RESEARCH DEVELOPMENTS IN PERSONNEL MANAGEMENT

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C O N T E N T S

THE CONSERVATION OF HUMAN RESOURCES PROJECT
1950-1962
CONCEPTS AND APPLICATIONS

Eli Ginzberg

Except for the war years between 1942 and 1946, my associates and I at Columbia have been engaged in research investigations in human resources since 1939.

I plan to set before you now a series of research findings that have emerged from two decades of work. Let me state explicitly that my report today is on behalf of a group of social scientists who have been working together during this time. We have worked from the start as an interdisciplinary team. Our studies could never have been planned, and certainly not executed, by any one individual. I do not claim that we have sole or even primary claims to the findings which follow but they represent the highlights of what we have learned.

Our point of departure and the focus of our interest have been the centrality of work in human life. We believe that the best way to understand the behavior of human beings--the behavior of groups--is to start from a consideration of how work regulates the life of the individual, the operating units in the economy, and the total society. I plan to group our findings under these three rubrics: work from the point of view of society at large; work from the point of view of the employer; and work from the point of view of the individual. These are somewhat arbitrary distinctions but they do provide a framework for discussion. For didactic purposes I will try to formulate our findings as stark propositions.

The first proposition is a simple one: human resources are the key to economic development. This is a very old proposition which stems from Adam Smith's Wealth of Nations. We have long believed that Smith had a deeper understanding of the inner workings of a dynamic economy than any of his followers. Our own adaptation of his premise is that how people think about work, and what they consider to be important goals in life, will determine whether their country will develop or not. The notion that material resources are the key to development is fallacious. Brazil has tremendous material resources. Israel has very poor resources. The difference in the level of the two economies, however, is largely a reflection of the differences in the quality of the human resources of the two countries.

The kind of an economy a country develops depends in considerable measure on the kind of economy it wants. For example, one can decide to sit and fish. For a very long time, the French did just that. But more recently they decided that they want refrigerators and automobiles and their economy has undergone a major transformation. Incidentally, this is largely due in my opinion to the export of American values. We are Americanizing the world. The key element in this proposition is that the values, attitudes, and general orientation of a people determine its economic development.

The next point in my catena is the scourge of unemployment. Our work at Columbia began in the late 1930's with studies of people who

had been unemployed for a long time. One study dealt with unemployment in South Wales, Grass on the Slag Heaps: The Story of the Welsh Miners. This was an analysis of a region where people had been out of work for so long that they had forgotten the meaning of time; no day of the week was distinguished from any other. Unemployment is a scourge because it destroys not one generation but two. It destroys the adults and prevents their children from growing up properly. In the hearings preceding the passage of the Employment Act of 1946, Dr. William Menninger, the distinguished psychiatrist, used our studies to argue the importance of a national policy aimed at preventing and alleviating unemployment.

The third finding in this first category of work as it relates to the society concerns the major transformation of the role of work in contemporary life. This is the first time in history that the mass of the population has options--somewhat similar to those previously known only by the wealthy--about the kind of life they want to lead. They can decide whether they want to throw the major part of their efforts and energies into the job or into activities unconnected with the job. For the first time in the history of the world the mass of the population has enough free time and enough money to make such options meaningful.

When we first came to California years ago, billboards urged us to "Work and Play." Now they suggest that we "Stay and Play"; soon they may simply command us to "Play!" This suggests the nature of the transformation.

The fourth finding can be subsumed under a heading called the reach of democracy. The notion that democracy relates solely to the political arena is an incorrect one. The values which people hold, the objectives that they seek, the motives to which they respond penetrate all aspects of their lives. My children are constantly telling me that my decisions "aren't fair." Such complaints seem to have particular attraction for children brought up in a democracy. Children in an autocratic society are unlikely to challenge their parents on points of fairness. Likewise, the major thrust of trade unionism must be seen not from the viewpoint of wages and hours but in terms of control of work in the shop. This reflects the determination of workers in a democracy to control their own lives as much as possible and to reduce to a minimum the authority of others over them. This is the nub of the issue; it helps to explain the reach of democracy into the industrial arena.

The fifth point has to do with the moving escalator. The dynamic American economy makes it possible even for people who are standing still to get ahead. All one has to do to move ahead is to step on to the escalator. Many people who simply do not want to work very hard can still enjoy a substantial gain in real income. Time alone will push them ahead. We are publishing a volume called The American Worker in the Twentieth Century which contains the autobiographies of 120 workers during three periods--The Turn of the Century, New Era and the Depression, World War II and After. These documents reveal how ordinary working people looked at work and life during these periods. One discovers that the approach of workers is quite different from the way in which professors look at the same issues.

The next point relates to the family, which, having long been the consumption unit, is now becoming the employment unit. With 30 million women working for wages at some time during the course of a year, the question of whether a man will change his job depends increasingly on whether his wife must also change her job. The issue is no longer the optimization of a man's income and career opportunities but of the family's. This first showed up in the armed services. Married women officers would remain in the service only if their assignments could be dovetailed with their husbands'. This proposition can be broadened to include considerations affecting the education of one's children. Several years ago I discovered that one of the big advantages that California had over the East in procuring technical personnel was its superior public education system. Many scientists and engineers, who generally are greatly interested in the education of their youngsters, have moved to the West not only because of the weather but because of the schools.

Next I believe that work as a mechanism of social adjustment has not been properly appreciated. Much pathology in our society reflects interferences with people's opportunities to work. If you lock up people in mental institutions you almost insure their deterioration. If you lock up people in prison, you almost insure their deterioration. If you lock up young adults in schools, you almost insure their deterioration. Human beings require an opportunity for expression through work, which is the best tie between themselves and reality. We have failed to use work properly as an instrument of therapy and rehabilitation.

The seven preceding propositions relate to work and society.

Now I want to look at work from the viewpoint of the employer. The first proposition is that performance must be considered as multifaceted. How people perform depends on (1) their capacities and limitations, (2) management policy, (3) the pressures and opportunities in the larger society. The performance of an individual cannot be measured without reference to the kind of policies governing his work and to the pressures in the larger society that are exerted upon him. Meaningful understanding of performance requires a multifaceted approach. We have adumbrated this at length in our third volume of The Ineffective Soldier, called Patterns of Performance.

Our second theory concerns the adjustment potential. This represents a more sophisticated approach to performance than those which lay stress on emotional adjustment alone. The adjustment potential is developed because human beings are usually able to meet the demands that are made of them. This is particularly true if they are part of an organization and if their future depends on their meeting certain demands. A second element implicit in the concept of the adjustment potential is a wide range of jobs available so that an individual is able to choose one within his limits. One of the advantages of an intricate economy is the wide difference between the demands made on a doorman and those made on a president. Such elasticity helps the individual to adjust, for he can determine his own level of aspiration and performance. Moreover, most human beings have compensatory strengths for their weaknesses. We tend to focus on people's weaknesses and forget their

strengths. The adjustment potential takes into account the individual's compulsion to perform, the variations in the levels of aspirations, and the existence of compensatory mechanisms. This theory is worked out in The Ineffective Soldier in the volume on The Lost Divisions.

The third theorem is the vulnerability of selection. Most personnel divisions would prefer to solve their personnel problems through selection, because they believe that they would have no further problems. But it does not work out that simply. Selection always has logistical implications. One can never select better people than exist in the pool from which they are drawn. Industry wants creative scientists but the pool contains Ph.D's. The two are by no means synonymous. Moreover, there are serious limitations to assessment. To continue the example: All one knows about a Ph.D. is that he has gone through school and was able to give his professors the answers that they wanted. But there are no diagnostic tools that would enable one to discern the drive, self-confidence, and special qualities that will make one man creative and not the other.

The question of costs must also be weighed. We contend that large corporations should simplify their selection procedures. They should ignore the upper 5 per cent of a graduating class because most of these men will probably not be happy in a large corporation, and they should ignore the lower 15 per cent of the class because they may not have the capacity to work effectively. The personnel officers should concentrate on those in the middle, paying particular attention to those who say that they would like to work for a particular company.

The next principle is called deviation tolerance. In recent years in this country we have misapplied psychiatric concepts in personnel work. We have used clinical categories such as misfit, unfit, unbalanced, unstable without really understanding the terms. There is no direct link possible between the categories of mental illness and work adjustment.

Moreover, people's emotional states vary. Our analysis in The Ineffective Soldier revealed that many severely disturbed people stabilized very quickly once they got out of the army. The only importance of emotional deviations derives from the extremes, and there one does not need subtle theories. There are, of course, seriously disturbed people who cannot fit into any normal work group. But most people are only a little disturbed and only at times, and they can fit into most work groups.

The fifth point has to do with the compulsivity of power. In a society organized around power some people spend a great deal of energy at playing the game of power. Large organizations, profit and nonprofit alike, are characterized by constant struggles of people to gain more power. The major skill of the successful contestants often is not technical or intellectual; it is political, and their advancement depends primarily on how well they manipulate people. Some years ago we published What Makes an Executive. In that volume, the chairman of the board of one of America's great public utilities commented that he could see very little difference between his company and Tammany Hall. Part of the continuing shortage of good scientific and technical personnel is an outgrowth of the way in which power and rewards are distributed. If

in addition to being a good chemist or physicist an individual is interested in power, he moves very quickly away from the laboratory into the administrative hierarchy. He is not pulled away; he wants to move into the arena where the payoff is. In the United States we do not like to face the reality of power and its influence on behavior. But it is essential that we do, if we ever expect to understand our society.

The sixth proposition is called the evaluation trap. Most work is performed by groups, not by individuals. It is very hard to assess individuals because of this fact. Supervisors assess the supervised, and this results in serious contamination of the evaluation procedures, for those who do the ratings are the potential or actual competitors of those whom they rate. The more able the subordinate, the more likely that the evaluation will be faulty.

The seventh point deals with the accelerated obsolescence of skill. Promotions in large organizations depend primarily on years of service. A man becomes a vice-president or president of a large organization in his late forties or early fifties. In a rapidly advancing scientific and technological society men get close to the top when they are already obsolete. At least it is likely that their knowledge of the science and technology on which the company's future depends will be out of date. Recently at least one large American corporation has perceived this danger, and has taken steps to retrain its senior technical personnel who hold important managerial positions.

The eighth proposition is the creativity dilemma. The genius of American industry was the development of the mass production of standardized goods, based, for the most part, on simple line organization. However, we are now entering a period in which the production of ideas is essential for our further progress. The success of many companies will depend less on the operation of the plant and more on the efficiency of its research and development laboratory. The problem here is that we have an antiquated system of management. New rules and procedures, flexible rules and procedures, must be introduced for the management of professional people. Professionals cannot be treated in the same manner as hourly employees.

These eight propositions about work from the vantage point of the employer are drawn from the books that I have mentioned and also from Effecting Change in Large Organizations, and from our major current research project on "Talent and Performance" which has been underwritten by a special grant from the Carnegie Corporation.

We come now to work from the viewpoint of the individual. This includes a consideration of the individual's preparation for work. Our first contention is that occupational choice is a process resolvable only by compromise and in its later stages is more or less irreversible. This theory was developed at length in our book Occupational Choice: An Approach to a General Theory. We found that the process of occupational decision-making starts in the preschool period and remains largely subconscious until around the age of 11. At this point it intrudes on the individual's consciousness, where it remains for many years while he explores his interests, capacities, values, and reality. Toward the end of adolescence--circa 18 to 20--the decisions that are made become

increasingly irreversible. It is too late for a senior in medical school to decide that he really wanted to be a lawyer.

In our current study of talent and performance we have discerned important differences in career patterns. There are those whose career development appears to progress without handicap, while others apparently encounter serious impediments. Some of the differences may lie in different values held by people--some are willing to work for seven days a week while others prefer to go fishing on their days off. Some of the differences may reflect external circumstances: one young man may have been deferred during the Korean War while another is set back two years. It will be some time before we have classified and evaluated the complexities that we have uncovered in the process of career development.

The third proposition is one of fact; it relates to the pervasiveness of illiteracy in American society. Earlier studies disclosed that one out of every nine young men screened for military service in World War II was either totally illiterate of borderline literate, which meant that he could be trained only as a duty soldier. This is not "ancient history," however; the Commissioner of Motor Vehicles of North Carolina recently discovered that about 20 per cent of the applicants for drivers' licenses were illiterate. They were unable to fill out simple blanks. And there are even more benighted states than North Carolina! Inadequate education is a particular characteristic of older workers, whose employability frequently is hindered more by lack of education than by considerations of age.

A fourth proposition is the infantilization of youth. We have elongated the school system to a rediculous extreme. While I have a positive view toward education in general, I believe that many youngsters are forced to remain in school beyond the point of diminishing returns. I submit that by the age 15 or the latest 16, many young people, possibly one out of every three or four, have learned all that they are able to learn from books, at least at this point of their lives. They may be able to learn more at a later stage. But at this age, these youngsters need the opportunity to work; they need close relations to adults; they need to learn by doing and to earn some money.

So far these remarks have been concerned with boys. But they also have pertinence for girls. One fourth of all the girls in the United States are married by the age of 18; half of them are married before they are 21. Since many stay in school until they are 20 or 22, many marry before they have acquired much adult experience. I submit that this lack of experience may be related to the lack of permanence of many first marriages.

The next proposition is the inequality of equality. This doctrine relates to disadvantaged groups. If these groups are presented with the same opportunities as the more advantaged, they will continue to lag behind them in accomplishment. What they need are extra services, special help, so that they can truly achieve an approximate equality with the more favored sectors of society.

Next is the desirability of a second chance. Adolescence is a period fraught with disturbance. It is impossible to communicate effectively with adolescents. It is not possible to influence them directly. Many young people will inevitably make decisions which they will later find to have been wrong. In a rich society like ours, it is important that they have a second chance. It is important to keep avenues open to them.

The seventh proposition relates to sequential careers. To cite an unusual example: in Iran by the time a young person reaches 15, he must be ready to start on a second career. The very young children who weave rugs lose their nimbleness by the time they are adolescents and must look for a second career. In the United States we have always had some experience with sequential careers, especially for those in professional sports. An athlete slows down by 30, 35, or 40 at the latest. The necessity to shift from one major area of activity to another will probably become much more prevalent. Consider the instance of married women. By their middle thirties, they have not only finished having children, but their youngest child is in school. They have many years stretching ahead of them--one quarter of all the women in the United States will live to be at least 85. More and more groups will have sequential careers. Recently the Air Force has recognized that its requirements for pilots will drop over time. Hence it is writing contracts for pilots to cover a ten-year tour of duty. The lesson here for large corporations is to restudy their personnel policies to see whether they might not be able to encourage some people to leave earlier than they otherwise would--while they still have time to get in somewhere else.

The eighth point stipulates that only a small minority is work-oriented. Only a small proportion of any work group is really interested in working very hard. I submit that the world's work is always carried by a small minority. The rest are carried. Management should seek to discover the work-oriented individuals. It is very difficult to force people to work, and this enhances the importance of locating those who like to. One way to do this is to allow more scope for self-determination.

My final point is that success is different from satisfaction. Success relates to the objective world; satisfaction, to the way in which a man feels about his work. An interesting characteristic of affluent societies which presents a problem is the large number of options open to people. The more successful one is the more chance he has to become dissatisfied, because of the many options that he sees but cannot exercise. Possibly it was arranged that there be some balance between poor and rich. The poor are frustrated by lack of options; the rich by an excess of opportunities.

Let me point out very briefly some of the more important implications of these several theories, doctrines, propositions, for public and private policy. In the arena of public policy the importance of a continuing high level of employment is the major implication. With a high level of employment, many problems can be solved; without it most problems become intractible. As the President remarked recently, the most important single domestic challenge is to increase the number of jobs available. Even the number of mental patients is sensitive to the employment index. In good times, marginal people find it possible to

keep jobs. The problems set out above relating to youth, minority groups, older people cannot be solved unless employment is at a high level.

Next, in a world characterized by rapid advances in science and technology substantial and sustained investment in human resources is essential. There is much waste of the nation's scientific and technical personnel that stems directly from the fact that the skills of so many trained people have been permitted to obsolesce because their employer would not invest in their further development.

Third, we need to experiment with work as an instrument for social adjustment. We need work-study programs for the nonintellectual youth, for mental hospital patients, for inmates of prisons, for older persons. We need new patterns of employment for workers too old to obtain jobs through regular competitive channels but too young to retire. We have demonstrated very little social imagination to date and it has been an expensive lack; we put people on the relief rolls but we are unwilling to secure them jobs.

Next, we need new designs for the more effective guidance, education, and employment of the "mature woman." This is the woman in her early or middle thirties whose family responsibilities are beginning to lighten and who sooner or later may be interested in entering or re-entering the labor force. Again, we are doing very little that is imaginative.

The fifth point is the tremendous need for improved articulation between the school system and the education and training provided by the armed services, industry, and other adult education units.

The above are five suggested areas for consideration from the point of view of public policy. Now let me suggest five in the domain of business management. The first stresses the need to shift attention from selection to assignment. I indicated earlier my conviction that selection is a weak reed on which to lean. Much more attention should be devoted to improving assignment and evaluation techniques. Moreover, indoctrination programs have become overelaborate. Some companies force a young man to spend a year or even more before he is permitted to get to work. My recommendation is to let him learn by working.

The second proposition stresses the need to re-examine the career system. Thirty years ago the petroleum companies and some other large companies established career systems. At that time this was a progressive move. They said to the young man, "You come with us and attend to business, and your future will be secure." They established elaborate systems of deferred benefits, including liberal pension schemes. But this is the wrong tack for companies operating in the economy of the 1960's and 1970's. It should be made easier, not more difficult, to separate people who no longer are productive. A company will always, without even trying, accumulate people who have begun to lose energy and initiative. The problem is to separate people who have become liabilities because they block others from efficient performance. Recently, a junior college in California had the imagination to find good jobs for youngsters who were doing badly in their studies. Industry can learn from this example. It too should make special efforts to move people on just as fast as it discovers that it cannot use them effectively.

The third proposition centers on the need to alter policies and procedures developed for hourly employees to meet the special problems presented by scientific and technical personnel. Many problems must be reconsidered: freedom to work, hours of work, freedom to publish, freedom to study. People who work with their minds cannot be controlled. They must control themselves. At best they can be encouraged. The incentive system must be reappraised and reordered, if necessary. Even the ponderous Army recognized this in 1946 when it provided that a senior medical officer who remained in his specialty could go to the top of the Medical Corps and become a major general without having to assume administrative duties.

I know of no industrial corporation where the top scientist is recompensed at a rate that even approaches that of the chief executive officer. There is great need for basing remuneration on contribution, not on title.

The fourth point has to do with the urgent necessity for more experimentation with the restructuring of research and development. I do not think that every large American company can hope to build up and maintain a first rate research and development effort. They can maintain development laboratories, but there just is not enough talent available for twenty or thirty, not to mention fifty or one hundred, concerns in an industry to attract on a full-time basis the order of talent required to solve the more difficult scientific and technological problems that they face. We need radical new departures in the employment of scientists. I think we may be able to pick up a clue or two from the German, the Dutch, even the Italians, who have long been forced to economize in the use of scarce resources.

The fifth proposition relates to the adjustments implicit in the transformation of work and the need for corresponding changes in personnel policies and procedures. To illustrate: assessing plant location in relation to the places where well-trained people prefer to live; better identification of the work-oriented person; introducing more self-selection for the work-oriented; deeper understanding of the reasons why workers seek greater control over their work.

In conclusion, let me state again that we fully appreciate that we do not have mastery over all of the propositions that have emerged from our research. Nor do we claim that all of these findings are unique to our work. But we believe that they are important and we appreciate that we were able to contribute to their formulation only because of a constructive environment that facilitated cooperation between the university, business, and government. The extent to which we as a people succeed in advancing knowledge of human resources and applying it will depend on strengthening such cooperative efforts. Basic and applied research must progress hand in hand.

Finally, for speedy reference I am setting forth in outline the research findings that I have reviewed above:

Recapitulation

Work and Society

1. Human resources are the key to economic development.
2. The scourge of unemployment.
3. The transformation of work.
4. The reach of democracy.
5. The moving escalator.
6. The family as the employment unit.
7. Work as a mechanism of social adjustment.

Work and the Employer

8. Performance from a multifaceted point of view.
9. The adjustment potential.
10. The vulnerability of selection.
11. Deviation tolerance.
12. Compulsivity of power.
13. Evaluation trap.
14. Accelerated obsolescence of skill.
15. Creativity dilemma.

Work and the Individual

16. Occupational choice is a process.
17. Differences in career patterns.
18. Pervasiveness of illiteracy.
19. Infantilization of youth.
20. Inequality of equality.
21. A second chance.
22. Sequential careers.
23. The work-oriented individual.
24. Seccess and satisfaction.

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CONTINUING EDUCATION AND MANPOWER NEEDS

Paul H. Sheats

What I had planned to say relates quite directly to points which were made both by Professor Ginzberg and in the introductory remarks of our welcoming speaker. I would like to approach the theme of this conference from the point of view of one who has devoted a good many years of his professional life to the extension of educational opportunities to adults, and has discovered over these years that what was earlier considered to be a rather peripheral part of the educational profession and the educational process has suddenly, in the early sixties, become a very necessary and essential task in the national effort to maintain the vitality and strength of our whole society. This, I think, was attested to by some of the remarks of Professor Ginzberg.

I want to pick out just three items to underscore which seem to me to document the central importance of continuing education in our modern life.

1. The speed-up of scientific and technological change. As you all know, the projected 40 per cent increase by 1970 in the professional and technical employment category alone is a result primarily of expansion to which you and your firms contributed in research and development activities. This represents a phenomenal shift in the educational requirements of our society. The shift is from the pyramid, with a large base of blue-collar workers, to the diamond, with an increasingly large number of skilled and semiskilled, highly technical, and professional categories.

I am particularly concerned about this as a member of the University staff engaged in continuing education. I do not believe it is going to be possible to meet this shift in manpower requirements simply by modifying the structure of our educational system at the elementary, secondary, and college level. It can only be done, in the time we have available, by expanding rapidly the resources and opportunities we have in the general area of adult and continuing education.

2. The rapid growth of knowledge in all fields but especially in science and technology which threatens to overwhelm us. Professor Brode in the Physics Department at Berkeley estimated in a speech he made for us in Extension recently, that in the natural sciences alone the volume of published material is doubling about every seven years. Dean Boelter, in our College of Engineering, remarked recently that in his estimate the time lag in the application of new knowledge has doubled since the last war. The lag has doubled! Margaret Mead puts the problem in a nutshell when she says, "We are now at the point where we must educate people in what nobody knew yesterday and prepare people in our schools for what no one knows yet but some people must know tomorrow."

3. More than 90 per cent of our population growth is occurring in the metropolitan areas. We are an urbanized nation, and in the continuing shift from the farms to the city, large segments of our work force must be retrained for skilled occupations.

I point to these just as flags which underscore the importance of asking you to concern yourself more directly than you have perhaps in the past with how this country is going to provide, through all the resources it can command, the extended opportunities for continuing education that this kind of economy--this kind of society--requires. I emphasize this by then asking: how well are we equipped to meet this challenge?

In spite of our long-term commitment to universal free education, remember this figure on functional illiteracy--7,800,000 adults over 25 years of age are in this category, according to the 1959 census. Percentagewise, 6.4 per cent of the white population and 23.5 per cent of the nonwhite are in this educationally underprivileged group. The concern which the present administration feels about this problem is illustrated by the $50,000,000 appropriation which the President has requested in order to do something about it. Forty per cent of our youth who enter the 5th grade drop out of school prior to graduation, and more than half of our adult population has less than a high school education. Professor Conant said recently at a National Conference on Unemployed Youth that the existence in the slums of our large cities of thousands of youth aged 16 to 21 who are both out of school and out of work is an explosive situation. "It is social dynamite." I point out that the percentages he is referring to rise as high as 70 per cent in the case of nonwhite groups.

Unfortunately, the situation on the college level isn't too much better. A recent study at Harvard estimates that, out of the 30 per cent of American youth most academically able, one half of the boys and one third of the girls fail to finish college. The fall-out is estimated at 400,000 a year, or 4,000,000 in a decade. These are the highly qualified students! Max Lerner pointed out in his column recently that this could well mean the difference between the survival of open societies and their death.

I think it is obvious that this represents such a disastrous waste of the best brains in the rising generations that we cannot afford to let this condition continue. Some of you, I'm sure, have seen the Rockefeller report called Prospect for America; the reports of various panels have been brought together in a single volume. Dr. Ginzberg was on the panel whose report I want to refer to very briefly. That report identifies four categories which represent targets for educational expansion. The categories are the panel's, and the comments will be my own.

One is disadvantaged minorities. This is the area in which we are getting the major wastage of human resources. The failure to develop and utilize the full potentiality of every citizen regardless of race or color is no longer a political or even a moral issue. It is a case of preserving the common welfare and perhaps of insuring national survival.

The second category is better use of the talents of women. Omission in this area is particularly critical in the professional and technical fields; witness the comparative data from Russia on the employment of high-level professionally and technically qualified women in their work force compared to our own. Professor MacKinnon at Berkeley,

who has headed up a five-year study of creativity, said recently at a conference at Lake Tahoe, "The indisputable fact is that proportionately far fewer women than men attain distinction for their creativity in the arts, sciences and professions." I submit that we can no longer afford this particular kind of discrimination.

A third target from the Rockefeller report is rehabilitation of economically depressed areas and segments of the population. We moved on this, as you know, with the 1961 Area Redevelopment Act. I'm confident that this Act represents only a small beginning. There is the further possibility of developing Urban Extension programs along the lines of Agricultural Extension, which has been accepted for 50 years in this country. The development of a whole new pattern of extension service for our urban areas is implied in doing something about this particular target. I remind you that the data we have indicate that well over half of all workers have the intellectual capacity for highly skilled work, but only 12 per cent of them are actually employed at such jobs.

Fourth and finally, the better use of older workers. Some of you may have attended the Governor's Conference on Education for the Aging, and the White House Conference on the same subject. I can't believe that we don't have the inventive genius in this country for doing something about this problem. The sheer waste represented in the evidence and testimony we heard in Washington at the President's Conference makes this a very serious problem. However, we can do relatively little on the self-support basis on which we operate in Extension at the present time. Education for the older citizen is an area which has to be looked at in terms of social need and social urgency. The attack will require something in the way of state and federal support or industrial support, neither of which is available at the present time.

Now, you might say this is rather a discouraging picture in terms of the waste of human resources. What can we do about it in the field of continuing education? I point out one striking fact--that the estimated increase required from the gross national product for the support of our regular educational system is from about 3.6 of the GNP to 5 per cent, the increase projected for 1967. Note that this is for the established institutionalized structure--not for continuing education. The last estimate I had on the expenditures for continuing education gives three one-hundredths of 1 per cent of the GNP going into the continuing education programs of our public institutions. I know this is no place for a political speech. However, I can't see that we are going to change this percentage in California if the state government continues its present practice of reducing state support from what was formerly a 16-18 per cent level to the current level of 9 per cent.

Under the stimulus of the trends to which I have referred, I think we can take seriously the possibility that we may come up with a quite different concept of education in this country, moving from the vertical, rather highly formalized system of elementary, secondary, college, and postgraduate instruction to a concept of education as a continuing life-long horizontal process. I think this concept is beginning to develop with the Wisconsin plan for urban extension centers which will provide, within the framework of the metropolitan community, resources and facilities which can be utilized not only to meet manpower requirements and training requirements, but to do something about raising the

level of decision-making in the solution of our urban and community problems. I could go on with this but I don't think I have to stress to this audience that we need an attack not only on the manpower skill requirements; we need most crucially at this point an attack on the whole area of education for public responsibility. Maintaining an informed electorate in these days is quite a different problem from what it was in the average poineering community of early America.

Before I close, I do want to establish a common interest that you people representing business and industry have with the University--a common concern for the importance of continuing education. I noted in a volume called The Educational Activities of Business, a recent study by Stanford Professor O. N. Serbein for the American Council on Education, that there were in 1958-59 about 98½ million dollars going into the educational work of U.S. colleges and universities from American industry and business. I'd say you collectively are already deeply involved; but I would conjecture that most of this money is going into the support of the resident student program and relatively little of it into continuing education, which I'm arguing has now achieved a new and more important role.

Out of the 277 large firms studied by Professor Serbein, 255 are conducting in-company programs of some type. In addition to this evidence of your stake and participation, I point out also, from both our studies here and other studies elsewhere, that in the constituency of continuing educational programs by far the most numerous group represented is the professional group. Wendell Bell on our faculty here at UCLA says that it's pretty evident from his study that the professionals in our society dominate the public leadership roles at both the community and national levels.

You and your colleagues are educationally privileged by national standards. We have had no real trouble motivating participation in our professional postgraduate programs in science, engineering, and business administration. The difficulty comes at the point of involving these leadership groups in programs that are targeted on the problems of public responsibility and the citizen role. Somehow, the professionals seem to resent having anything introduced into their continuing educational programs that smacks of a general or liberal arts nature. The only effective way we have found so far of involving professionals is to provide residential programs, study discussion groups in general education and liberal arts at places like our Conference Center at Arrowhead. There, interestingly enough, we can get a very high participation of professional people.

I'm saying, in effect, that a society such as ours cannot endure without wise leadership and informed scholarship, and it cannot function at its present level of economic prosperity without maximum development of the individual's capacities and potentialities, at all levels. I realize the University is committed only to a relatively small part of the total task of releasing these potentialities. I am convinced that a nation which developed the Polaris missile and the most highly advanced computer machines in the world today can find ways to provide the know-how and resources to do the educational job which is now required. I hope very much that you people in business and industry will join with us and particularly will feel free to recommend, suggest, consult with, help University Extension as the public service arm of the University in attempting to do its part of this total task as efficiently and as effectively as possible.

WORK RULES AND PRACTICES IN MASS-PRODUCTION INDUSTRIES

Jack Stieber*

The term "work rules and practices" has broad connotations. It covers not only rights and responsibilities embodied in the labor agreement but also their implementation by administrative decision. By including "practices" as well as "rules" we give recognition, not only to the implementation of specific contract provisions, but also to the wide and growing body of employment conditions which, though not mentioned in the agreement, have acquired the status of contract commitment because of their continued, frequent, and uniform observance over the years.[1] Recently work rules have increasingly been used in a more limited sense to refer to those conditions of employment which directly or indirectly affect job security, on the one hand, and efficiency, on the other. A recent survey of unions and companies in a number of mass-production industries indicated varying degrees of concern over the following kinds of work-rule problems: work assignment, rearrangement of job functions, application of seniority, contracting-out, distribution of overtime, manning requirements, incentive rates and standards.[2]

The current interest in job security and efficiency is, of course, an outgrowth of economic conditions and the impact--both actual and anticipated--of changing technology on employment. Since 1955 total manufacturing employment has declined by about 1½ per cent, while production worker employment has decreased by close to 7 per cent. In every major manufacturing industry group, production employment has either decreased more or risen less than total employment. These facts, together with a persistently high unemployment rate, a rapidly increasing labor force, and competitive pressures, provide the background for the concern over job security and efficiency.

Work Stoppages over Work Rules and Practices

An indication of the importance which unions and managements attach to work rules and practices is their willingness to strike or take a strike over these issues. The best source of information on this subject are the U.S. Department of Labor reports on work stoppages. The Bureau of Labor Statistics issues annual reports showing major issues involved in work stoppages under the following major headings: "wages, hours and supplementary benefits," "union organization, wages, hours and supplementary benefits," "union organization" alone, "other working

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* I am glad to acknowledge the help of Charles Crapo, research assistant in the Labor and Industrial Relations Center, in the preparation of this paper.

1. James Healy, "Work Rules and Practices Under Collective Bargaining," summary of paper presented at Industrial Relations Conference, Ann Arbor, Michigan, March 29, 1961.

2. Letters received by author, supplemented by discussions with representatives of companies and unions in mass-production industries.

conditions," and "interunion or intraunion matters." The "other working conditions" category, which comes closest to giving information on stoppages in which work rules or practices constituted the major issue, is divided into the following subgroups: "job security," "shop conditions and policies," "workload," and "other." Wherever possible, stoppages classified as "other" have been excluded from this analysis because this subgroup is utilized for disputes in which a union is protesting some action or lack of action by the government rather than striking over working conditions as such.[3]

During the period 1947-60, strikes over job security, shop conditions and policies, or workload accounted for almost one fourth of all stoppages and workers involved. Man-days lost on account of such strikes was a much smaller proportion--9 per cent of the total--reflecting the relatively short duration of strikes over working conditions.[4] Since 1954, such strikes have tended to be more important in the total strike picture than during the first half of the postwar period. However, there is a definite tendency for the relative importance of strikes over working conditions to vary inversely with total stoppage figures. This reflects the relative stability of such strike figures as compared with total stoppages. For example, in 1959 there were 69 million man-days lost because of all strikes, as compared with only 19 million in 1960--the highest and lowest figures since 1947. Yet in both years 3.4 million man-days were lost in strikes over working conditions. While BLS figures do not differentiate between authorized and unauthorized strikes, a substantial proportion of strikes over working conditions are probably of the wildcat variety.

Taken as a percentage of each group, strikes over working conditions occur more frequently, involve more workers, and lose more man-days in manufacturing than in nonmanufacturing industries.[5] The BLS has published separate reports of work stoppages in three mass-production industries--motor vehicles, aircraft, and basic steel.

In motor vehicles more than half of all stoppages and workers involved were ascribed to disputes over working conditions during the period 1947-58. Approximately one fourth of all man-days lost in strikes were over such issues. In many years, working conditions were the most

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3. The United Mine Workers of America has been involved in a number of such stoppages. BLS reports include stoppages over piece rates and incentive standards under "wages, hours and supplementary benefits" rather than under "other working conditions." Since such strikes are not uncommon, this serves to understate the number and proportion of stoppages caused by disputes over working conditions.

4. Data for 1953-60 from BLS Bulletins 1163, 1184, 1196, 1218, 1234, 1258, and 1278. Data for 1947-52 from May issues of Monthly Labor Review.

5. Based on data for 1953-60 only. Reports for earlier years in Monthly Labor Review did not show an industry breakdown by major issue.

important strike issue, due, no doubt, to the frequency of disputes over production standards, which is a strikeable issue under major automobile contracts. Work stoppages over working conditions were relatively less important during years in which major contract negotiations were conducted--1948, 1950, 1955, and 1958--than in nonnegotiation years.[6]

Strikes over working conditions in the aircraft industry were also relatively more important than in all manufacturing but less significant than in autos. During the period 1947-59 approximately one third of all stoppages and workers involved and about 13 per cent of all man-days lost were due to disputes over working conditions. Seniority appears to have been an important issue in a few large strikes, reflecting the difficulty of adjusting to the fluctuating employment which has characterized this industry during the postwar years.[7]

Strike statistics in the basic steel industry reflect the influence of major strikes over new agreements even more than in motor vehicles. Thus, in 1956 and 1959, disputes over working conditions were relatively insignificant in the total strike picture. (The 1959 strike was not counted as a workrules stoppage by the BLS.) However, during nonnegotiation years--1957, 1958, and 1960--working conditions accounted for the overwhelming proportion of all strikes, workers involved, and man-days idle.[8] Unlike autos, steel has a no-strike clause with no exemptions and consequently it is reasonable to conclude that practically all work-rules strikes were unauthorized by the international. During the period 1955-60, the only years for which data were available, strikes in which working conditions were the major issue accounted for 52 per cent of all steel strikes, but only 13 per cent of all workers involved, and 2 per cent of all man-days lost.

Conflict and Accommodation: Some Recent Cases

Basic Steel

The American steel industry is an old industry with many customs and traditions; an aging labor force characterized by long service; heavy, durable, and expensive equipment which varies little from company to company; and a homogeneous product made by processes and methods which have changed slowly over the years. In this environment it is not surprising to find work practices that go back many years in origin--often to a period before the Steelworkers' union was organized. To these practices were added others, established either unilaterally by plant

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6. Work Stoppages: Motor Vehicles and Motor Vehicle Equipment (BLS Report 148), October 1959.

7. Work Stoppages: Aircraft and Parts Industry (BLS Report 175), January 1961.

8. Work Stoppages: Basic Steel Industry (BLS Report 92), revised September 1959, and special tabulation of work stoppages over "other working conditions" in 1955-60, prepared by BLS for author.

managements or by agreement with local unions, designed primarily to obtain maximum production for war purposes with little concern for efficiency.

In 1947 these practices were given formal recognition by the now famous 2-B provision which is found in agreements with the United States Steel Corporation and a number of other major companies. It defines "local working conditions" as "specific practices or customs which reflect detailed application of the subject matter within the scope of wages, hours of work, or other conditions of employment and includes local agreements, written or oral, on such matters." The provision affords protection to local working conditions "which provide benefits that are in excess of or in addition to "benefits in the contract and explains the circumstances under which management may change or eliminate them. In subsequent years arbitrators have held that 2-B may be applied to a wide variety of practices including: crew size, seniority, distribution of overtime, work scheduling and assignment, contracting-out, layoffs, wash-up time, and lunch periods.[9] The companies have tried to modify or eliminate 2-B, charging that it has frozen inefficiency and waste into steel operations, while the union has defended the provision as a necessary protection against speed-up and overloading employees. Arbitrators under steel agreements--while deciding most grievances alleging violations of 2-B against the union--have generally felt that it has served to establish a balance between "the need for stability, on the one hand, and for flexibility and growth on the other."[10]

It is not my purpose to review the controversy over work rules in steel or to rehash the 1959 strike. However, I do wish to point up two things: the close relationship between work rules and incentives problems in steel and the absence of any relationship between 2-B and automation. The first goes a long way toward explaining why the work-rules issue was injected into the 1959 negotiations; the second may help to put to rest unfounded but persistent assertions that automation was an issue in that strike.

Since the installation of job evaluation in the steel industry, incentives have been a major problem to some companies and particularly to U.S. Steel.[11] One of the reasons U.S. Steel was willing to spend millions of dollars to eliminate base-rate wage inequities both within and between plants was the belief that substantial savings in manpower could be realized by establishing engineered performance standards on incentives. When the union withdrew from the original understanding to identify and eliminate inequities on incentives, U.S. Steel found itself stymied by the "local working conditions" clause in its efforts to reduce

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9. Pike and Fischer Inc., Steelworkers Handbook on Arbitration Decisions, published by United Steelworkers of America, 1960, p. 29.

10. Ibid., p. 59.

11. Jack Stieber, The Steel Industry Wage Structure (Cambridge: Harvard University Press, 1959), Chapter X.

crews where it felt such reduction was warranted under new incentives. According to 2-B, a "local working condition," including crew size, may be changed or eliminated only when "the basis for the existence" of the condition is changed or eliminated. Arbitrators have generally interpreted this to mean a change in equipment or method of operation. Thus a change in crew size and duty assignment cannot be justified by a time study showing that one or more employees are unnecessary or by evidence that operations can be made more competitive by such a reduction. In such cases local union agreement must be obtained. A typical example of a justifiable and an unjustifiable management action under 2-B is furnished by the following arbitration issue:

> While introducing a new incentive plan in a . . . butt mill, management installed cooling table synchronization and reduced the crew size in the process. At the same time, for purposes of the incentive program, management reduced the spell time and crew size at a welder station on the same production line but unaffected by the changed mechanical condition.[12]

The arbitrator upheld the first action but reversed the second.

This tie-in between the U.S. Steel incentive program--the brain child of R. Conrad Cooper, the chief industry negotiator--and the "local working conditions" clause put considerable pressure behind an issue which was much less important to some other companies, who had weaker or no 2-B type provision in their agreements.

The claim that 2-B puts a brake on technological change has no basis in fact and has never been made by responsible industry representatives. In fact, by making a change in equipment the surest way to justify a change in a "local working condition," 2-B has probably encouraged the hastened technological change in the steel industry.

Often overlooked is the fact that the union cannot by itself establish a local working condition, however reasonable it may be, or change what it believes to be an onerous condition. At one point in the 1959 negotiations, the union offered to modify 2-B to substitute "reasonableness" for past practice as the determining factor in establishing grounds for continuation of a local working condition.[13] Management refused, holding out for stronger modification, but perhaps also recognizing that "reasonableness" could be a two-way street whereas past practice can only be established with management cooperation.

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12. Garth L. Mangum, "Interaction of Contract Administration and Contract Negotiation in the Basic Steel Industry," Labor Law Journal, September 1961, p. 858.

13. Ibid.

How serious is 2-B in its effect on efficiency? The answer would require a thorough study of allegedly restrictive local practices--a study which has never been made and is not likely to be made. Garth Mangum, in his study of contract administration in the steel industry for the U.S. Department of Labor steel report, decided that the most serious effects of 2-B are to perpetuate management's past mistakes for a time and to discourage supervisors from making changes which might produce grievances. He concluded that "inefficiencies which cannot be eliminated under the contract within a reasonable time by an alert management are rare."[14]

The January 1960 settlement of the steel strike provided for the establishment of two committees: a group to study local working conditions, composed of union and management representatives who were to select a neutral chairman; and a Human Relations Research Committee which was to have no neutral members. The parties were not able to agree on a neutral chairman for the first committee which has been dormant since the end of 1960. The second committee has set up subgroups to study job classifications, incentives, seniority, medical care, arbitration and grievance procedures, and "guides for the determination of equitable wage and benefit adjustments." The parties have released no information as to progress but it is doubtful that much will be accomplished toward resolving serious problems in these areas.

More promising is the tripartite Kaiser-United Steelworkers Committee[15] to study problems resulting from technological change and local working conditions, and to develop "a long range plan for equitable sharing . . . of the fruits of the Company's progress." A number of meetings have been held and progress has been reported.[16] The union is eager to arrive at agreements in Kaiser which may then be used as targets in forthcoming 1962 negotiations with the 11 major steel producers. Given the high caliber of the public members and the demonstrated willingness of Kaiser management to break new ground, it would not be surprising to see a final report before negotiations which might well serve as the basis for union demands on the rest of the industry.

Automobiles

Unlike steel with its historical accumulation of customs, practices, and working conditions, management in the automobile industry, except in the skilled trades, has been virtually free of limitations in its right to assign work, to combine or eliminate jobs, and to determine crew sizes. The absence of restrictive work rules in autos may be explained in large part by the industry's rapid rate of technological change, changing production methods best exemplified by the annual model

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14. Ibid., p. 857.

15. The neutral members are George Taylor, David Cole, and John Dunlop.

16. George Taylor, talk at Industrial Relations Conference, Ann Arbor, Michigan, March 30, 1961.

change, a high company mortality rate, and, since the war, considerable decentralization resulting in the closing of old plants and shifting of production to new untis in different geographic areas. Auto workers shift jobs and departments frequently and many have also changed plants and companies. Custom and practice have little opportunity to take root in the automobile industry, which presents a particularly inhospitable environment for restrictive working rules.[17]

Informal restriction of output is also rare in autos. A large proportion of all employees work on assembly lines under production standards initially set by management but subject to challenge by the union. The collective bargaining agreement gives the union the right to strike over production standards, and this right is exercised. Only about 2 per cent of automobile workers are paid on an incentive basis and unilateral limitation of output is not a significant factor in this industry.

Automobile management is considerably more limited in dealing with the skilled trades. "Lines of demarcation" have been established between trades and are rather strictly observed. This is particularly true at Ford Motor Company where umpire decisions, based on practices established by the parties, have been instrumental in limiting management's freedom to make work assignments in the skilled trades. This has presented some bars to the most efficient use of labor, particularly with the advent of automated equipment, which often demands the use of a combination of skilled trades. The union has been relatively successful in maintaining traditional skilled lines, although in one new Ford plant a classification of "automation equipment maker and maintenance" was established at a rate equal to the highest rate for any of the trades involved.

Union-management agreements in the automobile industry have extensive seniority provisions which, while mainly concerned with providing job security within the plant, also make provision for interplant and interarea transfers of displaced workers within companies. But the major emphasis of the union has been on cushioning the impact of technological change by measures to provide financial assistance to displaced workers. The recently concluded 1961 negotiations liberalized existing provisions on SUB, separation pay, and retirement benefits, and introduced, for the first time, "short-week benefits" and "relocation allowances" to assist displaced employees. The "short-week benefit" is a payment for hours not worked below the regular 40-hour week. Workers receive 65 per cent of hourly straight-time pay for a "scheduled" short week and 50 per cent for an "unscheduled" short week. Relocation allowances are paid to workers who change their permanent residence to take advantage of transfer rights under the agreement. Payments vary from $55 for a single employee moving 50 to 99 miles to $580 for a married employee who moves 1000 miles or more.

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17. Charles C. Killingsworth, "Study of Collective Bargaining Approaches to Employee Displacement Problems (Outside the Railroad Industry)," August 1961 (unpublished study prepared for Presidential Railroad Commission).

Perhaps more significant for this discussion than the economic gains made by the union were several changes in so-called non-economic provisions of the agreement, which were secured only after strikes of a few weeks' duration in both General Motors and Ford Motor Company. These strikes represented an unusual demonstration of the importance attached by the union and its members to working conditons. This was the first time since 1946 that the UAW had made General Motors, the powerful, highly efficient giant of the auto industry, its primary strike target. It also marked the first time that the union refused to sign the national agreement, covering economic issues, pending settlement of certain local issues.

According to the UAW, the single most important issue, which precipitated strikes in more than half of GM's plants and halted auto production, was the union demand for adequate personal relief time. Other issues in dispute involved a nondiscrimination clause, production standards, compulsory overtime, foremen working, and union in-plant representation. Company spokesmen charged that the relief time issue had been "magnified out of proportion" and implied that the strike had been caused more by internal union political problems than by serious union-management differences. The final settlement included the following provisions:

(1) The Company agreed to provide sufficient relief men to permit each production line employee to take 24 minutes of actual personal relief per shift, exclusive of the first hour at the start of the shift and the first hour after lunch. Previously this issue had been negotiated at the local level.

(2) A new clause was added to the contract stating that it was Corporation policy not to discriminate against employees because of race, color, creed, or national origin and providing that complaints could be taken up as grievances. The union did not succeed in getting a clause covering hiring policy, but the company attached a letter quoting its "longstanding written and published policy concerning non-discrimination in employment," to be implemented by the individual divisions and employing units.

(3) New provisions were added to the grievance procedure to speed up the processing of complaints over production standards. A company "statement of policy" notes that "model-mix shall be taken into account in establishing and/or changing production standards on car and body assembly line operations" and that the speed of such lines will not be increased to make up for loss of production due to breakdowns or unscheduled line gaps or stops.

(4) Greater limitations were placed on situations in which supervisory employees may do hourly rated work.

(5) Union committeemen in two areas were granted additional time to handle and investigate complaints. Time taken by a committeeman to process production standards grievances is not to count against the time allotted him to work on other grievances.

The union also struck Ford Motor Company over non-economic issues--the first national strike in the 20-year history of collective

bargaining with this company. A number of supplier companies also were subjected to short strikes after agreements had been reached on economic terms, over such issues as seniority, the number of company-paid union committeemen, lunch periods, job and work-turn transfers, and other work-rule provisions.[18] The union was generally unseccessful in attempts to permit workers to refuse overtime while other employees were on layoff and to restrict management's right to contract-out skilled work.

The actual gains made on working conditions may be less important than the manner in which they were achieved: refusal to sign national agreements on economic issues until local issues were settled, and willingness to strike over local issues. The upgrading of certain local issues to national bargaining may presage a new approach to handling such issues in future automobile negotiations. The example set by the UAW may also affect collective bargaining in other industries such as steel where local issues have repeatedly been sidetracked in the rush to resume production after a national settlement on economic matters.

Rubber

Like autos--and for many of the same reasons--this industry provides an unfavorable environment for development of restrictive work rules. Frequent changes in design, materials methods, specifications, and equipment are characteristic of many parts of the industry. Largely dependent on the motor vehicle industry for its sales, the rubber industry too is subject to severe seasonal and cyclical fluctuations in output. Production jobs are frequently eliminated, job duties are modified, and crew sizes vary from time to time. Arbitration decisions have generally upheld management's right to reduce crews without changing equipment and to combine, split up, and reassign job duties.[19]

As in the automobile industry, the skilled trades situation differs from production in that lines of demarcation place limitations on management's right to assign work. A major distinction between these two closely aligned mass-production industries is that a high proportion of rubber workers are employed on incentive jobs, and informal limitation of output is commonly practiced. Wildcat strikes and slowdowns have also been a serious problem in some companies.

Negotiations in rubber are closely tied to those in autos. SUB and severance pay are provided in most contracts. Local agreements provide highly elaborate work-sharing and seniority systems. In the 1961 negotiations, conducted before settlements in autos, two companies agreed that automation would not be used to remove jobs from the bargaining units; one of these companies also agreed to give advance notification of major technological changes that were likely to result in employee displacement; and a third company agreed to provide training at its own expense when it installed equipment that its own craftsmen could not

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18. Wall Street Journal, November 13, 1961.

19. Killingsworth, op. cit.

service without additional training.[20] It is not unlikely that the "short-week benefits," relocation allowances, and some of the other benefits negotiated this year in the automobile industry will soon find their way into rubber industry contracts. Work-rule issues which have presented continuing difficulty are distribution of overtime, application of seniority to meet changing production requirements, vacation scheduling, and setting piecework prices in incentive jobs. Increased pressure is also being placed by the union on demands to limit contracting-out--an issue on which the auto workers failed to obtain any significant concessions and which is bound to crop up in the 1962 steel negotiations as well as in other industries.

Meat-packing

The story of the 1959 negotiations in this industry presents examples of both accommodation and conflict in response to union demands relating to job security. Accommodation was the keynote in the highly publicized Armour agreement setting up an automation fund of $500,000 to be administered by a 9-man committee, including an impartial chairman. The committee has authority to study and experiment with plans to help workers adjust to displacement and to make nonbinding recommendations. The work of the committee is well known and need not be reviewed here. However, it is important to note that the committee grew out of a situation which included declining employment due to mechanization, the closing of old and inefficient plants, and centralization of production in newer facilities. In 1959 the union demanded a shorter work week, guaranteed employment, a limitation on job combinations, restrictions on contracting-out work, an increase in severance pay, one-year notice of any plant shutdown, and the right to reopen the entire contract if the company decided to close any plant covered by it.[21] The Armour proposal to establish an automation study fund and committee was its answer to these demands; other adjustments were also made in benefits and contract provisions. Several smaller companies established similar funds, though only the Armour committee is active.

The Swift and Wilson companies reacted differently to union demands for job security. Rather than accept automation funds and other union demands which they felt would limit management initiative, both companies took long strikes and eventually settled for somewhat larger wage and fringe benefits, but without concessions in the management-rights area.[22]

In 1961 all three companies reached peaceful settlements with their unions. Armour agreed to give 90 days' notice of shutdowns with

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20. Ibid.

21. Ibid.

22. Irwin L. Herrnstadt and Benson Soffer, "Recent Labor Disputes over 'Restrictive' Practices and 'Inflationary' Wage Increases," The Journal of Business, University of Chicago, October 1961.

guaranteed earnings for affected employees. "Technological adjustment pay" of $65 per week (including unemployment compensation and other earnings) was provided to run from 26 to 39 weeks for workers with at least 5 years' seniority while they are awaiting transfer to other plants. Employees who do not wish to transfer receive severance pay. Neither Swift nor Wilson agreed to "technological adjustment pay" but the former will pay moving allowances up to $500 to employees transferring from one plant to another under a master seniority agreement.[23]

Westinghouse and Pittsburgh Plate Glass Strikes

These two conflicts differ from those previously discussed in that they represent situations in which management took the initiative to change or eliminate rules and practices peculiar to their companies. Both were successful to a limited degree.

The 1955-56 IUE strike against Westinghouse was sparked by company measurement studies of indirect labor in the East Pittsburgh plant. Costs of indirect relative to direct labor had been rising and management wanted to institute tighter cost controls over day-work employees. The union feared that the studies would lead to speed-up and further displacement in a plant which had already suffered a 25 per cent reduction in its labor force during the previous four years. After a 156-day strike, the company's right to time study nonincentive jobs was recognized, subject to the union's right to review work standards and to take grievances to arbitration. The IUE-Westinghouse contract had not previously included arbitration.

When it occurred, the Westinghouse strike was called the first "automation strike" because it developed out of a concern for the efficiency of indirect labor which was increasing under the impact of automation.[24] Actually, the strike was more a reflection of a poor union-management relationship which probably could have touched off a strike on any one of several issues. Since 1955, indirect workers in manufacturing have grown as a proportion of the work force, but the most difficult problems have been generated by displacement of production workers rather than by maintenance and other service employees.

The United Glass and Ceramic Workers' strike against the Pittsburgh Plate Glass Company was similar to the Westinghouse stoppage in that the problems were concentrated in one plant. The two differed however in that the glass company was itself primarily responsible for a deteriorated incentive system created by piecemeal adjustments, obsolete and costly manning and job selection processes, onerous restrictions on speeds and output agreed to in more prosperous years, an excessive number of company-paid full-time grievance committeemen and union time study representatives, and an unduly burdensome seniority system. In 1950 the company undertook to reduce costs in order to improve its competitive position.

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23. Monthly Labor Review, November 1961, pp. 1246-7.

24. Fortune, December 1955.

This time it was management that wanted arbitration while the union balked. It took a 134-day strike and a liberal economic package to obtain agreement to submit outstanding work-rule issues to arbitration by three public members. The arbitrators made a number of far-reaching decisions: management could establish new incentive rates under a new formula, subject to union challenge via the grievance procedure; the company was permitted to make initial determinations of line speeds and output for a three-week trial period but had to revert to old standards, pending arbitration, if the union did not agree to the changes; manning reductions were upheld in over two thirds of 69 cases submitted; company-paid union grievance and time study men were cut more than 50 per cent; seniority bidding on temporary vacancies was eliminated, though other broad bidding rights were retained.

The work of the arbitration commission in this dispute provides an excellent illustration of how "informed neutrals" may be utilized in difficult bargaining situations.[25]

The Impact of Arbitration

A UAW official recently predicted that an arbitration award in General Motors would affect the jobs of 100,000 tool and die makers in the automobile industry over the next 10 years. The decision was that the cutting of tapes to program the work of a new machine should not be given exclusively to process engineers and denied entirely to tool and die makers. The union intends to try to get other companies to adopt the substance of the award.[26]

Even if the UAW official is off in his estimate of the number of men likely to be affected, this decision may have a significant impact on the employment prospects of automobile tool and die makers. Similar awards regarding job assignment, job combinations, crew sizes, incentive standards, overtime work, contracting-out, and other matters affecting job security are being made every day by arbitrators. Sometimes they are based on specific provisions of the agreement. Frequently, however, there may be no provision clearly covering the particular matter in dispute and the arbitrator may base his decision on past practice. Arbitrators have used past practice "to clarify what is ambiguous, to give substance to what is general, and perhaps even to modify or amend what is seemingly unambiguous. It [past practice] may also, apart from any basis in the agreement, be used to establish a separate, enforceable condition of employment."[27] Since no contract can possibly contain

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25. George H. Hildebrand, "The Use of Informed Neutrals in Difficult Situations," New York State School of Labor and Industrial Relations, October 1961.

26. Daily Labor Report, No. 194, 1961, Bureau of National Affairs, Washington, D.C.

27. Richard Mittenthal, "Past Practice and the Administration of Collective Bargaining Agreements," paper delivered at meeting of National Academy of Arbitrators, January 1961, p. 2.

provisions covering all problems which may arise in the day-to-day administration of the agreement, past practice may well determine many questions affecting job security.

Another widely accepted arbitration doctrine which has relevance for our discussion is that there are limitations on management's rights which, though not explicitly expressed in the contract, may be read into the agreement. The "implied limitations" doctrine is particularly important on such issues as management's right to contract-out work--a subject on which the agreement is often silent. Commenting on the hazards of this doctrine, a management attorney has suggested that a union may be better off to rely on the "implied limitations" theory than to try to negotiate a restriction on contracting-out in the agreement.[28]

With over 90 per cent of all agreements containing arbitration provisions, past practices and implied limitations on management's rights may have as great an impact on job security as specific contract provisions governing work rules.

Conclusion

Work-rules problems exist in manufacturing and mass-production industries as well as in railroads, longshoring, and construction. But they are not on the same scale, are almost never industry-wide, and are more often individual plant problems than company problems. Taken as a whole, industrial strife over work rules has not increased significantly over the years when measured in terms of strike statistics. Stoppages over work rules in manufacturing have generally grown out of problems of contract administration rather than contract negotiation and have often been unauthorized by the international union.

Mass-production industries are relatively free of restrictive rules and practices which impose serious limitations on efficiency. In the comprehensive Brookings study on The Impact of Collective Bargaining on Management, mass-production industries and industrial-type unions are rarely mentioned in the numerous illustrations of make-work practices. Of the 11 kinds of restrictions discussed, only one--enforcement of loose production standards or limits on speed or on output--was found to exist with any degree of frequency in mass production. With respect to such practices, Professor Slichter's cautionary note in his 1941 study is still worthy of consideration:

> . . . The mere fact that a union limits the output of men, or controls the quality of the work (with effects upon output), or regulates the size of the crew or the number of machines per man, or prohibits the use of labor-saving devices does not in itself mean that the union is "making work." In such cases it is necessary to apply a rule of reason and to determine whether the limits

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28. Comments by David Lindau in "Conference on the Arbitration of Two Management Rights Issues: Work Assignments and Contracting-Out," New York State School of Labor and Industrial Relations.

> are unreasonable. Opinions as to what is reasonable are bound to differ, but failure to apply a rule of reason would be to accept the employer's requirements, no matter how harsh and extreme, as the proper standard.[29]

According to the recent Brookings study, restrictive practices in manufacturing were due more to management laxity in previous years than to union initiative. But regardless of where the blame lies, rules and practices which unduly limit efficiency should not be perpetuated. The problem is how to get rid of them.

The best answer is to eliminate the basis for their existence through technological change; the next best way is to bargain or buy them out; the worst approach is to try to force their elimination because they are "bad," "wrong," and an infringement on "management rights." We have seen examples of all three approaches in the cases cited earlier in this paper, in railroads, and in longshoring. The most serious problems arise where a union resists changing technology or refuses to be bargained or bought out of restrictive rules and practices; then the "persuasion of power" takes over and the results are not always predictable.

Fortunately, opposition to technological change has almost no overt and few covert supporters in union leadership ranks. Mass-production industries have been among those to make the widest use of automated equipment without challenge from their unions. The emphasis today is on cushioning the impact of change through financial assistance and other benefits to those affected. Demands for early retirement, severance pay, SUB, retraining, relocation allowances, guaranteed pay plans, and the shorter work week are being heard with increasing frequency. While such benefits are costly, their cost is at least predictable, which is not true of restrictive practices. Just as union policies of "obstruction" and "competition" (subsidizing old or alternative methods by accepting lower pay) were abandoned in earlier years in favor of the policy of "control" of technological change, so now the policy of "control" has given way to the policy of "adjustment." This is particularly true among unions in mass-production industries.

Collective bargaining in 1962 is not likely to center on work rules--either in steel or in most other mass-production industries. The major developing issues relate to union efforts to achieve a greater degree of income stability for their members and to help them adjust to the vicissitudes of technological change. Fortified by a friendly administration in Washington, unions can be counted on to pursue these objectives in both the collective bargaining and the legislative arenas.

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29. Sumner H. Slichter, Union Policies and Industrial Management, Brookings Institution, 1941, pp. 165-6.

WHITE COLLAR WORKERS AND PROFESSIONALS -- THEIR ATTITUDES AND BEHAVIOR TOWARDS UNIONS

S. Martin Lipset

Introduction

Since the turn of the century, those concerned with estimating the potential strength of labor-based organizations, whether political parties or trade unions, have recognized that the growth of the white-collar workers, or, as some writers have termed them, the "new middle class," has constituted the largest single obstacle to socialist and labor parties winning the safe majority that Marx anticipated for them, and to trade unions securing overwhelming membership strength among the employed classes. The literature written by socialists, labor experts, and sociologists on this question has been extensive, and almost every conceivable factor that might affect white-collar behavior has been dealt with in some detail.

Out of this plethora of writing and analysis, two concrete facts stand out. First, inherent in the various technological and business practices of modern industry has been the rapid growth of the non-manual labor force. In the United States, the occupations called "white collar" have grown from 17.6 per cent of the labor force in 1900 to 42.4 per cent in 1959. There are now more white-collar workers than manual ones, and the trend is to widen this discrepancy in favor of the non-manual.

Second, almost everywhere the majority of the white-collar workers have rejected efforts to place them in the same political or trade-union camp with manual workers. Thus, studies of the electoral support of political parties in the various democracies indicate that about two thirds of the white-collar workers vote for the nonlabor-based or "bourgeois" parties. In most countries, the majority of non-manual employees do not belong to labor unions, and usually where they do belong, these unions are separate from those of the manual workers. Thus in Sweden, where over 60 per cent of the employed nonagricultural labor force is organized, white-collar unions have their own union federation. In France the more left-wing, Communist-dominated federation, the CGT, is primarily composed of manual workers, the strength of the Socialist-influenced Force Ouvrier is found among government employees, and the Catholic CFTC appeals to the privately employed white-collar workers. In Great Britain white-collar workers are weakly organized, and the white-collar unions, though affiliated with the national Trades Union Congress, differ from the manual-worker unions in rejecting affiliation with the Labor Party. In the United States less than 15 per cent of the white-collar workers are members of trade unions. As a recent ILO report puts it, "whatever the degree to which collective bargaining exists in a given country, it will be found to apply to non-manual workers significantly less than manual workers."[1]

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1. ILO Advisory Committee on Salaried Employees, Non-Manual Workers and Collective Bargaining (Geneva: International Labour Office, 1956), p. 31.

What are some of the reasons for this apathy on the part of the white-collar sector toward organizations that have revolutionized the position of workers? When faced with such a startling success story, why does the white-collar worker refuse to act in his "own best interest"? In order to understand this phenomenon, perhaps we should inquire into what the white-collar worker does see as his "best interest." What are some of the factors that reduce the attractiveness of unions to them? Since there are a few unions among white-collar workers, we will then examine them in order to ascertain the variables associated with their unionism. After looking at unionism among office workers in several industries, we will turn to the rapidly growing group of professionals and technicians and investigate some of the obstacles to unionization, as well as some of the occupational strains that appear to promote organization among them. The last section will examine some of the functions of the already existing organizations and unions in the white-collar and professional sectors.

Differentiation within the White-Collar Stratum

Any effort to analyze the potential of the white-collar stratum for trade unionism or leftist politics must begin by differentiating within this sector. For, basically, the most important correlation between support of the left or of trade unionism and any other variable is position in the stratification structure. That is, the more privileged a group is in terms of income or status, the more likely it is to be conservative in its politics. The same pattern would appear to hold up for the appeal of trade unions as well. Professionals, who as a group receive the highest income and prestige of any occupational stratum, are the least prone to belong to trade unions, although, as I will discuss later, there are certain siginificant exceptions to this pattern.

In recent years, the most rapidly expanding groups in the labor force have been the technical and managerial sectors, most of which now require a university education. In the second large non-manual stratum, the white-collar employees are mainly in subordinate positions requiring little skill and only a high school education. Although it is well known that during the past decade the proportion of white-collar positions surpassed the manual, few have noted that within the ranks of white-collar the number of people employed in professional, technical, and managerial tasks is now greater than the number in clerical and sales work and the rate of growth of the former remains higher. In the 1950's, the number of manual workers grew at a rate of only 4 per cent, clerical and sales jobs increased by 32 and 14 per cent respectively, while professional and technical categories increased by 55 per cent. Within the manufacturing industries, the professional and technical category increased between 1952 and 1960 by 65 per cent, while clerical occupations increased by only 13 per cent, and manual occupations declined slightly.[2]

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2. Everett Kassalow, Occupational Frontiers of Trade Unionism in the U.S. (mimeographed), Table I, Table III.

Table 1

Per Cent Distribution by Major Occupation Group for the Economically Active Civilian Population 1900-1960

Major Occupation Group	1960	1950	1940	1930	1920	1910	1900
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White-Collar Workers	42.0	36.6	31.1	29.4	24.9	21.3	17.6
Professional, technical, & kindred	10.8	8.6	7.5	6.8	5.4	4.7	4.3
Managers, officials, & proprietors exc. farm	10.2	8.7	7.3	7.4	6.6	6.6	5.8
Clerical & kindred	14.5	12.3	9.6	8.9	8.0	5.3	3.0
Sales workers	6.5	7.0	6.7	6.3	4.9	4.7	4.5
Manual Workers	37.5	41.1	39.8	39.6	40.2	38.2	35.8
Craftsmen, foremen, & kindred	12.9	14.1	12.0	12.8	13.0	11.6	10.5
Operatives & kindred workers	18.6	20.4	18.4	15.8	15.6	14.6	12.8
Laborers, exc. farm & mine	6.0	6.6	9.4	11.0	11.6	12.0	12.5
Service Workers	12.6	10.5	11.7	9.8	7.8	9.6	9.0
Private household workers	3.3	2.6	4.7	4.1	3.3	5.0	5.4
Service, exc. private household	9.3	7.9	7.1	5.7	4.5	4.6	3.6
Farm Workers	7.9	11.8	17.4	21.2	27.0	30.9	37.5
Farmers & farm managers	4.0	7.4	10.4	12.4	15.3	16.5	19.9
Farm laborers & foremen	3.9	4.4	7.0	8.8	11.7	14.4	17.7

Source: Industrial Union Department, AFL-CIO, Research Department, Selected Tables Depicting the Changing Character of U.S. Labor Force (mimeographed, June 1961), Table 2.

Stratification and sex roles

It is difficult to relate the objective stratification position of white-collar workers to political or union behavior without examining the interrelationship of stratification and sex within the stratum. For there is one predominant fact often ignored by those who cite total statistics of white-collar employment--that on the whole males are privileged and women underprivileged. Thus, in the United States in 1950, females held 62 per cent of all clerical positions. Conversely, men held 84 per cent of all managerial jobs, and 64 per cent of professional and technical positions.[3] The one-third of the professional and technical positions which are held by women are predominantly concentrated in the lower paid and lesser statused portion of this sector. The 1950 census data indicate a female majority among the more than one million teachers and the half million nurses, as well as among the smaller categories of medical and dental technicians, dieticians and nutritionists, librarians, and social workers.

A detailed survey of hiring practices in two American cities, Charlotte and New Haven, indicates that employers' attitudes sustain these differences. In both cities routine clerical jobs are predominantly "women's work." Conversely, the ranks of middle management in these cities were dominated by men at the time of the survey and there was "no indication of a desire of employers for a change. Only about 8 per cent of the people in this category now employed in the two cities were women, and they are chiefly in jobs like a president's secretary who has some quasi-executive duties, or assistant in the personnel department with particular relations with women workers."[4]

The "proletarianization" of white-collar work is a tendency concentrated among women. One might expect to find behavior and attitudes among female employees akin to those which have emerged among manual workers. There are, however, several factors mitigating against such developments.[5] First, for many women, employment is not a major source of self-identification. Young women look forward to leaving their jobs after marriage or on the birth of their first child. They are, consequently, not much concerned about opportunities for advancement. Second, the frustration of low status may also be reduced by the fact that a woman's class position is defined largely by her husband's status, and to a certain extent by total family income, rather than by her job. Thus one would anticipate that among women who are supplementary earners there should be less concern about opportunities for promotion. Furthermore, the subordinate status of women in the social structure seems to contribute to their acceptance of an inferior

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3. Lawrence Thomas, The Occupational Structure and Education (New York: Prentice-Hall, 1956), pp. 116,136.

4. E. William Noland and E. Wight Bakke, Workers Wanted (New York: Harper, 1949), p. 79.

5. See Waino Suojanen and G. C. Hoyt, "Differences in Motivation Among White-Collar Workers," Personnel, 34 (1957), pp. 26-31.

position in industry. As the Myrdals, among others, have pointed out, the general value system of most contemporary societies still supports the norm of a paternalistic relationship between men and women; the man is expected to lead and protect the weaker woman, for a woman to play a man's role in any sphere of life is "unnatural."[6] Women supervisors violate social expectations about the sex relationship, and both men and women find such changes objectionable. Evidence of the continued strength of these norms is found in a survey of white-collar workers which asked both men and women whether they preferred a male or female supervisor, or did not care one way or the other. Almost all of the men (85 per cent) and most of the women (65 per cent) said that they would prefer a male supervisor.

That male white-collar workers are more ambitious than women is indicated by another survey. When asked, "Is it your ambition to hold the same position as your supervisor in your company or isn't that important to you?" 48 per cent of the men as against 27 per cent of the women replied that they were eager to obtain the supervisory position.[7] Thus, the division of labor and of status among the sexes serves to eliminate possible sources of discontent.

The greater opportunities for promotion into higher positions for male white-collar workers not only occurs because of the discrimination against women, but also results from the way in which white-collar bureaucracies are internally differentiated into many hierarchical gradations. The larger the bureaucracy the more likely it is to contain a long ladder of positions. Where there is a number of such gradations, there is more opportunity for advancement as the sub-divisions prevent a sense of "consciousness of kind" from developing. Carl Dreyfuss has pointed out that many white-collar workers "welcome the artificial differentiation and complication of the business gradation and grasp the chance of exercising even the smallest power of command, despite the fact that the authority bestowed on them may be only fictitious. Some promotions--to manager of a sub-department, to a semi-independent post, or to representative of the firm--afford the employee deep satisfaction and flatter his pride to an extent not justified by the importance of such events from an organizational and economic standpoint.... Jealousy and envy among employees of the same rank or among those just one step higher or lower in rank are incited and inflamed by the continuous struggle for promotion...."[8]

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6. See Gunnar Myrdal, An American Dilemma (New York: Harper, 1944), p. 1077, and Alba Myrdal, Nation and Family (New York: Harper, 1941)

7. Opinion Research Corporation, "Wartime Implication of White-collar Thinking" (Princeton: 1950), p. A-36.

8. Carl Dreyfuss, "Prestige Grading: A Mechanism of Control," in R. K. Merton et al., Reader in Bureaucracy (Glencoe: The Free Press, 1952), p. 261.

Obstacles to White-Collar Union Membership

Perhaps the chief obstacles to union growth among white-collar workers which are cited by those writing on the subject have been their sense of high status, as contrasted to manual workers or to others with whom they might compare themselves, and various aspects inherent in their work milieu. These factors are to some extent interrelated but it seems worth while to treat them separately.

A sense of higher status

There seems little doubt that in various countries those engaged in different forms of non-manual work see themselves in a higher status category. Thus in his famous study of class identification, Richard Centers found that only 10 per cent of American professionals placed themselves in the "working class," as an alternative to describing their status as "middle" or "upper" class, as contrasted with 24 per cent among small businessmen, 34 per cent among white-collar workers, and 71 per cent among skilled workers.[9] In France, a similar study indicated that no professionals saw themselves as part of the working class, as compared with 11 per cent among shopkeepers, 35 per cent among those in clerical and sales occupations, and 53 per cent among artisans and skilled workers.[10]

In two American national samples, when white-collar workers below the rank of supervisor were questioned as to whether they regarded themselves as belonging more with management or more with production workers, about three quarters responded "more with management," while about oneeighth identified more with production workers.[11]

But if the sense of high status among professionals and the self-employed, particularly the more well-to-do among them, may be justified by higher incomes (as total groups they are the two best-paid occupational categories) and by the general public's conception of occupational status, a favorable self-image is not justified by the objective position of American lower level white-collar groups when measured by income or community status. The most comprehensive analysis of the prestige accorded to occupations by a national sample of Americans

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9. Richard Centers, The Psychology of Social Classes (Princeton: Princeton University Press, 1949), p. 86. Centers also presented the alternative of "lower class," which few chose at any level.

10. Natalie Rogoff, "Social Stratification in France and the United States," in R. Bendix and S. M. Lipset, eds., Class, Status and Power (Glencoe: The Free Press, 1953), p. 585.

11. See Strengthening Relations with White-Collar Workers (Princeton: Opinion Research Corporation, 1952), p. A-16, and Can Management Hold White-Collar Loyalty (Princeton: Opinion Research Corporation, 1957), p. A-8.

reveals that the average prestige rating of various clerical and sales jobs is identical with that accorded to skilled manual work.[12]

The factors underlying the upward class identification of the white-collar workers inhere in the very nature of a stratified society. Stratification is a ranking of positions as higher or lower on a variety of values, that is, basically, as better or worse. Every individual necessarily seeks to magnify his sense of importance in the eyes of others. Consequently, basic to the structure of stratification is the effort by individuals to upgrade their self-image, to identify with whatever in their position gives them a claim to higher status. Or to put it another way, when faced with a choice of identifying down or up, almost everyone will identify up. The ambiguous position of the white-collar worker in the stratification hierarchy based on the historic linkage of the occupational with the entrepreneurial role, combined with the continuation of such objective distinctions as higher education, cleaner work, social definition as being part of the staff side of industry, all operate to give white-collar workers more of a "choice" as to where to identify."[13]

Identification with the middle classes obviously has clear-cut consequences for unionism. Studies have shown that those who identify with the middle class are more likely to be conservative in their general political orientation, to vote Republican, and to abstain from joining unions than those who identify with the working class.

Work milieu

Both in the past and present much white-collar work has been carried on in a setting different from manual work. Office employees, in particular, work closely with managers and executives. In small concerns, they often work side by side with the owner. Needless to say, this contributes to their sense of apartness from, and even superiority to, blue-collar workers.

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12. See National Opinion Research Center, "Jobs and Occupations: A Popular Evaluation," in R. Bendix and S. M. Lipset, eds., Class, Status and Power (Glencoe: The Free Press, 1953), p. 414. It may be noted that professional and semi-professional positions ranked much higher than clerical and skilled work, while unskilled and semi-skilled labor were lower.

13. White-collar work has a long association with the administrative and management end of business. When businesses were small, the duties of the white-collar worker were performed by the employer or his relatives. This distinction between manual and non-manual became established as a worker-employer difference. This difference is still reflected today in that regardless of how simple the work of technicians or the office staff may be, it is always salaried employment because it is part of the work previously done by executives. See Fritz Croner, "The Salaried Employees in Modern Society," International Labour Review, 49 (1954), pp. 105-108. Thus from the very outset, white-collar workers had a different and higher social status than manual workers.

The importance of the size of the work unit was noted by Karl Marx when he pointed out that workers in small shops were markedly less class-conscious and less involved in working-class organizations than those in larger plants. He accounted for this difference by the fact that the former were much more likely than the latter to associate informally with their employers and to develop personal ties to them.[14] The larger the size of the plant, the more impersonal the relationship between the supervisors or owners and the workers. Workers and supervisors tend to see each other in terms of conflicting roles, one seeking to earn as much as possible for as little work, and the other having the opposite goal. The rigidities of bureaucratic structure promote unresolved conflicts and hence hostility between workers and management. Studies of factories have revealed some of these consequences. Evidence supporting the proposition that the size of the plant is inversely related to personal communications between supervisors and subordinates is contained in a 1953 German study, as shown in Table 2.

Table 2

Relationship of Size of Factory to Interpersonal Communication in German Companies*

Employer or Supervisor Behavior	Size of Factory: Under 10 Workers	10-49	50-299	300 plus
Does Chat	79%	79%	73%	65%
N	(120)	(113)	(161)	(255)

*Responses to the question: "What does your boss (or section manager) generally do: does he chat sometimes with you or does he only give directives?"

Source: Calculated from IBM cards of Study of German Public conducted by the UNESCO Institute of Cologne, Germany.

Even in large firms, the specialization of office work allocates white-collar workers to small groups in close contact with supervisors and executives.[15] Secretaries, probably the most extreme example of such employees, are more loyal to management and more hostile to unionism than any other occupational group of white-collar workers.

14. "Germany: Revolution and Counter Revolution," in Selected Works of Carl Marx (New York: International Publishers, n.d.), Vol. 1, p. 470.

15. David Lockwood, The Black-Coated Worker (London: Allen and Unwin, 1958), pp. 77-78.

Management has given office workers many marks of consideration and distinction, such as pleasant working conditions, a good deal of control over pace of work, regular working hours during the day, and little supervision, as well as many traditional privileges derived from being associated with the managerial role, such as weekly wages, sick leave, greater job security during business declines, time off for personal errands, and paid vacations. (It should be noted that the nature and tempo of office work make these things possible without too much cost to management.) Their situation is distinguished not only from that of manual workers but from clericals involved in "production" type activities. Thus, physical proximity plus privileges enable office workers to identify with their superiors.

The separation of office workers from each other may make them more fearful of joining unions because they do not have "a work group that affords the comfort of numbers; that is, a physical association with fellow employees of comparable work status.... [T]he mutual aid and comfort and the courage of numbers, which keeps union sentiment alive in an industrial situation, is relatively lacking in the physical arrangement of the modern office. The legal right to join a union is probably more than offset in these situations by the insecurity which stems from the close working proximity to executive and supervisory personnel."[16]

Summary

These are some of the reasons for apathy on the part of the white-collar worker toward unionism. The white-collar employee is as an individual who sees himself as quite different from the manual worker. His view of his employment as having higher status is promoted by the situation in which he works. Often working is small groups, close to management and away from his own peers, he tends to feel closer to management than to manual workers. And the objectively most deprived sector of the white-collar stratum is disproportionately composed of women, who do not have as much reason for ego identification with an occupation which is often only a temporary or supplementary source of family income. Hence they are less likely to develop the negative attitudes to their work or to management that might support unionism. Conversely, the very role of women as the underdog in the occupational structure gives male white-collar workers an opportunity for advancement into management ranks, a prospect which should inhibit pro-union attitudes among them as well. The fact remains, however, that a significant minority of white-collar workers do belong to trade unions. An analysis of the factors related to such strength should supply more clues as to the prospects for increased white-collar unionism.

Where Is White-Collar Unionism Found?

If there are strong anti-union feelings in white-collar jobs where the worker has close association with management and works in isolated or small groups, we can expect to find pro-union sentiments in

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16. Jack Barbash, The Practice of Unionism (New York: Harper, 1956), pp. 14-15.

industries where the employee is with many others of his own kind, and where white-collar work is closely associated with manual work both in conditions and/or physical proximity. From the available evidence this seems to be so.

Work conditions

Among low-level white-collar workers, strong trade unionism is generally found in situations where the work conditions are similar to those of the manual worker, often also involving the employment of a significant number of males.

The older strong white-collar unions are all in such industries. The two clerical unions in the highly organized railroad industry have unionized nearly all of the employees. Between 50 and 70 per cent of the white-collar employees in the telephone industry belong to unions. The Communication Workers of America, the major union in this field, was organized by the highly skilled male workers, linemen, maintenance, and installation men. The Commercial Telegraphers Union, an organization once predominantly male though now primarily female, has organized most of its jurisdiction. Within government service, the one group of workers who are almost totally organized are the postal employees, most of whom are men. Over 300,000 of them beling to trade unions, many more than belong to all other white-collar federal government unions.

Currently one of the few growing large unions is a white-collar organization, the Retail Clerks International Union. It now has close to 400,000 members. An analysis of the forces underlying its success suggests processes similar to those which are related to the strength of the older powerful non-manual unions. As a recent study of this union by Michael Harrington points out: "The employees in the jurisdiction of the RCIA have become less and less white-collar, their conditions of work have tended toward those of the factory."17

Proximity to manual workers

The closer contact both in physical proximity and socially that clerical workers have with manual workers, the more likely they are to be unionized. In manufacturing, clerks who work close to organized manual workers are more likely to be unionized than office workers, and office workers in offices attached to production plants are easier to organize than those in the downtown, main offices of the same companies. Strauss has observed in a study of white-collar union locals:

> In most factories there is a fairly sharp distinction between the "shop" and the "office." But in the shop there is also a group of white-collar men--timekeepers, production schedulers, expediters,

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17. Comparative Trade Union Government Series: Retail Clerks (to be published by Wiley), p. 3 of manuscript.

> time-study men, and so on. In the situations studied, these shop clericals were the easiest to organize and, once organized, they showed the highest participation in union affairs.[18]

The Steelworkers Union, for one, has organized half of the clericals in offices physically located next to steel production plants, but not the main offices of the same companies.

Thus it appears that closeness to manual workers both of a physical and interpersonal kind promotes positive feelings on the part of the white-collar workers toward them as well as a propensity to organize, especially if the manual unions are both prestigeful and successful. Such a situation can be described as a "learning experience" in that it provides models of union organization, leadership, and probably most important of all, an opportunity to learn about unionism directly through personal friends.

Alienation

Except in a few industries, white-collar unionism is not institutionalized. That is, unionism is not the "legitimate" or customary way for such employees to act in relation to their employers.[19] It also violates some of the traditional conceptions white-collar workers have of their place in society. Consequently, one would anticipate that those employees who favored unionism would be deviants within their stratum in that they would exhibit attitudes not congruent with the majority of their group. Evidence drawn from surveys sustains this anticipation. A comparison of the class identification of unionists and non-unionists among non-manual and manual workers indicates there is no difference in this respect among manual workers but considerable variation among white-collar workers.

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18. George Strauss, "White-Collar Unions are Different," Harvard Business Review, 32 (1954), pp. 77-78.

19. In a recent analysis of traits related to membership in trade unions among manual workers, Ruth Kornhauser reports that manual worker unions "have become institutionalized to the extent that the membership is no longer based principally on selection of workers with a singularly favorable orientation towards unions but instead tends more or less indiscriminately to include large numbers of individuals who are subject to the same working conditions (males in manual work) in a milieu shaped by the predominance of those conditions of work (the urban-industrial North)." "Some Social Determinants and Consequences of Union Membership," Labor History, 2 (1961), p. 58.

Table 3

Relation of Union Membership to Class Identification, Among Males, by Occupation (1952 sample)

Class Identification	Non-manual		Manual	
	Union Member	Non-union Member	Union Member	Non-union Member
Upper	---	2%	1%	1%
Middle	37%	60	15	14
Working	63	32	80	79
Lower	---	2	2	4
Refused, DK, NA	---	4	2	2
Total	100%	100%	100%	100%
Total number	35	215	204	160

Source: Tables computed from data supplied by the University of Michigan Survey Research Center from its study of the 1952 elections.

Among white-collar union members as compared with white-collar non-union members, a much larger proportion (63 to 32) say they are members of the working class. (See Table 3.) Election studies indicate that trade-union members are more likely to vote Democratic than non-unionists among both manual and white-collar workers. However, union membership made a greater difference among white-collar employees than it did among manual workers. (See Table 4.)

Table 4

Relation of Union Membership to Voting Choices, 1952 Presidential Vote (Males Only)

Voted	Clerical and Sales			Manual		
	Union Member	Non-Member	Total	Union Member	Non-Member	Total
Democratic	54%	30%	37%	54%	41%	49%
Republican	46	70	63	46	59	51
Number	50	136	186	399	305	703

Source: Calculated from data collected by Samuel Stouffer for his study, Communism, Conformity, and Civil Liberties (New York: Doubleday, 1955).

It can be tentatively stated that white-collar unionism draws considerable support from people who feel resentful about their jobs, who do not identify with the middle class, and who tend to be liberal politically. Since this evidence comes from different studies, there is no way of telling whether or not these characteristics belong to the same group of people.

The majority of white-collar workers do not share these attitudes. They are on the whole satisfied with their jobs, have favorable attitudes toward management, see themselves in a relatively high status position, middle class rather than working class, and are relatively conservative in their political values and voting preferences. All of these attitudes are negatively related to support for unionism, and seemingly to some extent account for the weakness of unions among American white-collar workers.

Given the paucity of research, it is not yet possible to know to what extent these attitudinal differences among non-manual employees are associated with the objective variations in work environment that correlate with support for unions. Thus, to what degree do attitudes toward class position and general view of the occupational, social, and political structures result from factors such as the size of the work unit, the size of the company, nearness to manual workers, and so forth?

Professionals and Trade Unionism

If factors basically inherent in the stratification system account for the relative weakness of unions among lower-level white-collar workers, this would lead us to anticipate much less support for unions among more privileged occupational groups, particularly among the rapidly growing stratum of professional and highly trained technical personnel. And viewed as total groups, this expectation turns out to be valid. Only 10 per cent of persons classified as professionals belong to unions, as contrasted to 17 per cent among clerical and sales personnel. Yet the fact remains, there are a number of unions, some fairly strong, among these groups. Actors, musicians, and others in the entertainment field, air pilots and flight engineers, ship captains, marine engineers, teachers, and social service employees are among those who have long bargained collectively. Engineering unions, while always weak, have been able to secure some support in various countries. And in some countries, such as England, Sweden, Australia, and Japan, unionization of significant sectionsof professionals has occurred.[20]

An examination of the factors associated with unionization in the upper echelons of the occupational structure seems called for in any effort to anticipate the potential strength of unionism as the composition of the labor force changes drastically in response to technological and organizational innovations.

Professional ethics and the business system

One of the major differences between professional occupations and others is that the former are assumed to be governed by norms of service, different from those of money-making. As Talcott Parsons has pointed out:

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20. "Unionization of Professional Engineers and Chemists," Industrial Relations Memos, No. 84, July 25, 1946, p. 3.

> ...[T]he dominant keynote of the modern economic system is almost universally held to be the high degree of free play it gives to the pursuit of self-interest.... [B]ut by contrast with business in this interpretation the professions are marked by "disinterestedness." The professional man is not thought of as engaged in the pursuit of his personal profit, but in performing services to his patients or clients, or to impersonal values like the advancement of science.[21]

The professional schools, whose faculties stand apart from the business sector and the practical activities of the working professionals, are in large measure the citadels of the professional codes of ethics. It is there aspiring professionals learn an occupational ethos which stresses service and support of the intellectual standards. On the other hand, once out of school the professional is faced with adjustment to the requirements of the everyday work situation. For instance, the physician finds that economic rather than service motives sometimes intrude into decision-making, the lawyer discovers that reputations are built in other ways than holding fast to the tenets of justice, and the teacher learns that parochial rather than more universal interests fashion the curricula.

This strain between maintaining occupational integrity or compromising with the system is probably maximized for the professional in a bureaucratic system of authority. Though the popular conception is that of the independent professional such as the physician, lawyer, or dentist, such a group composes only a small minority within the professions.

The engineers

Thorstein Veblen in his famous discussion of engineers argues that a basic cleavage exists between the pecuniary norms of modern capitalism and standards of engineering excellence. (He even felt this conflict was so deep that engineers might, in time, become a revolutionary group.) In writing of this problem he said:

> ...[I]t is an open secret that with a reasonably free hand the production experts would today readily increase the ordinary output of industry by several fold.... And what stands in the way of so increasing the ordinary output of goods and services is business as usual.
>
> Right lately these technologists have begun to become uneasily "class conscious" .... Their class consciousness has taken the immediate form of a growing sense of waste and confusion in the management of industry by the financial agents of the absentee owners....

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21. Talcott Parsons, Essays in Sociological Theory Pure and Applied (Glencoe: The Free Press, 1949), p. 186.

> ...Indeed, they are beginning to understand that commercial expediency has nothing better to contribute to the engineer's work than so much lag, leak, and friction.... So also, to these men who are trained in the stubborn logic of technology, nothing is quite real that cannot be stated in terms of tangible performance; and they are accordingly coming to understand that the whole fabric of credit and corporation finance is a tissue of make-believe....[22]

Ironically, he was speaking about the very group that today of all the professions appears to be the most satisfied, if we use as an index of dissatisfaction the tendency to unionize or to vote for leftist parties.

There is some evidence, however, that Veblen's thesis does apply to a segment of engineers, especially those in large companies. A study of unionism among engineers suggests that one of the main reasons for organizing was the need for an organization that would defend engineers' professional interests, such as the opportunity for research and the right to publish.[23] A national survey of scientists and engineers asked: "How much conflict do you feel there is between a man's personal goals as a scientist or engineer and the goals of the organization he works for?" Of the 622 respondents, only 25 per cent said there was no conflict, 26 per cent thought there was serious conflict, and about half, 49 per cent, reported some conflict, but not serious.[24] When asked what are the primary goals of management, most respondents indicated they saw these as mainly pecuniary. For example, "improve profits and sales" (74 per cent), "improve competitive position" (36 per cent), "promote company growth" (30 per cent). Those who checked off service objectives were much fewer: "promote product development" (30 per cent), "provide superior employment" (16 per cent), "service to nation and community" (3 per cent), "betterment of society and mankind in general" (2 per cent). Less than half of these men (41 per cent), when asked whether they thought scientists and engineers were interested in the same goals as management, replied that they were. The majority felt that as a group scientists and engineers were less interested in money than management, and more concerned with helping mankind, or developing research ideas.[25] When asked "From what you know, would you say top management in your company gives adequate support to the new ideas scientists and engineers develop?" only 21 per cent said management gave continuous sustained support, 72 per cent felt that some ideas were adequately supported but others were not, and 6 per cent felt that management simply did not give adequate

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22. Thorstein Veblen, The Engineers and the Price System (New York: B. W. Huebsch, 1921), pp. 70-75.

23. Bernard Goldstein, "Unions and the Professional," The Journal of Business (1954), pp. 268-275.

24. Opinion Research Corporation, The Conflict Between the Scientific Mind and the Management Mind (Princeton: 1959), p. 39.

25. Ibid., pp. 8-9.

support for new ideas.[26] In general, a variety of items from this comprehensive survey indicate that many engineers see themselves as having somewhat different goals and concerns from those of top management.

Although modern industry has moved in the direction Veblen anticipated, becoming more and more controlled by absentee owners, these changes have not sharply reduced the engineer's commitment to the political and economic status quo. Many still work for small companies, or in small work units where they have close contact with management and absorb its viewpoint. Too, the growth of large corporations has presented many engineers with the opportunity of advancing to the top of the economic hierarchy. The boards of directors of companies like Standard Oil of New Jersey and the American Telephone Company are largely filled by engineers who rose through the company. As the largest single source of recruitment for top management, engineers are perhaps more upwardly mobile than any other group. The Opinion Research 1959 study indicates that 48 per cent have had at least one promotion to a position involving "a higher level of authority and responsibility" in the last five years, and this figure does not include those already in administrative work, the large majority of whom have had such promotions.[27] Thus, forces making for discontent and protest are counterbalanced by others making for identification with management and support of the status quo.

There is, however, a small minority who, like the "deviant" white-collar group, belong to unions, vote Democratic, and even identify with the working class. There is no evidence that this minority is growing, and there is little information concerning other traits related to such "deviant" behavior. One survey suggests certain factors similar to those found among other left-opinion or pro-union groups. Those engineers favorable to unions are more likely than the anti-unionists to work in larger companies, receive lower pay, carry out routine work, hold lower-level positions, and be younger. They also differ from anti-unionists in that they are less staisfied with their jobs and have poorer relations with management. The data are presented in Table 5.

Ideal of craftsmanship and the business system

Although it is difficult to demonstrate that conflict between occupational norms and institutional requirements produces leftist sentiments or trade-union members among eningeers, evidence supports this thesis among the more intellectual professionals such as journalists, actors, musicians, and writers. Members of these occupations hold standards of creative accomplishment clearly at odds with market demand.

Since in modern capitalist society, rewards for cultural products increasingly depend on a market organized around business norms, the views of the employer are bound to diverge from those of the creative artist. This diversity produces hostility in the artist toward the

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26. Ibid., p. A-12.

27. Ibid., p. A-55.

Table 5

Support for Need for Unions as Means of Keeping Abreast of Gains Made by Other Employee Groups

		Pro-Union	Anti-Union	Undecided
Engineer Total	(409)	18%	71%	11%
Under 30	(99)	19	70	11
30-44	(234)	18	72	10
45+	(76)	14	74	12
Under $6,000	(68)	22	66	12
$6,000-8,000	(170)	24	67	9
$8,000-10,000	(81)	17	69	14
$10,000+	(76)	4	88	8
Mostly creative work	(101)	15	80	5
Middle group	(92)	14	71	15
Mostly detail work	(205)	20	69	11
25 Engineers or less	(105)	13	79	8
26-100	(140)	17	70	18
100+	(153)	22	68	10
Senior engineers	(126)	15	76	9
Lower level	(265)	20	70	10
Highest job morale	(155)	16	78	6
Middle group	(150)	13	74	13
Lowest morale	(104)	27	60	13
Excellent mgt. relations	(73)	11	82	7
Good mgt. relations	(219)	14	76	10
Fair or poor	(108)	31	55	14

Source: Opinion Research Corporation, What Is Troubling Industry's Engineers? (Princeton: 1956), p. A-39.

businessman when, in rejecting business norms, he also rejects a comfortable livelihood, or when, in adapting to the market, he feels he has surrendered his personal integrity. As Bertrand de Jouvenal has pointed out, business is institutionally committed to giving the public what it wants, for the customer is always right.[28] In contrast, the creative artist views his products' value apart from their market utility.

Journalism, though not in the category of creative artists, supplies interesting evidence concerning the nature of this conflict. Professional norms define good craftsmanship as accurate reporting of significant news. Often, however, publishers want stories written to reflect the views of the owner, which are those of a well-to-do businessman. The journalist finds that "slanting" rather than objective reporting is required. He may even have to drop stories which are likely to offend important advertisers or other powerful groups. More commonly, reporters must work for papers that cater to a mass circulation, writing about crime, scandal, and other local items, and neglecting news of international significance because it does not interest their readers. The ideal of many journalists is the New York Times, but they must work for the Podunk Cronicle. Some evidence that journalists are consciously aware of such pressures on them is presented by Leo Rosten in his study, The Washington Correspondents,[29] in which a majority of those he questioned indicated that they were forced to "slant" stories or were prevented from publishing the truth as they saw it.

One result of this conflict between occupational norms and working reality is that many journalists become extremely cynical about social values. An incompleted study of this profession by Maurice Stein, based on depth interviews, points to the deep frustration occasioned by their inability to publish what they feel to be true. Their cynicism is probably reinforced because they are exposed to the seamy side of life, and see many examples of discrepancies between public and private morality. Such resentments and experiences may account for the fact that journalists are on the left in their national voting preferences. Interviews with a well-paid elite group of journalists, the Washington correspondents, in the 1930's showed that only 30 per cent had voted Republican in 1936, 6 per cent has supported the Socialists, and the rest were for Roosevelt. Although the average salary of this group of 104 men was over $6,000 in the midst of the depression, a considerable income for this period, 38 per cent favored government ownership of mines, public utilities, and railroads, and the majority (56 per cent) supported the organization of a newspapermen's union "to improve salaries and bargain collectively."[30]

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28. Bertrand de Jouvenal, "The Treatment of Capitalism by Continental Historians," in F. A. Hayek, ed., Capitalism and the Historian (Chicago: University of Chicago Press, 1954), pp. 118-120.

29. Leo Rosten, The Washington Correspondents (New York: Harcourt, Brace, 1937).

30. Ibid., pp. 348, 353-355.

In recent years, straw ballots conducted among reporters covering Republican campaign trains indicate that most of them favored the Democratic candidate in 1952, 1956, and 1960. A study of American foreign correspondents stationed in western Europe reported that as of 1953-54, 58 per cent were for Stevenson, and only 35.5 per cent favored the re-election of Eisenhower.[31]

Leo Rosten has also pointed up many of the frustrations felt by creative people in the motion picture industry. When sent a questionnaire asking them to comment on American movies today, the 141 Hollywood writers who responded supplied entirely unfavorable responses in 74 per cent of the cases.

> The writers ... feel most frustrated by the constricting demands of producers, the public and censorship. The writers ... want to create stories different from those being told on the screen today--stories with deeper motivation and wider purpose, stories with relevance to our times, stories with characters freed from the vacuum of stereotypes, stories with dramatic situations rooted in a reality which is largely ignored in the contemporary film. But whether such stories would be popular with the public is dubious....
>
> The movie industry, which operates with huge costs, and the multitudinous customers, who are not distinguished by esthetic sophistication, impose limitations which Hollywood's creative talents will forever dislike and against which they will forever discharge the antagonism born of frustration.[32]

Musicians tend to react the same way. Within the occupational group, great stress is placed upon preserving the integrity of their art. Economic success, unfortunately, depends on pleasing popular taste, and since popular taste is low, economic success is at cross purpose with artistic success. Contempt for popular taste extends to a dislike of non-musicians as well. To the jazz musician, reports Becker, non-musicians are outsiders, "squares" who are held in utmost distruct. "The square is thought of as an ignorant, intolerant person who is to be feared, since he produces the pressures forcing the musician to play inartistically."[33] The musicians feel that they are "completely different from and better than other kinds of people."

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31. Theodore E. Kruglak, The Foreign Correspondents, A study of the Men and Women Reporting for the American Information Media in Western Europe (Geneva: Librairie E. Croz, 1955), pp. 87-89.

32. Lee Rosten, Hollywood: The Movie Colony, the Movie Makers (New York: Harcourt, Brace, 1941), pp. 326-327.

33. Howard S. Becker, "The Professional Dance Musician and His Audience," American Journal of Sociology, 57 (1951), pp. 138-139

This hostility toward business and the public seems to be reflected in the propensity of creative artists to support left of liberal politics and trade unions. In voting statistics, these groups tend to support the Democrats and minority groups. A poll conducted in Hollywood in 1936 found all professional groups at least 5-1 for Roosevelt. This propensity of artistic professions to back more leftist politics does not simply flow from their antagonism to existing institutions, but may also reflect self-interest. In many countries the left parties are more likely to back state support for artistic activities than are the conservative parties and business groups.

Other groups

Another factor involved in professional unionism, suggested by the behavior of social workers, is the influence of the clientele upon the outlook of the practitioner. Social workers are engaged in performing services to the less privileged section of the community. Their day-to-day activities make them well aware of the dire needs of large sections of the population. Analogous to the engineer, who through his contact with management comes to see the world through management's eyes, the social worker develops a sympathy for the underdog and an outlook that supports the implementation of egalitarian values, especially in the economic sphere.

There is still another group of professionals who are highly organized, those who run the ships and airplanes. At first hand, these would appear to be a curious stratum for union organization. Air line pilots and engineers are among the highest paid groups in the country. The same is true, though to a lesser extent, for ship officers. Both groups can be considered as executives. They manage the particular "plant" that they work in. Without entering into a detailed analysis of these occupations, it may be suggested that to some degree the factors related to unionization among them are similar to those affecting certain lower white-collar groups discussed earlier. In large measure, these occupations have close links with certain manual occupations which are strongly organized. Thus, they are among the elite of the highly organized transportation industry, which includes railroads and trucking as well as planes and ships. All of these share in common the ability to seriously affect the economic life of the nation, and hence have strong bargaining power. The conditions of their work--irregular hours, week-end work, frequent travel away from home--help create strong occupational community ties among them, ties which often produce a sense of "industrial solidarity" against outsiders and those who profit from their work. The manual sectors of these industries have created strong unions, often in advance of the more privileged groups, and the latter have found this example an attractive one to follow. To a considerable degree, those going into these more professional occupations, in earlier periods particularly, seem to have come from lower strata, often working-class groups.

The Future of "Middle-Class" Unionism

The analysis of the factors which affect the reactions of white-collar and professional workers toward unions does not suggest that such organizations are likely to become a powerful element on the American scene. White-collar work is likely to continue to be predominantly a

female occupation, and while increasing numbers of women are committed to permanent careers, it would seem true that most of them will continue to secure their primary sense of self-identification away from the job.

If it is true that the majority of white-collar workers are not hostile to unionism, and that at least as many are in favor of joining unions as now belong, the question must be faced as to why such organizations are not more successful. At least part of the answer lies with the unions themselves. Objective factors which predispose individuals to act in one way rather than another do not by themselves result in such actions. Predispositions must be activated. In the context of competition between organizations for the loyalty or support of individuals, those groups which are active in a situation may secure support or at least passive acquiescence from people who are basically disposed to oppose them. Thus, in a one-party society or organization, many may vote for the party simply because they know of no other alternative. This situation obviously applies to the problem of union membership. Few workers, manual or non-manual, take active steps to join unions which are not actively trying to organize the company in which they work.

To some degree the weakness of white-collar unionism may be explained by the failure of the union movement to reach the vast majority of the unorganized employees. This is clearly shown by the data from the Opinion Research Corporation studies. Over the years from 1945 to 1957, between 66 per cent and 71 per cent of those interviewed indicated that they did not know of any union efforts at the place in which they work. (See Table 6.)

Table 6

Awareness of White-Collar Unionism Among Employees in Private Employment

	1945	1950	1953	1957
As far as you know, do any people where you work belong to a white-collar union? Yes -	23%	25%	24%	23%
Among those who say there is no union for their place of work - has there been talk of organizing a white-collar union where you work?	8	9	9	6
Total aware of union, or efforts to organize a union where they work	31	34	33	29
N	(1347)	(1300)	(1519)	(1003)

Source: Can Management Hold..., op. cit., pp. A-10, A-12.

These findings suggest that a large part of the answer to the issue of the organizability of the white-collar strata may lie with an analysis of the decision-making process within the labor movement. For there is reason to believe that much of the American labor movement has been unreceptive to the need to organize white-collar workers, that it has simply not devoted extensive organizational resources to this objective. The reasons for this are obviously complex, but on the most general level it would appear to be related to a kind of trained incapacity to deal with non-manual people. Both the craft and industrial unions have developed habits of work and behavior which reflect working-class culture. To specify this problem in detail would require another elaborate discussion.

The problem of the potential of professional unionism is a somewhat different matter. It may be argued that the most decisive fact in this context about professionals is that they are already organized into vocational organizations, many of which undertake economic and status representation functions. A picture of the extent to which employed Americans belong to vocational interest groups may be seen in Table 7.

Table 7

Membership in Unions or Professional Organizations Among Different Occupational Groups

	Unions	Professional Associations	N
Professionals and semi-professionals	3%	42%	(33)
Clerical and sales	15	4	(52)
Skilled, semi-skilled, and protective services	52	2	(113)
Unskilled, service, and farm labor	37	0	(54)

Source: From data supplied by the Survey Research Center of the University of Michigan from a question asked of one third of the respondents to its 1954 election study.

Although the number of cases in the sample are too small to permit any claim of reliability, data from other sources suggest that the estimates in this table are relatively accurate. A survey of engineers, who constitute one of the largest professional groups, indicates that 53 per cent of them belong to professional societies. Similarly, the National Education Association, the largest teachers' professional group in the United States, reported a membership in 1956 equaling 53 per cent of all elementary and secondary school teachers. If we look at the claims of various professional organizations in the fields of education and

engineering, the only professions in which over one million persons are engaged, we find that the professional organizations covering these fields claim a total membership about equaling the number of practitioners.

Numerically, the nearly half million student and professional nurses constitute the third largest group of professionals after the teachers and engineers. They clearly are different from most professions since they have relatively low status (the lowest status of the professions associated with medicine) and tend to be lowly paid. Their work situation is more similar to that of factory workers than it is to that of more high statused professionals. On the other hand, the existence of a formal training program and their association with the medical profession have facilitated their efforts to create a sense of professional identity.

There has never been a formal nurses' union, but the American Nurses' Association, the occupation's professional organization, has increasingly acted as a collective bargaining agency. Its 1946 national convention unanimously passed a program recommending that its local affiliates engage in collective bargaining, and many state organizations have done so. Their agreements are like those of unions. They set forth wages and working conditions in detail and provide for a grievance machinery terminating in arbitration.

While the American Nurses' Association resembles a union more than does any other professional association, its behavior points up the general statement that professionals in the United States are on the whole an "organized group." Unions, of course, object that such associations violate all the canons for good defense organization, particularly since many if not most of them include management officials and even employers among their membership, and few of them engage in formal collective bargaining. Nevertheless, it may be argued that the very fact that professional employees already belong to organizations which carry on economic and status enhancement activities, and which are formally democratic and representative, stands in the way of all efforts by "dual organization," in this case unions, to gain members from among such groups. Commitment to a going institution, whether political party, church, union, or professional organization, usually serves to so structure the social interactions and sentiments of members as to prevent shifts to another group purporting to serve the same functions better. People do change from one religion to another, from one party to another, from one union to another, but such changes on a massive scale are relatively rare. They occur only under conditions of great stress which clearly upset existing social relations, and call into question the legitimacy of given institutions.

The same point may be made with regard to another large section of the non-manual labor force not previously discussed here in any detail, government workers. Many of these, particularly those employed by state and local government agencies, belong to civil service associations. Such associations have many hundreds of thousands of members, and many of them have considerable political power. The California State Employees' Association, with close to 90,000 members among state employees, is generally recognized to be one of the most effective political lobbies in

the state. It not only presses for higher wages and better working conditions through legislative action, but it acts to service the grievances and local complaints of its members much as does a trade union. Efforts to recruit government employees already organized in strong associations into unions run up against obstacles similar to those involved in recruiting organized professionals.

As yet, there is no reliable estimate of the extent to which the American labor force is organized. Clearly any estimate of economic organization which only counts trade unions is remiss. Perhaps it may be said that the least organized major sector is lower-level white-collar clerical and sales workers in private employment. A majority of manual workers, and of professionals, and a large but unknown proportion of government employees and technicians belong to organizations which they view as best for them. In a real sense, therefore, it may be argued that the United States is a highly organized country. The greater economic conservatism of its values as compared with Europe, and the slightly illegitimate connotation given to unionism as a class organization in a society that formally eschews class, may explain why American middle-class vocational organizations are more moderate or conservative in their social, political, and economic outlook than some comparable groups in Europe and Asia. But as was noted at the beginning, in these countries as well, middle-class organizations, even when formally identified as unions, tend to be much more conservative than those comprised primarily of manual workers.

The strategy suggested by these comments for trade unions in this country is twofold. First, concentration on new organization should be largely limited to the clerical and sales force of private industry. Here there is some reason to believe that many more can be organized. Second, in dealing with groups which already belong to vocational interest associations, it may be better to seek to win their cooperation with the union movement, and a modification of their tactics so they come more to resemble the American Nurses' Association, than to engage in the relatively unrewarding effort to take away their members. Manual-worker unions should approach existing professional groups in their industries with offers to support their efforts to gain better conditions without requesting that they join unions. The minority of unionists within such professions might better use their efforts to change the methods pursued by their professional associations than to engage in dual organization. Local and statewide union federations could propose working alliances with civil service and teachers' associations. In some cases, particularly in the case of government employee groups, such tactics could and have resulted in these associations deciding to affiliate as a group with an existing union.

The search for new approaches to deal with the diverse groups of non-manual employees should be a major objective of American unions. Structural trends, the decline of manual work, will inevitably weaken the collective bargaining strength of American unions as a whole unless a modus vivendi can be found between unions and the employed middle class.

MAXIMIZING THE CONTRIBUTIONS OF ENGINEERS AND SCIENTISTS

Lee E. Danielson

The title of my presentation is, perhaps, fortunate in one way and unfortunate in another. I think it's unfortunate in this respect: in that it may imply that I have the answer to all your problems, that I have a magic box that I can open up and say, "Here's all you have to do." Also it implies that you're going to maximize the contribution of engineers and scientists at no cost whatsoever. My point here is that if you are going to maximize their contribution, it is going to cost and cost a great deal. Perhaps "optimizing" would be a better word than maximizing because it implies more of a balancing of factors rather than doing everything you can to increase the contributions of the engineer or scientist.

You will note the repeated use of the word "contributions," and this concept is particularly important, because the engineers and scientists themselves control the amount and direction of their offering. It's very much like a volunteer organization where you are asking, not begging, these people to give something to you. You are trying to set up a situation where they will feel free to make their maximum contribution. It's management's job here to set up such conditions that the people will want voluntarily to give to the organization what you want them to give.

As I see it, my roles in this conference are three: (1) to present findings, (2) to interpret these findings, and (3) to suggest possible managerial actions. This might be referred to as the "nuts and bolts" part of the conference. The research findings to be presented are covered in part in my book, Characteristics of Engineers and Scientists, Significant for Their Utilization and Motivation.* The interpretation will be based on my background as an industrial psychologist. The suggestions will focus on possible managerial actions that might be taken to increase the willingness of the engineers and scientists to contribute. I feel that it's only fair to warn you that in some cases I will suggest very positive actions, and in other cases all I can to is plead for understanding and tolerance of engineers' being the way they are because of circumstances sometimes beyond their control.

The Study

In the main I will be talking about the views of 277 engineers and scientists who are in nonsupervisory positions. These were distributed throughout ten companies in a variety of industries--two in public utilities, two in electronics, two in auto and auto parts, and four in chemicals, such as glass, rubber, and raw chemicals and pharmaceuticals. It is not my intention here to try to justify the

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* Bureau of Industrial Relations, University of Michigan, 1960.

positions taken by these engineers and scientists or to argue that they were making accurate statements. These are their feelings, and their behavior is based on their perception, or the way they feel about the situation. The engineer who feels that he is not treated as a professional, despite any objective facts you might present to him or any comparisons you might make between him and somebody else, is still going to act as though he were not treated as a professional, no matter what you say to him. That's why I say that part of this will be just trying to understand why they behave as they do.

Our approach was to conduct depth interviews at three levels in ten companies. We selected companies that were well managed and that had experience in dealing with large numbers of engineers and scientists. First, we interviewed the top level in engineering, research, or development to ascertain their policies, practices, and goals. Then we cleared through the middle levels of management and conducted a second set of interviews with first-line supervisors in terms of how they carried out these policies and practices--the kinds of problems they ran into. Then we interviewed subordinates of these supervisors to try to determine how they felt about their particular jobs, their utilization, their attitudes toward supervision and top management.

These three levels are the crucial ones from our standpoint. The top-level policies set the limits of possible contribution, but when it comes down to really maximizing the contribution, this comes through the immediate superior-subordinate relationship at the lower levels.

Underutilization

When you say, "Are the engineers and scientists being 'underutilized'?"this is much like asking the question, "Is there a shortage of engineers and scientists?" It all depends upon whom you ask and it all depends upon how you define your terms.

In general, the nonsupervisory engineers and scientists, or the people at the low end of the scale, feel that their talents are not being utilized and extended as much as they would like to see them extended. In other words, using their standards, even though the company gave them the moon, they would still be dissatisfied. Any restriction of freedom, or of individual action, can be interpreted as underutilization, so perhaps in many cases you cannot please them, no matter what you do. Many supervisors feel that they are utilizing the professional as much as they can, given their lack of managerial training, given their restricted freedom, given the pressures imposed upon them by the company and by external forces. Many feel that the engineers and scientists overestimate their abilities and contributions and do not recognize the so-called economic facts of life associated with running a business.

When you ask some executives if they feel that they are underutilizing the engineers and scientists, the frequent response is, "We can always use more engineers and scientists." The point here is that many top executives apparently find prestige associated with bragging about the number of scientists and engineers they employ. If you have 5000, you are better than a man who has only 4900; if you have 6000, you are better than the man with 5000.

If you then ask, "If you have 5000, how many of these are you really utilizing?" you might get quite different results. I do not know of any company with a large number of engineers and scientists that is fully utilizing the people it has. I think this is partly because of the kind of business they are in; it is partly lack of experience. There are a number of reasons here.

In some foreign countries where there is a real scarcity of engineers, the premium is put on what you can accomplish with the fewest number of engineers or scientists. And it's a real feather in their cap to say, "We got this job done with only 150," rather than, "It took 3000 to get this job accomplished."

Other top officials sometimes expect the engineers and scientists to be utilized by following procedures and practices that prove successful in other phases of the business. If it worked with manufacturing, it's good enough for engineers and scientists.

As far as I am concerned as an observer of this scene, the present state of utilization, or lack of utilization, is an unfortunate combination of circumstances--somewhat unreal expectations on the part of the engineers and scientists (in other words, they want maximum utilization of the individual) combined with reluctance and inexperience on the part of many managements, plus a number of external factors which are not conducive to utilization.

An example of the last would be something that is characteristic of this area, I am told. That is the abundance or curtailment of government contracts. In an abundant situation the engineer or scientist has freedom to move from one job to another whenever he wants to. This puts him in a very advantageous position, but it puts the companies in a very difficult position, becuase, try as they may, they cannot develop a career plan for this particular person. The curtailment of government contracts, on the other hand, brings with it frequently full-scale layoff of personnel. Regardless of how good they are, they have to go because there has to be a reduction in force.

With this prologue, let me turn to the research findings, which I will present in this sequence: the characteristics of the engineers and scientists as they see themselves; their sources of satisfaction and dissatisfaction; and their problems. These are basically the three questions that the book, Characteristics of Engineers and Scientists, is based on.

The starting point here is to determine what characteristics these people think they have to contribute. In our research we asked the question: "Do you feel that engineers and scientists as a group differ from other groups of workers, like the technical, clerical, or manual workers, particularly in regard to their goals, needs, and personality traits?" And then, if they did feel that there were significant differences, we asked them to spell out what these differences were. The majority of engineers and scientists and their supervisors saw this group as being different. Nevertheless, a sizeable minority didn't see them as being different. Consequently, this suggests that if you are a supervisor and you look upon engineers and scientists as being very

different, and they don't think they are, you are likely to run into as much trouble as in the reverse situation.

The major differences seen by the nonsupervisory people were differences in the way they approached their job, in the supervision that they required, in the recognition that they desired, in the personality traits they had, and in their goals. Specific differences that were cited are the following: they see themselves as more willing to assume responsibility than the other groups, as more willing to put more into their jobs with the expectation of getting more out of their jobs, as being more objective in their approach, as requiring more freedom and individualized supervision.

Let me emphasize the word individualized. We are not talking about preferential treatment here, but we are suggesting pretty much what this conference is about. And that is, if you are going to supervise these people effectively, it is up to you to individualize. You are looking for individual contributions from these people; you have to individualize your supervision if they are to contribute. Let me point out that one key here is the relationship between the man and his work. To have the top man in the organization come down and say, "Joe, how are you; how's the wife and family?" and so on, frequently disturbs the engineer or scientist rather than encouraging him. He would be much more appreciative if the top man came down and said, "Joe, I know you're working on such and such a project and I understand you are having some problems with it." Or, "Joe, your contribution on x project was very good."

Going back to the differences, they see themselves as more creative, analytical, individualistic, introverted--and in the same breath in which they say "introverted," they say, "But it's not a malady; this is a result of the kind of training we've had, the kind of job assignments we are given." They see themselves as aspiring to higher and more definite goals.

There was fairly high agreement between the opinions of the professions and those of their supervisors. Proportionally, more supervisors saw their subordinates as needing more freedom, more individualized supervision, as desiring greater recognition, as being more aggressive, individualistic, and introverted, and as aspiring to higher positions in the company than the subordinates did. The supervisors saw these people as more interested in self-improvement than other groups of workers were. The engineers and scientists didn't see themselves in this way. Perhaps one of the most interesting findings here was that many of the supervisors described the engineers and scientists as being more emotional, more sensitive, more jealous of their reputations; whereas the engineers and scientists themselves claimed to have very good emotional control and to be very self-contained. The important point is to recognize that differences in perception can exist and these differences can create problems.

One general impression gained was that very few of the nonsupervisory interviewees were trying to get by with a minimum contribution. They seemed sincerely interested in trying to make a contribution to the company. In fact, if anything, they were too impatient. They felt that they were not doing enough or not moving along fast enough. They wanted to do more. They felt management was blocking them from making their

maximum contribution by certain procedures and practices such as restricting the supervisor's freedom to supervise or requiring uniformity of practice.

One of the ways of giving the professionals greater opportunity to contribute is via their job activities. We sought both general and specific information in this area. First, we had a seventeen-item check sheet, and we had the interviewees check off their degree of satisfaction with their present situation. The categories for each item were very satisfied, fairly well satisfied, neutral, somewhat dissatisfied, and very dissatisfied. We found that 79 per cent of the nonsupervisors interivewed were either in the satisfied or very satisfied category. This high degree of satisfaction, I think, is unique, and partially a result of the selection of the sample. Only 12 percent were in the neutral category, and 9 per cent in the somewhat dissatisfied.

The specific information on job activities was gained when we asked the question, "Which of your job activities do you find most satisfying and why?" and then the opposite side of the coin, "Which of your job activities do you find least satisfying and why?" On the most satisfying side, many engineers and scientists had difficulty in identifying a specific activity, and we had difficulty in identifying any pattern of satisfying activities which would permit us to say, "All you have to do is assign engineers and scientists these activities and they will be productive and satisfied." I think, in part, this was a result of the diversity of assignments given to these people. Many of them found satisfaction in the "whole ball of wax," as they referred to it, or in the variety of activities, or in being able to see a whole job through.

The activities didn't provide a classification system, but the reasons for satisfaction or dissatisfaction did. The younger engineers and scientists particularly stressed this one: "We like to have some visible results of our work." The interviewees would say, "I like to be able to point to something and say, 'I did that.'" The younger engineer or scientist seems to need some tangible proof that he is an engineer, a scientist, a professional.

A second category here is that people found satisfaction in "completing a task." Now this sounds very simple; all you've got to do is give a guy the project from its inception to the end. But the difficulty here is that to different people, completing a task means different things. To one researcher, getting the idea and putting some hen scratches on paper--that's it; the task is completed. To another person, it may be getting the idea, working it out, presenting a paper on it; until he has made his professional claim to fame, he hasn't completed the task. Another researcher, in the same organization, not only wants to get the idea, but he wants to carry it through the developmental stage and maybe even watch the prototype come out. So here, with just one group of researchers, you may find that there is a wide variety of what is considered to be a completed task. The same is true for the application people, the development people, the test people.

The next major reason given was "new and challenging work, nonroutine work." It would be ideal, of course, if we could give

everybody this kind of work. The key here was that the person wanted to gradually expand his abilities, but he didn't want to try and shoot for the moon. I understand a problem in this geographical area is rapid expansion. This results in pushing the person from limited responsibility to great responsibility without adequate experience. True, the strong survive, but many good men are lost in the process.

"Personal satisfaction" was another reason given for finding satisfaction in the job; this wasn't related to recognition given by others. For example, one interviewee said, "I really got a great deal of satisfaction when I worked a bug out of a particular project." Then we come to recognition from supervisors and peers and higher management; self-realization, which is what we are talking about here--utilizing and extending one's abilities; and even satisfaction in relating to other work groups and other people. Some engineers liked contact with people.

On the dissatisfying side, the activities were easy to point to. Some did say, "I don't have anything that I'm really disturbed about, but the lowest on my totem pole it this." The greatest number of negative comments fell into these areas: performing routine and continuous tasks, preparing and presenting reports, performing clerical tasks, conducting experiments and tests (these usually involve impossible tasks or things they weren't prepared to do), and performing what they called "non-engineering" work. This last concept of what is and what is not engineering or scientific work usually is a carry-over of academic standards and attitudes they have acquired in college.

The principal reason for dissatisfaction--number one on the hit parade here--was poor utilization of abilities and skills. This could be underassignment (i.e., higher level of achievement shown in college or previous job than required on present job), overassignment (i.e., inability to the job either because of a great lack of skill or because of the impossibility of the task). Underlying many of the dissatisfactions was the neophyte's desire to prove to himself and others that he is a professional. For example, one interviewee said, "I spend eighteen months at a drawing board. How can I prove I'm a professional when I'm doing something I could do in high school?" Another reason given was that a less well trained person could do the job.

There seems to be great dissatisfaction by managements and professionals regarding reporting. The managements were criticized for "conflicting and unknown standards of performance." Let me give you an example here. The professional is trying to write a good report. He writes the report according to standards learned in college and hands it to his superior. The superior takes it to his office, reads it, and writes across it in big red letters, "Rewrite." So the man rewrites it. After three rewrites, he finally gets his boss to approve it; the boss passes it on to the next level, and the professional gets it back with "Rewrite" written across it in blue letters. This means that he has satisfied his immediate superior, but this isn't what the next level wants. So what can you do? Do you write it to please your superior so that it will get to the next level? But if it does get up there, it's going to get bounced back. Managements can clarify standards.

Another reason given was the futility of the report. "Everybody who is interested knows about the results, so now I have to spend four days writing this report that nobody is going to read," said one interviewee. The time spent was very disproportionate to the value of the results as far as the person was concerned. And then, once again, "It was non-engineering work," was another comment; this meant that it didn't fall within their concept of what they should be doing.

In a third area of questioning, we asked about the problems of the young engineer or scientist. I think that many of these problems are indicative of the kinds of blocks there are in terms of utilizing their talents. Three categories of problems are (1) preparation, (2) on-the-job adjustments, and (3) adjustments outside the work situation. Pre-employment preparation includes both the technical and psychological aspects. The technical preparation is considered fairly adequate by most supervisors and nonsupervisors. The area of psychological preparation of these engineers and scientists for the work situation is perhaps the greatest weakness. Some don't have an idea of what work in a company is like--what they have to do, what is expected of them. They lack maturity, they lack self-confidence in many cases.

Poor preparation is accentuated in many of the on-the-job adjustment problems. Let me cite several of these. Finding out the company "system" is a major problem. This is usually the result of a company not having clearly defined its system or way of life. If it is defined, the communication is not clear. For example, one engineer said, "You spend three days looking over the manuals and then, suddenly, you are supposed to know the system." Another problem is adjusting to the company's standards and pace. Another is trying to find out what the standards of performance are. I know one company that followed the philosophy of "Don't tell the guy what's expected; he may overproduce." This was literally their philosophy. The only trouble was that it backfired and people said, "Let's see how little we can do and not get fired." Once again, this is a problem--not knowing the standards of performance.

Then there is the problem of reconciling oneself to accepting the unglamorous and routine parts of a job. The concern of these engineers and scientists, specifically, was: "I've got talents--at least I think I've got talents. Now my problem is trying to find some place where I can get them utilized." So they spend a great deal of time trying to figure out, "Where can I go in this company?" And they have very little, if any, guidance in trying to get themselves into the right niche; trying to find a man who is on his way up so they can ride up with him; trying to be at the right place at the right time.

Another concern of these people is the usually slow rate of advancement and salary increases. Their eagerness is not matched by opportunities. Many of these problems can be reduced by positive actions by progressive managements, including better selection, induction, and training.

Limitations Imposed by Management

Let me now make reference to some material that will appear in my second book, and shifts emphasis from the engineers' and scientists' feelings and perceptions to how can superivison be improved. A major determinant of supervision is "management climate." This sets the limits for what can take place. The basic philosophy and attitudes of top management are expressed in actions and words and interpreted by lower levels in the organization. The result is a feeling that top management is supportive and deserving of confidence; or non-supportive, not to be trusted, and only interested in the fast buck; or somewhere in between.

Many top managements are seen as non-supportive because they do not communicate adequately. One common error made is failing to recognize that these professionals desire more communication and different kinds of information. By failing to pass on information, some managers assume, "We're not communicating with our workers." This is incorrect. They are very definitely communicating to the workers; they are saying, "We don't think you are very important. We don't think you should be interested in these things." Most communication channels, if they are carried over from manufacturing, are not adequate to carry on the kinds of communication necessary for answering the engineers' and scientists' questions. Many docile workers take the attitude, "If management says so, okay." The engineers and scientists come in with a certain amount of skepticism about their managements. They don't know if they are going to have faith in their managements or not. The lack of positive communication merely reinforces their doubts. It is not a question of communicating or not communicating; communication goes on continually.

What are some of the limitations imposed by top management which could be corrected? One of particular importance is the method of allocating funds. In many of the companies I have worked with, top management allocates this year's research budget on the basis of last year's sales. What are the reactions to this? One is, "If those stupid salesmen would sell more, we could do more research." Another is, "We think our work is important but apparently the company doesn't when they tie us to last year's sales." By actions such as these, top managements limit the interest and productivity of the researchers.

A second limitation results from the selection of a certain geographical area as a site for your operation; many have advantages and limitations. If you locate in this area you have a good climate, you have a good university nearby, but by this action you are also encouraging people to be more mobile (a constant complaint). You are more or less saying, "We're moving into an area where there are going to be a lot of other job opportunities. Join us, and you will become very employable in a number of other organizations." So geographical location may limit potential productivity.

Seeking government contracts positively and negatively influences managerial practices. Funds are available to hire many professionals and expand operations, but in many cases government contracts are encouraging sloppy managerial practices. You don't have to

maximize their contribution; you can write it off one way or another. The decision to continually increase the size of the organization has positive aspects and negative ones. An optimum size should be considered, not just the maximum.

The amount of control over research and development work has reached extremes that negatively influence productivity. On one hand, you have a very rigid enforcement of financial and other controls. This worked for manufacturing; engineers and scientists should work in the same way. This approach is ineffective. At the other extreme, and this is frequently the case where a scientist is now the top man in a company, anything goes--the sky's the limit. This is just as ineffective. "Reasonable" yardsticks for measuring research and development work are possible, but require time and effort.

Another limitation is top management's failure to clarify objectives and define relationships between functions. Is the sales department going to tell research and development what they are going to do? Is research and development going to tell manufacturing what should be done? What are these relationships, and what do you want them to be? Another restriction is the opportunities for advancement. In many cases, the only way you can get ahead is through administration. We are promoting the idea of a dual hierarchy, or perhaps a tri-hierarchy, in which there are many ways for a person to be compensated prestigewise and financially for his contributions.

Overspecialization of functions is another way in which management has limited the potential contribution of these people. For example, in the auto industry an engineer is assigned work on a carburetor. He has a potentially good idea about another part of the fuel system--"No, you're a carburetor man." A mechanical engineer comes up with a chemical idea in a chemical company. "No, you're a mechanical engineer. You're supposed to draw these things, not think." The problem here is that many of these people do not know their relationship, or they are given a small area and must limit themselves to contribute within this area. How can a person be creative in this situation?

Another limitation that management imposes is the expediency approach rather than planned action--a perpetual crash program. "We've got to keep things going here, got to go out and get more and more business." For one or two crash projects, the professional feels inspired; he feels the company is doing important work and he is making an important contribution. Perpetual crash projects cause the professional to lose his faith in his management. In other words, "What kind of a show are they running here? They take on this project; they drop it and take on this."

Another area in which management limits the contribution here is by the compensation systems that are set up. They are usually tied to another structure, frequently a manufacturing structure. It always strikes me as strange that they don't compensate the engineers and scientists as they do salesmen, perhaps. The salesmen are given base pay and commissions. In the sales situation, you are trying to encourage individual initiative and contribution. Isn't this more comparable to the professionals' situation than the production one?

As mentioned earlier, a crucial element is the relation of the supervisor and his professionals. He controls their fates. Many supervisors want to do a good job but they are limited by a lack of training and support given to supervisors. The development programs that are offered are not geared to their needs. The appraisals of the supervisors are usually based on, "Is this man still a good researcher?" or "Is this man still a good designer?" "He didn't get around to supervising, but that's all right as long as he made a major contribution here. That's what we are interested in." What rewards are there for being a good supervisor? There is a lack of formal programs for supervisors of professionals. I use the word "formal" because many engineers or scientists who are supervisors say, "Well, you give formal programs for production foremen; aren't we even as good as they are? Don't we deserve some kind of formal program?"

Another limitation is that in many cases the personnel records are inadequate and they are scattered. Centralization of records can assist in selecting the most qualified person in the whole organization, not in just one location. The typical personnel record is totally inadequate. It doesn't have on it the kinds of things that you should be interested in, such as advanced courses the person is taking or his special interests, his career plans. The typical personnel record does not provide this kind of information.

One final expression of management limitations was gained when we asked the supervisors of the engineers and scientists to criticize their managements. Some faults are the following: Sixty-eight per cent of our supervisors felt that the management didn't give them sufficient time to carry out projects. Fifty-five per cent felt that their managements offered vague and confusing decisions, and frequently reversed priority. Forty-one per cent felt that their managements postponed decisions. Thirty-six per cent felt that they required excessive paper work and approval to get sub-professional help. Twenty-nine per cent spent undue time on production problems. Twenty-eight per cent felt their managements failed to explain their plans and decisions adequately. Twenty-seven per cent mentioned waste by duplication of effort. These can serve as a check list for your managements.

Limitations Within the Professional

Some limitations exist within the engineer and scientist himself. First of all, he has a very short time perspective. He tends to think of this time, this job, instead of the career. This makes him tremendously impatient and, in many cases, he interprets his first job in an organization as indicative of his entire future. If he is employed below his level, he feels that, "Well, this is the way it's going to be for the rest of my life."

Another problem is that professionals have an unrealistic picture of themselves and of their contribution. They have been indoctrinated with the importance of their fields, with their "individualism" and the like. Another limitation within engineers and scientists is that they do not know the economic facts of life. Many of them have not been exposed to a particular course. They have not had any particular experience. They look for the ideal situation.

Another characteristic of the engineers and scientists is that they are highly motivated people. As a result of this high motivation their potential for frustration and satisfaction is greater than that of the average person. I draw this analogy. If you are walking down the street and you stub your toe, you can catch yourself without any particular difficulty. On the other hand, if you are running down the street and you stub your toe, the chances are you are going to fall flat on your face. Here you have the highly motivated group of people, or runners. You have to recognize that they are going to react strongly to even minor obstacles, and perhaps the supervisor's job is to sweep the place up so that they don't stub their toes.

Limitations Within the Supervisor

In the case of supervisors, many of the difficulties we find are actually a result of management action. The methods of selection are frequently not well developed. These professionals are promoted to supervisor primarily on the basis of their individual achievement and their individual contribution, without adequate concern for their managerial abilities.

A real problem is determining what functions a supervisor should perform if his subordinates are to be productive. We asked, "What are the functions a supervisor of your activity should perform?" We tried to make some generalizations based on the total sample, but the results are more meaningful when we analyze the data according to activity. Was it a research, an application, or what we call an engineering activity down toward the full-scale production end? We found quite distinctive patterns to functions sought by subordinates. At the research end, the main characteristic was, "Have him get support for me in what I'm doing here. Have him speed up information and get some recognition from my superiors for what I'm doing. Beyond that, leave me alone." In other words, they wanted a superior who was basically supportive. What happened to the people in the application area? These people are in the middle, and they expect their superior to wear many hats. This is partially due to their position in the total process. They weren't in at the beginning; they weren't in at the end. They wanted their superior to keep them informed and to inform others of their activities. They looked to their superior for guidance because they didn't know which direction to go. They wanted a superior to give them recognition, to delegate responsibility, and to consider their ideas. The professionals classified in the engineering group were down toward the trouble-shooting end, the testing end. Their attitude toward their supervisor was: "Does he have a lot of practical know-how? Does he have a lot of common sense? Can he solve a problem? This is what we look for." He has to be like the old guild master who can outwork any of them, who is more ingenious than any of them.

This means that if you are training supervisors and managers and if you are interested in doing the best job, you must gear your training to the needs of research superivsors, application supervisors, and engineering supervisors.

Conclusions

I would like to summarize and to suggest managerial actions that can be taken. It is impossible for me to make specific suggestions

for any individual company, But I have tried to indicate some of the areas into which you might look. In the book, Characteristics of Engineers and Scientists, I have suggested three basic questions to be answered by any management before it takes any action. The questions read something like this: First, what do you know about the people? What are their characteristics; what are their goals; what are their interests? I think many people at the top level assume they know all about these professionals and they base their opinions on what people were like twenty years ago, or fifteen years ago. For example, some top-management people we talked to were quite distressed at the crass motivation of engineers and scientists. Some said, "When I worked back in my garage shop..." and so on; or "This is what the real scientist should do." They are using themsleves as standards, not the standards of today. Few top managements fully understand the characteristics of their professionals. Second, ask yourself the question, "What have I done in the past to contribute to the success or failure of my subordinates in my profession?" In some cases, management will be quite surprised to find that they have done very little, if anything, to contribute to the success and a great deal to contribute to the failure. and the third question is, "What am I willing to do to increase the utilization of these talents and what can I do without disrupting the entire organizational framework?" If you e not ready to do anything, if you are satisfied with the way things are going, stop right now. If you represent a progressive management, improvements are possible.

Should there be special policies for engineers and scientists? My feeling here is that good personnel policies are good personnel policies, and if you have good personnel policies, there is no reason to have a specific set for the engineers and scientists. Success is achieved by establishing procedures and practices that are adjusted to your demands and their needs. First and most important is to increase communications. These are information-hungry people who cannot be satisfied with the usual information. They want to know "why" as well as "what." In all areas, managements have been very "tradition bound." Real originality and ingenuity can be exercised in devising new methods of promotion, compensation, stimulation, etc. If you expect originality and creativity from the engineers and scientists, you can gain this only by increasing their treatment as individuals.

As to motivating the professionals, I am not so much interested in trying to motivate them as in taking the people who are motivated already--people who want to move, people who want to get ahead--and in trying to provide them with the maximum opportunity and meaningful rewards. I think all too many supervisors and managers try to work with the lowest man to get him up to a marginal level. I say if you get him up to that level you are going to have another job, because he is going to be marginal again and you are going to have to work with him again. Why not spend your time with the above average and superior professionals, the people who are on the move, the people who have a desire to get ahead? This means that you provide the opportunities for all people, but you spend your time and energies with the people who want to make a particular contribution.

Let me now throw out a few ideas which may stimulate your thinking about alternative ways of solving your problems. One of the ways is to set up a dual hierarchy where opportunities and compensation are provided for technical achievement as well as for administrative achievement. Let me throw in another idea here. Why not provide alternative forms of compensation? For example, you might tell the professional, "This is your salary. Now if you want to work and reach this level of attainment, we'll pay you so much. If you want to work up to another level, you can achieve a bonus." The bonuses may all be worth $500. But one may be attendance at a meeting the other side of the country; another may be a cash award of $500; another may be an opportunity to invest in stock. In this way you give the person some opportunity to select the thing that is most appropriate to his need at that time. This may vary from person to person and from year to year. The main purpose of such brainstorming is to get out of the traditional rut of thinking.

In terms of the standards of performance and appraisal I think there can be a great deal of work done here. Positive action is needed; you might say, "This is what we really expect of you." Spelling it out for the people, rather than backing off and assuming that if you tell them what you expect, they might be quite shocked and some might leave. "Management by objectives" might be adapted to managing professionals.

My presentation here is primarily to report some research, to give you some ideas of alternative ways of handling the situation. I think it boils down to this: A number of my colleagues have suggested that you should be doing more to utilize the talent of your people, and idealistically this is true. Let me say that each company has to be realistic and ask, "What is the payoff fee if I do more for my people? What gains can be made? And what threat is posed if I do not do something for my people?" I do not know what your answer will be, but you cannot expect the engineers and scientists to do more for you if you're not willing to do anything for them.

My suggestion, at this point, would be to develop some long-range plans for dealing with your professionals. Due to the frenzied activity of contract-getting, it's all too easy to treat your people with the same panic. One very radical way of getting companies to pay more attention to developing their personnel could be the following: As part of a government contract you would be required to spell out a program, to set aside a certain percentage that would be devoted to developing the talent that you have. Projects would be awarded not only on the technical aspects of the project, but also on the personnel aspects. I don't think the government is going to follow this suggestion, so most of you are safe. On the other hand, perhaps considerations like this would be tangible evidence that the government is concerned with full utilization of scientific and engineering manpower.