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Industrial Democracy and Regional Decentralization¹

To some this may seem a peculiar, idiosyncratic juxtaposition of themes. I chose the title because this is precisely what I wish to discuss. In our studies of the democratization of work we have had to learn some lessons and think through some notions that are of central relevance to regional decentralization. Let me hasten to add that the “regional decentralization” I am thinking of is the decentralization of federal government departments and some of the political power of the federal parliament. The two areas where I think a transfer of learnings is possible and desirable are

- decentralization as a problem of maintaining control and coordination with respect to centrally defined objectives; a problem that is with us even if the objectives are broadly defined;
- decentralization as a problem of getting closer to and mobilizing controlling forces from among the people of the region, not just getting geographically nearer to them.

It comes as no surprise to me that in thinking about the problems of administrative decentralization these two areas emerged as focal. For about 20 years I have been haunted—if that’s the word—by Philip Selznick’s observation in *Leadership in Administration* (1957) that organizational decentralization cannot be achieved by administrative measures alone because “institutional integrity is characteristically vulnerable *when values are tenuous or insecure*” (p. 120, his italics). Selznick further observed that “this variation in the strength of values has received little scientific attention” (p. 120). My own work in the late 1950s with the National Farmers Union in Britain, the British Prison Commissioners and organizations like Unilever and Bristol-Siddeley Aero Engines powerfully confirmed, in my mind, the centrality of Selznick’s proposition for an adequate understanding of organizational decentralization. His solution for defense of institutional integrity in the face of decentralization—embodiment of values in a fairly autonomous elite—bothered me. It seemed to be the best that could be done within the framework of organization theory as we knew it but only exacerbated the problems in the second area of

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getting closer to the administered. The techniques that such elites use to get close to the people are those of cooptation and gently nudging democratic representative processes by the exercise of favors and threats. Selznick's earlier (1949) study of the Tennessee Valley Authority as a grassroots exercise in planning was a classic study of the processes of cooptation. He did not confront this dilemma in *Leadership and Administration* (1957).

I now think that there is a solution to the dilemma Selznick's thoughts posed for us. A solution started to emerge when we realized that there was not just one basic organizational design and that the differences in organizational effectiveness were not just differences in ability to realize this basic design through management training, consultants or native wit. As we brought into being organizations that were patently different in nature and obviously more effective, we probed for more general theoretical explanations as to why this could be so. I have not been alone in this probing but my own conclusion is that we have, in fact, two basic organizational designs to choose from; we are not limited to choosing how far we will go with one design. Let me settle down to discussing the reasons for my conclusion. After this discussion I will go on to the problems of getting closer to the administered.

The Two Basic Organizational Designs

In choosing their organizational designs people do not confront an infinite range of choice. Far from it. If their organizations are to be purposive they have to be adaptive over a wide range of evolving circumstances. The alternative is some sort of servomechanism with a fixed repertoire of responses and capable of surviving only within a very narrow range of foreseeable conditions. To achieve this adaptiveness redundancy has to be built into the system. This is an important property as with each arithmetic increase in redundancy the reliability of the system tends to increase exponentially (Pierce, 1964).

There are two basic ways by which redundancy can be built in:

- first, by adding redundant parts to the system, each part is replaceable; as and when one part fails another takes over and
- second, by adding redundant functions to the parts; at any one time some of the functions of any part will be redundant to the role it is playing at the time; as and when a part fails in the function it is performing, other parts can assume the function. So long as a part retains any of its functional capabilities (i.e., functional relative to the system requirements) it is of some value to the system.

The first design of redundant parts has been described by Mumford (1967) as the *megamachine*, and he has traced its long Asian history and more recent Western debut. Feibleman and Friend (1969:36) characterized the logical properties of the first design as *subjective seriality*, in which "the governing

relation is *asymmetrical* dependence. The sharing of parts is necessary to one of the parts but not to both.” The second design is characterized as *complementary seriality*, in which “the governing relation is *symmetrical* dependence. The sharing of parts is necessary to both of the parts. Neither part can survive separation. . . . [The] parts are on a parity with respect to their relations with other parts, and each is dependent upon the other” (p. 38). Note that their analysis of “the structure and function of organization” revealed only these two basic designs at the level of purposeful systems.

If redundancy is sought by having redundant parts, then there must be special control mechanisms (specialized parts) to determine which parts are failing and have to be rendered redundant, and which have to be activated for any particular response to be adaptive. If the control is to be reliable it too must have redundant parts and hence the question of yet another level of control emerges. The more difficult it becomes to determine the failure of dependent parts in time to make adaptive replacements, the more the levels of control tend to proliferate (compare the many levels of control to be found in an army or an oil refinery with the few that are found necessary in a car assembly plant).

One can expect a bias toward choosing the first design if (a) the costs of the individual parts is cheap and (b) there are long lead times available for the organization to learn new modes of response. Once this first basic design is chosen efforts will be made to keep down the cost of the individual part by sustaining a pool of unemployed, obtaining access to pools of poor and preferably dispossessed peasantry (e.g., the *Gastarbeiter* of Germany and Australia’s postwar migration scheme) or specializing and standardizing the function of the individual parts to minimize costs of training and retraining.

Regarding the second source of bias toward the megamachine, it is worth starting our considerations from the oft-made observation that this is a great way to run a railway or an army:

There are irrefutable advantages to this kind of organisation. Discipline is good, errors in routine procedures rarely go unchecked, and if the very top man is an exceedingly able executive he can usually make the whole organisation jump to his command very quickly. It usually takes a long time to build, and it is at its most successful where the function of the organisation is to control a very large number of people all doing more or less the same thing. It is the way most armies are organised—platoon, company, battalion, brigade, division, corps, army—and if you want to make a million men advance or retreat at a few hours notice it is hard to think of a better system. (Jay, 1970: 73)

Armies fight for short periods of their life under conditions of great uncertainty, great turbulence. Hence it is hard to reconcile Jay’s enthusiasm for or-

ganizing armies in this way with the contention that they are only adaptive when allowed “long lead times for learning.” It is also hard to reconcile with the organizational logic that underlies this contention, namely, that *this type of system is inherently error-amplifying*. The governing principle of asymmetrical dependence means that errors will leak in from the environment like water from a sieve; it is in no one’s interest to be rendered redundant because an error or failure can be associated with him. Even without that psychological weakness the relation of asymmetrical dependence will ensure that the flow of information upward from one level of control to the next will take the form of $T = (1 - F^n)$. If a manager had five good people reporting to him, people who were truthful (T) eight times out of 10, i.e., $T = (1.0 - 0.2)^5 = 0.328$, then there would be, on average, only *one in three occasions* when he could say to himself that this must be sound advice because they are unanimous. However, the same principle applies at all levels. If the manager and four others at the same level as himself have been well chosen, and hence are right nine times out of ten, then the chances of their superior getting unanimous advice from his five managers about the messages coming up through them from the level below are, on the same arithmetic, 0.002, *twice in a thousand such communications!* (Beer, 1972). This very disturbing property of error-amplification arises in a system based on asymmetrical dependence because each manager must seek to maintain the asymmetrical dependence of his subordinates on him. He will seek to ensure that each of his subordinates gives him his *independent* judgment and that they cannot go into collusion to influence his decision. But the mathematics of this are inexorable. The more he achieves this aim of controlling his subordinates, the deeper he gets into error—even if the subordinates are not psychologically motivated to protect themselves by hiding their errors.

Given this inherent weakness, a major part of the effort of utilizing cheap dependent labor by this first design has gone into control systems that will minimize the weakness. Thus Jay, in the above quote, says that in these types of organizations discipline is usually good. We suggest that in these types of organizations one usually finds good discipline, not because they naturally create good discipline but because they cannot function without imposing strong discipline. That they cannot function unless their individual parts are not only replaceable, but are also so threatened by punishment or withdrawal of rewards that they will behave in a preprogrammed manner regardless of the evidence of their senses or their commonsense. Lewis Mumford (1967) has documented the vicious practices of torture and maiming that were introduced with the earliest emergence of the megamachine; poet-laureate Masfield has documented the inhuman disciplinary practices of the Royal Navy up till the age of steam. Taylor and his contemporaries simply devised new sticks and carrots so that this organizational design could function within societies like the United States

where the Constitution forbade "cruel and unusual punishment." There was no change in the aim. The aim remained that of blocking the holes of the sieve, preventing error getting into the system. By elaborate preprogramming of the parts at the workplace, and of the control systems, expected contingencies could be met and failure of a part quickly identified. As Jay observed, such an organization "usually takes a long time to build." Standard operating procedures, rules and regulations and training manuals have to be multiplied to meet the ever-newly emerging contingencies. They can rarely be wiped off the book because there can rarely be agreement in the control agencies that those contingencies might not occur again. New contingencies are slow to be recognized in standard operating procedures, because it is never too certain whether they are inventions of subordinates trying to cover up mistakes that might lead to their redundancy.

We can now summarize the learning properties of an organizational design based on redundant parts. There is an optimal amount of error that is necessary for learning by any type of system. The error-amplifying characteristic of this type of system threatens to swamp it with so much error that it is reduced to the response strategy of an addictive gambler or a cat in a Thorndike puzzle box, i.e., stick rigidly to a system, right or wrong. The major active response to error is to prevent it getting into the system, even those errors that are necessary for learning, and to eliminate or send to limbo any part that appears to be associated with the intake of error or its perpetuation. With this sort of learning where is the adaptiveness? Jay is undoubtedly correct in stating that with this sort of system it is hard to think of a better one "if you want to make a million men advance or retreat at a few hours notice."

It is possible, with months of work, to preprogram so many to start to advance or to start to retreat within hours of the starter's gun. Adaptive control, however, more or less finishes after that point, unless one has preprogrammed reserve forces to be fed into the subsequent action. Field Marshall Douglas Haig released a vast preprogrammed army across the front at the Somme at 7:30 a.m. on July 1, 1916. By 3:00 p.m. that day he had precious little idea of where his many divisions were or what they were doing, although none of them had gone more than a mile or so from where they were at dawn. They had disappeared into the fog of war. This sort of information flow hardly augurs well for adaptability. When the Passchendaele offensive opened on July 31, 1917 there was little evidence that learning had occurred in the previous year. As we said earlier, this type of organization needs a long lead time for learning. So long, indeed, that Liddell-Hart (1944) said that armies normally prepare themselves to fight their previous war.

The criterion of survival can be somewhat misleading in circumstances where the competing parties are all organized on the first design principle. The big battalions win the wars but lose the peace, because of the price they pay for victory.

The alternative design based on redundant functions (multifunctional parts) has been the favored design in the Western cultural tradition, if not always in practice. It also appears to have been the general preference in human societies up to the point where swidden agriculture gave way to societies based primarily on fixed cultivation and the use of metals.

The basic conditions favoring the alternative design are

- (a) The individual parts are costly (e.g., well educated or skilled) or highly valued.
- (b) Adaptation has to be to a highly variable, complexly inter-correlated environment, i.e., one in which a great deal of potential error is present and it is not randomized.

In contrast to the first design this one is essentially error attenuating. The system by its own functioning tends to suppress error that comes into the system. The formula given by Beer (1972) is $T = (1 - F^n)$. Thus if, as in the first example, a manager has five people reporting to him who are each right in their judgment eight times out of 10, then $T = (1 - 0.2^n)$. Only about three times in 10,000 will they unanimously give him the wrong advice. The relation of symmetrical dependence means that they will check with each other as to the quality of the advice they are thinking of giving. We have assumed that they are no better as individual managers than those in the first example, and no better than each other. Each is assumed fallible on two occasions out of ten. They will not, however, be fallible in the same ways and hence, working to this second design, they assist in suppressing each others' tendency to err.

With this quality a great deal of error can be accepted into the system and learned from. Rigid barriers of standard operating procedures and manuals do not have to be defensively manned as in the first design. Error is coped with by continuous learning and rearrangement of functions; not by prescription and rearrangement of parts. In this system, advantage can be taken of the principle that the total sum of errors in the system is equivalent to the square root of the sum of the square of the errors of each part. Attention can be directed to the weakest link, as the principle requires, and not to the specialized controlling parts as required in the first system. A further distinction between the two designs arises when the sources of error in the environment are to some extent correlated, i.e., "it never rains but it pours." The first design is at its best when the sources of error are independent, and only randomly occur together. Where this is not naturally the case special efforts are devoted to approximate this condition, e.g., keeping external relations in special compartments and being very secretive about what is going on in those compartments. The second design learns better to adapt by exposing itself to the difficulties that arise from these external interdependencies.

A striking difference between the two systems occurs in the switching mechanisms. In the first design, the critical decision is switching some parts to redundancy and activating others. The individual parts are probably not keen

to be rendered redundant and not even very enthusiastic about being activated. These decisions are for the special control parts and it is pretty irrelevant to their function whether the parts know *why* they are being switched. In fact, anything that psychologically separates the special control parts from the others would help to ensure that proper decision rules are followed and are not obfuscated by mere human considerations. In the second design, with its governing principle of symmetrical dependency, the switching is governed by the conditions of mutual help. The problem is that all parts—or enough parts—need to be alert and willing to bring their unused capabilities into action when the shared task demands it. *Without considerable sharing of values and objectives, the potential of this design may not be realized*, which may be one reason why Taylor turned to revamping the first design for the utilization of the multinational workforce pouring into the United States in his day.

One other property of these systems was noted by Feibleman and Friend (1969) and has been frequently observed. Organizations based on redundancy of parts constantly strive to accumulate a superfluity of parts, to ensure that at any one time, they have more parts than they actually need for what they are doing. These reserves of duplicated parts are essential to ordinary, day-to-day operation and the major insurance against the unexpected. This superfluity of manning is sought at all levels except the very top. By contrast, organizations based on redundancy of functions (capabilities) find their optimal level at a point where undermanning stretches their joint resources and challenges them to frequently reallocate functions.²

In choosing this second design for their organizations, people are implicitly making choices among ideals: for homonomy rather than self-seeking, self-serving autonomous strivings; for mutual help and nurturance rather than their own survival in the system; for inclusion of the criteria of humaneness along with the usual decision rules of effectiveness and efficiency.

The argument so far has been that shared values are essential for decentralization but that the basic design of the organization will determine who needs to share those values. In the first design, this can only be an elite as there can be no question of the ordinary members being allowed any more discretion than is unavoidable.

In the alternative design, the widest possible sharing of values and sense of mission is necessary. Only in that way can mutual support be mobilized to cope with, and learn from, the unexpected, and to learn to better cope with the expected. Thus, in the alternative design, Selznick's dilemma does not necessarily

²In *Logic of the Living Brain* (1974) Sommerhoff tried to identify models that would explain the uniquely adaptive characteristics of that organ and still do justice to the knowledge we have of its structure and functioning. He was led to reject the design based on redundant parts and to postulate two variants based on redundant functions. These two variants closely parallel the two discussed by Emery and Emery (1976a/Vol III).

arise from efforts at organizational decentralization. The more broadly the values are shared in an organization the less likely, in general, that they will be in conflict with community values.

The alternative design suggests a solution to another aspect of the problem that arises with decentralization. This aspect is the arrogance of the elite to whom power is devolved by decentralization; arrogance, not just psychological distance. They may share a sense of mission and observe certain values but their own sense of their personal importance inevitably leads to a personal style of management: on the one hand, to curry popularity with the governed and, on the other, to arbitrarily suppress what is thought to be insubordination. It does not matter whether one looks at the French prefecture system, the district-commissioner system of the British Colonial Service or the Indian Civil Service. The fine tradition of those bodies masked extensive and inevitable individual deviations. The impersonal but distant control from Paris, Whitehall and New Delhi was replaced by the close but corruptible local dictatorships.

Decentralization within the alternate design must seek to retain the principle of "the mutual support of multifunctional parts" right down to the last point of delegated authority. Thus, within a district commissioner system responsibility for a group of four or five districts would be the *joint* responsibility of those four or five district commissioners. For purposes of routine operations, each district commissioner may work mostly with a particular district but it is not *his* district; they are not *his* people; it is not for him to evolve his distinctive interpretation of organizational values, policies and mission. In nonroutine matters the group of district commissioners complement each other's understandings, abilities and efforts. In the exercise of their joint responsibility they will tend to correct individual errors and deviations and the movement of individuals through these roles (by promotion etc.) will not require anyone to hang out the sign, "under new management." The individual takes on individual responsibilities but in the first instance, these are to his fellow district commissioners.

In the traditional system, each district commissioner found it to his advantage to feed the center with only such information as would serve and protect his interest. Well aware of this, the center evolves inspectorial systems and parallel channels of communication. To make his own life easier, the traditional district commissioner builds personal networks of influence—networks that are only maintained by mutual favors. The center reacts by shortening the term of duty in a district even though this lessens the chance of a district commissioner coming to understand the district. The district commissioner officially turns a blind eye to new developments for as long as he can, in the hope that they will go away, or a fellow district commissioner with a similar problem will run the risk of trying something new. He will seek to accumulate reserves of authority, resources and staff and to retain them in reserve status (i.e., relative

idleness) so that he will not be seen to be caught short on the evil day when the unexpected materializes.

These tendencies may be summed up in a few adages:

- What they don't know won't hurt me.
- If I don't know about it (officially) it can't hurt me.
- Don't go looking for trouble.
- Never get caught with your pants down.
- Always have more resources than problems.

In the system of joint responsibility very different tendencies are at work, provided the whole group does not go corrupt together. This possibility cannot be judged on the basis of what has been observed in organizations based on the concept of redundant parts. In those organizations, informal groupings usually emerge. They emerge on the basis of who can trust whom to go into collusion to work against the system (or at least independently) for their personal protection and advancement. In the alternative system, no informal arrangements offer as powerful a means of protecting or advancing one's interests as the system itself *unless* some external system surreptitiously recruits them as a group. Penetration by a one-on-one process is the usual way of corrupting a Type I organization. It is fraught with dangers for the individual in a Type II organization because so much of his work is shared with, and thus overseen by, the group. Corruption of a whole group must be accepted as possible, but unlikely.

Communications with the center can be open and truthful without the individual getting a reputation for "crying to mommy," "crying wolf," "empire building," "scapegoating," "being an old woman," and so on. Where an individual's observations pass the test of his colleagues' observations, experience and knowledge, they go to the center with that weight and cannot readily be dismissed by denigrating the individual's motivations or abilities. Instead of devising inspectorial and other control systems, the center is much more likely to concern itself with ways to strengthen the means at the disposal of the group of district commissioners, to gather and process information and to improve the means by which they can share in the group's knowledge of their districts. It is the difference in attitude that can be expected toward a source that is seen as a propaganda center and a source that is seen as an information center.

The group of district commissioners will certainly wish to create a network of influence for the same basic reasons as does an individual district commissioner—to make easier the process of governing. The nodal point in the network is not, however, an idiosyncratic individual who is here today and gone tomorrow. The "mutual favors" are not centered on such an individual; instead they center on the furtherance of government policies that persist despite changes in personnel or change in Central direction despite persistence of personnel. Local people can expect to be favored members of the district commissioners' network only so long as they further the government policies pursued

by the district commissioners. The network could be expected to accumulate strength despite changes in the personnel of the district commissioners' team. It also seems clear that this network of mutual favors based on common pursuit of public ends is more likely to undermine personal corruption in the other parallel government systems than to reinforce it, as happens in decentralized Type I systems. Those who wish to avoid pressures to bribe the parallel systems, e.g., police, health and agricultural, can expect the support of the district commissioners if they are of proven value to the district commissioners. In the old system of personalizing favors, it is better for all to turn a blind eye to all but the most flagrant breaches of public trust.

For a group of district commissioners with joint responsibility for the districts, new developments will generally constitute a challenge, not a threat. As we noted above, the probability of actually making an error in responding to a new situation is markedly reduced if they are pooling their knowledge. The chances of the response being individually judged as unsound and based on inadequate evidence is also markedly reduced. I think that, on balance, such groups will be more motivated by the kudos of tackling new challenges than by avoiding "blotting their copy books."

The center, for its part, will have little difficulty in realizing that its policies and programs are best served by early warning of emergent problems and early multiple attempts to find practical solutions. Their response is less likely to be that of finding out who jumped the gun and more likely to be an attempt to learn more and to find out who was the "bright spark" so that he could better help them at a higher level.

With this orientation to challenges, a group of district commissioners is likely at any time to have more problems than resources. In effect, they will always be understaffed and their resources will always be overstretched—their staff will be having to do things that they never conceived of doing during their formal education and doing them with less resources than they were led to believe were necessary.

I may have seemed to have drawn too freely on my imagination in describing the properties of a jointly responsible group of district commissioners. The obvious critique is that human beings are human beings. If they so frequently behave in one way in the traditional design then they will surely do so in the alternate design, e.g., the "natural urge" to seek dominance over one's peers. I think it would be granted that oxygen is also a natural entity, but we would be unwise indeed to make the same sort of assumption—that therefore oxygen plays the same role for human survival in the combination of carbon monoxide as it does in carbon dioxide. The other line of criticism would have to be that these effects have been too infrequently observed to be given credence. In fact, we have so much evidence of the negative effects of committee workings that the whole proposition must be put in doubt on purely empirical grounds. It

should have been obvious that I was not suggesting a *committee* of four to five district commissioners, each responsible for his own territory as well as sharing a joint committee responsibility for the set of territories. In such an arrangement, the individual could always hope to save his own skin by pointing out that in *his* district he had not fallen into the misguided ways of the majority of the committee. To put it into a few words, no one goes into a committee without a commitment to protect or advance his own interests. It is of less concern to the committee man that the committee output is good than it is to ensure that his input was satisfactory and not a reason for censure. Much more important is to ensure that the outcome of the committee's deliberations does not compromise the ends to which he or his organization are committed.

We have ample empirical evidence that when human elements are combined in organizations based on the principle of redundant functions their "chemistry" is strikingly different from when they are combined according to the principle of redundant elements (Emery and Thorsrud, 1970/1976.)

Participation or Representation at the Grassroots Level

We have been dealing with only one of two aspects of decentralization—the decentralization of administration. Advances in this direction would, in a democracy, have little effect if, at the "grassroots" level, the administrators were confronted by the political machine of Mayor Daly's Chicago or the Congress Party machinery in some of the states of India.

We have to ask what kind of interface is needed between the people and the administration for effective decentralization.

With its orders, rules, regulations and monetary handouts an administration shows its face to the individuals. Theoretically it, the administration, could gain some insights from this multitude of contacts but in practice such is rarely the case. The officer's job is to enforce the rule not to reason why. The citizen's first concern is to find a way out for himself not to accept the burden of challenging the rule itself. If a particular rule is burdensome to others as well as to himself, then he may well go into collusion to obstruct its enforcement but this sort of collective reaction will rarely form the basis for rational consideration of the purposes intended by the rule. It is the administration itself which is likely to be challenged. Hence, I think, the constant use of the "reform ticket" to gain the elected offices of sheriff, judge, mayor and attorney in the United States.

An administration needs some way of coming face to face with the collective of which the individuals are members. At this level, an administration can hope to get some feeling for what complement is needed to the self-regulative ability of the collective; what government interference could be tolerated with-