

leader—often charismatic—knows where he is taking it. As a result, the organization tends to grow rapidly, the world being, so to speak, at its feet. Employees can develop a solid identification with such an organization. **But other people perceive the Simple Structure as highly restrictive.** Because one person calls all the shots, they feel not like the participants on an exciting journey, but like cattle being led to market for someone else's benefit.

As a matter of fact, the broadening of democratic norms beyond the political sphere into that of organizations has rendered the Simple Structure unfashionable in contemporary society. Increasingly, it is being described as paternalistic, sometimes autocratic, and is accused of distributing organizational power inappropriately. Certainly, our description identifies Simple Structure as the property of one individual, whether in fact or in effect. There are no countervailing powers in this configuration, which means that the chief executive can easily abuse his authority.

There have been Simple Structures as long as there have been organizations. Indeed, this was probably the only structure known to those who first discovered the benefits of coordinating their activities in some formal way. But in some sense, Simple Structure had its heyday in the era of the great American trusts of the late nineteenth century, when powerful entrepreneurs personally controlled huge empires. Since then, at least in Western society, the Simple Structure has been on the decline. Between 1895 and 1950, according to one study (cited in Pugh et al., 1963-64:296), the proportion of entrepreneurs in American industry has declined sharply, whereas that of "bureaucrats" in particular and administrators in general has increased continuously.

Today, many view the Simple Structure as an anachronism in societies that call themselves democratic. Yet it remains a prevalent and important configuration, and will, in fact, continue to be so as long as new organizations are created, some organizations prefer to remain small and informal while others require strong leadership despite larger size, society prizes entrepreneurship, and many organizations face temporary environments that are extremely hostile or more permanent ones that are both simple and dynamic.

THE MACHINE BUREAUCRACY

Prime Coordinating Mechanism: Standardization of work processes

Key Part of Organization: Technostructure

Main Design Parameters: Behavior formalization, vertical and horizontal job specialization, usually functional grouping, large operating-unit size, vertical centralization and limited horizontal decentralization, action planning

Situational Factors: Old, large; regulating, nonautomated technical system; simple, stable environment; external control; not fashionable

A national post office, a security agency, a steel company, a custodial prison, an airline, a giant automobile company: all these organizations appear to have a number of structural characteristics in common. Above all, their operating work is routine, the greatest part of it rather simple and repetitive; as a result, their work processes are highly standardized. These characteristics give rise to the *Machine Bureaucracies* of our society, the structures fine-tuned to run as integrated, regulated machines.

This is the structure closest to the one Max Weber first described, with standardized responsibilities, qualifications, communication channels, and work rules, as well as a clearly defined hierarchy of authority. It

is the structure that Stinchcombe showed to arise from the Industrial Revolution, the one that Woodward found in the mass-production firms, Crozier in the tobacco monopoly, Lawrence and Lorsch in the container firm.

Description of the Basic Structure

A clear configuration of the design parameters has held up consistently in the research: highly specialized, routine operating tasks; very formalized procedures in the operating core; a proliferation of rules, regulations, and formalized communication throughout the organization; large-sized units at the operating level; reliance on the functional basis for grouping tasks; relatively centralized power for decision making; and an elaborate administrative structure with a sharp distinction between line and staff.

The operating core

The obvious starting point is the operating core, with its highly rationalized work flow. As a result of this, the operating tasks are simple and repetitive, generally requiring a minimum of skill and little training—often taking only hours, seldom more than a few weeks, and usually in-house. This leads to a sharp division of labor in the operating core—to narrowly defined jobs, specialized both vertically and horizontally—and to an emphasis on the standardization of work processes for coordination. Thus, formalization of behavior emerges as the key design parameter. Because the workers are left with little discretion in their work, there is little possibility for mutual adjustment in the operating core. The use of direct supervision by first-line managers is limited by the fact that standardization handles most of the coordination. Thus, very large units can be designed in the operating core. (There is, however, as we shall see below, need for another kind of direct supervision.)

The administrative component

The tight regulation of the operating work—in effect, the sealing off of the operating core from disruptive environmental influence—requires that the administrative structure be highly elaborated. First is the middle line, which is fully developed, especially well above the operating core, and is sharply differentiated into functional units. The managers of this middle line have three prime tasks. One is to handle the disturbances that arise among the highly specialized workers of the operating core. Although standardization takes care of most of the operating interdependences, ambiguities inevitably remain, and these give rise to conflicts. These cannot

easily be handled by mutual adjustment among the operators, since informal communication is inhibited by the extensive standardization. So they tend to be handled by direct supervision, the orders of first-line managers. And because many of these conflicts arise between operators adjacent to each other in the work flow, the natural tendency is to bring adjacent operators under common supervision—in other words, to group the operators into units that deal with distinct parts of the work flow, which results in the functional basis for grouping operating units. For the same reason, this functional grouping gets mirrored all the way up the hierarchy, from the production and maintenance departments, which look to the plant manager to resolve many of their conflicts, to the manufacturing and marketing vice-presidents, who often expect the same of the company president.

A second task of the middle-line managers, which also explains why they are grouped on functional bases, is to work in a liaison role with the analysts of the technostucture to incorporate their standards down into the operating units. Their third task is to support the vertical flows in the structure—the aggregation of the feedback information up the hierarchy and the elaboration of the action plans that come back down. All these tasks of the middle-line managers require personal contacts—with their subordinates, the analysts, and their own superiors—which limit the number of people they can supervise. Hence, units above the operating core tend to be rather small in size and the overall administrative hierarchy rather tall in shape.

The technostucture must also be highly elaborated. In fact, Stinchcombe identified the birth of this structure in early nineteenth-century industries such as textiles and banking with the growth of technocratic personnel. **Because the Machine Bureaucracy depends primarily on the standardization of its operating work processes for coordination, the technostucture—which houses the analysts who do the standardizing—emerges as the key part of the structure.** This is so despite the fact that the Machine Bureaucracy sharply distinguishes between line and staff. To the line managers is delegated the formal authority for the operating units; the technocratic staff—officially, at least—merely advises. But without the standardizers—the cadre of work-study analysts, job-description designers, schedulers, quality control engineers, planners, budgeters, MIS people, accountants, operations researchers, and many, many more—the structure simply could not function. Hence, despite their lack of formal authority, considerable informal power rests with the analysts of the technostucture—those who standardize *everyone else's* work.

The informal power of the technostucture is gained largely at the expense of the operators, whose work the analysts formalize to a high degree, and of the first-line managers, who would otherwise supervise the operators directly. Such formalization institutionalizes the work of these

managers, removing much of their power to coordinate and putting it into the systems designed by the analysts. The first-line manager's job can, in fact, become so circumscribed that he can hardly be said to function as a manager at all (that is, as someone who is *in charge* of an organizational unit). The classic case is the foreman on the assembly line, although earlier we had the example of the branch managers of the large Canadian banks, and Jay (1970:66) describes the same phenomenon in his job as head of a program production department in the BBC television service.

The emphasis on standardization extends well beyond the operating core of the Machine Bureaucracy, and with it follows the analysts' influence. In other words, **rules and regulations permeate the entire Machine Bureaucracy structure; formal communication is favored at all levels; decision making tends to follow the formal chain of authority.** In no other configuration does the flow of information and decision making more closely resemble the system of regulated flows presented in our second overlay of Chapter 1, with commands amplified down the vertical chain and feedback information aggregated up it. (This is not to suggest that the work of the senior managers is rigid and formalized, but rather that at every hierarchical level, behavior in the Machine Bureaucracy is *relatively* more formalized than that in the other configurations.)

A further reflection of this formalization is the sharp divisions of labor all over the Machine Bureaucracy. We have already discussed job specialization in the operating core and the sharp division between line and staff. In addition, the administrative structure is sharply differentiated from the operating core. Unlike the case with the Simple Structure, here managers seldom work alongside operators. And the division of labor between the analysts who design the work and the operators who do it is equally sharp. In general, **of the five configurations, it is the Machine Bureaucracy that most strongly emphasizes division of labor and unit differentiation, in all their forms—vertical, horizontal, line/staff, functional, hierarchical, and status.**

In general, then, the Machine Bureaucracy functions most clearly in accord with the classical principles of management: formal authority filters down a clearly defined hierarchy, throughout which the principle of unity of command is carefully maintained, as is the rigid distinction between line and staff. Thus, the real error of the classical theorists was not in their principles per se, but in their claim that these were universal; in fact, they apply only to this and one other of the five configurations.¹

¹That other one is, as we shall see, the Divisionalized Form. But to be fair to the classicists, at the time of Fayol's first major statement of his views (1916), one and possibly two of the other three structural configurations hardly existed. The Adhocracy is really a post-World War II structural innovation, and the Professional Bureaucracy developed during this century. We can fault Fayol only for ignoring the Simple Structure, although his followers (some right up

The obsession with control

All this suggests that **the Machine Bureaucracy is a structure with an obsession—namely, control.** A control mentality pervades it from top to bottom. Three quotations illustrate this, each from a different hierarchical level. First, near the bottom, consider how a Ford Assembly Division general foreman describes his work:

I refer to my watch all the time. I check different items. About every hour I tour my line. About six thirty, I'll tour labor relations to find out who is absent. At seven, I hit the end of the line. I'll check paint, check my scratches they're all awake, they're in the area of their responsibility. I make sure down the end of the line at two o'clock and everything's clean. Friday night everybody'll get paid and they'll want to get out of here as quickly as they can. I gotta keep 'em on the line. I can't afford lettin' 'em get out early. We can't have no holes, no nothing. (quoted in Terkel, 1972:186)

At the middle level, the issues may be different, but the control mentality remains the same: "... a development engineer is not doing the job he is paid for unless he is at his drawing board, drawing, and so on. Higher management . . . cannot trust subordinates when they are not demonstrably and physically 'on the job'" (Burns, 1971:52-53). And at the strategic apex:

When I was president of this big corporation, we lived in a small Ohio town, where the main plant was located. The corporation specified who you could socialize with, and on what level (His wife interjects: "Who were the wives you could play bridge with.") The president's wife could do what she wants, as long as it's with dignity and grace. In a small town they didn't have to keep check on you. Everybody knew. There are certain sets of rules. (quoted in Terkel, 1972:406)

The obsession with control reflects two central facts about these structures: **First, attempts are made to eliminate all possible uncertainty, so that the bureaucratic machine can run smoothly, without interruption.** The operating core must be sealed off from external influence so that the standard outputs can be pumped off the assembly lines without disruption—hence the need for rules from top to bottom. Second, **by virtue of their design, Machine Bureaucracies are structures ridden with conflict; the control systems are required to contain it.** The magnified divisions of labor, horizontal and vertical, the strong departmental differentiation, the

to the time of this writing) can be criticized more strongly because they ignored the important structural innovations that were developing all around them.

rigid distinction between line and staff, the motivational problems arising from the routine work of the operating core, all these permeate the structure with conflict. As Woodward noted, in these types of organizations, the ideal social and technical systems simply do not correspond:

Technical ends may best be served by conflict and pressure. Many of the conflicts that occurred in the firms studied seemed to be constructive by making a contribution to end results, and it was certainly not true to say that the most successful firms were those with the best relationships and closest identification between the staff and the company. (p. 45)

Hence, the development of the ubiquitous control mentality. The problem in the Machine Bureaucracy is not to develop an open atmosphere where people can talk the conflicts out, but to enforce a closed, tightly controlled one where the work can get done despite them.

The obsession with control also helps to explain the frequent proliferation of support staff in these structures. Many of the staff services could be purchased from outside suppliers. But that would expose the Machine Bureaucracy to the uncertainties of the open market, leading to disruptions in the systems of flows it so intently tries to regulate. So it "makes" rather than "buys." That is, it envelops as many of these support services as it can within its own boundaries in order to control them, everything from the cafeteria in the factory to the law office at headquarters.

The strategic apex

The managers at the strategic apex of these organizations are concerned in large part with the fine-tuning of their bureaucratic machines. Hunt notes, as we saw earlier, that these are "performance organizations," not "problem-solving" ones. Theirs is a perpetual search for more efficient ways to produce given outputs. Thus, the entrepreneur function takes on a very restricted form at the strategic apex.

But all is not strictly improvement of performance. Just keeping the structure together in the face of its conflicts also consumes a good deal of the energy of top management. As noted earlier, conflict is not resolved in the Machine Bureaucracy; rather, it is *bottled up* so that the work can get done. And as in the case of the bottle, the seal is applied at the top; ultimately, it is the top managers who must keep the lid on the conflicts through their role of handling disturbances.

Direct supervision is another major concern of top management. Formalization can do only so much at the middle levels, where the work is more complex and unpredictable than in the operating core. The coordina-

tion between the highly differentiated middle-level units—for example, between engineering, marketing, and manufacturing in the mass-production firm—often requires a flexible mechanism. The obvious choice would seem to be mutual adjustment. But its use is limited by the various blocks to informal communication—status differences between line and staff and between managers at different levels of the hierarchy, sharp differentiation on formal communication and vertical reporting relationships. (In terms of our continuum of Figure 4-5, only the mildest liaison devices tend to be used in these structures—liaison positions and perhaps standing committees, but not matrix structure and the like. The latter would destroy the chain of authority and the principle of unity of command, elements of central importance to the basic configuration.) So there remains the need for a good deal of direct supervision at the top. Specifically, the managers of the strategic apex must intervene frequently in the activities of the middle line to effect coordination there. The top managers are the only generalists in the structure, the only managers with a perspective broad enough to see all the functions—the means—in terms of the overall ends. Everyone else in the structure is a specialist, concerned with a single link in the chain of activities that produces the outputs.

All this leads us to the conclusion that **considerable power in the Machine Bureaucracy rests with the managers of the strategic apex.** That is, these are rather centralized structures; in fact, they are second in this characteristic only to the Simple Structure. The formal power clearly rests at the top; hierarchy and chain of authority are paramount concepts. But so also does much of the informal power, since that resides in knowledge, and only at the top of the hierarchy does the segmented knowledge come together. The managers of the middle line are relatively weak, and the workers of the operating core have hardly any power at all (except, as we shall see later, to disrupt the operations). **The only ones to share any real informal power with the top managers are the analysts of the technology, by virtue of their role in standardizing everyone else's work.** Hence, we can conclude that the Machine Bureaucracy is centralized in the vertical dimension and decentralized only to a limited extent in the horizontal one.

Strategy making

Strategy in these structures clearly emanates from the strategic apex, where the perspective is broad and the power is focused. **The process of strategy making is clearly a top-down affair, with heavy emphasis on action planning.** In top-down strategy making, all the relevant information is ostensibly sent up to the strategic apex, where it is formulated into an

integrated strategy. This is then sent down the chain of authority for implementation, elaborated first into programs and then into action plans.

Two main characteristics of this strategy-making system should be noted. First, it is intended to be a fully rationalized one, as described in our second overlay of Chapter 1. All the decisions of the organization are meant to be tied into one tightly integrated system. Exceptions flow up the chain of authority, to be handled at the level at which their effect is contained in a single unit, ultimately at the strategic apex if they cut across major functions. In turn, the resulting decisions flow down the chain for implementation in specific contexts. The structure that emerges is not so much one of work constellations, where groups at different levels make different kinds of decisions, as one of a hierarchy of ends and means, where managers at successively lower levels make the same kinds of decisions but with different degrees of specificity. For example, production decisions made at the vice-presidential level may concern what sum of money should be spent on new machinery; at the plant level, which machines to buy; and at the foreman level, how these machines are to be installed. Second, unique to this structure is a sharp dichotomy between formulation and implementation in strategy making. The strategic apex formulates and the middle line and operating core implement. At least, in theory. We shall come to practice momentarily.

Figure 9-1 shows the Machine Bureaucracy symbolically, in terms of our logo, with a fully elaborated administrative and support structure—both staff parts of the organization being focused on the operating core—and large operating units but narrower ones in the middle line to reflect the tall hierarchy of authority.

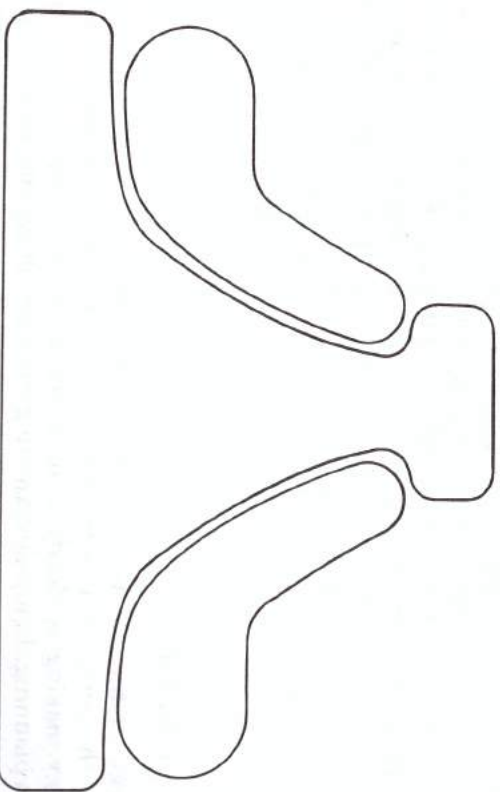


Figure 9-1. The Machine Bureaucracy

Conditions of the Machine Bureaucracy

We began our discussion of the basic structure with the point that the work flow of the Machine Bureaucracy is highly rationalized, its tasks simple and repetitive. Now we can see that such machine bureaucratic work is found, **above all, in environments that are simple and stable.** The work of complex environments cannot be rationalized into simple tasks, and that of dynamic environments cannot be predicted, made repetitive, and so standardized.

In addition, the Machine Bureaucracy is typically found in the **machine organization, large enough to have the volume of operating work needed for repetition and standardization, and old enough to have been able to settle on the standards it wishes to use.** This is the organization that has seen it all before and has established a standard procedure to deal with it. Machine Bureaucracies are clearly the second stage of structural development, as we described in Chapter 6, the consequences of Simple Structures that grow and age.

Machine Bureaucracies tend also to be identified with regulating technical systems, since these routinize work and so enable it to be formally sophisticated, but not beyond. Highly sophisticated technical systems require that considerable power be delegated to staff specialists, resulting in a form of decentralization incompatible with the machine bureaucratic structure. Nor can the technical system be automated, for that would do away with routine operating work and so lead to another configuration. Thus, although the organization may make heavy use of mechanism and computers because its work is standardized, it remains a Machine Bureaucracy only as long as these do not displace a work force dominated by unskilled operators.

Mass-production firms are perhaps the best known Machine Bureaucracies. Their operating work flows form integrated chains, open at one end to accept raw material inputs, and after that functioning as closed systems that process the inputs through sequences of standardized operations until marketable outputs emerge at the other end. These horizontal operating chains are typically segmented into links, each of which forms a functional department that reports up the vertical chain of authority. Even in some enormously large mass-production firms, the economies of scale are such that functional structures are maintained right up to the top of the hierarchy. Likewise, in process production, when the firm is unable to automate its operations but must rely on a large work force to produce its outputs, it tends to adopt a functional Machine Bureaucratic structure.²

²The contradiction here with Woodward, who describes the structure of process production firms as organic, appears to stem from an assumption in her work that process technical systems are always largely automated.

Figure 9-2 shows the organigram of a large steel company, functional right to its top level of grouping.

In the case of the giant Machine Bureaucracies, an interesting shift occurs in the relationship between environmental stability and structural formalization: the former becomes the dependent variable. These organizations have great vested interests in environmental stability; without it, they cannot maintain their enormous technical systems. So whereas once upon a time they may have bureaucratized because their environments were stable, as they grew large they found themselves having to stabilize their environments because they were bureaucratic. As Worthy notes, "... there were external pressures on the enterprise itself that had to be organized and controlled before scientific management could come into its own" (1959:76). Thus, giant firms in industries such as transportation, tobacco, and metals are well known for their attempts to control the forces of supply and demand—through the use of advertising, the development of long item-supply contacts, sometimes the establishment of cartels, and, as noted earlier, the envelopment of support services. They also adopt strategies of "vertical integration"; that is, they extend their production chains at both ends, becoming their own suppliers and customers. In this way, they are able to bring some of the forces of supply and demand within their own planning processes, and thereby regulate them. In effect, when it gets large enough, the Machine Bureaucracy can extend its control into its environment, seeking to regulate whatever out there can disturb its routine operations.

Of course, the Machine Bureaucracy configuration is not restricted to large, or manufacturing, or even private-enterprise organizations. Some small manufacturers—for example, certain producers of discount furniture and paper products—prefer this structure because their operating work is simple and repetitive. Many service firms—what we can call *white-collar bureaucracies*—use it for the same reason, even though their operations are not integrated into single chains. Strings of assembly-line workers are replaced in the insurance company by grids of office clerks, in the telephone company by rooms of switchboard operators, in the bank by rows of tellers. The outputs of these service firms may differ from those of the factories—as does the color of their workers' collars—but their operating work, being equally routine and nonprofessional, is no less amenable to formalization. The large hotel, for example, lends itself to the machine bureaucratic form because its structure is tied right into its permanent physical facilities. Once the hotel is built, its location and size, as well as the nature of its rooms (in effect, its product-market strategy), are largely fixed. Thereafter, its success depends primarily on how effectively it can regulate its operations to the satisfaction of its customers. Those customers have definite expectations—not for surprise but for stability. Thus, a few years ago, one of the giant hotel chains ran a series of print advertisements under the

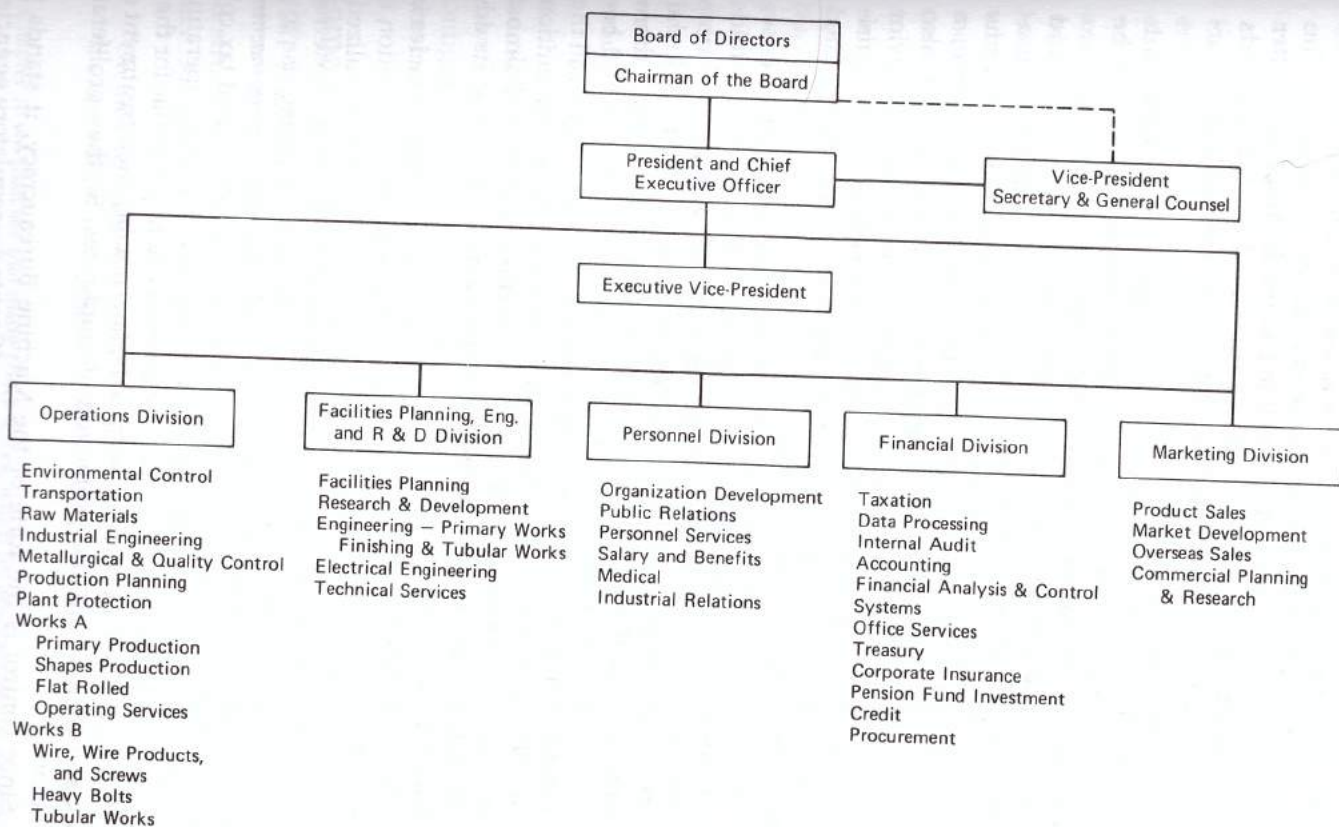


Figure 9-2. Organigram of a large steel company

theme, "At every Holiday Inn, the best surprise is no surprise." In one, George J. Fryzryan III, business insurance consultant, exclaimed, "The room was clean. The TV worked. Everything worked. Amazing." After more praise, he added, "It's got something to do with those 152 standards at every Holiday Inn. . . ." Machine Bureaucracies are well suited to ensuring that nothing can possibly go wrong.

One McGill MBA group studied a security agency with 1,200 part-time guards and nine full-time managers. The guards, paid at or near the minimum wage, were primarily older, retired men. Their work was extremely routine and simple—for example, guarding school crossings and patrolling buildings after hours. Correspondingly, everything was absolutely routinized and the structure was remarkably bureaucratic. Uniforms were worn, ranks were used, a tight code of discipline was in force, a manual specified general regulations in minute detail, and each job also had its own equally specific regulations. And this formalization of behavior was not restricted to the guards. When the firm embarked on an acquisition campaign, it drew up a procedure to evaluate candidates that seemed like a page out of its operations manual.

This organization was not a Machine Bureaucracy in the pure sense, since it lacked an elaborate administrative hierarchy. There were few middle managers and almost no analysts. In effect, the tasks of the organization were so simple and stable that management itself could work the procedures out and then let them be, almost in perpetuity. Hence, there was no need for a technostucture. The structure was really a hybrid between Simple Structure and Machine Bureaucracy, which we might call the *simple bureaucracy*: centralized, highly bureaucratic, but with no elaboration of the administrative structure. Thus, given extremely simple and almost perfectly stable work, the Machine Bureaucracy can shed most of its administrative component.

Another condition often found with many Machine Bureaucracies is external control. Hypothesis 14 indicated that the more an organization is controlled externally, the more its structure is centralized and formalized, the two prime design parameters of the Machine Bureaucracy. External control is often most pronounced in government agencies, giving rise to a common example of this configuration, which we can call the *public machine bureaucracy*. Many government agencies—such as post offices and tax collection departments—are bureaucratic not only because their operating work is routine but also because they are accountable to the public for their actions. Everything they do must seem to be fair, notably their treatment of clients and their hiring and promotion of employees. So they proliferate regulations.

Since control is the forte of the Machine Bureaucracy, it stands to reason that organizations in the business of control—regulatory agencies, custodial prisons, police forces—are drawn to this configuration, some-

times in spite of contradictory conditions.³ These constitute a variant we call the *control bureaucracy*. Another condition that drives the organization to the machine bureaucratic structure is the special need for safety. Organizations that fly airplanes or put out fires must minimize the risks they take. Hence, these *safety bureaucracies* formalize their procedures extensively to ensure that these are carried out to the letter. Few people would fly with an airline that had an organic structure, where the maintenance men did whatever struck them as interesting instead of following precise checklists and the pilots worked out their procedures for landing in foggy weather when the need arose. Likewise, a fire crew cannot arrive at a burning house and then turn to the chief for orders or decide among its members who will connect the hose and who will go up the ladder. The environments of these organizations may seem dynamic, but in fact most of their contingencies are predictable—they have been seen many times before—and so procedures for handling them have been formalized. (Of course, an unexpected contingency forces the crew to revert to organic structure.) We can also call organizations such as fire departments *contingency bureaucracies*. They exist not to provide routine services, but to stand ready in the event of the need for nonroutine ones. But because these services are critical, the organizations must plan elaborate procedures to respond quickly and efficiently to every contingent event that can be anticipated. Their operators then spend their time practicing these procedures and waiting around for an event to occur, hopefully one of the contingencies anticipated.

Finally, we note that fashion is no longer a condition that favors the Machine Bureaucracy configuration. This structure was the child of the Industrial Revolution. Over the course of the last two centuries—particular at the turn of this one—it seems to have emerged as the dominant configuration. But the Machine Bureaucracy is no longer fashionable. As we shall soon see, it is currently under attack from all sides.

Some Issues Associated with Machine Bureaucracy

No structure has evoked more heated debate than the Machine Bureaucracy. As one of its most eminent students has noted:

On the one hand, most authors consider the bureaucratic organization to be the embodiment of rationality in the modern world, and, as such, to be

³In Chapter 10 we shall see that many police forces, which for other reasons seem as though they should be structured as Professional Bureaucracies, are in fact drawn toward Machine Bureaucracy because of the control orientation and the need for public accountability.

intrinsically superior to all other possible forms of organization. On the other hand, many authors—often the same ones—consider it a sort of Leviathan, preparing the enslavement of the human race. (Crozier, 1964:176)

Weber, of course, emphasized the rationality of this structure; in fact, the word *machine* comes directly from his writings:

The decisive reason for the advance of bureaucratic organization has always been its purely technical superiority over any other form of organization. The fully developed bureaucratic mechanism compares with other organizations exactly as does the machine with the non-mechanical modes of production.

Precision, speed, unambiguity, knowledge of the files, continuity, discretion, unity, strict subordination, reduction of friction and of material and personal costs—these are raised to the optimum point in the strictly bureaucratic administration. . . . (Gerth and Mills translation, 1958:214)

A machine is certainly precise; it is also reliable and easy to control; and it is efficient—at least when restricted to the job it has been designed to do. These are the reasons many organizations are structured as Machine Bureaucracies. In fact, these structures are the prime manifestations of our society's high degree of specialization; moreover, they are the major contributors to our high material standard of living. Without Machine Bureaucracies, automobiles would be reserved for the rich and travelers would fly at their own peril. No structure is better suited to mass production and consistent output, none can more efficiently regulate work. Our society—such as it is—simply could not function without these structures. When an **integrated set of simple, repetitive tasks must be performed precisely and consistently by human beings, the Machine Bureaucracy is the most efficient structure—indeed, the only conceivable one.**

But in these same advantages of machine-like efficiency lie all the disadvantages of these structures. Machines consist of mechanical parts; organizational structures also include human beings—and that is where the analogy breaks down. First, we shall discuss the human problems that arise in the operating core when people see themselves as more than just mechanical factors of production. Second, we shall discuss the coordination problems that arise in the administrative center when conflicts cannot be resolved by standardization. But in another sense, the machine analogy holds up and helps us to define a third set of problems—those of adaptability at the strategic apex. Machines are designed for specific purposes; they are difficult to modify when conditions change.

Human problems in the operating core

James Worthy, when an executive of Sears, Roebuck, wrote a penetrating and scathing criticism of Machine Bureaucracy in his book, *Big Business and Free Men*. Worthy traces the root of the human problems in these structures

to the "scientific management" movement that swept America, and later the Soviet Union,⁴ in the first third of this century. He sees its founder, Frederick W. Taylor, as the epitome of the personality drawn to the Machine Bureaucracy.

His virtual obsession to control the environment around him was expressed in everything he did: in his home life, his gardening, his golfing; even his afternoon stroll was not a casual affair but something to be carefully planned and rigidly followed. Nothing was left to chance if in any way chance could be avoided. . . .

From his writings and his biography one gets the impression of a rigid, insecure personality, desperately afraid of the unknown and the unforeseen, able to face the world with reasonable equanimity only if everything possible has been done to keep the world in its place and to guard against anything that might upset his careful, painstaking plans. (1959:74-75)

Worthy acknowledges Taylor's contribution to efficiency, narrowly defined. Worker initiative did not, however, enter into his efficiency equation. Taylor "visualized the role of people within the organization in precisely the same manner as he visualized the component parts of a mechanism. 'A complicated and delicately adjusted machine' was a favorite figure of speech" (pp. 65-66). So efficient organizations came to be described as "smoothly running machines," the organizations as "blueprinting" (pp. 66-67). The problem was that "the methods of engineering have proved inappropriate to human organization" (p. 67). The assumption, as Emery (1971) has put it, that "we'll get the engineering system straight and simply tie the social system to it" (p. 186), created its own set of difficulties. Taylor's pleas to remove "all possible brain work" (Worthy, p. 67) from the shop floor also removed all possible initiative from the people who worked there: ". . . the machine has no will of its own. Its parts have no urge to independent action. Thinking, direction—even purpose—must be provided from outside or above" (p. 79). **Treating people as "means," as "categories of status and function rather than as individuals,**

⁴There it had its "fullest flowering," encouraged by Lenin "as a means for accelerating industrial production" (p. 77). Worthy notes further the "interesting parallels between communism and scientific management. In both cases workers are seen as means rather than ends, doors rather than planners or initiators; to be manipulated—by persuasion if possible, by coercion if necessary—in other interests and for other needs than their own" (p. 78). Worthy also makes the link in the other direction, from regulated structure to centralized government. Writing of the American distrust for national planning, he comments, "But let there be a serious downturn in business, let the present smooth functioning of markets collapse under the blows of economic adversity, and the habit of mind that thinks in terms of mechanistic organization of the enterprise will make it easy to think in terms of mechanistic organization of the economy" (p. 79).

viduals," had the "consequence of destroying the meaning of work itself." And that has been "fantastically wasteful for industry and society" (p. 70). Organizations have paid dearly for these attitudes in the various forms of worker resistance—absenteeism, high turnover rates, sloppy workmanship, strikes, even outright sabotage.

Studs Terkel's (1972) fascinating book, *Working*, in which "people talk about what they do all day and how they feel about what they do" provides chapters of evidence on workers' responses to Machine Bureaucracies. Here is how a steelworker discusses his job:

I don't know who the guy is who said there is nothing sweeter than an unfinished symphony. Like an unfinished painting and an unfinished poem. If he creates this thing one day—let's say, Michelangelo's Sistine Chapel. It took him a long time to do this, this beautiful work of art. But what if he had to create this Sistine Chapel a thousand times a year? Don't you think that would even dull Michelangelo's mind? Or if da Vinci had to draw his anatomical charts thirty, forty, fifty, sixty, eighty, ninety, a hundred times a day? Don't you think that would even bore da Vinci? (p. xxxvii)

Undoubtedly. Unless he had the temperament of Babe Secoli, a checker in a Chicago supermarket with a very different perspective on machine bureaucratic work:

We sell everything here, millions of items. From potato chips and pop—we even have a genuine pearl in a can of oysters. It sells for two somethin'. Snails with the shells that you put on the table, fanciness. There are items I never heard of we have here. I know the price of every one. Sometimes the boss asks me and I get a kick out of it. . . .

You sort of memorize the prices. It just comes to you. I know half a gallon of milk is sixty-four cents; a gallon, \$1.10. You look at the labels. A small can of peas, Raggedy Ann. Green Giant, that's a few pennies more. I know Green Giant's eighteen and I know Raggedy Ann is fourteen. . . . You just memorize. On the register is a list of some prices, that's for the part-time girls. I never look at it.

I don't have to look at the keys on my register. I'm like the secretary that knows her typewriter. The touch. My hand fits. The number nine is my big middle finger. The thumb is number one, two and three and up. The side of my hand uses the bar for the total and all that.

I use my three fingers—my thumb, my index finger, and my middle finger. The right hand. And my left hand is on the groceries. They put down their groceries. I got my hips pushin' on the bottom and it rolls around on the counter. When I feel I have enough groceries in front of me, I let go of my hip. I'm just movin'—the hips, the hand, and the register, the hips, the hand, and the register. . . . (As she demonstrates, her hands and hips move in the manner of an Oriental dancer.) You just keep goin', one, two, one, two. If you've got that rhythm, you're a fast checker. Your feet are flat on the floor and you're turning your head back and forth. . . .

I'm a couple of days away, I'm very lonesome for this place. When I'm on a vacation, I can't wait to go, but two or three days away, I start to get fidgety. I can't stand around and do nothin'. I have to be busy at all times. I look forward to comin' to work. It's a great feelin'. I enjoy it somethin' terrible. (pp. 282, 286)

The difference between the da Vincis in the steel mills and the Secolis in the supermarkets is that some people take to routine work and others abhor it. Some simply appreciate regularity in their work—perhaps, like Secoli, because it gives them a chance to get to know it well, or perhaps because it satisfies a need for order and security. But others, either because their need is to do creative, self-actualizing work or because they dislike being told what to do, cannot tolerate the work offered them in Machine Bureaucracies.

As long as everybody can find the work that best suits him or her, there is no problem. But apparently, not everyone can. There appear to be more jobs in the Machine Bureaucracies of our society than people happy to fill them, and too few in the more popular structures. Thus, one study in an automobile assembly plant found that 69 percent of the workers complained of monotony, 87 percent wanted to find a job with higher skills and more responsibility, variety, and freedom; most claimed they stayed because of what they could earn, only 6 percent because they liked the work (cited in Melcher, 1976:85).

And time is not on the side of the Machine Bureaucracy. Rising educational levels raise work aspirations—that is, bring out the need for self-actualization at the expense of the need for security. Moreover, the welfare system has taken care of certain security needs, giving the worker the option of doing nothing without starving. The result is that today's Machine Bureaucracies are experiencing more and more resistance from people who simply do not want to be there, at least in societies like America. Whether the same phenomenon is occurring in countries like, say, Switzerland, where the people seem to relish order and regularity, is not clear. (And the problem is not restricted to the operating core. Successful American middle-aged executives—no longer tolerant of the control mentality—seem also to be quitting in increasing numbers, after years of struggling to get to where they are.) Clearly, in the view of a growing portion of the work force, Machine Bureaucracies are becoming unacceptable places to spend their working lives.

Taylor was fond of saying, "In the past the man has been first; in the future the system must be first" (quoted in Worthy, 1959:73). Prophetic words, indeed. Modern man seems to exist for his systems; many of the organizations he created to serve him have come to rule him. The consumer seems to find cheap goods in the marketplace on Saturday only if he is willing to squander his talents as a producer from Monday to Friday. Mass consumption in return for dreary production.

But even the consumption is affected, by what one writer (Thompson, 1961) has referred to as the "bureaupathologies"—the dysfunctional behaviors of these structures, which lead to higher prices, shoddy workmanship, and indifferent or rude treatment of customers. Sometimes the consequences are bizarre. A story in the December 17, 1971, issue of *Time* magazine told what happens when specialization drives workers to displace ends in favor of means. Firemen in Genoa, Texas, set fire to abandoned buildings because they were bored. Explained one, "We'd hang around the station on the night shift without a thing to do. We just wanted to get the red light flashing and the bells clanging."

The various bureaupathologies reinforce each other to form vicious circles. The displacement of ends in favor of means, the mistreatment of clients, the various manifestations of worker alienation—all lead to a tightening of the controls on behavior. The implicit motto of the Machine Bureaucracy seems to be, "When in doubt, control." All problems are to be solved by the turning of the technocratic screws. But since this is what caused the bureaupathologies in the first place, more of it serves only to magnify the problems, leading to the imposition of further controls, and so on. How far this can go is perhaps best illustrated by a firm that intervened to reverse the process. When Marks and Spencer, the U.K. retail chain, dispensed with inventory replacement cards, sales receipts, time clocks, and other control procedures, the owners estimated that the firm was able to eliminate 8,000 of its 28,000 jobs and to save 26 million pieces of paper annually (Becker and Gordon, 1966-67:331-32).

But not every organization can wipe out most of its control system in one fell swoop. So other means have been tried—by the organization or its workers—to reverse the vicious circles, everything from job enlargement to outright democratization. As discussed in Chapter 2, job enlargement (or "enrichment"), where the workers are given a wider variety of tasks to perform and perhaps control over the design of those tasks as well, does not seem to hold a great deal of promise for major improvement of the work. No doubt the engineering orientation has led to excessive specialization in many cases. When the human factor is finally plugged into the performance equation—that is, when the worker's initiative is taken into account—it clearly becomes worthwhile to enlarge many jobs. But the question is, How far? And the answer seems to be, Not very. As we have emphasized in this chapter, the nature of the Machine Bureaucracy's work reflects above all the regulating characteristic of the organization's technical system and the stability and simplicity of its environment. The obsession with control is a response to these conditions, albeit often an excessive one. As long as these conditions remain—in essence, as long as society demands cheap, mass-produced goods and services—a great many jobs will remain pretty much as they are now—that is, minimally affected by job enlargement. Braverman (1974) puts it rather brutally: "Taylorism

dominates the world of production; the practitioners of 'human relations' and 'industrial psychology' are the maintenance crew for the human machinery" (p. 87).

If the human problems in the operating core of Machine Bureaucracy cannot be solved by job enlargement, what are the prospects for democratization instead? Here, too, the evidence (discussed in Chapter 5) is discouraging, and for the same reason: **democratization does not eliminate the fundamental conflict in the Machine Bureaucracy between engineering efficiency on the one hand and individual satisfaction on the other.** Giving the workers the right to vote for directors periodically does not change the realities of their everyday work. (It might, however, somewhat change their attitudes to that work, infusing a dose of ideology into an otherwise utilitarian situation. A sense of ownership might reduce the feelings of alienation.) As we saw in Chapter 5, such democratization seems to centralize the structure further. Indeed, these effects can be predicted from our Hypothesis 14, since, in electing the directors, the workers constitute a force for external control. That hypothesis indicated that external control not only centralizes a structure but also bureaucratizes it.

Nowhere is this result clearer than in Crozier's (1964) description of another kind of democracy—a judicial type—where the workers impose rules in order to dilute their bosses' control over them. As we noted earlier, this turns out to be a perverse kind of democracy indeed. With the bosses constrained by the rules, power passes up the hierarchy, and the structure becomes significantly more centralized. And with workers' rules countering managers' rules, the structure also becomes more bureaucratic, at everybody's expense. The workers end up being locked into an even tighter or straitjacket, albeit of their own design. The clients lose, too. Those of the ordinary Machine Bureaucracy can at least take solace in the fact that the rules are for their benefit—to encourage more efficient production. The additional rules of the bureaucracies Crozier describes have nothing to do with efficiency; they serve to protect the worker. As we shall soon see, like all rules, they act to inhibit innovation and adaptation. Where the workers are organized to fight the intrusions of management, change becomes well-nigh impossible. Judicial democratization catches the client in a tug of war between worker and manager. The organization burns up more of its energy in its own conflicts, with less left over to produce outputs for the clients.

The discouraging conclusion is that the Machine Bureaucracy creates major human problems in the operating core, ones for which no solutions are apparent. Joan Woodward had it right when she argued that in these structures, there is an irreconcilable conflict between the technical and social systems. What is good for production simply is not good for people. Fundamental change will, apparently, have to come, not through the front door of direct confrontation or legislation, but through the back door of changed conditions to which the organization must respond. Specifically,

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nothing short of automation of the technical system (or of an environment becoming more complex or dynamic) seems able to alleviate the social problems of the Machine Bureaucracy.

We do, of course, have one other choice as a society: to reduce our demand for cheap, mass-produced goods and services. As we shall see in Chapter 10, craft organizations, structured as Professional Bureaucracies, can sometimes produce the same outputs as Machine Bureaucracies but with less social turmoil and much higher quality. The question is whether we are prepared to pay the price: stoneware dishes replaced every generation instead of plastic ones replaced every year, an occasional dress hand-woven in a studio instead of frequent ones mass-produced in a factory, a Ferrari every twenty years instead of a Ford every two. Of course, should the vicious circles intensify to the point where life in the Machine Bureaucracy becomes so intolerable that nobody will work there, we shall have no other choice. Perhaps the system will end up serving man after all, despite himself.

Coordination problems in the administrative center

Since the operating core of the Machine Bureaucracy is not designed to handle conflict, many of the human problems that arise there spill over into the administrative structure. Again, Worthy (1959) says it best:

The organization was set up like a machine and it had to be operated like a machine. But because its components were human rather than mechanical, the task of controlling and directing it taxed the ingenuity of the scientific managers. The elaborate contrivances of the modern industrial organization, the masses of paper work and red tape, the layers on layers of supervision, the luxuriant growth of staff—all these are evidence of the difficulty of controlling human organizations in terms of mechanistic principles. (p. 72)

It is one of the ironies of the Machine Bureaucracy that to achieve the control it requires, it must mirror the narrow specialization of its operating core in its administrative structure. "By his sweeping redivision of labor as between workers and management, Taylor so increased the burden on management that a considerable further division of labor within management became essential" (pp. 67–68). And this administrative division of labor, in turn, leads to a sharp differentiation of the administrative structure and narrow functional orientations. This in turn means problems of communication and coordination. Thus, one Harvard Business School case describes the three years of convoluted effort General Motors went through, with no sign of success, just to coordinate the purchase of work gloves across its units (Bennett, 1977).

The fact, as noted earlier, is that the administrative structure of the Machine Bureaucracy is ill-suited to the use of mutual adjustment. All the

communication barriers in these structures—horizontal, vertical, status, line/staff—impede informal communication. "Each unit becomes jealous of its own prerogatives and finds ways to protect itself against the pressure or encroachments of others" (Worthy, 1950:176).

Narrow functionalism not only impedes coordination, it also encourages the building of private empires. In such structures, it is difficult to associate any particular function with overall output or performance. Hence, when a manager calls for more personnel—more cost analysts, more clerks, more sales managers—no one can be quite sure whether the claim is legitimate. So there emerges a competition among the managers to build bigger and more powerful units, a competition stimulated by the bureaucratic rule that associates salary with number of subordinates. This encourages the building of top-heavy organizations, often more concerned with the political games to be won than the clients to be served. A Machine Bureaucracy free of market forces—for example, a government regulatory agency with an ensured budget and vague performance goals—can be, in effect, forever spinning its administrative wheels in great busyness.

But if mutual adjustment does not work—generating more political coordination problems in the administration? Instinctively, it tries standardization—for example, by tightening job descriptions or proliferating rules. But standardization is not suited to handling the nonroutine problems of the administrative center. Indeed, it only makes them worse, undermining the influence of the line managers and increasing the conflict. So to reconcile the coordination problems that arise in its administrative center, the Machine Bureaucracy is left with only one coordinating mechanism, direct supervision. Specifically, nonroutine coordination problems between units are "bumped" up the line hierarchy for reconciliation, until they reach a common level of supervision. This, of course, results in the centralization of power for decision making at the upper levels of the hierarchy, ultimately at the strategic apex. And this in turn results in a host of new problems. In effect, just as the human problems in the operating core become coordination problems in the administrative center, so too do the coordination problems in the administrative center become adaptation problems at the strategic apex.

Adaptation problems at the strategic apex

As long as its environment remains perfectly stable, the Machine Bureaucracy faces no great difficulty of adaptation. Its standard procedures handle the routine problems of coordination, and nonroutine ones do not arise.

But no organization can expect that much stability. Environments

inevitably change, generating new nonroutine problems. When these become frequent in the Machine Bureaucracy, the managers at the strategic apex quickly become overloaded. Every organigram—and our logo as well—shows a narrowing of the middle line as it approaches the strategic apex. The propensity to pass nonroutine problems up the line hierarchy causes a bottleneck at the top during times of change, which forces the senior managers to make their decisions quickly. But how can they do so when these are decisions that arose elsewhere in the organization, in places where the top managers lack intimate contact?

In theory, the Machine Bureaucracy is designed to account for this problem. It has a management information system (MIS) that aggregates information up the hierarchy, presenting the people at the top with concise summaries of what goes on down below—the perfect solution for the overloaded top manager. Except that much of the information is the wrong kind.

A number of problems arise in the MIS. For one thing, in the tall administrative structure of the Machine Bureaucracy, information must pass through many levels before it reaches the top. Losses take place at each one. Not only natural losses. The fact that the transfers are vertical—between people on different status levels of the hierarchy—means that intentional distortions of information also occur. Good news gets highlighted and bad news blocked on its way up. Probably a greater problem is the MIS's emphasis on "hard" (quantitative), aggregated information. A good deal of evidence suggests that it is not this kind of information top managers need to make their strategic decisions as much as it is soft, specific information.

Often the MIS data are too late as well. It takes time for events to get reported as official "facts," more time for these to get accumulated into reports, and more time still for these to pass up the hierarchy until they finally reach the top manager's desk. In the perfectly stable environment, he can perhaps wait; in a changing one, he cannot. A military commander wants to know about the enemy's movements as they are taking place, not later, when they are reflected in some official measure like casualties in a battle. Likewise, the corporate president wants to be told that his most important customer was seen playing golf yesterday with his major competitor; he does not want to find out about it six months later in the form of a negative variance on a sales report. Gossip, hearsay, speculation—the softest kinds of information—warn the manager of impending problems; the MIS all too often records for posterity that these problems have long since arrived. Moreover, a good deal of important information never even gets into the MIS. The mood in the factory, the conflict between two managers, the reasons for a lost sale—this kind of rich information never becomes the kind of fact that the traditional MIS can handle. So the information of the MIS, by the time it reaches the strategic apex—after being

filtered and aggregated through the levels of the administrative hierarchy—is often so bland that the top manager cannot rely on it. In a changing environment, that manager finds himself out of touch.

The obvious solution for the top managers is to bypass the MIS and set up their own informal information systems, ones that can bring them the rich, tangible information they need, quickly and reliably. They are inclined to establish their own networks of contacts and informers, both inside and outside the organization, and expose themselves to as much first-hand information as possible. But getting such information takes time. And that, of course, was the problem in the first place—the bottleneck at the strategic apex of the Machine Bureaucracy in a changed environment. So a fundamental dilemma faces the top managers of the Machine Bureaucracy as a result of the centralization of the structure and the emphasis on reporting through the chain of authority. In times of change, when they most need to spend time getting the "tangible detail," they are overburdened with decisions coming up the hierarchy for resolution. They are therefore reduced to acting superficially, with inadequate, abstract information.

The essential problem lies in one of the major tenets of the Machine Bureaucracy, that strategy formulation must be sharply differentiated from strategy implementation. The first is the responsibility of top management; the second is to be carried out by everyone else, in hierarchical order. Nowhere in practice is this dichotomy sharper than in the military, with particular deployment of men and materiel. And nowhere are its dangers better illustrated than in the infamous battle of Passchendaele of World War I, where 300,000 British troops went over the trenches to become casualties: "No senior officer from the Operations Branch of the General Headquarters, it was claimed, ever set foot (or eyes) on the Passchendaele battlefield during the four months that battle was in progress. Daily reports on the condition of the battlefield were first ignored, then ordered discontinued. Only after the battle did the Army chief of staff learn that he had been directing men to advance through a sea of mud" (Feld, 1959:21).

The formulation-implementation dichotomy presupposes two fundamental conditions in order to work effectively: that (1) the formulator has full information, or at least information as good as that available to the implementor, and (2) the situation is sufficiently stable or predictable to ensure that there will be no need for reformulation during implementation. The absence of either condition should lead to a collapse of the dichotomy, to proceeding with formulation and implementation concurrently, in an adaptive rather than a planning mode.

The top manager who cannot get the necessary information simply cannot formulate a sensible strategy. The Machine Bureaucracy is designed on the questionable assumption that even in times of change, the MIS will

bring the necessary information up to the top of the hierarchy. The conditions of the mud are only the most literal example of the inability of the MIS to handle soft information. As Crozier describes it, the problem in these structures is that the power to formulate strategy rests at a different place from the information needed to do so.

The design of the Machine Bureaucracy also assumes that a strategy formulated in one place can later be implemented in another. That is a reasonable assumption under conditions of stability—as long as the world holds still (or at least undergoes predicted changes) while the plan unfolds. Unfortunately, all too often the world refuses to hold still; it insists on changing in unpredictable ways. This imposes the need to adapt, to alter the strategy as it is being implemented. Under such fluid conditions, either the formulator must implement his own strategy so that he can reformulate it en route—which is what happens in the Simple Structure, which faces a simple, dynamic environment—or else the implementors must take responsibility for the formulation and do it adaptively—which is what happens in the Adhocracy, which decentralizes power for strategy making in the face of a complex, dynamic environment.

We emerge from this discussion with two conclusions: First, strategies must be formulated outside the machine bureaucratic structure if they are to be realistic. Second, the dichotomy between formulation and implementation ceases to have relevance in times of unpredictable change. Together these conclusions tell us that Machine Bureaucracies are fundamentally nonadaptive structures, ill-suited to changing their strategies. But that should come as no surprise. After all, machines are designed for special purposes, not general ones. So, too, are Machine Bureaucracies.

These are, as Hunt noted, performance, not problem-solving organizations. Strategic diagnosis is simply not part of their repertoire of standard operating procedures. Machine Bureaucracies work best in stable environments because they have been designed for specific, predetermined missions. Efficiency is their forte, not innovation. An organization cannot put blinders on its personnel and then expect peripheral vision. The managers of the Machine Bureaucracy are rewarded for improving operating efficiency, reducing costs, finding better controls and standards; not for taking risks, testing new behaviors, encouraging innovation. Change makes a mess of the standard operating procedures. In the Machine Bureaucracy, everything is nicely coupled, carefully coordinated. Change a link, and the whole operating chain must be redesigned; change an element in an integrated strategy, and it disintegrates.

Thus, steel companies and post offices are not noted innovators, and the automobile of today is hardly different from that of Henry Ford's day. (Compare the generations of computers or airplanes of the last thirty

years—products of very different structures, as we shall see—with the automobiles of the last fifty.)

When Machine Bureaucracies must change their strategies in important rather than cosmetic ways, their top managers tend to act idiosyncratically; they are not in the habit of making such changes, their MISs have obscured the kind of change that is needed, and their structures are ill-suited to receiving whatever change is eventually proposed. The top managers seem to succeed only when they are strong enough to cast aside their bureaucratic information and control systems and take matters into their own hands. In other words, ironically, the top managers succeed in changing the Machine Bureaucracy only by reverting temporarily to the leaner, more flexible Simple Structure.

To conclude, the Machine Bureaucracy is an inflexible configuration. As a machine, it is designed for one purpose only. It is efficient in its own limited domain but cannot easily adapt itself to any other. Above all, it cannot tolerate an environment that is either dynamic or complex. Nevertheless, the Machine Bureaucracy remains a dominant configuration—probably the dominant one in our specialized societies. As long as we demand standardized, inexpensive goods and services, and as long as people remain more efficient than automated machines at providing them—and remain willing to do so—the Machine Bureaucracy, with all its problems, will be with us.