

Arrangement of industrial-research expenditures by size group based on annual sales of research-active firms shows that the larger firms accounted for the major part of the expenditures—firms with annual sales in excess of \$50,000,000—although this size group included only 14 p.c. of the firms maintaining research establishments.

3.—Research-Development Expenditures by Size Group 1955

Size Group ¹	Firms	Research-Development Cost	Percentage of Total
	No.	\$	
\$50,000,000 or over.....	52	42,723,889	64.85
\$10,000,000 to \$49,999,999.....	92	13,773,730	20.91
\$ 1,000,000 to \$ 9,999,999.....	199	8,572,856	13.01
Under \$1,000,000.....	34	815,140	1.23
Totals.....	377	65,885,615	100.00

¹ Based on annual sales value in 1955.

During 1955 the equivalent of 2,914 professionally trained scientists were employed on research-development projects. The three top industrial groups, in terms of numbers of professionally trained employees, were electrical apparatus and supplies, transportation equipment and chemical products, which together accounted for 58 p.c. of the total professional employment in the research field.

Classification of the professional scientists by field of research and degree of training reveals that in all phases of engineering research there is a greater predominance of professional employees with bachelor degrees. On the other hand, chemists, physicists, geologists and other earth scientists and biological scientists, although predominantly trained to the bachelor level, have a greater percentage of professional employees with master or doctorate degrees than in the engineering field or in the over-all pattern.

4.—Professional Research-Development Scientists Employed, by Field and Level of Training 1955

Field of Profession	Level of Training			Total
	Bachelor	Master	Doctorate	
	No.	No.	No.	No.
Chemical engineer.....	345	52	48	445
Civil engineer.....	27	5	1	33
Electrical engineer.....	416	57	9	482
Mechanical engineer.....	416	21	7	444
Other engineer.....	220	22	10	252
Chemist.....	392	120	203	715
Physicist.....	82	28	33	143
Geologist, geophysicist and other earth scientist.....	19	6	8	33
Metallurgist.....	129	16	18	163
Mathematician.....	20	3	2	25
Medical scientist.....	3	3	67	73
Agricultural scientist.....	15	4	3	22
Biological scientist.....	18	3	7	28
Unclassified and other.....	52	1	3	56
Totals.....	2,154	341	419	2,914