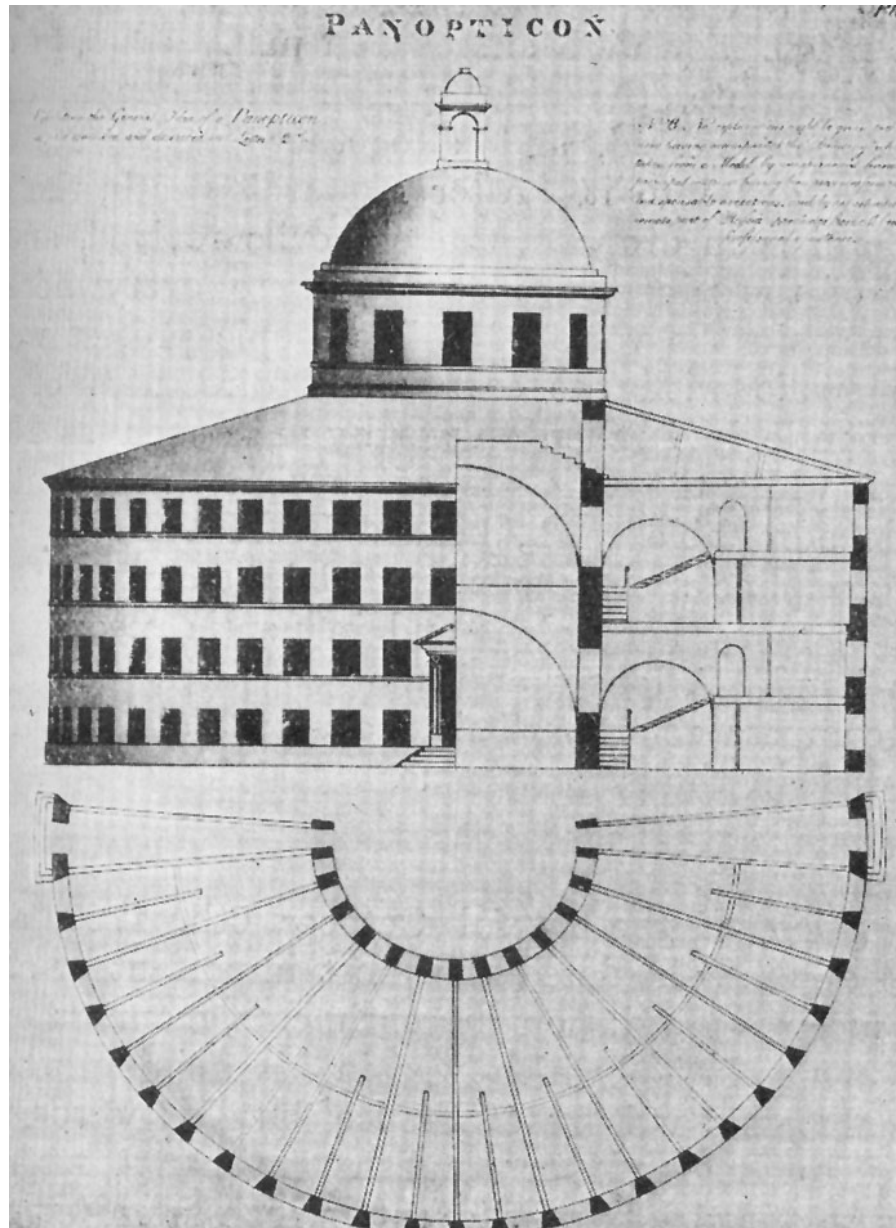


# Legibility & Control: Themes in the Work of James C. Scott

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Jeremy Bentham's Panopticon Design, ca. 1787

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**Opacity and Legibility.** In *Seeing Like a State*, Scott develops the central theme of “legibility,” which will be involved in most of our lines of analysis below. It refers to

a state's attempt to make society legible, to arrange the population in ways that simplified the classic state functions of taxation, conscription, and prevention of rebellion. Having begun to think in these terms, I began to see legibility as a central problem in statecraft. The premodern state was, in many crucial respects, partially blind; it knew precious little about its subjects, their wealth, their landholdings and yields, their location, their very identity. It lacked anything like a detailed “map” of its terrain and its people. It lacked, for the most part, a measure, a metric, that would allow it to “translate” what it knew into a common standard necessary for a synoptic view. As a result, its interventions were often crude and self-defeating.

....How did the state gradually get a handle on its subjects and their environment? Suddenly, processes as disparate as the creation of permanent last names, the standardization of weights and measures, the establishment of cadastral surveys and population registers, the invention of freehold tenure, the standardization of language and legal discourse, the design of cities, and the organization of transportation seemed comprehensible as attempts at legibility and simplification. In each case, officials took exceptionally complex, illegible, and local social practices, such as land tenure customs or naming customs, and created a standard grid whereby it could be centrally recorded and monitored....<sup>1</sup>

How were the agents of the state to begin measuring and codifying, throughout each region of an entire kingdom, its population, their landholdings, their harvests, their wealth, the volume of commerce, and so on?  
...

Each undertaking... exemplified a pattern of relations between local knowledge and practices on one hand and state administrative routines on the other.... In each case, local practices of measurement and landholding were “illegible” to the state in their raw form. They exhibited a diversity and intricacy that reflected a great variety of purely local, not state, interests. That is to say, they could not be assimilated into an administrative grid without being either transformed or reduced to a convenient, if partly fictional, shorthand. The logic behind the required shorthand was provided... by the pressing material requirements of rulers: fiscal receipts, military manpower, and state security. In turn, this shorthand functioned... as not just a description, however inadequate. Backed by state power through records, courts, and ultimately coercion, these state fictions transformed the reality they presumed to observe, although never so thoroughly as to precisely fit the grid.<sup>2</sup>

It's not clear to what extent Scott's concept of legibility is directly influenced by Michel Foucault's analysis in *Discipline and Punish*. But it seems likely a significant influence is there. Scott cites the book several times in *Seeing Like a State*, including once in a manner that suggests a direct relationship to his own treatment of legibility:

What is new in high modernism, I believe, is not so much the aspiration for comprehensive planning. Many imperial and absolutist states have had similar aspirations. What are new are the administrative technology and social knowledge that make it plausible to imagine organizing an entire society in ways that only the barracks or the monastery had been organized before. In this respect, Michel Foucault's argument in *Discipline and Punish*... is persuasive.<sup>3</sup>

In any case, Foucault's analysis in some passages is almost a word-for-word anticipation of Scott, to the extent of even using the term “legibility” in essentially the same sense.

Bentham's Panopticon, as described by Foucault, is just one example of an institution

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1 James Scott, *Seeing Like a State* (New Haven and London: Yale University Press, 1998), p. 2.

2 *Ibid.*, p. 24.

3 *Ibid.*, p. 378n11.

architecturally designed to render its inmates as legible as possible to those in authority. Foucault applies the same panoptic principle of legibility to monasteries, military formations and camps, hospitals, asylums, schools and factories. In every case the basic principle is partitioning, in order to eliminate ambiguity and organize the institution—or society—on the basis of “Each individual has his own place; and each place its individual.”

Avoid distributions in groups; break up collective dispositions; analyse confused, massive or transient pluralities. Disciplinary space tends to be divided into as many sections as there are bodies or elements to be distributed. One must eliminate the effects of imprecise distributions, the uncontrolled disappearance of individuals, their diffuse circulation, their unusable and dangerous coagulation; it was a tactic of anti-desertion, anti-vagabondage, anti-concentration. Its aim was to establish presences and absences, to know where and how to locate individuals, to set up useful communications, to interrupt others, to be able at each moment to supervise the conduct of each individual, to assess it, to judge it, to calculate its qualities or merits.<sup>4</sup>

In the factory, this meant “distributing individuals in a space in which one might isolate them and map them...”<sup>5</sup> The layout of the Oberkampf manufactory at Jouy, as designed by Toussaint Barré in 1791, for example, was such that it was

possible to carry out a supervision that was both general and individual: to observe the worker's presence and application, and the quality of his work; to compare workers with one another, to classify them according to skill and speed; to follow the successive stages of the production process. All these serializations formed a permanent grid: confusion was eliminated: that is to say, production was divided up and the labour process was articulated, on the one hand, according to its stages or elementary operations, and, on the other hand, according to the individuals, the particular bodies, that carried it out: each variable of this force—strength, promptness, skill, constancy—would be observed, and therefore categorized, assessed, computed and related to the individual who was its particular agent. Thus, spread out in a perfectly legible way over the whole series of individual bodies, the work force may be analysed in individual units. At the emergence of large-scale industry, one finds, beneath the division of the production process, the individualizing fragmentation of labour power; the distributions of the disciplinary space often assured both.<sup>6</sup>

In every case the institution was an “observatory” in which power and discipline resulted from the ability to see:

The exercise of discipline presupposes a mechanism that coerces by means of observation; an apparatus in which the techniques that make it possible to see induce effects of power, and in which, conversely, the means of coercion make those on whom they are applied clearly visible.<sup>7</sup>

Architecture was so designed as to “make people docile and knowable,” to “permit an internal, articulated and detailed control—“

to render visible those who are inside it; in more general terms, an architecture that would operate to transform individuals: to act on those it shelters, to provide a hold on their conduct, to carry the effects of power right to them, to make it possible to know them, to alter them.<sup>8</sup>

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4 Michel Foucault, *Discipline and Punish: The Birth of the Prison*, Translated by Alan Sheridan 1977. Second Vintage Edition (New York: Vintage Press, 1995), p. 143.

5 *Ibid.*, p. 144.

6 *Ibid.*, p. 145.

7 *Ibid.*, pp. 170-171.

8 *Ibid.*, p. 172.

“The perfect disciplinary apparatus,” in short, “would make it possible for a single gaze to see everything constantly.”<sup>9</sup> That was, essentially, the purpose of Bentham's Panopticon: “to induce in the inmate a state of conscious and permanent visibility that assures the automatic functioning of power.”<sup>10</sup>

This principle applied above all to the relationship between the state and the citizenry in society at large. The Fourierist journal *La Phalange*, with deliberate irony, described the implicit philosophy behind a judge's remarks to a vagrant prosecuted in his court:

There had to be a place, a location, a compulsory insertion: 'One sleeps at home, said the judge, because, in fact, for him, everything must have a home, some dwelling, however magnificent or mean; his task is not to provide one, but to force every individual to live in one.' Moreover, one must have a station in life, a recognizable identity, an individuality fixed once and for all: 'What is your station? This question is the simplest expression of the established order in society; such vagabondage is repugnant to it, disturbs it; one must have a stable, continuous long-term station, thoughts of the future, of a secure future, in order to reassure it against all such attacks.' In short, one should have a master, be caught up and situated within a hierarchy; one exists only when fixed in definite relations of domination....<sup>11</sup>

Another work whose analysis overlaps considerably with Scott's is E.P. Thompson's “Time, Work-Discipline, and Industrial Capitalism.” Scott's treatment of legibility of the work-process, as an aid to managerial control, can be usefully compared to Thompson's treatment of objective, legible systems of timekeeping—like the clock and the pace of machinery—as means of pacing work to management's standards in preference to the traditional pattern of alternating bursts of intense labor and idleness, “Saint Monday,” the calendar of holy days, etc., chosen by self-employed labor.<sup>12</sup>

The emergence of an objective, legible system of timekeeping, as described by Thompson, is analogous to the legible systems of land title, weights and measures, money, surnames, etc., imposed by states. And the purpose was exactly the same—to increase the amount of appropriable labor. In the case of legible systems of timekeeping, that meant overcoming “the people's old working habits,”<sup>13</sup> by which laborers typically worked only enough to procure necessities—as little as three or four days in the week. As the laboring classes were deprived of their previous independent access to the means of subsistence and production by such expedients as the Enclosures, and the factory system replaced self-employment, “[t]he leisured classes began to discover the problem... of the leisure of the masses.” The propertied, employing classes were horrified by the fact that so many manual workers, after finishing their day's work, still had “several hours in the day to be spent nearly as they please.”<sup>14</sup>

As an example of the new systems of legible timekeeping imposed, Thompson cited the Law Book of the Crowley Iron Works, which states (Order 103): “To the end that sloath and villany should be detected and the just and diligent rewarded, I have thought meet to create an account of time by a Monitor....” The Monitor was to keep a time-sheet for each employee.<sup>15</sup>

In all these ways—by the division of labour; the supervision of labour; fines; bells and clocks; money incentives; preachings and schoolings; the suppression of fairs and sports—new labour habits were formed,

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9 *Ibid.*, p. 173.

10 *Ibid.*, p. 201.

11 *Ibid.*, p. 291.

12 E. P. Thompson, “Time, Work-Discipline, and Industrial Capitalism,” *Past and Present* 37 (1968): pp. 56-97.

13 *Ibid.*, p. 85.

14 *Ibid.*, p. 90.

15 *Ibid.*, pp. 81-82.

and a new time-discipline was imposed.<sup>16</sup>

### **Scott and Hayek: *Mētis* and Hidden Knowledge.**

Scott's concept of “*mētis*” (Μῆτις), in *Seeing Like a State*, is the culmination of a long line of previous thought. *Mētis* is “practical knowledge,” or “knowledge embedded in local experience,” as opposed to *techne* (a systematic body of formal, general, abstract knowledge which is deducible from fundamental principles).<sup>17</sup> It “represents a wide array of practical skills and acquired intelligence in responding to a constantly changing natural and human environment.”<sup>18</sup>

Any experienced practitioner of a skill or craft will develop a large repertoire of moves, visual judgments, a sense of touch, or a discriminating gestalt for assessing the work as well as a range of accurate intuitions born of experience that defy being communicated apart from practice.<sup>19</sup>

*Mētis* is acquired through—and applicable to—“broadly similar but never precisely identical situations requiring a quick and practiced adaptation that becomes almost second nature to the practitioner.” It “resists simplification into deductive principles which can successfully be transmitted through book learning...”<sup>20</sup>

The classic example of *mētis* is the received story of Squanto (or, variously, Massasoit) providing the English settlers with the Indians' local knowledge of climate and weather, soil and native plant growing cycles, and thereby averting mass starvation.<sup>21</sup>

This should sound familiar to any student of Friedrich Hayek. In his classic essay “The Use of Knowledge in Society,” Hayek wrote of “distributed knowledge”:

*If we possess all the relevant information, if we can start out from a given system of preferences, and if we command complete knowledge of available means, the problem which remains is purely one of logic. That is, the answer to the question of what is the best use of the available means is implicit in our assumptions. The conditions which the solution of this optimum problem must satisfy have been fully worked out and can be stated best in mathematical form: put at their briefest, they are that the marginal rates of substitution between any two commodities or factors must be the same in all their different uses. [Which amounts to a fair summary of the neoclassical view of the firm as a “black box” guided by a production function which is given.—K.C.]*

This, however, is emphatically *not* the economic problem which society faces...

The peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess. The economic problem of society is thus not merely a problem of how to allocate “given” resources—if “given” is taken to mean given a single mind which deliberately solves the problem set by these “data.” It is rather a problem of how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. Or, to put it

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16 *Ibid.*, p. 90.

17 Scott, *Seeing Like a State*, pp. 311, 320.

18 *Ibid.*, p. 313.

19 *Ibid.*, p. 329.

20 *Ibid.*, pp. 315-316.

21 *Ibid.*, pp. 311-312.

briefly, it is a problem of the utilization of knowledge which is not given to anyone in its totality.<sup>22</sup>

Today it is almost heresy to suggest that scientific knowledge is not the sum of all knowledge. But a little reflection will show that there is beyond question a body of very important but unorganized knowledge which cannot possibly be called scientific in the sense of knowledge of general rules: the knowledge of the particular circumstances of time and place. It is with respect to this that practically every individual has some advantage over all others because he possesses unique information of which beneficial use might be made, but of which use can be made only if the decisions depending on it are left to him or are made with his active co-operation. We need to remember only how much we have to learn in any occupation after we have completed our theoretical training, how big a part of our working life we spend learning particular jobs, and how valuable an asset in all walks of life is knowledge of people, of local conditions, and of special circumstances.<sup>23</sup>

If we can agree that the economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place, it would seem to follow that the ultimate decisions must be left to the people who are familiar with the circumstances, who know directly of the relevant changes and of the resources immediately available to meet them. We cannot expect that this problem will be solved by first communicating all this knowledge to a central board which, after integrating all knowledge, issues its orders.<sup>24</sup>

*Mētis* overlaps to a considerable extent with what Michael Polanyi calls “tacit knowledge”: skills acquired through muscle memory or otherwise through practice, that can only with difficulty (or not at all) be reduced to a verbal formula and conveyed in the form of spoken or written instruction.<sup>25</sup> Scott gives the example of “trying to write down explicit instructions on how to ride a bike...”<sup>26</sup> Hence “most crafts and trades requiring a touch or feel for implements and materials have traditionally been taught by long apprenticeships to master craftsmen.”<sup>27</sup>

Alex Pouget suggests one reason that so much situational knowledge resists reduction to a verbal formula. Some neurologists believe the brain functions as a Bayesian calculating device, “taking various bits of probability information, weighing their relative worth, and coming to a good conclusion quickly”:

...[I]f we want to do something, such as jump over a stream, we need to extract data that is not inherently part of that information. We need to process all the variables we see, including how wide the stream appears, what the consequences of falling in might be, and how far we know we can jump. Each neuron responds to a particular variable and the brain will decide on a conclusion about the whole set of variables using Bayesian inference.

As you reach your decision, you'd have a lot of trouble articulating most of the variables your brain just processed for you. Similarly, intuition may be less a burst of insight than a rough consensus among your neurons.<sup>28</sup>

An interesting point Scott makes is that *mētis* is by no means necessarily a matter of purely

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22 Friedrich Hayek, “The Use of Knowledge in Society,” *Individualism and Economic Order* (Chicago: University of Chicago Press, 1948), pp. 77-78.

23 *Ibid.*, p. 80.

24 *Ibid.*, pp. 83-84.

25 Michael Polanyi. *Personal Knowledge: Toward a Post-Critical Philosophy* (University of Chicago Press, 1958).

26 Scott, *Seeing Like a State*, p. 313.

27 *Ibid.*, p. 314.

28 Alex Pouget, “Mysterious 'neural noise' actually primes brain for peak performance,” *EurekaAlert*, November 10, 2006 <[http://www.eurekaalert.org/pub\\_releases/2006-11/uor-mn111006.php](http://www.eurekaalert.org/pub_releases/2006-11/uor-mn111006.php)>.

traditional knowledge, nor is it conservative. Indeed he deliberately eschews terms like “traditional knowledge.”<sup>29</sup> Rather, *mētis* frequently reflects a great deal of ingenuity and invention. The innovations and expedients produced by means of *mētis* are frequently a more rational and effective response to a presented situation than are those mediated by a managerial hierarchy.

As Scott points out, “the poor and marginal are often in the vanguard of innovations that do not require a lot of capital. This is not at all surprising when one considers that, for the poor, a gamble often makes sense if their current practices are failing them.”<sup>30</sup> He points to the hypothetical example of two fishermen,

both of whom must make their living from a river. One fisherman lives by a river where the catch is stable and abundant. The other lives by a river where the catch is variable and sparse, affording only a bare and precarious subsistence. The poorer of the two will clearly have an immediate, life-and-death interest in devising new fishing techniques, in observing closely the habits of fish, in the careful siting of traps and weirs, in the timing and signs of seasonal runs of different species, and so forth.<sup>31</sup>

This parallels my own line of analysis elsewhere. It is the privileged classes, with their large properties, and the large corporations with their heavily subsidized inputs, that can afford to expand production by extensive addition of inputs and to be relatively inefficient in terms of output per unit of input. Small-scale producers, without access to large amounts of capital, on the other hand must of necessity be extremely creative in finding ways to make more intensive use of limited inputs. Hence the countereconomy, or informal and household economy, is the source of a great deal of innovation in low-overhead, low-cost technologies. In *Organization Theory: A Libertarian Perspective*, I wrote:

...[T]he owning classes use less efficient forms of production precisely because the state gives them preferential access to large tracts of land and subsidizes the inefficiency costs of large-scale production. Those engaged in the alternative economy, on the other hand, will be making the most intensive and efficient use of the limited land and capital available to them. So the balance of forces between the alternative and capitalist economy will not be anywhere near as uneven as the distribution of property might indicate.

If everyone capable of benefiting from the alternative economy participates in it, and it makes full and efficient use of the resources already available, eventually we'll have a society where most of what the average person consumes is produced in a network of self-employed or worker-owned production, and the owning classes are left with large tracts of land and understaffed factories that are almost useless to them because it's so hard to hire labor except at an unprofitable price. At that point, the correlation of forces will have shifted until the capitalists and landlords are islands in a cooperative sea—and their land and factories will be the last thing to fall, just like the U.S Embassy in Saigon.<sup>32</sup>

This is the same general principle that John Robb, drawing on engineering terminology, calls “STEMI compression,” what Bucky Fuller called “ephemeralization,” what Mamading Ceesay calls the “economics of agility,” and Nathan Cravens calls “productive recursion.” They all amount, in practical terms, to the more efficient extraction of outputs from inputs.<sup>33</sup>

The official account, the received version of authorities like Schumpeter and Galbraith, tells us that the large, highly-capitalized, managerial organization is central to technological progress; the high

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29 Scott, *Seeing Like a State*, p. 331.

30 *Ibid.*, p. 429n65.

31 *Ibid.*, p. 324.

32 Carson, *Organization Theory: A Libertarian Perspective* (Booksurge, 2008), p. 475.

33 All these concepts are discussed in the first section of Chapter Seven in my book *The Homebrew Industrial Revolution: A Low-Overhead Manifesto* (CreateSpace, 2010).



modernist ideology of the managerial classes includes a “reflex” of “contempt for history and past knowledge.”<sup>34</sup> As Schumpeter wrote:

...[T]here are advantages which, though not strictly unattainable on the competitive level of enterprise, are as a matter of fact secured only on the monopoly level, for instance, because monopolization may increase the sphere of influence of the better, and decrease the sphere of influence of the inferior, brains, or because the monopoly enjoys a disproportionately higher financial standing....

There cannot be any reasonable doubt that under the conditions of our epoch such superiority is as a matter of fact the outstanding feature of the large-scale unit of control.<sup>35</sup>

And Galbraith, developing the same theme, attributed to “a benign Providence” the rise of “the modern industry of a few large firms” as “an excellent instrument for inducing technical change.”

...Technical development has long since become the preserve of the scientist and the engineer. Most of the cheap and simple inventions have... been made. Not only is development more sophisticated and costly but it must be on a sufficient scale so that successes and failures will in some small measure average out.

Because development is costly, it follows that it can be carried on only by a firm that has the resources which are associated with considerable size. Moreover, unless a firm has a substantial share of the market it has no strong incentive to undertake a large expenditure on development....

...[I]n the modern industry shared by a few large firms size and the rewards accruing to market power combine to insure that resources for research and technical development will be available. The power that enables the firm to have some influence on prices insures that the resulting gains will not be passed on to the public by imitators... before the outlay for development can be recouped....

The net of all this is that there must be some element of monopoly in an industry if it is to be progressive.<sup>36</sup>

But nearly the opposite is often true. As Hayek suggested (see below in the section “Seeing Like a Boss and the Art of Not Being Managed”), and as is borne out in empirical evidence presented by such writers as Harvey Leibenstein and Barry Stein,<sup>37</sup> tweaks and changes in the configuration of existing machinery, and more efficient organization of production with existing plant and equipment—things which cost little in the way of new investment, and which workers are usually best equipped to determine—can result in greater productivity increases than the introduction of a new generation of machinery. A large share of technical innovation consists of creative mashups of existing off-the-shelf building block technologies. And a disproportionate amount typically comes out of small skunk works which attempt to replicate the small shop within a corporate bureaucracy.

As often as not (or more often than not), it is large, capital-intensive oligopoly corporations that actively suppress competition from smaller-scale, lower-cost, more efficient technologies.

And it is precisely because of their privileged—and subsidized—access to large quantities of land,

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34 Scott, *Seeing Like a State*, p. 305.

35 Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy* (New York and London: Harper & Brothers Publishers, 1942), pp. 100-101.

36 John Kenneth Galbraith, *American Capitalism: The Concept of Countervailing Power* (Boston: Houghton Mifflin, 1962), pp. 86-88.

37 Harvey Leibenstein, “Allocative Efficiency vs. 'X-Efficiency,’” *American Economic Review* 56 (June 1966); Barry Stein, *Size, Efficiency, and Community Enterprise* (Cambridge: Center for Community Economic Development, 1974).

capital and other resources that large-scale producers can afford to be inefficient. Throughout most of the 20<sup>th</sup> century, American industry grew mainly through extensive addition of inputs rather than intensive extraction of more output per unit of input. The intensive cultivation practices of the Third World peasant or small American farmer typically produce several times more per acre than the large hacienda which holds 80% of its land out of cultivation, or the large agribusiness operation that makes more money holding land idle as a USDA-supported real estate investment than by actually farming it. Despite the “we feed the world” rhetoric of the USDA-agribusiness complex, the most productive use of land is John Jeavons' biointensive system of raised-bed farming, which can feed one person on only a tenth of an acre.

In fact, contrary to Galbraith, it is often the market power of the large organization that enables it to suppress innovation. The large and inefficient producers, having cartelized an industry between themselves by erecting entry barriers against more efficient techniques, have thereby insulated themselves from the competitive ill effects of inefficiency. With the industry divided up between a handful of large producers with the same inefficient techniques and the same pathological organizational cultures, there is no competitive penalty for inefficiency because everyone is equally inefficient. The dominant firms can agree to delay adoption of new technology until their existing plant and equipment is worn out—a situation in which, in Paul Goodman's words, “[t]hree or four manufacturers control the automobile market, competing with fixed prices and slowly spooned-out improvements.”<sup>38</sup>

According to Walter Adams and James Brock, the consolidation of a comparatively large number of mid-sized firms into the Big Three after WWII led directly to a significant slackening in the pace of innovation. They sat on innovations like front-wheel drive, disc brakes, fuel injection, and the like, for years.<sup>39</sup> To take one example, the major auto manufacturers entered into an agreement in the late '50s that no company would announce or install any innovation in antipollution exhaust devices without the concurrence of the others; they exchanged patents and agreed on a formula for sharing the costs of patents acquired from third parties.<sup>40</sup>

A major part of the regulatory code consists of measures, for all intents and purposes written by large incumbent firms in the regulated industries, to criminalize the introduction of new and more efficient techniques.

**Scott and R. A. Wilson: Power and Communication.** Scott's *Domination and the Art of Resistance*<sup>41</sup> is a study on how communications are distorted by power relations. The poor and subordinates, as he says in the Preface, say one thing in the presence of the rich or of their superiors and another among themselves. The book's focus is primarily on the phenomenon as it occurs in class relations in society as a whole, and in quasi-feudal agrarian production relationships like slavery, serfdom and sharecropping—not in bureaucratic hierarchies like those of the government agency or large corporation. And the character of the communication itself which is distorted involves primarily the legitimacy of the class order rather than the information needed for optimal design of policies or

38 Paul Goodman, *People or Personnel*, in *People and Personnel and Like a Conquered Province* (New York: Vintage Books, 1963, 1965), p. 58.

39 Walter Adams and James Brock, *The Bigness Complex: Industry, Labor and Government in the American Economy*. Second edition (Stanford: Stanford University Press, 2004), pp. 48-49.

40 Mark J. Green, Beverly C. Moore, Jr., and Bruce Wasserstein, *The Closed Enterprise System: Ralph Nader's Study Group on Antitrust Enforcement* (New York: Grossman Publishers, 1972), pp. 254-256.

41 James C. Scott, *Domination and the Art of Resistance: Hidden Transcripts* (New Haven and London: Yale University Press, 1990).

organization of tasks. But the general principle he describes is certainly applicable to our area of interest here. You don't have to take his line of analysis much further to get R. A. Wilson's dictum that nobody speaks the truth to a man with a gun. As Wilson argued in "Thirteen Choruses for the Divine Marquis,"

A civilization based on authority-and-submission is a civilization without the means of self-correction. *Effective* communication flows only one way: from master-group to servile-group. Any cyberneticist knows that such a one-way communication channel lacks feedback and cannot behave "intelligently."

The epitome of authority-and-submission is the Army, and the control-and-communication network of the Army has every defect a cyberneticist's nightmare could conjure. Its typical patterns of behavior are immortalized in folklore as SNAFU (situation normal—all fucked-up), FUBAR (fucked-up beyond all redemption) and TARFU (Things are really fucked-up). In less extreme, but equally nosologic, form these are the typical conditions of any authoritarian group, be it a corporation, a nation, a family, or a whole civilization.<sup>42</sup>

One-way communication creates opacity from above; two-way communication creates horizontal legibility. To quote Michel Bauwens:

The capacity to cooperate is verified in the process of cooperation itself. Thus, projects are open to all comers provided they have the necessary skills to contribute to a project. These skills are verified, and communally validated, in the process of production itself. This is apparent in open publishing projects such as citizen journalism: anyone can post and anyone can verify the veracity of the articles. Reputation systems are used for communal validation. The filtering is a posteriori, not a priori. Anti-credentialism is therefore to be contrasted to traditional peer review, where credentials are an essential prerequisite to participate.

P2P projects are characterized by holoptism. Holoptism is the implied capacity and design of peer to [peer] processes that allows participants free access to all the information about the other participants; not in terms of privacy, but in terms of their existence and contributions (i.e. horizontal information) and access to the aims, metrics and documentation of the project as a whole (i.e. the vertical dimension). This can be contrasted to the panoptism which is characteristic of hierarchical projects: processes are designed to reserve 'total' knowledge for an elite, while participants only have access on a 'need to know' basis. However, with P2P projects, communication is not top-down and based on strictly defined reporting rules, but feedback is systemic, integrated in the protocol of the cooperative system.<sup>43</sup>

Wilson (with Robert Shea) developed the same theme in *The Illuminatus! Trilogy*. "...[I]n a rigid hierarchy, nobody questions orders that seem to come from above, and those at the very top are so isolated from the actual work situation that they never see what is going on below."<sup>44</sup>

A man with a gun is told only that which people assume will not provoke him to pull the trigger. Since all authority and government are based on force, the master class, with its burden of omniscience, faces the servile class, with its burden of nescience, precisely as a highwayman faces his victim. Communication is possible only between equals. The master class never abstracts enough information from the servile class to know what is actually going on in the world where the actual productivity of society occurs.... The result can only be progressive deterioration among the rulers.<sup>45</sup>

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42 R. A. Wilson, "Thirteen Choruses for the Divine Marquis," from *Coincidence – A Head Test* (1988) <<http://www.deepleafproductions.com/wilsonlibrary/texts/raw-marquis.html>>.

43 Michel Bauwens, "The Political Economy of Peer Production," *Ctheory.net*, December 1, 2005 <<http://www.ctheory.net/articles.aspx?id=499>>.

44 Robert Shea and Robert Anton Wilson, *The Illuminatus! Trilogy* (New York: Dell Publishing, 1975), p. 388.

45 *Ibid.*, p. 498.

As we shall see below in the section “Seeing Like a Boss and the Art of Not Being Managed,” this inability of the master class to abstract sufficient information, and this perception of management by workers as “a highwayman,” result in the hoarding of information by those below and their use of it as a source of rents.

Radical organization theorist Kenneth Boulding, in similar vein, wrote of the value of “analysis of the way in which organizational structure affects the flow of information,”

hence affects the information input into the decision-maker, hence affects his image of the future and his decisions.... There is a great deal of evidence that almost all organizational structures tend to produce false images in the decision-maker, and that the larger and more authoritarian the organization, the better the chance that its top decision-makers will be operating in purely imaginary worlds.<sup>46</sup>

Or in the pithy phrasing of Bertram Gross: “A person with great power gets no valid information at all.”<sup>47</sup>

In his discussion of *mētis*, Scott draws a connection between it and mutuality—“as opposed to imperative, hierarchical coordination”—and acknowledges his debt to anarchist thinkers like Kropotkin and Proudhon for the insight.<sup>48</sup> *Mētis* flourishes only in an environment of two-way communication between equals, where the person in contact with the situation—the person actually doing the work—is in a position of equality.

Interestingly, R.A. Wilson had previously noted the same connection between mutuality—bilateral communication between equals—and accurate information—in “Thirteen Choruses.” And he included his own allusion to Proudhon, no less:

Proudhon was a great communication analyst, born 100 years too soon to be understood. His system of voluntary association (anarchy) is based on the simple communication principles that an authoritarian system means one-way communication, or stupidity, and a libertarian system means two-way communication, or rationality.

The essence of authority, as he saw, was Law — that is, fiat — that is, effective communication running one way only. The essence of a libertarian system, as he also saw, was Contract — that is, mutual agreement — that is, effective communication running both ways. (“Redundance of control” is the technical cybernetic phrase.)

In his book *Whose Reality Counts? Putting the First Last*, Robert Chambers describes how authority relations distort information flow in the making of Third World development policy.

The central focus of his book is what he calls “embedded” (as opposed to “embraced”) errors. An embraced error is one that, in the presence of a healthy feedback mechanism, is recognized and used as a learning tool to correct future attempts at policy-making. Embedded errors, on the other hand, “tend to spread, to be self-perpetuating, and to dig themselves in.” They do this because they “fit what

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46 Kenneth Boulding, “The Economics of Knowledge and the Knowledge of Economics,” *American Economic Review* 56:1/2 (March 1966), p. 8.

47 Quoted in Hazel Henderson, “Coping With Organizational Future Shock,” *Creating Alternative Futures: The End of Economics* (New York: G. P. Putnam's Sons, 1978), p. 225.

48 Scott, *Seeing Like a State*, pp. 6-7.

powerful people want to believe,<sup>49</sup> and because powerful people are insulated from effective feedback.

Not only do embedded errors fit what powerful people want to believe, but the powerful have a vested interest in the perpetuation of such errors insofar as they reinforce the power and resources available to them. The perpetuation of error depends, in part, on “who gains materially from what is believed.”

When myth supports policies, projects and programmes, many stand to gain. These are both individuals and organizations: bureaucrats, politicians, contractors, consultants, scientists, researchers, and those who fund research; and their organizations—national and international bureaucracies, political systems, companies, firms of consultants, research institutes and research-funding agencies. Any one, or several, or all of these, can benefit from the acceptance of wrong ideas, projects or policies.<sup>50</sup>

In the presence of hierarchical power relations, the flow of information is distorted—in addition to vested interests—by several somewhat overlapping factors. First is professionalism, in which “erroneous beliefs [are] embedded in the concepts, values, methods and behaviour normally dominant in disciplines and professions.” The embedded errors reflect “current dominant values and beliefs” reinforced by the professional culture and by contact among professional peers.<sup>51</sup>

Second is “distance,” in the sense of those in power being “physically, organizationally, socially and cognitively distant from the people and conditions they [are] analysing, planning and prescribing for, and making predictions about.” People in power are often physically distant, “centrally placed, in headquarters, in offices, in laboratories and on research stations,” far removed from the realities their policies are intended to deal with.<sup>52</sup>

Third is power. A position of power—being senior in authority, having control over funding or career prospects for those from whom one receives reports, etc.—tends to condition the perceptions of those at the top, and prevent them from learning.<sup>53</sup>

For learning, power is a disability. Part of the explanation of persistent error lies in interpersonal power relations. Powerful professionals can impose their realities.... Uppers' learning is impeded by personal dominance, distance, denial and blaming the victim. For their part, lowers defend themselves through what they select to show and tell, diplomacy, and deceit. Self-deception and mutual deception sustain myths. Questionnaire surveys tend to confirm the realities of uppers, imposing their constructs and mirroring their realities... All power deceives, and exceptional power deceives exceptionally....

....All who are powerful are by definition uppers, sometimes uppers many times over. Others relate to them as lowers. In their daily lives multiple uppers are vulnerable to acquiescence, deference, flattery, and placation. They are not easily contradicted or corrected. 'Their word goes'. It becomes easy and tempting for them... to impose their realities and deny those of others. It becomes difficult for them to learn.<sup>54</sup>

**Seeing Like a Boss, and the Art of Not Being Managed: Opacity and *Mētis* in the Corporate Hierarchy.** Hayek, in “The Use of Knowledge in Society,” treated the market as the primary

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49 Robert Chambers, *Whose Reality Counts? Putting the First Last* (London: Intermediate Technology Publications, 1997), p. 15.

50 *Ibid.*, p. 30.

51 *Ibid.*, p. 31.

52 *Ibid.*, p. 31.

53 *Ibid.*, p. 32.

54 *Ibid.*, p. 76.

mechanism for aggregating dispersed or hidden knowledge. The problem is that the dominant actors in the market—large corporations—are islands of central planning in a market sea. And in much of the economy they are very large islands, with the domain of the market price mechanism relegated to narrow channels between them.

Now, as Ronald Coase argued, in a free market the boundaries between central planning and market price relations would be set at the point where the increased benefits from administrative control ceased to offset the inefficiencies resulting from the loss of the market mechanism. But this is not a free market. It is a corporatist economy in which the state subsidizes the operating costs of large size and protects enormous inefficient corporations from competitive pressure, so that the islands of central planning are many times larger—and more inefficient—than they would likely be in a free market.

A corporate hierarchy interferes with the judgment of what Hayek called “people-on-the-spot,” and with the collection of dispersed knowledge of circumstances, in exactly the same way a state does.

Most production jobs involve a fair amount of *mētis*, and depend on the initiative of workers to improvise, to apply skills in new ways, in the face of events which are either totally unpredictable or cannot be fully anticipated.<sup>55</sup> Rigid hierarchies and rigid work rules only work in a predictable environment. When the environment is unpredictable, the key to success lies with empowerment and autonomy for those in direct contact with the situation.

Hierarchical organizations are—to borrow a wonderful phrase from Martha Feldman and James March—*systematically* stupid.<sup>56</sup> For all the same Hayekian reasons that make a planned economy unsustainable, *no* individual is “smart” enough to manage a large, hierarchical organization. *Nobody*—not Einstein, not John Galt—possesses the qualities to make a bureaucratic hierarchy function rationally. Nobody’s that smart, any more than anybody’s smart enough to run Gosplan efficiently—that’s the whole point. As Matt Yglesias put it,

I think it's noteworthy that the business class, as a set, has a curious and somewhat incoherent view of capitalism and why it's a good thing. Indeed, it's in most respects a backwards view that strongly contrasts with the economic or political science take on why markets work.

The basic business outlook is very focused on the key role of the *executive*. Good, profitable, growing firms are run by brilliant executives. And the ability of the firm to grow and be profitable is evidence of its executives' brilliance. This is part of the reason that CEO salaries need to keep escalating—recruiting the best is integral to success. The leaders of large firms become revered figures.... Their success stems from overall brilliance....

The thing about this is that if this were generally true—if the CEOs of the Fortune 500 were brilliant economic seers—then it would really make a lot of sense to implement socialism. Real socialism. Not progressive taxation to finance a mildly redistributive welfare state. But “let's let Vikram Pandit and Jeff Immelt centrally plan the economy—after all, they're really brilliant!”

But in the real world, the point of markets isn't that executives are clever and bureaucrats are dimwitted. The point is that *nobody* is all that brilliant.<sup>57</sup>

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55 Scott, *Seeing Like a State*, p. 314.

56 Martha S. Feldman and James G. March, "Information in Organizations as Signal and Symbol," *Administrative Science Quarterly* 26 (April 1981).

57 Matthew Yglesias, “Two Views of Capitalism,” *Yglesias*, November 22, 2008  
<[http://yglesias.thinkprogress.org/2008/11/two\\_views\\_of\\_capitalism/](http://yglesias.thinkprogress.org/2008/11/two_views_of_capitalism/)>.

No matter how insightful and resourceful they are, no matter how prudent, as human beings in dealing with actual reality, nevertheless by their very nature hierarchies insulate those at the top from the reality of what's going on below, and *force* them to operate in imaginary worlds where all their intelligence becomes useless. No matter how intelligent managers are *as individuals*, a bureaucratic hierarchy makes their intelligence less *usable*. The only solution is to give discretion to those in direct contact with the situation. As Bruce Schneier writes in regard to security against attack:

Good security has people in charge. People are resilient. People can improvise. People can be creative. People can develop on-the-spot solutions.... People are the strongest point in a security process. When a security system succeeds in the face of a new or coordinated or devastating attack, it's usually due to the efforts of people.<sup>58</sup>

The problem with authority relations in a hierarchy is that, given the conflict of interest created by the presence of power, those in authority cannot *afford* to allow discretion to those in direct contact with the situation. Systematic stupidity results, of necessity, from a situation in which a bureaucratic hierarchy must develop some metric for assessing the skills or work quality of a labor force whose actual work they know nothing about, and whose material interests militate against remedying management's ignorance. When management doesn't know (in Paul Goodman's words) “what a good job of work is,” they are forced to rely on arbitrary metrics.

Most of the constantly rising burden of paperwork exists to give an illusion of transparency and control to a bureaucracy that is out of touch with the actual production process. Most new paperwork is added to compensate for the fact that existing paperwork reflects poorly designed metrics that poorly convey the information they're supposed to measure. “If we can only design the perfect form, we'll finally know what's going on.”

In a hierarchy, managers are forced to see “in a glass darkly” a process which is necessarily opaque to them because they are not directly engaged in it. They are forced to carry out the impossible task of developing accurate metrics for evaluating the behavior of subordinates, based on the self-reporting of people with whom they have a fundamental conflict of interest. All of the paperwork burden that management imposes on workers reflects an attempt to render legible a set of social relationships that by its nature must be opaque and closed to them, because they are outside of it. Each new form is intended to remedy the heretofore imperfect self-reporting of subordinates. The need for new paperwork is predicated on the assumption that compliance must be verified because those being monitored have a fundamental conflict of interest with those making the policy, and hence cannot be trusted; but at the same time, that paperwork relies on their self-reporting as the main source of information. Every time new evidence is presented that this or that task isn't being performed to management's satisfaction, or this or that policy isn't being followed, despite the existing reams of paperwork, management's response is to design yet another—and equally useless—form.

Weberian work rules result of necessity when performance and quality metrics are not tied to direct feedback from the work process itself. It is a metric *of work for* someone who is neither a creator/provider nor an end user. And they are necessary—again—because those at the top of the pyramid cannot afford to allow those at the bottom the discretion to use their own common sense. A bureaucracy cannot afford to allow its subordinates such discretion, because someone with the discretion to do things more efficiently will also have the discretion to do something bad. And because

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<sup>58</sup> Bruce Schneier, *Beyond Fear: Thinking Sensibly About Security in an Uncertain World* (New York: Copernicus Books, 2003), p. 133.

the subordinate has a fundamental conflict of interest with the superior, and does not internalize the benefits of applying her intelligence, she cannot be trusted to use her intelligence for the benefit of the organization. In such a zero-sum relationship, any discretion can be abused.

Hence the bureaucratic nightmare—like something straight out of *Brazil*—that Paul Goodman described in the New York City public school system.

When the social means are tied up in such complicated organizations, it becomes extraordinarily difficult and sometimes impossible to do a simple thing directly, even though the doing is common sense and would meet with universal approval, as when neither the child, nor the parent, nor the janitor, nor the principal of the school can remove the offending door catch.<sup>59</sup>

Meanwhile, “[a]n old-fashioned type of hardware is specified for all new buildings, that is kept in production only for the New York school system.”<sup>60</sup> Have you got a Form 27-B?

On the other hand, subordinates cannot afford to contribute the knowledge necessary to design an efficient work process. R.A. Wilson's “highwayman” analogy quoted earlier is a good one. Workers see management as robbers who will use any information they obtain against them. Gary Miller, in *Managerial Dilemmas*, argued that trust was the main distinguishing feature of firms that made the most productive use of human capital. He cited work by behavioral economists and game theorists showing that relationships of trust are built up through repeated interactions, when the parties know they will be dealing with one another in the future. He used piece rates as an illustration. In the short run, management might have a rational incentive to elicit greater effort through piecework rates, and then cut the rates. But in the long run, it's only possible to elicit greater effort if the workers are confident that management won't change the rules of the game and screw them over; otherwise, the rational strategy is for workers to shirk and avoid ratebusting. Management can elicit greater effort through prolonged confidence-building measures to demonstrate their lack of intent to expropriate the productivity gains of greater effort. Management can only elicit workers' investment of effort and skill in the productivity of the enterprise by giving them long-term property rights in their share of productivity gains, with credible safeguards against expropriation. And the trust relationships on which worker willingness rests to invest effort and skill, to reveal their hidden knowledge, are all extremely fragile and easily disrupted if management betrays that trust.<sup>61</sup> Relationships of trust built up painstakingly over time can be destroyed overnight by the typical idiot MBA who thinks he can goose his stock options by laying off half the work force.

In this light, the Japanese practice (at least until recently) of providing lifetime job guarantees, and the comparatively strong job security under American Consensus Capitalism, were not quite the stuff of “entitlement culture” and inefficiency the right-wing makes them out to be. They were almost ideal for managing human capital as a long-term investment, and eliciting the effort, skills and hidden knowledge of the workforce. As Waddell and Bodek point out, people “will not work harder if management has defined the ultimate goal to be a lights out factory, while they soar like hawks over the plant hunting for jobs to eliminate and people to lay off. People... will not work harder for someone who has defined them as a variable cost.”<sup>62</sup> When workers are defined as a variable cost, “they find job security by making sure that the work is never complete.”<sup>63</sup> To take just one example, before a Range

59 Goodman, *People or Personnel*, p. 88.

60 *Ibid.*, p. 52.

61 Gary Miller, *Managerial Dilemmas: The Political Economy of Hierarchy* (New York: Cambridge University Press, 1992), pp. 201-202.

62 William Waddell and Norman Bodek, *The Rebirth of American Industry* (Vancouver: PCS Press, 2005), p. 158.

63 *Ibid.*, p. 169.



Rover factory in the UK made a lifetime employment pledge in the early '90s, only 11% of employees entered the annual employee suggestions competition out of fear that increased efficiency would lead to downsizings. After the guarantee, the figure rose to 84%. And just one of those suggestions saved the company a million pounds.<sup>64</sup>

Sanford Grossman and Oliver Hart provide a theoretical basis for this, arguing that the firm's assignment of property rights affects productivity, because vesting residual claimancy in one party reduces the incentive of the other to invest in the firm. The party with residual claimancy will “use [its] residual rights of control to obtain a larger share of the ex post surplus,” which will cause the party without residual claimancy to underinvest. So residual claimancy should be distributed in accordance with contributions to productivity.<sup>65</sup> Given that equity in a typical corporation is worth several times the book value of its physical assets, and given the enormous contribution to productivity made by human capital, the implication is clear.

According to Gary Miller, proper compensation not only serves as an efficiency wage for reducing turnover in human capital, but elicits hidden knowledge that otherwise might be exploited for information rents. The problem is the zero-sum relationship between management and labor:

Since wages for subordinates are costs for the owner of residual profits, profit maximization by the center is an obstacle to the efficient resolution of both the hidden information and hidden action problem. The desire of owners to maximize revenues less payoffs for team members constantly tempts them to choose incentive schemes that encourage strategic misrepresentation and inefficient production methods by subordinates....

The central dilemma in a hierarchy is thus how to constrain the self-interest of those with a stake in the inevitable residual generated by an efficient incentive system.... There will be a set of managerial alternatives available to the owner that will decrease the overall size of the pie, while increasing the owner's share of that pie....

....A firm will be better off if it can guarantee its subordinates a secure “property right” in a given incentive plan and a right to control certain aspects of their work environment and work pace.... Security in these property rights can give employees reason to make investments of time, energy, and social relationships that produce economic growth.<sup>66</sup>

This almost never happens, because as Miller argues it's in management's perceived self-interest to engage in self-dealing even at the expense of the overall productivity of the firm. So workers under the standard model of MBA-driven cowboy capitalism wind up essentially mirroring the strategies of the peasants in Zomia (see the section “State and Nonstate Spaces,” below), attempting to minimize their legibility to management and minimize the chance that the increased productivity resulting from their hidden knowledge will be used against them or expropriated. The hidden—or *hoarded*—knowledge of workers is directly analogous to the Zomian peasants' tubers hidden underground to avoid confiscation by the state's raiding armies.

The rents that result from the private knowledge of skilled workers, given the zero-sum relationship between management and labor, are an unacceptable barrier to the appropriation of labor's product.

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64 John Micklethwait and Adrian Wooldridge, *The Witch Doctors: Making Sense of the Management Gurus* (New York: Times Books, 1996), p. 209.

65 Sanford J. Grossman and Oliver D. Hart, “The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration,” *Journal of Political Economy* 94:4 (1986), pp. 716-717.

66 Miller, *Managerial Dilemmas*, pp. 154-155, 157.

Increasing management's control of the work process, and hence the appropriability of the output—making the organization more legible so as to increase the net appropriable product—is the real agenda at the heart of deskilling strategies like Taylorism. To repeat Miller's metaphor, when given a choice between efficiency and control—between a larger pie and a larger slice of a smaller pie—management usually prefers to maximize the size of their slice rather than the size of the pie. As Scott argues, control trumps efficiency:

As Stephen Marglin's early work has convincingly shown, capitalist profit requires not only efficiency but the *combination* of efficiency and control. The crucial innovations of the division of labor at the sub-product level and the concentration of production in the factory represent the key steps in bringing the labor process under unitary control. Efficiency and control might coincide, as in the case of the mechanized spinning and weaving of cotton. At times, however, they might be unrelated or even contradictory. "Efficiency at best creates a *potential* profit," notes Marglin. "Without control the capitalist cannot realize that profit. Thus organizational forms which enhance capitalist control may increase profits and find favor with capitalists even if they affect productivity and efficiency adversely. Conversely, more efficient ways of organizing production which reduce capitalist control may end up reducing profits and being rejected by capitalists."

When artisanal production was more efficient, it was "difficult for the capitalist to appropriate the profits of a dispersed craft population."<sup>67</sup>

In agriculture, likewise, "the mere efficiency of a form of production is not sufficient to ensure the appropriation of taxes or profits."

Independent smallholder agriculture may... be the most efficient way to grow many crops. But such forms of agriculture, although they may present possibilities for taxation and profit when their products are bulked, processed, and sold, are relatively illegible and hard to control. As is the case with autonomous artisans and petit-bourgeois shopkeepers, monitoring the commercial fortunes of small-fry farms is an administrative nightmare. The possibilities for evasion and resistance are numerous, and the cost of procuring accurate, annual data is high, if not prohibitive.<sup>68</sup>

Dispersed production by craft methods was almost always an impediment to control and appropriation. The goal of Taylorism was to abolish hidden knowledge and the attendant rents on it. Taylorism was a way by which "human labor as a mechanical system... could be decomposed into energy transfers, motion, and the physics of work." This "simplification of labor into isolated problems of mechanical efficiencies" facilitated "scientific control of the entire labor process." And scientific control meant legibility and expropriability.

For the factory manager or engineer, the newly invented assembly lines permitted the use of unskilled labor and control over not only the pace of production but the whole labor process.<sup>69</sup>

The genius of modern mass-production methods, Frederick Taylor, saw the issue of destroying *mētis* and turning a resistant, quasi-autonomous, artisan population into more suitable units, or "factory hands," with great clarity. "Under scientific management... the managers assume... the burden of gathering together all of the traditional knowledge which in the past has been possessed by the workmen and then of classifying, tabulating, and reducing this knowledge to rules, laws, formulae.... Thus all of the planning which under the old system was done by the workmen, must of necessity under the new system be done by management in accordance with the laws of science." In the Taylorized factory, only the factory manager had the

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67 Scott, *Seeing Like a State*, p. 336.

68 *Ibid.*, pp. 337-338.

69 *Ibid.*, p. 98.

knowledge and command of the whole process, and the worker was reduced to the execution of a small, often minute, part of the overall process.

This could sometimes result in an increase in efficiency, Scott said—but was *always* “a great boon to control and profit.”<sup>70</sup>

Taylorism not only disempowered workers; just as importantly, it empowered managers and technicians. It was a subspecies of what Scott calls the “high modernist ideology,” and more specifically of its American branch (the Progressive movement of the early 20<sup>th</sup> century that was the direct progenitor of mid-20<sup>th</sup> century liberalism). Progressivism and its Taylorist component reflected, and served as a legitimizing instrument for, the will to power of the white collar managerial-professional classes. Industry was to be governed by a set of “best practices,” Weberian work rules, which were best knowable to the specialists at the top of the hierarchy. And the regime of efficiency and rationality—what Scott calls “slide rule authoritarianism”—would replace class conflict with “class collaboration” by increasing production and rationally promoting the common interests of all.<sup>71</sup>

In this regard, Taylorism within the corporation was a microcosm of the high modernist ideology of Progressivism in society at large.

High modernist ideologies embody a doctrinal preference for certain social arrangements.... Most of the preferences can be deduced from the criteria of legibility, appropriation, and centralization of control. To the degree that the institutional arrangements can be readily monitored and directed from the center and can be easily taxed (in the broadest sense of taxation), then they are likely to be promoted.<sup>72</sup>

This set of preferences is as true of corporate management as it is of the political and social system as a whole.

If there was one apostle of the mid-20<sup>th</sup> century model of industrial organization—the model associated with the politico-economic organization variously called “corporate liberalism” or “consensus capitalism”—it was Alfred Chandler.

Where the underlying technology of production permitted, increased throughput from technological innovation, improved organizational design, and perfected human skills led to a sharp decrease in the number of workers required to produce a single unit of output. The ratio of capital to labor, materials to labor, energy to labor, and managers to labor for each unit of output became higher. Such high-volume industries soon became capital-intensive, energy-intensive, and manager-intensive.<sup>73</sup>

But I suspect such capital-intensive mass production methods were not as efficient in so many cases as even Scott imagines. Such methods, as pointed out by such writers on lean production as John Womack, or William Waddell and Norman Bodek, tend to be more efficient at each individual stage of production—minimizing the unit cost of each particular machine and maximizing its—while creating a more than offsetting cost increase from overall inventory, overhead, and marketing and distribution.

In any case, *mētis* and dispersed knowledge can never be completely Taylorized out of the production process. Attempts by those in authority to minimize discretion by reducing tasks to

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<sup>70</sup> *Ibid.*, pp. 336-337.

<sup>71</sup> *Ibid.*, p. 99.

<sup>72</sup> *Ibid.*, p. 219.

<sup>73</sup> Alfred D. Chandler, Jr., *The Visible Hand: The Managerial Revolution in American Business* (Cambridge and London: The Belknap Press of Harvard University Press, 1977), p. 241.

standardized routines and anticipating all possible contingencies in the rules can only result in a serious degrading of efficiency, precisely because it is impossible to anticipate all contingencies or to come up with general rules that will not require exceptions in the face of unexpected circumstances.

The utopian dream of Taylorization—a factory in which every pair of hands was more or less reduced to automatic movements, on the model of programmed robots—was unrealizable. Not that it wasn't tried. David Noble has described the well-funded attempt to make machine tools through numerical controls because it promised “emancipation from the human worker.” Its ultimate failure came precisely because the system had designed out *mētis*—the practical adjustments that an experienced worker would make to compensate for slight changes in material, temperatures, the wear on or irregularities in the machine, mechanical malfunction, and so forth. As one operator said, “Numerical controls are supposed to be like magic, but all you can do automatically is produce scrap.” This conclusion could be generalized. In a brilliant ethnography of the work routines of machine operators whose jobs appeared to have been thoroughly de-skilled, Ken Kusterer has shown how the workers nevertheless had to develop individual skills that were absolutely necessary to successful production but that could never be reduced to formulas a novice could immediately use.

In the incident Scott alluded to, as Noble described it, “[t]he workers increasingly refused to take any initiative”

—to do minor maintenance (like cleaning lint out of the tape reader), help in diagnosing malfunctions, repair broken tools, or even prevent a smash-up. The scrap rate soared... along with machine downtime, and low morale produced the highest absenteeism and turnover rates in the plant. Walkouts were common and, under constant harassment from supervisors, the operators developed ingenious covert methods of retaining some measure of control over their work, including clever use of the machine overrides.

...The part of the plant with the most sophisticated equipment had become the part of the plant with the highest scrap rate, highest turnover, and lowest productivity....<sup>74</sup>

In fact hierarchical organizations depend for their continued functioning on the willingness of workers to treat authority-based rules as a form of irrationality and route around them. Scott gives the example of the USSR, where a congress of agricultural specialists who met during Gorbachev's *perestroika*

were nearly unanimous in their despair over what three generations had done to the skills, initiative, and knowledge of the *kolkhozniki*.... Suddenly a woman from Novosibirsk scolded them: “How do you think the rural people survived sixty years of collectivization in the first place? If they hadn't used their initiative and wits, they wouldn't have made it through!”<sup>75</sup>

Exactly. For our purposes, the Soviet Union can be treated as a case in which a single corporation owned an entire national economy, with the Politburo as board of directors, the KGB as Pinkertons, and the industrial ministries as production divisions within a gargantuan M-form structure. Because the entire Soviet economy was owned by a single conglomerate, with autarkic barriers to competition from outside, the only limits on the level of inefficiency it could afford were set by the need to prevent economic or political collapse. Or to invert the comparison, the large corporation is a microcosm of the Soviet planned economy, in which workers use their initiative to work around the bureaucratic irrationality imposed from above.

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<sup>74</sup> David F. Noble, *Forces of Production: A Social History of Industrial Automation* (New York: Alfred A. Knopf, 1984), p. 277.

<sup>75</sup> Scott, *Seeing Like a State*, p. 350.

The large corporation tacitly depends on the workers who develop work-arounds and disregard irrational rules, to keep production going in spite of management, in the same way that the Ministry of Central Services in *Brazil* depended on people like Harry Tuttle. The disappearance of the black market and *nalevo* activity would have had the same practical effect in the USSR as a work-to-rule strike in a corporation.

Scott writes that it is impossible, by the nature of things, for everything entailed in the production process to be distilled, formalized or codified into a form that is legible to management.

...[T]he formal order encoded in social-engineering designs inevitably leaves out elements that are essential to their actual functioning. If the [East German] factory were forced to operate only within the confines of the roles and functions specified in the simplified design, it would quickly grind to a halt. Collectivized command economies virtually everywhere have limped along thanks to the often desperate improvisation of an informal economy wholly outside its schemata.

Stated somewhat differently, all socially engineered systems of formal order are in fact subsystems of a larger system on which they are ultimately dependent, not to say parasitic. The subsystem relies on a variety of processes—frequently informal or antecedent—which alone it cannot create or maintain. The more schematic, thin, and simplified the formal order, the less resilient and the more vulnerable it is to disturbances outside its narrow parameters....

It is, I think, a characteristic of large, formal systems of coordination that they are accompanied by what appear to be anomalies but on closer inspection turn out to be integral to that formal order. Much of this might be called “*mētis* to the rescue...” A formal command economy... is contingent on petty trade, bartering, and deals that are typically illegal.... In each case, the nonconforming practice is an indispensable condition for formal order.<sup>76</sup>

...In each case, the necessarily thin, schematic model of social organization and production animating the planning was inadequate as a set of instructions for creating a successful social order. By themselves, the simplified rules can never generate a functioning community, city, or economy. Formal order, to be more explicit, is always and to some considerable degree parasitic on informal processes, which the formal scheme does not recognize, without which it could not exist, and which it alone cannot create or maintain.<sup>77</sup>

The same is true, of course, in the “collectivized command economy” of the large Western corporation. A good example is the hidden knowledge of call center workers at a privatized utility.

As successive problems with the systems emerged, it became clear to the staff that the people who had designed the systems had an inadequate knowledge of the content of clerical work, and assumed it to be far less complex than it was in reality. Somewhat ironically, the introduction of systems intended to simplify and standardize clerical work actually drew the clerks' attention to the fact that they provided the company with a kind of expertise that cannot easily be written into a computer programme. As one clerk noted, “Each section involved knowledge that has to be picked up, that can't be built into the systems”.... A supply clerk explained:

*...I don't think we realized before just how much management depends on us knowing about the job.... They thought they knew all what we did, they said “We know the procedures, we've got it written down.” I think it's been a bit of a shock to them to find out they didn't know, that procedure is not necessarily how you do the job, job descriptions can't cover everything.”<sup>78</sup>*

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76 *Ibid.*, pp. 351-352.

77 *Ibid.*, p. 310.

78 Julia O'Connell Davidson, “The Sources and Limits of Resistance in a Privatized Utility,” in J. Jermier and D. Knight, eds., *Resistance and Power in Organizations* (London: Routledge, 1994), pp. 82-83.

And, formal disobedience aside, the difference between what Oliver Williamson called “consummate cooperation” and merely “perfunctory cooperation—a distinction that hinges on the worker's active contribution of her dispersed knowledge or *mētis* to the production process, as opposed to doing the bare minimum necessary to avoid being fired—makes an enormous difference in its level of functioning.

Consummate cooperation is an affirmative job attitude—to include the use of judgment, filling gaps, and taking initiative in an instrumental way. Perfunctory cooperation, by contrast, involves job performance of a minimally acceptable sort.... The upshot is that workers, by shifting to a perfunctory performance mode, are in a position to “destroy” idiosyncratic efficiency gains.<sup>79</sup>

As J. E. Meade argues, it's simple utility-maximizing behavior: A wage employee “will have to observe the minimum standard of work and effort in order to keep his job; but he will have no immediate personal financial motive... to behave in a way that will promote the profitability of the enterprise.... [A]ny extra profit due to his extra effort will in the first place accrue to the entrepreneur....”<sup>80</sup>

And hidden knowledge means, Williamson writes, that it's impossible to “determine whether workers put their energies and inventiveness into the job in a way which permits task-specific cost-savings to be fully realized....”<sup>81</sup> As Paul Milgrom and John Roberts put it, “only the agent knows what action he has taken in pursuit of his or the principal's goals, or only the agent has access to the specialized knowledge on which his action is based.”<sup>82</sup>

Williamson's concepts of consummate and perfunctory cooperation are implicit in this passage from Hayek:

To know of and put to use a machine not fully employed, or somebody's skill which could be better utilized, or to be aware of a surplus stock which can be drawn upon during an interruption of supplies, is socially quite as useful as the knowledge of better alternative techniques.<sup>83</sup>

....Is it true that, once a plant has been built, the rest is all more or less mechanical, determined by the character of the plant, and leaving little to be changed in adapting to the ever-changing circumstances of the moment?

....In a competitive industry, at any rate... the task of keeping cost from rising requires constant struggle, absorbing a great part of the energy of the manager. How easy it is for an efficient manager to dissipate the differentials on which profitability rests and that it is possible, with the same technical facilities, to produce with a great variety of costs are among the commonplaces of business experience which do not seem to be equally familiar in the study of the economist.<sup>84</sup>

And Oliver Williamson wrote, in the same vein, that “[a]lmost every job involves some specific

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79 Oliver Williamson, *Markets and Hierarchies, Analysis and Antitrust Implications: A Study in the Economies of Internal Organization* (New York: Free Press, 1975), p. 69.

80 J.E. Meade, "The Theory of Labour-Managed Firms and Profit Sharing," in Jaroslav Vanek, ed., *Self-Management: Economic Liberation of Man* (Hammondsworth, Middlesex, England: Penguin Education, 1975), p. 395.

81 Williamson, *Markets and Hierarchies*, p. 69.

82 Paul Milgrom and John Roberts, “An Economic Approach to Influence Activities in Organizations,” *American Journal of Sociology*, supplement to vol. 94 (1988), p. S155.

83 Hayek, “The Use of Knowledge in Society,” p. 80.

84 *Ibid.*, p. 82.

skills.”

Even the simplest custodial tasks are facilitated by familiarity with the physical environment specific to the workplace in which they are being performed. The apparent routine operation of standard machines can be importantly aided by familiarity with the particular piece of operating equipment.... In some cases workers are able to anticipate the trouble and diagnose its source by subtle changes in the sound or smell of the equipment. Moreover, performance in some production or managerial jobs involves a team element, and a critical skill is the ability to operate effectively with the given members of the team....<sup>85</sup>

The willingness of the workforce to cooperate consummately rather than perfunctorily, to contribute their dispersed knowledge, is arguably the primary determining factor in the potential range of costs with a given set of technical facilities. And the human capital of the enterprise—the hidden knowledge and repertory of task-specific skills that management is seldom even aware of because they cannot be communicated through a hierarchy, the network of personal relationships on which production depends—is the source of a great deal of a firm's equity, and accounts for the gap between its equity value and book value (i.e., the market value of its physical assets). Yet, as we shall see below, management treats labor and its skills as a direct cost under the conventions of Sloanist accounting, rather than as a capital asset that costs money to replace, and does its best to periodically decimate its human capital.

When workers decide to stop propping up the system by disregarding its irrational rules they can in effect, by their very obedience, step back and allow it to destroy itself through its own irrationality. We already saw David Noble's account of workers' withdrawing their consummate cooperation in the case of numerically controlled machinery. More generally, Scott points to the work-to-rule strike as a practical application, from the worker's point of view, of the dependence of formal organization on the larger system of informal processes:

In a work-to-rule action... employees begin doing their jobs by meticulously observing every one of the rules and regulations and performing only the duties stated in their job descriptions. The result, fully intended in this case, is that the work grinds to a halt, or at least to a snail's pace.... In the long work-to-rule action against Caterpillar, the large equipment manufacturer, for example, workers reverted to following the inefficient procedures specified by the engineers, knowing they would cost the company valuable time and quality, rather than continuing the more expeditious practices they had long ago devised on the job. They were relying on the tested assumption that working strictly by the book is necessarily less productive than working with initiative.<sup>86</sup>

Unfortunately, workers trying to degrade the efficiency of production by working to rule may find that they can't keep up with management. The practice of corporate downsizing in recent years has amounted to a systematic destruction—by management!—of the set of informal processes that the productivity of the organization depends on.

David Jenkins, back in 1973, argued that the “[i]mpressive short-term results” achieved by downsizing generally come at the cost of “a long-term catastrophe.”

Such conduct, says [Rensis] Likert, is encouraged by company reward systems that “enable a manager who is a 'pressure artist' to achieve high earnings over a few years, while destroying the loyalties, favorable attitudes, cooperative motivations, etc., among the supervisory and non-supervisory members of the organization.”....

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85 Williamson, *Markets and Hierarchies*, pp. 62-63.

86 Scott, *Seeing Like a State*, pp. 310-311.

What is happening, in effect, is that valuable resources are being disposed of and earnings given a short-term, artificial boost. No management would stand for such cavalier treatment of physical assets.... Since human resources do not appear on the balance sheet, they can be liquidated at will by managers oriented to “the bottom line” ...in order to give a spurious injection to earnings.<sup>87</sup>

Two decades later, during the downsizing wave of the '90s, Kim Cameron listed the problems that typically resulted from downsizing:

...(1) loss of personal relationships between employees and customers; (2) destruction of employee and customer trust and loyalty; (3) disruption of smooth, predictable routines in the firm; (4) increases in formalization (reliance on rules), standardization, and rigidity; (5) loss of cross-unit and cross-level knowledge that comes from longevity and interactions over time; (6) loss of knowledge about how to respond to nonroutine aberrations faced by the firm; (7) decrease in documentation and therefore less sharing of information about changes; (8) loss of employee productivity; and (9) loss of a common organizational culture<sup>88</sup>

Alex Markels quotes a management consultant to the effect that downsizings mean “a company is set back severely by the loss of 'knowledge and judgment earned over the years.’”<sup>89</sup>

A good example is staffing practice in the retail industry. Forty years ago, the sales staff at clothing and shoe retailers were commonly career employees who made a living wage, and who knew customer tastes and the product lines inside and out. Retailers have since replaced such career staff with unskilled minimum wage workers out of high school.

That's essentially the performance of Bob Nardelli at Home Depot, for which he got a \$210 million severance. According to Tom Blumer of BizzyBlog, the means by which Nardelli increased short-term earnings included the following:

His consolidation of purchasing and many other functions to Atlanta from several regions caused buyers to lose touch with their vendors....

Firing knowledgeable and experienced people in favor of uninformed newbies and part-timers greatly reduced payroll and benefits costs, but has eventually driven customers away, and given the company a richly-deserved reputation for mediocre performance.<sup>90</sup>

Nardelli and his minions played every accounting, acquisition, and quick-fix angle they could to keep the numbers looking good, while letting the business deteriorate.<sup>91</sup>

I have since learned that Nardelli, in the last months before he walked, took the entire purchasing function out of Atlanta and moved it to...India—Of all the things to pick for foreign outsourcing.

I am told that “out of touch” doesn't even begin to describe how bad it is now between HD stores and

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87 David Jenkins, *Job Power: Blue and White Collar Democracy* (Garden City, New York: Doubleday & Company, Inc., 1973), p. 237.

88 Kim S. Cameron, “Downsizing, Quality and Performance,” in Robert E. Cole, ed., *The Death and Life of the American Quality Movement* (New York: Oxford University Press, 1995), p. 97.

89 Alex Markels and Matt Murray, “Call It Dumbsizing: Why Some Companies Regret Cost-Cutting,” *Wall Street Journal*, May 14, 1996 <<http://www.markels.com/management.htm>>.

90 Tom Blumer, “Disarming Nardelli's Defenders Part I,” *BizzyBlog*, January 8, 2007 <<http://www.bizzyblog.com/2007/1/08/disarming-nardellis-defenders-part-1/>>.

91 Blumer, “Disarming Nardelli's Defenders Part 3,” *BizzyBlog*, January 8, 2007 <<http://www.bizzyblog.com/2007/1/08/disarming-nardellis-defenders-part-3/>>.



Purchasing, and between HD Purchasing and suppliers.

Not only is there a language dialect barrier, but the purchasing people in India don't know the “language” of American hardware—or even what half the stuff the stores and suppliers are describing even is.

I am told that an incredible amount of time, money, and energy is being wasted—all in the name of what was in all likelihood a bonus-driven goal for cutting headcount and making G&A expenses look low (“look” low because the expenses have been pushed down to the stores and suppliers).<sup>92</sup>

The practice was parodied on *King of the Hill* in the person of the pimply-faced teenager in the blue smock at “Megalo-Mart,” who lacked the most basic clue as to where Hank could find a hammer. Unfortunately, it wasn't really a parody. I've seen it with my own eyes in the garden department at Lowe's. The staff's invariable response to a request for any help in finding a product is something like “I dunno. I guess if you don't see it we ain't got it.”

That kind of deliberate deskilling of service workers at the expense of quality, in order to shift resources upward from customer support staffing to CEO salaries and bonuses, could only occur in an industry where competition in quality of customer services has been suppressed by cartelization. When the market is controlled by a handful of giant oligopoly firms with the same dysfunctional culture, firms can afford shoddy, half-assed service.

As mentioned earlier, all of this reflects the Sloanist metrics by which senior corporate management measures cost and efficiency, which are roughly comparable to the metrics by which the folks in Gosplan tried to manage the Soviet economy.

Ludwig von Mises argued, in *Bureaucracy*, that the corporate hierarchy as such wasn't a bureaucracy in the strict sense. Bureaucracy of necessity was rules-based management, with processes defined along Weberian lines, rather than profit-based management, because produced no marketable product and its output had no market price. The large business enterprise, on the other hand, was—thanks to the miracle of double-entry bookkeeping—an extension of the entrepreneur's will. The entrepreneur could track the profits and losses of each subdivision, and act in accordance with the data to shift investment from one division to another and discipline or replace managers.<sup>93</sup> This amounted to a mirror-image of the neoclassical approach of treating the firm as a unitary actor in the marketplace and its internal workings as a black box.

Mises' emphasis of the entrepreneurial nature of the corporation neglects a number of facts. First, the internal transfer pricing of the corporation amounts to that proposed by the market socialist Oskar Lange, which Mises dismissed as “playing at capitalism.” Because most of the intermediate goods produced by a firm—product components, components of components, and the like—are product-specific, there is no external market for them. So the internal transfer prices must be estimated indirectly, on a cost markup basis, at several removes from any actual market prices—exactly the same way that the Soviet economic planners relied indirectly on market price information from the Western economies for setting their own prices.<sup>94</sup>

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92 Blumer comment under Kevin Carson, “Economic Calculation in the Corporate Commonwealth, Part II: Hayek vs. Mises on Distributed Knowledge (Excerpt),” *Mutualist Blog: Free Market Anti-Capitalism*, March 16, 2007 <<http://mutualist.blogspot.com/2007/03/economic-calculation-in-corporate.html>>.

93 Ludwig von Mises, *Bureaucracy*. Edited and with a Foreword by Bettina Bien Greaves (Yale University Press, 1944: renewed by Liberty Fund, 1972; Editorial editions Liberty Fund, 2007).

94 See Chapter Seven (“Economic Calculation in the Corporate Commonwealth: The Corporation as Planned Economy”)

Second, the management of the typical large corporations are not, *de facto*, hired servants of the entrepreneur or investor. In the real world, proxy fights almost always fail, hostile takeovers have been rare since management developed countermeasures in the 1980s, and most new investment—as opposed to mergers and acquisitions—is financed internally through retained earnings. In reality, the shareholder is just another class of contractual claimant that's entitled to whatever dividend management sees fit to issue (if any) and to participate in the empty ritual of a shareholder's meeting. The real residual claimant, at least in large, publicly held “mature corporations” where stock ownership is diffuse, is senior management. In practice, the management of such corporations is a self-perpetuating oligarchy in control of a free-floating mass of unowned capital—much like the bureaucratic management of the old USSR. So senior management, like Lange's market socialist factory managers, are “playing entrepreneur”—gambling capital which they did not contribute from their own past efforts, and which they do not stand personally to lose, on the chance that they might win big if the gamble pays off.

Third, there is no politically neutral or immaculate metric, whether “double-entry bookkeeping” or anything else. The information processing functions of a hierarchy frequently *impede* the aggregation of dispersed knowledge—in the corporation as well as the state. The metrics of efficiency, profit and loss in the large corporation reinforce the interests of management. In the dominant Sloanist management accounting model, as described by William Waddell and Norman Bodek, labor is virtually the only direct, variable cost which management attempts to minimize. Administrative costs like management salaries, general overhead, inventory warehousing costs, etc., are treated as fixed, direct costs. Maximizing the ROI of each stage of production, by maximizing flow-through and minimizing direct labor hours, is virtually the only cost-cutting measure which is considered. Management salaries and other administrative costs, wasteful or irrational capital outlays, etc., don't count because, as overhead, they're incorporated (by the miracle of “overhead absorption”) into the transfer prices of finished goods which are “sold” to inventory. And under Sloanist accounting, inventory is a liquid asset which adds to the book value of the company—even if there are no orders for it and it winds up being marked down and sold at a loss, or even written off as unsellable. The practice amounts to “goosing the numbers by sweeping overhead under the rug and into inventory.”<sup>95</sup>

So despite the fact that production workers' wages and benefits are typically ten percent or less of total unit costs, without fail you see the MBAs obsessively straining with a sieve to eliminate every spare second of direct labor—meanwhile gulping down overhead from administrative costs and capital-spending ratholes by the oceanful.<sup>96</sup> The corporation's administrative costs and Rube Goldberg-style organization typically resemble those of the Ministry of Central Services in *Brazil*, and the allocation of investments in physical plant and equipment typically resemble the uneven development of a centrally planned economy.

The irrational capital investments in the large corporation resemble Mises' predictions for planning under state socialism—i. e., it “would involve operations the value of which could neither be predicted beforehand nor ascertained after they had taken place.”<sup>97</sup> As Richard Ericson said of the communist

in Carson, *Organization Theory*, particularly subsection C (pp. 215-221).

95 See Waddell and Bodek, pp. 135-140, 143.

96 Back in the Nineties, David Noble said labor costs were typically around 10% of total unit costs in the metalworking industries, compared to 35% for overhead. But 75% of management cost-cutting effort went into cutting labor, compared to 10% to cutting overhead. Noble, *Progress Without People: New Technology, Unemployment, and the Message of Resistance* (Toronto: Between the Lines, 1995), p. 105.

97 Ludwig von Mises, *Socialism: An Economic and Sociological Analysis*. Translated by J. Kahane. New edition, enlarged with an Epilogue (New Haven: Yale University Press, 1951). [Look up page no.]

regimes, the corporation can achieve great feats of engineering without regard to cost.

When the system pursues a few priority objectives, regardless of sacrifices or losses in lower priority areas, those ultimately responsible cannot know whether the success was worth achieving.<sup>98</sup>

I regularly see examples of this in the hospital where I work. Money is poured into multi-million dollar expansions of the Emergency Room, and remodelings of entire floors that radically alter the layouts—limited only by the presence of load-bearing walls—in ways that make them less functional. Management procures enormously expensive high-tech machinery like a Da Vinci surgical robot, and expands its range of expensive high-tech procedures like heart catheterization—all for the public prestige value—while cutting nursing staff and turning the patient care wards into squalid, understaffed shitholes and causing costs from falls and MRSA infections to go through the roof.

In short, the internal allocation of capital in the large corporation follows a pattern very much like Hayek's description of the state socialist planned economy:

There is no reason to expect that production would stop, or that the authorities would find difficulty in using all the available resources somehow, or even that output would be permanently lower than it had been before planning started.... [We should expect] the excessive development of some lines of production at the expense of others and the use of methods which are inappropriate under the circumstances. We should expect to find overdevelopment of some industries at a cost which was not justified by the importance of their increased output and see unchecked the ambition of the engineer to apply the latest development elsewhere, without considering whether they were economically suited in the situation. In many cases the use of the latest methods of production, which could not have been applied without central planning, would then be a symptom of a misuse of resources rather than a proof of success.

One example he cites—“the excellence, from a technological point of view, of some parts of the Russian industrial equipment, which often strikes the casual observer and which is commonly regarded as evidence of success”—is directly comparable to the above-mentioned Da Vinci robot.<sup>99</sup>

The problem Hayek describes is complicated by the fact that “output” itself is a meaningless metric under these circumstances. With Sloanist “overhead absorption” as with Soviet central planning, the system of internal transfer pricing based on the consumption of inputs, and the passing on of costs to the consumer via cost-plus markup, mean that any consumption of inputs that can be incorporated into the “price” of finished goods—as such—is an output.

The dominant players in an oligopoly market can get away with all these forms of irrationality—the suppression of newer, more efficient technologies, deskilling their workforce and substituting *techne* for *mētis*, because the big boys share the same organizational culture.

**The Art of Not Being Governed: State Spaces and Nonstate Spaces.** What Scott calls “state spaces and nonstate spaces” are the central theme of *The Art of Not Being Governed*. State spaces, Scott wrote in *Seeing Like a State*, are geographical regions with high-density population and high-density grain agriculture, “producing a surplus of grain... and labor which was relatively easily appropriated by the state.” The conditions of nonstate spaces were just the reverse, “thereby severely

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<sup>98</sup> Richard Ericson, “The Classical Soviet-Type Economy: Nature of the System and Implications for Reform,” *Journal of Economic Perspectives* 5:4 (1991), p. 21.

<sup>99</sup> Friedrich Hayek, “Socialist Calculation II: The State of the Debate (1935),” in Hayek, *Individualism and Economic Order* (Chicago: University of Chicago Press, 1948), pp. 149-150.

limiting the possibilities for reliable state appropriation.”<sup>100</sup>

This might have served as the topic sentence for his next book, *The Art of Not Being Governed*. In fact, according to Scott,<sup>101</sup> *Seeing Like a State* was actually an offshoot of the research that eventually led to *The Art of Not Being Governed*. His original line of inquiry was “to understand why the state has always seemed to be the enemy of 'people who move around'....” In his studies of “the perennial tensions between mobile, slash-and-burn hill peoples on one hand and wet-rice, valley kingdoms on the other,” along with assorted nomads and runaway slaves, Scott was diverted into a study of legibility as a motive for state policies of sedentarization. Having developed that topic, he came back to his original focus in *The Art of Not Being Governed*.

In the latter book, Scott surveys the populations of “Zomia,” the highland areas spanning the countries of Southeast Asia, which are largely outside the reach of the governments there. He suggests areas of commonality between the Zomians and people in nonstate areas around the world, upland and frontier people like the Cossacks, Highlanders and “hillbillies,” nomadic peoples like the Gypsies and Tinkers, and runaway slave communities in inaccessible marsh regions of the American South.

States attempt to maximize the appropriability of crops and labor, designing state space so as “to guarantee the ruler a substantial and reliable surplus of manpower and grain at least cost...” This is achieved by geographical concentration of the population and the use of concentrated, high-value forms of cultivation, in order to minimize the cost of governing the area as well as the transaction costs of appropriating labor and produce.<sup>102</sup> State spaces tend to encompass large “core areas” of highly concentrated grain production “within a few days' march from the court center,” not necessarily contiguous with the center but at least “relatively accessible to officials and soldiers from the center via trade routes or navigable waterways.”<sup>103</sup> Governable areas are mainly areas of high-density agricultural production linked either by flat terrain or watercourses.<sup>104</sup>

The nonstate space is a direct inversion of the state space: it is “state repelling,” i.e. “it represents an agro-ecological setting singularly unfavorable to manpower- and grain-amassing strategies of states. States “will hesitate to incorporate such areas, inasmuch as the return, in manpower and grain, is likely to be less than the administrative and military costs of appropriating it.”<sup>105</sup>

The greater the dispersal of the crops, the more difficult they are to collect, in the same way that a dispersed population is more difficult to grab. To the degree that such crops are part of the swiddener's portfolio, to that degree will they prove fiscally sterile to states and raiders and be deemed “not worth the trouble” or, in other words, a nonstate space.<sup>106</sup>

Nonstate spaces benefit from various forms of “friction” that increase the transaction costs of appropriating labor and output, and of extending the reach of the state's enforcement arm into such regions. These forms of friction include the friction of distance<sup>107</sup> (which amounts to a distance tax on

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100 Scott, *Seeing Like a State*, p. 186.

101 *Ibid.*, pp. 1-2.

102 James C. Scott, *The Art of Not Being Governed: An Anarchist History of Upland Southeast Asia* (New Haven & London: Yale University Press, 2009), pp. 40-41.

103 *Ibid.*, p. 53.

104 *Ibid.*, p. 58.

105 *Ibid.*, p. 178.

106 *Ibid.*, p. 196.

107 *Ibid.*, p. 51.

centralized control), the friction of terrain or altitude, and the friction of seasonal weather.<sup>108</sup> In regard to the latter, for example, the local population might “wait for the rains, when supply lines broke down (or were easier to cut) and the garrison was faced with starvation or retreat.”<sup>109</sup>

In Zomia, as Scott describes it:

Virtually everything about these people's livelihoods, social organization, ideologies, ...can be read as strategic positionings designed to keep the state at arm's length. Their physical dispersion in rugged terrain, their mobility, their cropping practices, their kinship structure, their pliable ethnic identities, and their devotion to prophetic, millenarian leaders effectively serve to avoid incorporation into states and to prevent states from springing up among them.<sup>110</sup>

In order to avoid taxes, draft labor and conscription, they practiced “escape agriculture: forms of cultivation designed to thwart state appropriation.” Their social structure, likewise, “was designed to aid dispersal and autonomy and to ward off political subordination.”<sup>111</sup>

I suggest that the concepts of “state space” and “nonstate space,” if removed from Scott's immediate spatial context and applied by way of analogy to spheres of social and economic life that are more or less amenable to state control, can be useful for us in the kinds of developed Western societies where to all appearances there are no geographical spaces beyond the control of the state.

State spaces in our economy are sectors which are closely allied to and legible to the state. Nonstate spaces are those which are hard to monitor and where regulations are hard to enforce. State spaces, especially, are associated with legible forms of production. In the Western economies, the economic sectors most legible to and closely allied to the state are those dominated by large corporations in oligopoly markets.

In general, the state has a strong affinity for large-scale, centrally organized forms of production. In the case of agriculture, Scott writes:

In agriculture, as in manufacturing, the mere efficiency of a form of production is not sufficient to ensure the appropriation of taxes or profits. Independent smallholder agriculture may, as we have noted, be the most efficient way to grow many crops. But such forms of agriculture, although they may present possibilities for taxation and profit when their products are bulked, processed, and sold, are relatively illegible and hard to control. As is the case with autonomous artisans and petit-bourgeois shopkeepers, monitoring the commercial fortunes of small-fry farms is an administrative nightmare. The possibilities for evasion and resistance are numerous, and the cost of procuring accurate, annual data is high, if not prohibitive.

A state mainly concerned with appropriation and control will find sedentary agriculture preferable to pastoralism or shifting agriculture. For the same reasons, such a state would generally prefer largeholding to smallholding and, in turn, plantation or collective agriculture to both.... Although collectivization and plantation agriculture are seldom very efficient, they represent... the most legible and hence appropriate forms of agriculture.<sup>112</sup>

The state has a similar affinity for the large corporate form in general, and not just in agriculture, according to Benjamin Darrington. If the large corporation depends for its survival on the state, the

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108 *Ibid.*, p. 61.

109 *Ibid.*, p. 63.

110 *Ibid.*, x.

111 *Ibid.*, p. 23.

112 Scott, *Seeing Like a State*, p. 338.

state—even aside from the fact that it is composed largely of representatives of the corporate ruling class—has a rational interest in promoting the large corporation as the dominant economic form.

Large centrally organized firms facilitate the government’s task of maintaining its hegemonic position in society. The ability of the government to effectively regulate the economy depends on the existence of economic institutions with organizational structures that can be easily monitored and controlled. The regulation of a large number of small businesses requires greater duplication of effort to inspect financial records, ensure regulatory compliance, and collect taxes. Small organizations are harder to punish for not cooperating with the law because they have less total value to seize and the owners are more likely to fight the government since it is their money and business directly at stake, not to mention the fact that small business are looked upon more favorably by the general population than seemingly faceless and distant corporations. The equipment used by small enterprises does not lend itself to certification, regulation, and safety testing, and the labor employed does not lend itself to the effective enforcement of laws concerning things like labor negotiations, minimum wage, minimum age, professional licensing, racial and sexual quotas, citizenship requirements, maximum hours, etc. Informal and small scale economic relationships are almost beyond the range of government efforts to enforce its mandates and collect taxes. By making business an agent of policy the state also creates a useful scapegoat for diverting the ire of the public towards the iniquity and exploitation of existing economic relations and positions the state to act as “white knight” to protect the public and avenge the evils and excesses of “private enterprise.”<sup>113</sup>

The same effects achieved through spatial distance and isolation and the high costs of physical transportation in Scott's Zomia can be achieved in our economy, without all the inconvenience, through expedients such as encryption and the use of darknets. Recent technological developments have drastically expanded the potential for non-spatial, non-territorially based versions of the nonstate spaces that Scott describes. People can remove themselves from state space by adopting technologies and methods of organization that make them illegible to the state, without any actual movement in space.

Such technologies and methods of organization include encrypted e-currencies like Ripple and Bitcoin as the medium of exchange in darknet economies, Daniel de Ugarte's “phyles” (distributed civil societies which provide networked platforms for supporting business enterprises, certification and reputational mechanisms, arbitration and adjudication services, insurance and legal services, etc.), and John Robb's “Economy as a Software Service.”<sup>114</sup>

In the realm of physical production, new micromanufacturing technologies offer unprecedented potential to evade enforcement of industrial patents and other similar state entry barriers. In the case traditional mass-production industry, the transaction costs of patent enforcement were lowered by a state of affairs in which a handful of oligopoly manufacturers in a cartelized industry produced a limited range of competing products (often further restriction product competition by pooling or exchanging patents among themselves), and marketed their limited product lines through a handful of national chain retailers. When \$10,000 worth of homebrew CNC tools in a garage factory can produce output comparable to that of a million-dollar factory, in small batches distributed through neighborhood

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113 Benjamin Darrington, “Government Created Economies of Scale and Capital Specificity” Paper presented at Austrian Student Scholars Conference, 2007 <[http://agorism.info/\\_media/government\\_created\\_economies\\_of\\_scale\\_and\\_capital\\_specificity.pdf](http://agorism.info/_media/government_created_economies_of_scale_and_capital_specificity.pdf)>.

114 Daniel de Ugarte, *Phyles: Economic Democracy in XXI<sup>st</sup> Century* <<http://deugarte.com/gomi/phyles.pdf>>; “Phyles,” P2P Foundation Wiki <<http://p2pfoundation.net/Phyles>>. John Robb, “EaaS (ECONOMY as a SERVICE),” *Global Guerrillas*, November 7, 2010 <<http://globalguerrillas.typepad.com/globalguerrillas/2010/11/eaas-economy-as-a-service.html>>. Phyles and Economy as a Software Service are discussed in Chapter Two of my online draft manuscript *Open Source Government*, under the subsection “Legibility, Reputational and Verification Mechanisms” <<http://dl.dropbox.com/u/4116166/Open%20Source%20Government/2.%20%20Open%20Source%20Regulatory%20State.pdf>>.

markets, the transaction costs of suppressing knockoffs will skyrocket—at the very same time the abundance economy is destroying the state's tax base for enforcement.

Other affordable technologies for small-scale household production, coupled with informal exchange via barter network, offer new potential for home-based, low-overhead microenterprises—e. g. home-based microbakeries using an ordinary kitchen oven, cab services using a family car, etc.—to evade local zoning, licensing, “health” and “safety” codes.

The transaction costs of overcoming opacity and illegibility, and enforcing obedience in an atmosphere of non-compliance, function as a tax, making some “spaces” (i.e. sectors or areas of life) more costly to govern than they're worth. Scott argues that for a ruler, the relevant metric is not GDP but “State-Accessible Product” (SAP). The greater an area's distance from the center, the higher the concentration of value or value-to-weight ratio a unit of output must have to be worth appropriating and carrying off to the capital. The further from the center an area is, the larger the share of its economy will cost more than it's worth to exploit.<sup>115</sup> It's somewhat analogous to the concept of EROEI in the field of energy; if the purpose of the state is to extract a surplus on behalf of a privileged class, the “governance tax” reduces the amount of surplus which is extracted per input of enforcement effort.

Anything that reduces the “EROEI” of the system, the size of the net surplus which the state is able to extract, will cause it to shrink to a smaller equilibrium scale of activity. The more costly enforcement is and the smaller the revenues the state (and its corporate allies, as in the case of enforcing digital copyright law or suppressing shanzhai knockoffs) can obtain per unit of enforcement effort, the hollower the state capitalist or corporatist system becomes and the more areas of life it retreats from as not worth the cost of governing.

Our strategy, in attacking the state's enforcement capabilities as the weak link of state capitalism, should be to create metaphoric nonstate spaces like darknets, as well as forms of physical production which are so small-scale and dispersed as to present serious surveillance and enforcement costs, and thereby to shift the correlation of forces between nonstate and state “spaces.”

From our standpoint, technologies of liberation reduce the cost and inconvenience of evasion. In Scott's work, for people in state spaces the more labor they have sunk into their fields over generations, the more reluctant they are to leave in order to escape the state's taxation.<sup>116</sup> In Zomia, “not being governed” frequently entailed adopting “subsistence strategies aimed to escape detection and maximize their physical mobility should they be forced to flee again at a moment's notice.” This could involve a real sacrifice in quality of life, in terms of the categories of goods which could not be produced, the categories of food that were unavailable, etc.<sup>117</sup> Historically, when not being governed required spatial distance and inaccessibility, creating a nonstate space meant a choice of technologies of living based on the need to be less legible. In many cases this translated into “abandoning fixed cultivation to take up shifting agriculture and foraging,” the deliberate choice of a more “primitive” lifestyle for the sake of autonomy, and the conscious choice of less productive methods of cultivation and a smaller surplus.<sup>118</sup>

To put this in Western economic terms, liberatory technologies now offer the potential to eliminate the necessity for this tradeoff between autonomy and standard of living. We want to render ourselves as ungovernable as the people of Zomia, without the inconvenience of living in the mountains and

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<sup>115</sup> Scott, *The Art of Not Being Governed*, p. 73.

<sup>116</sup> *Ibid.*, p. 65.

<sup>117</sup> *Ibid.*, p. 181.

<sup>118</sup> *Ibid.*, p. 188.

swamps or living mostly on root crops. The more areas of economic life that are rendered illegible to the state through liberatory technology, the less the differential in standard of living between state and nonstate areas.

Scott names mobility as his “second principle of evasion.” Mobility, “the ability to change location,” renders a society inaccessible through the ability to “shift to a more remote and advantageous site.” It is “a relatively frictionless ability to shift location....”<sup>119</sup> In terms of our analogous nonspatial “nonstate spaces” in Western societies, this is mirrored by the agility, resilience and flexibility of networks.

Unlike the corporation and state, which require the laborious processing of information and proposals through a bureaucratic hierarchy, network organization facilitates the near-instantaneous adoption of new information and technique wherever it is useful. Networks eliminate the administrative and other transaction costs involved in getting ideas to those who can benefit from them.

Many open-source thinkers, going back to Eric Raymond in *The Cathedral and the Bazaar*, have pointed out the nature of open-source methods and network organization as force-multipliers.<sup>120</sup> Open-source design communities pick up the innovations of individual members and quickly distribute them wherever they are needed, with maximum economy. This is a feature of the stigmergic organization that we considered earlier.

This principle is at work in the file-sharing movement, as described by Cory Doctorow. Individual innovations immediately become part of the common pool of intelligence, universally available to all.

Raise your hand if you're thinking something like, “But DRM doesn't have to be proof against smart attackers, only average individuals!...”

...I don't have to be a cracker to break your DRM. I only need to know how to search Google, or Kazaa, or any of the other general-purpose search tools for the cleartext that someone smarter than me has extracted.<sup>121</sup>

It used to be that copy-prevention companies' strategies went like this: “We'll make it easier to buy a copy of this data than to make an unauthorized copy of it. That way, only the *uber*-nerds and the cash-poor/time rich classes will bother to copy instead of buy.” But every time a PC is connected to the Internet and its owner is taught to use search tools like Google (or The Pirate Bay), a third option appears: you can just download a copy from the Internet.....<sup>122</sup>

Bruce Schneier describes it as automation lowering the marginal cost of sharing innovations.

Automation also allows class breaks to propagate quickly because less expertise is required. The first attacker is the smart one; everyone else can blindly follow his instructions. Take cable TV fraud as an example. None of the cable TV companies would care much if someone built a cable receiver in his basement and illicitly watched cable television. Building that device requires time, skill, and some money. Few people could do it. Even if someone built a few and sold them, it wouldn't have much impact.

But what if that person figured out a class break against cable television? And what if the class break

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119 *Ibid.*, p. 184.

120 Eric S. Raymond, *The Cathedral and the Bazaar* <<http://catb.org/~esr/writings/homesteading>>.

121 Doctorow, “Microsoft DRM Research Talk,” in *Content: Selected Essays on Technology, Creativity, Copyright, and the Future of the Future* (San Francisco: Tachyon Publications, 2008), pp. 7-8.

122 Doctorow, “It's the Information Economy, Stupid,” in *Ibid.*, p. 60.



required someone to push some buttons on a cable box in a certain sequence to get free cable TV? If that person published those instructions on the Internet, it could increase the number of nonpaying customers by millions and significantly affect the company's profitability.<sup>123</sup>

Open-source insurgencies or fourth generation warfare organizations, as described by John Robb, are quickly adaptable because any individual contribution, or any information adopted by a single cell (e.g. an improved IED design or placement strategy developed by a cell in Al Qaeda Iraq), quickly becomes available to the entire network without any administrative intermediation.

The decentralized, and seemingly chaotic guerrilla war in Iraq demonstrates a pattern that will likely serve as a model for next generation terrorists. This pattern shows a level of learning, activity, and success similar to what we see in the open source software community. I call this pattern the bazaar. The bazaar solves the problem: how do small, potentially antagonistic networks combine to conduct war? Lessons from Eric Raymond's "The Cathedral and the Bazaar" provides a starting point for further analysis. Here are the factors that apply (from the perspective of the guerrillas):

- \* Release early and often. Try new forms of attacks against different types of targets early and often. Don't wait for a perfect plan.
- \* Given a large enough pool of co-developers, any difficult problem will be seen as obvious by someone, and solved. Eventually some participant of the bazaar will find a way to disrupt a particularly difficult target. All you need to do is copy the process they used.
- \* Your co-developers (beta-testers) are your most valuable resource. The other guerrilla networks in the bazaar are your most valuable allies. They will innovate on your plans, swarm on weaknesses you identify, and protect you by creating system noise.<sup>124</sup>

The rapid innovation in Improvised Explosive Devices (IEDs) achieved by open-source warfare networks in Iraq and Afghanistan is a case in point.<sup>125</sup> Any innovation developed by a particular cell of Al Qaeda Iraq, if successful, is quickly adopted by the entire network.

In the file-sharing movement, it's not enough that DRM be sufficiently hard to circumvent to deter the average user. The cracks developed by geeks for circumventing DRM quickly becomes part of the common pool of resources. CDs and DVDs which are cracked by a geek today are freely available on a torrent site for download tomorrow by any average user who can use Google.

Consider this practical example of the agility and responsiveness of the Bazaar in operation, from Thomas Knapp:

During the G-20 summit in the Pittsburgh area last week, police arrested two activists. These particular activists weren't breaking windows. They weren't setting cars on fire. They weren't even parading around brandishing giant puppets and chanting anti-capitalist slogans.

In fact, they were in a hotel room in Kennedy, Pennsylvania, miles away from "unsanctioned" protests in Lawrenceville ... listening to the radio and availing themselves of the hotel's Wi-Fi connection. Now they stand accused of "hindering apprehension, criminal use of a communication facility and possessing

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123 Schneier, *Beyond Fear*, p. 95.

124 John Robb, "THE BAZAAR'S OPEN SOURCE PLATFORM," *Global Guerrillas*, Sept3ember 24, 2004 <[http://globalguerrillas.typepad.com/globalguerrillas/2004/09/bazaar\\_dynamics.html](http://globalguerrillas.typepad.com/globalguerrillas/2004/09/bazaar_dynamics.html)>.

125 Adam Higginbotham, "U.S. Military Learns to Fight Deadliest Weapons," *Wired*, July 28, 2010 <[http://www.wired.com/magazine/2010/07/ff\\_roadside\\_bombs/all/1](http://www.wired.com/magazine/2010/07/ff_roadside_bombs/all/1)>.

instruments of crime.”

The radio they were listening to was (allegedly) a police scanner. They were (allegedly) using their Internet access to broadcast bulletins about police movements in Lawrenceville to activists at the protests, using Twitter....

Government as we know it is engaged in a battle for its very survival, and that battle, as I've mentioned before, looks in key respects a lot like the Recording Industry Association of America's fight with peer-to-peer "file-sharing" networks. The RIAA can — and is — cracking down as hard as it can, in every way it can think of, but it is losing the fight and there's simply no plausible scenario under which it can expect to emerge victorious. The recording industry as we know it will change its business model, or it will go under.

The Pittsburgh Two are wonderfully analogous to the P2P folks. Their arrest boils down, for all intents and purposes, to a public debugging session. Pittsburgh Two 2.0 will set their monitoring stations further from the action (across jurisdictional lines), use a relay system to get the information to those stations in a timely manner, then retransmit that information using offshore and anonymizing proxies. The cops won't get within 50 miles of finding Pittsburgh Two 2.0, and anything they do to counter its efficacy will be countered in subsequent versions.<sup>126</sup>

Two other fairly recent examples are the use of Twitter in Maricopa County to alert the Latino community to raids by Sheriff Joe Arpaio, and to alert drivers to sobriety checkpoints.<sup>127</sup>

Robb uses the term "individual superempowerment" to describe the radical shift in the balance of capabilities between one and a few individuals, and traditional large hierarchical organizations. The desktop revolution has had an enormous effect in blurring the distinction in quality between work done within large organizations and that done by individuals at home. The individual has access to a wide array of infrastructures formerly available only through large organizations. As Felix Stalder writes:

There is a vast amount of infrastructure—transportation, communication, financing, production—openly available that, until recently, was only accessible to very large organisations. It now takes relatively little—a few dedicated, knowledgeable people—to connect these pieces into a powerful platform from which to act.<sup>128</sup>

The result, in Robb's words: "the ability of one individual to do what it took a large company or government agency to do a couple of decades ago..."<sup>129</sup> Open-source warfare "enables individuals and groups to take on much larger foes," as

the power of individuals and small groups is amplified via access to open networks (that grow in value according to Metcalfe's law = Internet growth + social networks running in parallel) and off the shelf technology (that grows rapidly in power due to the onslaught of Moore's law and the market's relentless productization).<sup>130</sup>

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126 Thomas L. Knapp, "The Revolution Will Not Be Tweeted," *Center for a Stateless Society*, October 5, 2009 <<http://c4ss.org/content/1179>>.

127 Katherine Mangu-Ward, "The Sheriff is Coming! The Sheriff is Coming!" *Reason Hit & Run*, January 6, 2010 <<http://reason.com/blog/2010/01/06/the-sheriff-is-coming-the-sher>>; Brad Branan, "Police: Twitter used to avoid DUI checkpoints," *Seattle Times*, December 28, 2009 <[http://seattletimes.nwsourc.com/html/nationworld/2010618380\\_twitterdui29.html](http://seattletimes.nwsourc.com/html/nationworld/2010618380_twitterdui29.html)>.

128 Felix Stalder, "Leaks, Whistle-Blowers and the Networked News Ecology," *n.n.*, November 6, 2010 <<http://remix.openflows.com/node/149>>.

129 John Robb, "Julian Assange," *Global Guerrillas*, August 15, 2010 <<http://globalguerrillas.typepad.com/globalguerrillas/2010/08/global-guerrilla-julian-assange.html>>.

130 Robb, "Open Warfare and Replication," *Global Guerrillas*, September 20, 2010 <<http://globalguerrillas.typepad.com/globalguerrillas/2010/09/open-warfare-and-augmentation.html>>.

The economies of agility are analogous to the principle in the military realm—in Saxe's words—that victory is about legs rather than arms. Robb's open-source insurgencies are a form of asymmetric warfare—and it's called “asymmetric” for a reason. One side is a lot bigger than the other, and a lot stronger by conventional metrics of military strength. When Goliath outnumbers David ten-to-one, and David fights by Goliath's conventional tactics, Goliath generally wins about seven times in ten. When David adopts unconventional techniques that target Goliath's weaknesses, David wins six times in ten. And the Bazaar is an incomparable venue for facilitating the rapid, widespread sharing of knowledge about Goliath's weaknesses and the adoption of the most effective tactics for targeting those weaknesses.<sup>131</sup>

Network organization and open-source design obtain resilience from redundancy and modularity. Modular design is a way of extracting more benefit from each R&D dollar by maximizing use of a given innovation across an entire product ecology, and at the same time building redundancy into the system through interchangeable parts.<sup>132</sup>

As the saying goes, the Internet treats censorship as damage and routes around it. Many-to-many networks are able to route around any particular node which is shut down. When Napster was shut down its successors responded by eliminating their dependence on central servers. Seizure of Wikileaks' domain names resulted in the global proliferation of mirror sites and defiant direct linking to their numbered IP addresses.

We already discussed the alternative economy's more efficient extraction of outputs from inputs, as a matter of sheer necessity. This, coupled with greater speed and agility, is a tremendous force multiplier.

The alternative economy generally makes better and more efficient use of the technologies which the state capitalist economy developed for its own purposes. [Hunting on modular design] An incredible amount of innovation results from mashups of cheap off-the-shelf technologies which can modularized and mixed-and-matched for any purpose. According to Cory Doctorow,

It's not that every invention has been invented, but we sure have a lot of basic parts just hanging around, waiting to be configured. Pick up a \$200 FPGA chip-toaster and you can burn your own microchips. Drag and drop some code-objects around and you can generate some software to run on it.<sup>133</sup>

Murray Bookchin, in *Post-Scarcity Anarchism*, anticipated the same principle almost forty years ago:

Suppose, fifty years ago, that someone had proposed a device which would cause an automobile to follow a white line down the middle of the road, automatically and even if the driver fell asleep.... He would have been laughed at, and his idea would have been called preposterous.... But suppose someone called for such a device today, and was willing to pay for it, leaving aside the question of whether it would actually be of any genuine use whatever. Any number of concerns would stand ready to contract and build it. No real invention

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131 Malcolm Gladwell, “How David Beats Goliath,” *The New Yorker*, May 11, 2009 <[http://www.newyorker.com/reporting/2009/05/11/090511fa\\_fact\\_gladwell?currentPage=all](http://www.newyorker.com/reporting/2009/05/11/090511fa_fact_gladwell?currentPage=all)>.

132 Jonathan Dugan, for example, stresses Redundancy and Modularity as two of the central principles of resilience. Chris Pinchen, “Resilience: Patterns for thriving in an uncertain world,” *P2P Foundation Blog*, April 17, 2010. <<http://blog.p2pfoundation.net/resilience-patterns-for-thriving-in-an-uncertain-world/2010/04/17>>.

133 Cory Doctorow, “Cheap Facts and the Plausible Premise,” *Locus Online*, July 5, 2009 <<http://www.locusmag.com/Perspectives/2009/07/cory-doctorow-cheap-facts-and-plausible.html>>.

would be required. There are thousands of young men in the country to whom the design of such a device would be a pleasure. They would simply take off the shelf some photocells, thermionic tubes, servo-mechanisms, relays, and, if urged, they would build what they call a breadboard model, and it would work. The point is that the presence of a host of versatile, reliable, cheap gadgets, and the presence of men who understand all their cheap ways, has rendered the building of automatic devices almost straightforward and routine. It is no longer a question of whether they can be built, it is a question of whether they are worth building.<sup>134</sup>

**Scott versus the Market.** In the Introduction to *Seeing Like a State*, Scott expresses some concern lest his book be seen, in light of the collapse of the Soviet bloc and the disappearance of state socialism and state planning as a viable ideology, as largely irrelevant. He points out that “large-scale capitalism is just as much an agency of homogenization, uniformity, grids, and heroic simplification as the state is,” and implicitly equates Hayek's “politically unfettered market coordination” to “large-scale capitalism and market-driven standardization.”<sup>135</sup>

Scott freely admits that some destruction of *mētis* is desirable, resulting from technological progress. Aside from antiquarians with a purely historical interest, nobody laments the disappearance of skill at cleaning laundry with rocks or a washboard after washing machines became available—least of all those who had to do it the old way. But Scott denies that all destruction of *mētis* is of this type. “The destruction of *mētis* and its replacement by standardized formulas legible only from the center is virtually inscribed in the activities of both the state and large-scale bureaucratic capitalism.”<sup>136</sup> And as suggested earlier, in his use of Marglin's work on deskilling, the destruction of *mētis* is driven by the need to make the corporation internally more legible and controllable, and hence to make the product of labor more appropriable.

The problem is that Scott makes little distinction between “large-scale bureaucratic capitalism,” on the one hand, and the market as such.

He comments pointedly on the “curiously resounding unanimity on this point [i.e. calculation problems of socialist central planning], *and on no others*, between such right-wing critics of the command economy as Friedrich Hayek and such left-wing critics of Communist authoritarianism as Prince Peter Kropotkin” (emphasis mine).<sup>137</sup> The “no others,” presumably, is a jab at Hayek's obliviousness to a similar failure of planning to account for uncertainty and complexity within “bureaucratic state capitalism.” Even when he Hayek's critique of state central planning coincides with Scott's own, the latter's concession that Hayek was correct—even so far as he went—is grudging. Having described, with apparent—if grudging—approval, the insight of “liberal political economy” that “the economy was far too complex for it ever to be managed in detail by a hierarchical administration,”<sup>138</sup> he snarks in an endnote that Hayek was “the darling of those opposed to postwar planning and the welfare state.”<sup>139</sup>

Interestingly, Brad DeLong, in a review of *Seeing Like a State*, frames the alternatives in almost exactly the same way as Scott (i.e., that “market-driven processes are as harmful to human freedom as

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134 Murray Bookchin, “Toward a Liberatory Technology,” in *Post-Scarcity Anarchism* (Berkeley, Calif.: The Ramparts Press, 1971), pp. 49-50.

135 Scott, *The Art of Not Being Governed*, pp. 7-8.

136 *Ibid.*, p. 335.

137 *Ibid.*, p. 344.

138 *Ibid.*, p. 102.

139 *Ibid.*, p. 381n51.

state-led high modernism”). Only, for DeLong “market-driven processes,” while essentially equivalent to corporate capitalism, are a *good* thing.

How can market-driven standardization have the same consequences as the commands of architects who have never lived in the cities they design, or as the collectivization of Soviet agriculture, or as the forced “villagization” of Tanzanian peasants?

It is unclear.

“...[W]hen we look around at modern large-scale bureaucratic capitalism,” he goes on, “we see what Scott calls ‘metis’ everywhere.”<sup>140</sup>

What’s notable here is that DeLong agrees with Scott that “rubber tomatoes” are an example of “market-driven standardization,” and that what Scott calls “large-scale bureaucratic capitalism” is essentially the market. The difference is that DeLong treats them as a positive example of the spontaneous order of the market and sees such large-scale bureaucratic capitalism as *mētis*-friendly. People buy rubber tomatoes, he says, because they’re cheaper—they require less labor to grow.

It never occurs to either of them that “large-scale bureaucratic capitalism” and the pathologies it creates—such as the rubber tomato—have about as much to do with genuine markets as did Lenin’s high-modernist state. Whatever you think of massive highway subsidies that reduce the relative cost of shipping produce by long-haul trucks, or of large-scale access to subsidized irrigation water, it’s hard to dispute that they shift the balance from local community-supported agriculture and truck-farming to large-scale agribusiness. And that’s not exactly a “free market” phenomenon.

And Scott in particular neglects the potential for applying free market analysis to a critique of corporate capitalism—i.e., “using the master’s tools to tear down the master’s house”—and the actual existence of a diverse strand of socialist or anticapitalist versions of free market analysis. Genuine free market concepts offer an enormous potential for recuperation as weapons against neoliberalism and corporate domination. There is an important body of work, in the broad spectrum that includes the market-friendly wing of classical socialism and the left wing of classical liberalism, that treats artificial scarcity, artificial property rights, and privilege as the fundamental cause of economic exploitation. Such thinkers include Thomas Hodgskin, who is conventionally ranked among the Ricardian Socialists but was an influential figure in early classical liberalism;<sup>141</sup> Henry George, with his theories of land rent; the early, left-wing Herbert Spencer (whose mentors included Hodgskin); Boston anarchists like Benjamin Tucker (he of the Four Monopolies);<sup>142</sup> the Georgist Franz Oppenheimer (responsible for the distinction between the “economic means” and “political means” to wealth);<sup>143</sup> thinkers like Albert Jay Nock and Ralph Borsodi,<sup>144</sup> who developed the economic ideas of George and Oppenheimer in the context of American industrial capitalism; and the individualist anarchist R.A. Wilson, who saw privilege as the distinguishing factor between capitalism and truly free markets.

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140 J. Bradford DeLong, “Forests, Trees, and Intellectual Roots” (created March 15, 1999, last modified March 18, 1999) <[http://www.j-bradford-delong.net/econ\\_articles/reviews/seeing\\_like\\_a\\_state.html](http://www.j-bradford-delong.net/econ_articles/reviews/seeing_like_a_state.html)>.

141 Thomas Hodgskin. *The Natural and Artificial Right of Property Contrasted. A Series of Letters, addressed without permission to H. Brougham, Esq. M.P. F.R.S.* (London: B. Steil, 1832); *Popular Political Economy: Four Lectures Delivered at the London Mechanics' Institution* (London: Printed for Charles and William Tait, Edinburgh, 1827).

142 Benjamin Tucker, “State Socialism and Anarchism: How Far They Agree, and Wherein They Differ” (1888). Reproduced at Molinari Institute website <<http://praxeology.net/BT-SSA.htm>>.

143 Franz Oppenheimer, “I. The Genesis of the State,” in *The State* (New York: Free Life Editions, 1975). Reproduced in Online-Bibliothek at Franz-Oppenheimer.de <<http://www.franz-oppenheimer.de/state1.htm>>.

144 Ralph Borsodi. *The Distribution Age* (New York and London: D. Appleton and Company, 1929).

**Conclusion.** We've seen how Scott's major concepts—legibility and opacity, *mētis*, state and nonstate spaces—dovetail and relate to one another. They all reflect a common underlying theme: the conflicts of interest and social contradictions created by authority.

Power, or authority, creates a fundamental conflict of interest. Just as the hidden knowledge and hidden action problem—the information and agency problems of a corporate hierarchy—result from the conflict of interest created by power, the state's authority creates a conflict of interest in which the citizenry has an interest in rendering itself as opaque as possible. Power, whether in a corporate hierarchy or a society ruled by a state, is a way of externalizing costs on others and appropriating advantages for oneself.

The state and the ruling class that controls it have an interest in maximizing their extraction of rents and taxes, even at the expense of making society less productive in an absolute sense, just as the management of a corporation has an interest in maximizing its salaries and perks at the expense of overall productivity. Those in a position of authority, in both cases, attempt to structure the institution or society as a whole so as to maximize its legibility and the absolute net amount of wealth extracted—even at the cost of suboptimal efficiency. And the people of a state-ruled society, like the production workers in a corporation, do their best to render themselves opaque to their superiors and reduce their vulnerability to wealth extraction—even at the cost of using less productive techniques.

In every case, power distorts the flow of information and the incentive to produce as efficiently as possible. The existence of people in authority who exist in a zero-sum relationship economically with those from whom they extract rents, whether in the state or in the hierarchy that governs an institution, creates an incentive for those below to minimize their legibility (and hence the extractability of rents) to those above. It creates an incentive to structure their productive activity so as to minimize the extractability of rents, even at the cost of producing less efficiently. In a zero-sum relationship, the producers—just as much as the parasites—have an incentive to maximize the size of their share of the pie at the expense of the size of the pie as a whole.

In short authority, far from being the remedy for the war of all against all, is its cause. And in so doing, it destroys rationality, knowledge, and cooperation.