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A New Type of Labour-Management Contract Involving the Quality of Working Life[1]

Introduction

In the North American tradition of evolving theory from practice, this paper reports what may become a significant innovation in union-management relations. This pragmatically evolved development may be crucial to the evolution of new forms of union-management collaboration. Reported are the extremely rare events of union participation in the design of a new chemical plant organization and the evolution of a new form of union-management contract developed through collective bargaining and responding to the organizational philosophy that guided the design. This philosophy stated the key criteria to be incorporated into the organization design as

Employees are responsible and trustworthy.

Employees are capable of making proper decisions given the necessary training and information.

Groups of individuals can work together effectively as members of a team.

Advancement and growth to individuals' fullest potential and capability.

Compensation on the basis of demonstrated knowledge and skill.

Direct, open and meaningful communication among individuals.

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Information flow directed to those in position to most quickly act upon it.

"Whole jobs" to be designed to provide maximum individual involvement.

System that provides direct and immediate feedback in meaningful terms.

Maximum amount of self-regulation and discretion.

Artificial, traditional or functional barriers to be eliminated.

Work schedules that minimize time spent on shift.

Early identification of problems and collaboration on solutions.

Errors reviewed from "what we can learn" point of view.

Status differentials to be minimized.

During the past few years, suspicion and distrust have surrounded the issue of union-management collaboration in the development of work environments and conditions that could provide a rewarding relationship between work and the needs, expectations and goals of those who do the work. Both unions and management were, and largely are, immobilized by the uncertainties of departing from the 200 year old tradition of

- instrumentalism, i.e., work as an instrument to support the goals of satisfying personal needs of individuals outside the workplace;
- the external behavior control of workers to achieve the goals of the organization or of its managers.

This immobility characterizes all western societies at this stage in their evolution. It has led to partially appropriate responses that are either political (mitbestimmung, or union representation on boards of companies in western Europe) or economic (Scanlon Plans, earned time bonuses,

etc., in the United States) (Davis, 1979). In deep and meaningful ways, such responses to the new realities of demands to enhance the quality of working life (Yankelovitch, 1979) can be seen as either an avoidance of the need to develop a new relationship between union and management that is responsive to the evolving new demands in the work place, or as a recasting of the expressed needs and expectations into conventional responses of more money, fewer hours, etc. All this is taking place in the face of deep changes in Western societies surrounding the meaning and purpose of work and the relation between society's members and the work of society. Such challenges signal the transition of modern societies from the historical period of the last 200 years, the industrial era, to an evolving post-industrial era.

The attempts of a future-oriented union and a future-oriented management to develop a new relationship between worker and work confronted them with the need to evolve a new and more appropriate relationship pushing beyond the terms of historical union-management relations. Both the union--Oil, Chemical and Atomic Workers International Union (OCAWIU)--and the management--Shell Canada, Ltd. (Shell)--came to perceive the formal collective agreement as an instrument that would support or hinder the evolution of new workplace relationships, i.e., as a part of the "social support system." The collective agreement that emerged from the process of free and open collective bargaining was informed by the shared perception that the contract, as an enabling instrument, would become the central social system support instrument or general constitution supporting the evolution of specific adaptive and collaborative practices.

The recent joint design in Canada of a complex chemical plant for the manufacture of polypropylene and isopropyl alcohol and its organization, followed later by the

bargained labor-management contract, serve as a crucial learning opportunity. This design is a triple first: the first joint technical and social design of a highly complex continuous, automated process plant and its interrelated social system or organization; the first joint design undertaken with participation of both union and management; and the first labor-management contract bargained in response to an organization (and job) design which is an alternative to bureaucracy (Davis, 1977). As with other firsts crucial to the evolving post-industrial era, such as the engineering design in Volvo's auto assembly plant at Kalmar, Sweden (Gyllenhammer, 1977), this development will have to be considered in all future union-management relationships based on other than adversarial relationships.

To aid our learning from this signal development, we need to explore the background to the organization design of this new plant, the specifics of the design and the content of the labor-management contract. A detailed report of the design has been published (Halpern, 1985).

Background to the Design

The background to the design starts in the early 1970s when the manufacturing division of Shell began studies of its own way of managing its workers and utilizing their capabilities. Substantial recommendations were made, some of which were implemented and many of which seemed to be waiting for 1975 when the design of the polypropylene-isopropyl alcohol plant was to begin. The recommendations of the earlier studies pointed to the need to enhance the quality of working life of refinery and chemical plant workers. Such workers, with good pay and working conditions, were found to be seeking greater control over the decisions

affecting their lives in the workplace and were inhibited from fully utilizing the considerable skills and experience they had acquired. The usual roles of a traditionally operated organization, enlightened though it may be, imposed needless restrictions on workers. Typical of their comments were

> I operate a five (or 10) million dollar machine but have to obtain approval from the foreman for an overtime meal when I am asked to stay at work beyond my usual departure time.

> I have to wait for the foreman to arrive to sign off on a maintenance request. All he does is add his signature to the form after he asks me if the work is needed.

The primary concern of Shell management and a major concern of OCAWIU were the physiological and psychological problems associated with shift work.

In the early 1970s, the issues of remuneration, security, control over workplace decisions, shift work, development of self and participation in governance of one's work life, taken together, came to be called the quality of working life (QWL). By the time the design began, the participants were well aware of this concept and that it could be strongly affected by organization and job designs.

Design Process

When the design of the polypropylene-isopropyl alcohol plant was to begin in 1975, the manager, who had undertaken earlier studies, was asked to become the internal advisor

for the purpose of organization design. In this way the issues of QWL were brought into the design process. Sensitivity to QWL issues led senior managers to appoint a concerned and knowledgeable operating manager or superintendent for the future plant. In the tradition of the company, this manager would also have the responsibility for designing the organization, coordinating the engineering and bringing the plant into production. Prior to the appointment of the Design Team, the internal advisor helped prepare the operations manager by reviewing the company's own past studies and examining innovations recently introduced by other companies in the industry. The new operations manager or superintendent was given the sanction to undertake the design of the new organization without regard to the prevalent bureaucratic/scientific management structures and job designs. He had the freedom to recommend viable alternatives developed by the Design Team suitable to the requirements of the new plant and the new work force.

The appointment of the external consultant led to the introduction of the socio-technical systems design approach and to the formation of a Design Team and a Steering Committee consisting of senior executives from all relevant segments of the corporation. The Design Team's membership changed over time as it proceeded to design different levels and parts of the organization. By the end of the process it consisted entirely of local managers and union leaders, while, at the start, it had as members the internal and external advisors, the superintendent, the assistant superintendent, various experts, the superintendent of the related refinery, the managers of the overall manufacturing site, employee relations and corporate industrial relations and, somewhat later, the local and regional leaders of the OCAWIU. Labor-management relations had been and continue to be very good.

The technology and technical system chosen called for continuous processing using various vessels, reactors and remote control of chemical reactions that could be physically dangerous if not properly done. Equipment and instrumentation costs required a massive capital investment amounting to approximately two million dollarsper employee. The characteristics of the technology, size of investment and the small number of employees (150) led to the recognition that economic success would depend on the willingness and dedication of these employees. The recognition that higher levels of technology, frequently accompanied by very large capital expenditures, increase the dependence of organizations on their workers, rather than the opposite as predicted by engineers, was crucial to the design process. This awareness, plus a prior history of examining and searching for work relationships that would reflect the high level of responsibilities placed on workers, led to dissatisfaction with the bureaucratic-scientific management structures prevalent throughout the industry.

The design process began without the union. The Design Team understood very well the increased dependence on workers caused by advanced technology and was conscious of the need to consider the impact of the new plant on the adjacent existing refinery. The initial process centered on examining what constraints had to be accepted by the initial Design Team and on exploring answers to the question: "What kind of society are we going to build in the new plant?" These explorations of social and organizational values led to the formulation of a general charter, or organizational philosophy, that served as a guide to design and subsequent operation of the plant. The organization philosophy strongly emphasized cooperation, participation, self-regulation, autonomy, variety and careers as essential features of the future plant society. Security was not specifically mentioned.

Union-Management Joint Design Process

There was considerable discussion regarding union jurisdiction. Some people expected that the refinery union would have jurisdiction over the new plant when completed; others thought the union would not. Some said this did not matter since it was management's prerogative to design and organize work. Others were concerned with the negative consequences of placing a completed design before the union as a fait accompli. The consultant to the Design Team questioned whether excluding the union was contrary to the organization philosophy and to the congruency principle of socio-technical systems design, which calls for design methods to be congruent with the features of the organization (Cherns, 1976). All came to see that success of the future operation of this costly, leading-edge technology plant was in various ways bound up with participation by the union.

Finally, following considerable examination, the Design Team recognized that the union would represent the future members of the plant and invited it to join as a partner in developing the design of organization, jobs, rewards, training and controls. Such participation of the union as a basis for successful operation is contrary to conventional wisdom about advanced technology, large corporations and engineering and management processes.

The union accepted with two stipulations:

- that it be a full partner in the design process; and
- that it maintain a high profile.

These conditions were quickly accepted. The participation of the union representatives provided the means for capturing and utilizing organizational learning at the shop floor level. Initial concerns were soon forgotten as the high quality of union contribution

unfolded, and managers congratulated themselves on their statesmanship.

Later, the external consultant had an opportunity to interview the Canadian national director of the union. He was asked to indicate why he supported his union's participation in the design process in the face of the history, in North America, of rejection by many unions of QWL activities. His reply is very instructive. He said,

> We would be poor union leaders indeed if we did not utilize the opportunity given us by management to participate in providing for satisfaction of quality of working life needs for workers. If you think that only managers have problems with our members as their workers, then you are unaware that we have many similar problems with our members, particularly younger members. We must grasp each opportunity that becomes available to learn how to find the means of responding to quality of working life issues raised by our members if we are to be a strong viable union.

What was the role of the union in the design process? What was their contribution to the design? Would the design have been the same without them? How were they beneficial to future union members who would be joining the new organization? These questions are difficult to answer because of the relationship that evolved. Quickly managers accepted the union leaders as equals and vice versa. Each contributed as an individual whose membership on the Design Team was highly valued. The team called on its members as experts on the basis of their reputations, knowledge and experience. Many proposals were generated through synergistic interaction among team members, whether union or management. Proposals for features of organization and jobs were examined by both union and management for secondary and unintended effects on members at all levels. The union representatives' greatest

contributions seemed to be centered on proposals regarding the knowledge and skill modules for advancement, maintenance, working hours, shift teams and their rotation. Additionally, the union representatives helped develop the team coordinator role, shop steward role and the Good Work Practices Handbook.

Design Process and Outcomes

Before proceeding with the outcomes of the design process, i.e., the organization and job designs, we need to examine the QWL background conditions in North America influencing labor-management cooperation. In 1975 there was great concern, uncertainty and mistrust regarding QWL. Most union leaders, while acknowledging that life in the workplace needed improving, saw attempts to improve the quality of working life as dominated by management initiatives undertaken for productivity improvement purposes. They felt they were excluded from domains of concern which had traditionally been theirs. Further, QWL developments tended strongly to emphasize direct participation of workers without considering the effects on the representative role laboriously earned by unions. The consequence was either outright rejection of QWL undertakings by most unions or conflict with management over so many specifics as to inhibit the start of undertakings.

The design process proceeded to analyze the central character of the technology with which the prospective social system would have to interact. This analysis, conducted with the aid of technologists, examined the proposed and existing manufacturing process, finding that, although continuous and automated, it operated with a substantial number of uncontrolled variables. For a variety of reasons, the newest similar plants exhibited a very low level of

utilization. In response to these findings, the Design Team opted for organizational forms that would maximize learning and improve response time in dealing with disturbances as they arose. The more that members of the organization could learn to control variables, the greater would be their ability to regulate the process and to increase plant utilization, thus enhancing economic success. Each percentage increase in utilization would yield large economic returns. The computer is off-line, i.e., the computer is not in the control loop for a number of variables. This requires operators to make control decisions, which facilitates learning. The necessary computer programs were designed so that operators could use the computer in the mode of evolutionary operations. In terms of what was known about relevant variables, the closed loops programmed into the computer actually are the maximum from an optimizing point of view, as contrasted with a controlling point of view. The computer answers queries put to it by the operating personnel regarding the short run effect of variables at various control levels, but decisions are made by the operators. Operating personnel are provided with technical calculations and economic data, conventionally only available to technical staff, that support learning and self-regulation. In this manner, operator learning is enhanced. By thus utilizing the experience of operators, computer programs can be updated to further enhance learning and so on interactively.

The choice of a learning organization model affected the structure of the organization, jobs, rewards, etc. It supported the structural decision to treat the entire plant as one organizational unit without any internal boundaries so that wider system learning would take place. It influenced the decision not to create specific jobs or positions with fixed boundaries and job descriptions. The choice made was to have the work to be done belong to a team as a whole. The team could assign, daily if necessary, the needed tasks to its members on the basis of

both their skills and competence and the physical allocation of the operating units. The needs for organizational learning were seen to be best supported by unrestricted individual learning, and thus a system of open progression was designed with pay or rewards based on acquisition of knowledge and skills.

The organization structure was most strongly influenced by application of the concept of the organization as consisting of self-maintaining (socio-technical) organizational units supported by the requirements for learning. Two sets of criteria were applied:

- The location of the boundaries of organizational units so that organization members have identifiable outcomes, control inputs, possess the requisite response capabilities in numbers, skills, competences and information.
- The socio-technical criterion (Cherns, 1976) that the identification of response to and access to the source of a disturbance, interruption or variance are within the same boundary.

Additionally, the structure was influenced by simultaneously considering it to be a minisociety and a transforming (work performing) agency. The minisociety consideration brought into focus functions such a problem solving, coordination, social system maintenance, conflict resolution, individual advancement, equity, workplace justice, shift work, etc.

The design selected treated the entire plant and its processes as one organizational unit. One team of 18 people plus a team coordinator operates the entire process including laboratory, shipping, warehousing and many aspects of maintenance on each shift. The teams needed for 24 hour, 365 day operation would be supported by some planners, engineers and managers as well as a team of 14 maintenance craftsmen-instructors and two laboratory

specialists on days. The organization design was further influenced by societal issues stemming from strong negative pressures about shift work. The Design Team sought to minimize shift work and to share equally the positive and negative aspects of working life. The design provides for six shift teams. Each team rotates and controls, in turn, all the work activities of the plant. Based on the 37.5 hours a week schedule of the plant, 4.5 shifts are required for continuous around-the-clock operation. The design selected calls for 1.5 shift teams, on average, to join on days with the following groups: 14 maintenance craftsmen-instructors, 2 laboratory specialists and 2 warehousemen-schedulers. The shift team joins with the maintenance craftsmen to become the maintenance work force while obtaining cross-skill training in maintenance crafts. In this manner, a maintenance response capability becomes available on all shifts for emergency situations, with a concentration of maintenance capability during days. The six shift team arrangement provides for the members of all shift teams to spend approximately 53 percent of their work time on days. Should a future experiment with the 12-hour day work out, 72 percent of each member's work time would be spent on days as compared with 33 percent in a conventional shift arrangement.

Not unexpectedly, the organization structure is flat, having three levels--the shift teams and their coordinators, operations managers and plant superintendent. The day foreman level present in conventional refineries and chemical plants is omitted since these people are now staff technical advisors. Within the teams the structure is deliberately amorphous, permitting the team to assign tasks to its members as required. Additionally, for organizational continuity, various leadership functions, including planning and coordination, have been assigned to the team members. Team members have received training to perform a variety of social system

maintenance functions including problem solving, confrontation, conflict resolution, norm setting, etc. Each team has a shop steward who is one of its members. This is particularly useful since very few rules exist and the labor-management contract language is permissive, leaving to team members the determination of their day-to-day working lives. A Good Work Practice Handbook (GWPH) was developed, with union input, which serves as an administrative guide governing specific job-related activities such as overtime meals. What is frequently described in labor-management contracts, making them rigid and subject to legal quibbling concerning work related activities, is now in the GWPH. The collective agreement thus remains as the enabling document it was originally intended to be. The team coordinator, staying with the team as it rotates through the shifts, serves as the intershift team link and the link with management. The coordinator's major functions are to provide boundary protection for the team, acting as a mediator or buffer between them and demands from the environment; to provide technical expertise and training on the processes; and to serve as the management representative on the shifts, sometimes being the only such representative present. In addition to the shop stewards, the union structure has a five-person executive committee including the union officers in the plant.

Members of the teams do not have specific job titles or assignments but rather grade levels or competence levels based on the knowledge and skill attained. Advancement depends on qualifying examinations and performance tests covering specific groups of knowledge and skill modules. This arrangement supports open progression and satisfaction of individual differences through the many career paths available. Each team member must acquire all the process or operations knowledge and skill modules, which are present at every wage grade

level. Beyond this there are choices available for individuals to combine knowledge and skill modules from six specialty areas with operations modules to make up each individual wage grade level. The specialty area skills include maintenance crafts, quality laboratory testing, warehousing and production scheduling.

The various combinations provide six career paths among which an individual can choose. The specifics of the paths chosen depend on joint organization needs and individual desires. The interests of the plant and of the individual member come together in the provision and support of training that is always available, reinforced by the system of wage payment and reward. The more groups of knowledge and skill modules learned, the higher the wage level. Each member may move at his or her own pace right to the top level. While there is an expectation that everyone would attempt to reach the top level that they are capable of achieving, time limits are not imposed for doing so. No one is forced to move, and failure to learn and advance cannot impede anyone else's progress. These norms were developed by team members at the start of plant operation.

Collective Agreement

As the organization design was completed (some specifics were added later), recruiting, selection and training were designed. At this time the union representatives took on dual roles, continuing their work on the Design Team and engaging in the collective bargaining process of a labor-management contract for the new plant. Participating in the bargaining for management were the manager of the manufacturing center, the chemical plant superintendent and the employee relations manager. The union negotiating committee was composed of the

local and regional officials who were serving on the Design Team, joined by five of the craftsmen-instructors who had been transferred from the refinery to the chemical plant to form the maintenance team.

After hard bargaining, a first-of-its-kind labor-management contract was developed. As indicated earlier, this contract is unique in that it is the first labor-management agreement developed in consonance with the design of a postbureaucratic organization giving specific emphasis to achieving high quality of working life for its members. Both union and management representatives at the bargaining table understood the basic nature of the new organization, with its emphasis on self-maintenance, learning and participation, its flexible work assignments and its evolutionary structure based on specifying only what is critical to organizational functioning, i.e., minimal critical specifications (Herbst, 1974/Vol. II, "Designing With Minimal Critical Specifications"; Cherns, 1976). They understood that the design was, in effect, a skeleton structure that would be further evolved from subsequent experience. This learning was the opposite of their prior experiences in bureaucratic organizations, where all aspects of structure and relationships were completely specified. They agreed that the survival of the organization and enhancement of the quality of working life for its members would come from the detailed structures and practices that would be evolved by those in the organization, from the participation of members in solving the problems of the organization and from the feedback and utilization of organizational and individual learning.

Both union and management appeared to conclude that protecting and developing the organizational form would best discharge their responsibilities and advance the satisfaction of their own needs and the needs of those they represented. Their shared understandings led to

agreement that flexibility and support should be the central features of the labor-management contract. The contract emphasizes and reflects flexibility and is itself an evolutionary document providing enabling conditions consonant with the organization design. It was as if the principle of minimal critical specification had been applied by the negotiators. Both sides made some signal concessions in support of developing the collective agreement. Management did not insist on the customary management rights clause in the contract, accepting general rights stated in law. At the same time it accepted mandatory deduction of union dues as necessary for continuity of the union. The union for its part did not require a seniority clause, except for layoff, since open progression was one of the central features of the organization. With provision of continual training and objective qualification examinations, each worker has an equal opportunity to advance to the highest level that the individual's aspiration, capacities and energy allow. Under these conditions, the union saw no need for the usual seniority clause.

An examination of the agreement indicates how flexibility and support were translated into contract language. The agreement--unconventionally--begins with a unique foreword that sets the tone for what follows. The complete text of the foreword is as follows:

> The purpose of the agreement which follows is to establish an enabling framework within which an organizational system can be developed and sustained that will ensure an efficient and competitive world-scale chemical plant operation and provide meaningful work and job satisfaction for employees. Recognizing that there are risks involved and that there are many factors which can place restraints on the extent to which changes can occur, both management and union support and encourage policies and practices that will reflect their commitment to the following principles and values:

> Employees are responsible and trustworthy, capable of working together effectively and making proper decisions related to their spheres of responsibilities and work arrangements--if given the necessary authorities, information and training.
>
> Employees should be permitted to contribute and grow to their fullest capability and potential without constraints of artificial barriers, with compensation based on their demonstrated knowledge and skills rather than on tasks being performed at any specific time.
>
> To achieve the most effective overall results, it is deemed necessary that a climate exists which will encourage initiative, experimentation, and generation of new ideas, supported by an open and meaningful two-way communication system.

Ten brief sections follow which cover the main issues:

(1) *Recognition*: recognizes the union as the sole bargaining agency.

(2) *Plant Committee*: states the union's right to have a plant committee for negotiation or otherwise and to have a shop steward on every team.

(3) *Grievances:* states only that "there shall be developed and maintained a system to ensure the prompt and equitable resolution of problems at the Plant."

(4) *Hours of work and rates of pay*: states that the basic work week is 37 1/3 hours; that workers are paid on salary, gives the salary levels and describes schedules, shifts and how they may be altered; overtime pay and shift bonus.

(5) *Deduction of union dues*: company deducts monthly dues for the union.

(6) *Seniority*: states that seniority applies only to layoff and defines seniority and conditions of recall.

(7) *Vacations:* the vacation entitlements by years of service are given.

(8) *Statutory holidays*: the ten holidays are described, as are statutory holiday pay conditions.

(9) *Safety and health*: "the union, in consultation with team representatives, may appoint two representatives on the Safety Committee." Meetings of this committee have been called for purposes of safety or to investigate accidents involved in injury to employees.

(10) *Termination of agreement*: gives dates of the term of the agreement and time required for notice of termination or revision.

The contract has not been too kindly received by various leaders of other unions in the region. It has become the subject of widespread discussion as a forerunner of the type of relations that can be developed in support of new forms of organization and QWL.

Social System Support

The first year of the collective agreement was taken up largely by training of new employees, team formation, equipment testing and some plant commissioning. Actual operation of plant by work teams looks as if it will begin during the second year of the collective agreement. Late in the first year when all workers were on site, the stresses of having no rules or norms and no specific contract language led to some extended developmental meetings between the union executive committee and plant management. Out of these meetings evolved a collaborative social system support mechanism to deal with grievances as called for in Section 3 of the collective agreement. A Team Norm Review Board was established composed of six employee representatives, one from each team and one from the maintenance group, three management representatives and the union vice-president. Consensus is required in reaching Board recommendations and in introducing new norms. The Board audits team norms. It cannot discipline. In the event that a team member's problem is not resolved at team level, i.e., face-to-face with the team coordinator and shop steward, the member may appeal to the Board to adjudicate the issue. To date, the Board has been an effective vehicle for problem solving and

for developing guidelines at shop floor level.

Later in the first year, a Joint Information Committee was established to aid with the very considerable task of communicating and sharing information among teams that operate around the clock every day of the year. This Committee is composed of one team coordinator and one team member from each team, making 14 members. It should also prove to be an important part of the social system support mechanism by which the organization maintains itself.

The union's view of developments that took place during the first year of the collective agreement is revealed in part of an article written for publication by the National Director of the union. Reimer states,

> Our program with Shell Canada, Ltd., at the Sarnia Chemical Plant has received much notice. Programs of this nature and others of course require continuing attention. However, one can already observe that in this "open society" operation, where people speak up more frequently, there is less fear in the plant and indeed higher attendance at Union meetings. The nature of the operation tends to keep the people more informed and the meetings where decisions are made affecting their welfare have a higher priority. I understand there is very little absenteeism and the quality of training and the versatility in the plant are concrete attainments. The more the worker is trained, the higher is his income and management can put him to better use. Our Collective Agreement has a statement of purpose and is about five short pages in length. We expect that nothing will be written into the Agreement arbitrarily and that if anything is added, it will have stood the test of time. It is interesting to note that in this Agreement, management does not

incorporate the traditional Management's Rights clause (1979).

The first year under the collective agreement came to an end and negotiations for renewal were completed. Management and union agreed that, with the exception of changes in salaries, the contract finally signed would remain the same as the collective agreement described above.

Conclusion

The design process and the resulting design, as well as the collective agreement, for this nonbureaucratic chemical plant indicate that there is another path available better suited to the post-industrial era. This path is marked by a cooperative process and by the objective of a high quality of working life for all members of the organization. Once again we see a demonstration of the powerful outcomes of substantive collaboration as compared with confrontation in union-management relations. It may be that only by such collaboration will a high quality of working life be truly provided for the members of organizations.

The collective agreement informs us that the "contract as an enabling document" is essential to evolutionary design and thus to a postbureaucratic form of organization. Counterintuitively, we are instructed that high technology increases dependence on workers for economically successful operation. Increased reliance on workers further emphasizes the obligation during design to examine the needs, aspiration and goals of members, i.e., their quality of working life. The joint union-management process more easily satisfies this examination and the development of useful responses. It also demonstrates that shared responsibility for the

development of a new organization evolves through union-management collaboration.

We may well close by examining a duality of questions. First, would this innovative collective agreement have been developed without the prior experience of the joint union-management design process? Second, would the new form of organization have survived without the collective agreement as an evolutionary and enabling document?

The answers to these questions are inferential. The long period of working together, the trust developed, the shared experiences, the agreement on organizational philosophy and the early exposure to socio-technical systems concepts and QWL concepts had their effects. Undoubtedly, union and management had developed a substantial set of shared understandings that serve as a basis for considering their individual and joint needs as well as those specific to this new form of organization. At this period in the life of the new organization, given both the fragility of any new social system and the open evolutionary form of the design, it would appear doubtful that this new form of organization can survive for very long without the collective agreement as an enabling and supporting instrument. It was planned to do a follow-up review after operations stabilized.[2]

Arrested Development[3]

Louis Davis

[2]In 1989, this operational review was undertaken at the plant to explore predicted performance.

[3]A requested update, 1989.

A unique labor-management contract was negotiated in 1978 at the opening of a new chemical plant designed on the basis of socio-technical systems concepts (Davis, 1982). It was the first such contract in the chemical industry. In addition to the usual purposes of formalizing relationships and protecting the interests of labor and management, the parties saw, and constructed, the contract as an "enabling instrument." In support of this purpose, the contract is a skeletal document enacting the socio-technical systems design principle of "minimal critical specification" (Herbst, 1974/Vol. II, "Designing With Minimal Critical Specifications"), i.e., specifying only that which is crucial to the functioning of the organization at the outset and leaving the remainder to be jointly evolved.

This recently conducted review found some unexpected developments. To understand these we need to take into account that the plant is both a production organization in its own right and a branch of a larger company. Most of the requirements and demands to which the plant's members must respond originate, primarily or secondarily, in the higher levels of the company. The structure of the organization and the roles of its members have developed in consequence, given the freedom allowed by the contract.

Management and union staked the future of the plant and of their relationships on an organization design supported by their unique labor-management contract. The central features of the contract were, and continue to be, first, minimum restrictions on union-management collaboration and participation from all levels of the organization in decision making. Such collaboration and participation allows the organization design to evolve based on shared learning. Second, the norms or guide coordinator lines for discipline, safety, advancement, training, etc., which determine what life is like in the daily functioning of the

organization, are developed jointly. The start-up design provided the structure for collaboration to keep evolution going, capture experience, maintain flexibility, develop "norms," provide the means for justice in the workplace and develop ownership of the design. Last, participation at all levels on all issues of organizational functioning and individual needs was the basis for developing the most effective union-management relationships.

With a contract emphasizing and depending on collaboration and participation, two tests can be used to evaluate its effectiveness. First, is there an increase in the degree of collaboration/participation on the part of all members at all levels in planning, problem-solving, norm setting, justice, etc.? Second, is the continuing design of the organization structure and roles of members taking place through collaboration and participation? If so, then the original intent of the signatories have been achieved.

However, such relatively simple tests do not fit the complex relationships of an organization. This is particularly so where participation occurs at the governance level through plantwide standing committees and at the operational level through semiautonomous work teams. Beginning with the view of the contract as an "enabling" instrument to support the operationa1 philosophy, i.e., charter or constitution, of the new organization and to support the interest of the parties, there are other criteria for judging the contract's effectiveness. Among these are

- Providing flexibility, i.e., ease of making agreed to changes.
- Supporting further evolution of the organization structure and its roles.
- Maintaining the organization's operating philosophy.
- Enhancing the careers and rewards of members.

- Enhancing relationships between workers and superiors and between union and management.
- Providing just and equitable treatment of all members.
- Enhancing bottom-line performance.

The outcome of this operational review is reported in terms of plant performance and of internal development of the organization and the roles of its members. The plant's performance has met and exceeded the goals set for the mature state of operation as initially designed. Ten years after start-up of full operations, the plant is operating at approximately 200 percent rated capacity, producing at outstanding quality levels. Its product is cost-competitive in the world market. The number of employees has remained unchanged since the end of the start-up phase. During the start-up period, there were additional temporary technical experts, on leave from other plants, serving as facilitators to provide technical training and troubleshooting. All the facilitators left, returning to their organizations, during the second and third years of operation. Approximately one half of the current employees were not present at start-up. The largest turnover took place at the end of the second year. The overwhelming majority of team members have advanced to the highest pay level through acquisition of the knowledge and skills called for in the "learn more" wage system.

Having reviewed the impact of the labor-management contract on the performance of the plant's external goals, let us turn to the internal functioning of the plant, i.e., its management, structure, roles, governance, union-management relations, etc. As stated above, the intent behind the original organization design was to put in place the minimum necessary structure and to leave the completion of the design to subsequent collaboration. How well and to

what extent the organization structure and internal relations have evolved collaboratively are then also tests of effectiveness.

There was, however, an early departure from the participative mode. In 1981, the second year after full operational start-up, each of the six operating teams of 20 people was assigned an additional "team coordinator," also referred to as "team leader," to provide more technical training. Until very recently, then, each team had two coordinators (leaders). With the removal of the second team leader in mid-1989, the number of members on each team returned to that called for in the original design.

From a collaboration/participation point of view, the addition of the second team leader was seen by team members as unilaterally imposed by plant management, as was the tradition elsewhere in the factory. Although helpful early on, the second team coordinator was seen later as an impediment to participative decision making and to development of self-regulating work teams.

Labor-Management Contract

During the 11-year period of plant operation, there have been very few changes in the contract other than wage rates. Two years after start-up, severance language was added. Nine years later, in the present contract,

- a recognition clause was added;
- the Philosophy Statement was moved from the Foreword into the main body of the contract; and
- joint consultation was specified as the means of decision making.

The Good Practices Handbook continues as the only central documentation specifying guides and behavioral norms. The handbook continues to be changed and has more norms, regulations and guidelines, including advancement, overtime equalization, discipline, role descriptions, etc. Some of these are seen to be out of date and unnecessary.

Learning and Advancement

The employee advancement program, based on pay for knowledge and skill that the team members are certified to have obtained, has performed very well. In 1989, the eleventh year of operation, approximately 90 percent of employees are at the top level of skill and wages. The advancement plan's requirements and operation are guided by the Training Advisory Board, one of the participative plantwide standing committees. The progression plan began on the first day of full operation, which followed six months of basic skill training for all. Two years later process skills were separated from other skills and reduced in complexity, making it easier to advance but resulting in reduced flexibility of team members. There are pressures to extend the career ladder by adding some technical work now done by technical staff. Union and management are uncertain over the future direction of further organizational evolution. The result is inaction at the Joint Union-Management Committee. The maintenance crafts team--the only function-based group--was, and is, outside the advancement plan and has been demanding equitable treatment. There are indications that evolutionary design is not taking place.

Shift Teams as Self-Regulating Units and their Members.

As originally designed, one team operates the entire plant on each shift as part of 24-hour, seven-day continuous running. One exception is the maintenance/craftsman/instructor team, which works on days only. On a rotating schedule each operational team joins the maintenance team for instruction and repair work.

Members see the team structure as a prized feature of the organization, even though they are not themselves intensely engaged in team governance activities. Except for participation in their teams, a majority see the plant as quite traditional in operation. Teams meet every two months for four to eight hours to review issues and problems. Small groups within teams meet as needed. Team members decide whether they wish to bring personal problems to the team or to the team coordinator. Day-to-day problems can be dealt with by anyone and reported through a new "event handling" procedure. The team coordinator handles minor infractions before they become disciplinary issues. The teams deal with disciplinary issues, forwarding up those they cannot resolve. Teams get involved in what are seen to be "big" or "hot" issues. Day-to-day issues are forwarded to standing committees, who poll team members rather than receive teams' recommendations as originally planned. The original organization design which called for one team to operate the entire two-product plant was abandoned. Now each team has two groups, one for each product, whose members work together only when they rotate into the warehouse. However, all are still informed, sharing knowledge because there is one control room.

Team members are reasonably competent to participate in team self-regulation and in committee activities, which are part of their larger roles. Nonetheless, since the start-up training given 12 years ago, there has been no follow-up or refresher training for team members

in social system skills such as team membership, conflict resolution, interpersonal dynamics, etc. Neither have team-building exercises been provided to assist in the development of more robust teams. Recently, plant management has rediscovered socio-technical systems and is beginning some team coordinator training and giving more control to the teams.

Union-Management Relations

The union plays a role in governance of the plant at many levels. The organization design called for six work teams, one maintenance team, technical and administrative staff and five plantwide standing committees. The standing committees are the Overtime Equalization Board; Team Norms Review Board; Training Advisory Board; Joint Health and Safety Board; and Joint Union-Management Committee. The first four are advisory to the Joint Union-Management Committee whose approval is required for implementation of recommendations. The union is represented on each of the boards and standing committees. With the exception of the Joint Union-Management Committee, they are largely inactive or meet pro-forma. In addition, each team has a shop steward member. The shop stewards have been very passive, failing to exert any leadership of their teams and have acted in traditional ways on disciplinary matters. The plant's union leaders have attempted to stimulate the stewards without success. Training for this role has not been provided.

Grievances, one of the major areas of conflict between unions and managements, are of minor consequence here. There has not been an arbitration in the 11-year history of the plant. Most issues are handled at team level.

During the last five years, the union has acted as the champion of the philosophy

which undergirds the structure of the organization and its mode of operation. During the most recent contract negotiation, the union was prepared to strike to support its demand to have the Philosophy Statement included in the main body of the contract. Management agreed to the inclusion.

Looking to the future, the union is concerned that about half the work force see the "system" as traditional except for high participation taking place in self-regulation of teams. With only one third of people active in various committees and many saying that they have not gained anything special from the system, plus minimal stimulation of, and training in, self-regulating team operation, there may be growing apathy toward participation.

Management sees the union's concerns as too narrowly focused on its members. Excluded from consideration by both union and management are staff personnel. The union's relations with management have become active in the attempt to clarify the role of union officers. Union-management relations are seen as good and as close despite the fact that they have not led to further organizational evolution as intended. Missing is close and meaningful interaction both with teams as miniorganizations and with employees as team members. The more's the pity since the organizational structure was designed to function in this manner. Management's interaction with individual employees takes us back to the previous Tayloristic form of organization.

Conclusion

The labor-management contract has proven to be a leading instrument in enabling collaboration and participation. However, while enabling--in contrast to hindering or

restricting--it is inadequate by itself for it does not, perhaps cannot, specify commitments to further evolution of the organization and roles of its members. Additionally, even with a contract that supports and stimulates collaboration, there is the long-standing North American history of union-management relations with its belief system concerning the roles and positions taken by the parties--that managements have rights and are proactive, while unions are parochial and reactive, hobbling development. So while collaboration and participation are quite high at the Union-Management Committee level, this is insufficient for stimulating change and evolution without an appropriate shared worldview suitable to the conditions of the 1990s. And, most importantly, management is not providing needed leadership.

Overall, the structure of the organization, roles of its members and union-management relations have not evolved beyond what was essentially present at start-up 11 years ago; in fact, there has been some slight regression. The organization remains in a state of arrested development as reflected in the inactivity of the standing committees, in the substantial amount of unilateral decision making and in the relatively rare meetings of the work teams to solve problems, plan and deal with their self-regulation and the governance of the plant.

The most likely explanation for this state of affairs, seen elsewhere, is the failure of senior managers to acquire and transmit the necessary understanding of the underlying conceptual bases and paradigms on which the plant's organization is structured. This necessary understanding, while only a requirement in traditional organizations, becomes crucial where organizational concepts are so different from those of the conventional bureaucratic/scientific management with which managers are familiar. Socio-technical systems concepts, on which this organization is based, confront managers with a discontinuity in beliefs and practices rather than

gradual change. This requires that senior managers invest energy and time to learn and understand the new concepts and to pass on the concepts to their successors. Such understanding is essential for giving appropriate sanction and continuing support for a new form of organization and style of management.

Without in-depth understanding, only token support for further evolution is likely to be provided by top management. When, as in this case, the new form of organization achieves outstanding bottom-line performance, the lack of adequate grounding on the part of senior management easily leads to the "black box" approach: "We have this successful organization, we do not understand why (i.e., what is happening inside the black box?). Therefore we had best keep everything as it is to assure continuation of the desirable results. That we might achieve better outcomes by further evolving based on learning from experience is only a prediction."

Finally, the system of developing managers in the company also contributes to the low level of organizational evolution. These practices exist in all parts of the company and were in use prior to the opening of the new plant. They become part of the plant's practices.

The careers of managers require rotation and transfer. Each young manager must go through all the positions, transferring to a succession of plants where they are made available. Thus, in the plant under review, new managers are sent into the plant each on his or her four-year cycle. They have <u>not</u> been selected for compatibility with, or capacity for, this self-regulating organization, nor have they been prepared through training for a role with such different requirements. Upon arrival they try to learn, from colleagues and subordinates, the basic elements of the (socio-technical) system and what is required of them. In the meantime, they continue to operate and make decisions in the traditional mode. By the time they learn enough,

through self-instruction, they move on to the next posting. If a manager fails to move to a new posting every four years, then it is musical chairs for him or her, dropping off the career ladder. Future progress is stymied. "If I am to progress, I must leave the plant neat and tidy and not messy with organizational change."

Summary

The new and still unusual labor-management contract satisfied the expectations of the parties. It permitted and supported a team-based form or organization based on the principle of team self-regulation through participation. The performance of the teams and the plant is very high by conventional bottom-line measures. The contract also fostered good, merit-based advancement and monetary rewards; good working conditions; and high commitment to the organization. Although written to support evolution of the organization structure and its roles, very little evolution has taken place. The content of the contract and its implementation provide a necessary basis; however, in themselves they are insufficient. The intervening variable is leadership of managers and union officials--leadership that is congruent with the organizational philosophy. Many employees at all levels have a mixed view of the organization. As stated by some, "The operation of this plant falls between traditional and participative management. For some issues and problems it is more one than the other. We expected more participation in operations and in governance of the plant as inferred in the philosophy and in the social-systems training we received at start-up. Nevertheless, this is a very pleasant place in which to work and we are staying."

Finally, the lesson repeated in other settings, is that top management support at the

outset of an organizational innovation is absolutely necessary. However, support only at the outset is insufficient. For long-term development, corporate top management's continuing commitment to maintaining and further evolving the organization in fulfillment of the organizational philosophy is needed. Particularly crucial is the selection and preparation of new managers, supervisors and staff who will be moved into the organization over time. Given the performance achieved as measured by bottom-line criteria, this somewhat negative assessment may be seen as unwarranted. Our focus, however, is on the failure to fulfill the expectations set at the outset, i.e., the failure to achieve the potential provided in the organization design supported by labor and management.

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