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PRODUCTIVITY IMPROVEMENT PROGRAMS
IN PUBLIC HORTICULTURAL INSTITUTIONS

BY

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ABSTRACT

With few exceptions botanic gardens and arboreta are non-profit organizations. They rely on endowments, private giving, entrance receipts, grants, and tax revenues for their operating budgets. Recent economic conditions have threatened this base of support. Public horticultural institutions are often faced with the choice of reducing services or improving productivity to make ends meet.

Productivity improvement is by far the more attractive alternative. Some gardens have taken this course. Their record for success is dismal.

This thesis supports the premise that botanic gardens and arboreta have a poor record on productivity improvement because they do not have an accurate model of how their organizations function and they do not have a clear concept of the "ins and outs" of productivity.

Chapter I develops the historical background of contemporary thought on how organizations function and what makes some productive. Chapter II develops an organizational model to describe botanic gardens and arboreta. Chapter III describes productivity improvement

programs in four institutions. Chapter IV analyzes the four case studies using the model described in Chapter III. Finally, Chapter V points out a new direction for productivity improvement in public horticultural institutions.

Botanic gardens and arboreta are not to be blamed for their poor record of productivity improvement. Most nonprofits have difficulty applying programs and models developed for profit-making organizations to the nonprofit realm. This study attempts to bridge the gap between modern organizational research and the little known field of botanic garden management.

INTRODUCTION

One seldom hears of a nonprofit organization going out of business because it is not effective. This may be a needed option. Let the organization die instead of perpetuating an insatiable consumer of resources. Is it possible for the public to evaluate the effectiveness of a nonprofit organization and determine its fate? What criteria should be used? The first criteria that come to mind are accomplishment and cost. Another term for this is productivity. Questions of productivity apply to hospital services, welfare agencies, and cultural institutions just to mention a few. As financial resources become limited, the very existence of nonprofit organizations will depend on their ability to demonstrate and improve their productivity or usefulness to society.

The fact is that government support for nonprofit organizations has dwindled to almost nothing. Between recent inflation and the public's aversion to taxation the buying power nonprofits once enjoyed has shrunk dramatically. The inevitable conclusion to this trend is that weak, poorly managed institutions are in danger of financial collapse.

While botanic gardens, parks, and arboreta have, for the most part, avoided financial crises through endowments, taxation, and admission receipts a careful look at management practices, goals, and costs is long overdue. There may be a limit to the tolerance and goodwill of the public. The purposes of public horticulture may be lofty but they do not excuse such institutions from sound management practices.

This study examines productivity improvement in public gardens. The relationship of input to output (productivity) is commonly used to evaluate the success or failure of profit-making organizations. While there are difficulties in applying such a concept to nonprofits, it is a useful approach. If nonprofits are going to appeal to the private sector for financial aid they must speak the language of the private sector: that is profit, loss, and productivity. Some organizations have made successful attempts to improve productivity. Others have failed. The following pages attempt to explain why.

Chapter I explores the historic development of the term productivity. Chapter II develops a model for examining productivity in public gardens. Chapter III details actual attempts to improve productivity in public horticulture. Chapter IV evaluates those attempts. Chapter V provides guidelines for initiating organizational change in nonprofit horticultural institutions.

This study supports the premise that botanic gardens have a dismal record for productivity improvement because no well-defined organizational model and no clear understanding of productivity exist.

CHAPTER I

BEHAVIORAL SCIENCE BACKGROUND

All organizations have a principle reason for existing. In the world of private enterprise that reason is the creation of profit. In the world of education the reason is to instill knowledge and values in students. In the world of research the reason is the exploration of new frontiers. All of these reasons or goals require financing for realization. In the automobile industry no cars can be sold without paying the workers who assemble them. In education no students will be taught without pay for the professors. The need to finance institutional goals is the impetus for the study of productivity.

What is productivity? Technically speaking, productivity is defined as the ratio of input to output.¹ The application of this term has undergone considerable refinement over the past sixty years. Today it is possible to speak of productivity from four reference points: the individual, the organization, the industry or profession, and the nation.² For the purposes of this thesis the term productivity will be limited to organizations. An organizational definition would be, "the measure of how well resources are brought together in organizations and utilized for accomplishing a

set of results. Productivity is reaching the highest level of performance with the least expenditure of resources."³

From the earliest writings on productivity measurement come ideas on how productivity might be increased. The very reason for measuring productivity has always been to get a grasp on how different organizations function, and how that functioning might be improved. The classical era of organizational theory began with Frederick Taylor who wrote the Principles of Scientific Management in 1911.⁴ At the Midvale Steel Company Taylor perfected the time and motion study and the incentive pay system. He advocated strict adherence to discipline, concentration on the task to be performed, and a minimum of social contact between workers. His reference for productivity was the individual. Productivity could be improved by properly matching the person to the job and by providing payment based on the number of units produced.

Later writers in classical organizational theory developed a set of characteristics, based on Taylor's work, that would describe the productive organization. These include such familiar concepts as the organizational hierarchy, unity of command, delegation of authority, and span of control.⁵ In theory, organizations that adopted these concepts would become more productive.

Productivity improvement programs based on the classical model are still very much with us today. Typically, they are

accountability and goal setting systems. Management by Objectives (MBO); Planning, Programming, and Budgeting (PPB); and Zero Based Budgeting (ZBB) all rely on the classical organizational model.

In 1939 Elton Mayo and his colleagues set out to investigate problems of productivity at Western Electric's Hawthorne plant. They found, much to their surprise, that employees responded not only as individuals to the formal requirements of their job, but also as group members.⁶ They related to the ideas, opinions, and emotions of their peers as much, if not more, as they did to company rules. It became apparent that the social group with its own cohesiveness and norms played a major part in the productivity equation. The production process could be refined to the highest degree but unless high productivity was supported as a social norm, efficiency meant nothing.

From this study, and from later writers, the human relations movement emerged. Organizational theorists turned their attention to the group. Important issues became morale, group dynamics, democratic supervision, personnel relations, and behavioral concepts of motivation.⁷ Many productivity improvement programs today incorporate aspects of the human relations movement. For example, Quality of Work Life (QWL) and Organizational Development (OD) both focus on the issue of group dynamics.

An effort to synthesize the formal organizational concepts of the classical era with the group dynamics concepts of the human

relations movement originated in the 1950's. Labeled the organizational behavior movement, it was led by such writers as Argyris, Sherif, and McGregor. These men examined the organization as a social system. They theorized that the workers and the organization both have their own needs and goals. Organizations have internal climates that influence the behavior of employees. Employees, in turn, are members of both formal and informal groups. The goal of management is to create an internal climate conducive to the fulfillment of organizational goals.

Interest in systems theory coincided with the organizational behavior movement. Systems theory, first outlined by Ludwig von Bertalanffy, a biologist, posits that all organisms are "integrated systems of interdependent structures and functions."⁸ Like an organism, organizations are made up of groups and individuals. All subsystems must work in harmony through coordination. All must possess the ability to communicate and obey.

Systems theory had useful application in the organizational behavior movement. The organization had already been described as a system of formal and informal structures; beyond that, behavioral scientists discerned the influence of technology and the outside environment. The organization as a system could no longer be described in fixed terms of hierarchy and group dynamics. It now appeared that organizations were affected by their environment and their subsystems. These can be described as the individual, the

role, the work group, the organization, and the culture.⁹

How does this affect the concept of productivity? The previous discussion indicates that behavioral scientists have found concepts of individual efficiency, organizational structure and group dynamics inadequate, by themselves, to describe how organizations function. To examine productivity from the individual's standpoint is not enough. Individual productivity is indeed an important aspect of the total picture, but there are many other aspects involved. The worker may be efficient, but how is his job integrated into the total organization? Is he fulfilling a necessary function? For the same reason, it is inadequate to examine productivity only from the group dynamics point of view. Group dynamics are part of the issue, but along with individual productivity, only one of many parts.

Productivity improvement programs have changed the point of reference just as organizational theory has. Contemporary programs also take a systems approach.¹⁰ They examine the total organization, not single aspects. It may be that a thorough study of the organization will conclude that the individual is unproductive or that group dynamics are poor, but such a conclusion is only reached after observing the whole organization. Improvement of such conditions is handled in an organizational context starting with the broad categories of goals, technology, structure, personnel, and environment.

In spite of this giant leap from the individual to the total organization, concepts of productivity and productivity improvement still rely on measurement. The basic productivity ratio of output divided by input still holds. While it is not so simple as comparing a person's production to his wages, the productivity ratio can be used for the total organization. Consider the organizational goals. In botanic gardens organizational goals are usually educational and scientific. Compare the achievement of those goals with the cost. The comparison need not be in single terms. In fact, single term measures are deceiving. Take, for example, Wallingford Botanic Garden. Last year there were ten thousand visitors. It cost the taxpayers of the county one million dollars to run the garden which is equal to one hundred dollars for each visitor. This is a measure of productivity. But according to systems theory it is only one of many measures. No single measure tells the whole story. How many repeat visitors were there at Wallingford? How long did they stay? What other services did the garden provide the community? Were scientific papers written? The list is endless. The point is that some form of productivity measurement must be used no matter what type of organization we are considering. It is critical to know where the organization is going. Should it be closed because it is ineffective, or can it demonstrate that it has faithfully fulfilled its public trust?

CHAPTER II

A MODEL FOR BOTANIC GARDEN ADMINISTRATION

Organizational theory has traditionally concerned itself with profit-making organizations. In these organizations productivity and productivity improvement are relatively easy to demonstrate. The creation of profit is the primary goal of the organization. While there are other goals such as research and welfare of the community, profit is usually necessary for the organization to continue functioning. Profit and loss, as the difference between cost of production and income, are productivity measures.

Nonprofit organizations, on the other hand, have no such easy measure of productivity. Because they generate no profit, because they frequently depend on an outside source of funding, it is inappropriate to use the bottom line as a measure of success or failure. Without this easy measure, determining productivity is very difficult. Without this easy measure, nonprofits are often lulled into an easygoing disregard for the bottom line. Often the goal becomes spending the entire budget so more can be requested next year instead of achieving the most for the least cost. Peter Drucker describes the difference between profits and nonprofits in this way:

The market forces even the most powerful corporation to subordinate its inside concerns to results and to performance. But in the public service institution, where the market test is absent bureaucracy constantly threatens to swallow up performance.¹¹

A closer look at nonprofits, particularly botanic gardens is in order.

Display, collection, research, community service, education, and maintenance are typical botanic garden functions. Each has a different audience, technology, personnel orientation, organizational structure, time frame, and goal. What is the best method for botanic garden administrators to improve productivity in such diversity? A model is needed that accurately depicts how botanic gardens function.

The first model that comes to mind is the classical hierarchic model. Shaped like a pyramid this model places management at the peak and ever increasing numbers of employees below management. The implication of this model is that there is a uniformity of management style, technology, personnel, and goal throughout the organization. Unfortunately, botanic gardens are not uniform in this way. They more closely resemble complex industrial organizations which have, for example, production departments, research and development departments, marketing departments, and sales departments.

Harvard professors Paul Lawrence and Jay Lorsch studied complex organizations of this sort.¹² They compared the organ-

izational effectiveness of different companies in three industries. They found that effective organizations were not modeled after some ideal form, but rather, the structures of effective organizations were based on the environment in which they existed. It is easy to see this concept at work. Military units require central authority and strong discipline to confront the adversary. Many levels in the hierarchy enforce authority and discipline. Educational institutions are organized with few hierarchic levels, with central authority and discipline seen as obstacles to the development of a strong teacher - student relationship. Lawrence and Lorsch show that the effectiveness of an organization is related to how well it fits the environment in which it exists.

This is, of course, a simplistic approach to the complex industrial and service organizations of today. A typical industrial firm will have more than one environment in which it works. Manufacturing, sales, personnel, and research are all mini-organizations in their own right. In complex organizations of this sort Lawrence and Lorsch found that effectiveness is based on two factors: differentiation and integration. Differentiation is defined as:

the state of segmentation of the organizational system into subsystems each of which tends to develop particular attributes in relation to the requirements posed by its relevant external environment.¹³

Integration is defined as:

the process of achieving unity of effort among the various subsystems in the accomplishment of the organizational task.¹⁴

The ideas of Lawrence and Lorsch apply not only to complex industrial firms but also to botanic gardens and arboreta. Botanic gardens are typically differentiated into research, education, collection maintenance and building maintenance. Differentiation is based on formal structure, time orientation, perception of goals, and interpersonal orientation.

The organizational structure of a research department is usually flat, that is to say, there are few levels of responsibility in the hierarchy. Researchers are presumably experts in their own fields and self-motivated. Tasks tend to be uncertain and complex. On the other hand, the organizational structure of a building maintenance department is tall. Authority is placed high in the department. Multiple layers of management and supervision direct the labor force. The environment is certain and changes little.

The perception of time differs throughout the organization. This difference is based on the time required to receive feedback from the relevant sub-environment. In research the feedback interval may be counted in years -- from the initiation of a project to the final published document. In collection maintenance the feedback interval is based on the growing season. In education the feedback interval is based on the semester.

Departmental goals differ throughout the organization. Research may be concerned with describing the flora of Central America. Collection maintenance will be concerned with the health

of the plants under its care. Education will be concerned with the diffusion of horticultural knowledge throughout the population.

Interpersonal orientation varies from department to department. In education there is a collegiality among employees. In maintenance there is the comraderie of working in crews. In research there is little interdependence as scientists pursue their individual goals.

To describe botanic gardens as highly differentiated organizations may seem to be of little value. Only when one goes into the field and discovers the difficulty departments have in collaborative efforts and the jealousies that exist between departments does it become clear that differentiation may have negative aspects.

According to Lawrence and Lorsch integration is the necessary partner to differentiation in successful organizations. In many gardens the only form of integration is in the hierarchy. Department heads collaborate in staff meetings, or the director enunciates broad organizational goals. Adequate integration of this sort depends on the personal strength of the director. In organizations with weak direction, differentiation may be extreme. There are also structural integrative devices. These include interdepartmental coordinators, task forces, and planning departments. When integration is not provided by the garden administration, or the structure, it often emerges unofficially through employee association. In many

cases unofficial integrative structures are counter-productive.

A graphic representation of this model would resemble a carriage wheel. The hub is the administration of the garden. The spokes are the various departments, each one unique, but vital to the structure. The rim represents integrative forces. It is the rim that holds the spokes together and creates a single unit.

This model sheds light on botanic garden productivity. It establishes a framework for setting productivity standards. Since it is impossible to discuss botanic garden productivity in terms of profit and loss we will dissect the organization to its component parts, the spokes of the wheel. Each of these parts has a particular function derived from the organizational goal. Differentiating standards can be used as productivity measures. In the same way integrating standards can be used. In place of the bottom line we are using the services provided by each department and the contribution each department makes to the entire organization as a productivity measure.

The following are examples of integrating and differentiating standards. Each is expressed as a productivity ratio of accomplishment versus cost, time, location, or individual.

I. Collection Maintenance Department

A. Integrating Standards

1. assistance to other departments/month.
2. transfers to/from other departments/month.

3. cost/garden visitor.
4. complaints from other departments/month.
5. staff meeting attendance/month.
6. repeat visitors/section.

B. Differentiating Standards

1. cost/tree trimmed.
2. lawn area mowed/man-hour.
3. cost/accident.
4. sick days/year.
5. equipment cost/year.
6. plant mortality/section.

II. Education Department

A. Integrating Standards

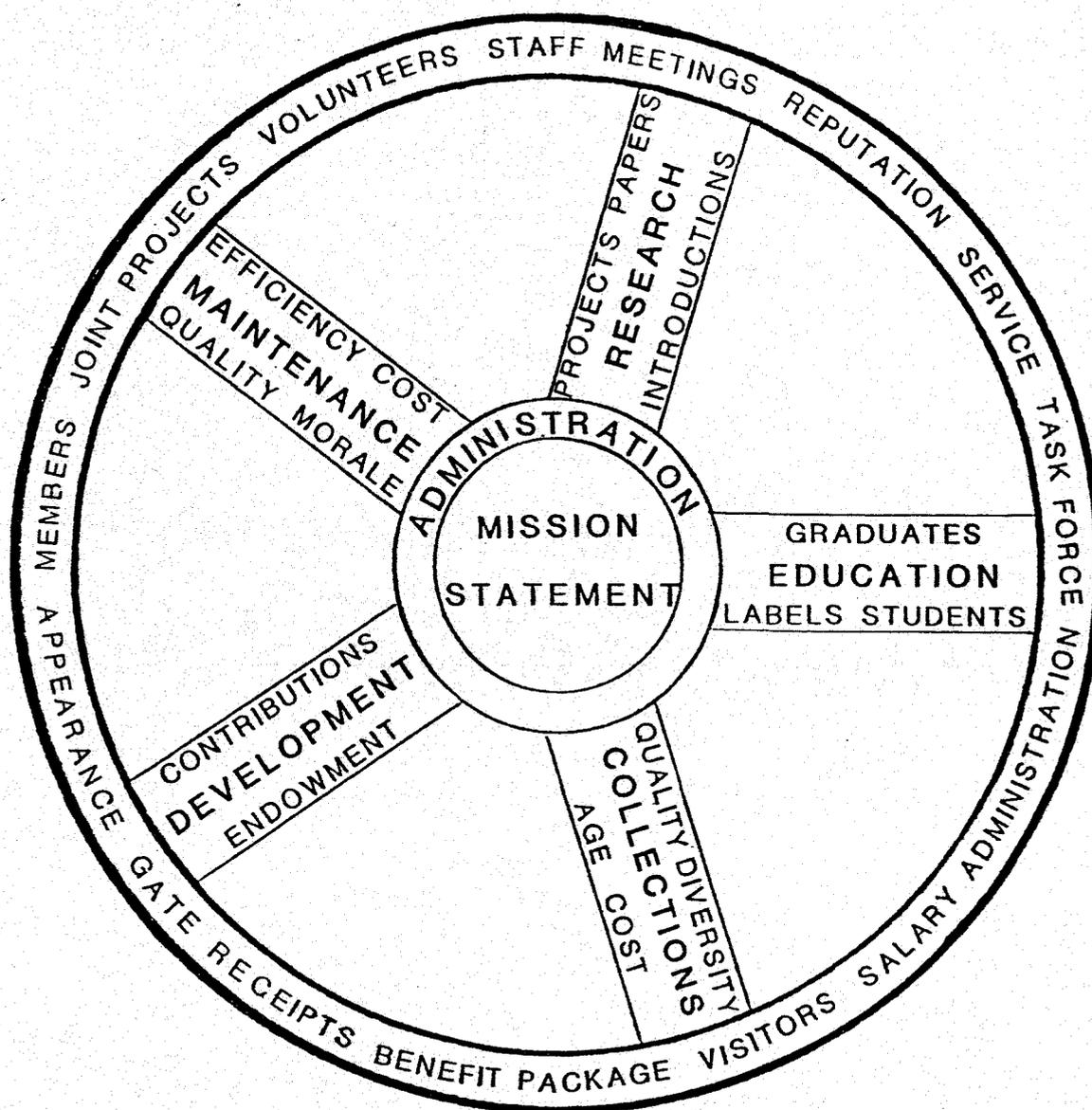
1. assistance to other departments/month.
2. transfers to/from other departments/month.
3. cost/in-service training course.
4. complaints from other departments/month.
5. interdepartmental task force meetings/month.
6. in-service training course attendance/course.

B. Differentiating Standards

1. students/month.
2. cost/display label.
3. staff sick days/month.
4. horticultural inquiries/month.
5. certificates granted/year.
6. state or local certification/year.

Integrating and differentiating standards of productivity are the raw materials of the wagon wheel model. Differentiating standards delineate the spokes, how each department is different from the other. Integrating standards provide the hub and the rim. They hold the organization together to function as a single unit.

Using these standards of productivity, the administrator will find direction and meaning to productivity improvement.



WAGON WHEEL MODEL OF ORGANIZATIONAL STRUCTURE

Successful productivity programs depend on these types of measurement and evaluation. Evaluation is the critical element. It is difficult to do because organizations resist change. Managers do not want to rile the employees and employees often resent evaluation. Productivity improvement needs to be presented in a positive way. It can be done. Psychologists tell us that,

People have ego needs. They want self-esteem, a sense of accomplishment, autonomy, increasing knowledge and skills, and data on their performance. People invest more in situations that allow them to meet these needs.

Fran Tarkenton, the NFL quarterback, once observed that the main differences between work and athletics are competitive score-keeping and social recognition. If you provide performance evaluations for your employees they will always know the score. If you help the underdog and cheer for the winner they will try harder.¹⁶ In this respect botanic gardens are no different from football teams and manufacturing firms.

Chapter III describes four attempts to improve productivity in botanic gardens. The case studies and their evaluation are founded on the two concepts described above: the organizational model and performance evaluation.

CHAPTER III

CASE STUDIES OF FOUR BOTANIC GARDENS

In 1981 fourteen botanic gardens were surveyed which had experimented with productivity improvement programs. The survey provided broad latitude for describing productivity improvement. Some examples are: employee selection, goal setting, group design, training and instruction, appraisal and feedback, and organizational design.¹⁷ The survey response indicated an interest in improving organizational productivity but not one of the gardens described standards used for measurement. Not one of the gardens gave a clear statement of success or failure. A typical answer was, "we moved the productivity of our garden in a positive direction." But how much and from where?

Even though none of the gardens surveyed had well-defined productivity programs, an attempt was made to explore what they had, in fact, done. Seven well-established gardens were visited which ranged from private to county-owned, medium to large in size, old to relatively new, and from research oriented to display oriented. The usual approach was to contact the personnel director and discuss personnel management. After developing an understanding of the particular garden's approach to productivity, middle managers and

first line supervision were interviewed. The objective of the interview was to gain an understanding of the organizational climate and the organizational goals. When available, directors were included in the discussions. Finally, the labor force was always included. Through these discussions a sensitivity to the uniqueness and the common ground shared by each garden was developed. The following accounts of productivity efforts by four gardens demonstrate some of the difficulties experienced in the field by those who would improve productivity.

CASE STUDY "A"

Botanic Garden "A" has seventy full-time employees and was established by an industrialist eighty years ago. The garden is well endowed, well respected, and research oriented. The director of the garden is a research scientist. He compares the garden to a small college. The employees are treated as faculty. The director prefers not to impose organizational constraints on the employees. Instead, he encourages them to pursue their personal goals and their own methods of working together. He chooses to spend much of the day in the laboratory.

Five years ago the gardeners at Botanic Garden "A" became dissatisfied over wages and benefits. Employee productivity was threatened by this development. A personnel consultant was hired to help management develop a salary administration program. The consultant determined that job descriptions were necessary to clarify the duties of each employee and who reported to whom. Much time and effort were spent writing job descriptions. Most employees wrote their own with the help of their supervisors. Grounds personnel were assigned general descriptions as a group. Using the job descriptions, the consultant and management ranked employees by skill level, difficulty of replacement, and value to the garden.

Salary ranges were assigned based on the ranking. Using a trend line analysis, the salary ranges are readjusted every three years. In addition to job descriptions, a form of performance evaluation was also developed. It is used on a yearly basis to establish a particular employee's location on the salary range for his job.

During interviews with middle management and supervision the importance of the job descriptions and performance evaluations was questioned. The response was a blank look. It turned out that the job description was stuffed away in some bottom drawer. Performance evaluations, while carried out yearly, had little connection to the job descriptions. If the garden was not managed using a system of discrete job functions and accountability, then how was it managed?

The director's management style was nondirective. For the most part organizational structure was weakly defined and lines of communication were unclear. There were no staff meetings at Botanic Garden "A". Task forces formed and broke up as the need arose. Employees were expected to be self-motivated and thoroughly committed. This style worked well in the research department where individual accomplishment was at a premium. It was not so successful in education, and it was a source of frustration in garden maintenance. One new member of the education staff had a particularly difficult time finding out what his job actually entailed. No one knew for sure, but all had different opinions. Another source of difficulty was

interdepartmental coordination. Without clearly defined responsibilities, labeling, for example, an activity which requires careful coordination, was a constant source of irritation between education and garden maintenance. When meetings were held there was no agenda. When objectives were discussed employees drifted off into their own spheres because divisional objectives were so unclear. The only department that had well defined responsibilities and standards of performance was garden maintenance. Here central direction was necessary to produce a goal that everyone understood. Either the garden was well-maintained or it was not. Employees in garden maintenance had specific responsibilities and clearly defined lines of communication. This situation was outlined not by the system of job descriptions, which were mostly the same for the department, but by the grounds foreman. He had little patience with the non-directive style of management. Unfortunately, the system reverted above him. The grounds foreman had not one but two supervisors, the collections administrator and the landscape architect. He found this ambiguous situation a constant source of frustration.

Using the model described in Chapter II management at Botanic Garden "A" would have recognized, as the grounds foreman did, that a nondirective style does not work for every department. It may be useful in research, but the hierarchic model is more appropriate in grounds maintenance. Perhaps an MBO approach would be better for education. By encouraging the departments to develop their own management style, the director would have removed the

implied pressure for them to conform to styles that did not fit their respective environments. Implied in the search for a good fit with the environment is the search for measurable departmental standards. This is where productivity improvement starts. If the garden had developed well differentiated departments, the director's function would have become one of integration. That is to say, defining and communicating organizational goals so that each department could have related to them.

The program of job descriptions and performance evaluations at Botanic Garden "A" was a success as far as salary administration was concerned. Salaries were upgraded based on internal and external equity. That is, they were rated on skill, importance to the organization, and seniority within the organization, and on difficulty of replacement, and wage rates for comparable jobs outside the organization.

The program of job descriptions and performance evaluation at Botanic Garden "A" was a failure in that it did not accomplish the second goal. It did not reduce employee dissatisfaction. The model of discrete job functions and accountability which the consultant had constructed bore little resemblance to reality. If salary adjustments depended on that model then they too would be unrealistic. In salary administration it is critical that employees see a direct relationship between what they put into the job and what they get out.¹⁸ At Botanic Garden "A" the consultant did not

develop an accurate model from which to develop the salary
administration program.

CASE STUDY "B"

Botanic Garden "B" is also research oriented. Beyond that it has little in common with Botanic Garden "A". Founded in the last century, it has 160 full-time employees. It is not a well-endowed garden. It, therefore, relies on research grants, federal programs, admissions, and voluntary support. In order to secure a financial base Botanic Garden "B" is attempting to become part of a regional tax district.

Botanic Garden "B" is organized in hierarchic fashion with a board of trustees, a director, five division heads, eight department managers, and additional levels of supervision above the manual labor force. The director manages the garden in the classical style. Authority is centralized in his office. Responsibility for overall garden function is vested in the five division heads. Reporting to them are eight department managers. The eight departments include: maintenance, landscape horticulture, indoor horticulture, arboretum, library, botany, education, and retail sales. In spite of the fact that the director is at the apex of this organizational structure, he spends little time running it. He spends most of his time on public relations and matters of international concern such as the destruction of the tropical rain forest.

For years Botanic Garden "B" has had a good reputation for research. The current director has striven to upgrade the collections, visitor services, and education to a level comensurate with research. In order to improve efficiency in the organization and in order to improve job satisfaction among the staff, the director hired a personnel director and charged her with the task of sharpening up employment policies. The new director of personnel, working with a management consultant, administered an attitude survey to the entire staff. The object was to locate and define personnel problems.

The attitude survey revealed a number of issues. The director of personnel and the management consultant chose to tackle the issue of supervision first. Employees had reported dissatisfaction with the way things were run. The garden was simply not managed well. The management consultant initiated a supervisory training program. Ten employees were asked to take part. Participants included all of the department managers.

The supervisory training program involved five three hour sessions. The goal was to train middle managers to counsel and discipline their employees. The method used was role playing and peer feedback. Most of the middle managers had no experience in management training. This program was intended to provide useful techniques.

Interviews with the participants indicate that, while the

goals of the program were met, the approach was too limited. The middle managers had hoped for more. They had hoped to deal with other topics and other situations. When the program ended the participants decided to continue meeting every two weeks. In spite of the disappointment over supervisory training, the very act of meeting together to discuss common problems had proved useful.

Currently the department managers at Botanic Garden "B" meet every two weeks. They discuss upcoming events, garden problems, and collaborative efforts. The director of the garden is uneasy about this new development. He fears the change in organizational structure. He wants an upper level staff member to be an observer and meet with the group regularly. The department managers, in their turn, find that biweekly meetings have eliminated much inefficiency, overlap, and misunderstanding. They are the people that make the everyday decisions on garden operations. The input from other departments puts their individual decisions in a broader context. The department managers are eager to have the director attend the meetings but he is reluctant.

In terms of our model it is possible to see the existence of differentiation and integration at Botanic Garden "B". The eight departments are highly differentiated. For example, research consumes one half the budget. But the object of that research is not the collection at all, it is the maintenance of the herbarium. The research department has little in common with either of the

horticulture departments. Retail sales certainly has a different environment with which to deal than maintenance. The arboretum not only has a separate staff from the other departments, it also has an entirely separate location.

In response to this differentiation the director hoped to provide an integrating standard of management. The supervisory training program attempted to clarify the position of middle managers in the hierarchy and to give them skills by which to measure their effectiveness in dealing with subordinates. This approach had merit when applied to departments of many levels, certain technology, and stable environments. Maintenance, indoor horticulture, outdoor horticulture, and the arboretum benefited. On the other hand, supervisory training had little meaning in the research department, the library, or retail sales. In these departments few hierarchic levels exist, self-motivation rather than authority produces results, and the environment is fluid rather than stable.

The supervisory training program did, however, benefit the garden in unforeseen ways. The simple fact that middle managers wanted to continue meeting together, wanted to assure integration of their diverse goals, meant that the organization was becoming more productive.

Enhanced productivity demonstrated itself in straightforward ways. Outdoor horticulture planned a festival of herbs for late summer. In the old days this would have been a strictly departmental

occasion. Under the new system the topic was discussed at the department managers meeting. Education offered to contribute brochures and other interpretive devices. The library staged a concurrent exhibit of herbal literature. The research department exhibited herbarium specimens and pressing techniques. The gift store strengthened its inventory in herb associated items. Together the departments produced an integrated program.

While productivity was improved at Botanic Garden "B", it was a fortuitous development. The director intended to reduce dissent and strengthen his control by increasing uniformity of management style among department managers. A better approach might have been to recognize the innate differentiation between departments and work on defining integrating structures.

CASE STUDY "C"

Botanic Garden "C" is a heavily endowed private garden. It was designed and built by an industrialist of broad vision in the early twentieth century. Primary garden functions include education, display, and research. The garden employs approximately 160 people.

The administration of Botanic Garden "C" is headed by a trustee-appointed director. Below him are four department heads. The various departments are organized on different models. Recent directors of the garden have left garden management up to the department heads. The directors have traditionally turned their efforts to public relations and physical garden development. The absence of strong central direction and the relative abundance of funding have enabled the four departments to become highly differentiated. This differentiation demonstrated itself in imaginative horticultural display, a state-of-the-art physical plant, and creative educational programs.

The absence of strong central direction has limited the growth of integrative devices. Interdepartmental friction and resentment are common. In place of official integrative structures there are voluntary structures.

For example, many members of the labor force live in a small village of garden-owned dwelling units on the property. Friendships and social functions focus around this community. In addition there is a volunteer fire company staffed mostly by garden personnel. While there is no union at Botanic Garden "C" there is a definite feeling of we/they between professional staff and the resident labor force.

The maintenance department at Botanic Garden "C" suffered particularly from poor morale. Employees felt that they received little credit for their work either from their boss or from other garden departments. Employees felt they were given little responsibility and chance to demonstrate their abilities. It appeared to the employees that the department head reserved all major decisions for himself and was, therefore, to blame for many of the maintenance foul-ups.

The department head was technically well-qualified for the job, but in terms of interpersonal relations with the employees, he had difficulties. The employees resented his leadership and were, therefore, unwilling to take an active interest in their jobs. Other departments at Botanic Garden "C" faulted maintenance for slow response to job requests and a lack of understanding as to their particular needs.

Knowing that management style played a big role in the

effectiveness of his department, the department head, with the help of a consultant, initiated a Quality of Work Life program. The goal of the program was to improve the morale and effectiveness of the department. This was not the first time the consultant had been used at the garden. He had an inconsistent record for effectiveness among the other departments, but he and the maintenance department head were personal friends.

The Quality of Work Life approach to management is based on the idea that even though there is no direct relationship between job satisfaction and productivity, there is an indirect relationship to cost of production through such things as turnover, absenteeism, alcoholism, drug abuse, theft, and sabotage.¹⁹ Quality of Work Life programs focus on participative management. Participative management "is an integration of concern for people and concern for production through mutual involvement by boss and subordinate in goal setting and major decisions effecting subordinates."²⁰ Notice the inclusion in this definition of goal setting. Goal setting assumes some sort of measurement.

The program began when four of the seven foremen were replaced due to retirement. The four new foremen eagerly embraced the program. The consultant and the department head organized a week of foreman orientation which involved training in performance standards, decision making and participative management. The new foremen were responsible for introducing the program to their subordinates.

This task centered around two main topics: performance standards and group decision making.

The subject of performance standards was discussed first. The work force preferred to talk about management and its failures rather than their own performance standards. In fact, there was strong distrust of any effort to establish performance standards. The employees envisioned performance standards in terms of more work for less pay. Rather than a prerequisite to participative management, they saw the standards as just another way that management would control their lives.

The Quality of Work Life program at Botanic Garden "C" expired on this issue. Group decision making was never discussed. While the new foremen remain open in their management style, the labor force chalks this program up as another failure of management and the management consultant.

What went wrong? Participative management requires a certain trust between labor and management, a clear understanding of the goals of the department and the goals of the organization, and a willingness to give up the antagonistic we/they approach for a united approach. At Botanic Garden "C" there were strong forces that worked against the program. Labor and management had a history of distrust. The reputation of the consultant was suspect. Employee attitudes were reinforced through the informal structure at the

garden. Management in this situation lacked support because the director was not interested. Performance standards had never been imposed by management because there was no financial necessity to do so. A more useful approach might have been to reinforce group decision making before discussing performance standards.

Responsibility for the failure of the Quality of Work Life program at Botanic Garden "C" rests most heavily with high level management. Disinterest with organizational productivity was demonstrated by the lack of integrating standards. Abundant funding produced high quality workmanship, but the actual cost in time and dollars was out of proportion.

An indepth examination of the work climate at the maintenance department would have predicted the failure of the Quality of Work Life program. Like productivity improvement, Quality of Work Life depends on the ability to measure the input and the output of the production process. In Botanic Garden "C" high level management required neither standards of productivity for the departments nor for the total organization. Since management did not think in terms of productivity, it was foolish to expect labor to think in those terms. Botanic Garden "C" was not ready for a canned approach to improving productivity and morale.

CASE STUDY "D"

Botanic Garden "D" is county owned and operated. Established at the end of World War II through the interest of local citizens, it features a comprehensive collection of regional flora. The garden is maintained by seventy-eight full-time civil service employees.

The county government appoints the director. An assistant director and controller report to him. The director of personnel and the garden superintendent report to the assistant director. Below the superintendent are crew foremen and the work force. A rudimentary education and research staff complete the organization. The director's management style is autocratic. In spite of the multiple levels of responsibility, most decisions are made by the director. There is little room for individual initiative from the staff. The authoritarian, almost military, structure would seem to be a liability in a botanic garden. Circumstances proved otherwise.

Due to a voter tax revolt in the late seventies, the county reduced the budget at Botanic Garden "D" by fifteen percent. Prior to that the budget and attendance had increased each year. While there was no admission fee, the county government identified high attendance with voter support. In the years since the budget

reduction, inflation has prohibited a return to financial stability.

Faced with drastic budget cuts, the director had two choices: reduce programs where feasible and increase productivity to maintain the essentials; or give up on the botanic garden idea entirely and let the property be absorbed into the park system. Not one to give up on anything, the director chose the former course. To cut costs he reduced the research and education staffs. All available resources were poured into the collection and its maintenance for the public. Differentiation and integration are no longer issues at Botanic Garden "D". The collection has first priority.

The issue of productivity was more difficult to handle. The civil service system had produced a disinterested labor force at best. In good times the system is effective. It encourages the creation of a skilled, committed work force as employees move up the ladder. In a time of contraction, however, there is little or no movement. Laborers with high potential, coming in at the entrance level, are not promoted. There is nowhere to go but out. This leaves the unskilled, unmotivated worker behind, content with his secure job.

When times were better, Botanic Garden "D" had its work force organized by section. Each section had its lead man who was an expert in his area, whether it was the rose garden, the aquatic garden, or the orchid house. A drastically reduced budget eliminated

this luxury. The director reorganized the work force into roving crews. Presently, there are five such crews: planting and pruning, watering, entrance way, special projects, and tree care. The crews are directed by foremen with experience in their crew area. The foremen report to the superintendent of grounds. Crews are moved around, as the need arises, upon the direction of the superintendent. This arrangement permits tighter management control and also takes into account the paucity of skilled labor.

The administration at Botanic Garden "D" had been considering reorganization for a long time. The opportunity to implement it came from outside the garden. Due to a change in the political make-up of the county government, a new policy on the use of outside contractors was formulated. The county now encouraged the use of private contractors wherever it could be demonstrated that a saving of ten percent or more would be realized. The reorganization of the labor force included the awarding of major maintenance contracts to outside firms.

Maintenance functions that were put out to bid include: all lawn mowing, all weed control, and the care of garden property beyond the perimeter fence. The rule of thumb was to contract out the most expensive and difficult jobs. Lawn mowing was included because it is labor intensive and requires expensive equipment. Weeding was included because it requires expensive chemical applications and is also labor intensive. Maintenance of the property

beyond the perimeter fence was included because it is a well-defined area, not integral to the collection.

Writing specifications for the contractor was a tedious job. The garden estimated that the bids would hover around \$80,000 per year. The low bid came in at \$46,000. Not including the savings on equipment, the garden is presently saving thirty-five percent on labor and benefits by using outside contractors.

Even to the discerning visitor, Botanic Garden "D" appears well-maintained. Interviews with employees indicate strong approval of both the reorganization and the outside contractors. Roving crews encourage a comradery among the workers. Jobs change each day, thereby reducing boredom. The contracting of certain tasks has also had a positive impact on morale. Garden workers are released from the most menial jobs and there is time to care for the collection the way it should be cared for. The gardeners enjoy the jobs that require expert skills.

By cutting back all departments but collection maintenance the director has eliminated the confusion of goals so common to botanic gardens. Here the goal is clear. It is to survive and to maintain the collection in spite of reduced funding. Performance standards for the outside contractor support this goal. They are incorporated in the specifications. The contractor knows exactly what must be done and how the administration wants it. In contrast,

there are no written standards of performance for the full-time garden staff. These standards are in the director's head. Few things take place in the garden without his personal supervision. This is the director's style of management.

The director of Botanic Garden "D" was in the right place at the right time. He did not change his style to meet the budget threat. Rather, his style became the appropriate response to an outside threat. The garden survives, albeit, in an altered form. The collection is intact to be used and studied for generations to come. Education departments can be rebuilt. Research staffs can be rehired. It is the collection that is irreplaceable.

Standards of performance at Botanic Garden "D" stem from the goal of survival. They are neither integrating nor differentiating because there is basically only one department. Standards are tightly enforced by the director. Productivity is high because of the director's firm control. His style is appropriate for the environment and the personnel. As the environment changes, as financial stability returns to the garden, it behooves the director to change his management style. Survival is a goal for the short term. Long term considerations such as the development of personnel and the securing of a sound financial base await his attention. It remains to be seen whether the director will be able to alter his management style as the situation changes.

It is clear from the case studies that botanic gardens have great difficulty implementing productivity improvement programs. Attempts that were made were flawed by misunderstanding of organizational structure or the absence of definable measures of service.

CHAPTER IV
AN EVALUATION OF THE CASE STUDIES

The productivity improvement programs described in Chapter III were honest attempts to improve the effectiveness of the organization in question. Whether it was the director, a department head or the personnel manager, an individual took on the responsibility to change the organization to make it more productive.

Each of these attempts to improve productivity contains common features. These include the initiator or change agent, the starting point, the goal, the method for reaching the goal, and an assessment of success or failure. When examined in this systematic way it is clear that botanic gardens, like all nonprofits, have problems with performance standards amidst a multiplicity of organizational functions. Performance standards are necessary in productivity improvement programs because they enable the organization to state where it is now, where it is going, and whether it got there. Integrating and differentiating standards of performance, as discussed in Chapter II, provide a starting point from which to initiate change and make productivity improvement.

Beyond the issue of standards it is possible to classify

attempts to improve productivity or to change organizations into three categories. Based on the work of Robert Chin these categories include: empirical-rational strategies; power coercive strategies; and normative-reeducative strategies.²¹ This classification helps to explain the success or failure of the productivity improvement programs described in Chapter III.

Empirical-rational strategies focus on the individual. They are a product of the classical model of organizational structure in which the individual is viewed as separate from the organization. Empirical-rational strategies posit that new knowledge is developed outside the organization by the government, research institutes, or universities. This knowledge is then packaged and presented to the individual. Because he/she is a rational human being it is accepted and acted upon. Job descriptions, performance evaluation, personnel selection and replacement fall into this category. The major difficulty with this strategy is the assumption that the individual will accept the new knowledge and be able to incorporate it into the organization.

Power-coercive strategies use power or threaten to use power as the driving force of change. Unilateral policy change by the director or the department head falls into this category. Legislation and the power of the purse also have a coercive effect on change in organizations. This approach is also a product of the classical hierarchic model. Here the difficulty is that the use of

power seems to produce an equal and opposite force to resist change.

Normative-reeducative strategies are most in tune with the organizational behavior movement. In this case change is brought about by the reeducation of the people who populate the organization, as a group effort. New knowledge, approaches, or techniques are developed by members of the organization to solve their own problems. Appropriate subjects for change include the technology, organizational climate, goal identification, and communication.

There is much discussion in the literature on change and change strategies. Chin's analysis most accurately describes change in botanic gardens. The following is a recapitulation and discussion of case studies A, B, C, and D based on Chin's classification.

Botanic Garden "A"

Change agent: The personnel consultant.

Starting point: Dissatisfaction among the labor force over wages and benefits.

Goal: Improve job satisfaction and productivity by establishing an equitable wage and benefits program.

Method: Adjust wages to a more competitive level; establish a system to keep wages competitive; foster the perception that wage rates are

related to employee input.

Assessment: An equitable wage administration program was established although job satisfaction and productivity appeared to change little.

Discussion: The productivity improvement program at Botanic Garden "A" suffered from several common defects. 1) As an empirical-rational strategy for change it assumed that once the employees were shown a more rational way of viewing their job within the organization they would accept it and act upon it. There was no guarantee that this would take place. In fact it did not. At Botanic Garden "A" the employees did not perceive the new system as equitable because it did not reflect reality. The garden was not run through a system of discrete job functions and clear performance standards. 2) The outside consultant did not include the garden administrator in his change strategy. For the director, life went on as usual. His management style remained the same - he ignored the new job classifications setup by the consultant. When the employees perceived that nothing had changed, except on paper, they too went on, business as usual. The director continued to manage his garden in a nondirective style. On paper, however, the garden had been reshaped in hierarchic fashion. Change programs must include either the entire organization or at the very least an entire unit of production. 3) Typical of empirical-rational strategies, the program at Botanic Garden "A" focused on a single problem of the garden and not on the system. The single problem,

wage administration, was in a sense, solved. But it was solved in a way that did not fit the garden or the director's management style.

Botanic Garden "B"

Change agent: Personnel consultant.

Starting point: Employee dissatisfaction with the way things were run.

Goal: Improve employee satisfaction and productivity.

Method: Provide management training for middle managers; i.e., teach them how to manage.

Assessment: Middle managers were trained according to plan. While they continued to meet garden functions improved.

Discussion: The productivity improvement program at Botanic Garden "B" started out as an empirical-rational strategy for change. New knowledge was provided by the personnel consultant. The knowledge, how to manage, was made available to the middle managers. As rational human beings it was up to them to recognize the usefulness of this knowledge and act upon it. This strategy worked well. For the most part middle managers found the training useful as far as it went. For those departments with few management problems the training was harmless. The interesting point in this case study came when the training sessions were over. At that point the middle managers decided to continue meeting, to continue discussing common problems, and to continue integrating the efforts to make the garden

productive. The director was against this new development.

From the point at which the middle managers began to meet on their own this productivity improvement program became normative-reeducative. Most characteristic of this strategy is group problem solving, where employees work together to identify sources of conflict under a team management approach. Formal normative-reeducative programs make use of a change agent who in a collaborative way guides and encourages the team effort.

The middle managers at Botanic Garden "B" were quite pleased with the success of their approach but even they recognized the need for a guide or agent to work with them. The director was not willing to be the guide or make this commitment to change. In a short-sighted way he had solved the problem of management techniques and then pulled the rug out from under his newly inspired middle managers. The director was not willing to experiment with an open ended approach to change, particularly one that had the potential to threaten his centralized control.

Botanic Garden "C"

Change agent: Personnel consultant
Starting point: Poor morale and poor production in maintenance;
poor coordination between departments.
Goal: Improved morale and production in maintenance
and better interdepartmental coordination.

Method: Establishment of a Quality of Work Life program which emphasized teamwork, goal setting, group decision-making, and participative management.

Assessment: Morale, production, and coordination were not improved at Botanic Garden "C" because there was insufficient trust between management and employees to set performance standards and goals.

Discussion: The productivity improvement program at Botanic Garden "C" used a normative-reeducative strategy to bring about change. Maintenance department foremen met together with the management consultant and the department head to develop a team approach to solving problems. The goal was that the foremen and the department head would learn an open consultive approach to work, one that could be spread through the department from this nucleus. A fundamental aspect of this strategy is that personal emotions are as important to smooth job performance as job technology or organizational structure. In normative-reeducative strategies emotions have legitimacy. At Botanic Garden "C" the management consultant did not properly judge the nature or depth of emotions affecting the department. More specifically, four new foremen were chosen to participate. Four experienced foremen were left out. The pressure on the new foremen from their excluded counterparts to sandbag the program was terrific. Eventually peer pressure from those not included caused those who were included to give up on the whole idea. The possibility always exists, "that there can

be some behind the scenes collusion to unload negative feelings on the superior."²² It is the responsibility of the personnel consultant or change agent in Quality of Work Life programs to correctly judge the progress of team development. Only when team development is mature should the discussion of performance standards be introduced. That maturity was never reached.

A simpler approach to productivity improvement at Botanic Garden "C" might have been effective. Using the wagon wheel model of the organization it is evident that integrative structures were very weak at this garden. High differentiation existed between maintenance and horticulture. Horticulture received all the credit for the beautiful displays while maintenance got all the complaints for leaky plumbing, cold greenhouses, and flooded bathrooms. No wonder morale was low at maintenance. A group problem solving strategy that incorporated foremen from maintenance and horticulture would have gone a long way towards improving coordination and demonstrating to the employees of maintenance just how critical they were to the functioning of the garden.

Botanic Garden "D"

Charge agent: The taxpayers.
Starting point: A 15% operating budget reduction.
Goal: Survival of Botanic Garden "D".
Method: Cutback all nonessential services and contract out as much work as possible.

Assessment: The garden survived the budget reduction.

Discussion: The productivity improvement program at Botanic Garden "D" is a classic example of a power-coercive strategy. The voters exercised their right to reduce taxes. Dire predictions had been made about the possible loss of services in county government but the voters approved the tax reduction anyway.

In response to revenue reduction county agencies reacted with determination to survive. Once a bureaucracy has been established it has remarkable staying power. At Botanic Garden "D" where the employees and the director had often been at odds, the tax revolt gave the director a grand opportunity to reshape the organizational structure. He boldly eliminated or reduced nonessential departments such as education and research. The remaining function of the garden, collections, was not left untouched and assorted jobs were contracted out to the private sector.

Botanic Garden "D" survived. As an example of change in an organization it has clear characteristics of a power-coercive strategy. As an example for other gardens to follow it has limited value. One question is whether the strategy fundamentally changed the organization to something other than a botanic garden. Without research and education this institution became little more than a park with labeled plants. More to the point for this study is the question of whether productivity was changed in any way. Interviews suggest that productivity was improved in collection maintenance

through the use of outside contractors. The grounds were better maintained for less money. But if one takes into account other standards used for botanic gardens, there was a decrease in total productivity. No papers were written, few students were trained, and few certificates were awarded. Is this what the voters intended?

It is not appropriate to discuss here whether revenue reduction in county government necessarily means loss of service, as in botanic Garden "D", or improvement in productivity. Surely the voters would prefer the same services for reduced cost. What is important is that this strategy for change did not, for the most part, alter the behavior of employees in the organization. It simply reduced the size of the organization.

The above case studies exhibit three different approaches to change and productivity improvement. In Botanic Garden "A" the method was to change the relationship of the individual to the organization through job descriptions and performance evaluation. In Botanic Garden "B" and "C" the method was to change the way individuals work together in the organization. In Botanic Garden "D" the method was to reshape the organization entirely.

In each of the four cases the attempt at change was taken in response to a perceived threat or crisis: the employees were restive about pay; there was poor coordination among departments;

the budget was drastically reduced. The programs developed to rectify the problems were specific to those problems. They were conceived with little regard for the entire organization and as soon as the immediate problem was solved they were often dropped. This is crisis management. Crisis management is so much a part of profit and nonprofit organizations that developing a well-reasoned, systematic, and long term approach to change is, perhaps, the central issue in productivity improvement.

What is the best approach for developing a well-reasoned, systematic and long term program to improve productivity? In the preceding chapters we have traced the component parts to such a program. They are:

- 1) Sound behavioral concepts.
- 2) Standards of performance or productivity measures.
- 3) An organizational model based on systems theory.
- 4) Proper diagnosis of the problem
- 5) A clear goal statement.
- 6) A clear statement of the method of change.
- 7) Inclusion of an entire unit of performance.
- 8) Consistent long term implementation.
- 9) Assessment of success or failure.

In the final chapter I shall concentrate on one of these components: the method of change.

CHAPTER V

NEW DIRECTIONS FOR PRODUCTIVITY IMPROVEMENT

Research on productivity improvement programs in botanic gardens has been a painstakingly slow process for two reasons:

1) there is no literature in the behavioral sciences dealing with botanic gardens; 2) the behavioral sciences deal for the most part with profit-oriented organizations. Concepts and theories which come from the business world cannot always be applied directly to the nonprofit world. The Harvard Business Review describes the problem this way:

The "product" of all nonprofits is fundamentally services, while businesses, of course, produce goods and/or services. The "bottom line", the purpose for which the product is developed, is profit for the corporation. For the private nonprofit agency as well as the government, profit is such elements as health, education, welfare, environment, art and music - all of which can be generalized as parts of the "quality of life".²³

Fortunately, for the writer, there is a body of research on productivity improvement which deals with institutions very similar to botanic gardens: schools. There is value in examining this research as an example. Schools have no bottom line. Their goals are varied and diffuse. They attract people more committed to education than to the accumulation of wealth. No one ever got rich teaching or, for that matter, working in a botanic garden.

Schools, as institutions, are highly differentiated. Teaching staff are divided by student age and subject matter. Teaching staff are differentiated from administration and building maintenance. In higher education, research is differentiated from teaching, administration, and maintenance. Just as in botanic gardens, standards of productivity are difficult to determine in this diversity of departments and technologies. It is not illogical to identify botanic gardens with schools. In Botanic Garden "A", described in Chapter III, the director stated clearly that he ran his institution like a university. His style was nondirective and he assumed that the staff were highly self-motivated.

Theory and research on education goes back beyond the founding of the republic. Religious societies which flocked to the new world considered it a priority to set up schools that would perpetuate their way of life and beliefs. When public education was established the local government became responsible for what was taught and how it was taught. In our own age we have seen vast sums spent on education and implementation of new programs.

In the early 1970's there was concern in Washington that the huge amount of money spent by the government on school problems had made no difference. When a problem was identified a new program was developed. When that program failed a new one was tried. When that failed administrators lost interest and turned to fresher problems and repeated the process. Amidst these programs and millions

of dollars, education on the school district level changed little.

The United States Office of Education commissioned the Rand Corporation in 1973 to study the issue. Statistics were compiled on federally funded productivity improvement programs at 293 school districts in 18 states. The report concludes that it is not so much the innovation itself or the amount spent that dictates the outcome of such programs, it is the management style and characteristics of the organization which produce success or failure.²⁴ It was the school districts which were already developing their own curricula that responded most readily to change. School districts that engaged in continuous planning, the training of people, sought outside technical assistance, and received strong support from administrators up and down the line, made most efficient use of federal funds.

A study by the National Institute of Education concludes that increasing of productivity is not primarily:

a problem which can be solved by installing new accountability systems, teaching administrators improved purchasing techniques, or utilizing superior technology, but is a problem of improving the organizational climate (problem-solving and decision making structures, incentives to change, skills in managing collaborative planning and implementation, mutual support and communication, opportunities for relevant training, etc) in which people work.²⁵

The findings of these reports coincide with much of the research in the private sector.²⁶ The classical approach to productivity improvement in which problems are solved at upper

levels in the hierarchy and employees are retrained in the new methods proved less effective than the behavioral science approach in which employees are asked what the problems are and how to solve them. Success of the second approach was measured by such criteria as employee satisfaction, productivity, waste, and absence.

The success of the second approach to productivity improvement, call it participative management is due in some part to the rise of professionalism, concern for human dignity, and the loss of coercive power due to unions and labor laws. The difficulty is that the skills required in the participative approach are different from those required in the classical approach.

Two attempts at participative management described in the case studies demonstrate this point. At Botanic Garden "B" participative management emerged from the management training program. In spite of its beneficial results the director was not prepared to deal with it. His style was autocratic and he had no intentions of changing. The second instance of participative management is found in Botanic Garden "C". Here the goal was to institute participative management. Unfortunately, the skills required to switch from classical management to participative management did not exist in the organization, or for that matter, in the consultant.

From this study of productivity improvement programs in public horticulture and from a survey of contemporary behavioral research two salient points emerge. First, productivity improvement

is no easy proposition. It requires a strong foundation in contemporary management practices, careful analysis, good design, and long term application. Second, the literature demonstrates that the most effective direction for productivity improvement to take is participative management.

There are numerous contemporary approaches to productivity improvement which address these two points. For the most part they are normative-reeducative strategies which provide a model for change and include some aspect of participative management. Organizational Development is one of these. The following discussion of Organizational Development is not intended as an endorsement of this strategy for every situation. It is intended to be an example of the type of program botanic garden administrators might follow.

Organizational Development, or OD, uses the normative-reeducative strategy of change. That is to say, with the help of a consultant, employees seek to solve the problems of the organization in which they work. They not only discuss the task at hand but also discuss the technology, the people, and the structure. By means of this approach organizations will become self-renewing, or more closely resemble those organizations described by the Rand Corporation as successful.²⁷

In the ideal sense of the term OD is defined as:

a long-range effort to improve an organizations problem-solving and renewal processes, particularly through a more effective and collaborative management of

organization culture - with special emphasis on the culture of formal work teams - with the assistance of change agents, or catalyst, and the use of the theory and technology of applied behavioral science, including action research.²⁸

In this definition, problem-solving and renewal refer to the organization's ability to make decisions about its structure, task, and technology by the individuals who are most affected by them. The ability to solve problems depends on the organization's accurate perception of reality and its ability to communicate those perceptions up and down the structure. The thrust here is that an organization must remain relevant to the environment. Self-renewal involves continual adaptation with a sense of purpose. Its opposite is an antiquated perception of reality and an inability to adapt.

In the definition the term organizational culture refers to OD's emphasis on people. Specifically it brings into the open emotions about how workers get along with each other and how they get along with their boss. It matters what people think about their fellows and their job, because it is these thoughts which determine how productive the individual is. Employees are encouraged to be open and critical. Strength is drawn from their involvement.

The change agent is a distinctive aspect of OD. The most important function of the change agent is to facilitate team building. An ongoing team work of employer and employee is critical to OD. The change agent is often brought in as an outside consultant. His other duties involve assistance in the gathering of data,

feedback, diagnosis and appraisal. All of these are carried out in a team setting.

Finally OD always includes a model for change sometimes called action research. Using a systems approach, a preliminary diagnosis is made. Data is then gathered by the client organization with the help of the change agent. As a team effort, the organization develops a strategy from the data. The strategy is put into effect. Last of all data is regathered and evaluated by the client team. The process is ongoing. Actual problems are brought in and confronted on a regular basis. This openness to discuss mutual concerns is basic to organizational development.

The question comes up, why is an outside consultant necessary in OD or any other productivity improvement program? The value of an outside consultant is in his objectivity. He does not come to the problem with preconceived notions about people or the organization. Neither is he subject to authority pressures as employees might be. The drawback is that he might not gain a thorough understanding of the organization in the brief time he is involved with it. This is where the data gathering/team approach is important. The consultant is not the source of innovation or strategy he is merely a facilitator. The actual innovations for productivity improvement come from the employer/employee team.

Is an approach like this too complex and too expensive for botanic gardens to undertake? The answer is a resounding no.

Three of the four botanic gardens described in Chapter III hired personnel consultants to administer their respective productivity improvement programs. Little more would be required in OD. The difference here would be a total commitment to productivity improvement, not a quick fix.

CONCLUSION

Botanic Gardens in the United States have experimented with various approaches to improve productivity either to meet a budget shortfall or to improve garden operation. These attempts have not been flawed by lack of desire, but they have been flawed by lack of understanding. Planned change in a complex organization is a difficult and sometimes threatening course to take. It is not, however, an uncharted course.

The behavioral sciences have been studying productivity since at least the turn of the century. Focus has moved from the role of the individual through the role of the group to the contemporary vision of systems theory.

Today healthy companies and organizations are seen as having a correct fit between the organization and the environment. To become healthy or to improve productivity it is necessary to understand the environment in which the organization works, not only the environment but also the technology, the time frame, and interpersonal relations. Each of these components or systems has its own structure. To improve productivity, then, one must first understand the structure. The second step is to establish productivity measures based on that structure or model. It is the productivity

measures which allow the manager to see where the organization is now and where it must go.

Organizational change based on this diagnosis can be brought about in a number of ways. It can be imposed through legislation or policy, it can be taught to the individuals who make up the organization, or it can become a challenge to be worked out by the organization as a whole. The last method has proven to be the most effective in renewing commitment and improving productivity.

On the negative side this approach is time consuming and possibly stressful. It is not a quick solution. On the positive side the data demonstrates that it works. It is backed by volumes of applied research. In an age of shrinking budgets and shaky political support botanic gardens would do well to examine current behavioral approaches to productivity.

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