

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: The Demand and Supply of Scientific Personnel

Volume Author/Editor: David M. Blank and George J. Stigler

Volume Publisher: NBER

Volume ISBN: 0-87014-061-2

Volume URL: <http://www.nber.org/books/blan57-1>

Publication Date: 1957

Chapter Title: Appendix C: Tables on Engineering Enrollments and Degrees

Chapter Author: David M. Blank, George J. Stigler

Chapter URL: <http://www.nber.org/chapters/c2668>

Chapter pages in book: (p. 156 - 165)

## APPENDIX C

### TABLES ON ENGINEERING ENROLLMENTS AND DEGREES

IN THIS appendix we present various tables on the number and the distribution among the several specialties of enrollments and degrees in engineering. There is no single comprehensive source of such information for the period in which we are interested. We are forced, therefore, to use a number of different sources for varying overlapping periods. The data are here presented together to provide the reader with as complete a view of historic trends in engineering education as the scattered information permits.

TABLE C-1

Enrollments in Engineering Courses in Universities, Colleges, and  
Technological Schools, 1904-1915

| <i>Academic<br/>Year<br/>Ending<br/>June</i> | <i>Civil</i> | <i>Chemical</i> | <i>Electrical</i> | <i>Mechanical</i> | <i>Mining</i> | <i>Other</i> | <i>Total<sup>a</sup></i> |
|--|--------------|-----------------|-------------------|-------------------|---------------|--------------|--------------------------|
| 1904   | 4,431        | 499             | 2,662             | 3,778             | 1,465         | 17           | 12,852                   |
| 1905   | 7,356        | 759             | 5,204             | 6,654             | 2,547         | 2,065        | 24,585                   |
| 1906   | 7,962        | 1,234           | 5,696             | 7,426             | 2,826         | 4,231        | 29,375                   |
| 1909   | 9,649        | 1,117           | 7,154             | 6,142             | 3,150         | n.a.         | 27,212                   |
| 1910   | 7,889        | 869             | 5,450             | 6,377             | 2,656         | n.a.         | 23,241                   |
| 1911   | 8,939        | 1,452           | 6,128             | 7,052             | 2,337         | n.a.         | 25,908                   |
| 1915   | 7,182        | 2,383           | 6,637             | 7,751             | 1,922         | 7,185        | 33,060                   |
| <i>Percentage Distribution</i>               |              |                 |                   |                   |               |              |                          |
| 1904   | 34.5         | 3.9             | 20.7              | 29.4              | 11.4          | 0.1          | 100.0                    |
| 1905   | 29.9         | 3.1             | 21.2              | 27.0              | 10.4          | 8.4          | 100.0                    |
| 1906   | 27.1         | 4.2             | 19.4              | 25.3              | 9.6           | 14.4         | 100.0                    |
| 1909   | 35.5         | 4.1             | 26.3              | 22.5              | 11.6          | n.a.         | 100.0                    |
| 1910   | 34.0         | 3.7             | 23.5              | 27.4              | 11.4          | n.a.         | 100.0                    |
| 1911   | 34.5         | 5.6             | 23.7              | 27.2              | 9.0           | n.a.         | 100.0                    |
| 1915   | 21.7         | 7.2             | 20.2              | 23.4              | 5.8           | 21.7         | 100.0                    |

<sup>a</sup> The total number enrolled in engineering was not given in the source; it was obtained for each year by adding the numbers reported in the specified fields.

Source: *Annual Report of the Commissioner of Education, 1903-1904*, and *1915-1916*, Office of Education.

APPENDIX C

TABLE C-2

Total Enrollments of Students in Engineering in the United States, 1920-1953

| Academic<br>Year<br>Ending<br>June | TOTAL ENROLLMENTS             |   | UNDERGRADUATE ENROLLMENTS     |   | GRADUATE ENROLLMENTS          |   |
|------------------------------------|-------------------------------|---|-------------------------------|---|-------------------------------|---|
|                                    | Office of<br>Education<br>(1) | Journal of<br>Engineering<br>Education<br>(2) | Office of<br>Education<br>(3) | Journal of<br>Engineering<br>Education<br>(4) | Office of<br>Education<br>(5) | Journal of<br>Engineering<br>Education<br>(6) |
| 1920                               | 51,908                        | 57,017  | 51,908                        | ...   | ...                           | ...   |
| 1922                               | 56,649                        | ...   | 56,649                        | 56,649  | ...                           | 368   |
| 1924                               | 57,690                        | ...   | 57,690                        | ...   | ...                           | ...   |
| 1926                               | 59,315                        | 57,313  | 59,315                        | 56,299  | ...                           | 1,014   |
| 1927                               | ...                           | 60,899  | ...                           | 59,133  | ...                           | 1,766   |
| 1928                               | 66,637                        | 64,692  | 66,637                        | 63,023  | ...                           | 1,669   |
| 1930                               | 74,000                        | ...   | 74,000                        | ...   | ...                           | ...   |
| 1931                               | ...                           | 76,325  | ...                           | 73,386  | ...                           | 2,939   |
| 1932                               | 77,041                        | ...   | 73,766                        | ...   | 3,275                         | ...   |
| 1933                               | ...                           | 67,046  | ...                           | 63,119  | ...                           | 3,927   |
| 1934                               | 65,406                        | ...   | 62,600                        | ...   | 2,805                         | 2,756   |
| 1936                               | 74,752                        | 66,541  | 71,827                        | 64,137  | 2,933 <sup>a</sup>            | 2,404   |
| 1937                               | ...                           | 69,976  | ...                           | 67,515  | ...                           | 2,461   |
| 1938                               | 92,724                        | 87,943  | 89,440                        | 84,547  | 3,284                         | 3,396   |
| 1939                               | ...                           | 87,760  | ...                           | 82,585  | ...                           | 5,175   |
| 1940                               | 107,918                       | 108,426                                       | 103,270                       | 102,879                                       | 4,648                         | 5,547   |
| 1941                               | ...                           | 114,116                                       | ...                           | 108,911                                       | ...                           | 5,205   |
| 1942                               | 119,339                       | 112,709                                       | 115,018                       | 108,091                                       | 4,321                         | 4,618   |
| 1943                               | ...                           | 124,647                                       | ...                           | 121,541                                       | ...                           | 3,106   |
| 1944                               | 112,749                       | 48,061  | 109,138                       | 45,404  | 3,611                         | 2,657   |
| 1945                               | ...                           | 38,017  | ...                           | 34,892  | ...                           | 3,126   |
| 1946                               | ...                           | 67,045  | ...                           | 63,064  | ...                           | 4,010 <sup>a</sup>                            |
| 1947                               | ...                           | 211,782                                       | ...                           | 197,797                                       | ...                           | 13,985  |
| 1948                               | 250,009                       | 244,390                                       | 236,370                       | 230,180                                       | 13,639                        | 14,210  |
| 1949                               | ...                           | 241,549                                       | ...                           | 225,655                                       | ...                           | 15,432 <sup>a</sup>                           |
| 1950                               | 228,914                       | 219,712                                       | 210,806                       | 201,927                                       | 18,108                        | 17,785  |
| 1951                               | ...                           | 180,262                                       | ...                           | 161,592                                       | ...                           | 18,670  |
| 1952                               | 176,549                       | 165,637                                       | 156,080                       | 145,997                                       | 20,469                        | 19,640  |
| 1953                               | ...                           | 176,549                                       | ...                           | 156,080                                       | ...                           | 20,469  |

... = not available.

<sup>a</sup> The figures for undergraduate and graduate enrollments in the sources do not total to the figures for total enrollments.

Column

Source

1, 3, 5 *Biennial Surveys of Education*, Office of Education, 1920-1950; "Engineering Enrollments and Degrees," processed, Office of Education, Circular 364, January 21, 1953.

Total enrollment figures for the years 1920-1936 were derived by summing the numbers enrolled in specified fields, as reported in the Biennial Surveys. For the years

## APPENDIX C

Column

Source

1938-1952 the source gives total enrollment data and it is this total which is shown in the table for each of these years.

The classification of schools for which engineering enrollments were reported by the Office of Education has varied over the years as follows:

1920-1930: Students in engineering courses in universities, colleges, and professional schools.

1932-1938: Students enrolled in professional schools, both independent and university schools.

1940-1944: Resident student enrollment in professional schools.

1948: Students in professional school of engineering.

1952: Engineering students enrolled in U.S. schools.

2, 4, 6 *Journal of Engineering Education*, annual statistics on engineering enrollments and graduates, November 1932 to February 1954.

For the years 1942 through 1953 enrollments were reported as of October or November of the preceding year.

Beginning with the year 1950, the *Journal of Engineering Education* presented separate data on enrollments in ECPD accredited schools as follows:

*Total Enrollments*: 1950, 198,266; 1951, 161,324; 1952, 147,694; 1953, 158,518.

*Undergraduate Enrollments*: 1950, 180,646; 1951, 142,954; 1952, 128,367; 1953, 138,170.

TABLE C-3

Undergraduate Enrollments in Engineering Schools, in the  
United States, by Class, 1926-1953

| <i>Academic<br/>Year<br/>Ending<br/>June</i> | <i>Number of<br/>Institutions</i> | <i>Freshmen</i> | <i>Sophomores</i> | <i>Juniors</i> | <i>Seniors</i> | <i>5 year<br/>Course</i> |
|--|-----------------------------------|-----------------|-------------------|----------------|----------------|--------------------------|
| 1926   | 143                               | 20,063          | 14,493            | 10,695         | 9,063          | ...                      |
| 1927   | 148                               | 22,765          | 16,123            | 11,562         | 9,403          | ...                      |
| 1928   | 148                               | 23,360          | 16,905            | 12,685         | 10,073         | ...                      |
| 1931   | 145                               | 25,332          | 19,631            | 16,262         | 12,161         | ...                      |
| 1933   | 143                               | 17,441          | 17,028            | 15,542         | 13,108         | ...                      |
| 1935   | 68                                | 13,275          | 9,452             | 8,868          | 7,923          | ...                      |
| 1936   | 124                               | 20,128          | 14,821            | 12,031         | 10,436         | 363                      |
| 1937   | 115                               | 23,058          | 15,842            | 12,528         | 9,671          | 379                      |
| 1938   | 126                               | 27,532          | 20,326            | 15,536         | 11,824         | 625                      |
| 1939   | 122                               | 25,444          | 19,988            | 16,701         | 12,420         | 508                      |
| 1940   | 146                               | 30,787          | 23,378            | 18,936         | 16,235         | 845                      |
| 1941   | 149                               | 33,175          | 29,242            | 20,120         | 16,310         | 985                      |
| 1942   | ...                               | 34,993          | 24,349            | 19,009         | 16,291         | 1,311                    |
| 1943   | 166                               | 50,263          | 27,912            | 21,164         | 17,341         | 1,105                    |
| 1944   | 143                               | 16,609          | 7,985             | 6,334          | 7,737          | 329                      |
| 1945   | ...                               | 17,823          | 5,203             | 3,213          | 2,373          | 143                      |
| 1946   | ...                               | 32,455          | 11,248            | 6,648          | 4,081          | 106                      |
| 1947   | 130                               | 80,703          | 50,406            | 30,615         | 20,740         | 705                      |
| 1948   | 143                               | 57,507          | 71,615            | 48,227         | 32,369         | 1,846                    |
| 1949   | 145                               | 47,672          | 52,949            | 59,945         | 45,695         | 1,924                    |

APPENDIX C  
TABLE C-3 (continued)

| Academic<br>Year<br>Ending<br>June | Number of<br>Institutions | Freshmen | Sophomores | Juniors | Seniors | 5 year<br>Course |
|------------------------------------|---------------------------|----------|------------|---------|---------|------------------|
| 1950                               | ...                       | 41,077   | 39,558     | 46,077  | 55,698  | 2,664            |
| 1951                               | ...                       | 34,299   | 30,915     | 34,423  | 41,702  | 3,514            |
| 1952                               | ...                       | 39,571   | 26,741     | 27,545  | 30,722  | 3,214            |
| 1953                               | ...                       | 51,631   | 30,219     | 25,011  | 25,964  | 3,065            |

... = not available.

Source: *Journal of Engineering Education*, annual statistics on engineering enrollments, various issues November 1932 to February 1954. For the years 1942 through 1953 enrollments are as of October or November of the preceding year.

TABLE C-4  
Male Enrollments in Engineering as Per Cent of Total Enrollments,  
1934-1952

| Academic Year<br>Ending June | Office<br>of Education<br>(1) | Journal of<br>Engineering Education<br>(2) |
|------------------------------|-------------------------------|--|
| 1934                         | 99.98                         | ...  |
| 1936                         | 99.73                         | ...  |
| 1938                         | 99.51                         | ...  |
| 1940                         | 99.61                         | ...  |
| 1942                         | 99.59                         | ...  |
| 1944                         | 98.46                         | ...  |
| 1945                         | ...                           | 96.35                                      |
| 1946                         | ...                           | 97.31                                      |
| 1947                         | ...                           | 99.87                                      |
| 1948                         | 99.41                         | ...  |
| 1949                         | ...                           | 99.47                                      |
| 1950                         | 99.60                         | 99.65                                      |
| 1951                         | ...                           | 99.62                                      |
| 1952                         | 99.61                         | 99.79                                      |

... = not available.

Source: Same as in Table C-2.

TABLE C-5  
Total U.S. Enrollments in Engineering, by Field, 1920-1953, Percentage Distribution

| Academic<br>Year<br>Ending<br>June | OFFICE OF EDUCATION <sup>a</sup> |            |            |          |        | JOURNAL OF ENGINEERING EDUCATION <sup>b</sup> |       |       |            |            |          |        |       |       |
|------------------------------------|----------------------------------|------------|------------|----------|--------|---|-------|-------|------------|------------|----------|--------|-------|-------|
|                                    | Civil                            | Mechanical | Electrical | Chemical | Mining | Other   | Total | Civil | Mechanical | Electrical | Chemical | Mining | Other | Total |
| 1920                               | 17.1                             | 22.7       | 18.2       | 11.1     | 5.9    | 25.0  | 100.0 | 22.7  | 25.4       | 23.5       | 12.5     | 5.1    | 10.8  | 100.0 |
| 1922                               | 17.1                             | 21.5       | 21.8       | 9.5      | 5.7    | 24.4  | 100.0 | 21.5  | 18.3       | 31.4       | 8.4      | 3.5    | 16.8  | 100.0 |
| 1924                               | 17.4                             | 18.4       | 24.3       | 7.2      | 4.8    | 27.9  | 100.0 | 21.5  | 16.6       | 33.0       | 9.4      | 3.2    | 15.6  | 100.0 |
| 1926                               | 18.3                             | 16.4       | 26.4       | 7.1      | 2.8    | 29.0  | 100.0 | 21.6  | 17.3       | 31.0       | 9.2      | 3.2    | 17.7  | 100.0 |
| 1927                               |                                  |            |            |          |        |   |       |       |            |            |          |        |       |       |
| 1928                               | 17.3                             | 15.7       | 23.7       | 7.4      | 2.3    | 33.6  | 100.0 | 18.5  | 20.2       | 25.4       | 12.5     | 3.8    | 19.6  | 100.0 |
| 1930                               | 15.6                             | 15.7       | 21.1       | 6.0      | 1.9    | 39.7  | 100.0 | 21.1  | 23.4       | 22.9       | 14.7     | 3.7    | 14.2  | 100.0 |
| 1931                               |                                  |            |            |          |        |   |       | 13.3  | 19.4       | 17.6       | 15.0     | 2.3    | 32.4  | 100.0 |
| 1932                               | 14.8                             | 18.1       | 20.2       | 12.0     | 3.3    | 31.6  | 100.0 | 10.2  | 25.5       | 14.3       | 15.0     | 2.0    | 33.0  | 100.0 |
| 1933                               |                                  |            |            |          |        |   |       | 9.9   | 24.8       | 13.3       | 15.4     | 1.3    | 35.3  | 100.0 |
| 1934                               | 13.3                             | 18.2       | 18.2       | 11.5     | 2.6    | 36.2  | 100.0 | 9.9   | 25.6       | 13.9       | 15.2     | 1.2    | 34.2  | 100.0 |
| 1936                               | 11.7                             | 18.7       | 15.8       | 14.4     | 3.3    | 36.1  | 100.0 | 9.9   | 22.4       | 15.6       | 17.0     | 0.9    | 34.2  | 100.0 |
| 1937                               |                                  |            |            |          |        |   |       | 9.9   | 18.5       | 16.5       | 10.6     | 0.7    | 43.8  | 100.0 |
| 1938                               |                                  |            |            |          |        |   |       |       |            |            |          |        |       |       |
| 1939                               |                                  |            |            |          |        |   |       |       |            |            |          |        |       |       |
| 1940                               |                                  |            |            |          |        |   |       |       |            |            |          |        |       |       |
| 1941                               |                                  |            |            |          |        |   |       |       |            |            |          |        |       |       |
| 1942                               |                                  |            |            |          |        |   |       |       |            |            |          |        |       |       |
| 1943                               |                                  |            |            |          |        |   |       |       |            |            |          |        |       |       |
| 1944                               |                                  |            |            |          |        |   |       |       |            |            |          |        |       |       |
| 1945                               |                                  |            |            |          |        |   |       |       |            |            |          |        |       |       |
| 1946                               |                                  |            |            |          |        |   |       |       |            |            |          |        |       |       |

TABLE C-5 (continued)

| Academic<br>Year<br>Ending<br>June | OFFICE OF EDUCATION <sup>a</sup> |            |            |          |        | JOURNAL OF ENGINEERING EDUCATION <sup>b</sup> |       |       |            |            |          |        |       |
|------------------------------------|----------------------------------|------------|------------|----------|--------|---|-------|-------|------------|------------|----------|--------|-------|
|                                    | Civil                            | Mechanical | Electrical | Chemical | Mining | Other   | Total | Civil | Mechanical | Electrical | Chemical | Mining | Other |
| 1947                               |                                  |            |            |          |        |   | 14.2  | 21.0  | 18.4       | 8.4        | 0.9      | 37.1   | 100.0 |
| 1948                               |                                  |            |            |          |        |   | 12.6  | 22.4  | 22.4       | 10.8       | 1.0      | 30.8   | 100.0 |
| 1949                               |                                  |            |            |          |        |   | 13.9  | 22.1  | 22.2       | 9.7        | 0.9      | 31.2   | 100.0 |
| 1950                               |                                  |            |            |          |        |   | 14.7  | 23.0  | 23.1       | 10.1       | 1.0      | 28.1   | 100.0 |
| 1951                               |                                  |            |            |          |        |   | 15.2  | 21.9  | 21.2       | 10.1       | 1.0      | 30.6   | 100.0 |
| 1952                               | 13.9                             | 20.6       | 20.2       | 8.8      | 0.7    | 35.8  | 100.0 |       |            |            |          |        |       |
| 1953                               |                                  |            |            |          |        |   | 14.1  | 20.7  | 20.7       | 9.5        | 0.7      | 34.3   | 100.0 |

<sup>a</sup> *Biennial Survey of Education*, Office of Education, 1920-1936; "Engineering Enrollments and Degrees, 1952," processed, Office of Education, Circular 364, January 21, 1953. The Office of Education did not publish data on engineering enrollments by field for the years 1938-1950.

<sup>b</sup> *Journal of Engineering*, annual statistics on enrollment, November 1932 to February 1954.

Note: For the years 1942 through 1953 enrollments were reported as of October or November of the preceding year. The figure for the year 1945 does not include graduate enrollments. The figures for the years 1939 through 1949, with the exception of 1943, and undergraduate enrollments in 1947, include enrollments in Canadian schools. For the years 1950-1954 enrollments are reported for ECPD accredited schools only.

TABLE C-6  
Total Degrees Awarded in Engineering in the United States, 1920-1953

| Academic<br>Year<br>Ending<br>June | FIRST DEGREES                                     |   |   | GRADUATE DEGREES              |   |                               |   |                               |   |   |
|------------------------------------|---|---|---|-------------------------------|---|-------------------------------|---|-------------------------------|---|---|
|                                    | (Baccalaureate and<br>First Professional Degrees) |   |   | Total Graduate Degrees        |   | Master's Degree               |   | Doctor's Degree               |   |   |
|                                    | Office of<br>Education<br>(1)                     | Bureau<br>of Labor<br>Statistics<br>(2) | Journal of<br>Engineering<br>Education<br>(3) | Office of<br>Education<br>(4) | Journal of<br>Engineering<br>Education<br>(5) | Office of<br>Education<br>(6) | Journal of<br>Engineering<br>Education<br>(7) | Office of<br>Education<br>(8) | Journal of<br>Engineering<br>Education<br>(9) | National<br>Science<br>Foundation<br>(10) |
| 1920                               | 4,400   | 5,000                                   | ...   | 207                           | ...   | 206                           | ...   | 1                             | ...   | 5   |
| 1921                               | ...   | 6,100                                   | ...   | ...                           | ...   | ...                           | ...   | ...                           | ...   | 1   |
| 1922                               | 6,823   | 7,500                                   | ...   | 350                           | ...   | 348                           | ...   | 2                             | ...   | 4   |
| 1923                               | ...   | 7,700                                   | ...   | ...                           | ...   | ...                           | ...   | ...                           | ...   | 5   |
| 1924                               | 7,470   | 8,000                                   | ...   | 315                           | ...   | 315                           | ...   | ...                           | ...   | 5   |
| 1925                               | ...   | 7,800                                   | ...   | ...                           | ...   | ...                           | ...   | ...                           | ...   | 2   |
| 1926                               | 7,389   | 7,600                                   | ...   | 632                           | ...   | 631                           | ...   | 1                             | ...   | 11  |
| 1927                               | ...   | 7,800                                   | ...   | ...                           | ...   | ...                           | ...   | ...                           | ...   | 10  |
| 1928                               | 7,633   | 7,900                                   | ...   | 785                           | ...   | 771                           | ...   | 14                            | ...   | 28  |
| 1929                               | ...   | 7,800                                   | ...   | ...                           | ...   | ...                           | ...   | ...                           | ...   | 34  |
| 1930                               | 7,395   | 7,700                                   | ...   | 813                           | ...   | 811                           | ...   | 2                             | ...   | 49  |
| 1931                               | ...   | 9,200                                   | ...   | ...                           | ...   | ...                           | ...   | ...                           | ...   | 25  |
| 1932                               | 10,374  | 10,700                                  | ...   | 1,630                         | ...   | 1,514                         | ...   | 116                           | ...   | 47  |
| 1933                               | ...   | 11,300                                  | ...   | ...                           | ...   | ...                           | ...   | ...                           | ...   | 75  |
| 1934                               | 11,419  | 12,000                                  | ...   | 1,394                         | ...   | 1,259                         | ...   | 135                           | ...   | 97  |
| 1935                               | ...   | 11,600                                  | ...   | ...                           | ...   | ...                           | ...   | ...                           | ...   | 63  |
| 1936                               | 10,629  | 11,200                                  | 8,847   | 1,280                         | 817   | 1,169                         | 735   | 111                           | 82  | 48  |
| 1937                               | ...   | 11,400                                  | 7,881   | ...                           | 1,184   | ...                           | 1,058   | ...                           | 126   | 70  |
| 1938                               | 11,039  | 11,600                                  | 8,245   | 1,261                         | 1,248   | 1,117                         | 1,156   | 144                           | 92  | 59  |
| 1939                               | ...   | 13,300                                  | 8,697   | ...                           | 1,316   | ...                           | 1,219   | ...                           | 97  | 44  |



TABLE C-6 (continued)

|      | (1)    | (2)    | (3)    | (4)   | (5)   | (6)   | (7)   | (8) | (9) | (10) |
|------|--------|--------|--------|-------|-------|-------|-------|-----|-----|------|
| 1940 | 14,348 | 15,100 | 12,408 | 1,460 | 1,426 | 1,336 | 1,318 | 124 | 108 | 77   |
| 1941 | ...    | 15,200 | 11,358 | ...   | 1,532 | ...   | 1,358 | ... | 174 | 76   |
| 1942 | 15,519 | 16,000 | 12,709 | 1,172 | ...   | 1,043 | ...   | 129 | ... | 47   |
| 1943 | ...    | 15,300 | ...    | ...   | 721   | ...   | 637   | ... | 84  | 22   |
| 1944 | 12,785 | 13,500 | 14,145 | 762   | 623   | 681   | 529   | 81  | 94  | 30   |
| 1945 | ...    | 8,500  | 4,190  | ...   | 519   | ...   | 450   | ... | 69  | 37   |
| 1946 | ...    | 11,500 | 7,881  | ...   | 1,072 | ...   | 988   | ... | 84  | 89   |
| 1947 | ...    | 21,000 | 18,592 | ...   | 3,217 | ...   | 3,090 | ... | 127 | 94   |
| 1948 | 31,096 | 32,000 | 27,391 | ...   | 4,555 | ...   | 4,303 | ... | 252 | 257  |
| 1949 | ...    | 44,000 | 41,793 | 5,007 | 5,200 | 4,647 | 4,783 | 360 | 417 | 360  |
| 1950 | 52,246 | 47,000 | 48,160 | 4,913 | 5,357 | 4,496 | 4,865 | 417 | 492 | 417  |
| 1951 | ...    | 36,000 | 37,887 | ...   | 5,720 | ...   | 5,134 | ... | 586 | 520  |
| 1952 | 30,286 | 29,000 | 27,051 | 4,727 | 4,718 | 4,141 | 4,132 | 586 | 586 | 529  |
| 1953 | ...    | ...    | 21,556 | ...   | 4,318 | ...   | 3,726 | ... | 592 | 518  |

Column

Source

1, 4, 6, *Biennial Surveys of Education*, Office of Education, 1920-1942, "Earned Degrees Conferred by Higher Educational Institutions, 1949-1950," processed, Office of Education, Circular 282, December 1950.

8 "Engineering Enrollments and Degrees, 1952," processed, Office of Education, Circular 364, January 21, 1953.

For the years 1920-1936 figures on degrees awarded were obtained by totalling the number of degrees reported by specified fields for each of these years in the biennial surveys.

The classification of schools for the period covered changed as indicated in note to Table C-2.

Separate data for engineering degrees conferred by arts and science schools were reported in the biennial surveys of 1934-1944. However, the surveys of 1940 and 1942 did not include the number of such degrees in their total figures of engineering degrees awarded for those years. They are included in this table.

2 *Employment Outlook for Engineers*, Bureau of Labor Statistics, Bull. 968, 1949, Appendix D, Table D-3.

Estimates for years 1920-1949 are based on an adjustment for schools not reporting each year. Figures for years 1950-1952 are forecasts of BLS based on enrollments for the academic year 1948-1949 published in the *Journal of Engineering Education*, February 1949.

3, 5, 7, *Journal of Engineering Education*, annual statistics on engineering enrollments and graduates, December 1935 to February 1954.

9 For the years 1949-1954 the number of engineering degrees were reported for ECPD accredited schools only.

10 "Scientific Personnel Resources," processed, National Science Foundation, May 1954, Table No. IV-76.

## APPENDIX C

TABLE C-7

First Degrees in Engineering, by Field, 1920-1952, Percentage Distribution

| <i>Academic<br/>Year End-<br/>ing June</i>          | <i>Civil</i> | <i>Mechanical</i> | <i>Electrical</i> | <i>Chemical</i> | <i>Mining</i> | <i>General</i> | <i>Other</i> | <i>Total</i> |
|---|--------------|-------------------|-------------------|-----------------|---------------|----------------|--------------|--------------|
| <i>Office of Education<sup>a</sup></i>              |              |                   |                   |                 |               |                |              |              |
| 1920  | 24.8         | 28.1              | 21.2              | 16.6            | 6.2           | 3.1            | ...          | 100.0        |
| 1922  | 23.7         | 24.5              | 21.8              | 14.8            | 6.8           | 8.4            | ...          | 100.0        |
| 1924  | 23.4         | 27.5              | 27.4              | 11.2            | 6.7           | 3.8            | ...          | 100.0        |
| 1926  | 25.3         | 24.5              | 30.4              | 10.0            | 5.5           | 4.3            | ...          | 100.0        |
| 1928  | 24.6         | 21.2              | 33.6              | 9.2             | 3.7           | 7.7            | ...          | 100.0        |
| 1930  | 26.7         | 22.6              | 32.8              | 11.1            | 3.2           | 3.6            | ...          | 100.0        |
| 1932  | 20.2         | 20.1              | 23.9              | 11.1            | 4.4           | ...            | 20.3         | 100.0        |
| 1934  | 19.0         | 22.9              | 23.9              | 12.7            | 2.8           | ...            | 18.7         | 100.0        |
| 1936  | 18.2         | 22.9              | 20.5              | 16.1            | 3.5           | ...            | 18.8         | 100.0        |
| 1950  | 14.9         | 27.6              | 25.4              | 8.6             | ...           | ...            | 23.5         | 100.0        |
| 1952  | 17.7         | 25.1              | 21.0              | 9.4             | 1.4           | ...            | 25.4         | 100.0        |
| <i>Journal of Engineering Education<sup>b</sup></i> |              |                   |                   |                 |               |                |              |              |
| 1935  | 18.0         | 22.2              | 23.6              | 14.6            | 3.4           | ...            | 18.2         | 100.0        |
| 1938  | 17.5         | 21.4              | 19.6              | 17.6            | 2.5           | ...            | 21.4         | 100.0        |
| 1941  | 10.9         | 27.5              | 18.8              | 18.2            | 2.4           | ...            | 22.2         | 100.0        |
| 1942  |              |                   |                   |                 |               |                |              |              |
| 1943  | 12.0         | 29.6              | 16.4              | 18.4            | 1.9           | ...            | 21.7         | 100.0        |
| 1944  | 13.3         | 30.2              | 18.4              | 20.3            | 1.4           | ...            | 16.4         | 100.0        |
| 1945  | 13.6         | 29.0              | 18.1              | 16.3            | 1.3           | ...            | 21.7         | 100.0        |
| 1946  | 15.2         | 24.6              | 18.4              | 17.4            | 0.8           | ...            | 23.6         | 100.0        |
| 1947  | 13.4         | 30.3              | 19.0              | 13.3            | 1.2           | ...            | 22.8         | 100.0        |
| 1948  | 11.1         | 27.8              | 22.0              | 11.3            | 1.0           | ...            | 26.8         | 100.0        |
| 1949  | 14.6         | 27.8              | 24.7              | 9.9             | 0.9           | ...            | 22.1         | 100.0        |
| 1950  | 15.2         | 27.1              | 27.7              | 9.2             | 0.9           | ...            | 19.9         | 100.0        |
| 1951  | 17.1         | 25.4              | 22.7              | 9.5             | 1.2           | ...            | 24.1         | 100.0        |
| 1952  | 18.1         | 25.1              | 21.6              | 10.1            | 1.4           | ...            | 23.7         | 100.0        |

<sup>a</sup> *Biennial Surveys of Education*, Office of Education, 1920-1936; "Earned Degrees Conferred by Higher Educational Institutions, 1949-1950," processed, Office of Education, Circular 282, December 1950, "Engineering Enrollments and Degrees, 1952," processed, Office of Education, Circular 364, January 21, 1953.

<sup>b</sup> *Journal of Engineering Education*, annual statistics on engineering enrollments and graduates, December 1935 to February 1953. The years 1941, 1942, and 1944-1947 include schools in Canada; the data for years 1949-1953 are limited to ECPD accredited schools only.

APPENDIX C

TABLE C-8

Graduate Degrees in Engineering by Field, 1920-1952,  
Percentage Distribution

| <i>Academic<br/>Year End-<br/>ing June</i> | <i>Civil</i> | <i>Mechanical</i> | <i>Electrical</i> | <i>Chemical</i> | <i>Mining</i> | <i>Other</i> | <i>Total</i> |
|--|--------------|-------------------|-------------------|-----------------|---------------|--------------|--------------|
| <i>Office of Education</i>                 |              |                   |                   |                 |               |              |              |
| 1920                                       | 32.9         | 18.8              | 15.9              | 6.3             | 2.9           | 23.2         | 100.0        |
| 1922                                       | 23.1         | 19.7              | 16.3              | 9.2             | 5.7           | 26.0         | 100.0        |
| 1924                                       | 17.1         | 19.1              | 15.2              | 5.4             | 8.3           | 34.9         | 100.0        |
| 1926                                       | 17.8         | 10.0              | 13.0              | 2.4             | 1.6           | 55.2         | 100.0        |
| 1928                                       | 13.6         | 9.7               | 8.7               | 3.1             | 2.5           | 62.4         | 100.0        |
| 1930                                       | 12.7         | 8.7               | 9.1               | 2.3             | 2.7           | 64.5         | 100.0        |
| 1932                                       | 20.3         | 14.8              | 21.5              | 14.8            | 5.0           | 23.6         | 100.0        |
| 1934                                       | 14.7         | 17.5              | 20.2              | 13.8            | 3.1           | 30.7         | 100.0        |
| 1936                                       | 17.5         | 14.6              | 17.8              | 18.4            | 3.2           | 28.5         | 100.0        |
| 1950                                       | 14.6         | 16.9              | 23.1              | 17.8            | n.a.          | 27.6         | 100.0        |
| <i>Journal of Engineering Education</i>    |              |                   |                   |                 |               |              |              |
| 1940                                       | 21.5         | 12.3              | 16.3              | 25.0            | 2.2           | 22.7         | 100.0        |
| 1941                                       | 17.1         | 12.1              | 15.0              | 29.6            | 1.5           | 24.7         | 100.0        |
| 1942                                       |              |                   |                   |                 |               |              |              |
| 1943                                       | 15.6         | 16.4              | 10.5              | 25.8            | 1.8           | 29.9         | 100.0        |
| 1944                                       |              |                   |                   |                 |               |              |              |
| 1945                                       | 11.1         | 16.5              | 14.1              | 24.0            | 1.5           | 32.8         | 100.0        |
| 1946                                       | 13.0         | 16.1              | 17.4              | 21.1            | 2.9           | 29.5         | 100.0        |
| 1947                                       | 20.8         | 15.9              | 17.7              | 21.7            | 1.4           | 22.5         | 100.0        |
| 1948                                       | 20.6         | 14.9              | 19.6              | 19.6            | 0.9           | 24.4         | 100.0        |
| 1950                                       | 14.0         | 16.3              | 23.3              | 16.6            | 0.7           | 29.1         | 100.0        |
| 1951                                       | 12.7         | 18.2              | 22.6              | 16.0            | 0.8           | 29.7         | 100.0        |
| 1952                                       | 13.3         | 15.1              | 24.1              | 14.8            | 0.7           | 31.9         | 100.0        |

Source: Same as in Table C-7.