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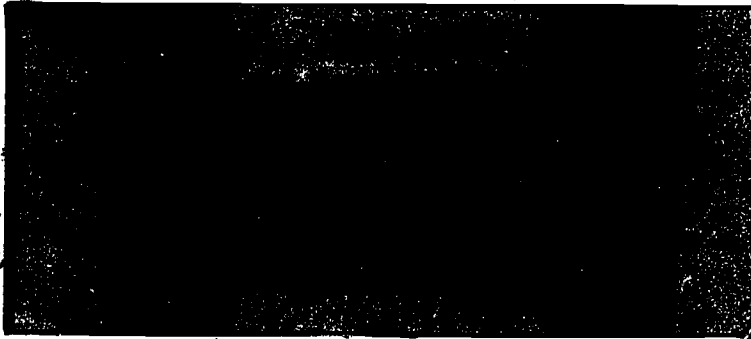
ABSTRACT

The expansion of doctoral education in the western United States is discussed. Changes that have occurred in the number and type of institutions conferring the doctorate degree and in the number of degrees conferred in each field of study are documented. The number of doctorate degrees, percentage increase over the previous period, and percentage for the west are tabulated for doctoral production from three western geographical areas and the entire United States for the years 1920 to 1977. Doctorate output in the west, by census region, for various time periods, and by field and sex of recipients are also provided. An increase in doctorate production in the western region of the U.S. is noted. The number of western universities conferring the doctorate degree increased from four in 1920 to approximately 60 by 1975. It is suggested that this type of information will provide a context for understanding and evaluating both the widely reported oversupply of doctorates and the relative decline in governmental support for graduate study and research. (SF)

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WICHE

The Western Interstate Commission for Higher Education is a nonprofit agency created in the 1950s by the governors and legislatures of the 13 western states. Through interstate sharing and research, WICHE helps states provide high-quality, cost-effective higher education to meet the human resource needs of the states and the education needs of the citizens. WICHE serves Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.



Project Intent

WICHE's project on Expanding Regional Cooperation in Graduate and Professional Education encourages resource sharing in graduate and professional education in the West by providing information about these programs throughout the region. The project is establishing an information system that will enable higher education decision makers to plan for the future of graduate and professional education from a regional perspective. The graduate education project is supported by a two-year grant from the Carnegie Corporation of New York and by WICHE state dues through its Student Exchange Program.

The project seeks to improve the effectiveness and efficiency of graduate education in the West so that both students and taxpayers are better served.

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THE GROWTH OF DOCTORAL-LEVEL EDUCATION
IN THE WEST: A STATISTICAL PROFILE

Report 79-2

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May 1979

Western Interstate Commission for Higher Education
An Affirmative Action/Equal Opportunity Employer

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Boulder, Colorado 80302

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THE GROWTH OF DOCTORAL-LEVEL EDUCATION IN THE WEST:
A STATISTICAL PROFILE

Overview

This brief report documents the expansion of doctoral education in the western United States by describing changes that have occurred in the number and type of institutions conferring the doctorate and in the number of degrees conferred in each field of study. The report is based primarily on data provided in the 1978 National Research Council publication, A Century of Doctorates.

These data provide a perspective on the growth and present magnitude of doctoral education in the western states. They also supply information useful for addressing policy questions related to doctorate production by institutions in the WICHE region. This report provides a context for understanding and evaluating both the widely reported projected oversupply of doctorates and the relative declines in governmental support for graduate study and research.

The dramatic growth and expansion of doctoral education that occurred nationwide during the 1960's and early 1970's was reflected in all thirteen WICHE states and exceeded in several of the states in the Rocky Mountain region. (The federal government divides the West into two regions-- Rocky Mountain and Pacific--for purposes of organization and analysis.

This report will use these categories for analytical purposes. Appendix I contains a listing of the states in each region.) Tables A through D provide an overview of trends in doctoral production over the past fifty years for the West and the nation as a whole and, within the West, for the Mountain and Pacific states.

Table A

WEST

| Period | Number of Doctorates Conferred | % Increase Over Previous Period | % of U.S. |
|---------|--------------------------------|---------------------------------|-----------|
| 1920-24 | 284 | | 6.8 |
| 1925-29 | 663 | 133 | 8.6 |
| 1930-34 | 1,021 | 54 | 8.5 |
| 1935-39 | 1,322 | 29 | 9.7 |
| 1940-44 | 1,433 | 08 | 9.7 |
| 1945-49 | 1,973 | 38 | 12.4 |
| 1950-54 | 5,450 | 176 | 14.1 |
| 1955-59 | 6,691 | 23 | 15.1 |
| 1960-64 | 10,204 | 53 | 16.7 |
| 1965-69 | 21,899 | 115 | 20.0 |
| 1970-74 | 33,083 | 51 | 20.0 |
| 1975-77 | 19,330 | Not Computed | 19.8 |

Table B

U.S.

| Period | Number of Doctorates Conferred | % Increase Over Previous Period |
|---------|--------------------------------|---------------------------------|
| 1920-24 | 4,199 | |
| 1925-29 | 7,736 | 84 |
| 1930-34 | 11,977 | 55 |
| 1935-39 | 13,698 | 14 |
| 1940-44 | 14,724 | 7 |
| 1945-49 | 15,904 | 8 |
| 1950-54 | 30,671 | 93 |
| 1955-59 | 44,240 | 44 |
| 1960-64 | 62,266 | 41 |
| 1965-69 | 109,273 | 75 |
| 1970-74 | 165,747 | 52 |
| 1975-77 | 97,508 | Not Computed |

SOURCE: National Research Council, Commission on Human Resources.

Table C

PACIFIC

| Period | Number of Doctorates Conferred | % Increase Over Previous Period | % of West |
|---------|--------------------------------|---------------------------------|-----------|
| 1920-24 | 274 | | 96.5 |
| 1925-29 | 642 | 134 | 96.8 |
| 1930-34 | 967 | 51 | 94.7 |
| 1935-39 | 1,233 | 28 | 93.3 |
| 1940-44 | 1,372 | 11 | 91.6 |
| 1945-49 | 1,779 | 23 | 90.2 |
| 1950-54 | 4,594 | 158 | 84.3 |
| 1955-59 | 5,502 | 20 | 82.2 |
| 1960-64 | 7,972 | 45 | 78.1 |
| 1965-69 | 16,024 | 101 | 73.2 |
| 1970-74 | 23,018 | 44 | 69.6 |
| 1975-77 | 13,495 | Not Computed | 69.8 |

Table D

MOUNTAIN

| Period | Number of Doctorates Conferred | % Increase Over Previous Period | % of West |
|---------|--------------------------------|---------------------------------|-----------|
| 1920-24 | 10 | | 3.5 |
| 1925-29 | 21 | 110 | 3.2 |
| 1930-34 | 54 | 148 | 5.3 |
| 1935-39 | 89 | 65 | 6.7 |
| 1940-44 | 121 | 36 | 8.4 |
| 1945-49 | 194 | 60 | 9.8 |
| 1950-54 | 856 | 341 | 15.7 |
| 1955-59 | 1,189 | 39 | 17.8 |
| 1960-64 | 2,232 | 88 | 21.9 |
| 1965-69 | 5,875 | 163 | 26.8 |
| 1970-74 | 10,065 | 71 | 30.4 |
| 1975-77 | 5,835 | Not Computed | 30.2 |

SOURCE: National Research Council, Commission on Human Resources.

Institutional Expansion

The number of western universities conferring the doctorate increased from four--all on the Pacific Coast--in 1920 to approximately sixty in the mid-1970's. Of these sixty, the Carnegie Commission classifies thirty-eight as research universities. Fourteen of these thirty-eight are classified as Research University I. The remaining doctorate-granting institutions include other four-year institutions, specialized schools, and medical and theological schools. Appendix II contains a listing of these institutions and their Carnegie Classifications.

Two factors account for the increase in doctorate production in the region. First, older, established universities have been awarding an increasing number of doctorates. Second, more institutions have begun to award the degree. This latter point has been evident in the emergence of new doctorate-granting institutions in the 1960's and 1970's, and in the rather late entrance of several major state universities. For example, the University of Utah, University of California-Davis and University of New Mexico awarded their first doctorates in the late 1940's. Colorado State University and Arizona State University did not award the doctorate until the mid-50's. Data from the National Research Council are available for thirty-two institutions in the region. The figures below indicate the number of those institutions which began awarding doctorates during each decade since the 1920's:

| | |
|---------|----|
| 1920-29 | 10 |
| 1930-39 | 5 |
| 1940-49 | 5 |
| 1950-59 | 9 |
| 1960-69 | 3 |

The tables and chart in Appendix III document the increase in the number of doctorate-granting institutions nationwide.

Doctorates Conferred

The increase in the number of doctorates granted has not occurred evenly throughout the West. The Pacific Coast states developed quite early, but the Mountain states did not develop until the post-World War II period.

Table 1 and Figure 1 illustrate these growth trends. Table 1 depicts the relative growth of each region of the nation.

The number of doctorates awarded in the Pacific states increased one hundred-fold over the fifty-year period 1920-24 to 1970-74. During that time, the proportion of the national total of doctorates awarded in the Pacific region increased from 6.5 percent in the earliest half decade to 13.9 percent in the latest. This proportion has been relatively stable over the past fifteen years.

Compared to the well-established place of doctoral-level education in the Pacific states, the Mountain states are new contributors to the enterprise. Of the 20,706 doctorates granted by institutions in the Mountain states during the years 1920 to 1974, nearly half came in the latest five years, and more than three-fourths were awarded in the last decade, 1965-1974.

The increase, from ten doctorates awarded in the 1920-24 span to 10,065 in 1970-74 represents a factor of ten thousand. The Mountain states' percentage of all doctorates awarded in the West increased from 3.5 percent in 1920-24 to 30.4 percent in 1970-74. The corresponding increase in the percentage of the national total was from 0.2 percent to 6.1 percent.

Table 1

DOCTORATE OUTPUT IN THE WEST, BY CENSUS REGION*
AND FIVE-YEAR PERIODS, 1920-1974

| Region | 1920-24 | 1925-29 | 1930-34 | 1935-39 | 1940-44 | 1945-49 | 1950-54 | 1955-59 | 1960-64 | 1965-69 | 1970-74 |
|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Mountain States | | | | | | | | | | | |
| Number | 10 | 21 | 54 | 89 | 121 | 194 | 856 | 1,189 | 2,232 | 5,875 | 10,065 |
| % of Western Total | 3.5 | 3.2 | 5.3 | 6.7 | 8.4 | 9.8 | 15.7 | 17.8 | 21.9 | 26.8 | 30.4 |
| % of National Total | 0.2 | 0.3 | 0.5 | 0.6 | 0.8 | 1.2 | 2.2 | 2.7 | 3.6 | 5.4 | 6.1 |
| Pacific States | | | | | | | | | | | |
| Number | 274 | 642 | 967 | 1,233 | 1,312 | 1,779 | 4,594 | 5,502 | 7,972 | 16,024 | 23,018 |
| % of Western Total | 96.5 | 96.8 | 94.7 | 93.3 | 91.6 | 90.2 | 84.3 | 82.2 | 78.1 | 73.2 | 69.6 |
| % of National Total | 6.5 | 8.3 | 8.1 | 9.0 | 8.9 | 11.2 | 11.9 | 12.4 | 13.0 | 14.7 | 13.9 |
| Western Total | | | | | | | | | | | |
| Number | 284 | 663 | 1,021 | 1,322 | 1,433 | 1,973 | 5,450 | 6,691 | 10,204 | 21,899 | 33,083 |
| % of National Total | 6.8 | 8.6 | 8.5 | 9.7 | 9.7 | 12.4 | 14.1 | 15.1 | 16.7 | 20.0 | 20.0 |
| U.S. Total | | | | | | | | | | | |
| Number | 4,199 | 7,736 | 11,977 | 13,698 | 14,724 | 15,904 | 38,671 | 44,240 | 61,266 | 109,273 | 165,747 |

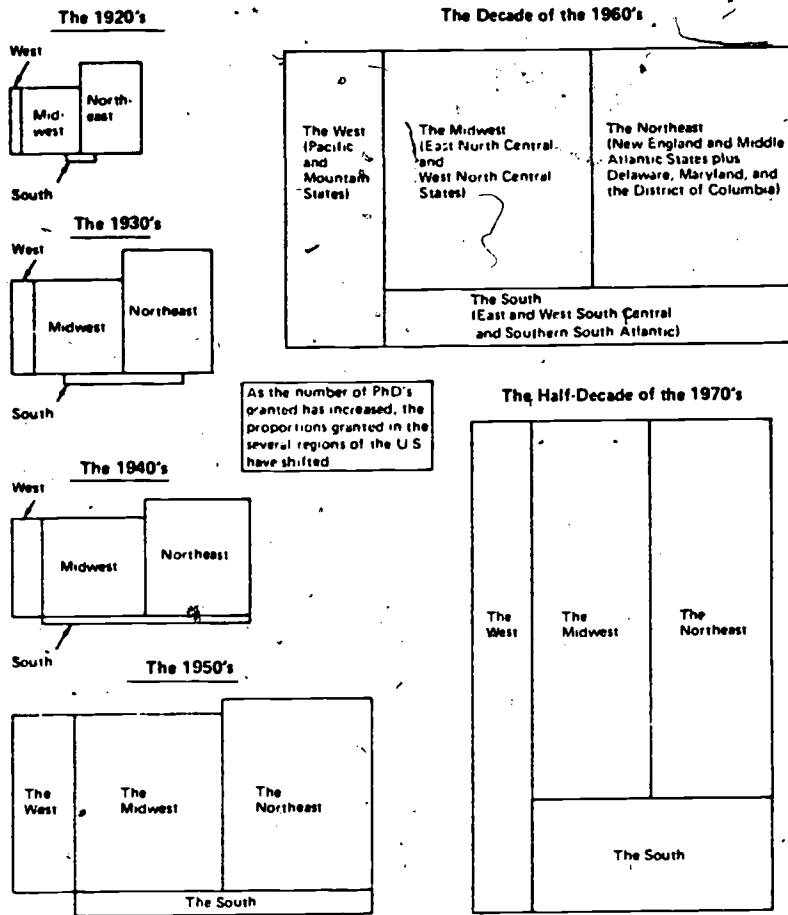
*The Mountain States include: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada.

The Pacific States include: Washington, Oregon, California, Alaska, and Hawaii.

SOURCE: National Research Council, Commission on Human Resources.

Figure 1

DIAGRAMS OF PH.D. GROWTH IN FOUR GEOGRAPHIC AREAS



SOURCE NRC, Commission on Human Resources

These different regional rates of growth combined to produce an overall pattern in which the percentage of doctorates conferred by institutions in the West has increased from 6.8 percent of the national total in the period 1920-24 to 20.0 percent in 1970-74. Figure 1 presents a graphic illustration of this growth in relation to the other geographic regions in the United States over the five and a half decades.

Table 2 depicts these data by state for three aggregated time periods: 1920-59, 1960-69 and 1970-74. The table shows, for each state and time period, the number of doctorates conferred by institutions in the West and their percentage of the regional totals. While California still grants half of all doctorates in the region, several states--Utah, Oregon, Washington, Arizona, and Colorado--grant a fair proportion of the remaining doctorates. Utah and Arizona have shown the greatest growth in the number of doctoral degrees conferred over the last fifteen years.

Table 3 presents the number of doctorates awarded in each of the western states in 1975, 1976 and 1977--the most recent year for which data are available. The total number of doctorates awarded in the thirteen WICHE states in each of the three years is down in 1977 to a total of 6,314 from an annual average of 6,617 doctorates granted in the period 1970-74. This decline is consistent with the movement nationwide which saw the largest number of doctorates conferred in 1973 and modest year-to-year declines in each subsequent year. Eight of the thirteen western states awarded fewer doctorates in 1977 than in 1975. This trend, according to Lewis Solomon of the Higher Education Research Institute in Los Angeles, may be temporary. Solomon, in a presentation at the annual meeting of the American Association

Table 2.

DOCTORATE OUTPUT IN THE WEST, BY STATE AND CENSUS
REGION, AND AGGREGATED TIME PERIOD, 1920-1974

| State | 1920-1959 | | 1960-1969 | | 1970-1974 | | Total 1920-1974 | |
|-----------------|-----------|----------|-----------|----------|-----------|----------|-----------------|-----------|
| | N | (%) | N | (%) | N | (%) | N | (%) |
| *Alaska | 4 | (0.02%) | 30 | (0.09%) | 41 | (0.1%) | 75 | (0.1%) |
| Arizona | 118 | (0.6) | 1,425 | (4.4) | 2,098 | (6.3) | 3,641 | (4.3) |
| *California | 13,592 | (72.2) | 18,359 | (57.2) | 17,082 | (51.6) | 49,033 | (58.4) |
| Colorado | 1,662 | (8.8) | 3,539 | (11.0) | 3,425 | (10.4) | 8,626 | (10.3) |
| *Hawaii | 17 | (0.09) | 255 | (0.8) | 439 | (1.3) | 711 | (0.8) |
| Idaho | --- | --- | 142 | (0.4) | 311 | (0.9) | 453 | (0.5) |
| Montana | 19 | (0.1) | 290 | (0.9) | 415 | (1.3) | 724 | (0.9) |
| Nevada | --- | --- | 38 | (0.1) | 92 | (0.3) | 130 | (0.2) |
| New Mexico | 114 | (0.6) | 633 | (2.0) | 1,051 | (3.2) | 1,798 | (2.1) |
| *Oregon | 851 | (4.5) | 2,380 | (7.4) | 2,625 | (7.9) | 5,856 | (7.0) |
| Utah | 501 | (2.7) | 1,679 | (5.2) | 2,246 | (6.8) | 4,426 | (5.3) |
| *Washington | 1,839 | (9.8) | 2,966 | (9.2) | 2,804 | (8.5) | 7,609 | (9.1)* |
| Wyoming | 120 | (0.6) | 361 | (1.1) | 427 | (1.3) | 908 | (1.1) |
| Mountain States | 2,534 | (13.5) | 8,107 | (25.3) | 10,065 | (30.4) | 20,706 | (24.6) |
| Pacific States | 16,303 | (86.5) | 23,996 | (74.7) | 23,018 | (69.6) | 63,317 | (75.4) |
| Total | 18,837 | (100.0%) | 32,103 | (99.8%) | 33,083 | (99.9%) | 84,023 | (99.1%)* |

*Total percentages do not sum to 100 due to rounding.

SOURCE: National Research Council, Commission on Human Resources.

Table 3

DOCTORATE OUTPUT IN THE WEST BY
STATE AND CENSUS REGION, 1975-1977

| | 1975 | | 1976 | | 1977 | |
|-----------------|-------|----------|-------|----------|-------|----------|
| | N | (%) | N | (%) | N | (%) |
| Alaska | 9 | (0.1%) | 8 | (0.1%) | 5 | (0.1%) |
| Arizona | 413 | (6.4) | 389 | (6.0) | 415 | (6.6) |
| California | 3,383 | (52.2) | 3,546 | (54.5) | 3,390 | (53.7) |
| Colorado | 697 | (10.7) | 723 | (11.1) | 703 | (11.1) |
| Hawaii | 94 | (1.4) | 116 | (1.8) | 135 | (2.1) |
| Idaho | 65 | (1.0) | 70 | (1.0) | 49 | (0.8) |
| Montana | 81 | (1.2) | 67 | (1.0) | 63 | (1.0) |
| Nevada | 15 | (0.2) | 24 | (0.4) | 33 | (0.5) |
| New Mexico | 186 | (2.9) | 160 | (2.5) | 163 | (2.6) |
| Oregon | 467 | (7.2) | 399 | (6.1) | 405 | (6.4) |
| Utah | 458 | (7.1) | 440 | (6.8) | 428 | (6.8) |
| Washington | 539 | (8.3) | 520 | (8.0) | 462 | (7.3) |
| Wyoming | 80 | (1.2) | 49 | (0.8) | 63 | (1.0) |
| Mountain States | 1,995 | (30.8) | 1,922 | (29.5) | 1,917 | (30.4) |
| Pacific States | 4,492 | (69.2) | 4,589 | (70.5) | 4,397 | (69.6) |
| Western, Total | 6,487 | (100.0%) | 6,511 | (100.0%) | 6,314 | (100.0%) |

SOURCE: National Research Council, Commission on Human Resources.

for Higher Education in April 1979, said that his research indicates that current doctoral students are staying in school longer as a means of delaying entry into a tight job market. Solomon expects the number of Ph.D.s awarded annually to increase in the next few years, possibly to near-record levels nationally.

Recent Trends

Nationally, the number of doctorates awarded to women has risen each year from 1975 to 1977, while the number of male doctorate recipients has declined. Over these three years, women earned 23.3 percent of all doctorates nationally, but only 20.3 percent of doctorates awarded in the West.

During the years 1975 through 1977, which saw an overall decline in the number of doctorates awarded in the West, the number of doctorates awarded to women increased. During this period, the number of doctorates awarded to men in each of seven discipline groups declined, resulting in an overall decline in doctorates awarded and in an increasing proportion of doctorates earned by women. Table 4 displays the number of doctorates awarded to men and women and the percentage of doctorates awarded to women in each of these seven broad fields. In the period 1975-77, women earned 3,924 doctorates, or 20.3 percent of the total awarded in the WICHE region. The proportion of female doctorate recipients ranged from a high of nearly 35 percent in the humanities to a low of less than 2 percent in engineering. Historically, in the West, the highest proportion of doctorates earned by women has been in the humanities rather than in education where women constitute a majority of Ph.D. degree recipients nationally.

Table 4

NUMBER OF DOCTORATE RECIPIENTS
IN THE WEST BY FIELD AND SEX

| Fields | 1920-59 | | | 1960-69 | | | 1970-74 | | | 1975-77 | | |
|---------------------|---------|-------|---------------------------|---------|-------|---------------------------|---------|-------|---------------------------|---------|-------|---------------------------|
| | Men | Women | Women as % of Total | Men | Women | Women as % of Total | Men | Women | Women as % of Total | Men | Women | Women as % of Total |
| Physical Sciences | 4,789 | 174 | 3.5 | 7,032 | 284 | 3.9 | 5,371 | 319 | 5.6 | 2,883 | 214 | 6.9 |
| Engineering | 1,143 | -- | -- | 4,065 | 19 | 0.4 | 3,318 | 35 | 0.9 | 1,998 | 36 | 1.7 |
| Life Sciences | 3,153 | 348 | 9.9 | 4,878 | 558 | 10.3 | 4,640 | 774 | 14.3 | 2,542 | 578 | 18.5 |
| Behavioral Sciences | 2,358 | 282 | 10.7 | 3,772 | 649 | 14.7 | 4,601 | 1,124 | 19.6 | 3,096 | 1,009 | 24.6 |
| Humanities | 2,157 | 459 | 17.5 | 2,975 | 688 | 18.8 | 2,860 | 1,141 | 28.5 | 1,582 | 848 | 34.9 |
| Professions | 173 | 11 | 6.0 | 797 | 53 | 6.2 | 1,027 | 109 | 9.6 | 515 | 117 | 18.5 |
| Education | 3,133 | 560 | 15.2 | 5,185 | 952 | 15.5 | 5,495 | 1,458 | 21.0 | 2,758 | 1,118 | 28.8 |
| Total* | 17,002 | 1,834 | 9.7 | 28,742 | 3,203 | 10.0 | 27,834 | 4,962 | 15.1 | 15,388 | 3,924 | 20.3 |

*Excludes the following numbers of doctorate recipients whose fields are unknown:

1920-59 1
1960-69 158
1970-74 287
1975-77 18

Table 5 depicts the average number of doctorates awarded annually for four time periods and among seven broad discipline groups. The average number of doctorates awarded to women annually rose from 61 for the period 1920-59 to 1,308 for the years 1965-77. Table 5 shows the modest gains made by women in fields like engineering and the physical sciences and the fairly significant gains in the life sciences and behavioral sciences. Statistical evidence is not available on the numbers of men and women who forego doctoral study because of projected oversupplies of Ph.D.s, but if current patterns of degree production continue, then women may soon comprise half the doctorate recipients in the West in the humanities and a near majority of new doctorates in education and the life sciences.

Recent attention has also been drawn to the number of foreign citizens earning degrees from American colleges and universities. Between 1975 and 1977 the number of U.S. citizens earning doctorates declined by 1,000, while the total number of doctorates awarded to foreign students was down 429. Because the proportion of males among foreign Ph.D. recipients is much higher than among Americans, this situation also contributes to increasing the overall proportion of women doctorate recipients. It is interesting to note, in addition, that the proportional decline in foreign doctorate recipients matches that of U.S. citizens, leaving the overall percentage of doctorates awarded to U.S. citizens constant at 82 percent over the last three years. Corresponding data for the West alone is not available at this time.

TABLE 5

Average Number of Doctorates Awarded Per Year
in the Western United States
by Field and Sex of Recipients

| | Physical Sciences | | | Engineering | | | Life Sciences | | | Behavioral Sciences | | | Humanities | | | Professions | | | Education | | | Total | |
|---------|-------------------|----|-------|-------------|----|-------|---------------|-----|-------|---------------------|-----|-------|------------|-----|-------|-------------|----|-------|-----------|-----|-------|-------|------|
| | M | W | Total | M | W | Total | M | W | Total | M | W | Total | M | W | Total | M | W | Total | M | W | Total | M | W |
| 1920-59 | 160 | 6 | 166 | 38 | 0 | 38 | 105 | 12 | 117 | 79 | 9 | 88 | 72 | 15 | 89 | 6 | 0 | 6 | 104 | 19 | 123 | 564 | 61 |
| 1960-69 | 703 | 28 | 731 | 407 | 2 | 409 | 488 | 56 | 544 | 377 | 65 | 442 | 298 | 69 | 367 | 80 | 5 | 85 | 519 | 95 | 614 | 2872 | 320 |
| 1970-74 | 1094 | 64 | 1138 | 764 | 7 | 771 | 928 | 186 | 1114 | 920 | 225 | 1145 | 572 | 228 | 800 | 205 | 22 | 227 | 1099 | 292 | 1391 | 5562 | 1024 |
| 1975-77 | 961 | 71 | 1032 | 666 | 12 | 678 | 847 | 284 | 1131 | 1032 | 336 | 1368 | 527 | 283 | 810 | 172 | 39 | 211 | 919 | 373 | 1292 | 5124 | 1308 |

SOURCE: National Research Council, Commission on Human Resources.

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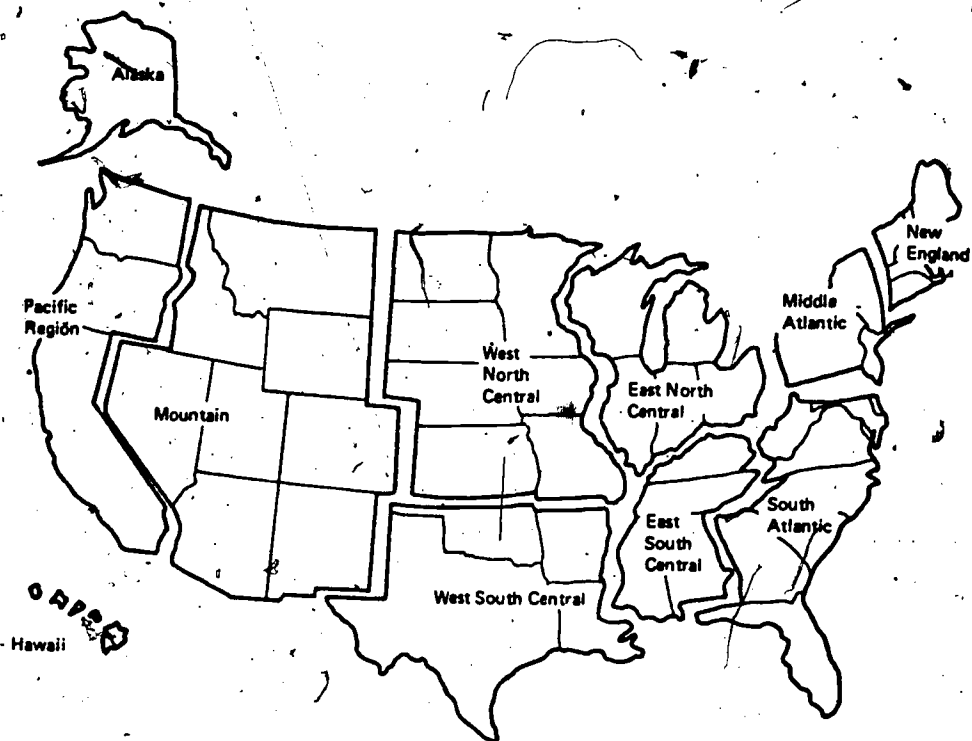
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APPENDIX I

THE NINE CENSUS REGIONS OF THE UNITED STATES



States in Each Region:

1. New England: Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut
2. Middle Atlantic: New York, New Jersey, Pennsylvania
3. East North Central: Ohio, Indiana, Illinois, Michigan, Wisconsin
4. West North Central: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
5. South Atlantic: Delaware, Maryland, D.C., Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida
6. East South Central: Kentucky, Tennessee, Alabama, Mississippi
7. West South Central: Arkansas, Louisiana, Oklahoma, Texas
8. Mountain: Montana, Wyoming, Colorado, New Mexico, Arizona, Utah
9. Pacific: Washington, Oregon, California, Alaska, Hawaii (plus Puerto Rico and Panama Canal Zone)

1970 Population by Census Region (in thousands)

| | | | |
|--------------------|--------|--------------------|----------------|
| New England | 11,842 | East South Central | 12,803 |
| Middle Atlantic | 37,189 | West South Central | 19,321 |
| East North Central | 40,262 | Mountain | 8,282 |
| West North Central | 16,319 | Pacific | 26,523 |
| South Atlantic | 30,871 | TOTAL U.S. | 203,212 |

SOURCE: NRC, Commission on Human Resources

Alphabetical Listing of Ph.D.-Granting Institutions in the West,
With Carnegie Classification, Numbers of Ph.D.'s, and Rank Orders,
by Sex and Total, 1920-1974

| Carnegie Classification ¹ | Institution | Decade First Doctorate Awarded | Male | | Female | | Both Sexes | |
|--------------------------------------|-------------------------|--------------------------------|--------|-------------------|--------|-------------------|------------|-------------------|
| | | | Number | Rank ² | Number | Rank ² | Number | Rank ² |
| 1.4 | Alaska, Univ of | 1950 | 73 | 38 | 2 | 44 | 75 | 39 |
| 1.3 | Arizona State Univ | 1950 | 1230 | 15 | 234 | 12 | 1464 | 15 |
| 1.1 | Arizona, Univ of | 1920 | 1931 | 12 | 237 | 10 | 2168 | 11 |
| 1.3 | Brigham Young U/UT | 1960 | 675 | 25 | 58 | 25 | 733 | 25 |
| 1.1 | Cal Inst Technology | 1920 ³ | 2773 | 8 | 55 | 27 | 2828 | 8 |
| 1.1 | Calif, U-Berkeley | 1920 ³ | 13535 | 1 | 1897 | 1 | 15432 | 1 |
| 1.1 | Calif, U-Davis | 1940 | 1990 | 11 | 164 | 14 | 2154 | 12 |
| 1.2 | Calif, U-Irvine | | 279 | 31 | 68 | 24 | 347 | 31 |
| 1.1 | Calif, U-Los Angeles | 1930 | 6297 | 3 | 1232 | 2 | 7529 | 3 |
| 1.3 | Calif, U-Riverside | | 781 | 23 | 79 | 22 | 860 | 23 |
| 1.1 | Calif, U-San Diego | | 786 | 22 | 106 | 19 | 892 | 21 |
| 5.2 | Calif, U-San Francisco | 1960 | 243 | 34 | 83 | 21 | 326 | 32 |
| 1.3 | Calif, U-Santa Barb | | 689 | 24 | 71 | 23 | 760 | 24 |
| 1.3 | Calif, U-Santa Cruz | | 68 | 39 | 24 | 35 | 92 | 38 |
| 1.2 | Clemson Grad Sch/CA | 1930 | 818 | 21 | 133 | 17 | 951 | 19 |
| 5.4 | Colorado Sch Mines | 1920 | 264 | 33 | 1 | 46 | 265 | 34 |
| 1.1 | Colorado State Univ | 1950 | 1138 | 18 | 52 | 28 | 1190 | 18 |
| 1.1 | Colorado, U-Boulder | 1920 | 3174 | 6 | 529 | 6 | 3703 | 6 |
| 1.3 | Denver, Univ of/CO | 1940 | 1197 | 16 | 232 | 13 | 1429 | 16 |
| 1.1 | Hawaii, Univ of | 1930 | 620 | 26 | 91 | 20 | 711 | 26 |
| 1.4 | Idaho State Univ | | 25 | 43 | 11 | 39 | 36 | 41 |
| 1.3 | Idaho, Univ of | | 384 | 29 | 33 | 30 | 417 | 29 |
| 1.4 | Loma Linda Univ/CA | 1950 | 24 | 44 | 4 | 41 | 28 | 45 |
| 1.3 | Montana State Univ | 1950 | 412 | 27 | 25 | 34 | 437 | 28 |
| 1.3 | Montana, Univ of | | 266 | 32 | 21 | 36 | 287 | 33 |
| 1.4 | Nevada, U-Las Vegas | | | | | | | |
| 1.4 | Nevada, U-Reno | | | | | | | |
| 1.4 | Nevada, U-Reno | | 114 | 37 | 16 | 37 | 130 | 37 |
| 2.2 | New Mexico Highlands U | | 3 | 49 | | | 3 | 50 |
| 5.4 | New Mex I Mining & Tech | 1950 | 39 | 40 | 2 | 44 | 41 | 40 |
| 1.3 | New Mexico State U | 1960 | 331 | 30 | 29 | 32 | 360 | 30 |
| 1.2 | New Mexico, Univ of | 1940 | 1158 | 17 | 236 | 11 | 1394 | 17 |
| 2.1 | Northern Arizona U | | 8 | 46 | 1 | 46 | 9 | 46 |
| 1.3 | Northern Colorado, U | 1930 | 1759 | 14 | 280 | 8 | 2039 | 13 |
| 3.1 | Occidental Coll/CA | | 19 | 45 | 14 | 38 | 33 | 43 |
| 1.2 | Oregon, Univ of | 1920 | 2776 | 7 | 468 | 7 | 3244 | 7 |
| 5.2 | Oregon U-Sch Med | | 31 | 41 | 4 | 41 | 35 | 42 |
| 1.1 | Oregon State Univ | 1930 | 2234 | 10 | 142 | 16 | 2376 | 10 |
| 2.1 | Portland State U/OR | | 4 | 48 | 3 | 42 | 7 | 48 |
| 1.4 | Pacific, U of/CA | 1950 | 172 | 35 | 32 | 31 | 204 | 35 |
| 2.1 | Portland, Univ of/OR | 1950 | 165 | 36 | 28 | 33 | 193 | 36 |
| 2.1 | Redlands, U of/CA | | 8 | 46 | 1 | 46 | 9 | 46 |
| 2.1 | Santa Clara, U of/CA | | 28 | 42 | 2 | 44 | 30 | 44 |
| 1.1 | Southern Calif, U of | 1920 | 5347 | 4 | 996 | 4 | 6343 | 4 |
| 1.1 | Stanford Univ/CA | 1920 ³ | 8392 | 2 | 1095 | 3 | 9487 | 2 |
| 1.4 | U S Internatl U/CA | | 390 | 28 | 117 | 18 | 507 | 27 |
| 1.1 | Utah, Univ of | 1940 | 2571 | 9 | 248 | 9 | 2819 | 9 |
| 1.2 | Utah State Univ | 1950 | 827 | 20 | 47 | 29 | 874 | 22 |
| 1.2 | Washington State U | 1920 | 1787 | 13 | 119 | 15 | 1906 | 14 |
| 1.1 | Washington, U of | 1920 ³ | 5055 | 5 | 648 | 5 | 5703 | 5 |
| 1.3 | Wyoming, Univ of | 1940 | 851 | 19 | 57 | 26 | 908 | 20 |

- ¹ 1.1 = Research University I 2.1 = Comprehensive Universities and Colleges I 5.2 = Medical schools and medical centers
1.2 = Research University II 3.1 = Liberal Arts Colleges I 5.4 = Schools of Engineering and technology
1.3 = Doctorate-Granting I
1.4 = Doctorate-Granting II

² The word "rank" is used in the statistical sense of "order according to a statistical characteristic" (e.g., the number of doctorates granted); its use is not intended to imply degree of eminence or excellence.

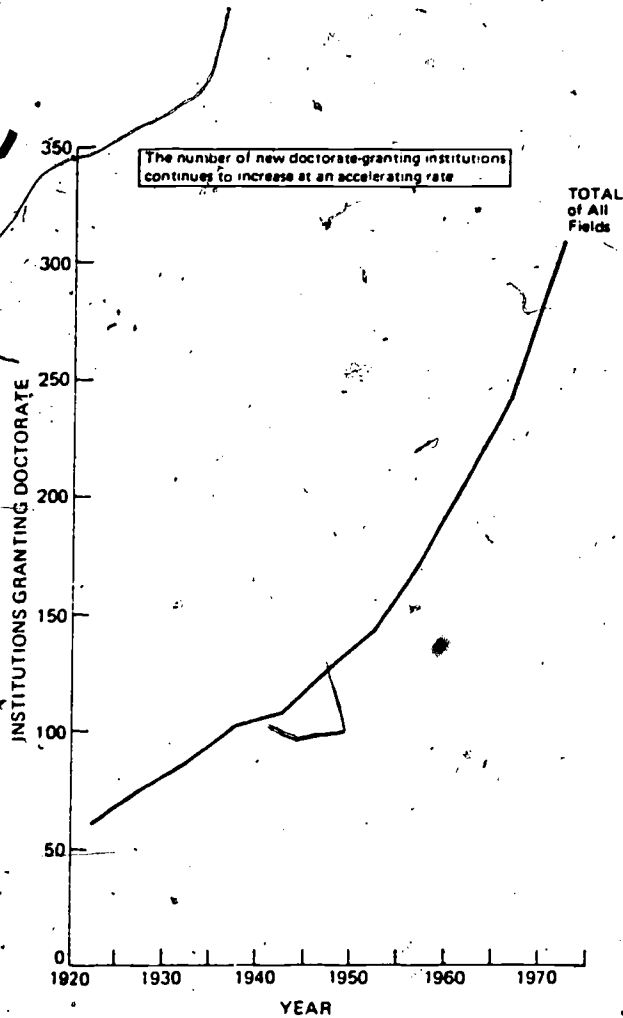
³ First doctorates awarded in 1920 or before.

SOURCES: National Research Council, Commission on Human Resources,
Carnegie Council on Policy Studies in Higher Education.

APPENDIX III.

NUMBER OF DOCTORATE-GRANTING INSTITUTIONS
IN THE UNITED STATES
BY 5-YEAR PERIODS, 1920-1974

| | Time Period | | | | | | | | | | |
|---------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | 1920- 1924 | 1925- 1929 | 1930- 1934 | 1935- 1939 | 1940- 1944 | 1945- 1949 | 1950- 1954 | 1955- 1959 | 1960- 1964 | 1965- 1969 | 1970- 1974 |
| Number of Institutions | 61 | 75 | 87 | 102 | 107 | 126 | 142 | 171 | 208 | 244 | 307 |



SOURCE: National Research Council, Commission on Human Resources

PROJECT ON EXPANDING REGIONAL COOPERATION IN GRADUATE AND PROFESSIONAL EDUCATION

Advisory Council

Alaska

*Kerry D. Romesburg
Executive Director
Alaska Commission on
Postsecondary Education

Arizona

Lela R. Alston
State Senator
Arizona State Senate
William B. Phillips (Alternate)
Academic Planning Coordinator
Arizona Board of Regents

California

Harold Geiogue
Principal Program Analyst
Joint Legislative Budget Committee
California Legislature
Patrick Callan
Director
California Postsecondary Education
Commission

Colorado

J. Russell Nelson
Acting Chancellor
University of Colorado at Boulder

Joy Stevenson
Doctoral Student
University of Colorado

Hawaii

Howard P. McKaughan
Dean of the Graduate School
University of Hawaii, Manoa

Idaho

Lawrence H. Rice
Dean of the Graduate School
Idaho State University

Montana

JoEllen Estenson
State Representative
Montana State Legislature

Nevada

Eugene Grotgug
Professor of Foreign Languages
and Literature
University of Nevada

New Mexico

McAllister Hull
Provost
University of New Mexico

Oregon

Loren L. Wyss
Member Executive Committee
Board of Higher Education

Utah

Leon McCarrey
Deputy Commissioner
Utah State Board of Regents

Washington

Patrick Morgan
Department of Political Science
Washington State University

Wyoming

Patrick Quealy
Trustee of the University
of Wyoming
Edward P. Jakubauskas (Alternate)
Academic Vice President
University of Wyoming

Demonstration States Coordinating Committee*

Alaska

Mildred H. Banfield
Member, Board of Regents
University of Alaska

Idaho

Frank Lundberg
Governor's Office State Capitol
Clifford M. Trump (alternate)
Deputy Director for Academic Planning
State Board of Education

Montana

Irving E. Dayton
Deputy Commissioner for
Academic Affairs
The Montana University System

New Mexico

Robert Huff
Executive Secretary
Board of Educational Finance

Oregon

Roy Lieuallen
Chancellor
Oregon System of Higher Education

Washington

William Chance
Deputy Coordinator
Council of Postsecondary Education

*Demonstration States Coordinating Committee also includes asterisked Advisory Council member from each demonstration state