

PERSPECTIVES

On the Professions

A periodical of the Center
for the Study of Ethics in
the Professions (CSEP),
Illinois Institute of Technology

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Vol. 7, No. 1

Spring 1987

"Communication Between Engineers And Managers"

Fay Sawyer, Editor, CSEP,
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This is the last issue of PERSPECTIVES that I shall edit; this task and that of Managing Editor (ably filled for more than six years by Warren Schmaus) will be assumed by a new member of the staff of the Center, Michael Davis. It seems, therefore, somehow appropriate that I should address this last of my editorial enterprises to a topic that has concerned me deeply since it was first brought to my attention by the late George Low, President of R.P. I. and earlier Director of N.A.S.A. This is the issue of hazards to effective communication between the engineers on a job and the managers on the same job.

It is also especially fitting that one of the important articles in this issue should be by Warren Schmaus's father, an engineer of distinction who has worked for decades in a variety of circumstances that presented different problems. And finally, I assumed the prerogative of the "last word:" the concluding article in this issue is a very brief report of an interview I conducted with Dennis Kessler, VicePresident of Fel-Pro Corporation last February 16th. The deliverance of this

interview is that there really are ways of making (or at least of helping to make) things go right in this communication enterprise. I am more drawn to plausible means of healing than to well-deserved causes for blaming. Yet both are aspects of the task called "applied ethics."

The first article in this issue is by Vivian Weil and Michael Davis and states their reasons for believing that there is a communication problem and that it is important and that a conference might help to solve some of the difficulties. The next is by a distinguished Professor at the Harvard Business School and is followed by one written by a Visiting Professor of History of Technology at IIT. Then comes the Work Autobiography of Mr. Schmaus, and last of all, my own report of the most encouraging interview at Fel-Pro.

"Professional Ethics at the Interface of Engineering and Management"

Vivian Weil and Michael Davis,
CSEP, Illinois Institute of
Technology

An important issue for both
engineering and business ethics is
the relationship between engineers

and managers.

Both business and government have traditionally treated engineering as a "staff function" and management as a "line function." In its extreme form, the division between staff and line functions works like this:

Engineers are those with special knowledge of how to do certain kinds of work (drafting, designing, checking, evaluating, and so on). They answer to a certain manager, but no matter how high they stand in the organization, no one (except perhaps a few assistants) answers directly to them. They are not in "the chain of command."

Managers, on the other hand, are those who, whether having technical knowledge or not, have special responsibilities for deciding what to do and how to do it. Managers answer to those "above" and command those "below." Engineers on the staff of a particular manager provide him or her with advice, information, and technical assistance.

This division of labor has usually left a gap between engineering and management. Traditionally, engineers have deferred to management rather than tried to bridge the gap in a way combining the expertise of both functions. Even when (as often happens) engineers became

managers, that deference generally meant that the engineer-manager simply became another manager. Management often encouraged that transformation.

The gap between engineering and management seems to involve a clash of differing standards of evaluation making the perspective of each at least partially opaque to the other. The gap seems to exist even when the managers are themselves engineers. The first stage of the investigation of the Challenger disaster has provided a story that will serve both as an example of this clash of perspective and as evidence of the need to understand it.

The space shuttle program has been considered a model of how to integrate management and engineering functions. The central feature of that model was an extremely complex system of consultation between staff engineers and managers (many of whom were themselves engineers), assuring engineering "input" at every step in the making of any significant decision.

Yet, this system of consultation did not close the gap. The night before the shuttle blew up, killing all seven astronauts aboard, managers were telling one another to "put on their management hats," to "think like managers, not like engineers." This advice apparently led several managers, vice presidents at Morton Thiokol, to change their evaluation of the risk of O-ring failure and approve the launch (knowing that the launch would not occur without their written approval). The managers at Thiokol were themselves engineers who, earlier that day, had decided against launch after receiving a

unanimous recommendation from their engineering staff. The night-time reversal seems to have occurred without any new information about the risks involved. "Putting on their management hats" changed the way they evaluated staff recommendations.

It would be easy to be cynical about what happened, to explain the reversal as the triumph of "politics" over "professional standards." Many engineers would, perhaps, describe it in exactly that way. Yet, there is reason to think that what happened was much more complicated.

Recent historical work indicates that the line-staff separation of management and engineering goes back through American corporate history to the first great businesses, the railroads, and then back to the first great organization of modern times, the French army of the eighteenth century. The gap between management and engineering seems to have much the same history. The engineer would want to "do things right," even if the expense was enormous or the time unreasonably long. The managers would want to "get things done"-in time and within budget-even if that-meant cutting corners or taking chances.

Still, though the gap between "politics" and "professional standards" seems to be as old as the line-staff distinction itself, its importance may have increased recently. Technical questions seem to be more central to the decisions made than they used to be.

So, for example, allowing Thiokol's engineers veto over launch of the space shuttle seems

more reasonable than allowing military engineers veto over undertaking a siege. The question whether to lay siege seems to be primarily one of strategy, not engineering. Line officers generally know enough about sieges to make the decision intelligently without first calling in an engineer. That being true, the job of the siege engineer is to advise on details while carrying out predetermined policy. The question of launching the space shuttle seems, in contrast, to be as much a question of engineering as of commercial policy. The concerns of Thiokol's engineering staff (for example, safety) seem to correspond to external constraints on what government (and business) should do in a way that the narrow concerns of a siege engineer do not.

"Organizational and Professional Bureaucracies: An Ethical Dilemma For Both Sides"

Louis B. Barnes, Harvard Business School

In 1960, I wrote a book which grew out of my doctoral dissertation at the Harvard Business School. The work was based upon intensive field studies of two engineering departments, each in a different company. Today, we would refer to the companies as high tech.

In the first company, it was easy to divide departmental employees into three groups based upon combination of their value preference scores and their career goals. I called one group the Professionals. Their reference group was Science. The second

group I called the Organizationals. They scored high on economic and political values and aspired to management careers. The third group were the Socials who tended to choose social values and be non-college-graduate technicians. The company was large, prominent, and status conscious.

The product lines coming out of this particular department had become obsolescent despite senior management's frantic efforts to hire, fire, and move engineering efforts into new areas.

Relationships between Professionals and Organizationals within the department and even throughout the company, I heard, were strained. To the Professionals, the company had become overly bureaucratic. Professionals argued that they were pressured to do things right according to formalized procedures rather than do the right thing. This violated their sense of integrity and made them frustrated. They fell back upon professional values and standards as a logical alternative.

Yet, some of these criteria seemed equally ritualized, focusing upon academic degrees, society memberships, professional meetings, and vague rules of autonomy. They seemed like another set of rigid formalities, and I had the uneasy sense that one set of bureaucratic procedures was attacking another.

In the second company, there were no such sharp distinctions. Work relationships within the engineering department seemed blurred and informal. People in manufacturing, engineering, and marketing seemed to work well together. There was even a sense of entrepreneurialism. Product

development was high. So was satisfaction with the company, which was a venerable old New England firm moving rapidly into high technology. Amateur curiosity seemed more of a value than professional competence.

At the time, I could never quite understand why some senior executives in that company seemed displeased with my positive conclusions about life and productivity in the engineering department. Only several years later did I hear from a company manager that a few senior executives had hoped to use my study to convince others that the company needed to adopt a more rigorous set of professional standards and procedures. My conclusions had failed to suggest this.

Now, 27 years later, little has changed. Recently, I did some work for another very large company's R&D center. Its relationships with mainstream company operations were terrible. Company executives felt that R&D's work was irrelevant, and they were squeezing for short term results. R&D center Professionals felt stifled and overwhelmed by head office demands for progress reports and justification meetings. The Organizationals who occupied management positions were perceived as the bureaucratic enemy. Values clashed as scientific priorities battled against real world markets and profits.

Once again, however, resolving or integrating these real value differences in practice seemed secondary. This was not a battle between entrepreneurs and

scientists. It was instead a battle between two bureaucracies in which form and formality prevailed over substance on both sides. The professional bureaucrats wanted to outgun the organizational bureaucrats.

It was at this point that the ethical issues became troublesome for me. Both forms of bureaucracy, the organizational and the professional, were stifling innovative progress. Let me try to point out how in another metaphorical way.

Recently, a good friend was applying for a professional license that required approved degrees and course work, a professional track record, reference letter on ethical practices, and a set of exams given by an association set up to protect professional standards. The friend, already working in the field for several years, and completed graduate work at a leading ivy league university and had followed all procedures for licensing required by the professional association. Inquiries for further detail were met by stiff clerical formalism. Nevertheless, the candidate spent several months of intensive study for the exam.

The association was unmoved. As had apparently happened often before, a new form letter arrived with a new set of requirements. The applicant could not take the exams until additional documentation was provided. Every single course syllabus must be collected and sent in along with the instructor's signature

testifying to the relevance of his or her course. It didn't matter that many graduates from the same degree program had already taken and passed the exam or that several of the instructors had received the highest distinction medals from the association over the years. Applicants could not even take the exam for another six months until they met these additional requirements. And then there might be more forced delays by the uncommunicative association. Was this professionalism or bureaucracy at work?

That is the problem. It is not only giant corporations or governments that threaten the individual. It is the giant profession whether it be law, medicine, science, or engineering. Both managers and professionals are known to replace their innovative origins with territorial formalities. They guard, protect, and promote their own turf. Their required formalities become bureaucratic strait-jackets of priority. In companies, they go by such names as controls, disciplinary procedures, goals, reporting systems, business plans, and bottom lines. Professional bureaucracies lean on hard-to-measure standards, formal status symbols, the "right" degrees, specialized experience, and past practice. Both bureaucracies are more exclusive than inclusive. Both are divisive. Both turn substance into form and quests for quality into procedural details. Individualism suffers.

Just as an innovative company can become a bureaucratic organ-

ization, so can profession. It becomes more concerned with form than substance, and it stifles professional progress and creativity if not kept carefully informal and personal. That is the dilemma. At what point do we sacrifice individual integrity to collective formality, whether the collective be business, government, or a professional society? How exclusive and demanding can it ethically be in its own interest? And what loosely knit safeguards do we need for the protection and development of positive individualism?

The answer? There is none other than the paradox of keeping all professions amateur enough so that they periodically question, doubt, and unbureaucratize themselves. Some managers have painfully learned from foreign competitors and hostile takeovers that traditions and old rules are not enough.

But traditions and rules are not only the heart of much that is professional. They are the seeds of bureaucracy. Many of today's so-called professional standards need to be changed and bent tomorrow. Otherwise, today's amateur is tomorrow's professional, and today's professional is tomorrow's bureaucrat. Companies can fail and their bureaucratic practices die. Managers can be forced back into amateur wonderment by outside conditions. It's not that easy to regenerate and loosen up some of our encrusted professions. But the alternatives are painful at best and bureaucratic at worst. Neither

bodes well for individualism, informality, or creativity.

**"Power to the People,
Whoever They Might Be"**
Bayla Singer, Illinois Institute
of Technology

The development of electric utility systems illustrates one frequently misunderstood aspect of the complex relationship between ethics, politics, and technology: the resolution of legitimately conflicting interests. Adversarial political rhetoric identifying any one side's agenda as "truly reflecting the American Way" or the opposing views as "destructive of democratic principles" does disservice to democratic ideals as often as it promotes them.

It has been persuasively argued, by Langdon Winner and David Noble among others, that technological choices are inherently political in cases where the implementation of large technological systems constrains subsequent actions and reinforces existing social institutions. Some of these political choices have been explicitly recognized in the past, particularly when they have involved economic relations, but those which occasion the deepest concern are choices entraining subtle and allegedly implicit effects on "democratic values." We are being called to make explicit these potential effects, and to include them in the arena of political discourse.

Discussion of these issues has largely been urged by the Left, often in adversarial or

confrontational terms. The shrill tone of these urgings, engendered by the perception that "the adversary" seems imperturbably indifferent, obscures the underlying policy dilemmas. First, a non-homogeneous society will by definition include a variety of groups with legitimately conflicting interests, compromises among which must be sought in the political arena. Second, massive technological artifacts such as roads, bridges, and utility systems seem to endure longer than the social value-structures embodied in them. Third, previous attempts to predict the long-range social impact of new technologies have notoriously been unsuccessful. The case study presented here bears predominantly on the first of these dilemmas.

The effort between 1918 and 1927 to forge a regional interconnected electrical network in the heavily industrial northeastern United States illustrates many of the political nuances associated with large technological systems: the subsequent history of changing public (and governmental) perceptions and attitudes highlights the dangers of any implicit assumption that one day's interpretation of "democratic values" will persist unmodified.

Various political dimensions of electric utility operation have been explicitly acknowledged from the beginning. In support of his petition for a franchise in New York City, Thomas Edison found it expedient to treat a delegation of aldermen to a demonstration and reception (catered by the famous Delmonico's) in Menlo Park. It was only after Edison was able to counter the gaslight lobbyists that he could develop his Pearl Street Station (the first in

the world to supply electricity from a central station to a geographically defined service area). By the early twentieth century, electric light and power had become deeply entrenched in the American economic and cultural system, leading such Progressive politicians as George W Norris and Gifford Pinchot to cast the direction of the electric utilities' further growth as a dramatic conflict between "the robber barons" and "the people."

Superpower: A Federal Dream

Industrial shortages and snarled transportation logistics during World War I focused attention on the need for systematic regional planning for electric supply. Construction of electric generating plants at mine mouths and transmission of "coal by wire" was an attractive proposal to achieve economies of scale and at the same time release a substantial proportion of the nation's rail capacity from the need to transport high-bulk, low-cost coal. The option to electrify trunk-line railroads, and the likely lowering of costs and expansion of markets for electricity and various consumer goods, further enhanced the proposal in the eyes of interested parties. The self-interest of business and the national-security interest of the Federal Government seemed closely parallel.

A Superpower Survey was commissioned, under the general auspices of the U.S. Geological Survey, to investigate the feasibility of constructing such a project in an approximately 150-mile wide stretch of coast between Boston and Washington, D.C. William Spencer Murray, the engineer responsible for articulating the most

comprehensive and persuasive proposal, was put in charge. Murray divided the task between two groups: an Engineering Staff to assess technical aspects, and an Advisory Board to consider political, legal, and financial aspects in the necessary detail. Survey members worked diligently for a year, and submitted their Report (USGS Professional Paper 123) at the end of June, 1921.

Political issues proved an intractable barrier to Superpower implementation. One Advisory Board member, a lawyer, plaintively noted "It is easy for any lawyer to draft an Act. . .or anything of that sort when he is told exactly what is wanted." Determination of "exactly what is wanted" involved compromises between Federal, State, and private interests. Advisory Board members were familiar with various solutions to similar issues which had arisen in respect to the railroads and to the development of hydroelectric plants on navigable waters.

The initial, preliminary proposal of the Board was that the Superpower project be Federally chartered with the right of eminent domain, to be financed by shares sold to the utility companies which would be its customers. The Board felt that a minor modification of the Federal Water Power Act, extending its Jurisdiction to large steam plants and transmission lines, would be an appropriate and sufficient legislative foundation.

This proposal met with broad opposition from individuals whose recommendations were solicited by the Board. "Progressive" politicians such as Herbert Hoover (who became

Secretary of Commerce during his tenure on the Advisory Board, where he had been initially a representative of the USGS), opposed the unprecedented delegation of Federal authority. Utility operators vigorously rejected both additional Federal regulation and the extension of the "fifty-year-recapture" clause of the Waterpower Act, which would allow the government to purchase any generating station or transmission line built under the Superpower aegis. Such "recapture" would move essential elements of the developing electrical system out of the private sector entirely.

Faced with powerful opposition from both government and private sources, the Board made no financial, organizational, or legal recommendation at all in the Superpower Report. At their final meeting, they agreed that "any expression on these phases at this time might do more to injure the project than to help it." The Superpower Report was warmly received in the press, receiving substantial notice as far away from the Superpower Zone as California. Lacking an organizational framework, however, the Superpower project did not attract political support and was indefinitely postponed.

Giant Power: The Pennsylvania Connection

Soon after the apparent demise of the Superpower project, Pennsylvania embarked on its own survey, called Giant Power. Giant Power's chief promoters were Clifford Pinchot, newly elected Governor of Pennsylvania, and Morris L. Cooke, a reform-minded engineer later to become first head of the Rural Electrification Administration.

The men were natural allies: Cooke had fought waste, corruption, and mismanagement in a term as Philadelphia Director of Public Works, and Pinchot had long fought the efforts of the utilities to obtain unrestricted use of hydroelectric sites, during his tenure as the first Chief Forester of the United States. In addition to planning for the integrated development of Pennsylvania's energy resources, Pinchot and Cooke sought changes in the rate structure and valuation procedures, as well as extension of rural electrification.

Social goals were explicitly espoused as an integral part of the Giant Power proposal, and claimed as distinctive. In the introduction to the Giant Power Report submitted to the Pennsylvania legislature in 1925, Pinchot wrote (from material prepared by Cooke):

Giant Power and super-power [sic] are as different as a tame elephant and a wild one ..Giant Power seeks the cheapest sources of power, and hence the cheapest rates. . . [A]nd the chief idea behind it is not profit but the public welfare.

The "public welfare" included a revived small-town life, decentralization of populations and manufacturing facilities (powered by rural electrification), and the triumph of the "little man" against the "monopolists." Inherent in the Giant Power proposal, however, were items which not only ran directly counter to established utility interests but could be easily interpreted as "grandstand plays" detracting from the Giant Power project's credibility.

For example, the Giant Power

proposal insisted that all power generation take place in the western portion of the state, in plants to be built at the mouths of bituminous (brown coal) mines, thence to be transmitted across the state to the more heavily industrialized east. The transmission lines would be tapped for local electrical distribution as they passed through the central, predominantly rural, areas of the state. No coalburning plants were to be permitted in the east: this provision seems tailored to arouse the hostility of eastern utility operators by making Pittsburgh and Philadelphia hostage to the historically volatile labor conditions in the bituminous mine areas.

The legitimate interest of the public in reliability of service was simply ignored, or at best subordinated to Pinchot's desire to promote rural electrification and humble the existing utility operators. Further, since Pinchot had been instrumental in settling some previous labor disputes in that area, reliance on bituminous coal could be interpreted as a simple ploy to reinforce Pinchot's political base.

Other provisions, of a more technical nature, were to the public less obviously attempts to change the existing political and economic order. Pinchot, Cooke, and the electric utility industry saw them as such, however, and based national campaigns on their perceptions. After the predictable defeat of the Giant Power proposals in the Pennsylvania legislature, Pinchot went on a national tour proclaiming that Giant Power's anti-monopolistic stance was the moral equivalent of Prohibition's war on alcohol (Pinchot was a zealous "dry").

The utilities fought back, through the National Electric Light Association, by distributing thousands of copies of rebuttals to Pfnchot's proposals.

By casting the issues as adversarial, Pinchot and Cooke deliberately pitted their interpretation of the public interest against the perceived selfishness of the utility operators. The fact that the utility operators were indeed making a handsome profit obscured the legitimate consumer interests they served in order to do so. At the same time, the fact that Pinchot and Cooke had a definite political agenda cast a cloud over the credibility of their own proposal. In such a contaminated atmosphere, it is no wonder that no progress was made. Let's imagine that you set your mind to the task of improving communication not only between engineers and managers but also between and among all employees: how would you go about it? The FelPro Corporation, one of the world's largest manufacturers of automotive and industrial gaskets, is a privately (family)-owned corporation with its headquarters in Skokie, Illinois. I had written to this company that I wanted information and/or articles related to problems of communication. I received a "by return mail" invitation from Mr. Kessler to come out for a visit, stating that he would like to speak his article rather than to write it. (I think too that he wanted me to see the operation at the plant in Skokie, which also "speaks!")

During the nearly two hour interview, I became increasingly aware that the Fel-Pro management has from the start taken adequacy and effectiveness of

communication as absolutely central to their design and planning. What they have done is to focus on those matters which demonstrably or probably impede effective communication. In the course of implementing this 'focus,' they have put in place a whole series of maneuvers which embody simple wisdom about 'how not to make communication difficult' and 'how to try to make what IS communicated effective as well as said.'

In the enterprise of not making communication difficult, they have abolished physical separation between employees and management. There is ONE cafeteria and ONE parking lot and ONE bank of washrooms, etc. There are no interior space-dividers calculated to provide secret chats, either, and there are no executive suites. Additionally there ARE many many 'messages' of comfort and approval (one cannot freely speak or criticize without them!): benefits, holidays, birthday celebrations, company-owned ranch vacation space, doctors, day-care and so on. All employees feel basically secure, which is not only "nice" but a predictor of feeling able to speak out and to have your speech heard.

However another enterprise which has been long established and which yet grows and becomes increasingly well-articulated is that of specific MEANS of communicating questions and suggestions and grievances. Hasn't every one of you been annoyed and somehow insulted by that entity called the "suggestion box"? It is a kind of tokenism, isn't it? I had not concentrated my mind on how many things were wrong with the "suggestion box"

until my visit with Mr. Kessler, for what they have done there is to make "suggesting" a regular, institutionalized, followed-up-on part of the work experience. Just in case one assumes that this or that category of one's employees DOES very likely have important things to say about on-going activities, what then is the likeliest means of getting these things really said and heeded? Fel-Pro has developed 'two or three systems of meetings (regular and weekly, so that they need not be called for "special" issues!) to one or more of which everyone comes as part of the job. These are "complaint and suggest" sessions and at each of them there is a log kept of what was raised and to whom it was assigned and when (and how well) it was solved. This log is distributed, along with the minutes, to every employee!

One category of regularly scheduled meetings which is especially germane to this issue of PERSPECTIVES is that between the "R and D" group of engineers (the theoreticians, so to speak) and the Applications Group (which is, of necessity, in closer touch not only with how much an R and D theory or invention might cost to institute but also with the Sales Division, etc.). These two groups were perceived to have some hostility, some "turf" disputes. Inasmuch as each had a great deal to say that needed saying and tended to withdraw from each other when rivalries intensified, the Management wisely decided that regular meetings between them must also be scheduled.

This company even went so far as to hire consultants (from Social Psychology) to help them develop detailed systems for making sure

that every one of the employees really felt able and encouraged to think about work as an improvable organism and to bring the results of his/her thoughts to management. Consultants also offered advice on how best to make certain that suggestions did not turn into mere emotional ventilations with no effective results other than, at best, catharsis.

In summary: here was an example of an industry heavily oriented around engineering technology and science, which made concrete and specific efforts to implement its noble principle of being a "family."

They identified some items which are known to make communication difficult and eliminated them. They studied other instruments which are known to enhance communication and to make it useful and effective and put them in place. And after all of that they retained the wise and "Socratic" humility to recognize that they might still have more to learn about how to do this and consulted professionals. Practical wisdom combined with the modesty to learn more: even Aristotle would commend them.

The Pennsylvania-New Jersey Interconnection: A Private Peace

The economic benefits obtainable through interconnection were too great to be easily foregone, and three private utility companies on the east coast found their own route to cooperation. The Philadelphia Electric Company, the Pennsylvania Power & Light Company, and the Public Service Electric & Gas Company (based in Newark, N.J.) signed in 1927

an agreement to buy and sell electricity amongst themselves under certain carefully specified conditions. They also agreed to build a high-voltage transmission line to facilitate their transactions (each utility was responsible for construction in its own service area). Plants and lines remained the property of the independent utilities. No new company was formed, no new powers required, no changes made in ownership or financial procedures of the participants. No interstate treaties were required, nor changes in existing regulation. The state and federal governments retained their existing jurisdictions over the utilities and there was no new corporate or governmental entity to spark jurisdictional dispute.

General administrative arrangements for the Interconnection were elegantly simple, and remain fundamentally unchanged today. An Operating Committee (now called the Management Committee) consisting of one representative from each member utility has the authority to make all policy decisions pertaining to the operation of Interconnection facilities, the interchange of energy and capacity, and the formulation of the estimates and forecasts which are necessary for economical and reliable power supply. The representatives have equal voices on the Committee, and all decisions must be unanimous.

Since 1927, the Committee has had the delicate task of maintaining the smooth and economical functioning of the Interconnection and at the same time preserving the interests of the individual utilities: of maintaining the balance between autonomy

and integration. Committee members are high-ranking executives in their "home" companies, typically vice presidents who have spent over twenty years in positions dealing with interconnection affairs. By the time they become Committee members, they have absorbed both the practical aspects of Interconnection operation and the spirit of community which makes effective cooperation possible.

This agreement might be considered unremarkable in its conservatism were it not for the preceding efforts of the Superpower and Giant Power surveys to solve similar problems. Morris L. Cooke, who might be expected to find fault with any such cooperative agreement, wrote to Pinchot exulting "I am convinced that if you had not been Governor of Pennsylvania the execution of this plan would have been postponed five -possibly ten years." He has conveniently forgotten the Superpower survey, and now seems to perceive the private utilities' cooperation as socially responsible, although there is not a hint of rural electrification, social consciousness, or use of bituminous coal from western Pennsylvania in the interconnection agreement.

Epilogue

The Superpower and Giant Power projects may have been doomed by their scope, which brought into conflict a large number of opposing interests. In addition, the legitimate areas of negotiations were obscured by rhetoric attempting to identify one side or the other with American ideals, whether of governmental jurisdictions or individualist

principles. The success of the private companies' agreement (their interconnection, the first of its kind in America, has now grown to 11 members including utilities in Maryland, Delaware, the District of Columbia and Virginia) may be due at least in part to the avoidance of issues extraneous to the essential operation of the transmission ring.

It is an interesting index of perceptual change to note that Herbert

Hoover, now considered generally "pro-business," objected to the delegation of federal authority (i.e., the right of eminent domain) to private companies, while some decades later the "anti-business" administration of John Kennedy not only gave the regional networks the right of eminent domain, but strongly suggested additional interconnections in the name of national security. The utilities, still privately owned, were no longer perceived as monopolistic parasites, but as patriotic and essential participants in the American economic system.

"Sometimes Things Work Out Right"

Report of an interview with Dennis Kessler, Vice-President of Fel-Pro Corporation. Conducted by Fay Sawyer, Editor

Let's imagine that you set your mind to the task of improving communication not only between engineers and managers but also between and among all employees: how would you go about it? The FelPro Corporation, one of the world's largest manufacturers of automotive and industrial gaskets, is a privately (family)-owned corporation with its headquarters in Skokie, Illinois. I had written to this company that I wanted information and/or articles related to problems of communication. I received a "by return mail" invitation from Mr. Kessler to come out for a visit, stating that he would like to speak his article rather than to write it. (I think too that he wanted me to see the operation at the plant in Skokie, which also "speaks!")

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Lederman acknowledged the practical benefits from scientific knowledge and then discussed problems brought by scientific advance, for example, the need to control hazardous wastes and nuclear weapons. He emphasized the challenge to scientists to increase public understanding of science in order to equip citizens

to respond to such problems.

The second event in the series, in February, 1987, featured two speakers comparing professions in respect to their approaches to ethical issues. Professor Carl Cohen of the Philosophy Department and Medical School of the University of Michigan spoke on "Doctors and Lawyers" and William Thomas, a lawyer and scientist formerly of the American Bar Foundation, spoke on "Engineers, Scientists, and Lawyers."

CSEP began its second decade last autumn with Vivian Weil as Acting Director and philosopher Michael Davis as the Center's newly appointed Senior Research Associate. In April, 1987, following a national search, Weil was named Director and Associate Professor of Ethics. Davis continues as Senior Research Associate.

"At the Center"

This company even went so far as to hire consultants (from Social Psychology) to help them develop detailed systems for making sure that every one of the employees really felt able and encouraged to think about work as an improvable organism and to bring the results of his/her thoughts to management. Consultants also offered advice on how best to make certain that suggestions did not turn into mere emotional ventilations with no effective results other than, at best, catharsis.

In summary: here was an example of an industry heavily oriented around engineering technology

and science, which made concrete and specific efforts to implement its noble principle of being a "family."

To mark its tenth anniversary, CSEP presented a series of public lectures. Support from The Crawford Foundation funded the series.

Cohen observed that lawyers are concerned with clients' rights, whereas physicians are concerned with patients' needs. Using that purported difference as a basis, Cohen drew implications for the contrasting ethical stance of lawyers and physicians. Thomas compared the intellectual approaches of engineers, scientists, and lawyers. He drew attention to problems which arise when these professionals have to cooperate, as when scientists or engineers serve as expert witnesses.

The third and final event in the series took place in April. Michael Heylin, Editor of Chemical & Engineering News, spoke on "Ideology, Technology, and Weapons." He discussed the input and role of scientific and technical professionals in decision-making related to defense policy. He was concerned with how these professionals do and might operate in what is often a highly politicized environment. Heylin emphasized the need for scientists to speak out so that their specialized knowledge can inform public debate about defense policy.

Leading off the series in November, 1986, Dr. Leon Lederman, Director of Fermilab, spoke on "Science: The Promise and the Threat." An internationally renowned high-

energy physicist, Lederman provided a historical perspective on the nature of the understanding sought by scientists.

A new project for CSEP this year was the ethics training session in February conducted for the cabinet of Chicago's Mayor, Harold Washington. Under contract with the Chicago Board of Ethics, Michael Davis, with assistance from Tom Calera of IIT's Stuart School of Business, interviewed half the Commissioners of the 42 departments to gather cases for discussion. He devised a framework for analysis of the cases based on the Mayor's Ethics Order. The workshop with cabinet members was directed by Davis, assisted by Calera and Weil. Follow-up programs are in preparation.

The academic year ended with a farewell party for CSEP's graduating student assistants, twins Patrick and Phillip McFarland. They have served CSEP with phenomenal effectiveness since they entered IIT as freshmen.

A seminar to identify ethical issues in investment banking began to meet early in 1987. Composed of a practitioner, two members of IIT's Stuart School of Business (Tom Calera and Roy Moor), Michael Davis, and Vivian Weil, the seminar is oriented to developing teaching materials.

The Seventh National Conference on Business Ethics will be held on October 15-16, 1987 at Bentley College in Waltham, MA and will offer presentations on the theme: "The Ethics of Organizational Transformation, Mergers, Takeovers, and Corporate

Restructuring." For more information, please contact: Robert E. Frederick, Assistant Director and Conference Chairperson, Center for Business Ethics, Bentley College, Waltham, MA 02254. Phone: (617J 891-3433.

Under a major grant from the John D. and Catherine T. MacArthur Foundation, CSEP is about to embark on a research and writing project on National Security, the First Amendment, and Scientific and Technical Information. This effort will involve researchers from a number of other institutions. The project will examine theoretical underpinnings of the First Amendment as well as existing and contemplated programs to control the flow of scientific and technical information.

CONFERENCES: The Fifth Biennial Student Pugwash USA International Conference will be held June 28 through July 4, 1987 at Stanford University. The theme of the Conference is "Choices For Our Generation: Ethics and Values at the Cutting Edge of Technology." For more information, please contact: Benjamin Austin, Conference Director, Student Pugwash, USA 505-B 2nd St., N.E., Washington, D.C. 20002. Phone: (202) 544-1784.

"Announcements"

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The 2nd International Congress on Ethics in Medicine will be held on June 9-12, 1987 in New York City.

The international forum will examine the biomedical dilemmas of modern times for physicians, nurses and other health care workers; philosophers and social scientists, business, religious and political leaders, and attorneys. For further information, please contact: The Raimondi Group, Ltd. Phone: (213J 772-8515.

CALLS FOR PAPERS: Philosophy in Context is seeking papers which will examine and illustrate the relationship between philosophic theory and practical applications: the ways in which philosophical problems arise in various contexts, and the ways in which proposed philosophical

solutions can be applied back to the contexts out of which they arose. For more information, please contact: Joseph De'Marco, Editor, Philosophy in Context, Department of Philosophy, Cleveland State University, East 24th Street and Euclid Avenue, Cleveland, Ohio 44115. Deadline: August 15, 1987.

The Annual Meeting of the Illinois Philosophical Association will be held November 13-14, 1987 at Illinois Wesleyan University, Bloomington, Illinois. Papers may be submitted (three copies) in any area of philosophy, metaphilosophy, the teaching of philosophy or practical applications of philosophy. For more information, please contact: Professor George Dickie, Program Chairperson, Department of Philosophy, University of Illinois-Chicago, Chicago, Illinois 60680. Deadline: June, 1987.

CALL FOR PAPERS & CONFERENCE: The Council on Employee Responsibilities & Rights (CERR) invites the participation of scholars and practitioners and seeks to provide a forum which will bridge some of the gaps between organizational concepts and practice in the area of employee and employer responsibilities and rights. The Annual National Conference will be held on October 15-16, 1987 at the Sheraton Hotel, in Virginia Beach, VA. For more information, please contact: CERR, PO. Box 61411, Virginia Beach, Virginia 23462.

WORKSHOP: A Workshop sponsored by the Center for Philosophy and Public Policy will be held at the Catholic University of America, Washington, D.C. on

June 24-26, 1987. The theme of the workshop is "Teaching Philosophy and Public Policy." The workshop is designed primarily for teachers interested in giving courses that apply philosophical methods and perspectives to vital public controversies. There is a registration fee in the amount of \$55.00. For more information, please contact: Kathleen Wiersema, Workshop Coordinator, Center for Philosophy and Public Policy, University of Maryland, College Park, Maryland 20742-7411. Phone: (310) 454-6604.

CALL FOR MANUSCRIPTS: Loyola University of Chicago and Loyola University Press announce a thematic series of books under the general title Values and Ethics. The orientation of the series is to the general theme of values and ethics, as they affect and cut across a wide range of disciplines: the humanities, history, mathematics, the natural sciences, the social sciences, philosophy, theology, law education, medicine, and the helping professions.

Prospective authors should submit a letter of inquiry and summary outline that indicates the manuscript's general area, specific topic or theme, contents, and length to the chairperson of the board. A short vita may also be enclosed. Mailing address: Dr. Gerald Gutek, Chairperson, Editorial Board of the University Press Series, Loyola University of Chicago, Graduate School, Lewis Towers 401, 820 N. Michigan Avenue, Chicago, IL 60611.

We Gratefully Acknowledge Support from the Following:

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