AN ANALYSIS OF THE PROGRESS OF UNIONS IN ORGANIZING PROFESSIONAL ENGINEERS

APPROVED:

C L Littlefield
Major Professor

Kenneth Cox
Minor Professor

O J Curry
Dean of the School of Business Administration

Robert B. Toulouse
Dean of the Graduate School

AN ANALYSIS OF THE PROGRESS OF UNIONS IN ORGANIZING PROFESSIONAL ENGINEERS

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By

Austin H. Montgomery, Jr., B. S.

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CHAPTER I

INTRODUCTION

Engineering is one of the youngest of the major professions, but it has been an occupation for a period longer than that of recorded history.[1] This paradoxical statement is true because before the Industrial Revolution its only possible classification could be that of a trade.[2] Engineering was practiced by craftsmen who had no formal training in that subject and who shared no organized body of knowledge.

In recent years engineering has taken its place alongside of the ancient and honored professions of law, medicine, and theology. It has pioneered the applications of scientific knowledge that have made possible the high standard of living now being enjoyed. It has gained a membership which is probably larger than that of the three other great professions combined.

But the young giant among the professions is faced with serious problems. Its members are being split into two groups: employee-engineers and supervisory or self-employed

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[1] R. D. Henson, "The Development of Engineering as a Profession," Electrical Engineering, February, 1951, p. 213.

[2] H. S. Person, "Engineering," The Encyclopedia of Social Sciences, Vol. V, (New York, 1931), p. 542.

engineers. Large numbers of the former group favor collective bargaining which is considered unprofessional by a large portion of the profession. The dissenting parties are not taking passive measures; they are divided into separate camps which seem irreconcilable.

The troubles of engineering are not entirely of its own making. Legislation by the Federal and state governments has been at least partially responsible for the division of the profession. Mass industrial conditions have added to the tainting of the profession by creating many jobs for engineers which resemble craft work more than professional work.

Nevertheless, one of the serious problems facing the engineering profession is unionization and collective bargaining. Many leaders in the field believe that, if the present trend continues, engineering will no longer qualify as a profession but will revert to a trade.[3]

Statement of the Problem

The problems of this research report were threefold:

1. To trace the history of the unionization of engineers from its inception to the present time.

2. To present the arguments of those individuals and groups who practice and favor engineering unionization, and to set forth the counter-arguments of

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[3]Robert A. Blackburn and others, A Professional Look at the Engineer in Industry, (Washington, 1955), p. 67.

those individuals and groups who reject unionization for engineers.

3. To summarize the facts and opinions discovered and, in view of these findings, to draw conclusions on the merits and the trend of engineering unionization.

Delimitations

Many of the unions which have engineering members fail to distinguish between engineers and scientists (such as chemists, physicists, and geologists). Therefore, it was often necessary to treat these several professions as one group.

Although engineers do sometimes join craft and industrial unions, this movement has been quite limited. Therefore, discussions of these unions were limited as much as possible, and were introduced only to describe the progress of these groups in organizing engineers and to compare them to professional unions.

Definition of Terms

Certified bargaining unit--A group which has been recognized by the National Labor Relations Board as the appropriate unit to represent certain employees in collective bargaining.

Craft union--A bargaining group made up of the same or similar labor occupations.

Decertify--An act of the National Labor Relations Board permitting a group of employees to withdraw from a recognized bargaining unit.

Employee--Any person employed in a non-supervisory position.

Employer--Any person acting in the interest of an owner or a manager.[4]

Heterogeneous Union--A bargaining group containing both professional and non-professional employees, or one that contains production workers and white-collar workers.

National Labor Relations Board--A Board created by the National Labor Relations Act for the purpose of defending certain rights of employees. Its decisions, if challanged, are subject to review by the courts.

National War Labor Board--A Federal agency created by the Federal government in World War II to rule over contract disputes between managements and employees.

Ninety-day wonders--A term coined by the American Association of Engineers, an engineering society, to describe those sub-professional workers who were rushed into industry during World War II after only brief training.[5]

Production unions--Any craft or industrial unions.

Professional man--An individual who practices an occupation recognized as a profession. The person termed a

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[4]M. E. McIver, H. A. Wagner, and M. P. McGirr, Technologists' Stake in the Wagner Act, (Chicago, 1944), p. 17.

[5]Ibid., pp. 17-18.

professional has had a long period of formal training in his occupation or has knowledge equivalent to such a training period. The occupation practiced must be one which emphasizes complex mental effort rather than work of a routine, repetitive, or manual nature. The professional must have several years of experience in his field.

Professional union--A bargaining unit composed predominantly of members qualified as professionals.

Sub-professional man--An individual who performs work related to one of the professions, but the work or the individual lacks one or more of the qualifications to satisfy the classification of professional. This individual may or may not have the formal training required of a professional.

The Taft-Hartley Act--The Labor-Management Relations Act, passed by Congress in 1947.

The Wagner Act--The popular name of the National Labor Relations Act, passed by Congress in 1935.

Sources of Data

A large portion of the data presented in this research report came from periodicals in the libraries of North Texas State College, Denton, Texas; Southern Methodist University, Dallas, Texas; and Texas Technological College, Lubbock, Texas. These periodicals were often the publications of the professional engineering societies, but other well-known magazines such as Harvard Business Review, Fortune, Management Record, Engineering News-Record, and Business Week made

valuable contributions. The leading professional societies and their publications were the National Society of Professional Engineers, The American Engineer; American Society of Mechanical Engineers, Mechanical Engineering; American Society of Civil Engineers, Civil Engineering; and the American Institute of Electrical Engineers, Electrical Engineering.

These libraries also yielded several books which furnished excellent information on various phases of the unionization of engineers. Particularly illuminating was Technologists' Stake in the Wagner Act, by M. E. McIver, H. A. Wagner, and M. P. McGirr. This book is the most detailed account that has ever been published of the ramifications of the Wagner Act as they affect technical personnel.

Also of great value was A Professional Look at the Engineer in Industry, by Robert A. Blackburn and others. This volume dealt extensively with the modern aspects of the unionization problems facing the engineering profession.

Information was also obtained by writing directly to the following organizations:

American Association of Engineers
American Institute of Chemical Engineers
American Institute of Electrical Engineers
American Society of Civil Engineers
American Society of Mechanical Engineers
National Society of Professional Engineers
American Chemical Society

American Federation of Technical Engineers

Engineers and Scientists of America

All of these organizations except the American Association of Engineers answered, and a large quantity of information on the unionization of engineers was enclosed. Of particular value was the material received from the American Society of Civil Engineers, which included Society proceedings dealing with unionization, and a tabulation of the answers received by that Society from questionnaires to its members on unionization. The Engineers and Scientists of America and the American Federation of Technical Engineers sent union periodicals and many small informational pamphlets which yielded several interesting viewpoints and facts.

Procedure

The first major step in the preparation of this research report was to review the pertinent periodicals and books on engineering unionization in the libraries of North Texas State College, Southern Methodist University, and Texas Technological College. Statistics, concepts, and quotations were extracted from these books and periodicals, and special attention was given to the task of reconciling statistics and news items obtained from various sources.

All of the major engineering societies and the American Chemical Society were written to obtain the information and views which they held on professional unionization. A great

deal of information was obtained from these sources and incorporated into this research report.

The two leading engineering unions, The Engineers and Scientists of America, and The American Federation of Technical Engineers were also written and they provided excellent information which yielded valuable data on their views and activities. The presidents of these unions enclosed personal letters in which they made pertinent statements on their organizations and objectives. Quotations were extracted from these letters and incorporated into this report.

Related Studies

The library of North Texas State College has a large number of publications from many colleges and universities of the United States which list and describe the doctoral dissertations and masters' theses of those schools over the last several decades. An examination of these publications revealed no research which could be considered to be related to this research report.

Technologists' Stake in the Wagner Act, a book written by M. E. McIver, H. A. Wagner, and M. P. McGirr, and published by the American Association of Engineers in 1944, can be classified as a related study as it deals wholly and exclusively with the effect of the Wagner Act on technical employees, and this report deals in part with this subject. Unfortunately, Technologists' Stake in the Wagner Act

assumed throughout its presentation that unionization and collective bargaining were beneficial to engineers, and this unproved assumption tended to prejudice the included material.

Another excellent book, A Professional Look at the Engineer in Industry, published and written by The National Society of Professional Engineers in 1955, is related to this research report. This book deals primarily, as this report does in part, with the challenges of unionization to the engineering profession under the Taft-Hartley Act. The book is remarkably unprejudiced in view of the opposition of The National Society of Professional Engineers and its member units to professional unionization.[6] However, the book concludes that unionization is not the answer to the problems of the engineering profession, and it appears that this deduction was inevitable because of the basic attitude of the National Society of Professional Engineers.

A memorandum by W. N. Carey and E. L. Chandler, published by the American Society of Civil Engineers and entitled Engineers, Unionization and the Tax Status of ASCE, is closely related to this research report. This memorandum deals primarily with the part played by the American Society of Civil Engineers in the organization of unions and sets forth the modern views of that Society on collective bargaining.

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[6] F. Lawrence Resen, "Engineers Are a Target in Texas," Oil and Gas Journal, June 13, 1955, p. 131.

This pamphlet does an excellent job of presenting a "capsule" report on professional unionization.

Treatment of Data

The first chapter of this research report was dedicated to the task of introducing and stating the problem to the reader, clarifying the delimitations, meanings of terms, sources and treatment of data, and describing related studies.

The historical material discovered on the professional unionization movement was incorporated into Chapter II. Although the events that occurredin this history were relatively easy to establish, the determination of the causes of these events was of a less certain nature. When these causes were universally agreed upon by the contributing writers these views were accepted as valid; when wide-spread disagreement was evident, the task of presenting divergent outlooks was undertaken. In this latter case, it was often necessary to suggest which view seemed to conform more nearly with the established facts and later developments and to leave the final weighing of the merits of each opinion to the reader.

Chapter III dealt exclusively with the arguments being presented by the proponents and opponents of engineering unionization. The pro-union sentiment consisted for the most part of the views being expressed by the Engineers and Scientists of America and the independent professional unions (which greatly resemble the Engineers and Scientists of

America in composition and objectives). Very little time and space was devoted to the views of the Congress of Industrial Organizations, the American Federation of Labor, and their affiliate, the American Federation of Technical Engineers. This approach seemed justifiable because of the insignificant part played by these unions in the modern professional engineering organizational movement and because of the almost universal rejection of these unions by engineers.

The views in opposition to engineering unionization are primarily those of officers of the professional engineering societies. However, it must be realized that many of these leaders are playing dual roles. In addition to their positions as society officers, they are educators, industrial managers, and self-employed engineers.

The summarization of arguments for presentation in this report was difficult, but not impossible. On occasion it was possible to quote directly, thus letting the writer speak for himself. However, when many similar arguments were discovered on one topic, it was necessary to combine these related views without compromising the basic themes of the authors.

Chapter IV was devoted to summarizing the findings of the earlier chapters and to drawing conclusions on the facts observed. Despite the wisdom behind the opinions that had been gathered from great and learned men, it was necessary to sift these views from the facts in forming concrete conclusions.

The opinions were valuable, of course, in arriving at less solid and more speculative conclusions.

CHAPTER II

A HISTORY OF THE UNIONIZATION OF ENGINEERS

Developments Prior to the Wagner Act

Although unions have existed in the United States almost from the Declaration of Independence, their spread into the ranks of professional engineering is of comparatively recent origin. The American unions fought their battles with management for scores of years practically unaided and unhindered by Federal legislation. The rights of unionists were the same as of any other American citizens under the laws of the United States as interpreted by the courts. These interpretations recognized the rights of unions to strike; they imposed no requirement upon management to bargain collectively.

Engineers showed no tendency to organize in the atmosphere just described. Perhaps there was no significant reason for the engineer to join a union. He was recognized as a professional; he was often close to or a part of management. His life earnings[1] in the nineteen-twenties and early nineteen-thirties were over three times the life earnings of the skilled worker. His median yearly salary compared very well with those of the other professions.

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[1]Harold F. Clark, Life Earnings in Selected Occupations in the United States, (New York, 1937), pp. 50, 110.

Of course, even in those good times, a few inequities existed. The technical employees in the railroad industries had fallen far behind in salaries in 1919. In that year the American Association of Engineers, a professional society, appeared before the U. S. Railway Wage Board in what was described as "the first major collective bargaining campaign for professional engineers."[2]

The American Association of Engineers represented 6,000 technical railway employees in that negotiation, and it succeeded in winning some salary increases. The incident is described by the Association:

> We were successful. We resorted to no coercive tactics; the entire campaign conformed to the highest principles of professional conduct. Nevertheless, our action stirred up animosity; brought on us the suspicion of employers that we were a "glorified" labor union; caused other technological societies to cooperate in a campaign to "stop A. A. E." Most disillusioning of all was the ingratitude of some 6,000 railroad workers who had joined to participate in collective bargaining, and who, as soon as they had won their increases in pay, withdrew their support from the Association.[3]

The American Federation of Labor chartered the International Federation of Draftsmen's Unions in 1918. The title of the union was self-explanatory; it had little to do with engineers. Yet this union was destined to evolve into the principal organ through which the American Federation of Labor would attempt to unionize professional engineers. Its

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[2]M. E. McIver, H. A. Wagner, and M. P. McGirr, Technologists' Stake in the Wagner Act, (Chicago, 1944), p. 7.

[3]Ibid.

history will be described in more detail in the latter portion of this chapter.

The depression of 1929 was as disastrous to engineers as to the majority of groups in American society. But the engineers who did manage to obtain and hold jobs still received good salaries, relative to the wages of skilled and semiskilled workers.

There is little about a depression to encourage the growth of unions. In the 1929 crisis the numerical strength of unions dropped rapidly, so it is not surprising that no organizational gains were made in occupations such as engineering which had been relatively unorganized prior to the depression.

However, the engineers did receive a small amount of representation during the depression. The American Society of Civil Engineers and the New York State Society of Professional Engineers went before government officials to argue for higher salaries for engineers employed by the Works Progress Administration.[4] These societies pointed out the small differential between engineers' salaries and workers' wages on W. P. A. jobs in the New York City area, and succeeded in inducing the officials to raise the engineers' salaries.

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[4]Van Tuyl Boughton, "Engineering Schools and Unions," Mechanical Engineering, May, 1939, p. 391.

The Wagner Act

When the Wagner Act became law in 1935, little attention was paid to it by professional people. Apparently there was no realization of its impact on engineering employees. But employed engineers were employees in the eyes of the law just as definitely as were carpenters, plumbers, hod-carriers, or any other workers, and they were similarly subject to the provisions of the Wagner Act.

> The established labor unions were quick to take advantage of the situation and it was not long before professional employees, in many instances, found themselves included with other classes of employees in organizations not to their liking. Labor leaders who had little understanding of the needs and objectives of professional people, and even less concern about them, soon were serving as official representatives of engineer employees in collective bargaining negotiations with their employers. To bring about such an incongruous state of affairs, it was necessary only for an organized group to prevail upon the National Labor Relations Board to recognize it as the "appropriate" organization to represent all the employees it chose to include in its numbers. NLRB was prone to approve such requests.
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> Once included in a heterogeneous bargaining group it was next to impossible for professional employees to withdraw (be "decertified") however dissatisfied they might be. They had to submit to inadequate representation and some times had to join labor unions in order to hold their jobs. On occasion they were forced to take part in strikes under threat of physical violence to themselves, their families or their homes. In general, the engineer members of such unions were in a sorry plight.
>
> Technically, it was possible to form bargaining groups of professional employees under the Wagner Act. However, the going was rough. There was no definition in the Act to help determine who might be classified as professional. Labor union leaders had long experience in organization and had plenty of money while the professionals had neither. Combining those circumstances with the determination of the unions to expand their memberships and extend their power in collective

> bargaining, the professional employees were at a sad disadvantage in trying to protect their interests.[5]

It must be remembered, of course, that the majority of the engineers of 1935 were little affected by the employee aspect of the Wagner Act. Some engineers were self-employed; others were in the ranks of management, and thus were forbidden to organize. Engineers working for the Federal, state, or local governments, both as teachers and practicing engineers, were not granted the right to bargain collectively, so there was little pressure upon them to organize. Many engineers worked individually or in very small groups and were thus virtually unorganizable.

But what of the thousands of engineers who were affected by the Wagner Act? Would the National Labor Relations Board allow them to form unions of their own, or let them remain unrepresented if they wished?

> The legislators who created the National Labor Relations Board quite frankly intended to set up an agency empowered to defend certain rights of employees--the right to organize, to choose representatives, and through them to bargain collectively. It is expected that the Board will be fair and reasonable; it need not pretend to be impartial. It is by statue authorized to act as the champion of the rights of employees.
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> Quite definitely, the Act is not intended to preserve the "professional status" of technologists. That responsibility still rests with the technological professions.[6]

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[5] W. N. Carey and E. L. Chandler, Engineers, Unionization and the Tax Status of ASCE, (New York, 1953), p. 2.

[6] McIver, op. cit., p. 25.

The Wagner Act made it clear that there were two kinds of people in industry--employers and employees. The Act established the rules of what each group could do and could not do in their attempts to exert pressures on one another.

> Where did this division leave the engineering profession? Not in the middle, as may be supposed, because, in fact, there was no middle; the covered workers necessarily found themselves in one camp or the other; they were management or they were labor.[7]

Perhaps the beleagured engineers could turn to the professional societies for aid. But to which society? The engineers maintain between seventy-five and one hundred organizations[8] which are national in extent. They have not banded together into one large group such as the American Medical Association or the American Bar Association. Any one engineering society usually had only a small percentage of the members in any group of engineers in industry.

How interested should an engineering society be in the plight of the engineer-employees? Although the societies' memberships are predominantly employees, the officers are often employers or management personnel. Could a society take the side of labor and remain a representative of its members, employers and employed?

Even if a professional society decided to aid groups of engineer-employees, could it do so with the funds available to it? Perhaps not, for several reasons:

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[7]Robert A. Blackburn and others, A Professional Look at the Engineer in Industry, (Washington, 1955), p. 2.

[8]Ibid., p. vii.

1. The professional societies require very low annual dues of their members. It is quite possible that increases in dues for the purposes of large scale lobbying and legal action would not be approved by the members, inasmuch as the majority of engineers are little affected by unionization and would realize no significant benefits.

2. Most professional societies fall under section 101 (6) of the Internal Revenue Code, which is reserved for "charitable and scientific organizations." The requirements for this classification are:

> a. The Society must be organized and operated for one or more of the specified purposes which are "religious, scientific, literary, educational or for the prevention of cruelty to children or animals;"
> b. It must be organized and operated exclusively for such purposes;
> c. No part of its net earnings may insure to the benefit of any private shareholder or individual; and
> d. No substantial part of its net earnings may be devoted to the carrying on of propaganda or otherwise attempting to influence legislation.[9]

This classification exempts an organization from Federal, state, and city income and real estate taxes. It is quite possible that a scientific organization which evolved into a labor union would sacrifice its tax exemptions.

3. Section 8 (2) of the Wagner Act stated "It shall be an unfair labor practice for an employer to

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[9]Carey, op. cit., p. 11.

dominate or interfere with the formation or administration of any labor organization or contribute financial or other support to it . . ."[10] This requirement could be interpreted by the National Labor Relations Board and the courts to exclude action by professional societies (which have employer-officers); certainly it meant that such societies would have to tread carefully if they decided to aid or fight unions.

But these possibilities have been mere speculation on what the engineers and engineering societies might have done as a result of the Wagner Act. It is not necessary to speculate; their actions are a matter of history.

> Taking cognizance of the circumstances and realizing the need of guidance for engineer employees, ASCE formed a "Committee on Unionization" as early as 1937 with instructions to explore the whole matter and consider what measures might be undertaken. That committee and its successors (Committees on Employment Conditions) did a major job of pioneering in a field that was new and strange to the engineering profession. No other engineering society seemed to have the desire or courage to take action concerning what then was a much more controversial matter than it is today [1953]. ASCE was subjected to no small amount of ridicule and scorn. Firm in its belief that something should be done on behalf of its members, the Board of Direction and the Committee on Employment Conditions stuck to their guns and accomplished highly creditable results. It is no overstatement that whatever benefits under the labor laws have come to professional employees are primarily to the credit of ASCE.
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> During 1943-44, a plan was developed under which a Local Section of ASCE could take the initial steps toward forming a collective bargaining group composed solely of professionals. As such an activity progressed, the Local Section became less and less responsible and finally had no official connection at all with the

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[10] McIver, op. cit., Appendix B, p. d.

> collective bargaining. The latter step was essential. Control of such a group or participation in its work by the Society or a Local Section would have been fatal to its success. The National Labor Relations Board (NLRB) would have refused to recognize as "appropriate" any group sponsored, or influenced, by an organization composed of both employers and employees.
>
> Some false steps were taken by ASCE and some back-tracking became necessary, but the general course was constructive and forward-looking. An occasional wrong move was not surprising under the circumstances. The Society was engaged in a new activity with no precedent to serve as a guide and no help from other sources.[11]

The American Society of Civil Engineers aided in the organization of several independent professional unions during the nineteen-forties. However, that society was hindered by inexperience, lack of funds, and the limitations imposed by the Wagner Act.

Not all of the activities of the American Society of Civil Engineers ended in success. In 1943 it engaged the services of a law firm to aid a group of professional engineering people who sought to be separated from Local Union No. 30 of the International Federation of Technical Engineers, Architects, and Draftsmen's Unions (an American Federation of Labor Union, formerly the International Federation of Draftsmen's Unions) at the Sunflower Ordnance Works near Kansas City.[12] The law firm presented the arguments of the professional employees before the Regional War Labor Board, but the arguments were rejected with the ruling that

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[11]Carey, op. cit., pp. 2-3.

[12]McIver, op. cit., p. 219.

no distinction should be made between professional and non-professional engineers. It appears that the true objection of the professional employees (this objection was not voiced at the hearing) was that the recognized bargaining unit was affiliated with the American Federation of Labor, not that it contained sub-professionals.

The American Society of Civil Engineers favored an amendment to the Wagner Act to exclude professional employees from its provisions or to guarantee them the right to organize units with predominantly professional memberships. However, the Society soon came to realize the futility of attempting to win these changes without the aid (which was not forthcoming) of the other major engineering societies.

Although not considered a major professional engineering society, the American Association of Engineers was not reticent about offering aid (primarily in the form of legal advice) to engineers. This Association made clear its position with the statement "Never have we abandoned our conviction that the economic status of engineers can and should be improved by collective bargaining."[13] This is further supplemented by the Association's constitution which states that the promotion of the economic welfare of the engineer is a prime function of the Association.

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[13] Ibid., p. 7.

The American Association of Engineers had a definite philosophy on what type of organization should represent engineers:

> We have consistently championed collective bargaining for professional engineers, although we have opposed labor union representation for professional engineers, because we feel that the interests of engineers are not effectively protected by heterogeneous unions. We believe, instead, in collective bargaining for engineers in an organization restricted to technologists and controlled by themselves.
>
> There is a lack of mutuality of interest among professional and non-professional workers which may make the unions indifferent to the needs of the relatively small units of professional workers. Sometimes there is a definite antipathy growing out of envy of the professional workers on the part of non-professionals, and also growing out of certain rather exasperating traits of the professional employees.
>
> Labor unions have at times exploited supervisory personnel in the organizational period, only to neglect them or even abandon them at the time the appropriate unit was defined. Sometimes supervisory personnel has been used as a bargaining asset, enabling the union to make concessions in negotiating with the employer which affected a relatively small group. In department stores, a great many floor men stuck their necks out to help build up bargaining units only to be tossed out as a "supervisory personnel" when the unit was defined--leaving them without union support and in a very unhappy relation to management. This sort of thing can happen to professionals also.
>
> If a majority of sub-professional technologists join heterogeneous unions, they will be, not unified, but scattered through the whole pattern of unionism, in small impotent units. Closed shop contracts will put control of entrance to the technological professions in the hands of unions. By granting or withholding membership, the unions may permit or refuse to permit young technologists coming out of college or returning from service in the armed forces and in defense work to practice, wherever such contracts exist. In such situations the unions may decide what constitutes "special training and skill." The training given 90-day wonders [draftsmen, etc., given short training programs] may be considered quite adequate. The same will be true of promotions, based on seniority, rather than training, aptitude and diligence and initiative. It may mean

> enforcement of standard rates of pay, rather than the upholding of minimum rates of pay, with differentials for varying qualifications. It can quite conceivably hold jobs for 90-day wonders against the competition of men much better trained, through enforcement of seniority rules in tenure of jobs and re-hiring after a temporary shut-down. Unions may decide just how many technologists must be hired, and on what qualifications, and for what (standard) rates of pay.[14]

To aid technical employees, the American Association of Engineers published a book in 1944 entitled Technologists' Stake in the Wagner Act. It is an excellent, detailed analysis of the ramifications of the Wagner Act, and the interpretations of that Act by the National Labor Relations Board and the courts in regard to technical employees.

With the exception of the American Society of Civil Engineers, the major professional engineering societies refused for several years subsequent to the Wagner Act to take any action in relation to matters of unionization. Several societies issued policies citing the "employer interference" provisions of the Wagner Act and stating that the law demanded that the societies maintain a "hands off" policy.

The National Labor Relations Board slowly came to realize the importance that professional employees placed on the right to join labor organizations which were made up predominantly of professionals. In 1942, the Board had occasion to pass on the attempt of professional employees at the Shell

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[14] Ibid., pp. 243-44.

Development Laboratories at Emeryville, California, to win autonomy.

> . . . 201 professional men, largely chemists, among whom were 44 with the degree of Doctor of Philosophy, found themselves about to be forced into a heterogeneous bargaining unit with a slightly larger number of non-professional employees. Among the latter were considerable numbers of roustabouts, janitors, window washers, and the like. Quite appropriately, the professionals raised violent objection and a long contested struggle insued. With financial and legal advice from the American Chemical Society, the case was fought to a finish before the National Labor Relations Board . . .[15]

The National Labor Relations Board considered the appeal of the professional employees and issued the following decision:

> Upon the entire record, we find that the professional employees might properly be considered either as a separate unit or as a part of a larger unit composed of professional and non-professional employees. Under the circumstances, we apply the principle that the determining factor is the desire of the professional employees. We shall, therefore, direct separate elections in order that we may ascertain the wishes of the professional employees.[16]

Although the National Labor Relations Board did not specify that it had started a precedent with the Shell case, i.e., of always permitting a separate election of professional employees, the American Society of Civil Engineers, the American Chemical Society, and several of the other societies which had begun to show more interest in the Wagner Act, hailed this case as a major victory.

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[15]E. L. Chandler, "The Union and the Engineer," Mechanical Engineering, October, 1949, p. 823.

[16]McIver, op. cit., p. 126.

The Shell case seemed to indicate that professional groups which appealed strongly to the National Labor Relations Board before being incorporated into a heterogeneous union could win autonomy. Theoretically, the professionals could even choose by election not to be represented by any union, including professional unions. However, there were grave dangers in such a decision. Organized unions seeking to make inroads into the professional ranks were not usually opposed by organized action. The appeals of these unions to the National Labor Relations Board went virtually unchallenged. Therefore, many professional unions were formed primarily as a defensive measure.

The Wagner Act wrought many strange and unnatural things upon the engineering profession, a group which had been virtually untouched by unions previous to 1935. It provided a method by which production unions could absorb unwilling engineers into their ranks. It caused many engineers to join professional unions in an attempt to escape the production unions. It caused the American Society of Civil Engineers and other professional societies, basically opposed to professionals in unions, to aid in the formation of professional unions.

There can be little doubt that the Wagner Act created a challenged group of engineers, but to suggest that it overwhelmed the profession with unionization would be misleading. By 1947, twelve years after the passage of the

Act, less than 10 per cent and probably less than 5 per cent of the nation's engineers were unionized.

The Taft-Hartley Act of 1947

The Wagner Act was passed in a time when strong forces were sympathetic with labor and opposed to management. It was designed to give labor a strong position when dealing with management.

> At least a decade of actual experience under the Wagner Act was required before the legislators began to be impressed with the array of actual cases which dramatically demonstrated the one-sided nature of the law. By then the nation had its attention fully concentrated on the biggest war in history and this, coupled with the relative peace and calm in labor-management relations brought on by the no-strike pledge in force during the war, made serious attempts to talk of Wagner Act Amendments a relatively academic subject for labor-management scholars only.
>
> With the end of the war, and a resumption of the normal high interest in domestic affairs, attention turned to correcting some of the more serious abuses of the Wagner Act. With the election of a politically conservative 80th Congress it became probable that the labor law would be changed. This was the opportunity the engineering and other professional societies had been waiting for. By virtue of past experience, studies and cooperative action they were prepared to wage a vigorous fight for correction of the law which had caused the most serious challenge to their professional status.[17]

The major engineering societies had slowly come to realize that their passive approaches to unionization left much to be desired. Their failure to lobby before congress as did the American Medical Association and the American Bar Association could well be interpreted by legislators as

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[17]Blackburn, op. cit., p. 11.

meaning that "all is well with engineers." Therefore, the following six societies appointed a Committee on the Economic Status of the Engineer to recommend the action that should be undertaken:

American Institute of Chemical Engineers

American Institute of Electrical Engineers

American Institute of Mining and Metallurgical Engineers

American Society of Civil Engineers

American Society of Mechanical Engineers

National Society of Professional Engineers

The committee recommended that the engineering societies attempt to influence Congressional legislation by:

> Presentation of testimony pertaining to modifications of existing labor laws which would guarantee to professional employees the right to determine whether or not they want to bargain collectively, and where they desire it to do so through representatives of their own choice; with the proviso that, the professional engineering societies should do nothing that would deny to professional employees the right to bargain collectively.
>
> Develop a suitable definition of "professional employee" and "sub-professional employee" which will be available should a demand for such definitions arise under existing labor laws or when new legislation is under consideration.[18]

Some engineers indicated a desire to be exempted from coverage by labor laws, even though they might not be members of management. The committee failed to recommend the support of such legislation and offered this explanation:

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[18] Ibid., p. 12.

> Exemption of professional employees . . . does not seem a promising solution of the problems facing professional employees . . . Probably it would be very difficult to justify exemption of professional employees, especially since some of them might protest such action. It has been pointed out that even if this objective could be achieved a problem would still remain. Labor organizations still could and probably would accept professional employees as members, and nothing in the . . . Act would preclude such action even if professional employees were excluded from the provisions of the Act. Moreover, in those instances in which professional employees believed they needed a bargaining agency to protect their interests, and the employer refuses recognition, the bargaining agency for the professional employees might have to resort to strikes to obtain recognition since the exclusion of professional employees from the . . . Act would not permit certification by means of an election under the supervision of the . . . Board.[19]

The individual societies accepted almost wholly the recommendations of the Committee on the Economic Status of the Engineer, and drew up the following specific points to be recommended to Congress should a chance occur to amend the Wagner Act:[20]

> 1. Any group of professional employees, who have a community of interest and who wish to bargain collectively, should be guaranteed the right to form and administer their own bargaining unit and be permitted free choice of their representatives to negotiate with their employer.
> 2. No professional employee, or group of employees, desiring to undertake collective bargaining with an employer, should be forced to affiliate with, or become members of, any bargaining group which includes non-professional employees, or to submit to representation by such a group or its designated agents.
> 3. No professional employee should be forced, against his desires, to join any organization as a condition of his employment, or to sacrifice his right to

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[19]Engineers Joint Council, Manual on Collective Bargaining for Professional Employees, (New York, 1947), p. 27.

[20]Carey, op. cit., p. 3.

individual personal relations with his employer in matters of employment conditions.[21]

The engineering societies organized the Engineers' Joint Council to promote a more concerted action for the reform of labor legislation. A committee from this group soon got its chance to swing into action. The committee "appeared before committees of Congress and, eventually, the so-called 'professional employees' provisions were incorporated in Public Law 101-80th Congress, cited as the 'Labor-Management Relations Act, 1947,' and commonly known as the 'Taft-Hartley Act'."[22]

The Engineers' Joint Council had succeeded in getting the provisions they thought desirable into the Taft-Hartley Act. The following excerpts from that law define the professional employee and guarantee him the right to organize a separate union:

> [Section 2 (12) of Public Law 101-80th Congress]. The term "professional employee means
> (a) any employee engaged in work
> (i) predominantly intellectual and varied in character as opposed to routine mental, manual, mechanical or physical work;
> (ii) involving the consistent exercise of discretion and judgment in its performance;
> (iii) of such a character that the output produced or the result accomplished cannot be standardized in relation to a given period of time;
> (iv) requiring knowledge of an advanced type in a field of science or learning customarily acquired by a prolonged course of specialized

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[21] Ibid., p. 3.

[22] Ibid.

> intellectual instruction and study in an institution of higher learning or a hospital, as distinguished from a general academic education or from an apprenticeship, or from training in the performance of routine manual, mental, or physical processes; or
> (b) any employee who
> (i) has completed the course of specialized intellectual instruction and study described in clause (iv) of paragraph (a), and
> (ii) is performing related work under the supervision of a professional person to qualify himself to become a professional employee as defined in paragraph (a).
> . . . . . .
> [Section 9 (b)]. The Board [NLRB] shall decide in each case whether, in order to assure to employees the fullest freedom in exercising the rights guaranteed by this Act, the unit appropriate for the purpose of collective bargaining shall be the employee unit, craft unit, plant unit, or subdivision thereof; Provided, that the Board shall not
> (1) decide that any unit is appropriate for such purposes if such unit includes both professional employees and employees who are not professional employees unless a majority of such professional employees vote for inclusion in such unit . . .[23]

There is evidence that the engineering societies will not again be lulled to sleep and lose interest in labor legislation. A complete evolution has occurred in their outlooks on Congressional action; they no longer discover its meaning by reading in the newspapers of its results months or years after the laws have been passed.

The constant attempts of strong lobbying forces to repeal the professional provisions of the Taft-Hartley Act help to keep the societies alert. The C. I. O. and the A. F. of L., including the American Federation of Technical Engineers (formerly the International Federation of Technical

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[23] E. L. Chandler, "The Union and the Engineer," op. cit., pp. 828-29.

Engineers, Architects, and Draftsmen's Unions), provide many arguments against these provisions before Congressional committees.

The societies are no longer alone in their defense of the professional provisions of the Taft-Hartley Act. The professional unions, born of the situation created by the Wagner Act, are now strong enough to maintain their own lobbying forces, and they want no elimination of the professional provisions.

The Birth and Growth of the Engineering Unions

The American Federation of Technical Engineers is the only union affiliated with the A. F. of L. which claims to be a professional engineering organization. It started in 1918 as the International Federation of Draftsmen's Unions, later adopted the title of International Federation of Technical Engineers, Architects, and Draftsmen's Unions, and finally assumed the title it bears today.

This union's growth has been unspectacular. By 1955[24] it had less than 7,000 members, and it did not appear to be growing rapidly.

There are differences in opinion as to the composition of the American Federation of Technical Engineers' membership. The president of the National Society of Professional

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[24]Bureau of Labor Statistics, Directory of National and International Labor Unions in the United States, 1955, (Washington, 1955), p. 30.

Engineers dismisses this union with the statement that "this group [American Federation of Technical Engineers], while using the word 'engineer' in its name, appears to have practically no membership among professional engineers, being confined to technicians or machinists of one kind or another."[25]

When this statement was pointed out to the President of the American Federation of Technical Engineers, he replied:

> With respect to any statement by the National Society of Professional Engineers, I can only say that most statements issuing from that group are false. While we do not restrict our membership to the professional engineers and do admit draftsmen and technicians to our organization, the proportionate rate of graduate engineers is very high. We have absolutely no machinists or other craft or tradesmen in our organization.[26]

The Independent Federation of Architects, Chemists, and Technicians organized in 1934 and admitted engineers to its membership.[27] Even though it was Communist-dominated from its inception, it was considered as the most rapidly growing engineering union in the nineteen-thirties. It affiliated with the C. I. O. and was incorporated into the United Office and Professional Workers Union. This union was finally expelled from the C. I. O. on charges of Communist-domination[28] and its numerical strength dwindled greatly.

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[25] T. C. Forrest, Jr., "Professionalism or Unionism," Mid-West Engineer, May, 1954, p. 13.

[26] Personal letter from Russell M. Stephens, President of the American Federation of Technical Engineers, March 9, 1956.

[27] "New Scientist Union Gets Going," Business Week, September 13, 1952, p. 161.

[28] Ibid.

Several small professional unions were born in the early nineteen-forties. Some of these were the units which the American Society of Civil Engineers and the American Chemical Society aided in organizing. The industrial effort in World War II and the post-war industrial growth created favorable conditions for these unions, and their development was rapid.

In 1946 several of the West Coast unions banded together under the title of the National Professional Association of Engineers, Architects, and Scientists. Four years later an East Coast group consolidated and adopted the name of Council of Engineering and Scientific Employees.

The professional unions felt the need of going one step beyond a regional organization, however, and attempts were made to tie the East and West Coast organizations together. This culminated in a meeting in Chicago in 1952 in which seventeen local engineering unions were represented.

The Chicago meeting[29] drafted a constitution and adopted the name of Engineers and Scientists of America for the national organization. All of the units represented at the Chicago meeting ratified the constitution, and the total numerical strength of the new national union was reported to be 25,000.

The Engineers and Scientists of America has reported a growth to 40,000 members in 1955. It claims to have

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[29]"New Association of Bargaining Groups Activated by Engineers," Engineering News-Record, January 15, 1953, p. 31.

a membership which is predominantly professional, and this assertion is readily accepted by many persons who are well-informed on labor matters.

However, the President of the National Society of Professional Engineers questions both the reported membership and the composition of the Engineers and Scientists of America:

> It is indicated from reliable sources that the actual membership of Engineers and Scientists of America is in the neighborhood of 13,000, not all of whom are professional engineers.
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> . . . . . .
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> It is understood that ESA officials admit that less than 10 per cent of their members are registered under state engineering laws, and some estimates have placed this statistic as low as 3 per cent.[30]

In reply to this charge, the president of the Engineers and Scientists of America states:

> . . . with respect to our membership [39,000] in the Directory of National and International Labor Unions in the United States, 1955, and the 1954 National Society of Professional Engineers publication, the number given in the Union directory is substantially correct. The NSPE estimates were based on assumed facts, on outdated facts, and on erroneous information. Our membership is composed of approximately 86 per cent professionals, virtually all of whom have professional degrees, and a large number of whom have Master's Degrees and Ph.D. Degrees. Many of those who are not classified as professional members do have college degrees but have not yet had sufficient experience to obtain professional status.[31]

It is interesting to note that both the National Society of Professional Engineers and the Engineers and Scientists of America do not consider a man a professional who has little

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[30]Forrest, op. cit., p. 13.

[31]Personal letter from Joseph Amann, March 8, 1956.

experience but has an engineering degree and is employed in engineering work. However, such a person is clearly defined as a professional in the Taft-Hartley Act.

The following are the local unions which make up the Engineers and Scientists of America:[32]

Association of Professional Engineering Personnel
Radio Corporation of America.

Council of Western Electric Technical Employees
Nationwide.

Engineers' Association
Sperry Gyroscope Company.

Engineers' Association of Arma
Arma Corporation.

Engineers and Architects Association
Lockheed Aircraft Corporation; Lockheed Aircraft Service Corporation; Rheems Manufacturing Company; City and County of Los Angeles; California State Highway Department; Convair Aircraft; Engineering Service Corporation.

Engineers' Guild of Oregon
Timber Structures, Incorporated; municipal engineers of the city of Portland; Oregon State Highway Department.

Minneapolis Federation of Honeywell Engineers
Minneapolis-Honeywell Regulator Company.

San Francisco Area Group of Professional Employees
Pacific Gas and Electric Company; East Bay Municipal Utility District; City of Alameda.

Seattle Professional Engineering Employees Association
Continental Can Company; General Electric X-Ray Company; Isaacson Iron Works; Boeing Airplane Company.

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[32]Blackburn, op. cit., pp. 60-61.

TVA Engineers Association
(eleven locals).

Wichita Engineering Association
Boeing Aviation Company.

Federation of Arsenal Engineers
Federal Cartridge Corporation.

Technical Association of Ward Leonard
Ward Leonard Electric Company.

Meter Division Engineers Association
Westinghouse Electric Meter Division.

Organizationally, Engineers and Scientists of America is similar to other national unions. Each local is autonomous, negotiating its own collective bargaining agreements, electing its own officers, and setting its own policies.

The avowed purposes of the Engineers and Scientists of America are set forth in its constitution:

> It shall be the purpose of ESA to promote the economic, professional and social welfare of engineering and scientific employees by:
> a. Gathering and disseminating to the member units, engineering students and other interested parties, information concerning salaries and working conditions, living costs, bargaining procedures, legislation, and other pertinent information;
> b. Assisting in the establishment of collective bargaining units of professional employees, and assisting such units upon their request in bargaining negotiations with employers, and in proceedings under the National Labor Relations Laws;
> c. Rendering assistance in the organization of other similar homogeneous groups of professional employees;
> d. Acting as spokesman for all engineering and scientific employees before governmental bodies;
> e. Seeking improvement in the quality of engineering and scientific education and promoting, in educational institutions, a better understanding of industrial employment.[33]

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[33]Engineers and Scientists of America, ESA Constitution and By-Laws, (Minneapolis, 1954), p. 3.

The Engineers and Scientists of America is careful to allow no supervisory personnel to join its ranks, as such membership in a local unit would jeopardize that union's rights to represent any group in collective bargaining. Membership is open to both engineering and scientific employees.

Small, unaffiliated professional engineering unions still exist, and are increasing in number. The following is a list which probably embraces a majority of the independent unions:[34]

Association of Engineers and Engineering Assistants
General Electric Company.

Southern California Professional Engineers Association
Douglas Aircraft Corporation; Southern California Gas Company; Los Angeles Department of Water and Power.

Association of Industrial Scientists
Shell Oil Company.

Research & Engineering Professional Employees Association
Standard Oil of Indiana.

Association of Westinghouse Engineers
Westinghouse Electric Elevator Division.

Federation of Westinghouse Independent Salaried Unions
(Nationwide).

Westinghouse Association of Engineers
Westinghouse Electric Corporation.

Republic Engineers Association
Republic Aviation Corporation.

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[34]Blackburn, op. cit., p. 64.

Association of Professional Engineers, Chemists, and Scientists
The Texas Company.

These independent unions have a total of at least 5,000 members, and possibly several thousand more than that figure. The Southern California Professional Engineers Association alone has 3,000 members.[35]

It seems probable that, in time, many of these independent units will affiliate with the Engineers and Scientists of America. However, the Southern California Professional Engineers Association has refused to join the Engineers and Scientists of America on the grounds that that organization represents too many non-professional employees.[36]

The regular craft and industrial unions have had little success in gaining professional members. An accurate measurement of professional employees in these unions is impossible due to the methods used in reporting memberships. These unions have apparently had their best success in the construction business where they have organized a few professional and sub-professional people.

Quasi-Unions

There is growing evidence that many engineers want some form of representation to management, but do not want to

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[35] Ibid.

[36] "Engineers Association Takes on a Union Patina," Business Week, August 28, 1955, p. 109.

resort to collective bargaining. Apparently the answer to this need is a company professional association which gathers opinions and facts from its members and from other sources and presents them to management. Such an organization would not seek certification from the National Labor Relations Board and would make no attempt to bargain collectively in the normal meaning of that phrase.

Such organizations do exist; the largest is probably the Schenectady General Electric Engineering Association, which has 1,300 members.[37] It permits both supervisory and non-supervisory personnel to join its ranks. Among its many accomplishments, the Association has induced the General Electric Company to pay engineers time and one-half for scheduled over-time. Representatives of management often attend the Association's meetings and attempt to answer the members' questions on company policy and activities as they arise.

Management in many companies is often hesitant[38] to deal with such organizations. If it encourages their creation and growth, the company may be charged under the Taft-Hartley law for "employer-domination." If the company provides places for meetings and sends representatives to voice management policies and opinions, domination charges may become even stronger.

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[37]Blackburn, op. cit., p. 87.

[38]Ibid., p. 94.

Furthermore, management has witnessed the formation of unions from other organizations which started with equally lofty intentions. Management often fears that a few union-minded individuals may capture control of such a group and change its original purposes.

Strikes By Professional Engineers

The ultimate weapon of any union is the strike. There is ample evidence that the Engineers and Scientists of America has not ruled out the use of this procedure to put additional pressure on management. Strikes have been called against the Sperry Corporation, Arma Corporation, and the Minneapolis-Honeywell Regulator Company.

The Engineers and Scientists of America unit which struck against the Minneapolis-Honeywell Regulator Company in 1954 had a membership of 1,100 out of a total of 1,500 professional workers at that plant.[39] Only 158 of the 400 non-union professional employees crossed the picket lines.[40] The unionists had warned that they would ostracize the professional workers crossing the picket lines. They stated that they would "choose our own friends with whom we ride in auto pools and with whom we have our lunch."[41] However, the

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[39]"Engineers Hoist Union Banner," Business Week, May 28, 1955, p. 168.

[40]Ibid.

[41]Ibid.

local industrial union refused to observe the engineers' picket lines, and the engineering union was forced to accept the company's offer.

There are not enough professional engineering strikes on record to answer a vital question: Will industrial and craft unions recognize engineer picket lines? Unions of this type refused to cross the engineers' picket lines at the Arma Corporation and the Sperry Gyroscope Company strikes, but crossed the picket lines of the strikers at the Minneapolis-Honeywell Regulator Company. The answer to this question may be the key to the eventual success or failure of professional unions.

The Attitude of the Engineer Toward Unionization

Although the professional unions are attempting to expand their ranks and the trade and industrial unions are making strong bids for engineer members, the average engineer appears to be unaware that unions for engineers exist. After a nationwide tour the President of the National Society of Professional Engineers reported ". . . I have been surprised to find a large portion of the profession completely unaware of this issue [unionization]."[42]

Three of the leading professional engineering societies, the American Institute of Electrical Engineers, the American Society of Civil Engineers, and the American Society of

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[42]Forrest, op. cit., p. 27.

Mechanical Engineers, undertook the task of discovering their members' opinions and memberships in unions.[43] A return of 64,206 questionnaires, representing 57 per cent of the total number of members, was achieved. Although the return was higher than the societies usually receive on questionnaires, it seems likely that many of those failing to return the questionnaires knew nothing of the issues upon which they were being questioned.

Only 3.7 per cent or 2,348 of those answering were members of collective bargaining units. However, 17,318, or 27 per cent, reported that they were not opposed to collective bargaining, and 12,833, or 20 per cent, reported that they believed that collective bargaining would be advantageous to them. Only 0.9 per cent of those who thought collective bargaining would be advantageous expressed a preference for craft or industrial unions to professional unions.[44]

If these returns are representative of the entire engineering profession, which is estimated to number 500,000, the number of engineers in unions would be 47,500. This figure checks rather closely with the combined strength of the Engineers and Scientists of America and the American Federation of Technical Engineers. Of course, the former organization, though predominantly made up of engineers, contains scientists,

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[43] Engineers Joint Council, General Assembly Proceedings, (New York, 1955), p. 9.

[44] Ibid.

while the latter is believed by many well-informed persons to contain many sub-professionals. However, for the purpose of speculation, it can be assumed that the engineer members of the independent professional unions and the craft and industrial unions will numerically make up for the discrepancies in the ranks of the two largest engineering unions, and thus add strength to the assumption that the engineers questioned represent a good cross-section of the engineering profession.

Further extrapolation of the questionnaire statistics indicates that 135,000 engineers are unopposed to collective bargaining and that 100,000 believe that collective bargaining would be beneficial to them. These figures indicate that energetic efforts in organizational drives by professional unions would be very rewarding.

Does the Engineers and Scientists of America plan to recruit these engineers who expressed a liking for collective bargaining? Its statement at the time of the release of the results of the American Society of Civil Engineers' survey indicated an affirmative answer: "The ESA stands ready to assist these 3,500 civil engineers in setting up their own collective bargaining organizations."[45]

Effects of Engineering Unions on Management

The effect of the unionized engineering group on management is somewhat complex. But one immediate

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[45]"Unionization," Consulting Engineer, January, 1955, p. 39.

> effect is to magnify the areas of poor supervision. In the past, industry generally has concentrated on training shop foremen in handling people because of the emphasis on production. Office and engineering supervisors have, for the most part, been left to their own devices in administering their personnel. Now, however, with engineering unions in the picture, this procedure has obvious shortcomings. Not only can a poor supervisor get himself in trouble by an improper decision, but he can also involve the company through establishing a precedent to be followed in other sections of the company.
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> . . . . . .
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> The advent of engineering unions may also restrict management's ability to make necessary organizational changes. For example, the changing of departmental functions may cause a realignment of job duties, with the result that it may be necessary to remove work from one bargaining unit and give it to another. Unless there is an unusual relationship with the unions, such a proposal will run into strong union resistance. What appears to management to be a logical and practical solution to a pressing problem may seem to the union a blatant attempt to violate the labor agreement. It is going to be some time before management is able to bring its relationship with an engineering union into a realistic management situation.[46]

Engineering unions, as did production unions in the past, tend to restrict the prerogatives of management. Some of these restrictions reduce arbitrary and unjustifiable actions and are undoubtedly laudable; others cause inefficiency and "red tape," which are obviously objectionable. The objectives of these restrictions are to further the interests of the union, so if any favorable results from them are realized by management, it is quite accidental.

One member of management summarized his views that the unionization of engineers will force management to make

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[46]Allen W. Walz, "Unionization of Engineers and Professional Employees--Management's Viewpoint," Management Record, August, 1955, p. 327.

concessions and will cause a reduction of the prestige of engineers. He further states that the engineers may still not be happy even when their demands are granted:

> Of course, it is fully realized that unionization of the individual engineer has also resulted in his having achieved some very tangible benefits, such as increased wages, longer vacations, additional holidays, more insurance protection, educational refunds, hazardous-duty bonuses, out-of-plant payment for services, improved pension programs and premium pay for overtime. Many of these are benefits which the production worker has in his labor agreement. It is no wonder, therefore, that management is beginning to look upon the unionized engineer as being of the same cloth as the unionized production worker.
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> . . . . . .
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> For as he shares in the benefits of unionism, so the engineer must also accept certain restrictions, such as reporting time worked and the method of wage payment. The impact of the engineer's realization that he can't have his cake and eat it may provide management with a discontented, frusterated, and highly paid engineer.[47]

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[47] Ibid., pp. 327-28.

CHAPTER III

THE CASES FOR AND AGAINST UNIONIZATION FOR ENGINEERS

The Arguments for Unionization

Introduction

Prior to 1935, the members of the engineering profession showed little liking for unionization and collective bargaining. However, the Wagner Act created a situation which made it necessary for many engineers to join unions. This situation was obviously unnatural; the professional societies which aided in the unionization and the engineers who made up the memberships of the newly-created engineering unions all showed a great reluctance to play the part demanded of them. The movement had all the earmarks of a purely defensive action.

The Taft-Hartley Act of 1947 eased much of the pressure on engineers to join unions. It is true that the engineers could still be forced into a union in a state that permitted the union shop, but the union had to be approved by the majority of the professional group at that company.

The engineer is known to the public as an individual who commands a high salary and possesses direct communication with management. With these overwhelming advantages and with labor legislation which no longer places great pressure on him to unionize, it would seem natural for him to adopt his former

policy of rejection of collective bargaining and abstaining from all union activity.

Strangely enough, the engineer is becoming increasingly interested in unions; professional unions are flourishing, and large segments of the engineering profession believe that collective bargaining would be to their advantage. A wide variety of reasons is offered for this attitude, and many of these justifications seem well based.

Salaries

The public is well aware of the shortage of engineers which exists in the United States. Its attention is focused on this topic by countless magazine articles, full-paged newspaper advertisments, and sensational stories of the efforts by industry to hire engineering graduates. The assumption that the engineer, experienced or not, can take his choice of many jobs is substantially correct.

But what of the salary commanded by the member of the engineering profession? What is it and what should it be?

Apparently there is no accurate method of determining what the economic remuneration should be for the various occupations in American society. It is true that many job evaluation plans are in operation, attempting to determine scientifically the value of each job performed in industry. But these systems must make many arbitrary assumptions, such as the relative importance of two such diverse factors as

knowledge and working conditions. Furthermore, these plans are bent to conform with reality; i.e., if an entire group is rated well above or below the wage that is being paid that group in industry, the evaluation is changed, not the wages or salaries of the group.

Theoretically, the law of supply and demand can be applied to salaries and wages. It seems fully justifiable for workers and employers to be influenced wholly in the setting of wages and salaries by the conditions of the "labor market."

Many engineers believe that many controlling factors have been introduced in the setting of salaries and wages; they believe that economic remuneration does not follow natural laws, but is largely administered by powerful forces.

In the nineteen-twenties and the early nineteen-thirties the life earnings of engineers averaged slightly over three[1] times the amount of the life earnings of the typical skilled worker. Since that period the differential between the skilled workers' wages and the engineers' salaries has constantly decreased, and there is evidence that the ratio of median salary to median wage is only about one and one-half at the present time.

Figure 1 indicates the relationships which existed in 1940 and in 1951 between the salary of the median engineer with varying amounts of experience and wage of the median skilled worker.

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[1]Harold F. Clark, Life Earnings in Selected Occupations in the United States, (New York, 1937), pp. 50, 110.

In presenting the graph which was incorporated into this report as Figure 1, Blackburn[2] did not reveal the details of the statistics being plotted. However, it appears that he had data for engineers with one, five, and fifteen years' experience and interpolated by straight-line plotting to show values for engineers with intermediate years of experience.

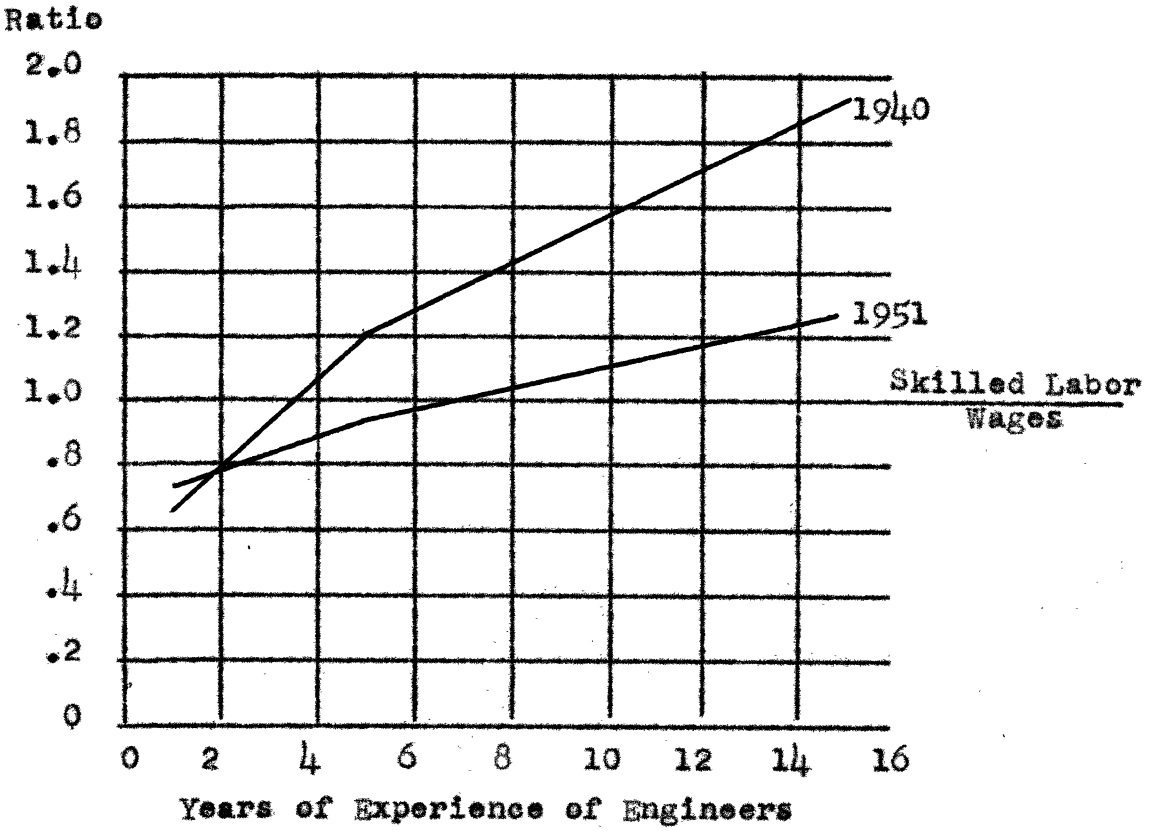

Fig. 1--Ratios of engineers' salaries to skilled workers' wages, 1940, 1951.

From 1940 to 1942, the engineers who had one year and three years experience in industry were receiving

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[2]Robert A. Blackburn and others, A Professional Look at the Engineer in Industry, (Washington, 1955), p. 51.

salaries averaging 65 to 90 per cent respectively of the pay of skilled labor. The 15-year engineer was getting about 1.95 times the pay of the skilled laborer. In 1951 the 15-year engineer was getting only 1.25 times the pay of the skilled laborer while the one year man was getting about 70 per cent of the pay of the skilled laborer . . . In comparison to the median pay of skilled laborers, in the past 10 years, the pay of engineers with 15 years experience has dropped more than 35 per cent. On the other hand, the pay of the engineer just graduated from college has on the same basis, improved his relative standing which went from 65 per cent to 70 per cent or an increase of about 7.6 per cent.

Now the engineer five years out of college really took a beating. In 1940 his ratio of earnings to the pay of skilled labor was 1.20 but by 1951 it dropped to 0.94 or a loss of almost 21.6 per cent. Today the median pay of engineers five years out of college is just about, not quite, the wages of a skilled laborer.[3]

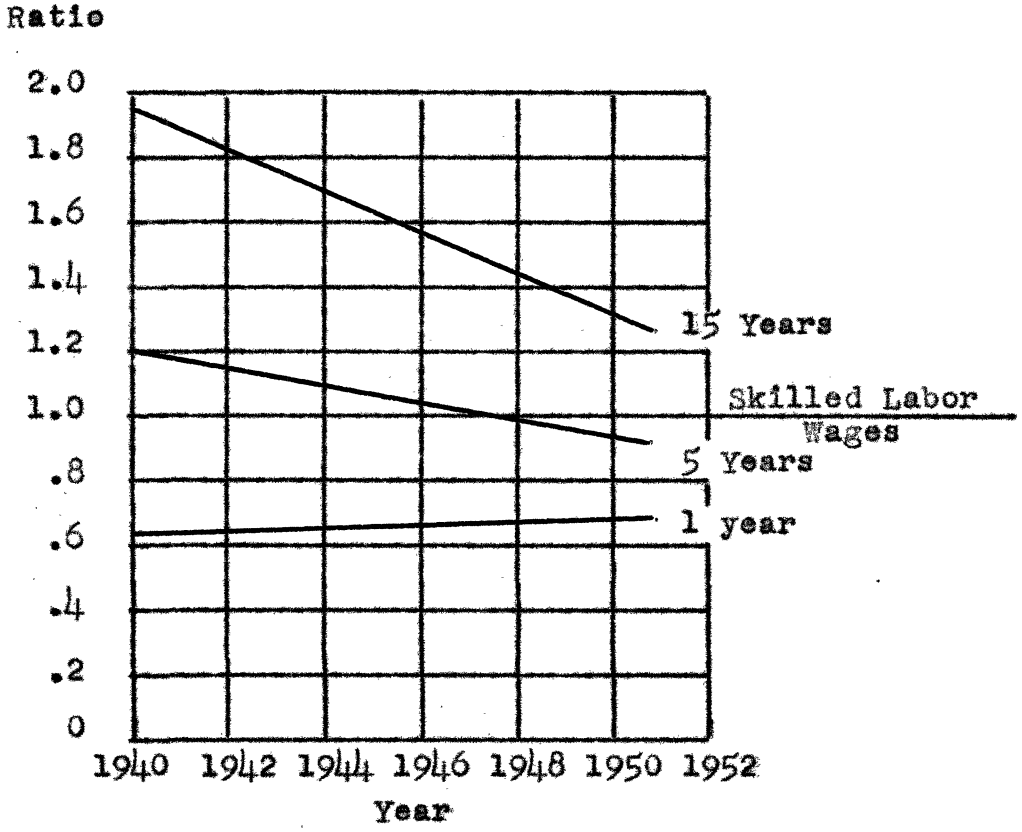

Fig. 2--Ratios of engineers' salaries to skilled labor wages for engineers with one, five, and fifteen years experience.

[3] Ibid.

Figure 2 shows, for the period 1940 to 1951, the ratios of engineers' salaries to skilled laborers' wages. Data are presented for the engineers with one, five, and fifteen years of experience.

It is apparent that skilled labor has been constantly enjoying better pay increases in relation to the engineers with fifteen and five years' experience. Only the engineer with one year of experience has managed to achieve a better relationship in regard to skilled labor's pay.

The engineering unions appear to believe that this trend is due to the wage increases that have been won by craft and industrial unions over a long period of time. It is theorized that management has been forced by collective bargaining and strikes to raise the pay of production workers, but that no pressure has been put on industry to raise engineers' salaries and the result has been a loss in relative economic position for the engineers. The correction of this situation seems obvious to unionists: collective bargaining and, if need be, strikes by engineers.

The engineering unions have another strong objection to the present salary structure. There has been a definite trend of increasing the beginning engineer's salary without proportional increases for experienced engineers. "In 1939 the salary of an engineer of fifteen years' experience was roughly three times that of a new man; today [1954] it is often less

than twice as much."[4] This "leveling process," evident in Figure 2, means that many engineers serve long periods in employment with only token increases in pay. Yet, paradoxically enough, it is generally agreed in industrial circles that the engineer fresh out of college contributes little to his company for several years.

An officer of the Engineers and Scientists of America summarizes briefly his views on this condition:

> The newly graduated engineer with no experience, no children, no mortgage, and no roots in the community . . . still has a great bargaining tool--mobility. It alone prevails in the face of well-integrated salary policies; for evidence note our expectation that next June's [1956] new grads will be starting at over $400 per month. Not bad says much of the public, but what the public doesn't realize, and the engineer soon will find out, is that the new engineer is now getting a good share of his first three years' merit raises in his starting rate.
>
> The only cure for this "compression from the bottom" would be the elevation of the whole engineering salary structure. Our captains of industry, however, have not mastered the engineering market with a view to buying expensive solutions like this.[5]

The reference of Taft to the capture of the engineering market is a facet of the basic premise of the engineering unions that management has interfered with the law of supply and demand in regard to engineering salaries. Industry needs engineers badly, but refuses to increase wages to attract the experienced engineers.

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[4]"Organized Engineers," Fortune, June, 1954, p. 68.

[5]Everett Taft, "G. E. and the Shortage," ESA News Digest, September-October, 1955, p. 6.

The unions do not mean to imply that the young engineer is overpaid; their belief is that the experienced engineer should be paid much more to permit significant salary increases. The unions are fond of quoting ex-President of the United States Herbert Hoover on the unattractiveness of engineering salaries: "A young mechanic with three years of training, during which he is paid, can earn more take-home pay after taxes than a young engineer with six years of training and three more of experience."[6]

Engineers sincerely believe that the industrial progress of the United States is due largely to their efforts, and that their salaries should be in proportion to their accomplishments. A summation of the engineers' achievements by the Assistant to the Vice President of Westinghouse Electric Corporation lends weight to their claims:

> Our profession is responsible for most of the material progress in the world . . . As we enter the second half of the twentieth century it is evident that the engineers are the ones who must be responsible if our accelerated pace is to be maintained.[7]

Further weight is given to the importance of engineers in a letter from the President of the United States to the President of the National Society of Professional Engineers: ". . . I am glad to pay tribute to the engineering profession, to the men whose practical applications of scientific

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[6]"Must Engineers Unionize?," Chemical Engineering, July, 1952, p. 376.

[7]H. N. Muller, Jr., "The Engineer as an Individual in Industry," Journal of Engineering Education, June, 1953, p. 566.

knowledge have played a major role in our nation's achieving the highest standard of living the world has ever known."[8]

The Secretary of the Air Force, Donald Quarles, indicates the importance which he places upon engineers by commenting on the shortage of engineers as "potentially a greater threat to national security than any aggressor weapon known."[9]

Almost everyone, from government officials to management itself, seems to agree on the important role played by the engineer. However, the engineer's median salary remains only slightly above that of the skilled worker and about equal to that of the foreman. The professional unions angrily call for alleviation of this condition by organization and collective bargaining, and a large portion of the engineering profession agrees with them.

Loss of Professional Status

The engineer is often pictured as an intellectual individual whose job is to attack a difficult technical problem and carry it through to a solution. This picture was fairly accurate in the past, but the evolution of industry has wrought many changes upon the engineering profession. The scope of the individual engineer's work has

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[8]Letter From President Dwight D. Eisenhower to A. C. Neff, American Engineer, February, 1956, p. 12.

[9]"Unions for Engineers," Mid-West Engineer, February, 1956, p. 8.

often been reduced, while the total number of people in the profession has increased greatly.

> The steady, long-term growth of the engineering profession from 1910 onward saw a sharp acceleration in the decade from 1940 to 1950, when the number of engineers almost doubled. This is a fantastic growth for any group. And a point has now been reached where firms such as Boeing Airplane Company and Western Electric employ over 5,000 engineers. Some bigger companies, such as General Electric and American Telephone and Telegraph, employ tens of thousands. But even firms that the public may not have heard of, such as Arma, employ 500 or so engineers, while Sperry Gyroscope has about 2,500 engineers, and the Tennessee Valley Authority has several thousands. And of these 500,000 engineers, approximately 80% are employed in industry, with the majority of them working for the big firms.[10]

Engineers employed in large numbers often found their work bearing characteristics of production work. Designing became highly specialized, with each engineer contributing only a small portion to the completed whole. "some plants--Republic Aviation Corporation, for example--often have hundreds of engineers working at drawing boards in a single room. While clustering engineers may be practical from the company's standpoint, the setup isn't likely to enhance an engineer's sense of individuality or professionalism."[11]

> A more dramatic example of this increase in complexity can be found in comparing the number of engineering man-hours needed to develop a World War II fighter plane with the man-hours needed to develop a jet fighter today. While tens of thousands of engineering man-hours were required in the first instance,

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[10] John E. Taft, "Unionization of Engineers and Professional Employees--Labor's Viewpoint," Management Record, August, 1955, p. 323.

[11] "Engineers' Association Takes on a Union Patina," Business Week, August 28, 1954, p. 109.

hundreds of thousands are needed for the modern jet fighter.[12]

The high concentration of engineers has reduced the ratio of production workers to engineers to fifteen to one in many locations, instead of the industry-wide average of fifty to one. With such concentrations of engineers, management has come to think of and treat them as production workers rather than as individual professional employees.

Engineers highly prize their professional classification, and they resent any action which tends to change their work to that of a less professional nature. The engineer-unionists believe that they can demand and obtain conditions which will restore and maintain the characteristics which identified engineering work in the past. This includes the broadening of the scope of the work and the improvement of working conditions.

It has long been said that engineers were considered a part of management, but this condition no longer exists in industries with high engineer concentrations. The engineer perhaps finds communication with management more difficult than does the production worker, for the engineer often has no union to speak for him.

In recent years a team of researchers from the University of Chicago performed a survey to determine the outlooks and attitudes of technical people in industry. Their sample

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[12]John E. Taft, op. cit., p. 323.

of 587 professional employees in 19 working groups painted a gloomy picture:

> The technical experts, engineers, and other professionals in industry seem to be far more frustrated than satisfied . . .
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> The attitude of the professionals, the probers found, is only slightly more favorable than that of production workers and factory labor--about the same as routine office employees. It shows less satisfaction than that of skilled workers, foremen, salesmen, or management.[13]

This research revealed that, of all employees, the engineers were at the 35th percentile level on acceptance of working conditions. They were in the lower 15 per cent in opinion of the effectiveness of company administration. These attitudes seem to prove that the views of the professional unions on the loss of professional status reflect to a large extent the views of a majority of the engineers in industry.

Miscellaneous Union Arguments

The professional unions insist that in our modern society each group must have some representative to speak for it. It is maintained that the individual professional employee is at a tremendous disadvantage by merely trying to represent himself to the management of his own company, and he and his group have no representation at all in national affairs unless they are organized. Such groups as the Aircraft Industries Association, the National Association of

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13"Theme Song of Engineers Is the Blues," Business Week, February 26, 1955, p. 116.

Manufacturers, and the Associated General Contractors present unified fronts for management by exchanging salary information among their members and by attempting to influence legislation. Only by unionization, the professional unions assert, can the engineer-employee fight the forces working against his better interest.

Any suggestion that the engineering societies can act as the engineer-employee's representative in national affairs is scoffed at by the unions. The large number of professional societies that exist, their employer-domination, and their outspokenness against professional unions are offered as reasons for inadequate representation by societies.

Another complaint of the unions is that salaried employees are often required to work overtime without compensation. "Right after the Korean war broke out in 1950, many engineering employees were put on overtime work--with no extended pay."[14] The unions insist that the only protection for employees from such arbitrary action is a union contract providing for compensation for all overtime. When such contracts are in effect "employers will stop using engineering overtime as a money-saving device and a buffer for poor planning."[15]

A more general and basic attitude of the unions is that the professional worker has been almost unorganized and his

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[14]John E. Taft, op. cit., p. 324.

[15]"Engineer-Scientist Employee Groups Plan Recruiting Drive," Engineering News-Record, March 5, 1953, p. 28.

position in industry has steadily worsened. On the other hand, the production workers are highly organized and have gained concession after concession from management, greatly elevating their positions. The conclusion seems obvious: the professional employee could have retained his position if he had organized long ago; he can stop the present trend against him and perhaps re-establish his former position by organizing now. Perhaps this viewpoint is best expressed by an anonymous engineer who said "We have leaned on our mythical professional status until my white collar is frayed. I want economic status, too."[16]

The raging controversy has not been restricted to prose. One Engineers and Scientists of America group has published a poem which seems to express its basic philosophy:

They're Organized

A stage driver passed o'er the trail one day--
Past meadow and woodland he took his way.
His long whip snapped with unerring aim,
Whether standing or moving, 'twas just the same.

A horsefly fell as the snaky lash
Shot out as sure as the lightning's flash;
A grasshopper here and butterfly there
Fell prey to his aim as they winged the air.

A hornet's nest hung in a limb near by,
But the stage driver passed that carefully by.
"What's the matter," his passenger cried, surprised.
"Why," he answered, "them hornets is organized."

The horsefly, the butterfly, the grasshopper, too--
And their fate is a lesson and warning to you.

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[16]"Engineers Association Takes on a Union Patina," op. cit., p. 108.

You will flutter and fall with hoppers and flies,
Unless, like the hornets, you're organized.[17]

The Arguments Against Unions

Professional Status

> With the appearance of ESA as a national organization dedicated to the unionization of the engineering profession, the long-smoldering controversy has come into the open as never before. On one side are ranged most of the engineering societies, many of the leaders of the profession, and in some cases spokesmen for industries employing large numbers of engineers, all of whom see the threat of unionization at the beginning of the end of a profession and the eventual emergence of a unionized trade. On the other side are the ESA and other union spokesmen who vigorously contend that unionization does not entail the loss of professionalism; that it is only a necessary device for the engineers to obtain their just due from their employers. In the middle of the struggle are the thousands of employed professional engineers, many of whom are confused and uncertain, often not satisfied with their economic conditions but concerned with the possible loss of their professional status and often dubious that a union can really help them in their twin goals of professional growth and economic advancement.[18]

The opponents of unionization proclaim that almost all of the characteristics that mark a profession must be sacrificed when many members of that profession join a union. Professional conduct is entirely incompatible with union conduct; the goals of unions and professions are opposed to one another, and a man cannot be a true member of either organization by trying to be a member of both.

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[17]"They're Organized," ESA News Digest, June, 1954, p. 7.

[18]Blackburn, op. cit., p. 67.

Many articles have appeared in the engineering publications stating professional reasons for the rejection of unions by engineers. The best and most complete summation of the arguments appeared in the monthly organ of the National Society of Professional Engineers:

> 1. Unionization destroys the solidarity of the profession. It disrupts. It divides. It sets class against class, employee against employer, union-member against non-member--instead of all pulling together as fellow-members of one profession.
> 2. The usual methods of unions (coercion, strikes, picketing, closed shop, etc.) should be unthinkable in a profession. Such methods are inconsistent with all of the ethical ideals of the profession.
> 3. A union seeks selfish immediate advantages for its members even though the public suffers thereby or the long-range interests of the profession are sacrificed.
> 4. A profession occupies a position of public trust. It violates that trust if it unionizes to threaten or coerce the public.
> 5. Engineers, in particular, occupy a position of confidence and trust between capital and labor, and between employers and employees. Unionization is inconsistent with the highest discharge of that trust.
> 6. Transportation facilities, water supply systems, and light and power services are dependent upon professional engineers for their uninterrupted maintenance and operation. Participation in, or passive support of, a strike which would interrupt or endanger the food, water, power, or light supply, or the transportation services, to the population of a community would be a violation of the public trust "to safeguard life, health and property."
> 7. Unionization places the sole emphasis on wages and hours, and on union membership, instead of emphasizing qualifications and quality of service.
> 8. Unionization tends to pull all members of a profession down to the same level, discouraging individual effort, loyalty, and ambition.
> 9. Unionization blinds its disciples to the common decencies of fair play, mutual consideration, and loyalty, and substitutes selfishness, vindictiveness, and prejudice. Under the strong feelings of unionized warfare, its disciples forget that it is a violation of professional ethics and honor "to attempt to injure the professional reputation, prospects, or business of another Engineer."

10. Unionization is identified with the trades. Unionization of Engineers undoes the work of years in winning public recognition of Engineering as a profession.

11. Unionization is inconsistent with the professional spirit and attitude, which places service before profit, the honor and standing of the profession before personal advantage, and the public welfare above all other considerations.[19]

Salaries, Promotions, and Communication with Management

Those individuals opposing engineering unionization strongly dislike the establishment of salaries for engineers by union contract. They believe that the engineer should be paid on his own merits and not on such arbitrary features as seniority, which is specified in some union contracts. The engineering profession contains men with varying degrees of talent and intelligence. ". . . a man of sub-average ability may suddenly enjoy an increase in salary. On the other hand, the man of high imaginative ability and unique talent suffers. This is the price paid for narrowly defined wage schedules and rigidly specified union contracts."[20]

Furthermore, unions almost always attempt to negotiate a contract requiring seniority considerations in times of layoff. The normal procedure, of course, is for companies to lay off those engineers of least value to them. This appears to be a healthy program for both the company and the

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[19]D. B. Steinman, "The Professional Engineers' Answer to Unionization," American Engineer, May, 1939, p. 14-15.

[20]W. Conrad Fernelius, "Why Professional Engineers Should Not be Unionized," Chemical and Engineering News, November 8, 1954, p. 4460.

profession. It allows the best men to retain their jobs, and it encourages the rejected men to seek work in proportion to their talents, perhaps in sub-professional tasks such as surveying or drafting.

Opponents of engineering unionization are sure that the organized engineers will have little chance to be promoted to management positions. Although many engineers do become managers under present conditions, there is evidence that engineers are not universally successful in managerial positions because they tend to shun problems which cannot be measured, and they are slow in coming up with answers because they wish to make sure that they are 100 per cent correct. Performance in the field of human relations is also poor as evidenced by a recent Glenn L. Martin survey which showed that organizations headed by engineers have more industrial relations troubles than other organizations.[21] If unionization is added to the list of the engineers' shortcomings it is possible that engineers may find the door to management closed to their entire profession.

Although the professional unions often claim that collective bargaining will improve communication with management, the opponents of unionization maintain that it will drive a wedge between management and the engineer.

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[21]Wm. B. Given, Jr., "The Engineer Goes into Management," Harvard Business Review, January-February, 1955, p. 43.

> How can the engineer be taken into the confidence of management with reference to problems where the engineer's knowledge or judgement is important to the business, if the manager knows that such information could be of great value to a union for propaganda or collective bargaining purposes? This cannot help but build a wall between the professional personnel and their management.[22]

Alternate Solutions to the Problems of Engineers

The majority of those individuals opposed to the unionization of engineers readily agree that there are many justifications for unrest in the engineering profession. The lost economic position of the engineer, his reduced professional status, his poor working conditions, and his loss of communication with management are all admitted and recognized. But these union opponents maintain that diligent work in fields other than unionization can obtain the action necessary to rectify the troubles that face the profession today.

The proposed action calls for the full cooperation of the engineering societies, the professional engineers, and management. The cooperation of the first two of these interested parties should be immediately forthcoming, but how far will management, often cast in the role of the oppressor, go along these lines? The supporters of an alternate plan to unionization answer emphatically:

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[22]K. B. McEachron, Sr., "Unionization of Professional Personnel," Journal of Engineering Education, November, 1953, p. 148.

> We specifically reject the contention that industry will not do its part in seeking an improvement in the professional and economic standards of its engineers. Industrial history proves better than all other arguments that American industry has achieved its pre-eminent position because it has been forward-looking and adventurous in the exploration of improved techniques. Industry generally recognizes that technological progress results in large part from the devoted interest of engineers and scientists, as well as the management and production force. The very future of industry rests upon its increased acceptance of this fact.[23]

Those who propose correction without unionization are not in full agreement on the steps to be taken, but the plans and suggestions incorporated into this section of the report represent a fairly complete composite of the solutions being set forth.

The many professional societies should be combined into one strong, united society with the dedicated purpose of elevating the professional and economic status of the engineer. The present hodge-podge of societies would be merged into an organization resembling the American Medical Association. The Engineering Society would be able to exert strong, beneficial influence on industry as the American Medical Association does on hospitals; it would be able to present representation before legislative bodies and raise the professional levels of schools as does the American Medical Association. The societies have been working more closely in recent years, and the final merger is a definite possibility.

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[23]Blackburn, op. cit., p. 100.

The formation of non-bargaining units such as the Schenectady General Electric Engineers Association is desirable to aid management in discovering its failures toward engineers. Such an association also tends to remind the individual engineer that he is a professional, and it is essential that this thought be upmost in his mind. Such organizations must guard against tendencies to exert unethical and unprofessional pressures upon management.

The non-bargaining associations and the professional socieities (merged or individually) should urge management to reconsider its policies of working engineers in large groups. While it is realized that each engineer cannot have a separate office, the cost of providing more privacy for engineers by working them in smaller groups will be paid back many times in increased morale.

Management should be urged to take steps to show awareness and appreciation of the contributions of engineers to the company and to the profession. Awards, letters of commendation, and articles in the company paper can be used to perform this function. "It is important that they receive credit for their contributions to the advancement of technical knowledge or the profession as a whole."[24]

Management can help the engineer's faith in his professional standing by exercising greater control over the title

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[24]Report of the Committee on Employment Conditions of the Engineers' Joint Council, (New York, 1956), p. 12.

of "engineer," and the groups interested in furthering the engineering profession can point out the importance of this matter to the leaders of industry. "Management is likely to class everyone who has any part in its 'engineering division' as an engineer . . . whereas . . . a majority of those included may not be, and never will [be], appropriately so classified."[25]

> To designate an employee as "Chief Engineer," "Head, Engineering Services," or similar titles, when the occupant is not a qualified engineer reduces respect for all engineering titles and casts doubt upon the professional qualifications of all holders of engineering positions. Where it is desirable to have a non-engineer in a position which normally would involve an engineering title, it would be desirable to re-designate the position appropriately.[26]

The problem of improving communications rests squarely upon the shoulders of management, and the necessity for doing so must be pointed out to company officers by the engineering societies and the non-bargaining associations. "There should be an organized orientation and training program for new employees. Engineers need to understand the basic policies of their employer. They need to know their responsibilities and their opportunities for advancement."[27]

Management must be made aware of the discontent that engineers feel about their present salaries. The urgent

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[25]Engineers' Joint Council, General Assembly Proceedings, (New York, 1955) p. 13.

[26]Blackburn, op. cit., p. 101.

[27]Report of the Committee on Employment . . . op. cit., p. 12.

necessity for making upward adjustments on experienced engineers' salaries must be impressed upon the people who set salary-establishment policies; they must be brought to realize that, one way or another, engineers are determined to have better incomes. the choice lies with management; it can grant the increases now on its own volition in an atmosphere of friendship, or it can force the engineering profession to organize and wrest the concessions from management.

While attempting to educate management on the need of an entirely new approach to engineering employees, the engineering societies and the non-bargaining associations must persuade the more hot-headed engineers to desist in their actions and plans of open warfare upon management; they must instill a professional outlook in the engineers who are yet undecided. These functions entail the pointing out of the shortcomings of unions to engineer-employees.

The non-supervisory engineers must be brought to realize that unions can and will create tensions that will change engineering from an interesting, enjoyable, challanging profession to a task that must be performed for hated supervisors. They must realize that the union will bind them to agreements made for the good of the union, not for themselves. They will be serving a new master whose strangling powers over them will restrict their individuality much more than management ever did.

The program of action by the professional engineering societies calls for a many-pronged attack upon the conditions of attitude which have caused 27 per cent of the members of three societies answering a questionnaire on unionization to state that they are unopposed to collective bargaining. The Engineers' Joint Council stated that "We have the responsibility of trying to alleviate conditions which have created this attitude."[28]

Because of their respected and influential positions it is essential that the engineers in the field of education assume an active and leading part in the task of making engineers aware of union pitfalls. By repeating a fable of Aesop, Dougherty has set an example for his fellow educators by warning engineers of the dangers of being captives of a union:

> A bitter quarrel arose between the horse and the stag in the days when both creatures roamed wild in the forest. The horse came to the hunter and asked him to take his side in the feud.
>
> The hunter agreed, but added: "If I am to help you punish the stag, you must let me place this iron bit in your mouth and this saddle on your back."
>
> The horse was agreeable to the man's conditions and he soon was briddled and saddled. The hunter sprang to the saddle, and together they soon put the stag to flight. When they returned, the horse said to the hunter: "Now if you will get off my back and remove the bit and saddle, I will not require your help any longer."

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[28]Joint Engineers' Council, General Assembly Proceedings, (New York, 1955), p. 9.

"Not so fast, friend horse," replied the hunter, "I have you under bit and spur, and from now on you shall remain the slave of man."[29]

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[29]N. W. Dougherty, "Professionalism and Unionism," Consulting Engineer, April, 1955, p. 32.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Summary of Findings

This research report was carried out for the purposes of tracing the history of the unionization of engineers, presenting the arguments for and against engineering unionization, summarizing the facts discovered on the unionization of that profession, and drawing conclusions on the merits and trend of the engineering unionization movement.

It was often necessary to consider scientific personnel with engineers due to the tendency of the two groups to organize together. However, engineers have shown little interest in craft and industrial unions, so these organizations were usually discussed only for the purposes of comparison.

Data were obtained for this research report by reviewing the libraries of North Texas State College, Southern Methodist University, and Texas Technological College. An attempt was made to present and explain all the divergent views discovered on the history and merits of engineering unionization.

Further data were obtained by writing directly to six professional engineering societies, the American Chemical

Society, and to two engineering unions. All but one of these organizations answered.

A review of the information available at North Texas State College revealed no dissertation or thesis from any college or university related to this research report. However, two books, Technologists' Stake in the Wagner Act, published by the American Association of Engineers, and A Professional Look at the Engineer in Industry, published by the National Society of Professional Engineers, and one memorandum, Engineers, Unionization and the Tax Status of ASCE, published by the American Society of Civil Engineers, were partially related to the subject being studied.

Although unions have been gaining strength in the United States for many decades, engineers were untouched by this movement until 1935. In that year Congress passed the Wagner Act, which was designed to permit employees to unionize and bargain collectively.

The majority of the engineers were clearly employees under the definitions of the Wagner Act. Some engineers were forced to join heterogeneous unions whose outlooks had little in common with those of professional groups. Once engineers had been absorbed into such a union, it was next to impossible for them to be decertified by the National Labor Relations Board.

Although very few engineers desired membership in craft or industrial unions, their wills were often thwarted by

those highly organized and experienced unions which presented strong cases before the National Labor Relations Board justifying their organizations as the appropriate representatives for many groups containing engineers. As counter-measures were not usually presented by the inexperienced and bewildered engineers, the National Labor Relations Board usually approved such requests.

The engineers often turned to the engineering societies for aid, but these organizations were inexperienced on unionization and undecided on what course they should follow. Furthermore, these societies had many management personnel members and officers, who were forbidden by law to "dominate or interfere with the formation or administration of any labor organization or contribute financial or other support to it." The societies had only limited funds, making it difficult to carry out any large undertaking.

Nevertheless, the American Society of Civil Engineers appointed a committee in 1937 to study unionization, and by 1943 that Society was aiding groups of engineers and scientists to form their own independent unions. Law violations were avoided by severing all connections with the organizing groups before they requested certification from the National Labor Relations Board. However, the failure of a professional group at the Sunflower Ordnance Plant in 1943 to win decertification from a heterogeneous union indicates the mixed

success of the American Society of Civil Engineers and the professional groups which appealed to the National Labor Relations Board.

Although the American Society of Civil Engineers was the only major society actively to aid the engineers faced with unionization, one of the minor societies, the American Association of Engineers, issued legal advice to the distraught engineers. That Association published a book in 1944, Technologists' Stake in the Wagner Act, which became a handbook for engineers threatened with unionization. The American Association of Engineers favored collective bargaining for engineers; the American Society of Civil Engineers was aiding the engineers to organize only to save them from the craft and industrial unions.

The first major victory to be won by professionals over a production union came in 1942 under the leadership of the American Chemical Society. The National Labor Relations Board permitted a group of professional employees at the Shell Development Laboratories to form their own union, and the Board rejected a production union's request to act as representative for the professional employees. This seemed to indicate that professional employees could win autonomy if they took strong action before being certified under a production union.

It would be misleading to suggest that unionization was overwhelming engineers in the twelve years following the passage of the Wagner Act. Only large groups of engineers in

non-government employment were highly susceptible to organizational efforts. Consequently, by 1947, certainly less than 10 per cent, and probably less than 5 per cent, of all engineers were unionized.

By 1947, all of the major engineering societies had joined the American Society of Civil Engineers in its struggle to aid engineering employees to set up their own bargaining units rather than join production unions. These cooperating societies were permitted to testify before Congress, and some of their recommendations were incorporated into the Taft-Hartley Act of 1947.

This new labor law defined professional employees in terms of the difficulties and nature of work performed and the training and education required for their occupations. Furthermore, the Taft-Hartley Act forbid the National Labor Relations Board to certify any heterogeneous union unless a majority of the professional employees to be included had voted approval of the proposed action.

The American Federation of Technical Engineers, an American Federation of Labor affiliate, represents the most successful effort of the production unions in organizing professional engineers. This union started in 1918, and its slow growth still has not attained for it 7,000 members.

The small independent professional unions born in the nineteen-forties under the Wagner Act did not perish when the Taft-Hartley Act made defensive unionization unnecessary.

Instead, they grew steadily, and seventeen of these units formed a loose national organization in 1952, entitling it the Engineers and Scientists of America. This union seems to be composed almost entirely of professional employees, and it reported a membership of 40,000 in 1955. Its objectives appear to be similar to those of production unions, i.e., to raise the economic status of its members. The Engineers and Scientists of America have refused to affiliate with craft or industrial unions.

The President of the National Society of Professional Engineers questions the claimed composition of the American Federation of Technical Engineers and both the membership and the composition of the Engineers and Scientists of America. He believes that the American Federation of Technical Engineers contains very few professional engineers and that the Engineers and Scientists of America has only about 13,000 members, of whom less than 10 per cent are registered professional engineers. Although most writers on the subject of engineering unionization tend to agree with him concerning the American Federation of Technical Engineers, they seem to believe that the Engineers and Scientists of America is made up predominantly of professional engineers and has close to the claimed membership of 40,000.

Several independent professional unions still exist, although it is likely that many of these will eventually join

the Engineers and Scientists of America. These independents have over 5,000 members.

Professional associations, representing engineers but not bargaining collectively, exist at many plants. These organizations make the wishes and opinions of the engineers known to management in a friendly manner, and do not use the strike as a threat. Managements' reactions to these organizations vary; some cooperate fully, while others hesitate for fear of violating the "employer domination" laws. Still others believe that such organizations should not receive cooperation because they may eventually become bargaining units.

Member units of the Engineers and Scientists of America have struck in recent years against the Sperry Gyroscope Company, Arma Corporation, and the Minneapolis-Honeywell Regulator Company. In two of these three strikes, production workers refused to cross the engineers' picket lines, but in the third strike production workers failed to observe the picket lines. These data are insufficient to indicate a trend of production worker support or lack of support for striking engineers.

Three of the major professional societies, American Society of Civil Engineers, American Society of Mechanical Engineers, and American Institute of Electrical Engineers, polled their members to determine their memberships in and attitudes toward engineering unions. Fifty-seven per cent,

or 64,206, of the members answered the questionnaires. Of these, 27 per cent reported that they were unopposed to unionization. To a separate question about the advantages of unionization, 20 per cent of those answering believed that collective bargaining would be beneficial to them. However, of the 64,206, less than 4 per cent were members of unions. Of those who thought that collective bargaining would be beneficial, less than 1 per cent expressed a preference for production unions.

If these figures are assumed to represent the entire engineering profession (estimated to number 500,00), the union membership among engineers would number 47,500 (3.7 per cent of 500,000). This figure is fairly close to the number of engineers known to be in unions, so this procedure of extrapolating the societies' statistics seems to give satisfactory results. Further calculations in this vein indicate that 100,000 engineers are willing to join in collective bargaining. Therefore, the Engineers and Scientists of America should meet with pleasing results if it launches a determined organizing drive.

The professional unions complain bitterly that experienced engineers no longer enjoy a satisfactory pay differential over production workers. Statistics bear out the fact that skilled workers have narrowed the pay gap between themselves and experienced engineers; in 1941 the engineer with fifteen years of experience exceeded the skilled worker in pay by 95

per cent, but the advantage was reduced to 25 per cent in 1951. The engineer with five years of experience made 20 per cent more than the skilled worker in 1941, but he received 6 per cent less than the skilled worker in 1951. Only the engineer with one year of experience gained a better relative position during this time; his pay went from 65 per cent to 70 per cent of that of the skilled worker.

The engineering unions believe that this evolution in pay structure was caused by production union pressure on management and a lack of pressure from engineers. The unionist-engineers maintain that management is administering wages and salaries in an attempt to prevent the re-establishment of a correct pay differential.

The narrowing of pay differentials between beginning and experienced engineers is also a source of irritation to the professional unions. They want the salary structure raised for experienced engineers in order to provide for satisfactory salary increases for engineers as they gain experience. The engineers feel that their contributions to the nation's progress justifies such pay raises.

The great increase in the number of people practicing engineering and the increased concentration of engineers in some industries have tended to change the nature of the work performed by engineers and the working conditions under which these tasks are carried out. The trend is for engineers to

do highly specialized work in crowded work areas--sometimes hundreds of engineers work at drawing boards in a single room.

The engineering unions deem these changes as losses of professionalism, and they object strenuously. A recent University of Chicago survey confirms that engineers are dissatisfied with their working conditions and are losing respect for management. The professional unions propose that engineers negotiate for the alleviation of lost professionalism by collective bargaining.

The engineering unions argue that in our modern complex society an individual cannot adequately represent himself. The individual engineer needs not only representation within a company; he needs a national union to appear before Congress and to deal with management organizations such as the Aircraft Industries Association and the National Association of Manufacturers. It is argued that the division of the professional societies, their management domination, and their opposition to unionization prevent them from qualifying as good representatives.

The basic professional union argument is that production workers have enjoyed constantly improving conditions with the aid of unions, and engineers have lost relative position by refraining from unionization. The engineers can correct this situation by organizing now.

The opponents to engineering unionization predict that, if large numbers of engineers organize, the engineering profession will revert to a trade. Their concept is that a profession cannot be divided, whether the division be employer-employee or union-non-union. It is the unions which are causing and emphasizing such separate classifications for engineers.

It is argued that engineers are placed in important positions to provide the public with utilities and transportation. No group which will use such positions to strengthen coercive action or will strike and leave these services unoperated can qualify as professional.

It is further held that unions place their sole interest in wages and hours, while a professional must set his first goal as service to his employer and the public. The two motivations are incompatible; therefore professionalism is incompatible with unionism.

The opponents of engineering unionization predict that negotiated contracts with management will result in salary gains for poor engineers at the expense of good engineers. Contracts will result in promotions through seniority rather than through skill and intelligence.

The possibility that unionization will hurt the chances of promotion of engineers to management is voiced by the opponents of unions. Engineers that have gone on to managerial

positions in the past have had mixed success, and an additional shortcoming such as union action may close the door to management for the entire profession.

The members of the engineering profession who object to unionization tend to agree that there are causes for unrest among engineers. The lost economic position, the lowered professional status, and the poor communication with management are readily admitted. However, engineers should seek an alternate solution, rather than turning to unionization.

The non-bargaining associations of engineers at individual companies are approved as tools for correction of the present situation, and their work should continue. The professional engineering societies should band together into a giant society and provide the leadership for the profession in its search for better conditions (some hope is held for a merger of the societies in the not too-distant future).

The basic plan is for the societies (merged or individually) and the non-bargaining associations to point out to management the needs for reappraisal of the present treatment of engineers, in regard to both their salaries and professional status. Corrective action should be suggested on matters ranging from basic management policies to isolated grievances.

Of particular importance is the necessity of convincing management that engineering salaries must be raised. It must be brought to realize that engineers are determined to raise

their economic status, and that it will be much better for all concerned for management to grant these concessions willingly.

Conclusions

The findings of this report strongly suggest that the American Federation of Technical Engineers cannot be accurately classified as a professional engineering union because a majority of its members do not appear to qualify as professional engineers. The principal bases for this conclusion are the opinions of learned men in the field of labor, the almost complete rejection of production unions by professional engineers, the affiliation of this union with the American Federation of Labor, and the refusal of the president of this union to issue statistics on its composition.

Conversely, the Engineers and Scientists of America is concluded to be a true professional union. The importance placed by this union on professionalism, the recognition of its professional composition by many writers, and the companies (Boeing Airplane Company, Western Electric Company, etc.) whose engineers this union represents, all lend weight to such a conclusion.

Although the original cause of engineering unionization was labor legislation, it is concluded that unrest and discontentment have now become the causes of this movement. Based on surveys and opinions presented in this report, it is further concluded that low salaries and loss of

professionalism are the two main contributors to this unrest and discontentment.

The views of professional unions that production unions have been largely responsible for the elevation of the relative economic position of the skilled worker is deemed to be essentially correct. Admittedly, many other causes such as World War II and a change in the basic American economic philosophy have contributed to this narrowing of differential between skilled workers' wages and engineers' salaries, but it is concluded that the workers' unionization remains the prime contributing factor.

The contention of the opponents of engineering unions that unionists cannot be professionals is too intangible to be accepted as a maxim. Professionalism is granted largely by public opinion, and the public has not withdrawn recognition of the profession of acting, even though the members of that occupation are highly unionized. Admittedly, there are extenuating circumstances in the case of engineers; the contention of professional and union incompatibility is a good argument, but not a conclusive one.

It is concluded that negotiated contracts will tend to level salaries for good and poor engineers alike. The union contracts cannot possibly be written with sufficient flexibility to prevent some leveling effect. However, this condition is directly in line with group objectives which tend to demand equality in all things, including salaries.

It appears that the engineering unions will follow the example of the production unions in establishing standard, inflexible salaries.

Nearly one half of the engineers in the United States who are eligible to join unions are unopposed to unionization. This conclusion is based on the survey made by three leading engineering societies which reported that 27 per cent of those polled are unopposed to professional unionization and collective bargaining. It is assumed that supervisory engineers, estimated to make up one third of the profession, are almost entirely opposed to professional unionization, thus leaving the group unopposed to this movement representing over 40 per cent of the engineers eligible to join unions.

It is further concluded that engineers will improve their relative economic positions in the future. This improvement will be a result of their own actions, a revised outlook by management, a shortage of engineers, or a combination of any of these factors.

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