

PANEL DISCUSSION.

MANAGEMENT OF TECHNICAL PERSONNEL

Actuaries' interests and responsibilities frequently relate to management functions involving the motivation and direction of technical and professional personnel. What experience has evolved as to desirable principles and practices that operate toward effective relationships and results?

CHAIRMAN EDWIN B. LANCASTER: It is my understanding that this topic stems from the thought that some actuaries get into positions which require the management of not only other actuaries but other personnel of a technical or professional nature. What information, advice, or guidance is available on the special questions such relationships might involve?

We know that work habits, vacation practices, attendance at professional meetings, measurement of progress, and the amount and nature of supervision vary considerably between, say, actuaries, accountants, physicians, and lawyers. On the other hand, there are many points of similarity. Age and professional standing may cause disparities that generate more problems than inherent differences between different disciplines. Frequency of contact may either lead to better understanding and smoother relations, or it may enhance the opportunities for friction.

I have never been especially aware of major problems when different professionals are working in a co-ordinated way, if all persons are well motivated and well intentioned. There are some problems which arise from the fact that people do not always talk the same language.

Your Program Committee has recruited three experts with widely varying backgrounds who will address themselves to this topic from the vantage point of their experience. While there may be some duplication and overlapping in their presentations, I think that in itself would be of interest, in light of the different backgrounds of our panelists.

DR. LESTER C. KROGH:* I have been involved with technical affairs throughout my entire career with the 3M company, which had over a billion dollars in sales in 1967, has been growing at 10-12 per cent per year during the past five years, and does 30 per cent of its business outside the

* Dr. Krogh, Director of Corporate Technical Planning and Co-ordination for Minnesota Mining & Manufacturing Company, has played an important role in developing the dual-ladder system which is used in the 3M Company for technical people.

United States. Most of our laboratories are in Saint Paul, but there are three at other locations in the United States and two in Europe. We employ over 2,500 technical people in our laboratories and engineering activities and in 1967 spent over \$50,000,000 in research and development.

While I intend to get into some of the aspects of the management of technical personnel, I would like to begin with some general observations about what is probably best described as a change in the outlook and expectations of today's technical graduates, or any graduates for that matter, in contrast with the expectations of our generation.

In assessing this difference, which to many of us is portrayed in protests, riots, and even the Hippies, we find that there is indeed a generation gap. The graduate of today is highly idealistic, even more idealistic than we were, and he is quite critical of our generation for having laid so much emphasis on material goods while ignoring the social needs of our cities, our country, and the world. As a result, we find him less interested in what we as companies are attempting to do; yes, even critical of the fact that we make profits, which are frequently associated with the exploitation of people and nature, and thus quite reluctant to join enthusiastically in employment in industry.

Why should this be? Perhaps it would be useful to look at the postwar period in two segments—before sputnik and after sputnik. In the pre-sputnik years, most college professors and instructors had worked part time, summers, or full time in industry before finding the academic positions which they sought. Thus they were fully acquainted with what industry was like, the motives which it has, and the contributions that it makes to society.

But, beginning with sputnik, our federal government and the general buoyancy of our economy made it possible for the better students—those who are today's instructors and professors—to go through their entire undergraduate, graduate, and postdoctoral training without ever setting foot inside an industrial or business establishment. They could do this because the country was emphasizing education, providing funds to support them during their entire college careers, and, as one well-known professor of chemistry put it, "giving the faculty the complete job of training the student in their own image." Thus the student tends to look on industry as being different from academic or government work and motivated in ways different from those to which he aspires. He is suspicious of profits and the motives which he believes are behind them. Further, the eruption of riots in the ghettos, the slow pace of development in the emerging nations, the continuing threat of nuclear war, and our involvement in Vietnam are problems which his generation is inheriting from our genera-

tion and *our way* did not solve them. Therefore, he looks askance at business and industry.

Universities and industry have also drifted apart, and many of our technical societies are working hard to re-establish communications. I believe they will be successful, but it does mean that business must present a different image to today's graduate, an image which reveals our sincere desire to provide not only economic strength for the country but also solutions to social problems. Once he is convinced that his efforts in business will contribute to the solution of social problems, he will join us readily and enthusiastically and will provide even broader horizons and perspective to our operations.

With this as background, a number of relatively new organizational concepts have been evolved in recent years in order to give technical employees more latitude in the paths that they may take in organizations, while achieving those time-honored goals of prestige and reward which spark us all.

It was not many years ago that every laboratory or engineering organization provided only one avenue upward, and that was through the supervisory and management ranks. Today many companies have dual-ladder systems for technical people. The purpose of these is to provide a means by which the productive scientist or engineer may achieve recognition and reward for purely technical efforts as opposed to a combination of administrative and technical skills. Most dual-ladder systems provide steps corresponding to the first two, three, or four rungs on the corresponding administrative ladder.

One of the problems with such a system has been that, once a man committed himself to one side of the ladder, he frequently found that he had barred himself from switching to the other side. Recently several companies, including my own, have adopted dual-ladder systems in which a man may shift laterally from one side to the other, depending on his ambitions and, of course, his abilities, at the various stages in the development of his career. We believe that this has many advantages. We have also attempted to equalize as much as possible the privileges which lend prestige to each side of the ladder; for example, supervisors and senior research specialists in my company have equal privileges with respect to attending scientific society meetings, authorizing expenditures, attending certain management meetings in the company, and so forth.

A part of the reason that companies set up dual-ladder systems is to provide added incentives for the motivation of their technical personnel. But there are other aspects to motivation that have been learned by experience and that recently have been elucidated by several universities

that are studying in detail the management of research. Some of these studies have been done by the Sloan School of Management at MIT; they have pointed out the importance of the first-job assignment for a new employee. In a study made at Bell Labs some years ago, it was found that the most productive employees and those who were advancing most rapidly were those who had been given the more challenging assignments in their first jobs.

In today's market, in which we must recruit actively in order to obtain good personnel, there is a natural tendency to treat the incoming employee in the same manner in which we treated him when he was there for an interview. But today's graduate wants to do something useful. He wants to make a contribution to society, and the sooner a company puts a *tough* and *challenging* assignment before him, the better he likes it and the better employee he will become. It offers a real challenge for management to provide tasks which measure up in the employee's view. We should not argue with this view, because as businesses and as a country we will benefit materially. Today's technical people are out to change the world, and I have seen enough of them to know better than to bet against them.

Another subject which I would like to discuss is the role of communications among technical people, among groups of technical people, and between technical people and management. I do not know whether the NIH factor means anything to actuaries. It is the "not invented here" syndrome which manifests itself when an invention made by one individual or a group of individuals is offered as a promising new idea to another individual or group of individuals. The group to which it is offered invariably finds so many things wrong with the invention that it frequently dies or just withers on the vine; if it had been left with the originating group, chances are it might have grown into a profitable product or process. Yet business considerations of efficiency frequently demand such transfer of information and ideas. How can it be done effectively? Sociologists and psychologists who have studied the phenomenon have found that the receiving group does not *truly understand* what was being offered to them. Yet technical language is supposedly a universal language between technical people. What happens is that each group develops its own jargon, and, unless a translator is developed or exists, true understanding does not occur. The best solution found to date is to transfer people along with the idea; with this transfer face-to-face communication occurs, which is so important to technical understanding.

There are many lessons in this example, some of which I assume will be of interest to you as actuaries. It is frequently difficult for physicists

to understand chemists, for biologists to understand mathematicians, or for management to understand any of them. But these gaps in understanding can be bridged by having the mathematician work with the biologist or the salesman with the engineer for a sufficient period of time to bridge the communications gap. In effect, the gap which has developed between business and universities has occurred because the faculty had never spent sufficient time with business or vice versa to provide that communications bridge. Now that the problem is recognized, dialogue is beginning to occur, and we will soon find that the former good working relationships and understanding will be re-established.

Management's role in managing a technical organization is complex. One cannot emphasize too much the importance of providing means for continuing communication between technical people and management. Management should be fully aware of the differences in aspirations and expectations which occur among individual employees and should as much as possible provide means by which the aspirations of everyone can be achieved. Its most challenging function is to provide an organizational climate which gives the technical man freedom to attack a challenging job assignment in his own way and to a reasonable extent on his own time schedule. Management has a major challenge in providing a social climate within the organization and an image which will attract and motivate the employee. Finally, one of the major tasks is to recognize the communication links which cause an organization to work most effectively and to make provision for them.

MR. PHILIP H. DUTTER:* One thing that management consultants and actuaries share is that both are the targets for a great many poor and mildly insulting jokes. I have been warned that actuaries pride themselves on having heard every joke about actuaries that has ever been concocted, so I will stay away from the actuarial joke department. I cannot resist, however, relating an incident that took place about two weeks ago. It is hardly a joke, but it is mildly insulting. I was talking with the chief investment officer of a life insurance company, and he asked me if the life insurance industry has as high a proportion of good managers as other industries. I told him that I thought probably not. He then went on to say that I had merely confirmed his suspicions and that he wondered if this might be the result of the fact that so many life insurance executives are technical specialists. I agreed that this could be a contributing factor, and then, to let him know that I really knew what I was talking about, I

* Mr. Dutter is a Principal of McKinsey & Company, Inc., a leading management consulting firm.

mentioned that we frequently find that investment officers are exceptionally poor managers. He countered by asking whether they are worse than actuaries. I had to admit that he had me there. Of all the things that actuaries are accused of, one charge that I hardly ever hear is that they are superb managers.

Actually, I do not really believe that people in any professional group—actuaries, lawyers, investment officers, or any other—are *necessarily* poor managers. I know a number of actuaries and even several lawyers and investment officers who are extremely effective managers. Yet I do think it is true that a great many highly capable technical specialists are not very effective as managers. And, in my opinion, one very important reason for this situation is that technical and professional specialists frequently are so preoccupied with their particular fields of interest that their development as managers suffers. Therefore, I applaud the decision to spend one and a half hours this morning talking about your managerial responsibilities.

To give you my point of view on the problems and possibilities of managing technical and professional personnel more effectively, I would like to address myself to three questions: 1. How does the job of managing technical personnel differ from the job of managing other kinds of personnel? 2. What kinds of mistakes—either of commission or omission—are typically made in managing technical personnel? 3. What kinds of steps can be taken to manage technical and professional personnel more effectively?

First, let us consider how the job of managing technical personnel differs from the job of managing other kinds of personnel. To approach this question in a logical, orderly fashion, we might ask, first, "What do we mean by technical personnel, and how do they differ from other kinds of personnel?"

As a starting point, let us look at life insurance companies, since this is familiar ground for most of us. Clearly, actuaries, lawyers, and medical doctors would be considered to be in the professional-technical category. Probably most people would agree that investment analysts would fit also. Then, as we move into other areas of specialization—field underwriters, home-office underwriters, EDP specialists—we find that the distinction between technical and nontechnical personnel tends to get hazy. As we go further and consider specialists in claims, personnel, and purchasing, we can see that the term "technical personnel" could be stretched to include practically everyone in a life insurance company.

Similarly, in industries like the pharmaceutical and aerospace industries, with which I am familiar, the distinction between technical and

nontechnical personnel is not as clear-cut as it might seem at first blush. Usually, it is the engineers and scientists who are thought of as technical or professional, but many with advanced degrees in engineering or science are engaged in work that has no more engineering or scientific content than work being done by others with business or liberal arts degrees.

The conclusion I draw from this is that it is not a particularly productive exercise to try to divide personnel into two distinct categories—technical and nontechnical. On the other hand, I believe it *is* useful to recognize that some individuals and groups are more technically or professionally oriented than others.

As I see it, there are two aspects of technical orientation that are of significance to management. One has to do with the individual—his background and interests. The other has to do with the nature of the work to be done.

First, what is it about the technically or professionally oriented person that is different, at least in degree, from other people?

I think the main difference of importance to management is that he tends to identify himself closely with a technical or professional field of interest. He reads professional or technical journals in his field, attends professional meetings, and may seek and gain recognition among his peers, both for demonstrating his qualifications by passing standardized examinations and by writing papers that make a worthwhile contribution to the state of the art. The existence of the Society of Actuaries is a testimony to this tendency. The same phenomenon exists among doctors, lawyers, engineers, chemists, physicists, public accountants, security analysts, and, even to some degree, management consultants. As a result of this tendency to identify with a professional or technical field, the professionally or technically oriented individual is frequently not a good organization man, in either the best or worst sense of the term. He tends to think for himself, which is good. At the same time, his priorities and values may not mesh readily with those of his organization, which can be bad.

The second significant characteristic of technically oriented people also has to do with motivation and is a difference of degree, not of kind. David McClelland of Harvard has identified three types of motivation that he believes can be found in varying degrees in the societies he has studied. One is a desire for achievement, the second is the desire for affiliation, and the third is a desire for power. I suspect, though I have no proof, that among technically oriented people the desire for achievement tends to be stronger than it is among the rest of the population. I base this hypothesis mainly on the assumption that technical and professional personnel typically have ranked high in their classes in academic achievement.

Therefore, they have been conditioned at an early age to expect to attain a high level of achievement in whatever fields they pursue.

So we have two characteristics of technical and professional personnel to take into account. First, they tend to identify with their fields of specialization. Second, they tend to be highly achievement-oriented.

Now, let us look at the kind of work that technical personnel typically do. How does it differ from the work that other people do? Here again, the difference is clearly one of degree, not of kind.

I believe the first point of significance is that the work of technical or professional personnel is much more frequently of the special mission, problem-solving variety, as opposed to work that consists largely of regularly recurring routine. Therefore, the specific steps to be taken to carry out this work are difficult to anticipate and to define in detail on a continuing basis. A second point of importance is that the quality of work can only rarely be related directly to a quantifiable result. Therefore, it has to be evaluated primarily on its own merits, and it is often difficult for people outside the technical field involved to know whether the quality of the work is good or bad.

What are the implications for management of these differences—both in the motivations of technical personnel and in the kind of work they do? I believe there are four main implications:

1. The more that people are technically oriented and therefore tend to identify with some technical field, the more difficult the job of integrating their personal goals and priorities with those of the organization as a whole.
2. The more that technical work involves creative problem-solving, the more difficult it is for a manager to provide detailed direction and training for his people.
3. The more that technical work does not directly produce a measurable result, the more difficult it is to evaluate its quality.
4. The more that technical personnel are highly achievement-oriented, the more important it is that they be recognized and rewarded on the basis of their achievements.

Now, with these four requirements in mind, let us move on to the second question I posed earlier. What kinds of mistakes—of commission or omission—are most frequently made that produce ineffective management of technical personnel?

The first and most common, in my judgment, is to assume that professional and technical personnel do not really require management—that they prefer to work independently and that they should have enough good sense and self-discipline to see what needs to be done and do it. As an outsider, I frequently get the impression that many technical and professional

personnel are not really managed at all but are allowed to drift aimlessly for months at a time. Occasionally they get tapped for a rush project, but more often they simply pick up tag ends of work that some more experienced technician passes along to them. Thus I would say that *failure to manage* is the most common problem in the management of technical and professional personnel.

The second problem is that the management tools that receive the greatest attention in many organizations are those that are the least dynamic—organization charts and position descriptions. These are usually either so confining that the individual acquires too narrow a view of his job or so broad and vague that they are virtually meaningless. While some definition of basic functions and reporting relationships is helpful, organization charts and job descriptions do not go very far toward integrating goals or defining what constitutes a satisfactory job in terms that are meaningful for technical and professional work.

The third problem is that the reward and recognition systems typically employed are relatively nondynamic and tend to focus on seniority and status rather than achievement. Salary increases are usually guided either by a job-classification system or a maturity curve related to years out of college, with relatively little differentiation based on performance. Titles and related perquisites that tend to reflect seniority as much as performance get heavy emphasis. As some of you are well aware, many companies are experiencing considerable stress because they have exhausted their stock of one of their main forms of recognition—titles—and face a serious dilemma. If they pass out too many, the titles become meaningless. If they limit the number, their “young-comers” are likely to grow impatient for recognition. This pressure on titles suggests to me that other forms of recognition and reward are not being used very effectively.

The fourth problem is a tendency to foster narrow specialization as a matter of expediency. Too frequently, for example, pharmaceutical companies fail to develop any organic chemists who know anything except organic chemistry. Similarly, insurance companies often fail to develop actuaries who have more than a dim understanding and appreciation of the factors that affect the numbers they massage or the possibilities for putting actuarial knowledge to work to increase marketing and managerial effectiveness. While specialized knowledge is extremely valuable, today's crying need is for people who have the ability to put their specialized knowledge to work in dealing with problems that involve considerations outside their areas of technical competence as well as within them.

Finally, the third question—looking at the positive side—what can management do that will be more effective in meeting the difficult problem of challenging and motivating technical and professional people?

As is true of so many of our most persistent problems, the solutions are neither quick nor easy. There are, however, three steps that most of you, as managers of technical personnel, can take that will be helpful.

1. *Take stock periodically of work to be done and develop agreement with your people on objectives, priorities, and specific project plans.*—This approach to management has become more and more popular in recent years, yet it is still talked about much more than it is practiced. Too often it is regarded simply as a human-relations vitamin pill rather than a means of getting things done. In my experience, though, it can be an extremely effective approach, particularly when managers work at it hard enough to develop real skill in using it. It is a way of integrating the individual's goals and the organization's goals. It is a way of going beyond the position description to spell out what is to be accomplished in order for performance to be considered satisfactory.

2. *Take the time and trouble to evaluate individual performance at least every six months and to review that evaluation with the individual concerned.*—This is not easy to do. It is often somewhat embarrassing when the individual's performance has left quite a bit to be desired. Literature on personnel relations over the past twenty years abounds with not-very-helpful prescriptions on how to evaluate performance and with debates on whether to evaluate it. The fact is that everyone who is an employee knows that his performance is being evaluated somehow by someone and that this evaluation will probably have some bearing on his future. In my experience, management has everything to gain and little to lose by making the basis for evaluation as clear as possible and by keeping the individual informed on how well he has done or is doing against whatever criteria have been established.

For technical and professional personnel, this evaluation and feedback, particularly in their early years, have to come from someone whom they respect for his knowledge and ability in their chosen fields. An opportunity to receive criticism and guidance from people whose technical competence is accepted is an important part of their total development. For this reason alone, in my opinion, the job of managing technical personnel should not be relegated to nontechnical administrators.

3. *Be more flexible and imaginative in recognizing and rewarding performance and assigning work.*—To get away from the importance attached to status, titles, and seniority, give more attention to other less rigid forms of reward and recognition. Salary increases *can* be an effective

means of recognition and reward if they really reflect individual performance. Private praise and public commendation for a piece of work well done can be amazingly effective. An assignment to head up or participate in a special project of importance to the company can be both a reward for past accomplishments and a challenge for the future. An assignment to another position, even at the same level, to gain broader experience can similarly serve as a reward for the past and a challenge for the future if the organization has managed to keep its intramural rivalries within bounds.

To sum up, it is my guess that, unless your organization is very different from most, the management of technical personnel can be improved by (1) taking stock periodically of individual and organizational objectives and needs and developing agreement on priorities and job assignments in terms of specific project plans; (2) taking the time and trouble to evaluate individual performance and to review these evaluations regularly with the individual concerned; and (3) being more imaginative and flexible in the use of recognition, rewards, and new assignments to provide continuing challenges and satisfaction.

No doubt this prescription might also be applied to managing non-technical, as well as technical, personnel. Yet I believe that taking steps in these areas is particularly important in managing technical personnel, always remembering that they typically have more difficulty integrating their goals with those of the organization, that their work is generally more difficult to pin down on a continuing basis and more difficult to evaluate in terms of measurable results, and that they tend to be highly achievement-oriented.

The process of managing and developing people can be compared to the process of raising vegetables or flowers. Some will grow no matter what you do; others will die no matter what you do; but most *can* grow and flourish, depending on whether they get enough sunlight, water, minerals, and are protected against insects and disease. This is the challenge facing the gardener and the challenge facing the manager, and, just as it is tougher to raise roses than it is to raise marigolds, so it is tougher, in my judgment, to manage technical personnel than non-technical. Thus I would say that, whether actuaries are or are not the best managers in the world, those that manage other actuaries clearly have one of the most challenging managerial jobs that can be found anywhere.

MR. A. DOUGLAS MURCH: We live in an age of technology and professionalism. So perhaps it comes as no surprise that technical and professional personnel are the fastest-growing group of employed persons today. They are growing at a rate twice as fast as the total work force.

After World War II, technical and professional people were only half as numerous as skilled blue-collar workers. Now they outnumber skilled blue-collar workers. Experts tell us that it will only be a matter of time before they are the largest single group in the nation's work force.

In the life insurance business we have participated in this growth. As much as any business today, we are a business of technical and professional people. Our home offices employ actuaries and accountants, doctors and lawyers, underwriters and contract men, professional people of investment and finance, researchers and management science specialists, and computer technicians. Our sales offices, too, are becoming increasingly professional.

Our needs for technical and professional people have climbed steadily as a result of growth, new products, and expansion in mass marketing. Emphasis on market research, management science, and operations research has added to the needs. Most significant of all has been the computer explosion. This alone has added thousands of computer technicians.

Future needs for technical and professional people in our business will expand even further as the computer revolution matures, as we diversify products and services, and as we respond to competition from within our business, from government, and from other financial institutions.

Economic theorists, notable among them John Kenneth Galbraith, say that influence and power in modern business are fast shifting to the so-called "technostructure" of business—that is, the aggregation of technical and professional personnel and their managers. If this is so, and I believe it is, it points up the *critical importance* of this manpower resource and the *vital need* for managing it well.

The textbook principles of management—planning, organizing, directing, controlling, communicating, and innovating—all have application in managing technical and professional people. Yet management is still more of an art than it is a science. It is dealing with people, with individuals, each with his own abilities, his own motivations, his own point of view. General principles do not apply uniformly to everyone. So, managing is a difficult job. If we are completely honest about it, few of us do it well.

The nature of technical and professional personnel, the way they think and operate, and the crucial role they play in our business make some aspects of management especially important. Perhaps our panel could not agree on which are the most important aspects, and perhaps it is not essential that we agree. In the time I have this morning, I want to emphasize and supplement what Dr. Krogh and Mr. Dutter have said on four of the things that seem to me to be especially important and relevant to our business.

The *first* item I want to talk about is communicating and understand-

ing goals. This is particularly important for technical and professional people. We rely increasingly upon their recommendations, their plans, and their implementation of plans. It is essential that they have balanced, in-depth understanding of basic goals. Without it, their plans and programs can be totally unsuitable.

Communicating and understanding goals sounds easy, but it is really quite difficult. Those of us who have tried to develop a clear statement of goals, in quantitative terms, relevant and meaningful to all technical and professional individuals, can attest to that. Goals can be stated in broad terms. They can also be developed into certain numerical objectives. But applying these to specific situations to develop a course of action leaves wide latitude for differences in judgment and emphasis.

Take the case of developing a new product, for example. In most companies, this responsibility falls heavily upon actuaries. Yet it also falls upon sales people, medical people, lawyers, computer specialists, administrative personnel, underwriting and claim people, and so on. The new product is inevitably viewed from different standpoints by different specialists. Each may have a different idea of objectives. Each may wish for requirements which, in the aggregate, would make the new product totally impractical. To ensure success, a balanced view of objectives must be appreciated by all.

It is not enough for the actuary to concern himself only with the financial structure of the new product, though that is his concern, to be sure. He needs to consider it from other standpoints as well—from the standpoint of the customer, from the standpoint of the agent, from the standpoint of agency management, from the standpoint of underwriters and claim people, from the standpoint of computer people, home-office administrators, and so on. Only by doing this can he avoid the impractical and be prepared for the balance and compromise that may be necessary.

Similarly, the computer specialist working on a new computer system may feel the new product threatens to disrupt his system. Yet he needs to recognize that what is needed is a constructive suggestion to simplify administration rather than total opposition to the product.

Perhaps, in a situation like this, where there are so large a number of technical and professional groups in the act, it is too much to hope for *identical* understanding of goals by everyone. Yet it is not too much to hope for *compatible* understanding of goals by all groups. How can this be achieved? Certainly not simply by writing something down on paper and distributing it. This can be a helpful first step, but it is not nearly enough. Direct discussion is needed—discussion between technical and profes-

sional persons in different parts of the organization; discussion that will give each a better appreciation of the viewpoint of the other. If there is a climate conducive to free communication, this discussion and negotiation can help bring about balanced understanding of objectives by all.

Important, too, is the example set by actions and decisions of those who manage technical and professional personnel. When a superior, confronted with a given situation, takes a particular course of action, his people draw conclusions. The cumulative effect of these conclusions goes far to either reinforce or alter impressions as to basic goals. If these conclusions run contrary to announced goals, the unhappy inference builds up in the minds of technical and professional people that management does not know what it is doing. Herein, incidentally, lies one of the risks in formalizing and publicizing goals to which there may be less than complete dedication.

One additional point on this subject. Communication of goals is a *two-way* thing. It is listening as well as talking. This is particularly significant in the case of young employees today. Many of them have a strong sense of ethics and purpose. Many have strong impressions of what company goals *ought* to be and what the company's role in society *ought* to be. These can differ greatly from actual goals of the company.

There ought to be, though frequently there is not, understanding by the manager of these individual goals. When there is, the manager can, through two-way discussion, begin working with them, gradually aligning them to complement, rather than conflict with, company objectives. Without two-way understanding, individuals' efforts can easily go down the wrong track, work can be wasted, and these young employees can feel frustrated in their jobs.

The *second* point I want to mention is motivation. As Mr. Dutter mentioned, many technical and professional people rank high in the need to achieve. They are usually motivated to peak performance when given an assignment that they feel is important, one in which they have some latitude in planning as well as executing it. This requires that the individual be given a clear understanding of the assignment and its objectives. It requires the watchful eye and guiding hand of the manager but not an authoritarian approach.

Again this sounds simple, but it really requires a change in orientation by many managers. It requires that the manager concern himself not just with getting the work done but also with how the work is presented to his technical and professional people. It requires that he present it in a challenging way, so that his people understand it, feel total responsibility for it, and feel that they are accountable for it.

This way of operating has important side benefits. It develops increased rapport between management and the technical or professional individual. It helps develop a "management point of view" in the individual. It helps him appreciate, through actually doing it, the inevitable negotiation, tradeoffs, and compromise that are involved in any important job. It helps him see the practical problems of keeping a job on target in the face of all obstacles.

Another useful device, and one used frequently in insurance companies these days, is the task force. A major company problem arises, a major company opportunity is presented, and a task force is established. The task force includes representatives from several departments, each bringing unique talents and a slightly different point of view to bear upon the problem. The problem is usually quite difficult and quite important. There is often pressure as to deadlines. An atmosphere of urgency and hard work is engendered. Motivation and productivity are usually at their peak.

The task-force device can also be applied with success to a host of less important problems at lower levels. Problems that might normally be referred to line management might be assigned instead to a task force of lower-level technical personnel. For example, there might be a continuing problem in getting work back quickly from a computer machine room. This problem might normally be put in the hands of computer operations management to solve. Another way, and often a better way, is to select a task force of promising computer programmers and computer operations people. The task force would be given the problem and asked for a recommended solution by a given date.

This approach can bring a fresh point of view to the problem, can bring more familiarity with relevant technical details, and can provide a challenging assignment to motivate the individuals on the task force. It can also serve as a good developmental assignment for the individual and can provide a helpful basis for evaluating his performance other than through normal supervisory channels.

This free-wheeling style of management calls for much give and take between the manager and his technical or professional staff. It requires the manager's occasionally skipping over normal channels, taking individuals into his confidence, and giving them the same view of the problem that he himself has.

With technical and professional people it is important to avoid excessive layers of management reporting along traditional lines. Intermediate layers can easily dampen challenge and stifle motivation. Whenever possible, direct reporting, and direct feedback, between manage-

ment and the individual is a better answer. It offers greater recognition, increases initiative, and builds dedication to the company.

One other point on motivation. Many technical and professional people look at their jobs with dual responsibility—responsibility to their professions and responsibility to their companies. These are usually compatible, but on occasion they can conflict. This, perhaps, will happen most often where the individual feels that his company assignment is dull and unexciting. Such an individual might prefer, for example, to improve his professional standing rather than work toward a company objective. While the fundamental cure for the situation lies in how the individual's company work assignment is handled, within limits, our willingness to help him achieve his professional goals can strengthen the relationship of the individual to the company.

Tuition-refund plans for continued education are helpful in this respect. So are in-house training programs, such as those which many of us have for computer programmers. So are programs for sending individuals to professional meetings, such as this one, and encouraging individuals to take on committee responsibilities in professional associations. These all help the individual to develop professionally and to gain a broader point of view of his work.

The *third* point I want to mention is career paths for technical and professional personnel. Those of us who recruit encounter intense competition for people from graduate studies, teaching, scientific research, defense, and government. For survival, if for no other reason, it is necessary that we give the prospect a clear picture of the career path. Young people today want to know what lies ahead with regard to job progression. They want to know how far they may go, what they need to do to get there, and how long it is going to take them.

These are difficult questions, if not embarrassing. Management, ten and twenty years ago, would have considered questions like these presumptuous and impertinent. Yet we know for a fact that, after these new employees are hired, they will leave for other employment unless the job, its challenge, and the career opportunities measure up to expectations. The experience of my own company indicates that the three chief reasons for turnover among recent college hires are dissatisfaction with the challenge of the work, lack of a clearly enough defined career path, and salary—pretty much in that order.

It is easy for a person with only a few years of service to leave for a job paying more, if he feels his future opportunities are not attractive. It is more difficult for that same individual to leave if he believes his future career possibilities are attractive.

Most companies years ago established clear-cut career paths for actuarial students and actuaries. Other professional areas, such as those of doctors and lawyers, have also long had well-established career paths in our companies. In the newer areas (such as computer work, management science, behavioral science, and research) career paths have not always been so clear. Companies originally tried to fit these specialties into the regular personnel framework. It has become increasingly evident that the skills required, and the demands for these skills in the market place, require clearly defined career paths for these specialties. Many of us are going to have to face this difficult problem more directly than we have, if we are to attract and retain the topnotch technical and professional staffs we need.

The *fourth*, and last, point I want to mention is the development of technical and professional personnel into future executives. Most college graduates hired in the home offices of life insurance companies are assigned to technical or professional work. This manpower pool will be the most important one from which future executives of our industry will be developed. Not everyone will have the abilities to move into executive jobs. Many will, however, and we need to consider carefully what can be done to develop them.

The trend in development programs today seems to be away from the formal, structured program toward providing a climate that is conducive to development, and self-development. One thing that can help provide such a climate is the practice of management by objectives. It helps to focus on objectives, on results, and on individual performance toward those results. It can help to clarify responsibilities and relate them to relevant company goals.

Another thing that can be done is to identify potential managers early and transfer them to developmental job assignments. In the past, many capable executives rose to the top in their respective professional areas before being assigned executive duties. In some instances this may still be proper, but in others it delays too long development of the individual for executive duties. Experience indicates that it is usually better to identify early in their careers those specialists who show promise for managerial work.

Having identified the individuals, a program of job assignment and transfer across departmental lines can be developed for each individual, to help develop the rounded experience required for future executive responsibilities. In each move, the nature of the work assignment needs to be considered, as well as the style of the manager or executive to whom the individual will be assigned.

With this kind of program, individuals are shifted through a range of company activities instead of rising only within one specialist area. They develop a balanced perception of the organization as a whole. They develop valuable experience by working for different bosses with different management styles. They enter management or executive positions better trained as generalists, though still retaining a professional background.

In many companies full development of these manpower programs has been inhibited by shortage of specialists and by other factors. Work pressures, job deadlines, and turnover have prevented moving individuals whose expertise is desperately needed on their current jobs. Nowhere is this more typical, I suspect, than it is with computer people. Pressure to complete projects, often behind schedule, has impeded movement of individuals into assignments helpful in developing them into future managers and executives.

A balance needs to be struck between responsibility for today's work and responsibility for developing tomorrow's executives. Development programs *are* important to our companies, because future management will need better understanding of the technical and professional fields upon which the business is built. Development programs are also important to individuals, because they open up a career path beyond a particular specialty.

These, then, are four aspects relevant to the life insurance business—understanding goals, motivating, clarifying career paths, and developing future executives. We have skipped over them all very rapidly. Much more could be said, but it all adds up to this: Management of technical and professional people is important business. The trend is, and must be, toward greater awareness by all of us, as actuaries and as executives, of the need for developing our skills in managing these people.

Technology, innovation, and diversification surround us. Yet much of the true ability of our technical and professional people remains latent, remains untapped. We must increasingly learn how to tap those abilities. They provide the most promising resource we have to help realize future opportunities and to cope with the future needs of our business.

CHAIRMAN LANCASTER: While it is difficult to summarize what has been said by our panelists, it is possible to recognize a common thread that runs through their discussions.

Our management problem is simple if we establish the basic understanding of respect for the qualities and ambitions of the people we are trying to relate to. If there are sensitivity and understanding between the manager and the managed, between the manager and the technician,

I do not think there is a problem. If there is not a sensitivity or an awareness of all the different things the manager and the technician are seeking, are striving for, there is a problem situation.

Hence the common theme of our panel is, I believe, a recommendation for attitudes of openness, for mutual respect, for mutual sympathy, for utmost candor, and for close interpersonal relationships that will tend to eliminate the chances for misunderstanding and minimize the ever present potential communication gap.

This kind of comment or observation, in one sense, says very little; on the other hand, I hope it says a great deal. Sensitivity to human, personal feelings and relationships seems to me to be a key factor in what we are discussing. This is a goal people in this field should seek—and seek to find in productive ways.