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SUMMARY

ORGANIZATIONS IN SOCIOLOGICAL THEORY

The topic of organizations is seldom treated as a part of sociological theory. I believe this is a serious omission, for several reasons.

(1) Many of the major theorists have worked on this terrain. Weber, Michels, and Mannheim among the classics, and in our own times, Blau, Gouldner, Etzioni, Goffman, Herbert Simon, and others have made important contributions to organizational studies. Though in the last decade or two organizational studies have come to be regarded as just another research specialty, we can argue that it is not by happenstance that so many theorists have been interested in them. Organizational analysis has made more progress in cumulating explanatory knowledge than perhaps any other part of sociology; and organizational theory is both continuous with the rest of sociological theory, and a solution to many of sociology's substantive problems.

(2) Organizations are a crucial part of the micro-macro connection. Not only are they in the middle of the range in size and longevity, but as we shall see, organizational "structure" means some people deliberately specialize in the macro ordering of micro processes. Theorists who lack a theory of organizations have a serious problem in this regard. Durkheim and Marx, in their day, had both micro and macro theories (for Durkheim, the ritual density model on the micro level, the division of labor model at the macro; for Marx, alienation of species being as micro, political economy as macro); but both theorists suffered from the inability to connect the two levels realistically. Hence arose the problems of reification of the social structure, or of romanticization of personal relationships, that Durkheim and Marx have been respectively charged with. Currently, the same problems arise with theorists such as Habermas and Giddens, who explicitly attempt to ground macro in micro, but who have no way of formulating the specific contexts in which this actually happens. Organizational theory, on the contrary, gives us a tool to build up specific but limitedly macro organizations from micro interactions. The next larger level, interorganizational relations, can then be added, which itself is a mega-organization, subject to the same kinds of principles found within organizations. This gives theoretical leverage in approaching the large-scale structures of societies or even the world system, rather than merely seeing these as an ideal-typical economic market or capitalist system.

(3) Organizations are the original site of stratification. Social classes are based on different control positions within organizations (including ownership of organizations). The state, as a center for political control, a prop for the property system, and locus of struggle, is a particular kind of organization. The capitalist system itself is a kind of interorganizational network. For this reason, organizational analysis meshes especially well with conflict theory. (Notice, for example, that Dahrendorf developed his theory by drawing upon organizational evidence; Chapter 4).

(4) Most social issues in sociology are organizational problems. Deviance, police, corrections, medical sociology, educational problems, ethnic and gender discrimination, as well as the largest-scale issues of citizen control of the military,

environmental degradation, industrial accidents, nuclear war, and the operation of democracy, are all largely organizational issues. One reason that their discussion is often unrealistic or inconclusive is because they are not recognized as such: organizational constraints are not seen, and realistic organizational options are not recognized. (See Perrow, 1984, for an example of the superiority of organizational analysis for public issues.) Insofar as systematic sociological knowledge has a practical or political payoff, it usually happens through organizational theory.

APPROACHES IN ORGANIZATIONAL THEORY

There are numerous topics in the general area of organizations. In recent years, work within the field has gotten rather specialized. Hence various partial or specialized theories have arisen, reflecting the interests of particular researchers. The classic sociological concerns were with internal processes of power and control; other researchers focused on organizational structures, goals, and technologies. In fact, so much was already known about these topics several decades ago that researchers tended to shift their interest to less explored areas, such as organizational environments, interorganizational relations, and various resource-dependency and ecological models couched on that level. Practically oriented researchers in business and management fields have focused on leadership, managerial decision making, and (especially when concerned with the performance of Japanese versus American organizations) organizational culture. I will attempt to show, though, that organizational theory possesses an underlying unity and that many of the findings in the newer areas of research can be derived from an extension of the principles already established in the older literature. Hence I will begin with organizational control theory and then will point out how more recent discussions of decision making, culture, and class conflict fit into this classic model. Next I will discuss organizational structure and show how it can be derived from micro principles of control as tasks are organized in various kinds of macro environments. Finally, I will deal with various approaches to organizations and their environments, concluding that the most powerful approach here is to treat the organizational environment as if it were a "superorganization," to which we may apply the same principles of control struggles and determinants of structure as we have found operating inside organizations. As a payoff of this approach, I present a theory of how the overall systems of capitalism and socialism may be explained by organizational theory.

CONTROL THEORY

The first major discovery in organizational research, beginning in the 1920s, was the informal group. (A history of this research is sketched in Collins, 1975: 39-41, 286-98.) Workers have their own informal organization, which contravenes formal management and sets its own standards of effort and production. Then Chester Barnard, Melville Dalton, and others discovered that managers, too, have an informal structure and that the exercise of power and the making of careers, as well as the evasion of formal power from below, is an interpersonal and political process.

Herbert Simon pointed to the covert powers of "horizontal" relationships with staff experts, and Crozier, Wilensky, and others indicated the power involved in access to areas of uncertainty. By 1960, a number of theorists (March and Simon, Blau and Scott, Caplow, Etzioni) had produced syntheses of these studies: essentially theories of organizational group-formation and control. This provides a solid core to organizational theory; since that time, research focus has shifted to organizational structure and external environments. Much of these areas too, we shall see, can be derived theoretically from the core of control theory.

Etzioni's (1961/1975) "compliance theory" is a useful place to start. Etzioni proposed that organizations can control their participants in three ways, corresponding to Weber's dimensions of power, class, and status. Etzioni develops his evidence by concentrating only on the orientations of lower participants (workers, clients, inmates). But the theory works more broadly for all organization members, including higher administrative and order-giving staff, and I will state it more inclusively:

1. *Principle of Coercion*: coercive control results in an alienative orientation. Organizational members so controlled will react by resistance, if possible; next, by avoiding the coercing situation; and finally, lacking other alternatives, by dull, minimal compliance. Evidence from prisons, slave plantations, forced labor, and the military buttress Etzioni's generalization.
2. *Principle of Material Rewards*: control of utilitarian rewards leads to an acquisitive orientation. Members comply to the extent that rewards are linked to their behavior, and only to those demands which are rewarded. Workers paid by quantity of production pay attention only to quantity, ignoring quality, material savings, or other goals. Material controls lead to focusing only on the rewards. In the Marxian theory of alienation, this is formulated as a nonintrinsic relationship with the products of labor.¹ Informal membership groups or formal counter-groups (for instance, unions) usually emerge to struggle over the rewards.

¹Marxian theory uses the term "alienation" in a different fashion than Etzioni's "alienative orientation." The difference stems from the Hegelian philosophical tradition in which Marx worked, and in the larger economic theory of capitalist dynamics attached to it. Marxian alienation is a consequence of capitalist labor relations. Workers sell their own labor power on a market, and labor is embodied in products over which the workers have no control. Marx's model is not intended to be a theory of workers' behavior; it characterizes, rather, the nature of capitalism and its consequences for the workers, especially their deprivation of "species being," a relationship to the world in meaningful, self-guided work. Etzioni's theory is more limited, although empirically better grounded. It describes a particular kind of organizational members' attitude and behavior as the result of being coerced, especially through the threat of violence, although this would also include threatening and invasive means of supervision, and the threat of economic deprivation. Etzioni's theory is broader and more useful than the Marxian theory, however, in the following respect: it does not automatically assume that capitalism is the only source of alienation; it does not expect alienation to disappear in socialist societies, unless coercive controls are eliminated there; nor does it make the romanticizing mistake of assuming that premodern, agrarian societies were nonalienated. In fact, the worst coercion and alienation is found there. See the following section "Historical Trends in Controls." However, if Marxian theory of alienation is reformulated to stress workers' lack of control over the products of their own work, its insights can be made congruent with organizational control theory. The crucial reformation is that the source of this loss of control does not have to be capitalism, but can also occur from political coercion. Hence state socialist regimes, governmental agencies, and so forth can also engender alienation, and control of power rather than control of capitalism per se is the crucial remedy.

3. *Principle of Internalized Control*: internalization of the goals of the organization by members results in voluntary, self-motivated compliance. Etzioni, who calls this "normative control," gives evidence from medical, scientific, religious, educational, and other organizations which get some degree of internalized control over their participants.

How is internalized control achieved? Etzioni gives several methods, to which I will add some points of my own (Collins, 1975: 298-307):

(1) *Pre-selection and socialization* are means by which organizations acquire members who have already committed themselves to their goals, or by which they acquire that commitment before they become full-fledged members. The church, voluntary associations, political parties and movements, and the high-status professions have an image which enables them to attract precommitted participants. Etzioni does not explain why some organizations are able to draw on this resource; in my view, it derives from the ritual, reality-defining activities of the organization itself, which spill over to the outside world. Such organizations also use socialization in the form of a special status as novices or students, often segregated from the outside world and undergoing ritualized ordeals and initiations. But socialization does not come cheaply; Etzioni himself shows (1975) that it does not work well in the absence of willing recruits, and organizations which are not intrinsically attractive cannot generally use it to overcome the alienative or utilitarian-acquisitive orientations produced if they also use coercive or remunerative controls.

(2) *Order-giving and promotion possibilities* are probably the strongest means of inculcating the organization's ideals. Etzioni does not mention these methods, due to his concentration of lower participants, but there is considerable evidence for their efficacy. Order giving, as we have seen (Chapter 6), is an interaction ritual which commits the order giver to the Goffmanian "frontstage" reality they are presenting. Hence the higher the rank of organization members, the more they are characterized by this form of internalized control. The basic organizational control principles are thus another version of the fundamental principles of class cultures: the Principle of Material Rewards characterizes the basic stance of working-class order takers (1A, *Principle of Order-Giving Rituals*, Chapter 6); the *Principle of Coercion* gives the more extreme reaction of order givers when orders are coercively enfolded (1B, *Principle of Ritual Coercion*, Chapter 6); the order-giving variant of the *Principle of Internalized Control* is the same as Principle 1A at the high end of the continuum. The subvariant of internalized control through opportunities for promotion is the same as 1C, *Principle of Anticipatory Socialization*, Chapter 6. The fact that the organizational and class-culture evidence meshes so well is a strong argument for the validity of both parts of the theory.

It is well to stress, at this point, that all the control forms are ideal types, which may be combined in different degrees. Etzioni points out that organizations may be generally characterized by a preponderance of one type of control, but that various kinds of dual-control organizations exist. At the level of individuals, we may similarly see a mixture of controls used. Even normatively controlled professionals and order givers are also paid for their work (and in fact, tend to be paid quite well, precisely because the power given to them enables them to extract higher incomes). Mixtures of control types give rise to mixtures of compliance outcomes (as in the

front-line supervisors' style, noted in 1D, *Principle of Bureaucratic Personality*). Since order-giving and promotion chances (anticipation of becoming an order giver) are apparently the strongest source of internalized control, no organization can be expected to have much of it without using these methods.

(3) *Ritual participation* in the group can also generate normative commitment. Conditions include: time spent together, focused on common activities and characterized by a common mood (the same principles as in the "horizontal" aspect of stratification theory, 2A, *Principle of Social Density*, and 2B, *Principle of Social Diversity*, Chapter 6). But group ritual is a two-edged sword. Group solidarity, as Etzioni and others point out, can be antithetical to the organization's official goals, if it is built around the informal, alienated or acquisitive group of lower members. In terms of ritual theory, the common sentiment may be opposition to the order-giving hierarchy. In this case, internalized control extends only through the local group but not to the organization as a whole. In order for the latter to occur, the sentiments must be more uniform and eliminate internal conflict. Only organizations that are fairly egalitarian and lack or minimize a control hierarchy are able to do this.² The other possible source of common sentiments arises when the organization as a whole is confronted by an external enemy threatening all members. Thus armies in time of war are able to shift from predominantly coercive control to internalized control, sustained mainly by the enemy (but also supplemented by a reserve of coercion, in case discipline breaks down under stress and chaotic battlefield conditions).

When dealing with internalized control it is essential to bear in mind the question: *whose* ideals are being inculcated? Power-wielders in an organization become personally attached to ideals that uphold their power. But these are not necessarily the ideals of those who set up the organization. Their ideals tend to be extensions of their own egos, so to speak. In coercive organizations, lower-level controllers (for example, guards) tend to identify with control as an end in itself: hence their petty authoritarianism. Group participation and rituals create a different form of ideals. But although this can occur within the organization, it does not necessarily identify with official purposes, but with the group itself. Internalized control within a group of workers may even be turned against organizational officialdom.

HISTORICAL TRENDS IN CONTROL

There is an important historical application of Etzioni's typology. Coercive controls were most widely used in agrarian modes of production (serfdom, slavery), resulting in a preponderance of alienative compliance in such societies. Capitalism, shifting control predominantly to the market, resulted in an acquisitive, utilitarian orientation of limited organizational involvement on the part of the working class. Internalized control, however, cannot be dispensed with in either type of system, since the order-giving hierarchy itself must involve a strong measure of internalized

²Churches may seem to be an exception to this. But commitment to organizational ideals is strongest among the professional priests, who are ritual leaders and order givers. Among common worshipers, the order-taking aspect is mitigated by the fact that the organization is generally not engaged in any utilitarian task, but mainly in the activity of ritual itself. Hence there are few practical demands on common members, mitigating tendencies to alienation from authority.

control in its own ranks. Is there any historical trend to either increase or decrease the amount of normative, ritualized participation? Arguments have been made in both directions. The Marxian tradition argues that, in effect, normative membership is driven out by capitalism. On the other side, it is claimed that advanced technology has promoted informality and equality among organizational members, and hence brought a shift toward internalized control. Both trend arguments are oversimplified. Though some kinds of technology give rise to this informal structure (see following), these are not the only types of technology characteristic of modern organizations. Hence a variety of control types coexist which can be expected to survive far into the future.

More fundamentally, there is an antithesis between the two major ways of promoting internalized control: via opportunities for order giving or via ritual participation. The former requires inequality within the organization, the latter minimizes inequality. Order giving is a more reliable form of internalized control, though it applies to only a few organization members (plus those who believe in their chances for promotion), and it produces alienation among order takers and those whose promotional chances are blocked (see Kanter, 1977, discussed in Chapter 6). External enemies are rarely available to provide ritual focus in most peacetime organizations, and in any case ritual cannot be used to override the effects of coercive and remunerative controls, some of which are almost always present as well. Ritually based cohesiveness is hard to achieve at the organization-wide level and is easily turned against the organizational hierarchy. For this reason, we can expect that although elements of ritual control through informality will exist in many modern organizations, the power hierarchy itself is the main source of internalized control, and it is in conflict with the other forms of control. Neither a historical utopia nor a dystopia is in sight.

ADMINISTRATIVE DEVICES

Other organizational theorists, notably Simon (1947) March (March and Simon, 1958), Blau and Scott (1962), have focused on the way in which control is organized: that is, rather than on the effects of specific sanctions (as in the Etzioni model), on the methods used by controllers to tell what to do and observe compliance. The two models are complementary and may be combined. Following is my own ordering of administrative devices laid out in this literature:

(1) *Principle of Surveillance*: controlling workers' behavior by watching over them results in compliance to those tasks which are directly observable. It also produces limited involvement and (when combined with coercive or remunerative sanctions) alienation from the organization's ideals. These outcomes can be explained by ritual theory. There is high interactional density, but combined with inequality. As we have seen in Chapter 6, this combination results in an atmosphere of petty deference rituals. The act of being observed is itself the focus of ritual attention and an enactment of authority and subordination. Hence attention is deflected from the task itself to the issue of compliance. The implicit alienation of the powerless results in minimal compliance, merely performing the physical motions demanded. There is also a structural consequence: organizations using surveillance as a form of control must have additional personnel in the control hierarchy, guards or supervisors whose

job is merely to oversee. The ideals with which this control staff identifies (given their position as noncosmopolites, at the bottom of the superior hierarchy) are unlikely to be those of the higher chiefs, but merely control as an end in itself. Hence surveillance is associated with a ritually enhanced authoritarianism.

(2) *Inspecting outcomes*: controlling workers' behavior by periodically inspecting their products (sometimes called "efficiency criterion") results in a concern for the most easily measurable aspects of outcomes. Here workers are given more freedom to do their tasks, but are checked by what they produce. Piecework incentive systems are of this sort, as are examinations and other school assignments. The focus is now on products rather than actions. It is less alienating than surveillance, but it results in a displacement from commitment to larger organizational goals, to complying narrowly with whatever aspect of output is measured (for example, getting grades rather than learning the material). Structurally, organizations using this form of administration must develop a staff for record keeping, producing a depersonalized, paper-work and number-counting orientation. This in itself is often regarded as bureaucratically alienating; but it should be borne in mind that it is a trade-off from the petty authoritarianism of direct surveillance. This method and the next are the essence of bureaucracy.

(3) *Rules and written orders*: controlling workers by general rules of procedure results in impersonality, lowered individual authority, slowness, and low adaptivity. Rules are formulated to cover the most standard procedures, with additional principles to be invoked in case of more exceptional circumstances. Rule-following organizations have the reputation for being slow and unable to deal with unique or new situations. Even if rules exist for exceptional cases, time is spent looking up what these rules are. Thus administration by rules generates a displacement from goals to procedures, and increases the proportion of staff and of time spent promulgating, updating, and searching for applicable rules.

These bureaucratic pathologies are well known. Why, then, are rules used? One reason is that standardized behavior is desired by the organization managers, especially in certain technological tasks. More importantly, rules are a focus for the struggle over control. Higher managers promulgate rules to attempt to control the behavior of lower-down (middle) staff, whom they cannot personally supervise. Rules are part of the answer to the problem "who shall control the controllers?" On the other side, rules often result from conflicts. Formal rules, to some extent, protect workers and clients from the arbitrariness of their bosses and service-providers. Often rules are crystallizations of negotiated agreements ending conflicts: union-management contracts regulating work conditions, safety regulations resulting from law suits, faculty tenure procedures embodying past struggles over academic freedom. The fact that such rules then become part of the bureaucracy, making experience in these organizations cumbersome, does not mean they are easily replaced; conflict groups have fought to get them established in the first place, and usually oppose their elimination. Here we have an unexpected principle: *democratization increases bureaucracy*. An ironic consequence is that movements for limiting arbitrary power also bring subsequent areas of alienation.

It should be added that rules do not enforce themselves. Often rules are evaded or ignored by the informal groups that make up the organization; there may be collusion between higher and lower ranks in the interest of getting the work done

or avoiding meaningless activities. Rules thus become part of the ritual sector of the organization, rituals precipitated by former situations of real intensity but now lying latent until new conflicts arise. But evading rules is not the whole reality; many aspects of organizations (for instance, taking courses and getting grades in a school, getting a license at a government agency) are effectively controlled by rules. But there must be activities of real people involved: some other forms of administration have to be combined with rules, so that there is surveillance as to whether rules are being applied or efficiency outcomes are periodically checked by the rules. Probably most common is the mechanism of judgments and appeals by which rules or rule violations are specifically invoked when a conflict arises. Rules thus imply that there will be a structure of the organization specifically concerned with these adjudication activities. (This, of course, is another way that organizations can get sidetracked from their main activities, an aspect of bureaucracies that is both "democratic" in some degree and at the same time alienating.)

Finally, there are two indirect or "soft" means of administering control:

(4) *Information control*: whoever is able to provide exclusive information defining the reality in which the organization is operating will have covert power over what the organization will do; this power increases with the extent of uncertainty in that environment. Simon (1947) discovered this factor in the influence of staff experts and assistants who officially lacked "line authority." Workers, especially maintenance personnel who deal with machine breakdowns, have a similar power at lower levels (Crozier, 1964). Negotiators and go-betweens at the top levels of organizations, especially dealing with complex legal questions or volatile political or financial alliances, have similar covert power (Wilensky, 1956). The important principle is that the more uncertain that reality is, the more the official line authorities must defer to the judgment of the persons who have exclusive access to defining the problem. Managers can attempt to circumvent this problem by developing alternative sources of information and advice; in counterattack, "experts" often organize professionally or informally to present a united front. The distribution of uncertainty in various parts of organizational environments is a major determinant of how much covert power will be spread around. We shall see that this affects the organizational structure of different types of organizations.

(5) *Environmental control*: the more confined the physical setting, the more that members comply with at least minimal organization demands. This type of control cuts across all the administrative devices and sanctions. It is not a primary form of control and needs to be combined with at least some of the others. The most extreme form is a prison or labor camp, where the walls are used to keep the organization together. But rooms in factories and offices or schools also focus attention, make surveillance possible, or reduce monitoring to simply checking who is or is not present. Highly alienating organizations need to use a high degree of environmental control. At the other extreme, occupations which are spread out (traveling salespeople, truckers, police on patrol) are much more difficult for the central administration to control; often such work is spun off into franchise or contract activities. Even if central authority tries to keep control, the organization has a propensity to disintegrate, as in the case of the decentralized feudal lords of the agrarian state. Structurally, we might say that organizations with high environmental control can correspondingly cut back on their personnel in the control hierarchy (see theory of

organization structure following); organizations with low environmental control must invest much more in other control forms or else relinquish control entirely.³

WHO USES WHICH CONTROLS WHEN?

Organizations can be characterized by the mixture of control sanctions and administrative devices they use. What determines this? There are two main approaches. One is functional. This is the approach taken by Etzioni, who argues that certain kinds of controls are generally used with certain tasks, because the organization will be most successful. Organizations which do not use the appropriate controls experience strains. Similarly, Thompson (1967) states his propositions with the preface "under norms of rationality," meaning that if one is committed to achieving certain goals, these are the control methods that must be followed. The other approach, in keeping with conflict theory, argues that the controls which are used depends on what control resources are available. It states that the core of the organization is not its tasks but its control structure, and that this is what established the organization in the first place and keeps it in existence.

The functional-teleological approach and the conflict-domination (control resource) approach are not necessarily incompatible, although they have quite different emphases. I will begin with the control resources, and attempt to demonstrate that they are central for the existence of the organization; then I will add what is valid from the task-teleology approach.⁴

CONTROL RESOURCES AS CORE OF ANY ORGANIZATION'S EXISTENCE

What conditions establish an organization in the first place? An organization is an enduring arrangement coordinating people's activities, and we have seen that coordination is determined by various forms of control. To establish an organization, someone must have enough control resources. Coercive power (ultimately, the power of armed force) is the *sine qua non* for establishing governmental and military organizations, as well as their offshoots: prisons, concentration camps, slave plantations, serfdom, and so forth. Possession of property is what makes it possible to establish an organization controlling its members by material reward: that is, by hiring and paying its members. This is the source of business organizations, as well as any other organization (such as a family hiring a housekeeper) using remunerative control. Internalized control, finally, as a source of organization, is found in orga-

³It may be noticed that police on patrol are subject to little environmental control, but the structural alternatives (just mentioned) applied in other decentralized situations are not used. Hence it is not surprising that an official hierarchy, such as that which stretches from the voters through elected officials to police chiefs down to police officers, has little power to control police behavior in many dramatic instances, such as the use of force on what are regarded as suspects. Many other aspects of organizational analysis are applicable in understanding the police and other social issues.

⁴My own treatment of organizational theory (Collins, 1975: 286-347) is deficient because I followed Etzioni's exposition too closely and accepted a purely functional account of why certain tasks tend to be carried out by particular control forms. The following treatment puts the control theory back in proper perspective.

nizations voluntarily recruiting their membership. People join because they want to, being attracted to the ideal of the group or the activity itself. Examples include clubs and associations, as well as organizations specializing in emotion and culture, such as religions and schools. Conflict organizations, such as political parties, trade unions, or, historically, tribal coalitions or prophetic religious movements, derive their normative power especially from their ritual solidarity against their external enemies. In each case, organizations get established because some people have control resources they can use to build the organization.

Organizations are usually mixtures of control types, though one form may be predominant. The mixture arises because one control resource can generate others. Purely coercive organizations, such as crude military governments, tend to supplement the threat of force with other controls. Weber (1922/1968: 212–15) made a point of stressing the greater durability of coercive organizations which establish legitimacy: that is, acquire some internalized control. As we have seen, though, internalized control is not easy to acquire without giving away power; highly coercive organizations usually make this concession only within their higher ranks, generating some normative solidarity among the coercers, while relying more heavily on sheer threat to keep the lower ranks in line. For this reason, these organizations usually split into castelike levels, subject to different control techniques, as in the aristocracy versus peasantry of feudal-agrarian states. Analytically, the most important point here is that coercive power usually generates the ability to create internalized control, at least to the extent of being able to use the sharing of power (or chances at promotion) as form of control. Coercive power can also be used to organize rituals and set up impressive stage-settings (such as religious buildings, costumes, music and so forth) to appeal to emotions and determine beliefs. This is a weaker form of control if it is combined with continued coercion (since that produces continued alienation), but it probably has some independent effect in the total mix of compliance.

Even more importantly, coercive organizations are usually able to generate remunerative control. Governments acquire revenue that they can use to pay at least the active, controlling tier of their members. In modern government agencies, control by the pay check is so central that there is little difference between them and private business organizations in this respect. How much a coercive organization shifts in this direction is of course a variable. It would seem to depend on (1) the degree to which sheer coercion is checked by other political forces (for example, by democratization) and (2) the size of the material resource base available to the government. Where coercion is limited and the material resources are constricted, there arises a "fiscal crisis of the state" as expressed in modern Marxist theory (O'Connor in Chapter 3).

Conversely, organizations based on property and recruiting by material reward usually can produce derivative forms of control. Any property system is ultimately backed up by the state, and hence rests at least ultimately upon some coercive control. If one set of persons has most or all of the property and another set has little or none, the need for livelihood can turn remunerative control into a form of coercion, as stressed by Marxian theory of capitalism. This coercive aspect is especially likely to come to the fore when working-class rebellion arises, resulting in the property owners calling on the military power of the state to directly protect their prop-

erty. Within an organization, too, remunerative control can be administered in a more coercive or less coercive manner: by threatening firing or fines (withdrawal or reward) as a negative control, or even by making hired workers submit to physical punishment as a condition of their job discipline.

Remunerative organizations may also attempt to generate internalized control. The considerations here are essentially the same as those applying to coercive organizations.

Finally, organizations based initially or centrally on internalized control (churches, schools, voluntary associations) nevertheless gravitate toward the other forms of control. For any organization to last, it usually must acquire property: a permanent home in buildings, a material base for symbolizing its continued existence, material resources to support a full-time staff. Weber's (1922/1968: 1111-157) analysis of the routinization of charisma essentially makes this point. Charisma refers to leadership in a social movement, a set of voluntary followers of some ideal and its spokesperson. But social movements are notoriously unstable, coming and going on waves of popular emotion, unless they are transformed into a more permanent structure. Weber's prime examples of routinization are the histories of religious movements such as Christianity, Buddhism, and Islam, though the argument applies generally. The permanent structure arises most easily because the movement acquires property by the donations of its members. (Modern voluntary associations, significantly, spend a disproportionate amount of their time in raising money.) From this follows the existence of a permanent staff to look after the property and carry out the organization's activities. There is now a split in the organization, between mere voluntary members and its professional employees. New resources mean new control techniques (part of what Michels was referring to in his "Iron Law of Oligarchy" in political parties; see following). In Weber's terms, raw charisma is "routinized": it becomes a tradition deliberately kept alive by organizational functionaries whose major resource is now their control of material rewards and material conditions of impression management.⁵

THE IMPORTANCE OF PROPERTY

I am suggesting, then, that over time most organizations tend toward a remunerative form of control based on property. Some other directions are also possible. Social movements, based on normative ideals, may try to turn themselves into coercive organizations; this happens for instance when a religious movement becomes powerful enough to capture control of the state (or make itself a new state, as in the case of the Islamic conquest). And we have seen that coercive and remunerative organizations usually try to acquire at least some components of internalized control over some of their participants. But property seems to be central because what makes

⁵Weber distinguishes two directions in which charisma can be routinized: into traditional or rational-legal authority. These indicate the control ideologies associated with two forms of organization: a patrimonial form, in which the organization becomes hereditary property of a family or coalition of households, as in typical agrarian societies; and a bureaucratic form, in which individuals and families cannot appropriate the organizational position itself, but are subject to formal rules and regulations as the administrative control device.

an organization permanent is the property that its controllers hold. Organizations that fail to acquire property usually fall apart fairly quickly. They represent the difference between a coercive gang and a state, between a group of friends or political-religious sympathizers or a cultural fad, on one hand, and a formal association or school or church on the other.

We may arrive at the same conclusion from another point of view. An organization disappears when its property goes away. It is the property that gives it a formal, open, public identity as a "thing" which exists. The officials of an organization are those who have control of its property, who can disperse it as remunerative control to hire staff, to buy supplies and services, and to issue communications bringing the organizational members together. Even voluntary associations, unless they exist in a small face-to-face setting where communication is automatic, depend on this material structure for the enactment of its social reality.

This enables us to answer a point often raised: that the control-resources viewpoint is too "management-oriented," and reflects only the point of view of the bosses in how to control their organizations. The control viewpoint is management-centered, but not because it is pro-management. It can just as easily be used as a critique of management domination of workers. We could also turn it around and ask what resources and administrative devices are available to workers (or other lower participants) to control their superiors. But the answer is, generally speaking, that lower participants do not have as much control resources as their superiors, and that is precisely what gives the organization its structure. (This can of course be variable, and we can find more centralized and decentralized, more undemocratic or democratic, organizations.) But even the conditions which allow workers to evade many forms of control, amply documented in the literature on informal groups, does not eliminate the central form of control: the property structure of the organization itself. Workers often evade rules and regulations, usually do not work as hard as bosses wish them to, and may have quite different commitments than those of the official organizational ideals. But the organization can continue to survive with all this, as long as one condition remains: the formal hierarchy remains intact and still hands out its paychecks for minimal compliance.⁶

This view shows us several of the limitations of a functionalist perspective on organizations. The organization may exist, whether or not it is effective at carrying out various tasks. The key is not its functional task effectiveness, but whether control resources still exist. A business organization, using material rewards to keep a labor force on its rosters, will continue to exist as long as its top officials—which is to say its owners—are solvent. Of course, we could introduce the premise of conventional market economics, that an organization will not make profits and stay in business unless it is efficient; but this is not decisive. Just how efficient it has to be depends on how competitive its environment is and on how efficient its competitors are. The

⁶I have overstated the argument in terms of purely property-based organizations, where the power of hiring, firing, and promotion is the most immediate form of control, even if the organization is part of the coercive state. Analytically, we could make a parallel argument in favor of the permanent apparatus of coercion as central to some organizations. For instance, in a prison or concentration camp or a terrorist dictatorship, there may be an informal structure and much normative alienation. But the organization will survive as long as there is a command hierarchy capable of passing along orders to coerce people in particular instances.

analogous point in coercive organizations is even stronger: a government does not have to be effective at anything, as long as it is not challenged by some other coercive power which is stronger than it is. As Meyer and Zucker (1987) point out, there exist many "permanently failing organizations," which persist despite a low level of performance; often the interests of workers or the surrounding community keep an organization going after its owners have given up on its profitability.

We lose sight of the central activity of organizational officials if we regard them merely as "experts" who contribute to the organization by their ability to plan and coordinate.⁷ But officials are far more important to the organization in a different way: they administer the control resources that bring members into the organization and keep them at least minimally complying. That is, they hire, conscript, capture, or proselytize new members; promote, demote, or otherwise reward or punish them for their participation; and can terminate their membership in the organization. As long as a chain of controllers has the control resources to hire or otherwise bring in members, the organization will exist; and it will exist even if these managers are totally inept at planning or coordinating anything. Highly technical expertise, although it may be well rewarded in some contexts, nevertheless does not result in people being able to set up organizations or becoming the heads of them; unless the technical experts shift over to direct "line" authority, and especially the financial realms of power in property-based organizations, they remain auxiliary staff whose power is mainly covert.

Analytically, of course, skills at planning and coordinating are also usually operative in organizations. But the central feature of the organization is its control hierarchy; the task aspect of the organization, and whatever functional pressures it generates, is added onto this. Ultimately, it is the control structure that determines whether and in what form the organization will exist. Functional task pressures may feed into this, but as a secondary influence.

TASKS AND CONTROL FORMS

Organization theory is the one area in sociology where a functional approach may have some validity, but precisely because formal organizations are explicitly teleological: and it is because of the control structure that they have this kind of formality and explicitness lacking in other kinds of social organization. We can predict what control forms will be used in an organization by asking two questions: (1) What are the resources (coercive, material rewards, appeals of emotions and ideals) of the persons who established the organization in the first place?⁸ (2) What tasks are those persons trying to carry out? The goal-directedness here is open and conscious: what are the organization controllers trying to do?

Eztioni's model (1961/1975), as extended by Collins (1975) takes the tasks specified in the second question and shows what sanctions and administrative devices best fit them.

⁷This is the way they are viewed in Blau's (1964) version of exchange theory, accounting for their greater power and higher salaries as the result of their greater contributions. We may recognize here the old functionalist theory of stratification. See the discussion of exchange versus enforcement coalition theories of power in Chapter 12.

⁸The same applies to persons who come later who have acquired control of those central control resources.

Tasks with a high degree of initiative and uncertainty are carried out most effectively by internalized control and information control. Alienating coercive controls or remunerative controls resulting in merely perfunctory involvement cannot motivate personnel to do tasks requiring a high degree of initiative and judgment. Since the outcomes are uncertain, administrative devices must be on the "soft" side; rules and rigid counting of results will not work with innovative activities, and surveillance and environmental control limits the initiative that the job requires. Creative and mental work falls into this category of tasks, as does dealing with emergencies and other unpredictable situations. The task of maintaining control over others is often of this unpredictable sort, and must itself be controlled in this fashion.

Tasks with predictable and standardized products can be carried out effectively by control with material rewards, administered by an efficiency criterion of counting outcomes. As long as there are visible products whose characteristics are known in advance, rewards can be attached to them and output easily measured. In some cases, the actions of producing those outcomes can be effectively spelled out in rules. Much of routine physical work falls into this category: operating factory machines, delivering goods on schedule, as well as much predictable paperwork in white-collar jobs.

Low initiative tasks with highly visible outcomes can be carried out effectively by coercion. But since coercion is alienating, it requires surveillance and environmental control to keep participants from fighting back or escaping. The functionally most appropriate use of coercion is where the persons on whom it is applied are already alienated: prisoners, forced laborers, serfs. In some organizations, such as prisons, the main task of the organization is a minimal one: simply to prevent escape and rebellion. If coerced people are to be used to carry out tasks, those tasks will have to be fairly crude physical activities: the farm work carried out by serfs and slaves, the rock crushing and road maintenance of prison work gangs, the picking up trash used as a punishment for trivial offenses. Creative tasks or those with uncertain outcomes cannot be well motivated with coercion, because more autonomy must be given to the worker than this alienating control will allow. Even machine work of any degree of complexity, even if it has standardized products, is not easily motivated in this fashion, as indicated by evidence that slaves and prisoners have never been very efficient as factory workers, compared to free laborers working for wages.⁹

The model does not say that it is necessary to use coercion to get workers to carry out low initiative tasks. Ditches can also get dug or rocks crushed by paying laborers, or conceivably even by relying on internalized control. The efficiency model here is asymmetrical, in that the more internalized forms of control can substitute for the more externalized forms, but not vice versa. But the organizational controllers may not have the resources to do this. Normative control is nice if you can get it, but it is not widely available, and few organizations can afford to squander it on getting highly routine tasks done. Similarly, remunerative control will motivate the same tasks as coercive control, but persons who possess coercive resources (military dictators, slave-owners, feudal aristocrats, prison guards) will find it cheaper to rely

⁹Patterson (1982) shows that historically slaves were often used for crafts work, as in ancient Greece and Rome. But when this was the case, the control system shifted from sheer coercion, characteristic of mines and agricultural plantations, to a version of material rewards: slaves were held out the prospect of manumission, of buying their own freedom with their earnings from their work.

on coercion as long as the tasks are very simple (and as long as some political force does not take their coercive power away from them). Coercive control is not considered morally proper in a democratic society, but it will be used nevertheless where coercers have the power to get away with it.¹⁰

There are two aspects of functional interconnectedness here. Etzioni (1961/1975) expresses his functional argument about the *congruence of tasks and control forms* as follows: organizations which choose the proper control form for its tasks will survive and prosper; those which choose an inappropriate control form will have a lower level of performance and will either change toward an appropriate control form or else fail and disappear. This is not entirely conclusive, since organizations may continue to survive at a low level of efficiency, as long as their control resources remain intact and if the competitive pressure of their environment is not high. Traditional coercive controls in farming may not be as efficient as remunerative controls, but coerced feudal labor lasted for centuries as long as the aristocracy was not challenged politically or economically; the relatively coerced atmosphere of communist collective farms results in lower output than private farms within the same Soviet societies, but state policy has kept the former in existence and barely tolerated the latter. Hence the extent to which an organization has to move toward the functionally optimal relationship between tasks and controls depends on the structure of power, the distribution of control resources itself.

The other aspect of functional relationship is *between control sanctions and administrative devices*. Here the functional pressures are tighter. Coercive sanctions cannot be used for long if they are not combined with surveillance, and they work best if environmental control is also available. Since coercive organizations are usually willing to put up with a low level of effectiveness, rules can be applied in a rigid way, since speed and adaptiveness are not criteria of success. Material rewards imply some method of recording outcomes. Normative control and information control have their structural requirements, without which they cannot be generated. Within the dynamics of control itself, there are teleological relationships that can be validly said to exist.

MOTIVATION, CLASS CONFLICT, ORGANIZATIONAL CULTURE, AND DECISION MAKING

A number of other topics concerning behavior in organizations have been extensively discussed in the organizational literature (see Hall, 1982; Perrow, 1985; Pfeffer, 1982). Without devoting a great deal of space, I would like to indicate how these may fit into the fundamental theory about organizational control.

¹⁰Milder versions of coercive control are common. Rewards can be used coercively when authorities threaten to take them away; verbal abuse also has coercive effects. These controls are most often used by the lowest-level, "frontline" controllers on potentially rebellious subordinates: prison guards, high school teachers, and other petty despots. Athletic coaches often have this style as well, most likely where the sport itself involves the use of brute force, as in football.

MOTIVATION The *motivation* of organizational members cannot be approached purely psychologically, since this takes the actors out of their real-life context, which consists precisely in their positions inside the organization. Motivation is what organizational control looks like from the point of view of the individual. We should bear in mind that control theory is a flexible instrument; although it is most typically couched in terms of how managers try to control their subordinates, it also explains the extent to which the latter will comply or evade controls; and it also shows the resources and conditions by which subordinates counterattack and control at least some aspects of their superiors' behavior. There are also horizontal controls (especially through control of information channels), as well as the ritual participation that occurs among members of a group and the exchanges, dependencies, and threats which constitute power within organizations' informal networks. Moreover, control theory is related to the theory of class cultures given in Chapter 6, and to exchange theory and interaction ritual chains (Chapter 10); hence these other aspects of sociological theory can be brought in to spell out individuals' motivations within organizations in more detail.

INTERESTS AND CLASS CONFLICTS One of the few approaches in recent years that has paid attention to the workers' levels inside organizations has been Marxian theory. Burawoy (1979) has analyzed why factory workers comply with the capitalist system, which comes down concretely to why they put up with managers' controls. He concludes that workers are involved in a "game" in which they juggle the payoffs of their incomes, job security, and informal group membership against the amount and quality of work they are willing to do. Apart from the Marxian frame of reference, however, the patterns are familiar ones, which readily fit the principles given previously concerning control by rewards, promotion possibilities, ritual participation, and various administrative devices. Interestingly enough, in another work, Burawoy (1985) shows that similar controls exist in factories in socialist countries, which suggests that it is the local organization more than the overall economic system that is determining workers' and managers' behavior.

This leads to the more general issue of the interests of persons within organizations. The question comes up in the Marxian context as the issue of "which side are you on?" in what is assumed to be a two-sided conflict between workers and capitalists. But organizations have a number of different levels (upper and middle management, clerical, skilled and unskilled manual workers, as well as further splits among various professions, unions and non-unionized workers, and so on). Empirical researchers following the Marxist approach (Wright, 1978, 1980; Wright and Singleman, 1982) have had to add intermediate classes or "contradictory class locations" based on multiple criteria. Managers who do not own their company (or stock in capitalist enterprises generally) are nevertheless members of the employer class, in some degree, when they exercise power in the pursuit of capitalist profits. But about half of all supervisors today lack significant power, since they do not control the pay or promotion of their subordinates; hence they may be regarded as actually being members of the working class. On the other hand, some workers are not very "proletarianized," since they have considerable autonomy over the performance of their own work. From the point of view of organizational control theory, we should note that Wright is actually placing considerable emphasis on order giv-

ing and order taking as an indicator of class position; in fact, he is forced to place many people in "contradictory class locations" because this organizational power distribution is not at all identical with property ownership and nonownership, nor with the classical Marxian category of the production of surplus value.

I would suggest that organizational control theory analyzes the situation more straightforwardly. Persons have interests because of where they stand in the control structure of the organization: order givers versus order takers, with the conflict among their interests becoming maximal the more coercion is used; defense of one's own source of material rewards (which may be specific to only a particular occupation, or even an individual, within the organization); plus the emotional effects of group solidarity and symbolic ideals, as produced by the various mechanisms of normative control. There are multiple interests and hence multiple lines of potential conflict inside organizations, whenever coercive and material controls are differentiated, and when the structure of normative control reinforces local and fragmentary groups. Interests are the result of the distribution of controls, and that in turn is determined by organizational structure (which we will consider next). This is not to say that a Marxian-style confrontation of two major classes is impossible, but only that it occurs only under special organizational conditions.

ORGANIZATIONAL CULTURE A rather different concern with organizational members comes from business school researchers, who look for an organizational culture which is optimal for efficiency and success. It has been argued that the superior performance of Japanese companies in recent years is due to their distinctive organizational culture (Ouchi, 1980, 1981) that emphasizes group participation and harmonious relationships, as compared to the confrontations between management, workers, and government which are characteristic of American business. Other studies (for instance, Peters and Waterman, 1982) have stressed the person-oriented and forward-looking management styles prevailing in the most successful American organizations. The danger of this approach is in romanticizing the hard realities of organizational life. The actual message is quite similar to the "human relations" approach which appeared following the discovery of the informal group half a century ago; but this was eventually superseded when researchers recognized that informal groups cannot simply be manipulated from the top by bosses' pep talks and that organizational power struggles over controls are still concerned with the actual distribution of power and rewards. Even the success of the Japanese corporations appears to have less to do with their distinctive culture than with differences in the way these organizations are structured, especially in relation to banks and to government agencies, and with favorable conditions in the international economy (Cole, 1979, 1981).

DECISION MAKING: THE GARBAGE-CAN MODEL Following a period in which economic models of rational actors were applied to organizational decision makers, the theory of decision making shifted toward the opposite extreme. March and Olsen (1976) proposed the "garbage-can model," which stresses that choices are fundamentally ambiguous at every stage of the decision-making process. What gets considered as a problem in the first place is affected by channels of communication and the various actors that control them. What objectives are aimed at is not constant but evolves over time as various possibilities come into view. And the proce-

dures for solving problems are typically not clear. All these factors interact: they are, as it were, thrown together into a "garbage can," which is particularly messy since different problems and goals get mixed together with whatever happens to be there at the time. The policies that come out are merely those which have managed to compete with other pieces of information for the scarce attention of the decision makers.

This model is empirically realistic, but I think that it throws away some of the existing power of organizational theory. Focusing on the minds of decision makers makes us look at things at a micro angle of vision in which situational contingencies loom largest. If we approach the behavior of organizations in a more long-term fashion, the overall pattern in which organizations (and the people within them) operate is predictable from the factors given elsewhere in the theories of organizational control and structure.

ORGANIZATIONAL STRUCTURE

IS THERE A TREND TOWARD "MODERN" ORGANIZATIONAL STRUCTURE?

It has often been assumed that organizations are tending to assume a particular "modern" form. One candidate is the supposedly universal trend toward bureaucratization. The dominance of paperwork and of formal rules and regulations has been regarded as mercilessly advancing. Weber (1922/1968: 956-1005) regarded this as the most efficient form of control, and hence expected that twentieth-century (and subsequent) societies would be caught in the "iron cage" of bureaucracy. Socialism would constitute no exception; in fact, it would intensify bureaucratization, a prediction borne out by the organizational forms dominant in Soviet societies. Only charismatic movements in political parties, Weber felt, provided any counterbalance against the bureaucratic trend. Schumpeter (1942) extended Weber's pessimism to capitalism itself; the advance of the corporation would drive out the entrepreneur and result in the deadening structure of bureaucracy. Neo-Marxian theorists, too, have proposed a predominant trend in this direction. Habermas (1984) has theorized that the personal lifeworld of interaction has become "colonized" by impersonal media of communication, in the form of money and power, leaving individuals pushed about by impersonal bureaucratic forces.

A counterargument, however, has been made that bureaucracy is characteristic only of early capitalism and is being replaced by a more advanced form, sometimes called "post-industrialism" (for example, Hage, 1980, or numerous popular expositions). Modern "high-tech" organizations, based on scientific expertise, become informal and person-oriented rather than thing-oriented, decentralized and democratic rather than centralized and authoritarian. Instead of an iron cage, we are moving toward an organizational utopia.

Neither predicted trend is conclusive. Neither structure has yet displaced the other. The two structural types posited, bureaucratic and expert-participatory, do not even capture the variety of structural types now in existence. Neither theory takes sufficient account of research accumulated in the last 25 years, which shows

how and why organizations differ from one another. The factors determining organizational structure—especially goals, technologies, and controls—vary within the same society, and do not fall into a simple historical sequence. Instead of a single-factor evolutionary trend, sophisticated organization theory shows us a multi-factor situation.

WOODWARD AND THOMPSON'S STRUCTURAL TYPES

Comparative research and theoretical synthesis by Joan Woodward (1965) and James D. Thompson (1967), sometimes called contingency theory, indicates there are four major types of organizational structure. Woodward initially demonstrated their existence for industrial organizations, related to their technologies of production. As Thompson, Perrow (1967), and others indicate, the structural types are found across all types of organizations, including those producing only paperwork, as well as military and political control, religious or other cultural outputs, or cultural involvement in voluntary associations. (See Figure 13-1.)

UNIT PRODUCTION *Unit production* is a form of organization which makes just one or a small number of relatively unique products at a time. Innovative engineering projects are of this type, as are many scientific laboratories; so are movie and theatrical companies. But traditional crafts, too, may take this organizational form, such as companies which manufacture individually tailored suits. These organizations tend to have a low hierarchy of command with few rank levels. Relationships are personal and relatively informal. There is little distinction between line authority and auxiliary staff advisers. Communication is done more by mutual consultation than by formulating rigid rules or elaborate record keeping.

This type of structure comes closest to the type adulated as the "modern" democratic organization. But several caveats must be added. This is not necessarily a "high-tech" organization; it exists in some traditional activities (for instance, crafts, theater), and, as we shall see, very advanced technologies do not necessarily take this form. Moreover, although this organizational type is relatively personal and un-bureaucratic, it does not follow that it is democratic. A control structure still exists, based on the power of hiring, firing, and promotion; in some instances, where the number of good jobs is scarce, the bosses of unit production organizations can be dictatorial. The entertainment business is notorious for the petty deference given to directors and producers and for the importance of personal connections in careers. Informality here amounts to personality cults around those individuals with power, since there are few impersonal, bureaucratic procedures to restrain them. Scientific laboratories, too, which approximate this model (Latour and Woolgar, 1979) may have an atmosphere of casual informality, but key scientists with personal reputations have a crucial importance for the ability to recommend their subordinates for positions, as well as to legitimate grants of research funds. In traditional crafts organizations, such as the medieval guild, the master-owner of the shop had arbitrary personal authority over his journeymen and apprentices. The informality of personal relationships can be personal authoritarianism as well as personal democracy. The latter depends on a greater equality of control resources among organization members; for reasons that we shall see, democracy often introduces an element of bu-

FIGURE 13-1
TASK TECHNOLOGY AND TYPES OF ORGANIZATIONAL STRUCTURE

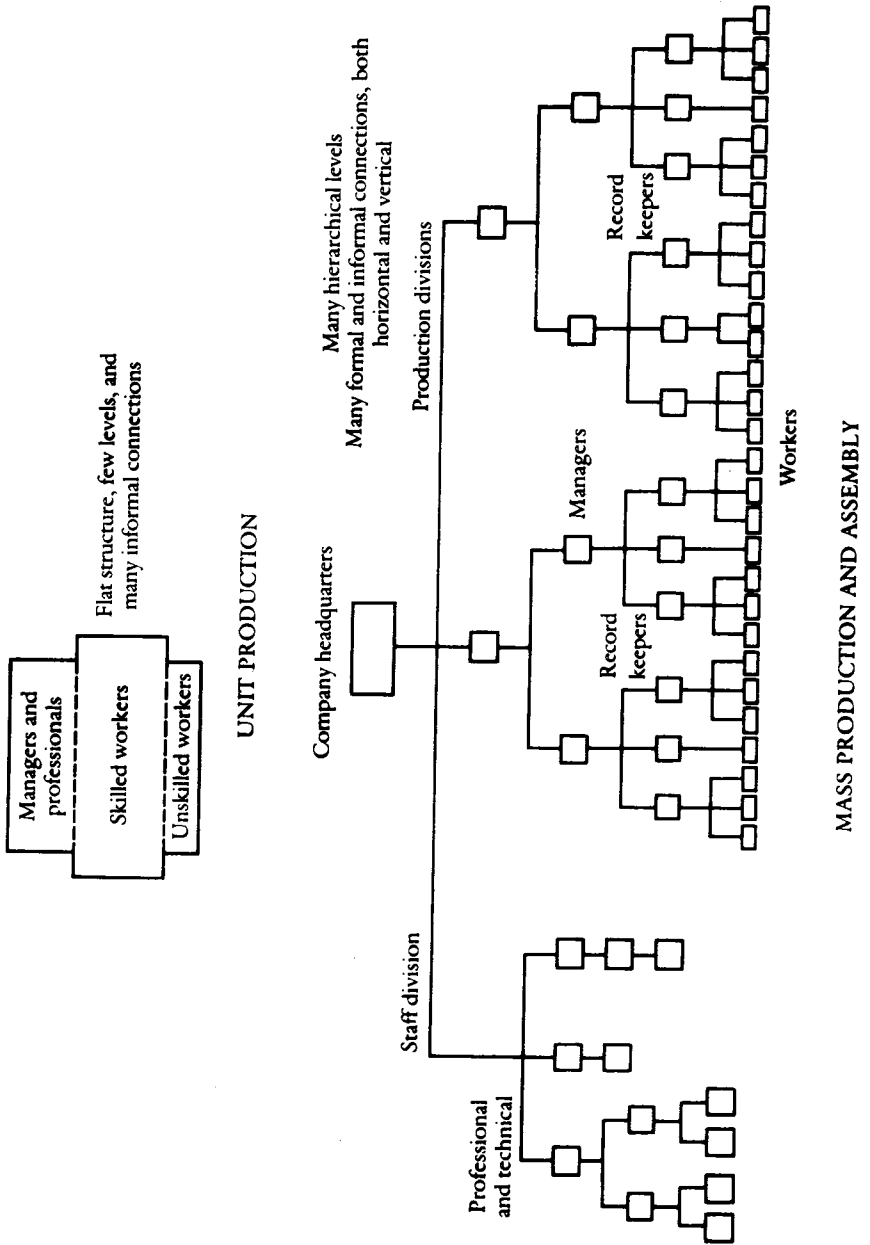
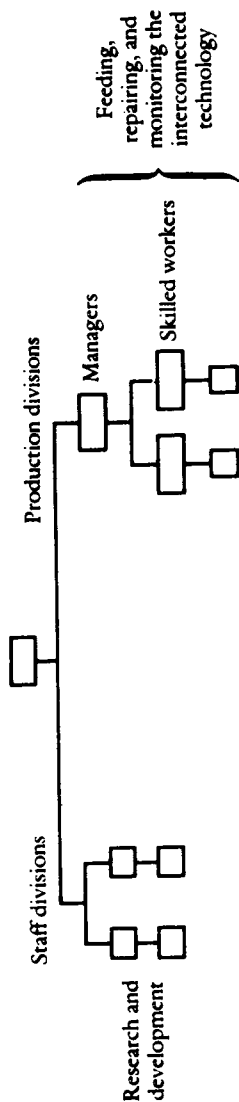
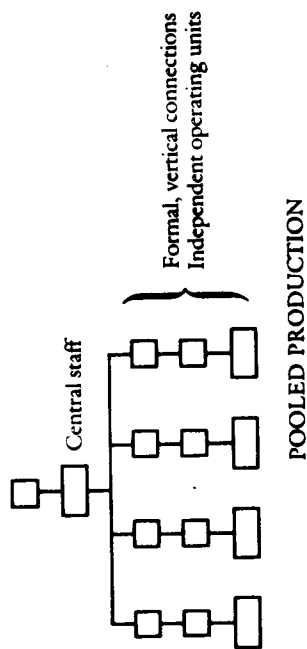


FIGURE 13-1 (Continued)



PROCESS OR CONTINUOUS-FLOW PRODUCTION



MASS PRODUCTION AND ASSEMBLY *Mass production and assembly* exists where a considerable number of different items are manufactured or procured and then brought together to be assembled, possibly with the pattern repeating many times as subassembled components are brought together into still larger components. The archetype is a factory manufacturing machinery, especially a complex machine like an automobile. Analogous organizational forms can be found outside of manufacturing; for instance, a modern army in war in a mass production-assembly structure, with soldiers themselves as well as their equipment and supplies constituting the parts to be assembled in various places.

Woodward found that mass production organizations tend to be highly bureaucratic. The structure resembles a pyramid: a central command, with branching suboffices for various geographical or product divisions and functional services. There is a good deal of formal paperwork, much record keeping, formal rules, and written orders. There is a sharp division between line authority and auxiliary staff whose duties are to deal with the record keeping and informational flow. This is the type of organization in which there is most likely to be an informal structure alongside of, and in conflict with, the formal structure. This dual structure makes for great complexity. There are numerous breakdowns in coordination, and typically an elaborate organizational politics exists behind the scenes. Many of the famous organizational studies (Gouldner, Dalton, Barnard, Mayo,) were done in this type of organization; hence we tend to have an image of it as the archetypal bureaucracy.

PROCESS OR CONTINUOUS-FLOW PRODUCTION This kind of production typically consists in manufacturing a product which undergoes many transformations. Often there is a liquid, such as petroleum, which is refined through a series of operations. High-tech versions are found in chemicals and drugs, but low-tech versions are also found, as in bakeries, dairy products, soft drinks, distilleries, and other food products. What is organizationally distinctive is that the sequencing is built into the machinery itself. There are few coordination problems, since the machinery itself guides the different components together. Work is highly predictable and is regulated by formal rules. Structurally, these organizations often look top-heavy, with a relatively high proportion of administrative staff. This is because most of the manual work is done by machines; what manual work force remains is primarily involved in monitoring and repairing machines.

Process-production and mass-production organizations are structurally both bureaucratic, but are very different types. Mass production usually has a messy and conflictual bureaucracy, with an informal structure shadowing the formal structure; process production usually has a smooth and nonconflictual bureaucracy, and formal and informal authority tend to coincide.

POOLED PRODUCTION Where a number of different operating units carry out more or less the same activities in parallel, *pooled production* can exist. The central organization provides a pool of resources for local units and receives other resources or products back from them. Coordination is largely vertical rather than horizontal. Many white-collar organizations are of this type: government agencies that issue licenses, welfare and employment agencies, banks, insurance companies, schools; so are certain material-processing operations, such as retail stores. Since there is little coordination between local activities, the structure can be highly bureaucratic, dom-

inated by formal rules and regulations and devoting most of its attention to record keeping. Here we have yet another type of bureaucracy: an extremely impersonal one, with little pressure to move quickly. Here is found the greatest "goal-displacement" from ends to means, where the paperwork routine becomes an end in itself, taking precedence over service to persons using the organization. In effect, clients become mere material for the organizational record-keeping process.

SIZE AND ORGANIZATIONAL STRUCTURE

Before the discovery of Woodward and Thompson's organizational types, it was commonly believed that the main variable associated with differences in organizational structure is size. Larger organizations, it was held, become more bureaucratic. The image of bureaucracy, however, was crude, mixing several dimensions. (1) Larger organizations are more impersonal, with greater use of paperwork, record keeping, and formal rules. This appears to be partly true. *Within* any one of the Woodward-Thompson types, it is probably the case that the bigger organization will have more paperwork and more formal written communications and general rules. Even unit production, when it gets to be large, must have some of this bureaucracy; clearly there will be more formal structure in a giant engineering project of thousands of persons making a rocket ship than in an engineering group of half a dozen. It would not follow, however, that *any* large organization will have more paperwork than *any* small one. A small pooled-production organization may well be much more bureaucratic in this respect than a rather larger unit-production organization. Another caveat is that some types of big organizations respond to size and complexity by elaborating their informal structure. A big mass-production, mass-assembly structure (such as the army or a big manufacturing corporation) is likely to be both highly impersonal on the frontstage, and highly personal on the back stage. As we have seen, whether size will generate this dual formal-informal structure depends on the task type.

(2) Larger organizations have a relatively greater proportion of clerical staff than of frontline production workers. This is another image of bureaucracy as a structure which is inefficient, displacing its activities from output to administration. Considerable research has been done on this question, though much of it is limited by failing to take organizational type into account. Blau and Schoenherr (1971) formulated a mathematical law stating that organizations do increase their administrative component relative to their size, but at a decelerating rate (as they get very big, the rate of growth of extra top-heaviness slows down). But Blau has done all his work in a particular type of organization, governmental agencies which fit the pooled-production type. This principle may not fit organizations in which complexity of interdependence among units increases with size (Anderson and Warkov, 1961).

(3) Larger organizations are sometimes believed to be more bureaucratic in the sense of more centralized. This however does not appear to be so. Chandler (1962) has shown in a historical account of large American corporations that difficulties of coordination increase beyond a certain size, resulting in a tendency to decentralize. This decentralization is not absolute, as giant organizations do not fragment into small ones. Instead, semi-autonomous divisional centers are established, controlling a full range of functional activities. Often these are geographically based, or grouped

around particular product lines. Sometimes both forms of divisionalization are used in a cross-cutting fashion, as in the U.S. Department of State, which has both area divisions (Europe, Africa, and so on) and functional divisions (political affairs, economic affairs, and so on). Divisionalization does not mean the end of bureaucratization, but only focuses certain aspects of record keeping and communications at divisional levels, while retaining other aspects at the overall headquarters. Recent development of superorganizations in the form of business conglomerates (or "multi-profit centers") indicate there is no trend to eliminate or split up extremely large organizations, but only to moderately decentralize some aspects of their functioning. The major control resources, especially finances, however, are kept at the center (and in fact constitute the center).

ORGANIZATIONAL HIERARCHY AS MACRO COORDINATION OF MICRO ACTIVITIES

The preceding propositions about organizational structure are empirical generalizations. These observed patterns can be explained as applications of control theory in different situations laid out by tasks, technologies, and ecological spaces.

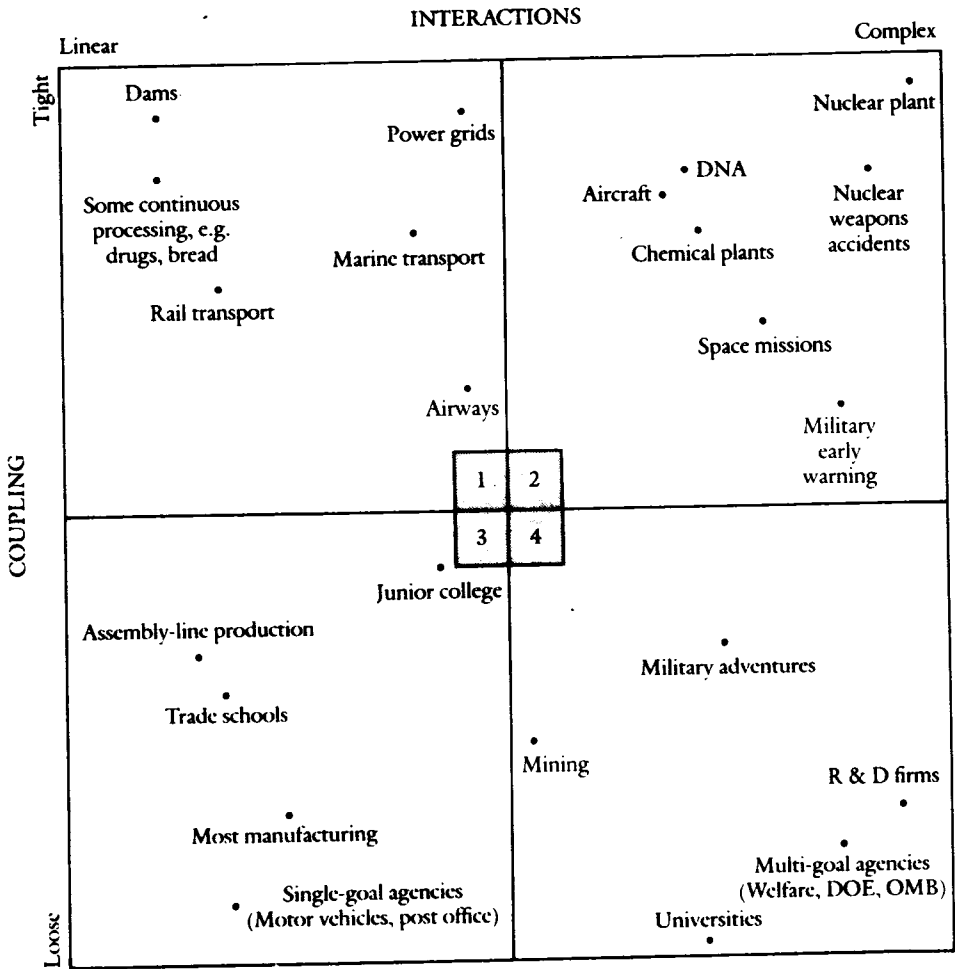
A useful perspective is to regard the administrative hierarchy of an organization as a set of positions which specialize in the macro coordination of micro activities which take place at the levels below them. On the micro level, organization members are carrying out various activities: making and assembling different pieces of machinery, for example, or receiving applications for services. The administrators' activities are to coordinate these micro activities across time and space: they take account of what several different people are doing in different places and times, and try to bring those activities and their products into a sequence so that there will be certain results. The administrators' activities themselves, of course, also happen in a particular micro situation, but they are explicitly oriented toward a larger macro slice of activities. Higher level administrators in turn have larger macro slices to coordinate, typically consisting of the blocks of activities coordinated by subordinate administrators.

Perrow (1984) gives a theory of organization structure based on the kinds of anticipated and unanticipated coordination problems that arise with different tasks and technologies. (See Figure 13-2.) He distinguished two dimensions, complex versus linear and tight versus loose coupling. However, his dimension of complex versus linear itself seems to have important subdimensions; based on his earlier statement (Perrow, 1967) and my own analysis (Collins, 1975: 315-29), we may break this down, resulting in three dimensions:

(1) *The degree of uncertainty in each micro activity.* Where this is high, it is harder for an administrator to predict what each participant will be producing. One consequence (according to the *principle of task uncertainty*, page 463) is that bureaucratic controls of activities will be hard to apply, and frontline workers will have a high degree of autonomy.

(2) *The degree of uncertainty in the structural connections between micro-activities.* This depends on how complicated the process is by which different activities depend on each other. Where many parts are needed to be assembled into a product, some administrative activity is called for to schedule their separate production and deliv-

FIGURE 13-2
ORGANIZATIONAL COUPLING, COMPLEXITY, AND
SYSTEM ACCIDENTS



From Charles Perrow, "A Framework for the Comparative Analysis of Organizations," *American Sociological Review*, vol. 32, 1967. Reprinted by permission.

ery. Much of what administrators do is troubleshooting when some needed component is missing. Such breakdowns can occur whenever machines break, human workers are absent or slow or careless, or prior planning was not accurate. Moreover, the effects of breakdowns can multiply if there are complex connections: a needed part itself may come from some other organization or division, which has its own coordination problems. The more such complexity, the more administrators' time is needed to coordinate activities. Administrators deal not only with normal coordination, but with the consequences of accidents; but accidents are more or less expectable according to the degree of uncertainty of coordination.

Perrow (1984) points out, moreover, that some systems are complex, not only because of the planned connections among activities, but because problems can overflow into activities which just happen to be physically nearby. The same equipment may be used for several purposes (for example, maintenance tools in a factory can be used in different production sequences), hence a breakdown in one sequence can cause an unforeseen cramp in a quite different sequence. Or a small fire in one machine system may damage electrical connections which happen to pass nearby but affect quite different operating systems. This kind of "spillover" effect can also apply to humans: an informal network in one part of the organization can make personal connections with that in another part, thus resulting in unexpected channels of communication. Perrow also notes that these kinds of complexities may provide at least short-term solutions for problems. An entirely different sector of the organization can be cannibalized for needed equipment or personnel to fill needs elsewhere, making up for failures or shortages in their own stockpiles. In the longer run, though, these makeshift adjustments tend to cause an unplanned difficulty in the activities elsewhere in the organization, resulting in still further adjustments, and so on. For all these reasons, production sequences can operate differently than planned. The greater the degree of such uncertainty of coordination, the more administrators are needed to devote their energies to dealing with keeping the coordination of activities going.

Perrow (1967) earlier formulated the difference between these two types of uncertainty as whether there are many exceptions to routine in carrying out tasks and whether a regular search procedure is available when exceptions occur. The latter refers us to the realm of macro coordination, searching for solutions elsewhere to problems that crop up in a particular place. Note that the two forms of uncertainty are empirically distinct. A scientific research laboratory may have a high degree of uncertainty in its individual tasks; yet the experiments each member is carrying out depend very little on experiments elsewhere in the organization, as there is no need for materials or information to flow from one to another. Hence higher-level administration may be merely a routine, pooled-production bureaucracy, softening out to an informal structure at the operating level. Where intercoordination uncertainties and micro-activity uncertainties are both high, however (for instance, putting together many innovative parts into an aerospace vehicle, see Perrow, 1984: 258-81) the tasks of administrators multiply (and may be relatively insoluble).

(3) *Tight versus loose coupling* refers to the extent to which activities follow invariably in an inalterable sequence, usually under strict time pressures. Tightly coupled systems, such as many chemical refining processes, as well as hydroelectric dams, usually have only one route for achieving a goal, and each activity must fit into the sequence at the right time. Loosely coupled systems, on the other hand, allow delays and can change the order of sequences without harm, as in the pooled activities of many government agencies.

It is the combination of these three dimensions of activities that determines the shape of the organization structure. Organizations with tight coupling and low coordination uncertainties can afford to have a highly centralized structure, with a few administrators controlling all activities under rigid routines (Perrow 1984: 331-32). Continuous-flow process production fits this type when the machinery itself

guarantees a smooth coordination of activities; so do railroads, where the main problem of keeping up the tight coupling (one train has to get off the track to make way for the next one) is to keep on schedule. At the other extreme, organizations with complex and unexpected interactions, together with loose coupling, must be decentralized: local administrators have the authority to negotiate unexpected relationships; while the loose coupling relieves them of pressure to fit the whole structure together rigidly.

The other two combinations are more problematic. Loosely coupled organizations with routine, uncomplex activities can be either centralized or not, Perrow says, depending on the tastes of organizational elites. A rigid centralization will work, since everything is routine anyway; and indeed this is the structure typically found in single-purpose (pooled production) governmental agencies (licensing bureaus, and so on). Some such organizations, though, are decentralized, as in school systems that give much autonomy to local officials. The difference seems to be in the control resources, rather than in functional needs of carrying out the tasks.

The combination of complex coordination uncertainties and tight coupling, however, is potentially a disaster. Centralization is desirable as a way of keeping up the coordination necessary for the tight coupling; but the complex nature of interactions among organizational components means that when something goes wrong, it is very difficult for a remote hierarchy to respond to it. These contradictory pressures result in elements in both centralization and decentralization: such organizations may vacillate between these poles in successive "reforms"; an informal structure tends to emerge which acts as decentralized power because of the inability of the formal structure to handle emergencies.

STRUCTURE AND CONTROL

The structural theories laid out by Woodward, Thompson, Chandler, and Perrow are all couched in functional terms: the coordination needs and difficulties arise directly out of the tasks being carried out. What is left out is the control structure. But the administrative hierarchy is not merely coordinating tasks; it is also controlling people. At the lowest level, supervisors are engaged less in task coordination (aggregating micro tasks into macro sequences) than in making sure people do their work. The amount of macro coordinating increases as one ascends the hierarchy; but from the point of view of their own superiors, the coordinators themselves need to be controlled. At the same time, subordinates at every level have some control resources to use against their own superiors. Organizational politics involves a mixture of task activities and the struggle over control.

As we have seen, what types of controls are used depends on both the tasks that are being attempted and the control resources that are available. Certain kinds of tasks can be carried out most effectively with certain kind of controls; if cruder or more alienating controls are used, the organization will pay the price (which, however, its controllers may be willing to pay). Having chosen certain control techniques, certain structural contingencies follow. If coercion is used, the organization will have to have large numbers of supervisory personnel—guards wielding the threat of force—whose activities themselves have to be overseen. And since guards are not

directly involved in the coordination activities of the organization, and typically have little chance of promotion, the higher authority has to deal with a relatively unmotivated and easily corruptible group of lower controllers. In short, the control structure at the lowest level calls for a secondary control structure at the next level, with similar issues at each level. An organization using coercive threat throughout the control hierarchy (as in a military dictatorship) lives in constant danger of alienating the armed controllers themselves, and hence tends to focus heavily on simply maintaining power.

Control by rewards, the most common form in modern organizations, requires an additional administrative structure in the form of record keepers and payroll administrators. Incentives and concessions made in the form of additional benefits (medical, vacation, retirement) bring with them the expansion of personnel departments and a flow of paperwork to line administrators. Material rewards thus inevitably expand the routinized bureaucracy of an organization.

Normative control takes many forms, not all of them very effective. But organizations may create extensive departments specializing in employee relations, socialization, educational indoctrination, and reviewing qualifications. Universities, which rely heavily on normative control (along with a bureaucratic reward structure) are permeated with committees to examine personnel qualifications for an elaborate hierarchy of promotions. Administration in some normative organizations thus may be given over almost entirely to control activities, since most of the "productive" activities are left to the control of the participants themselves, and little coordination among micro activities is needed.

The growth of the higher levels of organization structure, then, is not merely a matter of what micro tasks need to be coordinated into sequences. The nature of the controls being used at the lowest levels ramify into yet another component to the administrative hierarchy, whether it specializes in control activities, or whether it is combined with the activity of coordinating administrators. (The latter is more usually the case; though some hypersensitive control systems, such as within the Soviet Union, use a dual hierarchy: Communist Party members are used strictly for control purposes, paralleling the formal line authorities whose duties are mainly the purely functional coordination.) Furthermore, the functional activities of coordination are themselves positions of power, and lower individuals are rewarded or punished in the process of having their activities regulated. Issues of what are appropriate policies for the goals of the organization become entwined with issues of the career advancement of individuals; the administrative coordination structure becomes permeated by the motivations of personnel seeking advancement for themselves, promoting their allies, and deliberately or undeliberately acting against the power interests and career prospects of other factions.

For this reason, the efficiency of administrators is hard to judge. The output of their section of the organization is the result of the work of many persons, and the precise contributions of individuals is often hard to measure, especially as one moves away from the immediate micro focus of productive activities. Numerous contingencies of coordination, including much chance, determines whether an organization or department will prosper or languish. Moreover, in many organizational types it is difficult even hypothetically to set forth in advance a blueprint for what the organization and its managers ought to be achieving. In organizations where activities are

loosely coupled and/or highly routine, measurements of expected performances are not difficult; but as organizations move toward the other ends of those continua, the uncertainties mount. But at least here we are in the functional realm, where there are clear and specified goals for organizational output.

When we enter the realm of controls, even this criterion disappears. An organizational struggle over control becomes purely political. The amount of time and energy taken to exercise control depends on the coalitions involved in the fight and the resources they have available. Where conflict groups are well mobilized on each side, a conflict may go on at very great length with few discernable results for either side. Thus political conflicts within management, or between management and workers, can take up a disproportionate amount of energy, without yielding any output for the organization; but since these are the organizational controllers themselves who are fighting for their own most immediate positions, the battle is sufficiently motivating to absorb their attention. (Takeover battles over corporate management are merely the most visible and highly publicized form of this typical organizational behavior.) For this reason, a purely functional view of organizations cannot capture the main activities on which members spend their time.

Within this situation, what I have called the "sinecure structure," the struggle over "positional property" (Chapter 5) can flourish. It is not "dysfunctional" because all organizations do it, hence there is little competitive pressure from organizations which do not waste their time on organizational politics. This internal struggle within organizations is the most important modern form of the class struggle.

In formal theoretical terms, organizational politics itself is an activity with a high degree of task uncertainty. It generates an informal structure, relying heavily on covert information control. This in turn further serves to complicate the coordination structure at the management level. Higher-level administrators are forced to deal with an increasingly difficult organizational environment just below them, which tends to call forth a structural need for yet more administrators at that level. But adding more administrators adds more personnel to the control game. There is a circular relationship between growth of coordination and control personnel and growth of coordination and control problems. Eventually, sophisticated managers arrive at Barnard's (1938) conclusion: the structure of the organization is indeed a political environment, and efforts to control it in detail must be given up. Only in this way can they bring the tendencies toward administrative expansion to a halt.

DERIVATION OF WOODWARD'S ORGANIZATIONAL TYPES FROM CONTROL THEORY

Woodward's organizational types follow from the application of more fundamental theory of organizational controls, together with Perrow's contingency theory of macro structure of coordination. *Unit production* is characterized by unique or innovative products. Hence workers have a good deal of autonomy on the micro level and much covert power (via information control). Nonalienating normative controls are needed, especially since workers and managers have a good deal of

covert power over each other's ability to carry out their tasks. Formal hierarchy and bureaucratic procedures are deemphasized, while mutual consultation is prominent.¹¹

Mass production or mass-assembly typically has predictable and standardized products for its separate micro-level activities. Hence controls are by material rewards and efficiency criterion (measuring outcomes), necessitating much record keeping. Record keeping is also called for by coordination needs, since many disparate activities must be assembled. The sheer number of activities to be coordinated tends to make for complexity at Perrow's second level, hence calling for an elaborate administrative hierarchy to do the coordinating. At this level, however, managers have much covert power over each other, due to reciprocal coordination, especially where the structure is loosely coupled (many alternative ways of carrying out sequences). This results in an informal bargaining structure among managers. Formal and informal structures of control are both called for, but conflict with each other.

Process production has a high degree of predictability of micro-level activities as well as of coordination among activities. The machinery itself links processes together, serving as a means of environmental control. Personal methods of control are reduced. Material rewards and record keeping are the principal controls. Since coordination needs are low, these organizations generally are smoothly operating bureaucracies. Perrow (1984) points out, however, when breakdowns occur in such systems, because they are tightly coupled, the whole system is likely to be out of order. Power devolves on the few individuals who repair the bottlenecks in the system, as Crozier (1964) observed in a very routine French factory manufacturing matches.¹²

Pooled production has highly standardized and predictable operations at the micro-activity level and few coordination needs. Material rewards, strict record keeping, and highly bureaucratic procedures will suffice for control at both worker and manager levels. Coordination is similarly bureaucratic, since it consists only of vertical communications between the central pool and local operating units. Such organizations tend to be slow, impersonal, perhaps maddening for individuals who are in a hurry or who have unique requirements, but highly predictable and hence efficient for slow-paced tasks.

¹¹This explanation concentrates on the first of Perrow's two levels of uncertainty, the micro level of activities. A shallow control structure supposes that the second level of uncertainty, the degree of coordination among diverse activities, is also low. We can envision various possibilities: there may be few separate activities that need to be coordinated, in which case little higher management is called for (for example, a traditional craft like a tailor shop). There may be numerous such activities, but coordination among them is easy, in which case the higher structure can be bureaucratic (for instance, a set of scientific laboratories). Finally, there is the case where many activities have to be coordinated, and the coordination among them is idiosyncratic, resulting in many managers but operating informally (for example, in movie production).

¹²A process-production organization may operate in a very different mode, however, at times when a new production process is being installed, as when an oil refinery is actually building its rigs. In this case, unit production relationships are more likely to prevail, as is typical in the construction industry (Stinchcombe, 1959). Process production firms thus may have a dual structure, depending on how often innovation occurs. Highly traditionalistic process production, such as that observed by Crozier, will have the most extreme form.

ORGANIZATIONAL STRUCTURES AS IDEAL TYPES

Any organization is usually a mixture of different structures. We have already seen that any single control mechanism is rarely used in isolation, and different parts of the same organization (notably the operating personnel and the administrative personnel) tend to be controlled in different ways. Furthermore, an organization may have different task and technology types in different parts. The personnel department of a mass-production firm will nevertheless internally have the structure of pooled production. Unit-production organizations, if they are very large (for instance a movie company, a scientific laboratory) will likely have a bureaucratic, perhaps pooled-production component. A university tends to be a combination of a series of unit-production suborganizations at the level of faculty research, with a routine pooled-production structure at the level of undergraduate teaching. Some highly routinized organizations may have subdivisions which have an idiosyncratic unit-production structure (such as computer divisions within a state bureaucracy: Meyer, 1968). Hospitals often have a structure combining mass production (in which the patients are the raw materials, being moved around through a complex set of technologies), with unit production at the level of the doctors and pooled production in many administrative forms.

In general, any organization is amenable to analysis in terms of theory of control and structure. Organization theory is very powerful in its application, since it gives the specific conditions for people's behavior (the control struggle) and their patterned interrelationships (structure) and in a flexible manner that can do justice to the variety of situations that make up the real social world.

ORGANIZATIONS AND ENVIRONMENTS

In the foregoing, we have attended mainly to the internal structures and control processes of organizations. Organizational environments have entered in principally as seen from the point of view of organizational participants, as posing tasks with varying degrees of uncertainty. In recent years, organizational theorists have focused much of their attention on the environment, either as it affects organizations "from the outside in" or seeing the environment itself as a population made up of organizations.

RESOURCE DEPENDENCY

In order to survive, any organization needs resources, which it may not be able to supply for itself. These include raw materials, people as new recruits, information, and money. Furthermore, organizations are frequently controlled by an outside source, such as owners, a board of investors, banks, or in the case of governmental and nonprofit agencies and organizations, by trustees or higher government authorities. The theory thus emerged that organizations are shaped by the crucial inputs from their environments. The hypothesis of "environmental isomorphism" says that an organization comes to mirror its environment; if the environment is highly differentiated and volatile, the organization must be internally complex in order to inter-

face with these different aspects of the outside world (Lawrence and Lorsch, 1967). From the point of view of neo-rationalist models, it is argued that organizations develop permanent ties with other organizations in order to reduce uncertainty, information costs, and opportunistic behavior by their partners. In general, organizations adapt to changing environments (Pfeffer and Salancik, 1978; Pfeffer, 1982). The question is, how is this relationship best explained?

THE POPULATION ECOLOGY OF ORGANIZATIONS

The ecological model (Hannan and Freeman, 1977; Aldrich, 1979) is a variant of evolutionary biology. It argues that organizations are selected according to their ability to adapt to different environments. We may note that this is a version of the evolutionary model treated in Chapter 1. Variation (generally of an unknown source) results in natural selection as ill-adapted organizations die out and well-adapted ones survive. Why are not all organizations the same? The answer is that the diversity of organizations mirrors the diversity of environments to which they have adapted. That is, organizations exist in various "niches" in the environment.

The principal dimension of organizations examined by this theory is the structural difference between *generalists* and *specialists*. Generalists are organizations which draw upon a variety of resources and which produce a variety of products for exchange with their environmental sources. A business which produces many products for different markets is of this type. It is analogous to "advanced" biological organisms (such as the higher mammals) which are capable of changing their mode of feeding and sheltering themselves as environmental conditions change. A generalist organization has the ability to ride out fluctuations in any particular source of environmental resources, since it can substitute other sources. Specialist organizations, on the other hand, adapt more exactly to a particular environment: a business making a single product, a restaurant appealing to a particular ethnic cuisine. These organizations are more vulnerable to changing resource flows. They are analogous to biological species which developed very precise mechanisms for feeding or reproduction and which survived only as long as certain environmental conditions existed.

Which types of organizations will exist depends on the characteristics of the environment. Where environments are stable, selection favors specialism. Where environments are unstable, there are two further possibilities, depending on the uncertainty and rapidity of the changes. Rapid, short and highly uncertain changes (labelled a "fine-grained" environment) favor specialist organizations, mainly because generalists under these conditions have to carry too much costly overhead. Occasional, long-lasting changes ("coarse-grained" environments) favor generalist organizations. These arguments are derived from mathematical equations borrowed from population biology. Empirical applications have been made, usually to small organizations which exist in large numbers, whose dates of birth and death can be easily charted (for instance, restaurants, newspapers). The empirical curves can usually be fitted fairly well to the theoretical equations.

In a particular example, Carroll (1985) considers the "niche width" of newspapers. Generalist newspapers are those which attempt to appeal to all parts of the audience spectrum; specialists are those which focus on a particular occupational, ethnic, religious, ideological, or local community group. For all newspapers, big

organizations have an advantage over smaller ones, because economies of scale in printing and advertising enable big newspapers to bring a much greater economic return for their costs than small newspapers. (Costs of editorial staff and printing remain about the same, whether circulation is small or large.) But newspapers can become big only by being generalists, the major daily newspaper in the area. There is room for few generalists, and their large resources enable them to engage their competitors in circulation wars, which result in the death of most competitors and the survival of one or a very few generalists. But generalists appeal mainly to the middle of the audience spectrum and ignore the more specialized audiences. Hence specialist newspapers (local subcommunity papers, occupational, ethnic, ideological specialists) of small circulation spring up, benefitting from the death of most of the generalists. The concentration of circulation among the generalists results in a high death rate of generalist organizations and a low death rate of specialist organizations. The image is something like exotic mushrooms spring up on the decaying logs of huge trees squeezed out by a few giants.

Despite its appeal, there are several limitations of the population ecology model of organizations. It has little explicit causality in its theory. It does not tell us much about the conditions under which organizational forms are innovated, but only whether they will survive. Its dependent variable, organizational structure, is a limited typology of generalist and specialist forms, which does not capture much of the structural types that characterize organizations. It deals mainly with small organizations, because it is here that birth and death rates are easiest to observe; yet large organizations, especially states and business corporations, are the major realities of the modern world. Moreover, since these large organizations often dominate and shape their own environments, it is dubious to say that they are responding to environmental conditions. Finally, the population ecology approach shares the weaknesses of evolutionary theory generally (Chapter 1). It implies too easily that organizations are optimally adapted and hence take the best form that they can, on pain of extinction; yet organizations in fact may be highly inefficient, but survive because of their monopoly of control resources. The population ecology model is too much like an idealized laissez-faire view of the capitalist economy, in which small competitors prosper merely because of their ability to adapt to the market. The success of some organizations, however, can destroy the ability of other organizations to form at all. This is not always the case, as Carroll's analysis of newspapers shows; but it cannot be assumed that optimally open capitalist competition always exists. The very conditions for an ecological competition model are themselves variable and need to be explained.

ORGANIZATIONAL BOUNDARIES

Recent concern for organizational environments is to some extent due to the belief that organizations cannot be considered in isolation, that a purely internal focus misses too much of what is important and determinative. Nevertheless, analysis which deals with a population of discrete organizations is itself weak on a crucial aspect of organizations. How do we know exactly what one organization is? Boundaries are often vague, and what is picked out as a separate organization is often done for the convenience of the analyst. For example, government agencies can be re-

garded as subparts of one large employer, the state; or a single agency or subagency (or in the case of the massive federal bureaucracy, as sub-subagency) can be taken as a separate unit. In the realm of business organizations, too, organizations frequently do not die when they disappear as legal entities, but merely become a sub-unit in a conglomerate.

This problem is disturbing only if we place a great deal of analytical emphasis on organizations as bounded units. This is particularly likely in a theoretical perspective like functionalism (or organicist analogies generally), which stress the boundary-maintaining and goal-directed quality of social units. But in fact it is highly unlikely that organizations really do have these qualities. Organizational goals, as we have seen, tend to shift as the result of power struggles; and just what is believed to be the goal of the organization depends on which participant one asks. It is sometimes argued that a discrete organization can be defined as one that has a comprehensive list of all members and a clear social identity and purpose. But many voluntary associations lack clear identification of all members, especially those with varying degrees of participation; even in formal, property-based organizations, there can be ambiguity (such as whether outside consultants and network contacts should be regarded as members or not). To define organizations by a visible public identity is too restrictive, since it leaves out "invisible" organizations such as professions or scientific disciplines.

I would argue that *organization theory does not depend on identification of strict organizational boundaries*. Principles of control and structure apply to more complex entities as well as simple and bounded ones. Much of what is most interesting about organizations is in these unbounded areas.

PROFESSIONS AS ORGANIZATIONS An example is the application of organization theory to the professions. A profession, in the sociological sense of the term, is an occupational group which has acquired an organizational structure of its own, independently of whatever other organizations its members happen to work in. Scientists in a university or in commercial laboratories are not merely employees subject to hierarchic authority; they are also (and usually preeminently) members of their own disciplinary specialty. They are less oriented vertically toward the local organization than horizontally toward their profession: they spend much of their time in horizontal communication with other specialists elsewhere; their careers depend largely on the reputation they get within the specialist group and on the recommendations their peers give for each other, including for hiring and promotion in their local organizations. Medical doctors, and to a lesser degree nurses, cross-cut the hierarchic organization of a hospital with their horizontal professional ties. Lawyers, dentists, architects, and engineers, in varying degrees, all have horizontal ties to peer groups which give referrals and recommendations. The most strongly organized professions are those in which the peer group not only staffs its own training institutes, but has acquired the power as gatekeeper for entry into monopolistic licensing, enforced by the state, for exercise of that occupation (Wilensky, 1964).

Professions are an example of how organizational boundaries are permeated by other organizations. This condition itself is explicable by organization theory. The occupations which are most successful at attaining this horizontal, professional structure are those whose activities involve the highest degree of uncertainty: they deal with

areas of creativity (scientific research), or anxiety-charged bodily ailments (medicine), or complex conflicts and negotiations (law). According to the *theory of tasks and control forms*, (pages 462–64) hierarchic controls are difficult in these circumstances; employers of these services need to rely on normative control (as well as, usually, large material rewards) and hence to give considerable autonomy to practitioners. This very high degree of power by practitioners, and uncertainty about their outcomes, creates the potential for considerable distrust among clients and employers. How can they evaluate whether their services in these areas of uncertainty are as good as can be expected? The practitioners put up a united front in the face of this distrust, undertaking collectively to guarantee the validity of individual practitioners. These experts have power over each other, as they are best qualified to judge the extent of the skill applied by any of them. Professionals thus rely on their network of peers for validation of their work. This is how scientific research results and theories become certified as “knowledge” for the outside world, and how doctors and lawyers acquire their reputations and hence referrals for clients.

In organizational theory, then, professions are occupations which have the highest degree of autonomy and power in the exercise of their tasks. In principle, they are merely another kind of worker (some of them, such as surgeons, are actually performing manual labor), and their tasks do not intrinsically involve line authority (coordination and control of others). This is what pushes them toward a horizontal form of organization. In some respects, a strong profession is like a trade union, but going far beyond it, usually, in the degree of control it achieves over work conditions, pay, and monopolization of job entry. This is because the task uncertainty is at an extreme level, making employers and clients concede normative controls as the primary relationship with professionals. This same demand for normative legitimation is what gives the horizontal group such power over individual practitioners.¹³

INTERORGANIZATIONAL RELATIONS AS A SUPERORGANIZATION

It is possible, then, for organizations to permeate other organizations, as well as to be linked together in organizational sets, pyramided into larger units, and connected in other ways. The environment of an organization usually consists, to a large extent, of other organizations. This is particularly true of businesses which are buying and selling (as well as competing and engaging in collusion) with other businesses and of governmental units, whose environment is other agencies, organized political groups, or private organizations that they regulate.

¹³The profession which has been most elaborately analyzed as an invisible organization is science, or rather the variety of different intellectual communities which make up the sciences. In an earlier work (Collins, 1975: 470–523) I proposed that the degree of *task uncertainty* in intellectual research, combined with the degree of *coordination problems* among intellectuals (in getting resources for their research, and for getting recognition for what they produce), and the availability of *communication resources* result in intellectual communities which are similar to informal crafts organizations, personalistic communities, regularized bureaucracies, conflictual bureaucracies, petty intellectual autocracies, or feudal systems. Whitley (1985) gives a more elaborate version of this organizational approach, documented by many studies in the sociology of science.

The question of boundaries turns out to be a trivial one. A linked set of organizations may itself be analyzed as if it were a single organization. Principles of control theory and structure theory work just as well as within a well-bounded unit. We have already seen that a single organization may be the site of conflicts over control, with various resources used by numerous participants interested in their own autonomy, power, and material rewards. The same perspective transfers naturally to units relating to each other externally or quasi-externally.

Perrow (1984) demonstrates this neatly in his theory of organizational structures. Recall that he derives this from the two dimensions of *complex versus linear (predictable) interactions*, and *tight versus loose coupling*. Entire "systems" of organizations can be characterized in the same way: for example, the system of interdependence in marine transport becomes quite tightly coupled when ships are in a narrow river or channel (though with only moderate complexity); an airway system contains many organizations channeled through airports, resulting in similar coupling problems. The very fact that there are numerous organizations operating in such a system is one of the factors contributing to its coordination problems (its complexity). The more elaborate view of structure, given previously, which incorporates various kinds of technologies and techniques of control, should then apply to explaining the shape of relationships among any set of organizations that operate in proximity.

CAPITALISM AND SOCIALISM AS SUPERORGANIZATIONS

As a brief example, let us consider the political economy of capitalism and socialism as superorganizations.

(1) Capitalism decentralizes the economy to the extent of separating governmental from private business organizations. (That is to say, coercive political power and property are independent control resources upon which organizations can be built.) The dominant form of control in the private sector is material rewards. This applies to relations among organizations as well as within them: the profit motive is given prominence as the incentive to deliver goods and services. This has the same effect on interorganizational relations as it does on control of workers: compliance is utilitarian and extrinsic; concern is with material profits rather than quality of products, ideals of safety, comfort, environmental protection and beauty, or ethical principles. Material controls among organizations work only to the extent that they are monitored.

Of course, no organizations can operate entirely by material rewards. Within capitalist organizations, various technological and power conditions force the owners to use other forms of control, making concessions to occupations which control areas of uncertainty and using normative control upon its own managers. But the predominant form of normative control is not egalitarian participation and rituals, but individualistic incentives in the form of exercising power and offering promotion opportunities. The emphasis is still largely upon individualism and competition; although some normative atmosphere emerges among groups of managers, it is simultaneously undermined by the competition among them. Similarly, personal ties are useful for bargaining among business organizations, especially for support from financial institutions. But as long as the system remains capitalist, these normative elements are subservient to the predominant material control, the search for profits.

The structure of capitalist organization as a whole can be analyzed in terms of administrative devices for interorganizational control, and of Perrow's dimensions of complexity and coupling. Because there is no centralized unit dominating the network of business organizations, coordination is not done by formal rules. Environmental control is not generally available between organizations, nor is there much close surveillance. The main forms of administrative connection are via the efficiency criterion, checking outcomes—the main form of capitalist control; all else is forgiven for the profit line. Information control is the main covert source of interorganizational power, primarily as it flows through the financial system of investments.¹⁴

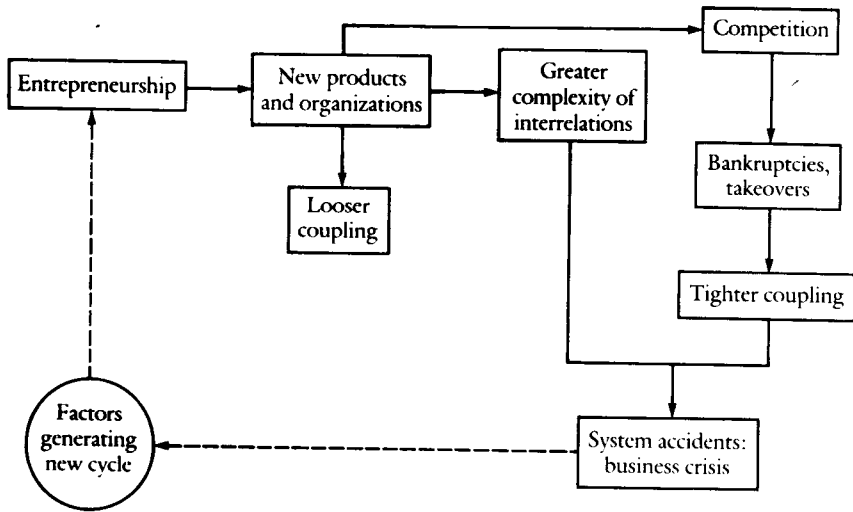
The relationships among capitalist organizations can no doubt be characterized in terms of the degrees of interdependence, the complexity and predictability of these connections, and the tightness or looseness of the coupling. This has not yet been attempted. It is probably the case that these structural connections vary from one local sector of the economy to another and from one historical period to another over time. One possible theoretical payoff is that the tendency of capitalism to go through business cycles of boom and depression, with points of serious crisis, may eventually be accounted for by organizational theory. Perrow (1984) points out that systems which have both high complexity (multiple, unpredictable linkages) and tight coupling are subject to what he calls "system accidents," accidents which are "normal" for that kind of system, even though they may be catastrophic for persons (and organizations) involved in them. I would suggest that capitalist crises are interorganizational crises of this sort, in which the failure of certain crucially situated organizations (perhaps in the financial sector) can ramify unpredictably through the network of other businesses. Looser coupling of the economic system perhaps would solve or at least localize such disruptions.

Along these lines, we might be able to construct a theory which explained the cyclical nature of capitalism, with its periodic booms and busts. This might look like the process described in Figure 13-3.

The phase of business expansion begins with entrepreneurs, setting up new organizations, putting new products on the market, and increasing output. The increasing number of organizations is a shift toward decentralization in the whole economy—a move toward looser coupling. This constitutes the up-cycle. However, the new products and organizations in the system increase the overall level of complexity, since many more interrelationships are now possible; and the new organizations bring about increased competition, which causes some of them to go bankrupt, while others (the more successful) tend to become the targets of financial takeovers. The number of organizations goes down again, and this consolidation results in a shift toward tighter coupling in the system, which together with the increase in complexity sets the stage for a "system accident"—a business crisis set off by the unforeseen ramifications of minor hitches at various points in the network.

¹⁴Notice that I have not characterized capitalism in terms of a *market* for material rewards. The degree to which capitalism is marketlike is a variable. The openly competitive market is restricted precisely by the existence of interorganizational linkages, including oligopoly and various kinds of patterned networks (for example, the noncompetitive niches described by Harrison White's theory in Chapter 12). The theory of material rewards, its causes and consequences, does not require us to drag in the whole apparatus of conventional market economics.

FIGURE 13-3
CAPITALISM AS A SUPERORGANIZATION



As in most theories of business cycles, it is easier to explain how the upswings give rise to forces which lead to an eventual crisis, than it is to explain how the downswing period eventually bottoms out and starts upward again. This does empirically seem to happen, although I have no mechanism to propose here from organizational theory. This part of the model in Figure 13-3 is obviously incomplete; I recommend it to the attention of future theorists.

(2) Socialism as ideally depicted is one large, coordinated organization, owned and controlled by the entire people who harmoniously plan all economic activities. The ideal is normative control substituting for control by material incentives (property) or by coercion (governmental power). Socialist theorists, however, have given little thought to organizational realities of how such normative control is to be instituted. Of the two major ways of generating normative control, socialism in principle is opposed to the hierarchic method (power participation and promotion opportunities) because these involve inequality and apply to only an elite portion of the populace. Equality and ritual activity are the favored means. But these run into several difficulties. Rituals encompassing the entire population are hard to carry out for large societies, and in any case do not motivate specialized work activities well. Equality tends to be undermined by the Michelsian Iron Law of Oligarchy; although the entire state and economy is supposed to be democratically controlled from below, large size results in delegation of authority to leaders, who in turn are able to exercise power through their control of administrative resources (Michels, 1911/1949).

The problem is particularly acute where the single-party state monopolizes all administrative resources, preventing oppositional movements from mobilizing. Moreover, socialist states which were formed by a revolutionary struggle seem to be organizationally inclined toward just this structure. The revolutionary conflict itself generated a period of emotional solidarity, leading to the belief that the new society

could be founded purely on normative control. And the ritual apparatus of maintaining normative solidarity (such as the cult of the leader described in Chapter 12) leads structurally toward a one-party state.

Similar problems arise at the local level within particular organizations. The ideal of workers' control comes into conflict with the necessity for a coordinating hierarchy arising from interdependence and scheduling among various micro tasks. In this situation, the organization can either pay a price for democracy, by allowing decisions to be made collectively but slowly; or else workers' control becomes ritualistic and *pro forma*, with real decision-making power belonging to the administrators. There is again a problem at the level of coordinating various organizations. Workers' control has greatest reality where workers have an economic stake in their own factory or other productive organization. But this control is undermined to the extent that interorganizational relations are determined by a centralized plan. The alternative is collective ownership among workers at a plant, but competitive capitalist relations among organizations.

The reality tends to be that interorganizational coordination in socialist systems is done from above by the power of the state. In its most negative form, this is control by coercive threat, which has been evident in most periods in the Soviet regimes of the twentieth century. In principle, state power need not be organized so dictatorially on the political level. Some mixed socialist-capitalist states exist, such as the Scandinavian democracies; and there is an element of socialist planning in most capitalist states today, although not called by that name. But the difference here is precisely the dispersion of organizational resources for political participation, which prevents government dictatorship by a single faction.

Coercion is the state's easiest resource, and normative control is hard to establish. Perhaps it is a recognition of this pattern that has motivated some Soviet-bloc theorists (for instance, Brucan, 1985) to suggest that the material incentives of the market are the path to workers' democracy, replacing the authoritarian abuses of the state. (In effect, this is workers' capitalism.) But whatever control sanctions the state uses, the centralized form of socialism emphasizes certain administrative control devices. Control is above all by rules and directives, elaborated in the form of plans and production quotas for each organization. There is an effort to foresee the contingencies relating organizations to each other and to plan in advance how these are to be met. The control structure is thus highly bureaucratic. Given that technological linkages may often involve many areas of uncertainties, more decentralized authority would be more efficient in many cases. The high level of bureaucratization, especially when combined with coercive sanctions in Soviet states, leads to considerable alienation, fostering an informal structure which attempts to make up for deficiencies of coordination arising from rigid plans imposed from above. The situation is further complicated by the existence of a dual control hierarchy, with Communist Party members assigned in a parallel structure to watch over administrative line personnel.¹⁵ Overall, the centralized version of socialism tends to resemble the most extreme form of Woodward's mass-production and mass-assembly organiza-

¹⁵This is a concrete embodiment of the analytical distinction made previously, between the organizational hierarchy as coordinating tasks and as controlling the controllers.

tion, where bureaucratic centralization and informal decentralization are locked in continuous conflict.¹⁶

It would appear, from the detached vantage point of organization theory, that neither capitalism nor socialism approaches very closely to an ideally functioning superorganization. A more realistic conclusion is that very large structures with complex interdependencies are inherently inefficient. There are bound to be conflicts in either one of them, as well as many opportunities for factions to seize disproportionate power, wealth, or honor. Large-scale superorganizations, at least as manifested so far, show no signs of approaching utopia. It remains to be seen if particular variants of technologies and tasks could give rise to structures which are more efficient and/or more democratic. Quite possibly we may have to take our choice between incompatible goals.

SUMMARY

1. Control in organizations can be carried out by three kinds of sanctions: *Coercive control* results in resistance, avoidance, or minimal and alienated compliance. *Control by material rewards* (remunerative control) leads to compliance in only those activities which are directly rewarded and to a struggle over the terms of reward. *Normative or internalized control* results in self-motivated compliance: this can be achieved primarily by giving power or chances of promotion or by ritual participation.

2. Control can be administered by the following devices: (1) *surveillance* results in compliance on tasks which are directly observable and in an atmosphere of petty deference rituals. (2) *Inspecting outcomes* focuses on the most easily measured products or activities and results in a depersonalized, record-keeping orientation. (3) *Rules and written orders* result in impersonality, slowness and low adaptability. This type of bureaucratic control tends to follow from struggles over democratization and other power struggles; it promotes an informal, rule-evading structure alongside the formal structure. (4) *Information control* gives covert power to those who have the resources to define reality to others in the organization, particularly in areas of crucial uncertainties. (5) *Environmental control* confines behavior by the physical setting; when this is available, it can substitute for other forms of control.

3. An organization exists as an enduring structure only as long as there are resources for control. Coercive, remunerative (material rewards), and internalized controls can each be used to generate the other types of control resources. Organizations become relatively permanent to the extent that they acquire property, which can be used as a basis for remunerative control. Organizational managers or "lead-

¹⁶Is there a dynamic mechanism within socialism, comparable to the crisis cycle I have sketched for the capitalist economy? The centralized bureaucratic structure of socialism avoids coordination through the market, and thus attempts to head off any dynamic which would give rise to economic "system accidents." The low level of technological innovation appears to be the price paid for this stability. It is possible, though, that we might substitute political interest groups for entrepreneurs in Figure 13-3. In this case, we would predict a political cycle in which ideological outputs and conflicts are substituted for material upswings and downswings in the business cycle.

ers" do not owe their positions primarily to their greater expertise but to their possession of instruments of control.

4. Tasks with a high degree of initiative and uncertainty tend to be carried out by the "soft" forms: internalized control and information control. Tasks with predictable and standardized outcomes can be carried out by control with material resources, administered by inspecting outcomes. Tasks with low initiative and highly visible outcomes can be carried out by coercion; but this must be administered by surveillance and environmental control and requires a large control staff. Coercive controls were widespread in traditional agrarian societies; in contemporary society, a mixture of bureaucratic and participatory forms are widespread, with no clear tendency for either to displace the other.

5. Organizational structures are related to *task technologies* in the following forms: (1) *unit production* makes a small number of unique products; it has a low hierarchy of command and a predominance of personal relationships, which can be either consultative or dictatorial. (2) *Mass production and assembly* manufactures or procures large numbers of components which must be put together into a complex product. These organizations tend to be pyramid-shaped, conflictual bureaucracies, with a struggle between informal and formal networks. (3) *Process or continuous flow* coordinates production through the production machinery itself, leaving the human organization as a highly formal bureaucracy. (4) *Pooled production* provides a pool of resources for local units, which are not horizontally coordinated; the structure is dominated by record keeping and is impersonal and slow-moving. Any particular organization may have a combination of these structural ideal types resulting from its mixture of activities.

6. Larger organizations are more impersonal and bureaucratic than smaller ones, but only within the same technological type. Beyond a certain limit, large organizations do not become more centralized but devolve into divisional or geographic centers.

7. Organizational hierarchy is a macro coordination of micro activities across time and space. The higher the *uncertainty of tasks* (at the level of micro activities), the more autonomous workers are from bureaucratic control. The higher the *uncertainty in structural connections* between micro activities, the more administrative activities are created to coordinate activities. *Tightly coupled* structures have only one route to achieve a goal, and activities must fit rigidly into a sequence. *Loosely coupled* structures have alternative routes and flexible coordination possibilities. The combination of high complexity in structural connections, and tight coupling, results in "normal accidents": breakdowns with uncontrollable ramifications throughout the organizational system.

8. The combination of these dimensions (uncertainty and coupling) determines the shape of the organization structure. The types of control used depends on the tasks which are attempted and the control resources available to the persons struggling over control (both controllers and subordinates). Structural shape (summarized in number 5) follows from the administrative hierarchies which arise in the application of control forms to various task problems.

9. Organizational structures develop to control resources in the external environment as well as internally. Population ecology theory proposes that specialist organizations are selected when the environment is "fine-grained" (many rapid and

uncertain changes); generalist organizations are selected when the environment is "coarse-grained" (relatively few and long-lasting changes). Large and powerful organizations, however, tend to shape their own environments.

10. The environment of organizations usually consists of other organizations. Boundaries of individual organizations can often be ignored, and theory of organizational control and structure can be applied to networks of organizations as well as within individual organizations. The large-scale systems of capitalism and socialism can be analyzed as "superorganizations." The dynamics of capitalism move through phases of looser and tighter coupling, with business crises as "system accidents." Socialism attempts to replace remunerative with normative sanctions, but takes on massive coordination problems which result in highly bureaucratic forms of organizational politics.