berk.	44.1	4	6.9	2	1.8	2	3.8	3	4.5	4
Cal-L.A.	53.4	2	5.3	5	1.9	1	3.6	4	2.9	6
Colorado	23.6	8	3.8	9	0.4	14	3.4	5	0.9	20
Florida	13.0	17	1.8	20	0.5	13	0.6	20	1.6	14
Fla. St.	8.5	25	1.5	23	0.3	20	0.7	17	0.0	32
Georgia	7.3	29	0.7	29	0.0	30	0.4	23	0.2	30
Illinois	32.7	7	8.1	1	1.6	3	2.7	6	7.2	1
Indiana	8.2	26	2.7	15	0.9	6	0.2	27	0.8	23
Purdue	18.0	14	4.3	7	0.7	7	1.4	10	2.8	7
Iowa	18.5	13	2.7	14	0.1	27	0.2	29	0.8	24
Iowa St.	5.9	20	0.7	30	0.3	19	0.1	30	0.6	25
Kansas	10.2	21	0.8	28	0.2	22	0.6	18	1.0	19
La. St.										
Maryland	11.7	19	5.5	4	0.7	8+	1.3	12	1.4	15
Mass.	7.5	28	1.6	21	0.1	28	0.2	26	1.1	16
Michigan	39.9	5	4.4	6	1.3	5	2.3	7	5.9	3
Mich. St.	14.4	16	2.6	16	0.2	25	0.6	19	0.4	27
Minnesota	36.5	6	3.6	11	0.7	8+	1.4	11	1.1	17
Missouri	9.0	24	0.3	32	0.0	31	0.3	25	0.8	22
Nebraska	5.6	31	0.5	31	0.0	32	0.9	14	0.5	26
Rutgers	9.4	22	2.0	19	0.4	15+	0.5	22	0.3	29
SUNY-Buff.	9.3	23	0.9	27	0.5	11	0.0	32	0.3	28
N. Car.	20.8	10	1.2	25	0.2	23	0.3	24	0.9	21
Ohio St.	19.6	12	3.3	12	0.2	21	0.7	16	2.3	8
Oklahoma										
Okla. St.										
Oregon	5.4	32	1.0	26	0.4	15+	0.2	28	0.1	31
Penn. St.	17.8	15	2.1	18	0.2	24	1.7	8	3.0	5
Tenn.	8.1	27	1.5	22	0.1	26	0.1	31	1.1	18
Texas	21.1	9	3.9	8	0.3	17	0.9	15	6.9	2
Utah	20.3	11	2.9	13	0.5	12	1.1	13	2.0	11
Virginia	11.3	20	1.4	24	0.3	18	0.5	21	1.9	12
Wash.	56.9	1	3.7	10	0.7	10	9.4	1	2.1	10
Wisconsin	51.1	3	5.8	3	1.5	4	3.8	2	2.1	9

Table 1 (cont.)

Table 1E (cont.). Federal Research and Development Funds,
FY 74 (\$1,000,000) [i]

	Life Sci.		Psych.		Social Sci.		other
Arizona	5.1	21	0.0	31	0.7	21	0.7
Cal-Berk.	18.3	5	1.0	7	5.0	3	2.8
Cal-L.A.	34.0	1	2.0	2	2.2	5	1.6
Colorado	12.0	9	0.8	11	0.4	27	0.9
Florida	2.1	15	0.9	8	0.2	30	0.3
Fla. St.	1.9	29	0.2	26	0.5	26	3.5
Georgia	4.4	22	0.0	32	0.9	17	0.6
Illinois	7.8	13	0.9	9	1.6	9	2.9
Indiana	1.9	30	0.6	15	1.1	15+	0.1
Purdue	6.2	18	0.7	14	0.8	19	0.9
Iowa	13.1	8	0.3	21	0.2	29	1.3
Iowa St.	2.7	27	0.0	30	1.2	14	0.3
Kansas	6.3	17	0.2	22	0.7	22	0.4
La. St.							
Maryland	2.0	28	0.3	19	0.5	25	0.0
Mass.	2.7	26	0.5	17	0.6	23	0.6
Michigan	17.2	6	2.0	1	5.0	2	1.8
Mich. St.	8.4	12	0.3	20	1.5	12	0.4
Minnesota	26.0	4	0.9	10	1.8	6	0.9
Missouri	5.9	20	0.2	24+	1.1	15+	0.3
Nebraska	1.8	31	0.1	29	1.6	10	0.2
Rutgers	3.2	25	1.6	4	0.5	24	0.9
SUNY-Buff.	7.1	16	0.2	28	0.0	32	0.3
N. Car.	15.4	7	1.2	6	0.8	20	0.9
Ohio St.	7.5	14	0.3	18	4.4	4	0.8
Oklahoma							
Okla. St.							
Oregon	1.6	32	0.5	16	1.6	8	0.2
Penn. St.	8.7	11	0.2	24+	1.3	13	0.6
Tenn.	3.9	23	0.2	27	0.9	18	0.4
Texas	3.3	24	0.8	12	1.5	11	3.5
Utah	10.9	10	1.5	5	0.4	28	1.0
Virginia	6.2	19	0.2	23	0.1	31	0.7
Wash.	33.9	2	0.7	13	1.8	7	4.7
Wisconsin	27.1	3	1.7	3	6.8	1	2.3

Notes for Table 1

- [a] Here and in other tables, *italic numbers* indicate rankings within the group of 35 universities. If two or more universities were tied for the same ranking, each was assigned the mean ranking for the group; thus if 5 were tied for 15th place each would be assigned a ranking of 17. If 6 were tied for 15th place each would be assigned a ranking of 17.5, written as 17+ in the table to save space. Rankings were computed on the basis of original data, which have then been rounded off for presentation in the table.
- [b] Source: Department of Health, Education and Welfare.
- [c] The University of California system reports only a single set of figures for all campuses.
- [d] No figures reported for 1974-75; estimated by assuming same percentage increase over previous years as for Florida.
- [e] Carnegie Foundation for the Advancement of Teaching, as reported in Chronicle of Higher Education, May 31, 1976, p. 8.
- [f] State and local tax revenue collected per full-time equivalent student in public institutions, multiplied by ratio of state and local tax revenue appropriated or levied for operating expenses of higher education to state and local tax revenue collected. This index, developed by D. Kent Halstead of the National Institute of Education, "suggests the financial commitment of state and local governments to supporting higher education consistent with available funds and expressed need." Chronicle of Higher Education, March 8, 1976, p. 4.
- [g] Compiled by staff at McKeldin Library, University of Maryland.
- [h] W. R. Petrowski, E. L. Brown and J. A. Duffy, "'National Universities' and the ACE ratings," Journal of Higher Education 44: 495-513 (1973).
- [i] "Federal Support to Universities, Colleges, and Selected Nonprofit Institutions, Fiscal Year 1974," prepared by Division of Science Resources Studies, National Science Foundation (Washington, D.C., 1976). We thank J. G. Huckenpahler for providing copies of the statistical tables in advance of publication. See Table B-18, pp. 58-59. The following are not included here: NSF institutional development grants; NIH General Research Grants Program; Research & Development Plant funds; Fellowships and traineeships; any funds from National Endowment for the Humanities. Figures for Oklahoma, Louisiana State, and Oklahoma State are omitted because they were not among the top 100 institutions in total R&D funds.

Table 2A. NSF Grants (\$1000) [a] (notes begin on page 22)
2 year totals (FY70+FY71) and (FY73+FY74)

	Astronomy				Math				Physics			
	70-71	rank	73-74	rank	70-71	rank	73-74	rank	70-71	rank	73-74	rank
Arizona	420	6	660	3	51	30	101	26	208	20+	1112	10
Cal-Berk.	752	2	1553	1	1336	1	1817	1	582	10	1235	9
Cal-L.A.	80	15	226	11	799	3	784	4	899	8	1430	8
Colorado	374	7	572	5	257	13	966	2	205	22	1054	12
Florida	123	12	245	9	37	31	137	23	288	17	380	19
Fla. St.	0		0		178	20	141	21	540	13	925	13
Georgia	0		0		107	26	69	28	122	28	86	32
Illinois	173	10	317	8	789	4	893	3	1514	5	1701	6
Indiana	73	16	0		383	10	401	11	1603	4	2542	3
Purdue	0		0		363	11	416	10	158	26	639	17
Iowa	0		45	18	179	19	204	16+	470	15	17	34
Iowa St.	39	18	22	19	63	28	28	34	0	35	52	33
Kansas	0		0		209	16	193	18	248	18	347	22
La. St.	29	19	0		190	17	175	20	170	24+	327	23
Maryland	768	1	489	6	402	9	508	9	1640	3	2892	2
Mass.	360	8	810	2	146	23	107	25	446	16	598	18
Michigan	319	9	483	7	853	2	714	6	1109	7	1440	7
Mich. St.	9	22	80	17	241	14	292	13	1928	1	2985	1
Minnesota	98	14	238	10	665	6	650	8	66	32	114	30
Missouri	0		0		21	32	46	31	208	20+	208	27
Nebraska	28	20	0		12	34	31	32	223	19	286	24
Rutgers	0		0		583	7	703	7	1825	2	2440	4
SUNY-Buff.	0		0		220	15	270	14	55	33	89	31
N. Car.	0		0		60	29	133	24	170	24+	246	25
Ohio St.	751	3	150	13+	149	22	204	16+	564	12	761	14
Oklahoma	0		0		16	33	30	33	39	34	0	
Okla. St.	0		0		0		17	35	117	29	164	28
Oregon	62	17	0		284	12	187	19	522	14	659	15
Penn. St.	120	13	0		134	24	85	27	196	23	219	26
Tenn.	0		0		66	27	55	30	75	31	149	29
Texas	523	4	608	4	113	25	138	22	579	11	653	16
Utah	0		130	15	159	21	62	29	663	9	1076	11
Virginia	144	11	127	16	186	18	263	15	139	27	362	21
Wash.	466	5	150	13+	492	8	317	12	1444	6	1730	5
Wisconsin	22	21	163	12	731	5	780	5	115	30	371	20

(Table 2A, cont.)
NSF Grants (\$1000)

	Atmos./earth sci./ fluid/meto..				Chem. Eng. & Energetics				Electrical Eng.			
	70-71	rank	73-74	rank	70-71	rank	73-74	rank	70-71	rank	73-74	rank
Arizona	802	6	756	7	135	13	124	16	166	3	79	15
Cal-Berk.	701	7	1313	5	456	3	592	3	125	7	1228	1
Cal-L.A.	1673	1	1770	1	110	17	175	14	126	6	480	4
Colorado	402	10	965	6	47	23	199	13	12	20	287	8
Florida	64	24+	123	26+	83	20	35	25	146	4	6	24
Fla. St.	681	8	688	9	0		0		0		0	
Georgia	64	24+	161	24	0		0		0		0	
Illinois	832	5	665	10	676	1	599	2	90	8	451	5
Indiana	43	27	203	22	0		0		0		0	
Purdue	107	19	349	16	117	15	327	7+	329	1	549	2
Iowa	22	29	177	23	59	21	77	21	0		30	20
Iowa St.	106	20	123	26+	52	22	353	6	0		20	21
Kansas	126	17	214	20	42	24	0		0		16	23
La. St.	25	28	34	30	0		44	24	14	19	0	
Maryland	253	12	382	14	31	26+	6	28	130	5	355	6
Mass.	49	26	236	19	212	9	203	12	0		250	9
Michigan	526	9	742	8	222	8	752	1	175	2	498	3
Mich. St.	0		0		98	19	30	27	0		17	22
Minnesota	130	16	412	12	364	4	327	7+	0		98	13
Missouri	236	13	378	15	242	7	152	15	16	15+	0	
Nebraska	85	23	65	29	38	25	0		15	18	0	
Rutgers	0		0		100	18	98	17	0		0	
SUNY-Buff.	0		0		256	6	290	10	61	11	33	19
N. Car.	233	14	117	28	0		0		0		0	
Ohio St.	87	22	148	25	31	26+	34	26	15	18	309	7
Oklahoma	109	18	328	17	115	16	93	18	74	10	0	
Okla. St.	0		0		15	28	79	20	15	18	46	18
Oregon	90	21	206	21	0		0		0		0	
Penn. St.	1110	3	1554	3	138	12	261	11	30	14	49	17
Tenn.	0		30	31	153	11	321	9	16	15+	0	
Texas	400	11	294	18	157	10	85	19	82	9	56	16
Utah	231	15	396	13	130	14	49	23	0		86	14
Virginia	0		517	11	0		57	22	0		195	11
Wash.	1050	4	1450	4	609	2	430	5	59	12	118	12
Wisconsin	1354	2	1640	2	258	5	500	4	38	13	211	10

(Table 2A, cont.)
NSF Grants (\$1000)

	Computing				Engineering/ Materials				Mechanical Eng.			
	70-71	rank	73-74	rank	70-71	rank	73-74	rank	70-71	rank	73-74	rank
Arizona	0		85	17+	52	18	0		0		194	16
Cal-Berk.	484	6	724	3	488	2	184	11	280	6	646	3
Cal-L.A.	1319	2	883	2	139	9	444	8	163	10	241	13
Colorado	687	4	548	5	0		82	18	484	2	293	10
Florida	450	8	0		212	6	0		36	23	61	24
Fla. St.	87	22	0		0		0		54	19	41	25
Georgia	66	24	0		0		0		0		0	
Illinois	1220	3	4891	1	469	4	3140	1	365	4	686	2
Indiana	255	13	17	21	0		0		0		0	
Purdue	454	7	650	5	68	14	1478	2	523	1	494	4
Iowa	383	9	353	9+	0		0		97	15	197	15
Iowa St.	0		256	11	57	16	85	17	100	13	327	7
Kansas	121	21	0		0		0		15	27	17	29
La. St.	12	25	0		0		15	22+	0		6	31
Maryland	249	14	408	7	57	16	975	3	0		34	26
Mass.	0		85	17+	130	10	477	7	45	22	90	23
Michigan	363	11	426	6	72	13	139	13	413	3	732	1
Mich. St.	84	23	0		0		45	21	54	19+	173	17
Minnesota	183	18	13	22	220	5	217	10	203	9	353	6
Missouri	6	26	10	23+	87	11	0		31	24	22	27
Nebraska	0		0		15	21+	65	19	0		17	29
Rutgers	365	10	24	20	13	23	126	14	48	21	199	14
SUNY-Buff.	293	12	200	12	15	21+	15	22+	161	11	167	19
N. Car.	198	17	65	19	0		925	5	0		0	
Ohio St.	0		147	14	149	8	372	9	319	5	296	8
Oklahoma	0		0		12	24	0		16	26	17	29
Okla. St.	0		0		0		0		75	17	271	12
Oregon	0		0		0		0		0		0	
Penn. St.	218	15	132	16	648	1	964	4	64	18	279	11
Tenn.	500	5	10	23+	77	12	100	16	18	25	91	22
Texas	1335	1	393	8	51	19	152	12	78	16	390	5
Utah	0		169	13	479	3	499	6	105	12	168	18
Virginia	133	20	137	15	57	16	0		98	14	122	21
Wash.	142	19	353	9+	184	7	47	20	225	8	137	20
Wisconsin	201	16	669	4	45	20	115	15	242	7	295	9

Table 2B. Drew-Karpf publications. Mathematics [b]

Four-year totals (calendar year 1960+1961+1962+1963) etc.

	60-63	rank	65-68	rank	69-72	rank	No. of Prof.	Pubs. per Prof. (69-72)	rank
Arizona	8	32	18	32	34	33	32	1.1	32
Cal-Berk.	233	1	354	1	314	2	63	5.0	3
includes Radiation Laboratory									
Cal-L.A.	123	6	210	3	291	3	66	4.4	4
Colorado	20	23+	19	30+	70	24+	46	1.5	27
Florida	12	28+	28	29	103	15	43	2.4	14
Fla. St.	31	17	81	11	142	11	37	3.8	6
Georgia	33	16	43	19	74	23	41	1.8	25
Illinois	128	5	202	4	278	4	100	2.8	9
Indiana	63	10	40	21+	108	14	58	1.9	23
Purdue	66	9	171	7	198	6	87	2.3	17
Iowa	15	26	41	20	80	22	31	2.6	11
Iowa St.	45	13	48	16	83	20	34	2.4	13
Kansas	20	23+	32	27+	43	32	37	1.2	30
La. St.	26	19+	54	15	102	16	43	2.4	15
Maryland	50	11	103	9	98	17	77	1.3	29
Mass.	7	34	19	30+	68	26+	62	1.1	31
Michigan	141	4	182	5	203	5	60	3.4	7
Mich. St.	49	12	79	12	171	8	69	2.5	12
Minnesota	142	3	180	6	180	7	78	2.3	16
Missouri	12	28+	40	21+	97	18	30	3.2	8
Nebraska	10	30+	13	33	44	31	24	1.8	24
Rutgers	40	14+	65	14	165	9	60	2.8	10
SUNY-Buff.	2	35	32	27+	70	24+	49	1.4	28
N. Car.	73	8	102	10	129	12	31	4.2	5
Ohio St.	24	22	45	18	50	30	64	0.8	34
Oklahoma	7	33	6	35	21	34	26	0.8	33
Okla. St.	10	30+	10	34	19	35	26	0.7	35
Oregon	40	14+	35	26	68	26+	30	2.3	18
Penn. St.	25	21	76	13	92	19	42	2.2	20
Tenn.	28	18	36	25	62	28	33	1.9	22
Texas	13	27	38	24	82	21	38	2.2	21
Utah	19	25	39	23	59	29	35	1.7	26
Virginia	26	19+	47	17	108	13	21	5.1	2
Wash.	119	7	159	8	148	10	66	2.2	19
Wisconsin	176	2	271	2	341	1	65	5.2	1

Table 2B. (cont.) Drew-Karpf publications. Physics [c]

	Four-year totals						Pubs.		
	60-63	rank	65-68	rank	69-72	rank	No. of Prof.	per Prof. (69-72)	Rank
Arizona	64	17	123	21	198	21	40	5.0	26
Cal-Berk.	918	1	1432	1	1533	1	45		
	includes Radiation Laboratory						+ ? Radiation Laboratory		
Cal-L.A.	238	3	398	6	608	3	45	13.5	3
Colorado	123	13	237	13	486	8	41	11.9	5
Florida	47	24	141	15	238	17	46	5.2	24
Fla. St.	61	18	129	17+	209	20	27	7.7	14
Georgia	4	35	31	35	61	33	25	2.4	33
Illinois	393	2	812	2	1242	2	65	19.1	2
Indiana	95	14	127	20	215	19	45	4.8	28
Purdue	145	11	294	9	416	10	77	5.4	22
Iowa	76	16	129	17+	156	26	22	7.1	16
Iowa St.	159	8	410	5	603	4	46	13.1	4
Kansas	48	22+	81	25	116	30	24	4.8	27
La. St.	27	28	78	26	187	22	32	5.8	21
Maryland	197	7	433	4	560	6	66	8.5	9
Mass.	17	31	64	29+	175	24	44	4.0	30
Michigan	212	5	333	7	419	9	54	7.8	12
Mich. St.	51	21	134	16	309	13	50	6.2	20
Minnesota	227	4	329	8	352	12	43	8.2	10
Missouri	18	30	64	29+	142	28	18	7.9	11
Nebraska	19	29	51	31	98	32	21	4.7	29
Rutgers	53	20	128	19	248	16	34	7.3	15
SUNY-Buff.	7	34	70	28	106	31	30	3.5	32
N. Car.	43	25	112	22	144	27	27	5.3	23
Ohio St.	94	15	243	12	295	14	58	5.1	25
Oklahoma	40	26	38	33	40	34	18	2.2	34
Okla. St.	14	33	37	34	37	35	28	1.3	35
Oregon	48	22+	95	24	186	23	24	7.8	13
Penn. St.	124	12	250	11	271	15	41	6.6	18
Tenn.	16	32	48	32	133	29	34	3.9	31
Texas	153	9	218	14	563	5	49	11.5	6
Utah	57	19	77	27	163	24	25	6.5	19
Virginia	28	27	108	23	227	18	33	6.9	17
Wash.	146	10	271	10	416	11	41	10.1	8
Wisconsin	202	6	486	3	506	7	46	11.0	7

Table 2C. Prestige of Programs based on
1969 ACE ratings of "Quality of Graduate Faculty" [d]

	----- rank -----						
	Astr.	Math.	Phys.	Chem. Eng.	Civil Eng.	Elect. Eng.	Mech. Eng.
Arizona	3	24+	26		19+	14+	19
Cal-Berk.	1	1	1	3	1	1	1
Cal-L.A.	5+	5	6	21	12	4+	6
Colorado	10+	14+	11	12+	12	14+	19
Florida		24+	17+	12+	19+	10+	19
Fla. St.		24+	17+				
Georgia		24+					
Illinois	10+	4	2	4	2	2	4+
Indiana	10	10	17+				
Purdue		8	9	8	3	4+	4+
Iowa		24+	26		12	20+	19
Iowa St.		24+	11	12+	12	14+	12
Kansas		24+	26	21		20+	
La. St.		24+	26	12+			
Maryland	4	14+	5	12+	19+	14+	19
Mass.		24+					
Michigan	7	3	4	5	4	3	2+
Mich. St.		14+	17+	21	12	10+	12
Minnesota		6+	7+	2	8	6+	2+
Missouri				21	19+	20+	
Nebraska							
Rutgers		14+	17+		19+		19
SUNY-Buff.		24+	26	21	19+	20+	19
N. Car.		14+	17+				
Ohio St.		14+	17+	12+	12	8	12
Oklahoma				21	19+		12
Okla. St.				21	19+	20+	12
Oregon		14+	17+				
Penn. St.		14+	17+	12+	12	14+	8
Tenn.			26	12+			
Texas	5+	24+	11	6	5	9	12
Utah		24+	26	21		20+	
Virginia	10+	9	17+	21			
Wash.	8	6+	7+	7	6	14+	12
Wisconsin	2	2	3	1	7	7	7

Table 2D. Members of advisory panels, research review committees, etc., for National Science Foundation and National Institutes of Health. [e]

	NSF (1965-69) & NIH (1967-71)		NSF (1970-74) & NIH (1971-75)	
	number	rank	number	rank
Arizona	13	7	7	15
Cal-Berk.	23	3	19	2+
Cal-L.A.	12	8+	14	5+
Colorado	8	11+	12	7+
Florida	2	24+	8	12
Fla. St.	2	24	2	25
Georgia	2	24+	5	17+
Illinois	25	2	11	9
Indiana	8	11+	2	25
Purdue	9	10	14	5+
Iowa	2	24+	3	21
Iowa St.	3	24+	0	
Kansas	1	29	3	21
La. St.	5	17	2	25
Maryland	12	8+	10	10
Mass.	1	29	2	25
Michigan	16	6	12	7+
Mich. St.	5	17	1	28+
Minnesota	17	5	2	25
Missouri	0		0	
Nebraska	0		0	
Rutgers	0		1	28+
SUNY-Buff.	1	29	3	21
N. Car.	6	14+	8	12
Ohio St.	2	24+	5	17+
Oklahoma	2	24+	0	
Okla. St.	3	20+	0	
Oregon	5	17	16	4
Penn. St.	7	13	7	15
Tenn.	0		0	
Texas	6	14+	19	2+
Utah	4	19	4	19
Virginia	0		8	12
Wash.	26	1	23	1
Wisconsin	19	4	7	15

Notes for Table 2

- [a] National Science Foundation, Grants and Awards for Fiscal Year 1970... 1974.
- [b] Number of publications in 20 English-language mathematics journals having the highest "impact factor" as measured by citations, by authors affiliated with these institutions (not necessarily in the mathematics department); see David E. Drew and Ronald S. Karpf, Evaluating Science Departments: A New Index (Santa Monica, Calif.: Rand Corp., 1975), pp. 32-33. The journals are: Annals of Mathematics, Communications on Pure and Applied Mathematics, Indiana University Mathematics Journal, Transactions of the American Mathematical Society, Bulletin of the American Mathematical Society, Pacific Journal of Mathematics, Michigan Mathematics Journal, American Journal of Mathematics, Archive for Rational Mechanics and Analysis, Duke Mathematical Journal, Annals of Mathematical Statistics, Technometrics, Journal of Research of the National Bureau of Standards (Series B), Journal of Mathematical Analysis and Applications, Proceedings of the American Mathematical Society, Illinois Journal of Mathematics, Mathematics of Computation, Biometrika, Journal of the American Statistical Association, and Applied Scientific Research. This list is given in David E. Drew, Science Development: An Evaluation Study (Washington: National Academy of Sciences, 1975).
- [c] These figures were compiled by Drew and Karpf as indicated in the previous note. The list of journals, also given in Drew's 1975 report, is: Solid State Physics, Annual Review of Nuclear Science, Physical Review Letters, Astrophysical Journal, Reviews of Modern Physics, Applied Physics Letters, Physical Review, Journal of Geophysical Research, Inorganic Chemistry, Annals of Physics, Journal of Chemical Physics, Journal of Marine Research, Bulletin of the Seismological Society of America, Journal of the Atmospheric Sciences, Journal of Applied Physics, Communications on Pure and Applied Mathematics, Physics of Fluids, Space Science Review, Proceedings of the Institute of Electrical and Electronic Engineers, Planetary and Space Science.

Notes for Table 2 (cont.)

- [d] K. D. Roose and C. J. Andersen, A Rating of Graduate Programs (Washington, D.C.: American Council on Education, 1970).
- [e] Compiled from annual reports of National Science Foundation; NIH Roster of Public Advisory Groups; Health Resources Administration, Health Service Administration, Center for Disease Control, and Alcohol, Drug Abuse and Mental Health Administration Public Advisory Committees, Roster of Members. The NSF panels were counted for each year, 1965 through 1974. Since members of panels for NIH generally served for up to 4 years, a 5-year estimate was made by counting those for 1967 and 1969 and multiplying by 2, then adding the ones for 1971. The estimate for the later period was made by counting those for 1973 and 1975, multiplying by two, and adding those for 1971. Only those committees involved in awarding research grants were included.

Table 3A. NSF Grants (\$1000) [a] (notes are on page 28)

	Biology, Ecology				Chemistry				Polar/Oceanic Activities			
	70-71	rank	73-74	rank	70-71	rank	73-74	rank	70-71	rank	73-74	rank
Arizona	523	18	514	20	417	14	310	25	0		55	17
Cal-Berk.	2169	1	5634	1	723	3	1924	2	146	12	329	8
Cal-L.A.	1031	12	1634	5	500	13	1239	4	237	9	422	7
Colorado	691	15	1140	12	375	19	431	20	103	17	214	12
Florida	390	25	365	26	65	6	465	14	82	19	52	18
Fla. St.	400	24	399	24	329	21	192	31	538	4	535	4
Georgia	845	13	1112	13	290	22	438	19	459	5	542	3
Illinois	1874	5	1917	4	1016	2	1743	3	417	6	68	16
Indiana	1170	8	1221	11	684	5	1141	5	0		0	
Purdue	1064	11	1388	8	698	4	951	8	0		0	
Iowa	327	27	572	16	134	26	116	33	0		0	
Iowa St.	63	35	255	30	198	25	439	18	112	13+	0	
Kansas	497	19	531	18	282	23	284	27	106	16	0	
La. St.	107	33	288	29	136	27	260	28	91	18	130	14
Maryland	455	21	445	22	116	31	223	29	157	11	466	6
Mass.	434	22	615	15	404	15	669	13	112	13+	37	21
Michigan	1382	6	1629	6	623	7	769	11	1295	2	288	10
Mich. St.	2052	3	1570	7	687	8	456	15	28	22	51	19
Minnesota	1081	9	1022	14	546	11	697	12	225	10	175	13
Missouri	263	29	308	28	39	35	72	34	74	20	0	
Nebraska	198	30	123	35	50	33	39	35	0		836	2
Rutgers	491	20	448	21	137	26	327	23	33	21	0	
SUNY-Buff.	154	31	180	32	385	18	306	26	11	25	0	
N. Car.	584	17	310	27	276	24	936	7	398	7	121	15
Ohio St.	403	23	382	25	562	9	1041	6	373	8	227	11
Oklahoma	148	32	154	33	104	32	197	30	0		0	
Okla. St.	326	28	214	31	49	34	134	32	0		0	
Oregon	1072	10	1377	9+	361	20	366	22	111	15	0	
Penn. St.	384	26	424	23	554	10	919	9	23	24	48	20
Tenn.	105	34	134	34	131	29	320	24	10	26	0	
Texas	1215	7	1377	9+	391	17	446	17	24	23	295	9
Utah	591	16	558	17	398	16	896	10	0		0	
Virginia	761	14	525	19	118	30	401	21	0		30	22
Wash.	1939	4	2997	3	505	12	449	16	4292	1	11825	1
Wisconsin	2102	2	3116	2	1427	1	1970	1	1063	3	481	5

Table 3B. Drew-Karpf publications. Chemistry [b]

	60-63	rank	65-68	rank	69-72	rank	No. of Profs.	Pubs. per Prof. (69-72)	rank	
Arizona	46	29	141	20	170	27	30	5.7	26	
Cal-Berk.	380	1	570	1	788	1	48			
	includes Radiation Laboratory						+ ? Radiation Laboratory			
Cal-L.A.	197	8	242	9	352	8	39	9.0	11	
Colorado	80	19+	138	21	207	21	31	6.7	21	
Florida	110	14	199	11	318	10	47	6.8	20	
Fla. St.	80	19+	158	16	213	19	33	6.5	22	
Georgia	24	35	64	33	200	22	31	6.5	23	
Illinois	348	3	506	2	733	2	60	12.2	5	
Indiana	82	18	156	17	262	15	46	5.7	25	
Purdue	288	4	268	7	427	6	83	5.1	27	
Iowa	61	26	103	26	103	33	23	4.5	29	
Iowa St.	276	5	429	4	467	5	31	15.1	2	
Kansas	120	13	155	18	142	29	24	5.9	24	
La. St.	85	17	125	23	209	20	47	4.4	30	
Maryland	75	21	131	22	164	28	47	3.4	32	
Mass.	28	33+	72	31	252	16	37	6.8	19	
Michigan	206	7	190	12	308	11	39	7.9	14	
Mich. St.	100	15	175	13	295	12	32	9.2	9	
Minnesota	240	6	286	6	270	13	39	6.9	16	
Missouri	28	33+	99	28	190	24	21	9.0	10	
Nebraska	71	23	52	34	88	34	27	3.3	34	
Rutgers	72	22	117	25	184	25	27	6.8	18	
SUNY-Buff.	59	27	145	19	131	30	30	4.4	31	
N. Car.	86	16	168	14	214	18	30	7.1	15	
Ohio St.	178	9	360	5	479	4	40	12.0	6	
Oklahoma	40	31	38	35	61	35	24	2.5	35	
Okla. St.	30	32	78	29	119	31	36	3.3	33	
Oregon	45	30	102	27	193	23	22	8.8	12	
Penn. St.	153	11	220	10	322	9	37	8.7	13	
Tenn.	65	25	74	30	110	32	23	4.8	28	
Texas	158	10	265	8	390	7	31	12.6	4	
Utah	70	24	122	24	267	14	26	10.3	7	
Virginia	57	28	69	32	178	26	19	9.4	8	
Wash.	124	12	162	15	221	17	32	6.9	17	
Wisconsin	357	2	552	3	671	3	45	14.9	3	

Table 3C. Prestige of Programs based on
1969 ACE ratings of "Quality of Graduate Faculty" [c]

	----- rank -----								
	Bio- chem.	Bot.	Chem.	Dev. Biol.	Ento- mol.	Micro- biol.	Mol. Biol.	Pop. Biol.	Zool.
Arizona	23		23		17+			22	31+
Cal-Berk.	1	1	1	1+	1	1	1	2+	1
Cal-L.A.	3	9	3	15+		8	4	8	5+
Colorado	23	28	16+	7+		17	16	22	21+
Florida	23	28	18	23+	11+	25+	23+	22	21+
Fla. St.	15+	28	13+	15+			16		21+
Georgia		19	23			25+		2+	21+
Illinois	5	7+	2	9+	2	2	4	14+	7+
Indiana	10	5	10	4	17+	8	9	11	5+
Purdue	7	10	5+	6	5	5	6	22	9
Iowa	15+	19	23	15+		17	16	22	13
Iowa St.	15+	13+	5+	15+	8	17	23+	14+	21+
Kansas	23	19	23	23+	5	17	23+	14+	13
La. St.			23		11+	25+			31+
Maryland		19	30		17+	25+			31+
Mass.		11+	23	23+	17+	17	23+	22	21+
Michigan	6	2	10	9+	11+	17	8	1	3+
Mich. St.	8+	6	13+	15+	8	11	11	7	10
Minnesota	8+	13+	10	15+	5	6	11	11	13
Missouri		28		23+	17+			22	21+
Nebraska		28	30						31+
Rutgers	15+	19	30	23+	11+	8	16	11	21+
SUNY-Buff.	15+		23	15+		17	16		21+
N. Car.	15+	7+	23	15+		11	16	9	13
Ohio St.	23	19	7+	23+	8	25+	23+	22	21+
Oklahoma		28				25+		22	31+
Okla. St.	23	28			17+				31+
Oregon	11	19	16+	7+		17	7	14+	13
Penn. St.	23	19	13+	23+	17+	17	16	22	21+
Tenn.		19	30				23+		31+
Texas	15+	3+	7+	5		11	11	5+	7+
Utah	15+	28	23	23+	17+	25+	23+	22	31+
Virginia			30	11		25+	23+		21+
Wash.	4	11+	13+	3		4	4	5+	3+
Wisconsin	2	3+	4	7+	3	3	2	4	2

Table 3D. Members of Advisory Panels, Research Review Committees, etc., for National Science Foundation and National Institutes of Health [d]

	NSF (1965-69) & NIH (1967-71)		NSF (1970-74) & NIH (1971-75)	
	number	rank	number	rank
Arizona	5	26+	14	14+
Cal-Berk.	54	1	30	2
Cal-L.A.	17	11	18	9
Colorado	15	13	22	5
Florida	5	26+	7	24+
Fla. St.	14	14	7	24+
Georgia	23	10	13	16
Illinois	44	2	24	4
Indiana	37	3	11	18
Purdue	28	8+	27	3
Iowa	8	22	11	18
Iowa St.	11	18	5	29+
Kansas	13	15	8	23
La. St.	0		9	21+
Maryland	9	20+	6	27
Mass.	2	31	10	20
Michigan	30	5+	18	9
Mich. St.	28	8+	20	6
Minnesota	11	18	19	7
Missouri	2	31	0	
Nebraska	2	31	2	31
Rutgers	11	18	11	18
SUNY-Buff.	0		0	
N. Car.	9	20+	6	27
Ohio St.	12	16	6	27
Oklahoma	3	28+	3	29+
Okla. St.	0		0	
Oregon	30	5+	16	11+
Penn. St.	7	23+	9	21+
Tenn.	3	28+	0	
Texas	16	12	16	11+
Utah	7	23+	15	13
Virginia	6	25	14	14+
Wash.	29	7	18	9
Wisconsin	36	4	37	1

Notes for Table 3

- [a] Same as in note [a] to Table 2.
- [b] Compiled as indicated in note [b] to Table 2. The journals are: Chemical Review, Journal of the American Chemical Society, Annual Review of Physical Chemistry, Inorganic Chemistry, Journal of Chemical Physics, Journal of Organic Chemistry, Analytical Biochemistry, Quarterly Reviews, Journal of Agricultural and Food Chemistry, Analytical Chemistry, Chemical Engineering Journal (American Institute of Chemical Engineers), Journal of Applied Polymer Science, Photochemistry and Photobiology, Cereal Chemistry, Industrial Engineering Chemistry, Advances in Chemistry Series, Journal of Polymer Science, Journal of the Physics and Chemistry of Solids, Journal of Quantitative Spectroscopy and Radiative Transfer.
- [c] See note [d] to Table 2.
- [d] See note [e] to Table 2.

Table 4A. NSF Grants (\$1000) [a] (notes are on page 36)

	two-year totals											
	Anthropology				Economics				Geography			
	70-71	rank	73-74	rank	70-71	rank	73-74	rank	70-71	rank	73-74	rank
Arizona	38	19	402	3	0		62	12	0		0	
Cal-Berk.	171	3	478	2	614	1	1249	1	100	2	112	2
Cal-L.A.	146	6	209	4	111	8	31	15	0		5	6+
Colorado	45	15	3	27	1	21	0		96	3	0	
Florida	17	22	39	15	0		0		24	6	4	8
Fla. St.	0		0		0		0		0		0	
Georgia	42	17	0		80	12	0		3	9	0	
Illinois	106	9	196	5	59	15	208	6	0		0	
Indiana	43	16	0		51	16	0		0		0	
Purdue	0		0		139	6	0		0		0	
Iowa	50	13	0		42	17	0		0		0	
Iowa St.	0		38	16	66	14	0		0		0	
Kansas	220	2	17	20	37	19	0		201	1	73	4
La. St.	31	20	6	24+	0		0		0		0	
Maryland	0		37	17	100	9	98	9	0		0	
Mass.	0		29	18	41	18	128	8	0		0	
Michigan	313	1	484	1	384	2	650	3	0		76	3
Mich. St.	2	24	93	10	94	10	2	18	0		0	
Minnesota	6	23	0		183	5	182	7	0		0	
Missouri	113	8	168	6	74	13	0		0		0	
Nebraska	0		9	23	0		0		0		5	6+
Rutgers	0		6	24+	0		0		0		0	
SUNY-Buff.	0		101	8	89	11	0		0		0	
N. Car.	89	10	13	21+	232	4	7	17	0		1	9
Ohio St.	18	21	26	19	0		45	14	41	5	292	1
Oklahoma	41	18	66	13	0		0		0		0	
Okla. St.	0		0		0		0		0		0	
Oregon	150	5	88	12	0		794	2	0		0	
Penn. St.	117	7	98	9	112	7	26	16	23	7	12	5
Tenn.	0		0		34	20	0		0		0	
Texas	47	14	4	26	0		55	13	0		0	
Utah	87	11	119	7	0		94	11	0		0	
Virginia	0		13	21+	0		97	10	0		0	
Wash.	164	4	89	11	0		222	5	75	4	0	
Wisconsin	73	12	47	14	347	3	568	4	11	8	0	

Table 4A. NSF Grants (\$1000) [a] (cont.)

	History and Philosophy of Science				Linguistics				Political Science			
	70-71	rank	73-74	rank	70-71	rank	73-74	rank	70-71	rank	73-74	rank
Arizona	0		24	8	0		0		0		64	13
Cal-Berk.	22	6+	399	1	53	5	285	1	0		59	14
Cal-L.A.	44	4	18	12+	311	1	215	2	0		82	11
Colorado	0		17	14+	5	10	0		0		55	15
Florida	0		0		0		0		16	10+	80	12
Fla. St.			0		0		0		15	12	0	
Georgia	0		0		0		0		0		54	16
Illinois	22	6+	59	5	0		1		8	13	0	
Indiana	62	2	70	3+	0		0		241	2	89	10
Purdue	0		0		0		0		0		0	
Iowa	0		11	16	27	7	0		59	7	0	
Iowa St.	0		0		0		0		0		0	
Kansas	0		0		12	9	0		0		0	
La. St.	0		0		0		0		0		0	
Maryland	0		70	3+	0		0		0		1	21
Mass.	0		0		0		94	4	0		0	
Michigan	0		20	10+	59	4	0		861	1	499	1
Mich. St.	34	5	0		0		0		7	14	0	
Minnesota	5	9	103	2	0		0		119	4	45	17
Missouri	0		0		33	6	31	6	0		0	
Nebraska	0		0		0		0		0		0	
Rutgers	0		22	9	0		0		0		157	6
SUNY-Buff.	0		1	17	23	8	0		100	5	223	4
N. Car.	0		20	10+	0		41	5	57	8	177	5
Ohio St.	49	3	36	7	0		26	7	92	6	120	7
Oklahoma	0		0		0		0		0		4	19+
Okla. St.	0		0		0		0		0		387	2
Oregon	0		0		0		0		2	15	0	
Penn. St.	0		0		0		0		0		0	
Tenn.	0		17	14+	0		0		0		289	3
Texas	0		18	12+	130	3	136	3	16	10+	4	19+
Utah	0		0		0		0		0		0	
Virginia	0		0		0		0		0		90	9
Wash.	17	8	0		0		0		151	3	12	18
Wisconsin	69	1	40	6	108	2	0		34	9	115	8

Table 4A. NSF Grants (\$1000) [a] (cont.)

	Sociology and Social Psychology			
	70-71 rank		73-74 rank	
Arizona	0		64	21
Cal-Berk.	3	22	824	3
Cal-L.A.	214	3	248	6+
Colorado	77	12+	0	
Florida	6	21	80	17
Fla. St.	32	18	67	19+
Georgia	0		0	
Illinois	105	7+	331	4
Indiana	31	19	127	12
Purdue	139	5	67	19+
Iowa	2	23	3	26
Iowa St.	0		0	
Kansas	52	16	45	24
La. St.	0		0	
Maryland	0		140	11
Mass.	0		213	10
Michigan	1427	1	1623	1
Mich. St.	154	4	0	
Minnesota	91	10	85	15
Missouri	67	15	51	23
Nebraska	8	20	0	
Rutgers	47	17	110	13
SUNY-Buff.	111	6	82	16
N. Car.	77	12+	247	8
Ohio St.	101	9	253	5
Oklahoma	78	11	0	
Okla. St.	0		0	
Oregon	0		13	25
Penn. St.	0		58	22
Tenn.	0		70	18
Texas	105	7+	245	9
Utah	1	24	0	
Virginia	0		90	14
Wash.	70	14	248	6+
Wisconsin	354	2	1249	2

Table 4B. Fellowships and Grants, awarded by National Endowment for the Humanities, American Council of Learned Societies, and Social Science Research Council. [b]

	1965-1969						1970-1974					
	Behavioral and Social Sciences		Arts and Humanities		Total[c]		Behavioral and Social Sciences		Arts and Humanities		Total	
Arizona	2	23	2	32	8	24	3	17	5	30+	9	27
Cal-Berk.	8	7+	47	1	55	1	4	13+	66	1+	71	3
Cal-L.A.	15	1	24	3	39	3	8	3+	57	3	65	4
Colorado	4	13+	6	21+	10	18+	0		10	22	10	24+
Florida	3	18	6	21+	9	21	2	23+	9	23+	11	23
Fla. St.	3	18	5	25	8	24	2	23+	7	27	9	27
Georgia	1	26+	2	32	3	31+	2	23+	5	30+	7	30+
Illinois	5	10+	12	9	17	9+	7	6	23	12+	31	10
Indiana	9	6	17	5	27	5	7	6	46	5	56	5
Purdue	0		10	16	10	18+	2	23+	6	29	8	29
Iowa	5	10+	11	12	16	11+	4	13+	19	17+	23	14
Iowa St.	0		0		0		4	13+	2	34	6	32
Kansas	3	18	10	16	13	16	8	3+	25	9+	34	9
La. St.	0		2	32	2	33	0		4	32	4	33
Maryland	0		11	12	11	17	3	17	19	17+	22	16
Mass.	3	18	6	21+	9	21	5	10	23	12+	28	13
Michigan	11	3+	18	4	31	4	26	1	66	1+	93	1
Mich. St.	8	7+	8	18	16	11+	2	23+	8	25	10	24+
Minnesota	10	5	13	8	23	6+	7	6	27	8	35	8
Missouri	1	26+	7	19	8	24	1	29+	19	17+	20	19
Nebraska	1	26+	5	25	6	28+	0		7	27	7	30+
Rutgers	3	18	11	12	14	14	3	17	14	20	17	20
SUNY-Buff.	5	10+	4	28	9	21	2	23+	19	17+	21	18
N. Car.	4	13+	10	16	14	14	2	23+	20	15	22	16
Ohio St.	3	18	11	12	14	14	4	13+	25	9+	30	11+
Oklahoma	0		4	28	4	30	2	23+	13	21	15	21
Okla. St.	0		0		0		0		1	35	1	35
Oregon	2	23	4	28	6	28+	1	29+	21	14	22	16
Penn. St.	2	23	5	25	7	26+	5	10	9	23+	14	22
Tenn.	1	26+	6	21+	7	26+	2	23+	7	27	9	27
Texas	5	10+	14	6+	19	8	6	8	24	11	30	11+
Utah	0		3	30	3	31+	0		3	33	3	34
Virginia	3	18	14	6+	17	9+	2	23+	39	6	41	6
Wash.	11	3+	11	12	23	6+	5	10	33	7	39	7
Wisconsin	11½	2	29½	2	42	2	18	2	54	4	73	2

Table 4C. Prestige of Programs based on 1969 ACE ratings of
 "Quality of Graduate Faculty" - Behavioral & Social Sciences [d]

	Anthro- pology	Economics	Geography	Political Science	Psychology	Sociology
Arizona	5				28	
Cal-Berk.	1	1	4	1	2	1
Cal-L.A.	3	5	8+	5+	6	5
Colorado	11				8+	17
Florida			18	17+	20	
Fla. St.					20	17
Georgia			13+		28	
Illinois	4	9	13+		3	11+
Indiana	11	17	18	7	8+	10
Purdue		9			20	17
Iowa		17	10	8+	11+	17
Iowa St.		9			28	
Kansas		17	8+	17+	20	
La. St.			13+			
Maryland		17	18		28	
Mass.				17+	20	17
Michigan	2	2+	1	2	1	2
Mich. St.	11	9	13+	12	11+	8+
Minnesota	11	2+	2+	5+	4+	7
Missouri				17+	28	17
Nebraska					28	
Rutgers				17+	20	
SUNY-Buff.	15	17			20	17
N. Car.	11	9		4	13+	4
Ohio St.		17	6	12	16	17
Oklahoma						
Okla. St.						
Oregon	11	17	13+	8+	13+	11+
Penn. St.		17	7	17+	10	17
Tenn.					28	
Texas	11	17	13+	12	7	8+
Utah					28	
Virginia		9		12	28	
Wash.	7	9	5	12	15	6
Wisconsin	6	4	2+	3	4+	3

Table 4C (cont.). Arts and Humanities

	Classics	English	French	German	Linguistics	Music	Philosophy	Russian	History	Spanish
Arizona										16+
Cal-Berk.	1	1	1+	1	3	1	2	1	1	1
Cal-L.A.	8+	6	7+	9	1+	4	3		4	6
Colorado		23+	16	16		14	16		22	16+
Florida		23+							22	
Fla. St.						14				
Georgia										
Illinois	8+	6	5+	6+	6	2+	6	6	7+	4
Indiana	8+	6	3	2+	6	5	10+	2	5	7
Purdue		23+								
Iowa	12+	11	16			10	10+		14	9+
Iowa St.										
Kansas		16+	10+	16		14			14	9+
La. St.		23+							22	
Maryland									22	16+
Mass.		23+		9+					22	
Michigan	2+	9	4	8	4	2+	1	3	3	4
Mich. St.		16+	16	16		14	10+		14	16+
Minnesota	8+	13	16	12		14	7		9	16+
Missouri		23+	16						22	16+
Nebraska		23+							22	
Rutgers		16+	16	16					14	16+
SUNY-Buff.	8+	10		12	10		10+		22	
N. Car.	2+	6	5+	12		6	10+		6	9+
Ohio St.	12+	16+	10+	5	6	10	16		14	16+
Oklahoma									22	
Okla. St.										
Oregon		16+	16				16		22	16+
Penn. St.		16+	16	16			16		22	16+
Tenn.		23+								
Texas	4	12	7+	2+	1+	10	4		10+	4
Utah										
Virginia		2	16				16		10+	
Wash.	8+	6	9	6+	8+	10	10+	4+	7+	9+
Wisconsin	5	3	1+	4	8+	10	5	4+	2	2

Table 4D. Members of Advisory Panels and Review Committees,
National Science Foundation, National Institutes of Health,
National Endowment for the Humanities, American Council of
Learned Societies, and Social Science Research Council [e]

	1965-1969		1970-1974	
Arizona	6	24	15+	26+
Cal-Berk.	134	1	162	2
Cal-L.A.	56	5	99	4
Colorado	12	18	50+	9
Florida	11+	19	20+	20+
Fla. St.	3+	30	11+	23
Georgia	2	31	10	20+
Illinois	47	8	38+	12
Indiana	96+	3	75+	7
Purdue	7	23	20+	20+
Iowa	4+	27	17+	24
Iowa St.	5		0	35
Kansas	20+	13	20	22+
La. St.	1	32	12+	28
Maryland	8	21+	24	18
Mass.	0		33	14
Michigan	121	2	184+	1
Mich. St.	16+	15	20	22+
Minnesota	54	6	76+	6
Missouri	8	21+	17	25
Nebraska	4	28+	4+	23
Rutgers	21+	11+	30	15
SUNY-Buff.	10+	20	27	16
N. Car.	35	10	37	12
Ohio St.	15	16	26+	17
Oklahoma	0		10	30+
Okla. St.	0		2	34
Oregon	12+	17	34	13
Penn. St.	18+	14	22+	18
Tenn.	4	28+	5	32
Texas	48+	7	95+	5
Utah	5	25+	15+	26+
Virginia	21+	11+	44+	10
Wash.	36	9	52	8
Wisconsin	71	4	101	3

Notes for Table 4

- [a] See note [a] to Table 2.
- [b] Source: Annual reports of NEH, ACLS and SSRC, 1964-65 through 1973-74. The categories "Behavioral and Social Sciences" and "Arts and Humanities" are defined by the list of departments included in those divisions at the University of Maryland, College Park:
- BSS = Afro-American Studies, Anthropology, Business and Management, Economics, Geography, Government & Politics, Information Systems Management, Linguistics, Psychology, Sociology, Urban Studies.
- AH = American Studies, Art, Architecture, Classics, Dance, English, French & Italian, German & Slavic, History, Journalism, Music, Oriental & Hebrew, Philosophy, Spanish & Portuguese, Speech & Dramatic Art.
- [c] These totals include a few faculty members in departments not in either BSS or AH as defined in note [b].
- [d] See note [d] to Table 2.
- [e] See note [e] to Table 2. These figures include all panel members not in the departments of mathematical, physical sciences and engineering or agriculture and life sciences. The totals for 1965-69 are somewhat smaller than for 1970-74 because membership lists were not available for National Endowment on the Humanities; and those for the Health Services and Mental Health Administration were not available before 1969. Since members of SSRC and ACLS serve for several years, estimates for the five-year periods were made by counting only those for 1965, 1968, 1971 and 1974 and multiplying by 2.5. For NEH panels, the counts for 1972 and 1974 were multiplied by 2.5.