

R E P O R T R E S U M E S

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ENGINEERING MANPOWER COMMISSION, NEW YORK, N.Y.

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THE COMMISSION'S PROGRAM, SUPPORTED LARGELY BY CONTRIBUTIONS FROM INDUSTRY, CONSISTS OF (1) COLLECTION, ANALYSIS, AND PUBLICATION OF SIGNIFICANT DATA ON ENGINEERING MANPOWER, (2) COOPERATION WITH THE MILITARY TO ASSURE UTILIZATION OF CRITICAL MANPOWER IN THE BEST NATIONAL INTEREST, AND (3) COMMUNICATION WITH THE PUBLIC ON MATTERS OF THE IMPORTANCE OF ENGINEERING TO THE NATIONAL WELFARE. REPRESENTED AMONG THE COMMISSIONERS FOR 1967 ARE 24 PROFESSIONAL SOCIETIES. GENERAL OPERATIONS FOR THE 1967 YEAR ARE EXPLAINED. IN THE SECTION ENTITLED "PROMOTING THE EFFECTIVE UTILIZATION OF ENGINEERS IN THE NATIONAL INTEREST," DISCUSSED ARE ACTIVITIES OF EMC RELATIVE TO (1) COMMISSION INFLUENCE RELATIVE TO CHANGES IN THE DRAFT LAW, (2) MILITARY MANPOWER DEVELOPMENT BULLETINS, (3) WORKSHOPS ON SELECTIVE SERVICE PROBLEMS, AND (4) CONTACTS WITH, AND SERVICES TO, OTHER ORGANIZATIONS. UNDER THE HEADING "DEVELOPING AND EVALUATING INFORMATION ON THE SUPPLY, DEMAND, AND COMPENSATION OF ENGINEERS," THE 1967 SURVEYS ARE BRIEFLY REVIEWED. THEY ARE (1) PROFESSIONAL INCOME OF ENGINEERS, 1966-1967, (2) SPECIAL SALARY REPORTS, (3) SALARIES AND INCOME OF ENGINEERING TEACHERS, 1966, (4) PROSPECTS OF ENGINEERING GRADUATES, 1967, (5) TRENDS IN ENGINEERING TECHNICIAN ENROLLMENTS AND GRADUATES, AND (6) ENGINEERING AND TECHNICIAN ENROLLMENTS, 1967. DISCUSSED UNDER THE HEADING "ESTABLISHING PUBLIC UNDERSTANDING OF ENGINEERING AND ITS IMPORTANCE TO THE NATIONAL ECONOMY" ARE (1) THE FOUR ENGINEERING MANPOWER BULLETINS, (2) THE 11 ISSUES OF SCIENTIFIC-ENGINEERING-TECHNICAL MANPOWER COMMENTS, (3) ARTICLES IN PUBLIC MEDIA, (4) JOURNALS IN WHICH EMC MATERIALS APPEARED, (4) CAREER GUIDANCE INFORMATION, (5) THE JUNIOR ENGINEERING TECHNICAL SOCIETY, (6) CONGRESSIONAL, GOVERNMENTAL, CIVIC, PROFESSIONAL AND EDUCATIONAL GROUPS, AND (7) COOPERATION WITH INTERNATIONAL GROUPS. THIS DOCUMENT IS ALSO AVAILABLE FROM THE ENGINEERING MANPOWER COMMISSION, 345 EAST 47TH STREET, NEW YORK, NEW YORK 10017. (DH)



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# ANNUAL REPORT 1967

**ENGINEERING MANPOWER COMMISSION**  
of Engineers Joint Council

345 East 47th Street  
New York, New York 10017

February 1968

664 499  
SE004 499

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## **Introduction**

The Engineering Manpower Commission was organized in 1951 as part of Engineers Joint Council. Its Commissioners in 1967 represented twenty-four professional engineering societies. The Commission serves as a focus for action on national technological manpower problems. Commissioners are appointed because of their professional standing and experience in education, industry, and government.

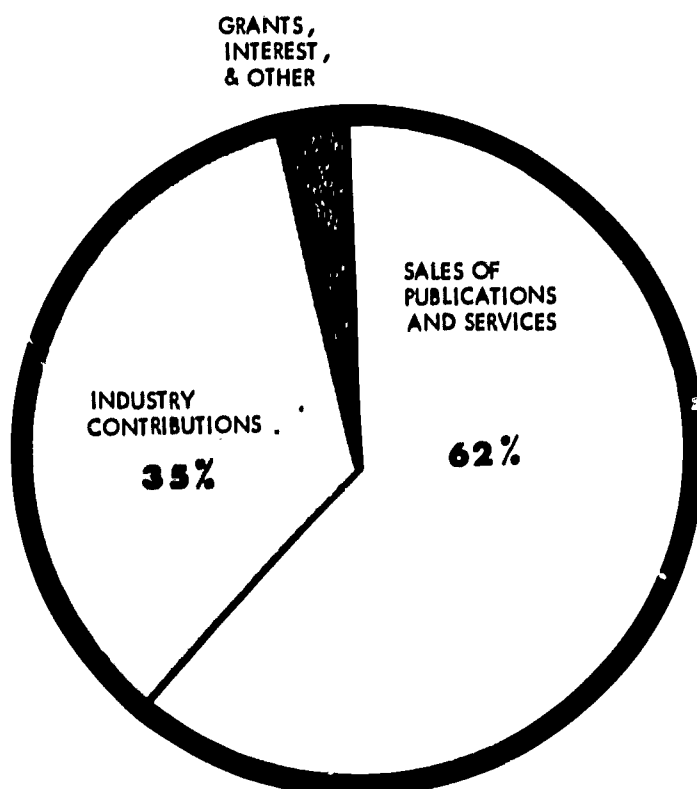
The Commission's program is carried out through the collection, analysis, and publication of significant data on engineering manpower, cooperation with Selective Service and military officials to assure the utilization of critical manpower in the national interest, and the development of programs and policies designed to acquaint the public with the importance of engineering to the national welfare.

The Engineering Manpower Commission maintains a close working liaison with its counterpart among the scientific societies, the Scientific Manpower Commission. In areas of mutual concern, joint programs are carried out.

Both the Engineering and the Scientific Manpower Commissions are supported in substantial part by contributions from industry, obtained by a joint annual campaign for funds.

## General Operations

The Engineering Manpower Commission started 1967 with a planned budget of \$83,300. During the year it was decided that the Commission's activities should be expanded by the publication of a series of special salary reports tailored to meet the specialized needs of industrial employers. Several other projects were undertaken which had not been specifically budgeted, because it was apparent that the interests of the engineering community and the public required immediate action. To support these new activities, a major campaign was carried out to broaden the base of EMC's industry contributions. This succeeded in adding 36 new supporters to our roster.



The major increase in income, however, came from increased sales of publications and services. This source, which provided 48% of our income in 1966, was raised to 62% in 1967. The additional income went directly into providing additional services and publications during the year, as well as making up last year's deficit. All areas of EMC's work saw increased activity. As a measure of such activity, more than 1,700 letters were written and 1,400 telephone calls handled during the year.

The full Commission met five times in 1967. The January meeting, held at the United Engineering Center, featured a talk by Mr. Frank Coss on the supply and demand situation and its effect on the recruitment of engineers.

In March the College Placement Council gave an on-line demonstration of its GRAD system for matching applicants with job openings. Representatives from the EJC member societies were invited to be present.

For May, EMC hosted the annual joint meeting with the Scientific Manpower Commission at the Biltmore Hotel. Four distinguished speakers discussed areas where the scientific and engineering community faced critical problems in its relationships with society and with the natural environment. The proceedings of this meeting were published as a special report "Critical Interfaces for Engineers and Scientists."

The September meeting was devoted to an address by General Lewis B. Hershey on changes in the draft picture brought about by the Military Selective Service Act of 1967. This meeting was opened to interested individuals from companies, educational institutions, and professional societies connected with EMC activities, and 95 people attended.

In December the Commission met at the Engineers' Club for informal discussions with a Department of Defense official on the problems of improving the utilization of technical manpower in the military services.

The 1966 Commissioners and officers were all asked to serve an additional year to assure continuity in the program during implementation of changes in the constitution and organization of Engineers Joint Council. The only changes in membership for 1967 were replacements for Commissioners who resigned during the year.

Our activities in 1967 demonstrated that an increased level of service not only was desired by the engineering community but also could be supported by the increased income it brought in. Further expansion of the Commission's program will be the subject of special attention in the coming year.

# Promoting the Effective Utilization of Engineers in the National Interest

## 1. SELECTIVE SERVICE AND MILITARY

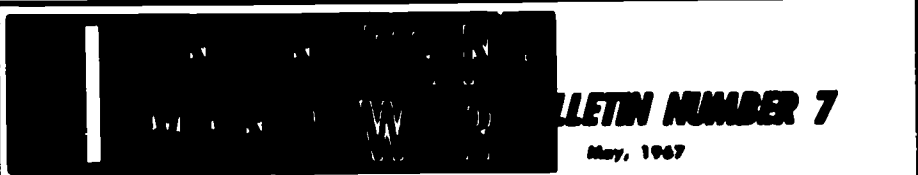
Changes in the draft law were responsible for an expansion of activities in this area in 1967. Draft calls, although lower than in 1966, continued to produce manpower problems for many employers and educators. The Engineering Manpower Commission staff provided advice and assistance in several hundred cases, and also was invited to testify before the House Committee on Armed Services in connection with the new legislation.

Because of widespread charges of inequity in the draft, both the House and the Senate passed bills in which there was no longer any provision for occupational deferments. EMC took the position that this nation's strength is dependent upon its superior utilization of technology to offset the greater resources of raw manpower available to other countries, and that failure to utilize our scarce supply of technical manpower to meet both military and essential civilian needs would be detrimental to the national interest. Provision for occupational deferments, under greatly tightened rules, was restored to the Military Selective Service Act of 1967 by last-minute action of a joint Senate-House committee. EMC has continued its liaison with all government agencies responsible for implementation of the new law.

Our handbook "Selective Service and Military Policies on Classification, Deferment, and Delay" was completely revised on the basis of the 1967 law and published in its third edition in October.

Because of the continued importance of keeping employers and educators informed on the rapidly changing military situation, our Subscription Service on Selective Service and Military Manpower Developments was continued for another year. As of the end of the year 35 releases had been mailed to over 350 subscribers. Complimentary subscriptions also went to all our industrial supporters and EJC member societies.

Workshops on Selective Service problems and procedures were held jointly with the Scientific Manpower Commission in Dallas, San Francisco, and Chicago during January. Additional workshops may be held when the new draft provisions have been fully clarified, if it appears that there is sufficient demand for them.



**BULLETIN NUMBER 7**

May, 1967

*This is the seventh in a series of Bulletins designed for leaders in industry, government, and education, whose responsibility includes an awareness of developments in engineering manpower. The Bulletins attempt to present important data or significant trends within the confines of a document which can be read quickly. In this issue we report the results of a survey just con-*

*ducted by the Engineering Manpower Commission of Engineers Joint Council among employers who are particularly involved in manpower problems related to the draft.*

**JOHN D. ALDEN, Executive Secretary  
Engineering Manpower Commission  
of Engineers Joint Council**

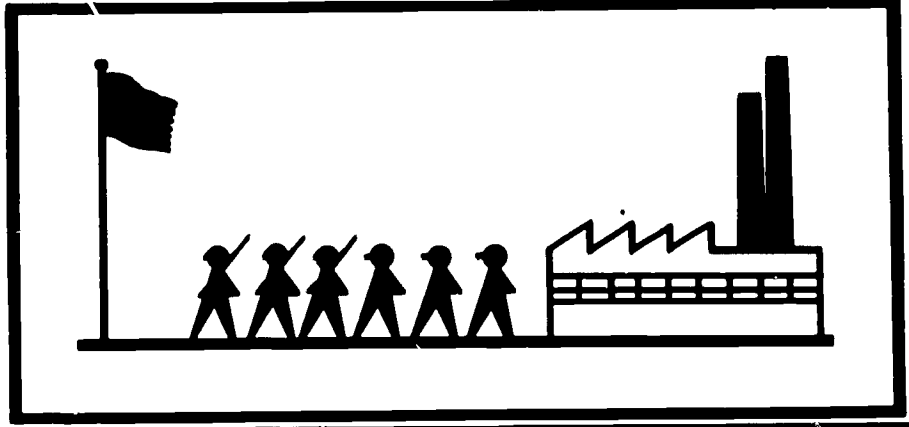
**New Changes in The Draft Will Affect Employers**

The Engineering Manpower Commission of Engineers Joint Council was founded in 1950 to help resolve manpower problems brought about by the Korean conflict. Since then EMC has maintained close touch with the Selective Service System and military on the one hand and employers on the other to keep aware of potential problems and to assist in solving them when they become real.

With the increased involvement in Vietnam, military manpower problems have inevitably arisen again. In 1965 EMC published its popular handbook, *Classification, Deferment, and Delay*, and released *Employer's Inventory of Critical Manpower*, for the purpose of alerting employers to the Selective Service procedures for deferring essential

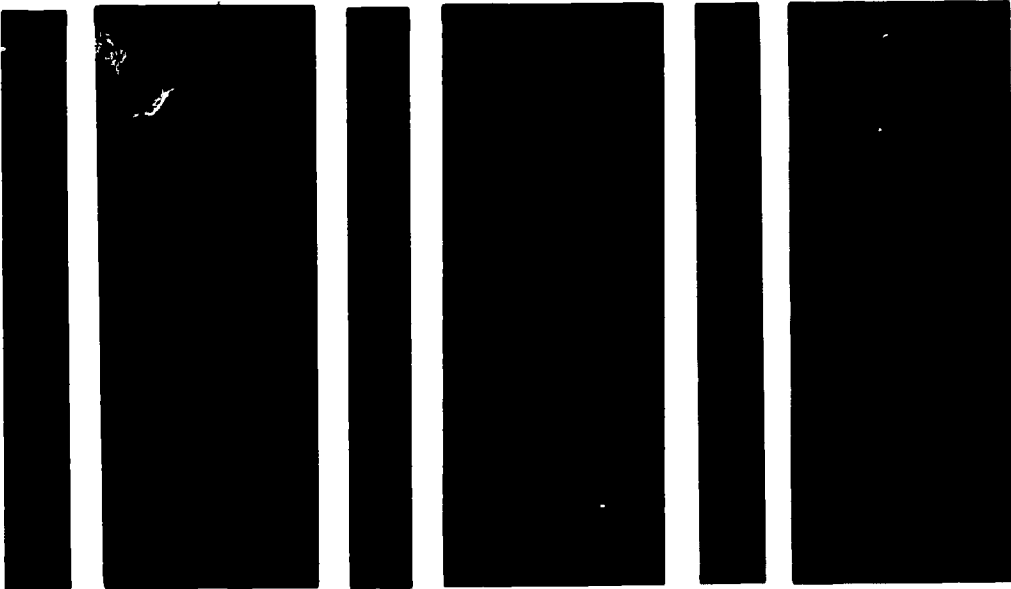
personnel in the national interest. In mid-1966 a subscription service on Selective Service and military manpower developments was started. Then in late 1966 and January 1967 EMC, in conjunction with its counterpart the Scientific Manpower Commission, conducted a series of employer's workshops on draft problems in which top officials of state and national Selective Service headquarters participated.

When proposals for major changes in the Selective Service System began to be seriously considered, it was apparent that EMC was in touch with a unique group of employer representatives; men and women who know the Selective Service System in detail and had first-hand ex-



selective service and military policies on

**CLASSIFICATION,  
DEFERMENT,  
AND DELAY**



a handbook published by the  
**ENGINEERING MANPOWER COMMISSION**  
of Engineers Joint Council

THIRD EDITION



The Commission also has maintained contact with the Department of Defense to explore ways in which the utilization of technical manpower might be improved. A study was made of the number of engineering graduates currently serving in the armed forces, and the results were published as Engineering Manpower Bulletin Number 9. This revealed that about 38,000 engineers were on active duty, and that an imbalance existed between the numbers needed at various degree levels and those actually on board.

## 2. CONTACTS WITH OTHER GROUPS

The Executive Secretary of the Engineering Manpower Commission was invited in April to speak to the U. S. Department of Labor Committee on Specialized Personnel on the subject of the demand for engineers and technicians as measured by the EMC survey. He also visited the U. S. Office of Education and the Office of the Assistant Secretary of Defense for Manpower, and attended the National Service Conference on matters related to the utilization of engineers.

Following continued discussions with the College Placement Council, EMC arranged a demonstration of that organization's computerized job matching service, GRAD, to the engineering societies. At this time CPC offered to open its system to all engineering society members of full professional standing, whether or not they were otherwise eligible to participate through their local college placement office. In November the Commission asked its parent organization, EJC, to accept this offer on behalf of all society members. In addition to providing a useful service to individual engineers, EMC felt that the GRAD system could improve manpower utilization by reducing time lost in recruiting and job seeking during periods of employment transition.



# Developing and Evaluating Information on the Supply, Demand, and Compensation of Engineers

1967 survey activities dealt with several new areas in addition to a continuation of EMC's regular series of surveys. The following work was accomplished:

## 1. PROFESSIONAL INCOME OF ENGINEERS -- 1966-67

This report was published in June as the seventh in the series started in 1951.

## 2. SPECIAL SALARY REPORTS

Additional computer analysis was made of the data received in the 1966 survey, leading to detailed reports for the aerospace, chemical, consulting, electrical, machinery, mining and petroleum, research, and utilities industries. Another breakdown was made by geographical region. The results of these analyses were published experimentally as a series of nine special reports. Reception by employers has been most encouraging, and a continuation of this type of report is planned for 1968.

## 3. SALARIES AND INCOME OF ENGINEERING TEACHERS -- 1966

This report is being prepared under a grant from the National Science Foundation. Dr. Harold A. Foecke, Dean of Engineering at Gonzaga University, has been retained to write the report, which will be published as soon as possible.

## 4. PROSPECTS OF ENGINEERING GRADUATES -- 1967

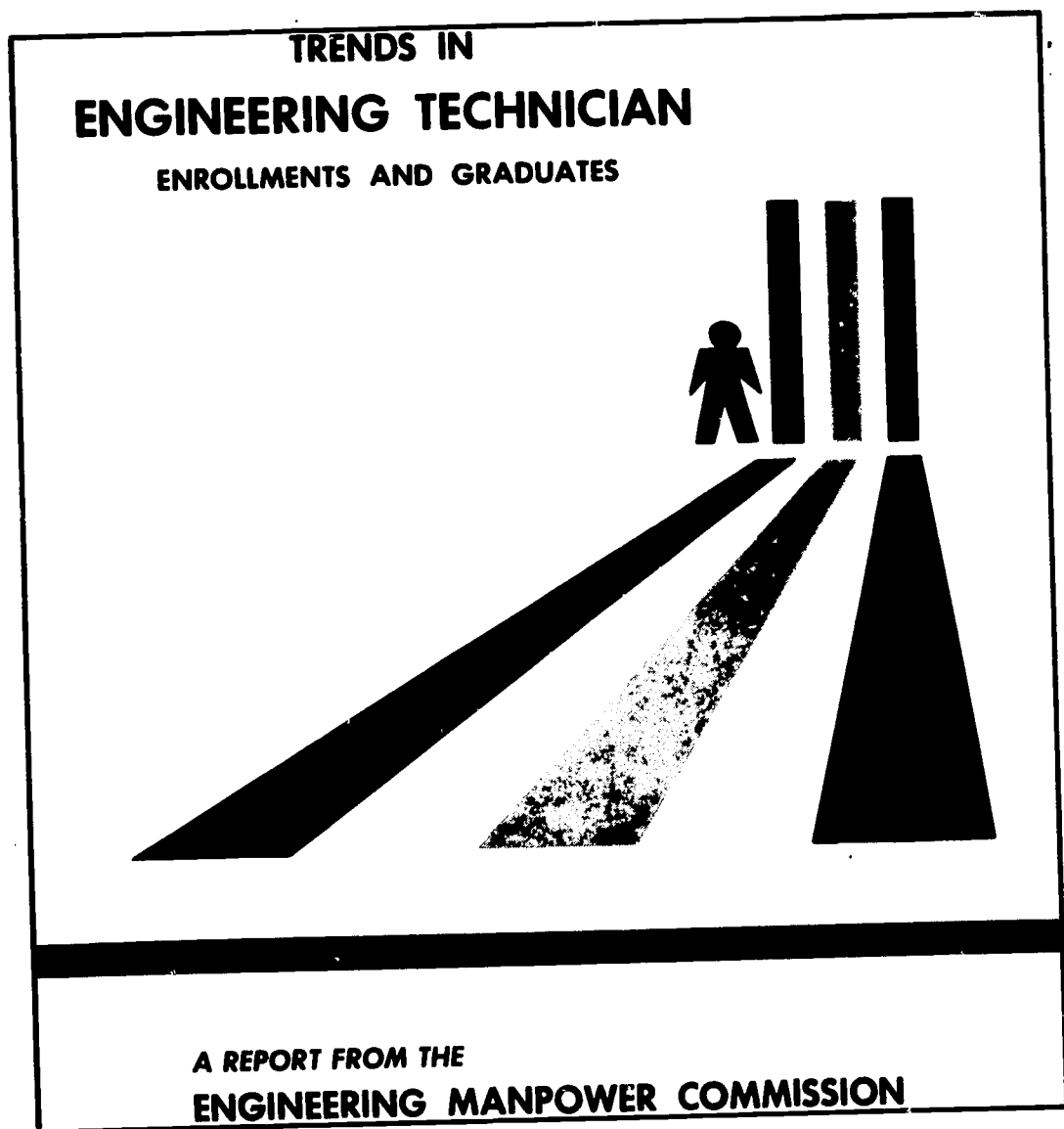
The regular placement survey was expanded somewhat to include graduates of associate and bachelor's degree programs in engineering technology, and to obtain an estimate of the June graduating class. The report was published in October. It revealed that the proportion of graduates going directly on to advanced degree studies had leveled off at about 25%, as was suspected in the 1966 survey. The report also showed that graduates in engineering and technology were enjoying an unprecedented demand for their services.

## 5. TRENDS IN ENGINEERING TECHNICIAN ENROLLMENTS AND GRADUATES

This publication, issued in July, reported the results of our survey for 1965-66 and 1966-67 plus several chapters of analysis of trends in this field of education. It has helped to bring this rapidly growing subject into better focus for employers and educators alike.

## 6. ENGINEERING AND TECHNICIAN ENROLLMENTS, FALL 1967

On being informed that the U. S. Office of Education would no longer provide the annual reports of engineering enrollments and degrees it had been publishing since 1945, the Engineering Manpower Commission authorized a special survey of engineering and technician enrollments in September and degrees in June. The enrollment survey was completed in December and results will be published in January 1968.

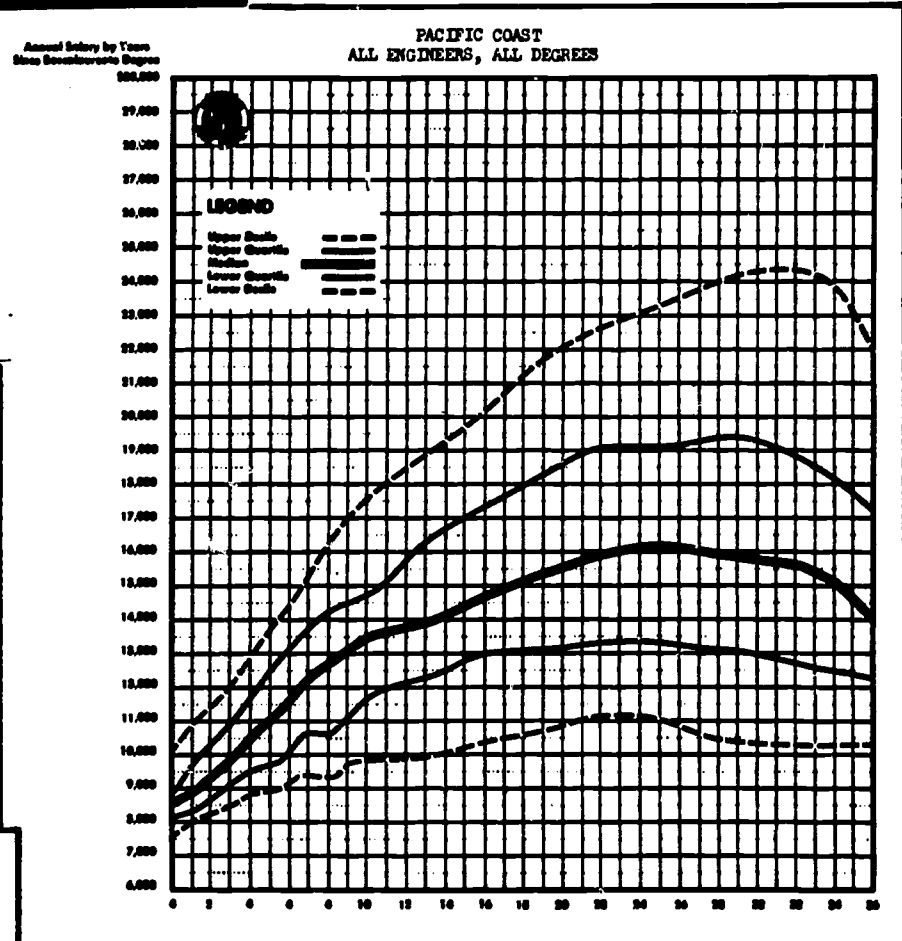


Results of 1966-67 Technician Enrollment Survey

Type of Institution and Curriculum	Full-Time Students			Part-Time Students			All Students		
	Fall Term 1966 Enrollments		Graduating 1966-67 (Estimated)	Fall Term 1966 Enrollments		Graduating 1966-67 (Estimated)	Fall Term 1966 Enrollments		Graduating 1966-67 (Estimated)
	New	Total		New	Total		New	Total	
<b><u>ECPD Accredited</u></b>									
Engineering Tech.	10,148	19,639	5,808	1,620	4,865	336	11,768	24,504	6,144
Industrial Tech.	2,211	4,055	1,679	1,803	2,907	382	3,294	6,962	2,061
<b><u>Non-Accredited</u></b>									
Engineering Tech.	18,401	32,953	8,616	9,977	22,359	1,685	28,378	55,312	10,301
Industrial Tech.	12,655	22,958	8,389	5,988	13,280	3,302	18,643	36,238	11,691
<b><u>All Institutions</u></b>									
Engineering Tech.	28,549	52,592	14,424	11,597	27,224	2,021	40,146	79,816	16,445
Industrial Tech.	14,866	27,013	10,068	7,071	16,187	3,684	21,937	43,200	13,752

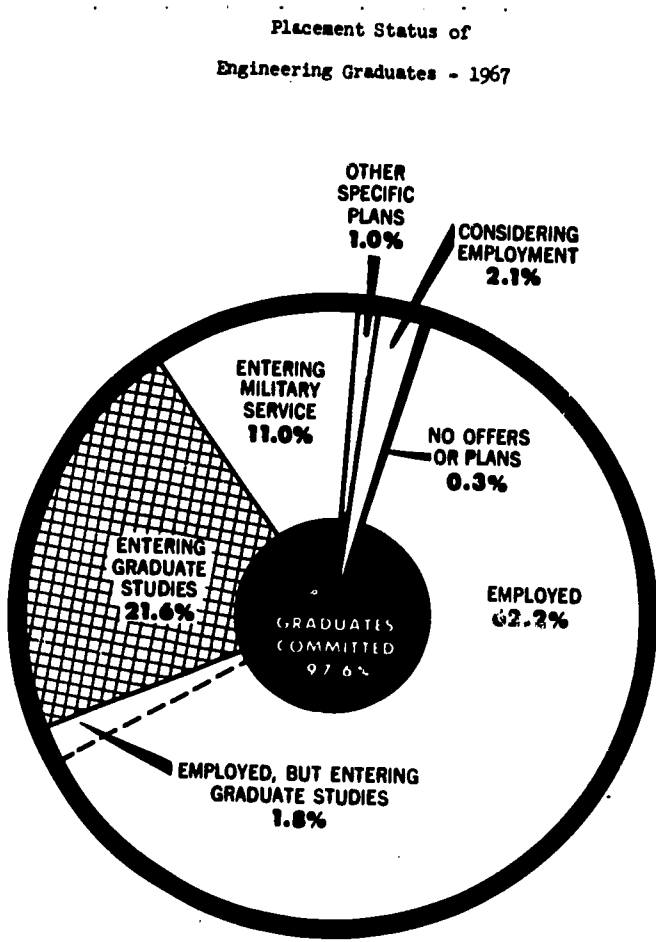
**ENGINEERING  
SALARIES**

**SPECIAL  
INDUSTRY  
REPORT**



**Prospects of  
Engineering  
Graduates  
1967**

a survey conducted by the  
**ENGINEERING MANPOWER COMMISSION  
OF ENGINEERS JOINT COUNCIL**



# Establishing Public Understanding of Engineering and Its Importance to the National Economy

## 1. ENGINEERING MANPOWER BULLETIN

Bulletin 6, issued in April, was a detailed analysis of the prospective supply of engineering graduates to 1974. This bulletin was so much in demand that two reprints have been necessary.

Bulletin 7 in May reported the findings of a survey of the anticipated impact of the draft on industry and educational institutions. The results were also furnished to congressional and other groups concerned with Selective Service policies.

Bulletin 8 was released in September with figures on the June graduating class. An interesting finding was that 21% of engineering degrees are apparently awarded at other times than June.

Bulletin 9 of December reported on engineers in the armed services. Based on official Department of Defense statistics, it revealed that there are 38,000 graduate engineers in uniform --- more than an entire year's graduating class and about 6% of the entire profession. Despite these large numbers, the services reported a shortage of men with graduate degrees needed to fill specialized engineering needs in the armed forces.

## 2. SCIENTIFIC-ENGINEERING-TECHNICAL MANPOWER COMMENTS

This publication is prepared by the Scientific Manpower Commission staff on behalf of both Commissions. Eleven regular issues were published in 1967 to a circulation of almost 1,500.

## 3. ARTICLES IN PUBLIC MEDIA

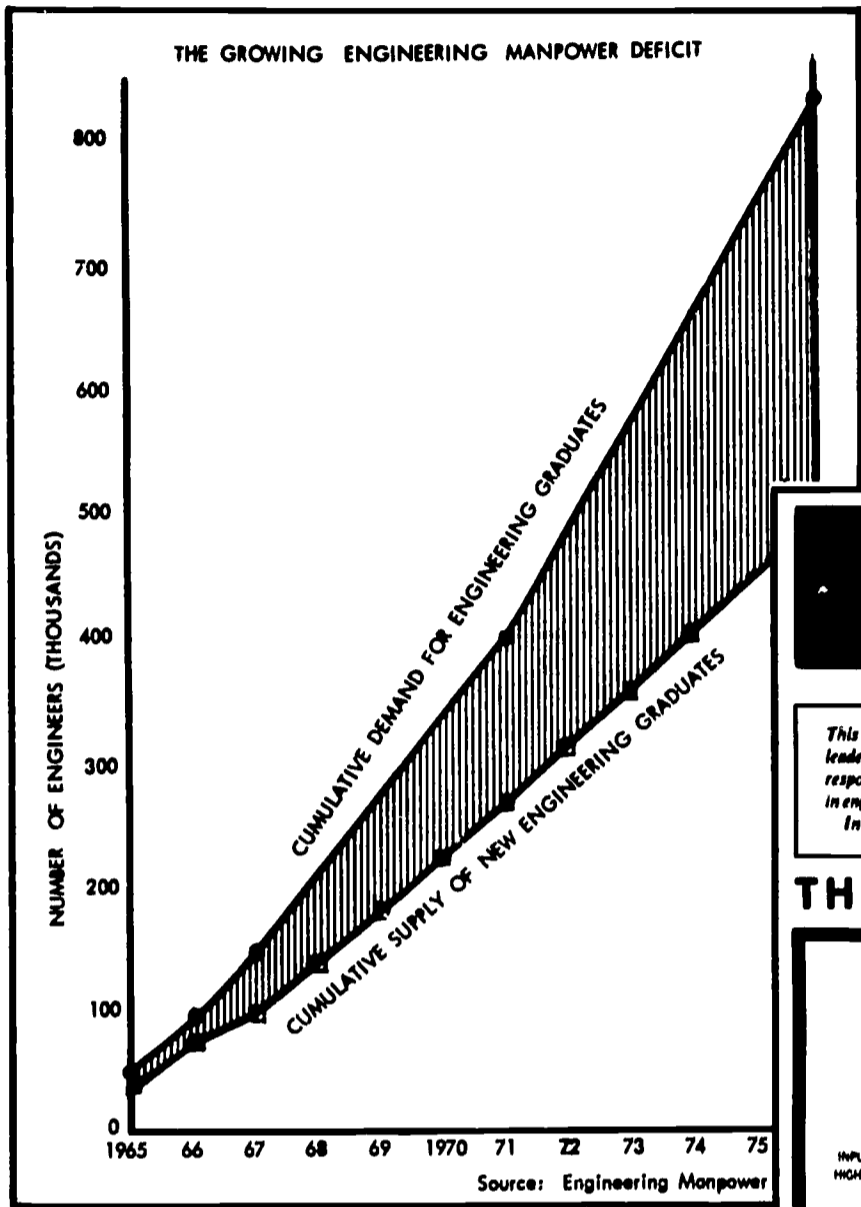
The following articles written by the Executive Secretary were published in 1967:

"Look to Engineering," PROJECT MAGAZINE, July-August, 1967.

"A Realistic Salary Policy for Mining Industry Engineers," MINING CONGRESS JOURNAL, September 1967.

"Engineers' Pay Checks," SCIENCE AND TECHNOLOGY, November, 1967.

"A Close, Close Look at Salaries," CHEMICAL ENGINEERING PROGRESS, November, 1967.



## BULLETIN NUMBER 6

April, 1967

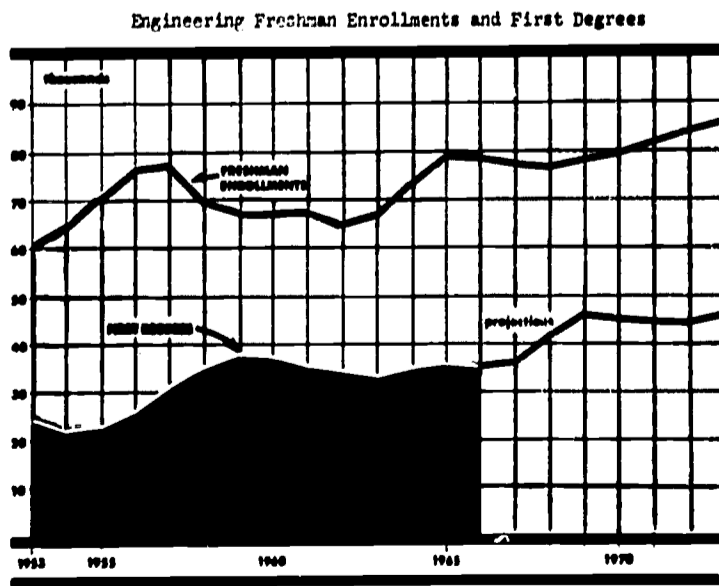
*This is the sixth in a series of Bulletins designed for leaders in industry, government, and education whose responsibility includes an awareness of developments in engineering manpower. In this issue are presented some statistics and trends showing how the supply of new graduate engineers will probably develop over the next few years.*

JOHN D. ALDEN, Executive Secretary,  
Engineering Manpower Commission  
of Engineers Joint Council

## THE FUTURE SUPPLY OF ENGINEERS

### THE ENGINEERING EDUCATIONAL PIPELINE

INPUT FROM JUNIOR COLLEGES ETC			INPUT FROM PREVIOUS GRADUATES			
1	2	3	4	5	6	7
COLLEGE YEAR						



In addition, over 100 reviews and announcement of our reports appeared in the technical press. The following nationally known journals were among those giving prominent coverage to EMC material:

U. S. News and World Report  
 Chemical Engineering Progress  
 Journal of Engineering Education  
 IEEE Spectrum  
 Business Management  
 Product Engineering  
 Machine Design  
 Mechanical Engineering  
 Journal of Petroleum Technology  
 Civil Engineering  
 Experimental Mechanics  
 The American Engineer  
 Recruiting Trends  
 The Chemist  
 Nation's Business  
 JETS Journal  
 IEEE Student Journal  
 E D N  
 Chemical Engineering  
 Industrial Research  
 Design News  
 Gas Age  
 Chemical and Engineering News  
 Telephone Engineer and Management  
 Steel

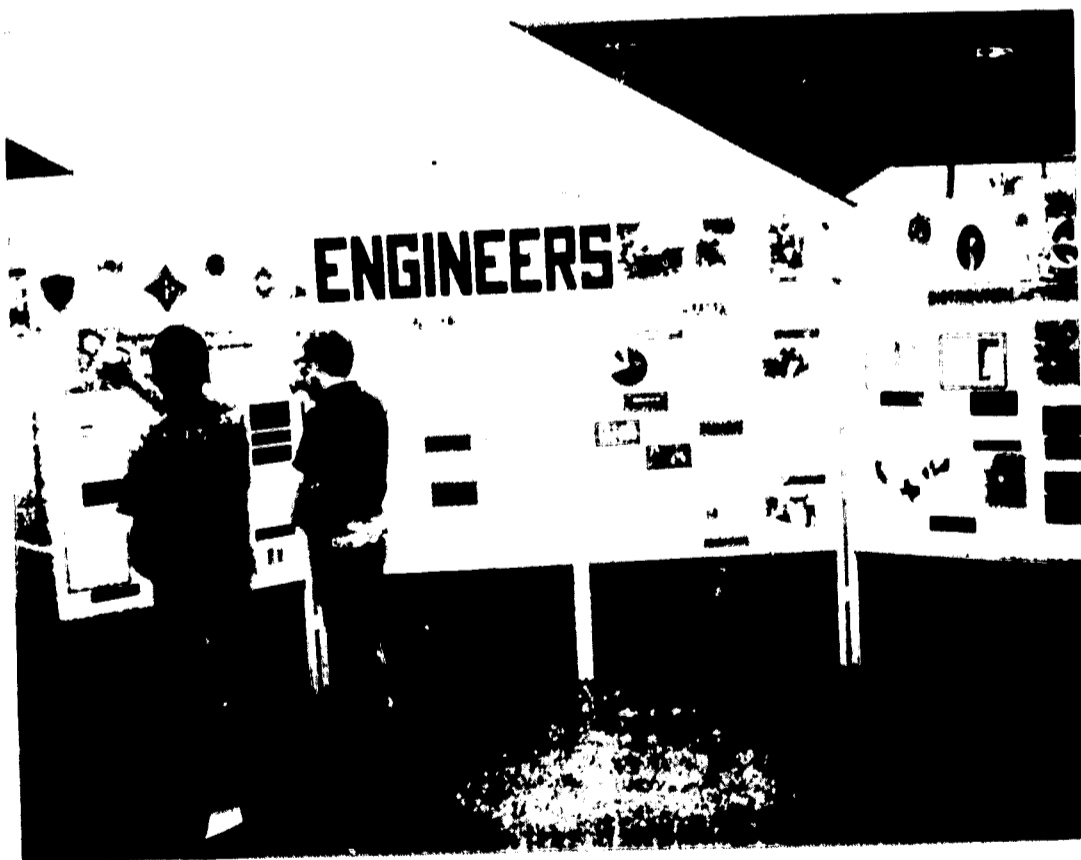
The Military Engineer  
 Agricultural Engineering  
 The Tool and Manufacturing Engineer  
 Technical Societies News  
 PM Report  
 Instrumentation Technology  
 Technology Week  
 Assembly Engineering  
 Automation  
 ASHRAE Journal  
 Technical Education News  
 The Electronic Engineer  
 The MTS Memo  
 Naval Engineers Journal  
 Industrial Relations News  
 Electro-Technology  
 Finishers' Management  
 Boston Herald Traveler  
 Product Finishing  
 AIPE Newsletter  
 Electrical World  
 Higher Education and National Affairs  
 Technology Review  
 Engineer  
 Alert

#### 4. CAREER GUIDANCE INFORMATION

The Engineering Manpower Commission staff filled about 2,850 requests from students and counselors for information on engineering during 1967. Guidance literature sent out consisted of material published by the Engineers' Council for Professional Development and a bibliography of the booklets available from engineering societies describing their special fields. Two editions of this bibliography were distributed to a list of 1,200 guidance counselors, teachers, and libraries. Bulk copies were provided for a number of special programs. The picture on the facing page shows an attractive display of engineering guidance material sponsored by a local group.

Close liaison has been maintained with the staff of the Engineers' Council for Professional Development and its guidance committee. Materials and activities are coordinated to avoid conflict or duplication of effort.

The Executive Secretary spoke before a group of young people in Brooklyn under the auspices of Aspira, Inc., an organization devoted principally to helping students of Puerto Rican origin. In March he addressed the IEEE Student Branch Counselors at their meeting in New York. He also spoke to the freshman class in engineering at the University of New Hampshire in November as part of that school's program of professional development for its students.





## 5. JUNIOR ENGINEERING TECHNICAL SOCIETY

The Commission works closely with JETS through its Chairman, who is a member of the JETS Board of Directors. One other Commissioner is also currently serving on this board. The Commission is pleased to note that the operations of JETS have been substantially strengthened during this year and that it has established close organizational ties with ECPD in guidance activities.

## 6. CONGRESSIONAL, GOVERNMENTAL, CIVIC, PROFESSIONAL AND EDUCATIONAL GROUPS

Engineering Manpower Commission commissioners and staff met with a number of such groups or provided information on engineering manpower as requested. A typical activity is the review of advance copies of material published by other groups to assure the accuracy of statements about engineering. Assistance of this kind was provided, for example, to the United States Department of Labor in connection with its Career Opportunities Handbook. Other meetings have been mentioned elsewhere in this report.

## 7. PARTICIPATION IN OTHER ACTIVITIES

Individual Commissioners have taken part in a variety of engineering society and community affairs. Among others, Commissioner Malcolm Pirnie, Jr. was elected to the Board of Directors of the American Society of Civil Engineers, and Commissioner Arthur Weber was elected president of the Engineers' Council for Professional Development for 1968. Commissioners Pirnie, Carleton, Weber and Gilman were named by their societies to the EJC General Assembly.

The Executive Secretary was invited to speak at a number of meetings, including the following:

ASME local chapter meeting at Huntsville, Alabama, on the subject of engineers salaries.

Coal Mining Division meeting of the American Mining Congress at Pittsburgh, on the employment of engineers in that industry.

American Society for Metals national congress at Cleveland, symposium on the education and employment of engineering technicians.

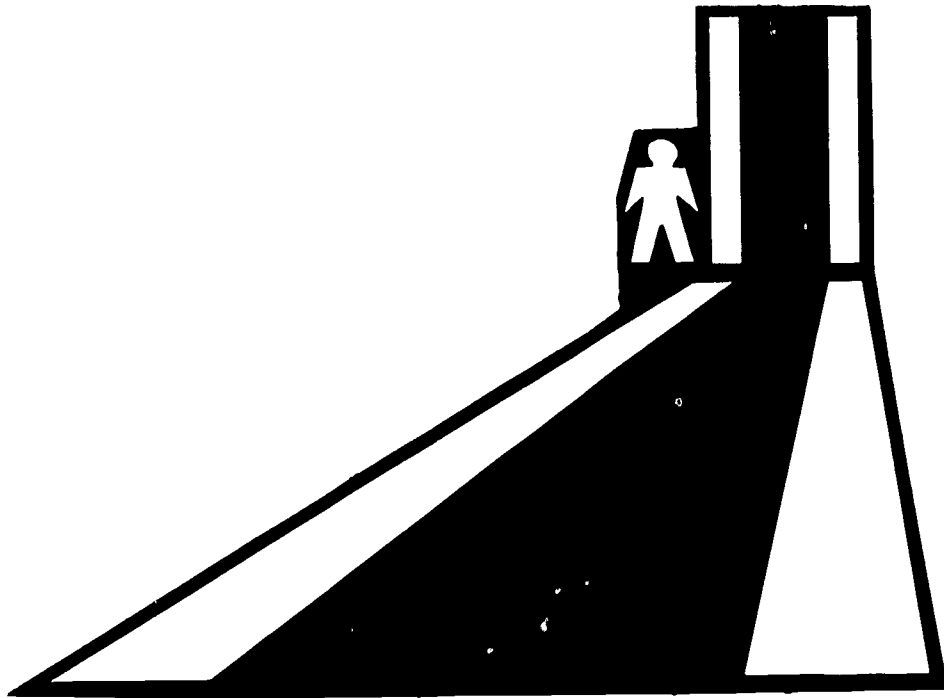
Long Island Section of ASME, Management Division, dinner meeting, on the subject of engineering salaries.

June meeting of Engineering Associates in New York, to report on results of the EMC salary survey.

## 8. COOPERATION WITH INTERNATIONAL GROUPS

During 1967, representatives of engineering groups in Norway, Great Britain, and Finland visited EJC and engaged in extended discussions of its manpower activities with a view toward establishing similar programs in their own countries. Publications are exchanged with groups in several other countries and with the Organization for Economic Cooperation and Development as a means of keeping informed on engineering manpower activities elsewhere.

Work was started on a guidebook for engineers coming to this country from abroad, to help acquaint them with professional activities in the United States. Dean Willard P. Berggren of the University of Bridgeport has been retained to prepare this publication.



# Vita

## 1. PURPOSE

The Engineering Manpower Commission of Engineers Joint Council is charged with the following responsibility:

"To engage in studies and analyses of the supply, demand, and utilization of engineering and technical manpower; to make recommendations, conduct programs, and develop reports concerning these aspects of engineering and technical manpower; and to carry on such other programs in the field of manpower as may be authorized by the Board of Directors of EJC."

## 2. EJC SOCIETIES AND EMC COMMISSIONERS - 1967

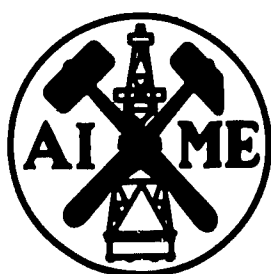
### Officers and Executive Staff:

Chairman . . . . .	Clifford H. Doolittle
Vice-Chairman . . . . .	Donald E. Irwin
Executive Secretary . . . . .	John D. Alden
Military and Legislative Advisor . . . . .	Brig. Gen. C. S. Dargusch



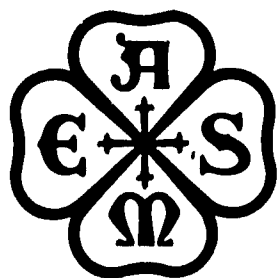
**AMERICAN SOCIETY OF CIVIL ENGINEERS**  
 345 E. 47th Street, New York, N. Y. 10017  
 founded 1852

**EMC Commissioners:**                    **Marcel P. Aillery**  
    **LeRoy A. Brothers**  
    **Howard G. Dixon**



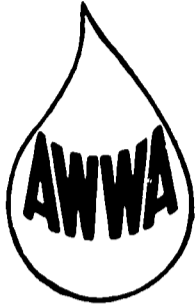
**AMERICAN INSTITUTE OF MINING,  
 METALLURGICAL, AND PETROLEUM ENGINEERS**  
 345 E. 47th Street, New York, N. Y. 10017  
 founded 1871

**EMC Commissioners:**                    **Douglas Munroe**  
    **Douglas Ragland**



**THE AMERICAN SOCIETY OF  
 MECHANICAL ENGINEERS**  
 345 E. 47th Street, New York, N. Y. 10017  
 founded 1880

**EMC Commissioners:**                    **H. Russell Beatty**  
    **William M. Hoyt**  
    **Arthur Weber**



**AMERICAN WATER WORKS ASSOCIATION**  
2 Park Avenue, New York, N. Y. 10016  
founded 1881

**EMC Commissioners:** George J. Natt  
Malcolm Pirnie, Jr.



**INSTITUTE OF ELECTRICAL AND  
ELECTRONICS ENGINEERS**  
345 E. 47th Street, New York, N. Y. 10017  
founded 1884

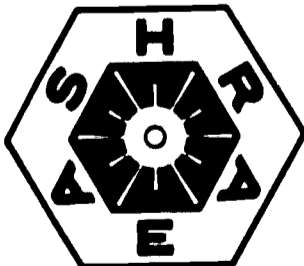
**EMC Commissioners:** Ralph I. Cole  
Sydney B. Ingram  
George E. Moore



**THE AMERICAN SOCIETY FOR  
ENGINEERING EDUCATION**  
2100 Pennsylvania Avenue, N.W., Washington, D. C. 20037  
Washington, D. C.  
founded 1893

**EMC Commissioners:** William T. Alexander  
Walter M. Hartung  
William Hazell  
Jesse W. Mason  
J. L. McGraw  
Frederick H. Roever

**Alternates:**



**AMERICAN SOCIETY OF HEATING,  
REFRIGERATING AND  
AIR-CONDITIONING ENGINEERS**  
345 E. 47th Street, New York, N. Y. 10017  
founded 1894

**EMC Commissioners:** S. F. Gilman  
Clifford F. Holske



**AMERICAN SOCIETY FOR TESTING  
AND MATERIALS**

1916 Race Street, Philadelphia, Pa. 19103  
founded 1898

**EMC Commissioners:**                      **None appointed in 1967**



**AMERICAN SOCIETY OF  
AGRICULTURAL ENGINEERS**

420 Main Street, St. Joseph, Michigan 49085  
founded 1907

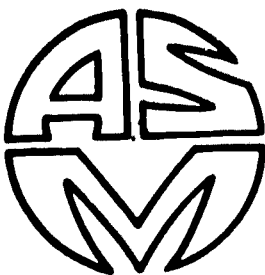
**EMC Commissioners:**                      **Donald P. Brown  
Walter M. Carleton  
Hugh J. Hansen**



**AMERICAN INSTITUTE OF  
CHEMICAL ENGINEERS**

345 E. 47th Street, New York, N. Y. 10017  
founded 1908

**EMC Commissioners:**                      **Theodore J. Carron  
Donald B. Keyes  
Charles L. Mantell**



**AMERICAN SOCIETY FOR METALS**

Metals Park, Ohio 44073  
founded 1913

**EMC Commissioners:**                      **Adolph J. Lena  
William M. Mueller  
A. D. Schwoppe**



**THE SOCIETY OF AMERICAN  
MILITARY ENGINEERS**

The Fleming Building, 800 17th Street, N.W., Washington, D. C. 20006  
founded 1920

**EMC Commissioners:** Col. Richard T. Batson  
Col. Robert F. Schirmer  
Col. James D. Strong



**THE AMERICAN INSTITUTE OF  
INDUSTRIAL ENGINEERS**

345 E. 47th Street, New York, N. Y. 10017  
founded 1948

**EMC Commissioners:** Clifford H. Doolittle  
William J. Vallette



**AMERICAN INSTITUTE OF  
CONSULTING ENGINEERS**

345 E. 47th Street, New York, N. Y. 10017  
founded 1910

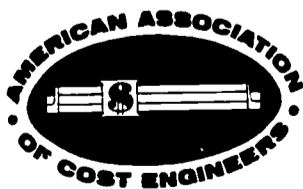
**EMC Commissioners:** James J. Pilliod  
Harold S. Woodward



**AMERICAN INSTITUTE OF PLANT ENGINEERS**

1056 Delta Avenue, Suite 11, Cincinnati, Ohio 45208  
founded 1954

**EMC Commissioner:** James C. McClymont



**AMERICAN ASSOCIATION OF COST ENGINEERS**

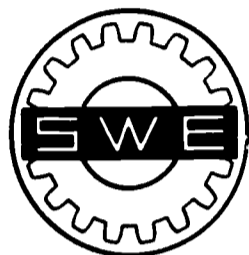
University of Alabama, Post Office Box 5199,  
University, Alabama 35486  
founded 1956

**EMC Commissioners:** Arthur F. Dershowitz  
William H. Patterson



**NATIONAL INSTITUTE OF CERAMIC ENGINEERS**  
4055 N. High Street, Columbus, Ohio 43214  
founded 1938

**EMC Commissioner: H. D. Bixby**



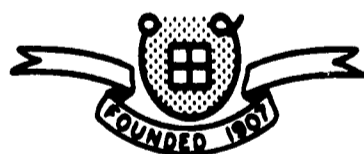
**SOCIETY OF WOMEN ENGINEERS**  
345 E. 47th Street, New York, N. Y. 10017  
founded 1952

**EMC Commissioner: Helen V. Armstrong**



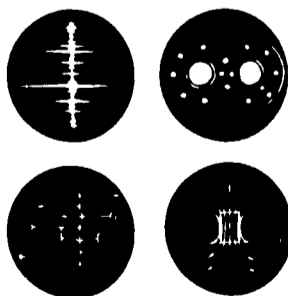
**SOCIETY OF FIRE PROTECTION ENGINEERS**  
60 Batterymarch Street, Boston, Massachusetts 02110  
founded 1950

**EMC Commissioner: Martin M. Brown**



**AIR POLLUTION CONTROL ASSOCIATION**  
4400 Fifth Avenue, Pittsburgh, Pennsylvania 15213  
founded 1907

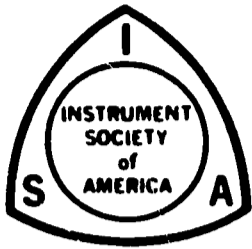
**EMC Commissioners: None appointed in 1967**



**SOCIETY FOR NONDESTRUCTIVE TESTING**  
914 Chicago Avenue, Evanston, Illinois 60202  
founded 1941

**EMC Commissioner: D. W. Ballard**





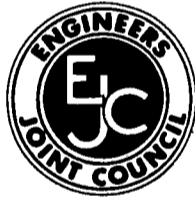
**INSTRUMENT SOCIETY OF AMERICA**  
530 William Penn Place, Pittsburgh, Pennsylvania 15219  
founded 1945

**EMC Commissioner: Allen E. Lee**



**AMERICAN SOCIETY FOR QUALITY CONTROL**  
Plankinton Building, Room 6185, 161 West Wisconsin Avenue,  
Milwaukee, Wisconsin 53203  
founded 1946

**EMC Commissioner: E. C. Torkelson**



**Commissioners at Large, appointed by the President of EJC:**

Donald E. Irwin  
George D. Lobingier  
Donald C. Metz  
R. A. Whitehorne

**Advisors:**

Donald S. Bridgman  
Richard C. Fremon  
W. Scott Hill  
M. H. Trytten

### 3. SUPPORTING CORPORATIONS

The following companies provided financial assistance for the 1967 program of the Commission:

ADM Chemicals  
 Abbott Laboratories  
 Addressograph-Multigraph Corp.  
 Alabama Power Co.  
 Alcoa Foundation  
 Allegheny Ludlum Steel Corp.  
 Amerada Petroleum Corp.  
 American Can Co.  
 American Cyanamid Co.  
 American Electric Power Service Corp.  
 American Metal Climax  
 American Oil Co.  
 American Smelting & Refining Co.  
 American Telephone & Telegraph Co.  
 Anaconda Co.  
 Armco Steel Corp.  
 Armstrong Cork Co.  
 Atchison, Topeka & Santa Fe Railway  
 Austin Co.  
 Bell Telephone Laboratories, Inc.  
 Bethlehem Steel Corp.  
 Black & Decker Manufacturing Co.  
 Black & Veatch  
 E. W. Bliss Co.  
 Bodine Electric Co.  
 Boeing Co.  
 Borg Warner - York Division  
 Budd Co.  
 Carrier Corp.  
 Caterpillar Tractor Co.  
 Celanese Corp.  
 Central Hudson Gas & Electric Co.  
 Central Illinois Public Service Co.  
 Chandler Evans Corp.  
 Clark Equipment Co.

Cleveland-Cliffs Iron Co.  
 Colt Industries, Inc.  
 Columbia Gas System Service Corp.  
 Continental Can Co.  
 Control Data Corp.  
 Cooper Bessemer Co.  
 Copper Range Co.  
 Corn Products Co.  
 Cosmodyne Co.  
 Cummins Engine Foundation  
 Cutler Hammer, Inc.  
 Dames and Moore  
 Dayton Power & Light Co.  
 Delavan Manufacturing Co.  
 Delmarva Power & Light Co.  
 Detroit Edison Co.  
 Diamond Alkali Co.  
 Dorr Oliver, Inc.  
 Dow-Corning Corp.  
 Dravo Corp.  
 Dresser Industries, Inc.  
 E. I. du Pont de Nemours & Co., Inc.  
 Eastman Kodak Co.  
 Eaton-Yale and Towne, Inc.  
 Ebasco Services, Inc.  
 Frank W. Egan & Co.  
 Electric Storage Battery Co.  
 Esso Research & Engineering Co.  
 Ethyl Corp.  
 FMC Corp.  
 J. L. Faisant & Co.  
 Ford Motor Co.  
 Foxboro Co.  
 Freeport Sulphur Co.  
 Friden, Inc.

General Aniline & Film Corp.  
 General Dynamics Corp.  
 General Electric Co.  
 General Foods Corp.  
 General Mills, Inc.  
 General Motors Corp.  
 General Radio Corp.  
 General Telephone & Electronics Corp.  
 Georgia Power Co.  
 Gillette Co.  
 Globe Industries, Inc.  
 Goss Co.  
 W. R. Grace & Co.  
 Greeley and Hansen  
 S. J. Groves & Sons Co.  
 Grumman Aircraft Engineering Corp.  
 Gulf Power Co.  
 Harbison-Walker  
 Harley-Davidson Motor Co.  
 Frederic R. Harris Co.  
 Harris-Intertype Co.  
 Harshaw Chemical Co.  
 Hartford Electric Light Co.  
 Hecla Mining Co.  
 Hercules Inc.  
 Homestake Mining Co.  
 Honeywell, Inc.  
 Hughes Aircraft Co.  
 Hyster Co.  
 Illinois Central Railroad  
 Illinois Power Co.  
 Inland Steel Co.  
 International Business Machines Corp.  
 International Harvester Co.  
 International Telephone & Telegraph Co.  
 Interstate Power Co.  
 Iowa-Illinois Gas & Electric Co.  
 Jackson & Moreland, Inc.  
 Johns-Manville Corp.  
 Al Johnson Construction Co.  
 Johnson's Wax

Jones & Laughlin Steel Corp.  
 Kendall Refining Co.  
 Kennecott Copper Corp.  
 Koppers Co.  
 Litton Industries, Inc.  
 Litton Industries - Amecom Division  
 Lockheed Aircraft Co.  
 Long Island Lighting Co.  
 Lubrizol Corp.  
 Lummus Co.  
 Mallinckrodt Chemical Works  
 Marquardt Corp.  
 Matson Navigation Co.  
 McDonnell Douglas Corp.  
 McGraw-Hill Publishing Co.  
 Mead Corp.  
 Mechanical Handling Systems, Inc.  
 Merck & Co.  
 Mine Safety Appliances Co.  
 Mississippi Power Co.  
 Mobil Oil Co., Inc.  
 Monsanto Co.  
 Montana Power Co.  
 National Distillers & Chemical Corp.  
 National Starch & Chemical Corp.  
 Newmont Mining Corp.  
 New Orleans Public Service, Inc.  
 Newport News Shipbuilding & Dry Dock Co.  
 Nooter Corp.  
 North American Aviation Co.  
 Ohio Edison Co.  
 Olin Mathieson Chemical Corp.  
 Outboard Marine Corp.  
 Owens-Corning Fiberglas Corp.  
 Owens-Illinois Glass Co.  
 Panhandle Eastern Pipeline Co.  
 Parke Davis & Co.  
 Pennsylvania Power & Light Co.  
 Chas. Pfizer & Co., Inc.  
 Phelps-Dodge Corp.  
 Pittsburgh Plate Glass Co.

Potash Company of America  
 Potlatch Forests, Inc.  
 Potomac Electric Power Co.  
 Procter & Gamble Co.  
 Public Service Electric & Gas Co.  
 Radio Corporation of America  
 Raytheon Co.  
 Republic Steel Corp.  
 Robbins & Myers, Inc.  
 Rochester Gas & Electric Corp.  
 Rockwell Manufacturing Co.  
 Rohm & Haas Co.  
 Rust Foundation  
 St. Joseph Lead Co.  
 Sandia Corp.  
 Sargent and Lundy  
 Schering Corp.  
 Shell Oil Corp.  
 Sperry Rand Corp.  
 Philip Sporn  
 Square D Co.  
 Standard Oil -- California  
 Standard Oil of Ohio  
 Standard Pressed Steel Co.  
 Stauffer Chemical Co.  
 Stearns-Roger Corp.

Sun Oil Co.  
 Sverdrup & Parcel & Associates, Inc.  
 Texas Instruments, Inc.  
 Toledo Edison Co.  
 Trane Co.  
 Tudor Engineering Co.  
 Turner Construction Co.  
 Union Carbide Corp.  
 Union Oil Company of California  
 United Aircraft Corp.  
 United Engineers & Constructors, Inc.  
 United Gas Corp.  
 United Shoe Machinery Co.  
 United States Rubber Co.  
 United States Steel Co.  
 Upjohn Co.  
 Virginia Chemicals, Inc.  
 Virginia Electric & Power Co.  
 West Virginia Pulp & Paper Co.  
 Western Electric Co.  
 Westinghouse Electric Corp.  
 Wisconsin Electric Power Co.  
 Woodward Governor Co.  
 Worthington Corp.  
 Xerox Corp.  
 Yarway Corp.

