



Revolutions are not brought about by ambiguous people. On the other hand, those who recognize their ambiguous situation do not respond to propaganda which denies that ambiguity. It seems, therefore, that our primary tasks are:

- (1) to develop cadre whose subjective class position is unambiguous
- (2) develop strategies to sharpen class conflict at the workplace and hence remove the source of the ambiguity.

In the last analysis (the revolution) one can only be on one side. Then, we will have to know which side we are on.

- Which Side Are We On? (1973)

Reader

Science for the People

Organizing Engineers and Technical Workers

(1971-1976)

Contradictions, class consciousness, and reflections of the past
on organizing in the tech industry today

Foreword

This reader contains excerpts from Science for the People magazines from 1971 to 1976. The articles cover various types of engineers and technical workers, from military engineers to early computer workers to Silicon Valley researchers. While these workers come from different generations and industries, many of the obstacles they faced in their daily work and in their efforts to organize are remarkably similar to the struggles we are experiencing in the tech industry today or may experience in the near future.

These predecessors attempted to organize around many of the exact same grievances we have in our modern tech workplaces: credentialism, unfair promotions, work speedup, harassment from management, manipulation into unpaid overtime, company politics, technical debt, poor project direction, and more. They went on to face challenges from educational systems encouraging deeply rooted competitive individualism among engineers, corporate systems providing special treatment to technical workers in exchange for loyalty, and concerted undermining from responsible and business unionism.

However, these past organizers found hope in many of the same areas in which we can find hope today. Even the most privileged software engineers often struggle with contentious relationships with less technically skilled management and limitations of creative control offered by the business. And increasingly, teamwork is encouraged in tech and helps foster a sense of solidarity among previously competitive workers.

Although the earliest of these pieces asserts that no military engineer would ever organize to convert his company from military to human needs; in fact, by the time the latest of these pieces was published, the engineers of Lucas Aerospace were doing precisely that with the creation of the Lucas Plan. The challenges engineer and technical worker organizers faced then and that we face today are not insurmountable. But achieving class consciousness through education, particularly education founded in struggle, will be a difficult and absolutely critical journey.

Excerpts

- Engineers in the Working Class (1971)
- An Examination of Some Myths and Contradictions Concerning Engineers (1973)
- Engineers and Unions (1974)
- Computer Workers as Professionals (1974)
- Organizing in Silicon Valley (1976)

Technological advance, on the broadest level, is seen by the ruling class as the method of resolving many of the contradictions of our social and economic system. But on the more immediate level as well, technological innovation has assumed major economic importance. Industrial research is a prime area of competition among capitalists; products and processes become "obsolete" after only a few years. The importance of this research is reflected in the high level of opposition we met at S.C.M. in our unionizing drive. As research is put on an increasingly production line basis, it seems likely that slowdowns and strikes along with pickets and boycotts can have immediate economic consequence.

Research workers are only now beginning to explore these possibilities. The system is vulnerable in this area, and that should provide us some incentive to organize. More directly, the level of exploitation is significant and is increasing and should be opposed by all means possible.

What could we hope to accomplish in such a first organizing drive and how could we transcend the limited scope of unionization? These were questions that continually came up. However obvious the contradictions between us and corporate management, there are many technical workers who still respect the company as their source of financial security and relative privilege. Yet the objective basis for this subjective orientation appears to have been largely eroded over the last ten years. Stemming from World War II, the cold war of the 1950's and the technological competition between the U.S. and U.S.S.R., scientists and technical workers were given certain privileges: good job mobility, little fear of layoff, and high salary levels. Beginning with the mid-1960's, however, the situation began to change. Job mobility was ending, layoffs started to become a real threat, and salary gains began to fall behind those of the organized craft unions, and then behind inflation. Increasing numbers of scientists were entering the job market causing a glut of unemployed workers... Fewer jobs, more layoffs, less mobility, and a clear absence of bargaining strength have changed the objective economic circumstances of scientific and technical workers. But the consciousness built during the years of expansion of U.S. imperialism - especially the years of scientific plenitude (1945-1965) - changes much more slowly. It is propped up by a whole ideological structure perpetuated by educational institutions and maintained by corporate propaganda.

The unionization drive, the struggle to organize technical workers against exploitation, can serve to clarify the contradiction between the interests of workers and of corporation managers and owners. Even where it first fails, the unionization drive often serves an important educational function.

Another problem, however, in waging such organizing struggles is that the power and resources of large multinational corporations like S.C.M., combined with our inexperience and physical limitations, often pushes us to obtain legal, financial, and material assistance from established unions and union bureaucracies... But most unions are characterized by a very narrow trade unionism, the kind which is limited at present to economic issues and narrow self-interest, with no broader political perspective to speak of.

[...]

So we are led into this difficult situation. On the one hand it is expedient, helpful, and sometimes necessary to deal with established unions in order to organize the scientific and technical workforce, and to begin moving it in progressive directions. On the other hand we are limited or held back in these attempts by the political backwardness of the existing union bureaucracies and their policies. This dilemma is even more pronounced given that our goal is not simply to establish a narrow trade unionism within the scientific and technical workforce; it is to go much further than that, to organize a political force which engages in the revolutionary struggle to overthrow imperialism. Unionization is but an important first step. Its value lies in the politicizing of scientific and technical workers and in heightening the contradictions within the present economic system - that is, in putting organized economic pressure on the capitalist class.

[...]

Engineers in the Working Class (1971)

These days, we engineers are in a bad way. Some 80,000 (about 6% of all engineers) are underemployed or out of work, while the others, putting up with a dull job, are taking shorter work weeks, or daily dreading being laid off... The current situation, however, is indicative of an even more fundamental change in the nature of engineering. Engineering work has deteriorated in creativity and independence. Despite extraordinarily high salaries and degree requirements, engineers serve essentially the same function as other blue or white collar workers in the American capitalist society.

[...]

The job market for technical skills, which has all engineers at its mercy, can be characterized by what economists would call a perfect labor market. The commodities traded on the market are the technical skills held by engineers, who must sell themselves to the highest bidder if they are to survive. The skills required for any particular slot can be summarized in a phrase or two on a personnel form. Just as workers on a production line or secretaries in a typing pool, engineers with similar skills or training are remarkably interchangeable. Since companies invest little in training each engineer, they have little incentive to retain an employee during economic slowdowns. Engineers, like other workers, are laid off and rehired according to market fluctuations.

[...]

In a strict Marxian sense, engineers have always been alienated; all the productive equipment has been owned and administered by capitalists. But prior to 1930, the engineers' relationship to capitalist control was a special one: he was a professional, he designed the new equipment, had a great deal of influence over its use, and at work had frequent contact with the capitalist. Each engineer was given individual credit for his accomplishments, and enjoyed a craftsman's pride in the completion of projects. With technology advancing at a slower pace than now, he could afford to finance his own retraining and typically enjoyed more interesting responsibilities as he grew older; experience was a valuable asset. The relationship between the engineer and the capitalist during the era of engineering professionalism was a necessary concomitant of rapid growth. But the spending on war technology and related industry since the beginning of World War II has changed all that. The professional engineer is no longer needed in the economic order and experience has become a shackle of obsolescence. The privileges of professionalism have been eaten away and all that remains is a hard-dying myth.

[...]

The system has many "fire extinguishers" which undermine a radical engineer movement: the most powerful is the ability of the economy to deliver the goods in greater volumes. The economy continues to expand, boosted by maintenance of consumer demand through manipulative advertising. Although the age-earnings profile for engineers has been flattening, individual men have always received consistent wage increases to age 40. To the extent that engineer dissatisfaction with work is replaced by satisfaction with consumption, engineers will

continue to identify the present economic structure with satisfaction of their needs. Engineers, like all other workers, can learn to put up with the job in order to take home a salary.

Engineers also identify with the existing order in a deeper way: their entire career structure and sense of personal worth apparently depend on maintenance of the existing organization of technology. To talk to an aerospace engineer about conversion of his firm from war technology to meeting human needs is absurd; no engineer in his right mind would organize to put himself out of work.

Engineers also continue to maintain some measure of control over their work; as outlined earlier it is in the nature of engineering work to be at the forefront of technological change, and to make plans to be carried out by others. The professional-consultant myth dies hard, especially in the face of corporate personnel policy to maintain it.

Separation of the entire white-collar labor force into classified segments, each requiring special training, affects the engineer as well: he is given a well-defined status at work, separated from the draftsmen, accountants and production workers, and is socialized to maintain his status. This sets up high barriers to realization of group consciousness.
[...]

Through their one dimensional education, engineers are taught to look for technical solutions to all problems; political activity seems too uncertain and vague to promise solutions... During the present unemployment situation, engineers are repeatedly told to seek personal solutions: The government and professional organizations sponsor workshops to teach engineers how to sell themselves as commodities and counseling services to advise them to adapt to their alienating situation. This approach blunts the individual's ability to realize the source of the problem and his group's potential to achieve necessary changes.
[...]

Although there remains a whole catalogue of conditions hindering engineers from organizing themselves into radical groups, it is objectively true that engineering work in the capitalistic system is developing powerful contradictions.

One contradiction is in the growing amount of interdisciplinary work. The expansion of technical knowledge to applications in industry has forced the schools to specialize their students. As a result, engineering design becomes a group effort, in which engineers at the lowest levels must cooperate to make design decisions. In group decision-making lies the potential for realization of group power and the assertion of control over work through the overthrow of administrative management.

Another contradiction lies in the wasteful products of engineering work, and the desires to design socially useful products. All of the defense research and development is wasteful, and a great deal of the R&D for commercial markets is wasteful as well, being devoted to

Organizing in Silicon Valley (1976)

They call it Silicon Valley. Its products are the latest thing in every advanced technology from semiconductor electronics to lasers, medical instrumentation, computers, solar power generators, pollution control devices, robot brains, and food additives. In the last twenty- five years, the number of workers in high-technology companies in Santa Clara County has grown from less than 3,000 to more than 150,000.

I became part of this workforce in October 1972 when I took a job at one of the research facilities of the Smith-Corona-Marchant (S.C.M.) Corporation, a huge diversified conglomerate... I was hired to do solid-state physics research on photoconductivity. In the course of working for S.C.M. I became involved in a unionization drive among the chemists, physicists, engineers, and technicians in the facility. This article is an attempt to summarize and analyze that experience.
[...]

Within the ranks of these technical workers, status depended upon the amount of education. Those who had a Ph.D. functioned primarily in a managerial capacity; the little technical work they did was esoteric, done primarily for image-building reasons. The bulk of the actual work was done by lower-degreed or non-degreed workers (usually technicians), and the greatest amount of creativity seemed to reside with them as well (an interesting commentary on the value of "higher" education). The Ph.D.'s maintained control over these workers by impressing on them their inferiority in the arcane arts of higher mathematics and physics - all pretty far removed from the research being done at the facility.

Compared to many other research and development companies in the Silicon Valley, S.C.M. had rather poor working conditions for its technical staff. The wage levels and pension benefits were below industry norms. The drive to produce was so great it led to unbearable tension and anxiety. Everyone experienced this continuous, heavy pressure. The company maintained an artificial crisis atmosphere by claiming severe urgency for almost every project. By implying a loss of job or status, the management was able to get large amounts of free overtime ("remember, you are a professional!"), and justify almost constant harassment. Two fatal heart attacks of workers in their early forties occurred within one year in this small facility alone, and there were several other nonfatal attacks as well.

Despite this constant speed up, the tortured solutions to various technical problems were often never even used, and frequently the research worker was merely the pawn in a competitive struggle between two different supervisors. The ability of the management to employ high pressure tactics and not lose employees wholesale was made possible by the bad U.S. economic scene, the hiring of employees without degrees, and, of course, the absence of an organized response to the bosses.
[...]

To be a professional, in this managerial meaning of the term, is to establish a personal relationship with one's employer based on mutual trust. The employer is to treat the employee-professional "as an individual," and in return he is to be rewarded with the personal loyalty and devotion of the employee-professional. By such marks of individual distinction as job titles and merit ratings management recognizes the individual achievements of its employee-professionals. Since the relationship between management and the professional presumes to take into account the personal qualities and accomplishments of the latter, the worker is led to assume that only the slacker would stand to benefit by becoming part of an undifferentiated collective (union) category.

[...]

The one major attempt in this country to organize computer workers as computer workers (rather than as a secondary element in a larger bargaining unit) did not meet with much success. In December 1970, the Committee to Plan a Computer Union met in New York to map out a strategy. The objective was to form an industry-wide, all-inclusive union which would span the gap between professionals (programmers/analysts/operators) and non-professionals (key-punch operators/tape-handlers). The major thrust of the union was to be in the areas of job security, job mobility, and "democracy in the workplace"... By November, 1971, however, one of the CPCU's activists had to admit failure in the democratizing-unionizing effort, ascribing it to the fact that most computer workers held values which prevented them from seeing "the meaninglessness of the work they are doing." He had to avow that "to attempt to talk to people about the issue of doing socially useful work really amounts to telling them to leave (their) jobs..." since "good" jobs (i.e., socially useful ones) were always marginal in number in the computer industry.

This statement is tantamount to an admission that much of the CPCU's thrust presupposed the existence of the radical consciousness which it was the task of the union to create in the first place - a consciousness which could take shape only through a process of struggle opposing the interests of management/capital to those of labor, rather than through an intuitional recognition of the "meaninglessness" of one's work.

designing irrational model changes and gadgets for the sales effort. Yet engineering skills are greatly needed in such areas as housing, mass transportation, waste utilization and resource allocation. However, under the present system, these needs have the lowest priority.

Finally, we engineers are joining other people in recognizing that our problems are not purely personal, and are coming together to make demands for political solutions. Demands by engineers on the political order to reverse its technological directions and support science for the people will rise from the contradictions.

An Examination of Some Myths and Contradictions Concerning Engineers (1973)

Engineers are a highly stereotyped group. Non-engineers tend to view them as thing-oriented rather than people oriented or more pejoratively as uninteresting, compulsive and non-verbal. Engineers themselves often subscribe to this stereotype too... Few other occupational groups are seen as containing such a narrow range of personality types. We would here like to examine some of the common myths about engineers, to show what basis there is in reality and to attempt a sociological explanation of that reality. As already mentioned engineers are frequently viewed as primarily object oriented; they are also seen as overspecialized and as apolitical.

The engineers' self-identification as object or thing-oriented often implies that they do not relate well to other people. The most extreme example of such alienation from others is the *Lockheed syndrome*, primarily found in the defense industry. Aerospace engineers, in particular, are said to suffer from this affliction. It is characterized by such single-minded pursuit of one's engineering work that relations with others and leisure time pursuits are heavily colored by work experience... These patterns are almost exclusively looked upon as psychological disorders, and the recommended cure is individual or group therapy. Little attention is paid to the dehumanized work environment in which engineers are expected to put in 50 to 60 hours a week (at no extra pay) in the service of primarily destructive technology, when the ideology of training has stressed the design and creation of useful things.
[...]

Thus although object-orientation is to some extent required of all men, engineering tends to encourage those who identify particularly strongly with this value. This selective process assures that those who go through the prescribed training process in engineering are well-adapted to the technical requirements of industry. The lack of emphasis upon or total absence of the humanities in our technical schools is quite consciously designed to turn out people who are completely devoted to their job. As a result such training produces, in the words of an MIT (Massachusetts Institute of Technology) professor, "social Neanderthals." The personal costs of such one-sidedness are considerable and very painful once the source of one's supposed fulfillment is removed, i.e., when engineers become unemployed. It is in this situation that the shortcomings and contradictions of dehumanizing world become particularly apparent. In our study we found that, despite their lowered self-esteem and economic insecurity, unemployed engineers seemed somewhat more expressive and people-oriented than the employed ones. Despite the relative lack of options in terms of real jobs available, the unemployed are in a position where they can and must consider a wider variety of alternatives, whereas the employed engineers are under even more pressure to conform now that the economic squeeze is on...

Computer Workers as Professionals (1974)

Among those who concur in the view that technical and clerical workers belong to the working class there are two divergent stances. One side considers the inclusion of these laborers within the working class to be substantiated by an increasing "proletarianization" of their work conditions: the repetitiveness, fragmentation, and regulated pace of the work process. The interests and demands of these workers will tend increasingly to resemble those of traditional assembly-line workers: shorter hours and higher pay.

The other side focuses on certain developments in the work conditions of technical workers which makes these workers a distinct, perhaps even a vanguard, stratum of the working class. For these workers the principal demands center around the lack of power over their own work conditions (a concern that harkens back to the demands of the earlier craft and artisan workers). Under the conditions of automated industry the workers' intervention is increasingly relegated to the beginning and the end of the work process: on the one hand, during the initial stages, the preparation and organization of the production process, calling forth creative intellectual energies; on the other hand, in the final stages, the checking and supervision of the machinery. They are led to develop a sense of mastery over their own labor power, and this provokes a resentment against its alienation under capitalism into an inert thing over which they have no control. Demands for full control over the use of their creative abilities in the work process come to the fore.
[...]

Relations With Other Employees. Relations between the computer staff and other employees in an office are often strained because of the position of power seen to be occupied by the former (at least by programmers and analysts). To have control over the flow of information is to have the power to determine the sequence, pace, and methods of work of others. This power easily becomes a cause for resentment on the part of the non-computer office staff, impeding the possibility of concerted worker action.

Salary differentials are likely to reflect this greater marketability of computer workers, but so too are the more visible prerequisites of their position. Set off from other office workers, computer staffs are often located in a place which is distinguished by its better lighting, better air-conditioning, and more sophisticated equipment...

Relations with Management. Computer programmers and analysts find themselves in a relatively unique position in relation to management. On the one hand, they possess knowledge and skills which usually go beyond the ken of their supervisors and beyond the latter's capacity to establish hard-and-fast performance criteria. On the other hand, they are employees and therefore subject to the hierarchical organization of authority which the company imposes on all of its employees. The fact that it is often difficult to judge whether a given program has been written well or poorly means that programmers/analysts retain a measure of control over their labor which threatens management's structure of command.
[...]

Engineering schools instill in them an identification with the aims and purposes of management; they imbue them with a pride in individual achievement and reward that overlooks the collective supports which are the premise for individual creativity. Engineers generally fear that unionization would mean that salaries and promotions would no longer reflect individual achievements; and the feeling is wide-spread that "the mediocre people want them (the unions)."
[...]

The interplay between tendencies moving in the direction of greater worker initiative and greater "proletarianization" is perhaps the key element for gauging the union movement among technical workers. The working class is still far from being homogeneous in its work conditions, and unions must take a differentiated approach to technical workers if they are to meet with success. The approach should take into account at least the following differences in work conditions among technical workers: (1) workers in repetitive, fragmented jobs with regulated rhythms (so many operations per unit of time); (2) workers with margins or discretion in their work within the framework of subordinate tasks which no organizing or rule-making power; (3) workers with innovative functions (new products, new technology, new information systems) who have a large measure of discretion within a narrowly defined field of action, both in substantive and methodological terms; (4) workers in management functions with large margins of discretion within narrowly defined tasks and fields of competence (here the standards of efficiency are not technical-professional but those of the ends set by the firm); (5) researchers with non-repetitive tasks but highly fragmented and specialized, lacking autonomy in the choice of their activity and often subordinated to hierarchical structure of authority. The demands of the workers are likely to differ according to where the workers are situated along this continuum of "proletarianization."

Rising unemployment also puts pressures on those who remain employed. But without unions engineers are inclined to compete among one another to remain employed. As long as thing-orientation makes them "better engineers" then, we cannot assume that unemployment will significantly alter the thing-orientation of engineers as a group. On the other hand, insecurity of employment is just one of the many factors that can erode the sense of gratification engineers need to feel in their work. Other aspects of proletarianization that tend to remove the possibility of gratification from engineers' work bring into play the contradiction between the dysfunctional role of thing-orientation on their social relations and its functional role in their engineering work. An explosive situation can thus arise as the rewards of thing-orientation on the job are eroded; a powerful reservoir of anger can be released as engineers discover that the jobs they have loved return them neither sufficient wages, nor security, nor a craftsman's gratification, and yet have alienated them from human relations.
[...]

Engineers are affected by fragmentation as much as are production workers... Both workers and engineers do fragmented jobs; how their work fits into an overall scheme is not generally known by them. The engineers may be working on a larger fragment, that's all. Whereas fragmentation is a characteristic of the organization of the work process, specialization is a property of the worker. An engineer who remains capable of doing only one or a few fragments of the work is specialized. However because of the relatively high skill level required to accomplish an engineer's work fragment there is a tendency for this expertise to become a source of status. Not so, of course, with less skilled workers; no prestige is derived from being an expert at the lowest end of the totem pole, because the training period is short and inexpensive, and the worker is therefore easily replaced. As a result continued performance of a job fragment takes on quite a different meaning depending on its place in the total hierarchy.

Engineers find themselves today caught in the middle between workers and management. The carrot held out to them, and reinforced by the professional ideology that most still adhere to, is the possibility of moving up into a management position. Working against this is the stick of increased proletarianization... But... in their self-perception engineers do not yet (at least in the U.S.) see themselves as having more interests in common with production workers than with professionals as a separate category or with management. Interestingly enough, the appeal of becoming part of management is not only the higher wages and (apparent) greater security but also the opportunity to participate in the production process in a less fragmented way. Corporate management thus plays the contradictory role of fragmenting the work, consequently requiring more specialization, while rewarding those who "see the whole" - and are willing to manipulate others.
[...]

Are engineers so entrapped in myths that nothing can be expected from them in the way of social change? Does the above examination of the myths serve as an apology for their inaction? We don't think so. Actually many changes are already occurring, although in the United States, unlike France and Italy, engineers are not (yet?) in the forefront of the movement of professionals to join in the protest against an oppressive system. Nonetheless, the complacency

of several years ago has been severely shaken by high unemployment... Most of the unemployed would prefer not to work in defense again, not primarily because of moral objections but because of the insecurity. Most striking is that they are being forced to reassess their views about society, the economy and politics and the result is utter confusion.

This confusion is the manifestation of contradictions that have objectively always existed but which current conditions make impossible to ignore. An education that compartmentalizes and imposes upon people a narrowly circumscribed domain becomes a real liability in such a situation. For those in power it is desirable to prevent the people from seeing the system as an integrated whole. As a result protest is either stifled altogether (we came across quite a bit of fatalism) or it directs itself toward small reforms (e.g. pressuring one's professional association to lobby in Congress).

The main contradiction is between ideology which manifests itself in beliefs about individualism and professionalism and the socioeconomic reality in which engineers are treated much the same as blue-collar workers... The ideology to which engineers adhere is not an isolated delusion unique to them. It is the system of beliefs which all Americans are taught and which until recently went unchallenged. It makes a virtue of competitiveness and individualism to the point where these qualities are seen as the only way, as part of human nature. The realization of the limitations of this ideology and its exposure as a myth is a very slow process which is nevertheless happening. At first it manifests itself as resentment of being treated like a worker, when the person doesn't conceive of himself as a worker but as someone who has the American dream within his grasp. Perhaps the most difficult step is the acquisition of working-class consciousness. This is what political organizing among engineers has to address, not in sermons but in action programs, (e.g. coffee houses, study groups, underground newspapers). [...]

We must conclude that social research of the kind we would like to see become the rule cannot be carried out in an academic setting and for academic purposes. It should probably be done by people who can identify with those studied and with whom those studied can identify... The research in the end would be a self study and inseparable from community organizing, industrial organizing or some other form of political action appropriate to the situation.

Engineers and Unions (1974)

Unionization of engineers received its greatest impetus not during the Depression years but during the war years (1943-45). That is to say, it was not so much economic deprivation which led to large-scale unionization, but rather the monumental change brought about by their employment on a mass basis in large war plants. The image the engineer had of himself [herself] as something approaching a "free professional" was inexorably deflated by the reality of having to punch in at the time clock. Much of the unionizing effort was aimed, however, at recouping the loss of professional status and recognition entailed by this change. In many instances, engineering unions were formed during the post-war years in order to prevent the inclusion of engineers in bargaining units dominated by "non-professional" employees. On the other hand, the gains won by production workers through union action were often the catalyst that spurred on engineers to organize (in part, in order to maintain the wage differential between the two groups). Despite these features of engineers' unionization which makes it appear a purely defensive maneuver (to define and protect their distinct professional status), basic structural transformations in industrial work processes were moving engineers in the direction of unionization. First of all, work was increasingly organized by groups or teams of engineers, so that the concept of rewarding individuals for their personal achievements had less and less real meaning. Second, the pressure to specialize ever more narrowly left the engineer open to the possibility of being pigeon-holed in a slot which, with a change in technology, would make his specialization obsolete. Third, job insecurity became a built-in characteristic of the engineer's work by virtue of the fact that their employment on a mass scale was premised on the continued existence of government contracts. [...]

The main source of organized opposition to engineers' unionization has been the management-dominated National Society of Professional Engineers... As a professional, the engineer recognizes the duty to maintain the highest standards in his work - a sense of duty which is buttressed by a system which rewards him on the basis of his demonstrated individual merit. As a union member, the engineer's personal relationship with management would be replaced by a system of impersonal rankings and classifications, and only those engineers who follow the lowest common denominator in their work would stand to benefit. Furthermore, collective bargaining would break down the internal unity of the profession, since supervisory engineers would no longer be able to evaluate their subordinate colleagues in a non-adversary posture... The long-term approach to improving the engineer's economic status lies in fostering professional societies which seek to "raise professional qualifications" and to win greater recognition of engineers' services from the community; i.e. the engineers really need "something like the AMA," as if they too were independent entrepreneurs.

Even without the organized opposition of the NSPE and other professional organizations engineers as a group tend to have taken a heavy dosage of "rugged individualism" that disinclines them from collective action.