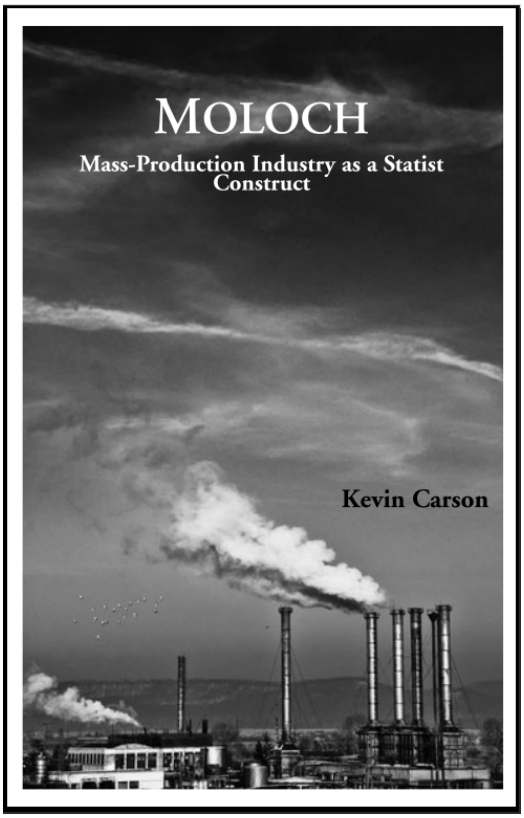
MOLOCH: Mass-Production Industry as a Statist Construct

Kevin Carson



July 2009

Contents

I. The Origins of Sloanist Mass Production **3**
A Fork in the Road . . . 3
A Wrong Turn . . . 5
The Role of the State in Tipping the Balance . . . 7

II. The Institutional Imperatives of Sloanism **12**
Economies of Scale, Economies of Speed, and Push Distribution . . . 14
Microeconomic Institutional Forms for Providing Stability . . . 21
Mass Consumption to Absorb Surplus . . . 23
Political Capitalism . . . 29
State Action to Absorb Surplus: Imperialism . . . 33
State Action to Absorb Surplus: Creation of New Industries . . . 35

III. Conclusion **43**

I. The Origins of Sloanist Mass Production

A Fork in the Road

The centralization of production in the Industrial Revolution, and the concentration of machine production in large factories, resulted mainly from the need to economize on steam power. According to Lewis Mumford,

> [Gigantism] was… abetted by the difficulties of economic power production with small steam engines: so the engineers tended to crowd as many productive units as possible on the same shaft, or within the range of steam pressure through pipes limited enough to avoid excessive condensation losses. The driving of the individual machines in the plant from a single shaft made it necessary to spot the machines along the shafting, without close adjustment to the topographical needs of the work itself….[1]

Steam power meant that machinery had to be concentrated in one place, in order to get the maximum use out of a single prime mover. According to William Waddell and Norman Bodek the typical factory, through the early 20th century, had machines lined up in long rows, "a forest of leather belts one arising from each machine, looping around a long metal shaft running the length of the shop," all dependent on the factory's central power plant.[2]

Electrical power put an end to this imperative. The invention of the prerequisites for electrical power — the dynamo, the alternator, the storage cell, the electric motor — and the development of small-scale electrically powered production machinery suitable for the small shop and power tools suitable for household production were, in Mumford's schema of technological history, what separated the neotechnic era from the preceding paleotechnic era — the era of coal, steam and Dark Satanic Mills.

If the paleotechnic had been a "coal-and-iron complex," in Mumford's terminology, the neotechic was an "electricity-and-alloy complex."[3] The defining features of the neotechnic were the decentralized production made possible by electricity, and the light weight and ephemeralization (to borrow a term from Buckminster Fuller) made possible by the light metals.

Electricity made possible the use of virtually any form of energy, indirectly, as a prime mover for production: combustibles of all kinds, sun, wind, water, even temperature differentials.[4] As it became possible to run free-standing machines with small electric motors, rather than running them off a single drive shaft, the central rationale for the factory system disappeared.

---

[1] Lewis Mumford, *Technics and Civilization* (New York: Harcourt, Brace, and Company, 1934), p. 224.

[2] *William H. Waddell and Norman Bodek, Rebirth of American Industry: A Study of Lean Management* (Vancouver, WA: PCS Press, 2005), pp. 119–121.

[3] Mumford, *Technics and Civilization*, p. 110.

[4] Ibid., pp. 214, 221.

The decentralizing potential of small-scale, electrically powered machinery was a common theme among many writers from the late 19th century on. That, and the merging of town and village it made possible, were the central themes of Kropotkin's *Fields, Factories and Workshops*. With electricity "distributed in the houses for bringing into motion small motors of from one-quarter to twelve horse-power," it was possible to produce in small workshops and even homes. Freeing machinery up from a single prime mover ended all limits on the location of machine production. The primary justification for economy of scale, as it existed in the nineteenth century — the need to economize on horsepower — vanished when the distribution of electrical power eliminated reliance on a single source of power.[5]

The introduction of electrical power put small-scale machine production on an equal footing with machine production in the large factory.

> The introduction of the electric motor worked a transformation within the plant itself. For the electric motor created flexibility in the design of the factory: not merely could individual units be placed where they were wanted, and not merely could they be designed for the particular work needed: but the direct drive, which increased the efficiency of the motor, also made it possible to alter the layout of the plant itself as needed. The installation of motors removed the belts which cut off light and lowered efficiency, and opened the way for the rearrangement of machines in functional units without regard for the shafts and aisles of the old-fashioned factory: each unit could work at its own rate of speed, and start and stop to suit its own needs, without power losses through the operation of the plant as a whole.
>
> ...[T]he efficiency of small units worked by electric motors utilizing current either from local turbines or from a central power plant has given small-scale industry a new lease on life: on a purely technical basis it can, for the first time since the introduction of the steam engine, compete on even terms with the larger unit. Even domestic production has become possible again through the use of electricity: for if the domestic grain grinder is less efficient, from a purely mechanical standpoint, than the huge flour mills of Minneapolis, it permits a nicer timing of production to need, so that it is no longer necessary to consume bolted white flours because whole wheat flours deteriorate more quickly and spoil if they are ground too long before they are sold and used. To be efficient, the small plant need not remain in continuous operation nor need it produce gigantic quantities of foodstuffs and goods for a distant market: it can respond to local demand and supply; it can operate on an irregular basis, since the overhead for permanent staff and equipment is proportionately smaller; it can take advantage of smaller wastes of time and energy in transportation, and by face to face contact it can cut out the inevitable red-tape of even efficient large organizations.[6]

Mumford's comments on flour milling also anticipated the significance of small-scale powered machinery in making possible what later became known as "lean production."

[5] Peter Kropotkin, *Fields, Factories and Workshops: or Industry Combined with Agriculture and Brain Work with Manual Work* (New York: Greenwood Press, Publishers, 1968 [1898]), pp. 154., 179–180.

[6] Mumford, *Technics and Civilization*, pp. 224–225.

Neotechnic methods, which could be reproduced anywhere, made possible a society where "the advantages of modern industry [would] be spread, not by transport — as in the nineteenth century — but by local development." The spread of technical knowledge and standardized methods would make transportation far less important.[7]

Mumford also described, in quite Kropotkinian terms, the "marriage of town and country, of industry and agriculture," resulting from the application of further refined neotechnic horticultural techniques and the decentralization of manufacturing in the neotechnic age.[8]

A Wrong Turn

The natural course of things, according to Borsodi, was that the "process of shifting production from the home and neighborhood to the distantly located factory" would have peaked with "the perfection of the reciprocating steam-engine," and then leveled off until the invention of the electric motor reversed the process and enabled families and local producers to utilize the powered machinery previously restricted to the factory.[9] But it didn't happen that way.

Michael Piore and Charles Sabel described a fork in the road, based on which of two possible alternative ways was chosen for incorporating electrical power into manufacturing. The first, more in keeping with the unique potential of the new technology, was to integrate electrically powered machinery into small-scale craft production: "a combination of craft skill and flexible equipment," or "mechanized craft production."

> Its foundation was the idea that machines and processes could augment the craftsman's skill, allowing the worker to embody his or her knowledge in ever more varied products: the more flexible the machine, the more widely applicable the process, the more it expanded the craftsman's capacity for productive expression.

The other was to adapt electrical machinery to the preexisting framework of paleotechnic industrial organization — in other words, what was to become twentieth century mass-production industry. This latter alternative entailed breaking the production process down into its separate steps, and then substituting extremely expensive and specialized machinery for human skill. "The more specialized the machine — the faster it worked and the less specialized its operator needed to be — the greater its contribution to cutting production costs.[10]

The first path, unfortunately, was for the most part the one not taken; it has been followed only in isolated enclaves, particularly in the assorted industrial districts in Europe. The resurgence of relocalized, networked production in the latter days of Sloanist mass production — most notably in Toyota's network of suppliers, and in Emilia-Romagna and the rest of the "Third Italy" — was based on a resurrected version of the first path.

The second, mass-production model became the dominant form of industrial organization. Neotechnic advances like electrically powered machinery, which offered the potential for decentralized production and were ideally suited to a fundamentally different kind of society, have so far been integrated into the framework of mass production industry.

---

[7] Ibid., pp. 388–389.

[8] Ibid., pp. 258–259.

[9] Ralph Borsodi, *Prosperity and Security* (New York and London: Harper & Brothers, 1938), p. 182.

[10] Michael J. Piore and Charles F. Sabel, *The Second Industrial Divide: Possibilities for Prosperity* (New York: HarperCollins, 1984), pp. 4–6, 19.

Mumford argued that the neotechnic advances, rather than being used to their full potential as the basis for a new kind of economy, were instead incorporated into a paleotechnic framework. Neotechnic had not "displaced the older regime" with "speed and decisiveness," and had not yet "developed its own form and organization." Mumford used Spengler's idea of the "cultural pseudomorph" to illustrate the process: "…in geology… a rock may retain its structure after certain elements have been leached out of it and been replaced by an entirely different kind of material. Since the apparent structure of the old rock remains, the new product is called a pseudomorph."

> A similar metamorphosis is possible in culture: new forces, activities, institutions, instead of crystallizing independently into their own appropriate forms, may creep into the structure of an existing civilization…. As a civilization, we have not yet entered the neotechnic phase…. [W]e are still living, in Matthew Arnold's words, between two worlds, one dead, the other powerless to be born.[11]
>
> Emerging from the paleotechnic order, the neotechnic institutions have nevertheless in many cases compromised with it, given way before it, lost their identity by reason of the weight of vested interests that continued to support the obsolete instruments and the anti-social aims of the middle industrial era.
>
> Paleotechnic ideals still largely dominate the industry and the politics of the Western World…. To the extent that neotechnic industry has failed to transform the coal-and-iron complex, to the extent that it has failed to secure an adequate foundation for its humaner technology in the community as a whole, to the extent that it has lent its heightened powers to the miner, the financier, the militarist, the possibilities of disruption and chaos have increased.[12]
>
> True: the industrial world produced during the nineteenth century is either technologically obsolete or socially dead. But unfortunately, its maggoty corpse has produced organisms which in turn may debilitate or possibly kill the new order that should take its place: perhaps leave it a hopeless cripple.[13]
>
> The new machines followed, not their own pattern, but the pattern laid down by previous economic and technical structures.[14]
>
> The fact is that in the great industrial areas of Western Europe and America…, the paleotechnic phase is still intact and all its essential characteristics are uppermost, even though many of the machines it uses are neotechnic ones or have been made over — as in the electrification of railroad systems — by neotechnic methods. In this persistence of paleotechnics… we continue to worship the twin deities, Mammon and Moloch….[15]
>
> We have merely used our new machines and energies to further processes which were begun under the auspices of capitalist and military enterprise: we have not yet

[11] Mumford, *Technics and Civilization*, p. 265.
[12] Ibid., pp. 212–13.
[13] Ibid., p. 215.
[14] Ibid., p. 236.
[15] Ibid., p. 264.

> utilized them to conquer these forms of enterprise and subdue them to more vital and humane purposes….[16]
>
> Not alone have the older forms of technics served to constrain the development of the neotechnic economy: but the new inventions and devices have been frequently used to maintain, renew, stabilize the structure of the old social order….[17]
>
> The present pseudomorph is, socially and technically, third-rate. It has only a fraction of the efficiency that the neotechnic civilization as a whole may possess, provided it finally produces its own institutional forms and controls and directions and patterns. At present, instead of finding these forms, we have applied our skill and invention in such a manner as to give a fresh lease of life to many of the obsolete capitalist and militarist institutions of the older period. Paleotechnic purposes with neotechnic means: that is the most obvious characteristic of the present order.[18]

For Mumford, Soviet Russia was a mirror image of the capitalist West in shoehorning neotechnic technology into a paleotechnic institutional framework. Despite the neotechnic promise of Lenin's "electrification plus Soviet power," the Soviet aesthetic ideal was that of the Western mass-production factory: "the worship of size and crude mechanical power, and the introduction of a militarist technique in both government and industry…."[19]

The Role of the State in Tipping the Balance

How were existing institutional interests able to thwart the revolutionary potential of electrical power, and divert neotechnic technologies into paleotechnic channels? The answer is that the state tipped the balance.

The state played a central role in the triumph of mass-production industry in the United States.

The state's subsidies to long-distance transportation were first and most important. Large manufacturing firms presupposed a national market built on the national railroad network. A high-volume national transportation system was an indispensable prerequisite for big business.

We quoted Mumford's observation above, that the neotechnic revolution offered to substitute industrialization by local economic development for reliance on long-distance transport. State policies, however, tipped the balance in the other direction: they artificially shifted the competitive advantage toward industrial concentration and long-distance distribution.

Alfred Chandler, a leading enthusiast of the large mass-production corporation, himself admitted as much: all the advantages he claimed for mass production presupposed a high-volume, high-speed, high-turnover distribution system on a national scale, without regard to whether the costs of the latter exceeded the alleged benefits of the former..

[16] Ibid., p. 265.
[17] Ibid., p. 266.
[18] Ibid., p. 267.
[19] Ibid., p. 264.

> …[M]odern business enterprise appeared for the first time in history when the volume of economic activities reached a level that made administrative coordination more efficient and more profitable than market coordination.[20]
>
> …[The rise of administrative coordination first] occurred in only a few sectors or industries where technological innovation and market growth created high-speed and high-volume throughput.[21]

William Lazonick, a disciple of Chandler, described the process as obtaining "a large market share in order to transform the high fixed costs into low unit costs…."[22]

The railroad and telegraph, "so essential to high-volume production and distribution," were in Chandler's view what made possible this steady flow of goods through the distribution pipeline.[23]

The primacy of such state-subsidized infrastructure is indicated by the very structure of Chandler's book. He begins with the railroads and telegraph system, themselves the first modern, multi-unit enterprises.[24] And in subsequent chapters, he recounts the successive evolution of a national wholesale network piggybacking on the centralized transportation system, followed by a national retail system, and only then by large-scale manufacturing for the national market. A national long-distance transportation system led to mass distribution, which in turn led to mass production.

> The revolution in the processes of distribution and production rested in large part on the new transportation and communications infrastructure. Modern mass production and mass distribution depend on the speed, volume, and regularity in the movement of goods and messages made possible by the coming of the railroad, telegraph and steamship.[25]
>
> The coming of mass distribution and the rise of the modern mass marketers represented an organizational revolution made possible by the new speed and regularity of transportation and communication.[26]
>
> …The new methods of transportation and communication, by permitting a large and steady flow of raw materials into and finished products out of a factory, made possible unprecedented levels of production. The realization of this potential required, however, the invention of new machinery and processes.[27]

We can't let Chandler get by without challenging his implicit assumption (shared by many technocratic liberals) that paleotechnic industry was more efficient than the decentralized, small-scale production methods of Kropotkin and Borsodi. The possibility never occurred to him that massive state intervention, at the same time as it enabled the revolutions in corporate size and

[20] 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. 8.

[21] Ibid., p. 11.

[22] William Lazonick, *Business Organization and the Myth of the Market Economy* (Cambridge, 1991), pp. 198–226.

[23] Chandler, *The Visible Hand*, p. 79.

[24] Ibid., pp. 79, 96–121.

[25] Ibid., p. 209.

[26] Ibid., p. 235.

[27] Ibid., p. 240.

capital-intensiveness, might also have tipped the balance between alternative forms of production technology.

First, the national railroad system simply never would have come into existence on such a scale, with a centralized network of trunk lines of such capacity, had not the state rammed the project through.

Piore and Sabel describe the enormous capital outlays, and the enormous transaction costs to be overcome, in creating a national railroad system. Not only the startup costs of actual physical capital, but those of securing rights of way, were "huge":

> It is unlikely that railroads would have been built as quickly and extensively as they were but for the availability of massive government subsidies.

Other transaction costs overcome by government, in creating the railroad system, included the revision of tort and contract law (e.g., to exempt common carriers from liability for many kinds of physical damage caused by their operation).[28]

According to Matthew Josephson, for ten years or more before 1861, "the railroads, especially in the West, were 'land companies' which acquired their principal raw material through pure grants in return for their promise to build, and whose directors… did a rushing land business in farm lands and town sites at rising prices."

For example, under the terms of the Pacific Railroad bill, the Union Pacific (which built from the Mississippi westward) was granted twelve million acres of land and $27 million worth of thirty-year government bonds. The Central Pacific (built from the West Coast eastward) received nine million acres and $24 million worth of bonds.[29]

An engineer named Judah, an early enthusiast for what became the Central Pacific, assured potential investors, "that it could be done — if government aid were obtained. For the cost would be terrible." Collis Huntington, the leading promoter for the project, engaged in a sordid combination of strategically placed bribes and appeals to communities' fears of being bypassed, in order to extort grants of "rights of way, terminal and harbor sites, and… stock or bond subscriptions ranging from $150,000 to $1,000,000" from a long string of local governments that included San Francisco, Stockton, and Sacramento.[30]

Absent the land grants and government purchases of railroad bonds, the railroads would likely have developed instead along the initial lines described by Mumford: many local rail networks linking communities into local industrial economies. The regional and national interlinkages of local networks, when they did occur, would have been fewer and smaller in capacity. The comparative costs of local and national distribution, accordingly, would have been quite different. In a nation of hundreds of local industrial economies, with long-distance rail transport much more costly than at present, the natural pattern of industrialization would have been to integrate small-scale power machinery into flexible manufacturing for local markets.

Instead, the state artificially aggregated the demand for manufactured goods into a single national market, and artificially lowered the costs of distribution for those serving that market. In so doing, it drastically increased both market areas and predominant firm size. In effect, it created an artificial ecosystem to which large-scale, mass-production industry was best "adapted."

[28] Piore and Sabel, pp. 66–67.

[29] Matthew Josephson, *The Robber Barons: The Great American Capitalists 1861–1901* (New York: Harcourt, Brace & World, Inc., 1934, 1962), pp. 77–78.

[30] Ibid., pp. 83–84.

The first organisms to adapt themselves to this artificial ecosystem, as recounted by Chandler, were the national wholesale and retail networks, with their dependence on high turnover and dependability. Then, piggybacked on them, were the large manufacturers serving the national market. But they were only "more efficient" in terms of their more efficient exploitation of an artificial environment which itself was characterized by the concealment and externalization of costs. With all the concealed and externalized costs fully subsumed into the price of mass-produced goods, rather than shifted onto society or the taxpayer, it is likely that the overall cost of goods produced flexibly on general-purpose machinery for local markets would have been less than that of mass-produced goods.

Besides almost single-handedly creating the artificially unified and cheap national market without which national manufacturers could not have existed, the railroad companies also actively promoted the concentration of industry through their rate policies. Piore and Sabel argue that "the railroads' policy of favoring their largest customers, through rebates," was a central factor in the rise of the large corporation. Once in place, the railroads — being a high fixed-cost industry — had

> a tremendous incentive to use their capacity in a continuous, stable way. This incentive meant, in turn, that they had an interest in stabilizing the output of their principal customers — an interest that extended to protecting their customers from competitors who were served by other railroads. It is therefore not surprising that the railroads promoted merger schemes that had this effect, nor that they favored the resulting corporations or trusts with rebates.

"Indeed, seen in this light, the rise of the American corporation can be interpreted more as the result of complex alliances among Gilded Age robber barons than as a first solution to the problem of market stabilization faced by a mass-production economy."[31]

Second, the American legal framework was transformed in the mid-nineteenth century in ways that made a more hospitable environment for large corporations operating on a national scale. Among the changes were the rise of a general federal commercial law, general incorporation laws, and the status of the corporation as a person under the Fourteenth Amendment. The functional significance of these changes on a national scale was analogous to the later effect, on a global scale, of the Bretton Woods agencies and the GATT process: a centralized legal order was created, prerequisite for their stable functioning, coextensive with the market areas of large corporations.

The federalization of the legal regime is associated, in particular, with the recognition of a general body of federal commercial law in Swift v. Tyson (1842), and with the application of the Fourteenth Amendment to corporate persons in *Santa Clara County v. Southern Pacific Railroad Company* (1886).

Still another component of the corporate legal revolution was the increased ease, under general incorporation laws, of forming limited liability corporations with permanent entity status apart (severally or collectively) from the shareholders.

Arguably, as Robert Hessen and others have made a case[32], corporate entity status and limited liability against creditors could be achieved entirely through private contract. Whether or not

[31] Piore and Sabel, pp. 66–67.

[32] Robert Hessen, *In Defense of the Corporation* (Stanford, Calif.: Hoover Institution, 1979).

that is so, the government has tilted the playing field decisively toward the corporate form by providing a ready-made and automatic procedure for incorporation. In so doing, it has made the corporation the standard or default form of organization, reduced the transaction costs of establishing it relative to what would prevail were it negotiated entirely from scratch, and thereby reduced the bargaining power of other parties in negotiating the terms on which it operates.

Third, not only did the government indirectly promote the concentration and cartelization of industry through the railroads it had created, but it did so directly through patent law. Mass production, as we will see below, requires large business organizations capable of exercising sufficient power over their external environment to guarantee the consumption of their output. Patents promoted the stable control of markets by oligopoly firms through the control, exchange and pooling of patents.[33]

These were the conditions present at the outset of the mass production revolution, in which the development of the corporate industrial economy began. In the absence of these necessary preconditions, there simply would not have been a single national market or large industrial corporations serving it. Rather than being adopted into the framework of the paleotechnic factory system, the introduction of electrical machinery would likely have followed its natural course and lived up to its unique potential: powered machinery would have been incorporated into small-scale production for local markets, and the national economy would have developed as "a hundred Emilia-Romagnas."

But these were only the necessary conditions at the outset. As we shall see below, the growth of big government continued to parallel that of big business, introducing newer and larger-scale forms of political intervention to address the corporate economy's increasing tendencies toward destabilization, and to insulate the giant corporation from the market forces that would otherwise have destroyed it.

[33] For a detailed account of the role of patents in American industrial history, see my previous C4SS paper, "Intellectual Property: A Libertarian Critique" C4SS Paper No. 2 (Summer 2009). See especially the material quoted from David Noble, *America by Design: Science, Technology, and the Rise of Corporate Capitalism* (New York: Alfred A. Knopf, 1977).

II. The Institutional Imperatives of Sloanism

The mass-production model carried some strong imperatives: first, it required large-batch production, running the enormously expensive product-specific machinery at full capacity, to minimize unit costs; and second, it required social control and predictability to ensure that the output would be consumed, lest growing inventories and glutted markets cause the wheels of industry to stop turning. Here's Lewis Mumford on the principle:

> As mechanical methods have become more productive, the notion has grown up that consumption should become more voracious. In back of this lies an anxiety lest the productivity of the machine create a glut in the market….

This threat is overcome by "the devices of competitive waste, of shoddy workmanship, and of fashion…"[1]

As described by Piore and Sabel, the problem was that product-specific resources could not be reallocated when the market shifted; under such conditions, the cost of market unpredictability was unacceptably high. Markets for the output of mass-production industry had to be guaranteed because highly specialized machinery could not be reallocated to other uses with changes in demand.[2]

> Mass production was therefore profitable only with markets that were large enough to absorb an enormous output of a single, standardized commodity, and stable enough to keep the resources involved in the production of that commodity continuously employed. Markets of this kind… did not occur naturally. They had to be created.[3]
>
> ….It became necessary for firms to organize the market so as to avoid fluctuations in demand and create a stable atmosphere for profitable, long-term investment.[4]

Ralph Borsodi argued that

> "[w]ith serial production, … man has ventured into a topsy-turvy world in which goods that wear out rapidly or that go out of style before they have a chance to be worn out seem more desirable than goods which are durable and endurable. Goods now have to be consumed quickly or discarded quickly so that the buying of goods to take their place will keep the factory busy.[5]

---

[1] Mumford, *Technics and Civilization*, pp. 396–397.
[2] Piore and Sabel, p. 50.
[3] Ibid., p. 49.
[4] Ibid., p. 54.
[5] Ralph Borsodi, *This Ugly Civilization* (Philadelphia: Porcupine Press, 1929, 1975), pp. 64–65.

> With continuous operation of [the factory's] machinery, much larger quantities of its products must be sold to the public. The public buys normally only as fast as it consumes the product. The factory is therefore confronted by a dilemma; if it makes things well, its products will be consumed but slowly, while if it makes them poorly, its products will be consumed rapidly.
>
> It naturally makes its products as poorly as it dares.
>
> It encourages premature depreciation.[6]

(In a free market, of course, firms that made stuff well would have a competitive advantage. But in our unfree market, the state's subsidies to inefficiency cost, "intellectual property" laws, and other restraints on competition insulate firms from the full competitive disadvantage of offering inferior products.)

Because of the imperative for overcapitalized industry to operate at full capacity, on round-the-clock shifts, in order to spread the cost of its expensive machinery over the greatest possible number of units of output, the imperative of guaranteeing consumption of the output was equally great.

This is not just a caricature by the enemies of Sloanist mass-production. It has been a constant theme of the model's most enthusiastic advocates and defenders. They disagree with economic decentralists, not on the systemic requirements of the mass-production model, but only on whether or not it has on the whole been a good thing, and whether there is any viable alternative.

In *The New Industrial State*, Galbraith wrote about the connection between capital intensiveness and the "technostructure's" need for predictability and control:

> ...[Machines and sophisticated technology] require... heavy investment of capital.... They involve, also, a greatly increased lapse of time between any decision to produce and the emergence of a salable product.
>
> From these changes come the need and the opportunity for the large organization. It alone can deploy the requisite capital; it alone can mobilize the requisite skills.... The large commitment of capital and organization well in advance of result requires that there be foresight and also that all feasible steps be taken to insure that what is foreseen will transpire.[7]
>
> ...From the time and capital that must be committed, the inflexibility of this commitment, the needs of large organization and the problems of market performance under conditions of advanced technology, comes the necessity for planning.[8]
>
> The need for planning... arises from the long period of time that elapses during the production process, the high investment that is involved and the inflexible commitment of that investment to the particular task.[9]
>
> Planning exists because [the market] process has ceased to be reliable. Technology, with its companion commitment of time and capital, means that the needs of the

[6] Ibid., p. 126.
[7] John Kenneth Galbraith, *The New Industrial State* (New York: Signet Books, 1967), p. 16
[8] Ibid., p. 28.
[9] Ibid., p. 31.

> consumer must be anticipated—by months or years…. [I]n addition to deciding what the consumer will want and will pay, the firm must make every feasible step to see that what it decides to produce is wanted by the consumer at a remunerative price…. It must exercise control over what is sold…. It must replace the market with planning.[10]
>
> …The need to control consumer behavior is a requirement of planning. Planning, in turn, is made necessary by extensive use of advanced technology and capital and by the relative scale and complexity of organization. These produce goods efficiently; the result is a very large volume of production. As a further consequence, goods that are related only to elementary physical sensation–that merely prevent hunger, protect against cold, provide shelter, suppress pain–have come to comprise a small and diminishing part of all production. Most goods serve needs that are discovered to the individual not by the palpable discomfort that accompanies deprivation, but by some psychic response to their possession….[11]

For Galbraith, the "accepted sequence" of consumer sovereignty, in which consumer demand determines what is produced, was replaced by a "revised sequence" in which oligopoly corporations determine what is produced and then dispose of it by managing consumer behavior. In contemporary terms, the demand-pull economy is replaced by a supply-push model.

Economies of Scale, Economies of Speed, and Push Distribution

Alfred Chandler, like Galbraith, was thoroughly sold on the greater efficiencies of the large corporation. He argued that the modern multi-unit enterprise arose when administrative coordination "permitted" greater efficiencies.[12]

> By linking the administration of producing units with buying and distributing units, costs for information on markets and sources of supply were reduced. Of much greater significance, the internalization of many units permitted the flow of goods from one unit to another to be administratively coordinated. More effective scheduling of flows achieved a more intensive use of facilities and personnel employed in the processes of production and so increased productivity and reduced costs.[13]
>
> Organizationally, output was expanded through improved design of manufacturing or processing plants and by innovations in managerial practices and procedures required to synchronize flaws and supervise the work force. Increases in productivity also depend on the skills and abilities of the managers and the workers and the continuing improvement of their skills over time. Each of these factors or any combination of them helped to increase the speed and volume of the flow, or what some processors call the "throughput," of materials within a single plant or works….[14]

[10] Ibid., pp. 34–35.
[11] Ibid., pp. 210–212.
[12] Chandler, *The Visible Hand*, p. 6.
[13] Ibid., pp. 6–7.
[14] Ibid., p. 241.

> Integration of mass production with mass distribution afforded an opportunity for manufacturers to lower costs and increase productivity through more effective administration of the processes of production and distribution and coordination of the flow of goods through them. Yet the first industrialists to integrate the two basic sets of processes did not do so to exploit such economies. They did so because existing marketers were unable to sell and distribute products in the volume they were produced.[15]

The mass-production factory achieved "economies of speed" from "greatly increasing the daily use of equipment and personnel."[16] (Of course, Chandler starts by assuming the greater inherent efficiency of capital-intensive modes of production, which then require "economies of speed" to reduce unit costs from the expensive capital assets).

What Chandler meant by "economies of speed" was entirely different from lean production's understanding of flow. Chandler's meaning is suggested by his celebration of the new corporate managers who "developed techniques to purchase, store, and move huge stocks of raw and semifinished materials. In order to maintain a more certain flow of goods, they often operated fleets of railroad cars and transportation equipment."[17] In other words, both the standard Sloanist model of enormous buffer stocks of unfinished goods, and warehouses full of finished goods awaiting orders — and the faux "lean" model in which inventory is swept under the rug and moved into warehouses on wheels and in container-ships.

(The reader may be puzzled or even annoyed by my repeated use of the term "Sloanism." I got it from the insightful commentary of Eric Husman at *GrimReader* blog, in which he treats the production and accounting methods of General Motors as paradigmatic of 20th century American mass-production industry, and contrasts them with the lean methods popularly identified with Taichi Ohno's Toyota production system.)

"Sloanism" refers, in particular, to the management accounting system identified with General Motors. It was first developed by Brown at DuPont, and brought to GM when DuPont acquired a controlling share of the company and put Alfred Sloan in charge. Brown's management accounting system, whose perverse incentives are dissected in detail by William Waddell and Norman Bodek in Rebirth of American Industry, became the basis of the Generally Accepted Accounting Principles (GAAP) that prevail throughout American corporate management.

In Sloanist management accounting, inventory is counted as an asset "with the same liquidity as cash." Regardless of whether a current output is needed to fill an order, the producing department sends it to inventory and is credited for it. Under the practice of "overhead absorption," all production costs are fully incorporated into the price of goods "sold" to inventory, at which point they count as an asset on the balance sheet.

> With inventory declared to be an asset with the same liquidity as cash, it did not really matter whether the next 'cost center,' department, plant, or division actually needed the output right away in order to consummate one of these paper sales. The producing department put the output into inventory and took credit.[18]

[15] Ibid., p. 287.
[16] Ibid., p. 244.
[17] Ibid., p. 412.
[18] Waddell and Bodek, p. 75.

> ...Expenses go down..., while inventory goes up, simply by moving a skid full of material a few operations down the stream. In fact, expenses can go down and ROI can improve even when the plant pays an overtime premium to work on material that is not needed; or if the plant uses defective material in production and a large percentage of the output from production must be scrapped.[19]

In other words, by the Sloanist accounting principles predominant in American industry, the expenditure of money on inputs is by definition the creation of value. As Waddell described it at his blog,

> companies can make a bunch of stuff, assign huge buckets of fixed overhead to it and move those overheads over to the balance sheet, making themselves look more profitable.

It's a system summed up perfectly by Paul Goodman's notion of the culture of cost-plus. And as Waddell points out, the GDP as a metric depends on the same GAAP assumptions as American industry: it counts expenditure on inputs, by definition, as the creation of wealth.[20] The American corporate economy is governed by a set of metrics much like that of the Soviet planned economy. A given "output" represents an economic value equal to the inputs it consumes, regardless of whether anyone actually wants the output, whether they work, or whether they could have been produced with a fraction of the inputs.

American factories frequently have warehouses filled with millions of dollars worth of obsolete inventory, which is still there "to avoid having to reduce profits this quarter by writing it off." When the corporation finally does have to adjust to reality, the result is costly write-downs of inventory.

> It did not take much of a mathematician to figure out that, if all you really care about is the cost of performing one operation to a part, and you were allowed to make money by doing that single operation as cheaply as possible and then calling the partially complete product an asset, it would be cheaper to make them a bunch at a time.
>
> It stood to reason that spreading set-up costs over many parts was cheaper than having to set-up for just a few even if it meant making more parts than you needed for a long time. It also made sense, if you could make enough parts all at once, to just make them cheaply, and then sort out the bad ones later.
>
> Across the board, batches became the norm because the direct cost of batches was cheap and they could be immediately turned into money — at least as far as Mr. DuPont was concerned — by classifying them as work-in-process inventory.[21]

Under the Sloan system, if a machine can be run at a certain speed, it must be run at that speed to maximize efficiency. And the only way to increase efficiency is to increase the speed at

[19] Ibid., p. 140.

[20] William Waddell, "The Irrelevance of the Economists," *Evolving Excellence*, May 6, 2009 <www.evolvingexcellence.com>.

[21] Waddell and Bodek, p. 98.

which individual machines can be run.[22] The Sloan system focuses, exclusively, on labor savings "perceived to be attainable only through faster machines. Never mind that faster machines build inventory faster, as well."[23]

The lean approach has its own "economies of speed," but they are the direct opposite of the Sloanist approach. The Sloanist approach focuses on maximizing economies of speed in terms of the unit cost of a particular machine, without regard to the inventories of unfinished goods that must accumulate as buffer stocks as a result, and all the other enormous eddies in the flow of production. As the authors of *Natural Capitalism* put it, it attempts to optimize each step of the production process in isolation, "thereby pessimizing the entire system." A machine can reduce the labor cost of one step by running at enormous speeds, and yet be out of sync with the overall process.[24] Waddell and Bodek give the example of Ernie Breech, sent from GM to "save" Ford, demanding a plant manager tell him the cost of manufacturing the steering wheel so he could calculate ROI for that step of the process. The plant manager was at a loss trying to figure out what Breech wanted: did he think steering wheel production was a bottleneck in production flow, or what? But for Breech, if the unit cost of that machine and the direct cost of the labor working it were low enough compared to the "value" of the steering wheels "sold" to inventory, that was all that mattered. Under the Sloan accounting system, producing a steering wheel — even in isolation, and regardless of what was done with it or whether there was an order for the car it was a part of — was a money-making proposition. "Credit for that work — it looks like a payment on the manufacturing budget — is given for performing that simple task because it moves money from expenses to assets.[25]

The lean approach, in contrast, gears production flow to orders, and then sizes individual machines and steps in the production process to the volume of overall flow. Under lean thinking, it's better to have a less specialized machine with a lower rate of output, in order to avoid an individual step out of proportion to the overall production flow. This is what the Toyota Production System calls *takt*: pacing the output of each stage of production to meet the needs of the next stage, and pacing the overall flow of all the stages in accordance with current orders.[26] In a Sloan factory, the management would select machinery to produce the entire production run "as fast as they humanly could, then sort out the pieces and put things together later."[27]

To quote the authors of *Natural Capitalism* again: "The essence of the lean approach is that in almost all modern manufacturing,"

> the combined and often synergistic benefits of the lower capital investment, greater flexibility, often higher reliability, lower inventory cost, and lower shipping cost of much smaller and more localized production equipment will far outweigh any modest decreases in its narrowly defined "efficiency" per process step. It's more efficient overall, in resources and time and money, to scale production properly, using flexible machines that can quickly shift between products. By doing so, all the different processing steps can be carred out immediately adjacent to one another with the

[22] Ibid., p. 122.

[23] Ibid., p. 119.

[24] Paul Hawken, Amory Lovins, and L. Hunter Lovins, *Natural Capitalism: Creating the Next Industrial Revolution* (Boston, New York, London: Little, Brown, and Company, 1999), pp. 129–30.

[25] Waddell and Bodek, pp. 89, 92.

[26] Ibid., pp. 122–123.

[27] Ibid., p. 39.

> product kept in continuous flow. The goal is to have no stops, no delays, no backflows, no inventories, no expediting, no bottlenecks, no buffer stocks, and no *muda* [waste].[28]

The contrast is illustrated by a couple of examples from *Natural Capitalism*: an overly "efficient" grinding machine at Pratt & Whitney, and a cola bottling machine likewise oversized in relation to its task:

> The world's largest maker of jet engines for aircraft had paid $80 million for a "monument" — state-of-the-art German robotic grinders to make turbine blades. The grinders were wonderfully fast, but their complex computer controls required about as many technicians as the old manual production system had required machinists. Moreover, the fast grinders required supporting processes that were costly and polluting. Since the fast grinders were meant to produce big, uniform batches of product, but Pratt & Whitney needed agile production of small, diverse batches, the twelve fancy grinders were replaced with eight simple ones costing one-fourth as much. Grinding time increased from 3 to 75 minutes, but the throughput time for the entire process decreased from 10 days to 75 minutes because the nasty supporting processes were eliminated. Viewed from the whole-system perspective of the complete production process, not just the grinding step, the big machines had been so fast that they slowed down the process too much, and so automated that they required too many workers. The revised production system, using a high-wage traditional workforce and simple machines, produced $1 billion of annual value in a single room easily surveyable from a doorway. It cost half as much, worked 100 times faster, cut changeover time from 8 hours to 100 seconds, and would have repaid its conversion costs in a year even if the sophisticated grinders were simply scrapped.[29]

In the cola industry, the problem is "the mismatch between a very small-scale operation — drinking a can of cola — and a very large-scale one, producing it." The most "efficient" large-scale bottling machine creates enormous batches that are out of scale with the distribution system, and result in higher unit costs overall than would modest-sized local machines that could immediately scale production to demand-pull. The reason is the excess inventories that glut the system, and the "pervasive costs and losses of handling, transport, and storage between all the elephantine parts of the production process." As a result, "the giant cola-canning machine may well cost more per delivered can than a small, slow, unsophisticated machine that produces the cans of cola locally and immediately on receiving an order from the retailer."[30]

In a genuine lean factory, managers are hounded in daily meetings about meeting the numbers for inventory reduction and reduction of cycle time, in the same way that they're hounded on a daily basis to reduce direct labor hours and increase ROI in a Sloanist factory. James Womack et al, in *The Machine That Changed the World*, recount an amusing anecdote about a delegation of lean production students from Corporate America touring a Toyota plant. Reading a question

[28] Hawken et al, pp. 129–130.
[29] Ibid., pp. 128–129.
[30] Ibid., p. 129.

on their survey form as to how many days of inventory were in the plant, the Toyota manager politely asked whether the translator could have meant *minutes* of inventory.[31]

As Mumford put it, "Measured by effective work, that is, human effort transformed into direct subsistence or into durable works of art and technics, the relative gains of the new industry were pitifully small."[32] The amount of wasted resources and crystallized labor embodied in the enormous warehouses of Sloanist factories and the enormous stocks of goods in process, the mushrooming cost of marketing, the "warehouses on wheels," and the mountains of discarded goods in the landfills that could have been repaired for a tiny fraction of the cost of replacing them, easily outweigh the savings in unit costs from mass production itself. The cost savings from mass production are more than offset by the costs of mass distribution.

Chandler's model of production resulted in the adoption of increasingly specialized, asset-specific production machinery:

> The large industrial enterprise continued to flourish when it used capital-intensive, energy-consuming, continuous or large-batch production technology to produce for mass markets.[33]
>
> 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.[34]

Of course this view is fundamentally wrong-headed. To regard a particular machine as "more efficient" based on its unit costs taken in isolation is sheer idiocy. If the costs of idle capacity are so great as to elevate unit costs above those of less specialized machinery, at the levels of spontaneous demand occurring without push marketing, and if the market area required for full utilization of capacity results in distribution costs greater than the unit cost savings from specialized machinery, then the expensive product-specific machinery is, in fact, *less* efficient.

Galbraith and Chandler wrote as though the adoption of the machinery were enough to automatically increase efficiency, in and of itself, regardless of how much money had to be spent elsewhere to "save" that money.

But if we approach things from the opposite direction, we can see that flexible manufacturing with easily redeployable assets makes it feasible to shift quickly from product to product in the face of changing demand, and thus eliminates the imperative of controlling the market. As Barry Stein said,

> if firms could respond to local conditions, they would not *need* to control them. If they must control markets, then it is a reflection of their lack of ability to be adequately responsive.[35]

---

[31] James P. Womack, Daniel T. Jones, Daniel Roos, *The Machine That Changed the World* (New York: MacMillan, 1990), p. 80.

[32] Mumford, *Technics and Civilization*, p. 196.

[33] Ibid., p. 347.

[34] Ibid., p. 241.

[35] Barry Stein, *Size, Efficiency, and Community Enterprise* (Cambridge: Center for Community Economic Development, 1974), p. 41.

> ...Consumer needs, if they are to be supplied efficiently, call increasingly for organizations that are more flexibly arranged and in more direct contact with those customers. The essence of planning, under conditions of increasing uncertainty, is to seek better ways for those who have the needs to influence or control the productive apparatus more effectively, not less.
>
> Under conditions of rapid environmental change, implementing such planning is possible only if the "distance" between those supplied and the locus of decision-making on the part of those producing is reduced.... But it can be shown easily in information theory that the feedback — information linking the environment and the organization attempting to service that environment — necessarily becomes less accurate or less complete as the rate of change of data increases, or as the number of steps in the information transfer process continues.

Stein suggested that Galbraith's solution was to suppress the turbulence: "to control the changes, in kind and extent, that the society will undergo."[36] But far better, he argues, would be "a value shift that integrates the organization and the environment it serves."

> This problem is to be solved not by the hope of better planning on a large scale..., but by the better integration of productive enterprises with the elements of society needing that production.
>
> Under conditions of rapid change in an affluent and complex society, the only means available for meeting differentiated and fluid needs is an array of producing units small enough to be in close contact with their customers, flexible enough to produce for their demands, and able to do so in a relatively short time.... It is a contradiction in terms to speak of the necessity for units large enough to control their environment, but producing products which in fact no one may want![37]
>
> As to the problem of planning — large firms are said to be needed here because the requirements of sophisticated technology and increasingly specialized knowledge call for long lead times to develop, design, and produce products. Firms must therefore have enough control over the market to assure that the demand needed to justify that time-consuming and costly investment will exist. This argument rests on a foundation of sand; first, because the needs of society should precede, not follow, decisions about what to produce, and second, because the data do not substantiate the need for large production organizations except in rare and unusual instances, like space flight. On the contrary, planning for social needs requires organizations and decision-making capabilities in which the feedback and interplay between productive enterprises and the market in question is accurate and timely — conditions more consistent with smaller organizations than large ones.[38]

In short, mass production requires supply-push distribution to guarantee a market before production takes place.

[36] Ibid., p. 43.
[37] Ibid., p. 44.
[38] Ibid., p. 58.

Although Galbraith and Chandler commonly justified the corporation's power over the market in terms of its social benefits, they had things exactly backward. The "technostructure" can survive because it is enabled to be *less* responsive to consumer demand. An oligopoly firm in a cartelized industry, in which massive, inefficient bureaucratic corporations share the same bureaucratic culture, is protected from competition. The "innovations" Chandler so prizes are able to succeed because they are determined by the organization for its own purposes, and the organization has the power to impose top-down "change" on a cartelized market, with little regard to consumer preferences, instead of responding flexibly to them. The large corporate organization is not more efficient at accomplishing goals received from outside; it is more efficient at accomplishing goals it sets for itself for its own purposes, and then using its power to adapt the rest of society to those goals.

So to turn to our original point, the apostles of mass production have all, at least tacitly, identified the superior efficiency of the large corporation with its control over the external environment. Sloanist mass production subordinates the consumer, and the rest of outside society, to the institutional needs of the corporation.

Chandler himself admitted as much, in discussing what he called a strategy of "productive expansion." Big business added new outlets that permitted it to make "more complete use" of its "centralized services and facilities."[39] In other words, "efficiency" is defined by the existence of "centralized facilities," as such; efficiency is then promoted by finding ways to make people buy the stuff the centralized facilities can produce running at full capacity. These theories amount, in practice, to a circular argument that oligopoly capitalism is "successful" because it is most efficient at achieving the ends of oligopoly capitalism. Chandler's version of "successful development" is a roaring success indeed, if we start with the assumption that society should be reengineered to desire what the technostructure wants to produce.

Microeconomic Institutional Forms for Providing Stability

In keeping with the need for stability and control Galbraith described above, the technostructure resorted to organizational expedients within the corporate enterprise to guarantee reliable outlets for production and provide long-term predictability in the availability and price of inputs. These expedients can be summed up as replacing the market price mechanism with planning.

> A firm cannot usefully foresee and schedule future action or prepare for contingencies if it does not know what its prices will be, what its sales will be, what its costs including labor and capital costs will be and what will be available at these costs.... Much of what the firm regards as planning consists in minimizing or getting rid of market influences.[40]

Galbraith described three institutional expedients taken by the technostructure to control the uncertainties of the market and permit long-term predictability: vertical integration, the use of market power to control suppliers and outlets, and long-term contractual arrangements with suppliers and outlets.[41]

[39] Chandler, *The Visible Hand*, p. 487.
[40] Galbraith, *The New Industrial State*, p. 37.
[41] Ibid., p. 38.

In vertical integration, "[t]he planning unit takes over the source of supply or the outlet; a transaction that is subject to bargaining over prices and amounts is thus replaced with a transfer within the planning unit."[42]

One of the most important forms of "vertical integration" is the choice to "make" rather than "buy" credit — replacing the external credit markets with internal finance through retained earnings.[43] The theory that management is controlled by outside capital markets assumes a high degree of dependence on outside finance. But in fact management's first line of defense, in maintaining its autonomy from shareholders and other outside interests, is to *minimize* its reliance on outside finance. Management tends to finance new investments as much as possible with retained earnings, followed by debt, with new issues of shares only as a last resort.[44] Issues of stock are important sources of investment capital only for startups and small firms undertaking major expansions.[45] Most corporations finance a majority of their new investment from retained earnings, and tend to limit investment to the highest priorities when retained earnings are scarce.[46] As Doug Henwood says, in the long run "almost all corporate capital expenditures are internally financed, through profits and depreciation allowances." Between 1952 and 1995, almost 90% of investment was funded from retained earnings.[47]

Market control "consists in reducing or eliminating the independence of action of those to whom the planning unit sells or from whom it buys," while preserving "the outward form of the market." Market power follows from large size in relation to the market. A decision to buy or not to buy, as in the case of General Motors and its suppliers, can determine the life or death of a firm. What's more, large manufacturers always have the option of vertical integration — making a part themselves instead of buying it — to discipline suppliers. "The option of eliminating a market is an important source of power for controlling it."[48]

Long-term contracting can reduce uncertainty by "specifying prices and amounts to be provided or bought for substantial periods of time." Each large firm creates a "matrix of contracts" in which market uncertainty is eliminated as much as possible.[49]

The use of contracts to stabilize input availability and price is exemplified, in particular, by the organizational expedients to stabilize wages and reduce labor turnover under the American labor regime. The purpose of the Wagner regime, created under the New Deal, was "by stabilizing wages and employment, to insulate the cost of a major element of production from the flux of a market economy."[50] From management's perspective, the sort of bureaucratized industrial union established under Wagner had the primary purposes of enforcing contracts on the rank and file and suppressing wildcat strikes. The corporate liberal managers who were most open

[42] Ibid., p. 39.

[43] Ibid., pp. 50–51.

[44] Martin Hellwig, "On the Economics and Politics of Corporate Finance and Corporate Control," in Xavier Vives, ed.,

Corporate Governance: Theoretical and Empirical Perspectives (Cambridge: Cambridge University Press, 2000),pp. 100–101.

[45] Ralph Estes, *Tyranny of the Bottom Line: Why Corporations Make Good People Do Bad Things* (San Francisco: Berrett-Koehler Publishers, 1996), p. 51.

[46] Hellwig, pp. 101–102, 113.

[47] Doug Henwood, *Wall Street: How it Works and for Whom* (London and New York: Verso, 1997), p. 3.

[48] Galbraith, *The New Industrial State*, pp. 39–40.

[49] Ibid., pp. 41–42.

[50] Ibid., p. 65.

to industrial unionism in the 1930s were, in many cases, the same people who had previously relied on company unions and works councils. Their motivation, in both cases, was the same. For example, GE's Gerard Swope, one of the most "progressive" of corporate liberals and the living personification of the kinds of corporate interests that backed FDR, had attempted in 1926 to get the AFL's William Green to run GE's works council system.[51]

Another institutional expedient of Galbraith's technostructure is to regulate the pace of technical change, with the oligopoly firms in an industry colluding to introduce innovation at a rate that maximizes returns. Or as Paul Goodman put it, a handful of manufacturers control the market, "competing with fixed prices and slowly spooned-out improvements."[52]

Mass Consumption to Absorb Surplus

Mass production divorces production from consumption. The rate of production is driven by the imperative of keeping the machines running at full capacity so as to minimize unit costs, rather than by customer orders. So in addition to contractual control of inputs, mass-production industry faces the imperative of guaranteeing consumption of its output by managing the consumer. It does this through push distribution, high-pressure marketing, planned obsolescence, and consumer credit.

Mass advertising serves as a tool for managing aggregate demand. According to Baran and Sweezy, the main function of advertising is "waging, on behalf of the producers and sellers of consumer goods, a relentless war against saving and in favor of consumption." And that function is integrally related to planned obsolescence:

> The strategy of the advertiser is to hammer into the heads of people the unquestioned desirability, indeed the imperative necessity, of owning the newest product that comes on the market. For this strategy to work, however, producers have to pour on the market a steady stream of "new" products, with none daring to lag behind for fear his customers will turn to his rivals for newness.
>
> Genuinely new or different products, however, are not easy to come by, even in our age of rapid scientific and technological advance. Hence much of the newness with which the consumer is systematically bombarded is either fraudulent or related trivially and in many cases even negatively to the function and serviceability of the product.[53]
>
> ….In a society with a large stock of consumer durable goods like the United States, an important component of the total demand for goods and services rests on the need to replace a part of this stock as it wears out or is discarded. Built-in obsolescence increases the rate of wearing out, and frequent style changes increase the rate of discarding…. The net result is a stepping up in the rate of replacement demand and a general boost to income and employment. In this respect, as in others, the sales

[51] Piore and Sabel, p. 132.

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

[53] Paul Baran and Paul Sweezy, *Monopoly Capitalism: An Essay in the American Economic and Social Order* (New York: Monthly Review Press, 1966), pp. 128–129.

> effort turns out to be a powerful antidote to monopoly capitalism's tendency to sink into a state of chronic depression.[54]

Although seemingly less state-dependent than the expedients discussed elsewhere in this paper, mass advertising had a large state component. For one thing, the founders of the mass advertising and public relations industries were, in large part, also the founders of the science of "manufacturing consent" used to manipulate Anglo-American populations into supporting World War I. For another, the state's own organs of propaganda (through the USDA, school home economics classes, etc.) put great emphasis on discrediting "old-fashioned" atavisms like home-baked bread and home-grown and -canned vegetables, and promoting in their place the "up-to-date" housewifely practice of heating stuff up out of cans from the market.[55] Jeffrey Kaplan describes this as the "gospel of consumption":

> [Industrialists] feared that the frugal habits maintained by most American families would be difficult to break. Perhaps even more threatening was the fact that the industrial capacity for turning out goods seemed to be increasing at a pace greater than people's sense that they needed them.
>
> It was this latter concern that led Charles Kettering, director of General Motors Research, to write a 1929 magazine article called "Keep the Consumer Dissatisfied."… Along with many of his corporate cohorts, he was defining a strategic shift for American industry — from fulfilling basic human needs to creating new ones.
>
> In a 1927 interview with the magazine Nation's Business, Secretary of Labor James J. Davis provided some numbers to illustrate a problem that the New York Times called "need saturation." Davis noted that "the textile mills of this country can produce all the cloth needed in six months' operation each year" and that 14 percent of the American shoe factories could produce a year's supply of footwear. The magazine went on to suggest, "It may be that the world's needs ultimately will be produced by three days' work a week."
>
> Business leaders were less than enthusiastic about the prospect of a society no longer centered on the production of goods. For them, the new "labor-saving" machinery presented not a vision of liberation but a threat to their position at the center of power. John E. Edgerton, president of the National Association of Manufacturers, typified their response when he declared: "Nothing… breeds radicalism more than unhappiness unless it is leisure."
>
> By the late 1920s, America's business and political elite had found a way to defuse the dual threat of stagnating economic growth and a radicalized working class in what one industrial consultant called "the gospel of consumption" — the notion that people could be convinced that however much they have, it isn't enough. President Herbert Hoover's 1929 Committee on Recent Economic Changes observed in glowing terms the results: "By advertising and other promotional devices … a measurable pull on production has been created which releases capital otherwise tied up." They

[54] Ibid., p. 131.

[55] This is the theme of Stuart Ewen, *Captains of Consciousness: Advertising and the Social Roots of Consumer Culture* (New York: McGraw-Hill, 1976).

> celebrated the conceptual breakthrough: "Economically we have a boundless field before us; that there are new wants which will make way endlessly for newer wants, as fast as they are satisfied."[56]

Chandler's model of "high-speed, high-throughput, turning high fixed costs into low unit costs," and Galbraith's "technostructure," presuppose a "push" model of distribution. Here's how it was described by Paul Goodman:

> ... in recent decades... the center of economic concern has gradually shifted from either providing goods for the consumer or gaining wealth for the enterpriser, to keeping the capital machines at work and running at full capacity; for the social arrangements have become so complicated that, unless the machines are running at full capacity, all wealth and subsistence are jeopardized, investment is withdrawn, men are unemployed. That is, when the system depends on all the machines running, unless every kind of good is produced and sold, it is also impossible to produce bread.[57]

The same imperative was at the root of the hypnopaedic socialization in Huxley's *Brave New World*: "ending is better than mending"; "the more stitches, the less riches." Or as GM designer Harley Earl said in the 1950s,

> My job is to hasten obsolescence. I've got it down to two years; now when I get it down to one year, I'll have a perfect score.[58]

The older economy that the "push" distribution system replaced was one in which most foods and drugs were what we would today call "generic." Flour, cereal, and similar products were commonly sold in bulk and weighed and packaged by the grocer (the ratio had gone from roughly 95% bulk to 75% package goods during the twenty years before Borsodi wrote in 1927); the producers geared production to the level of demand that was relayed to them by the retailers' orders. Drugs, likewise, were typically compounded by the druggist on-premises to the physician's specifications, from generic components.[59] Production was driven by orders from the grocer, as customers used up his stock of bulk goods.

Under the new "push" system, the producers appealed directly to the consumer through brand-name advertising, and relied on pressure on the grocer to create demand for what they chose to produce. Brand loyalty helps to stabilize demand for a particular manufacturer's product, and eliminate the fluctuation of demand that accompanies price competition in pure commodities.

The problem was that the consumer, under the new regime of Efficiency, paid about four times as much for trademarked flour, sugar, etc., as he had paid for bulk goods under the old "inefficient" system.[60] Under the old regime, the grocer was a purchasing agent for the customer; under the new, he was a marketing agent for the producer.

---

[56] Jeffrey Kaplan, "The Gospel of Consumption: And the better future we left behind," *Orion*, May/June 2008 <www.orionmagazine.org>.

[57] Paul and Percival Goodman, *Communitas: Means of Livelihood and Ways of Life* (New York: Vintage Books, 1947, 1960), pp. 188–89.

[58] Eric Rumble, "Toxic Shocker," *Up! Magazine*, January 1, 2007 <www.up-magazine.com>.

[59] Ralph Borsodi, *The Distribution Age* (New York and London: D. Appleton and Company, 1929), pp. 217, 228.

[60] Quoted in Ibid., pp. 160–61.

Distribution costs are increased still further by the fact that larger-scale production and greater levels of capital intensiveness increase the unit costs resulting from idle capacity, and thereby (as we saw in the last chapter) greatly increase the resources devoted to high-pressure, "push" forms of marketing.

Borsodi's book *The Distribution Age* was an elaboration of the fact that production costs fell by perhaps a fifth between 1870 and 1920, even as the cost of marketing and distribution nearly tripled.[61]

The modest reduction in unit production cost was more than offset by the increased costs of distribution and high-pressure marketing. "[E]very part of our economic structure," he wrote, was "being strained by the strenuous effort to market profitably what modern industry can produce."[62]

Distribution costs are far lower under a demand-pull regime, in which production is geared to demand. As Borsodi argued,

> …[I]t is still a fact… that the factory which sells only in its natural field because that is where it can serve best, meets little sales-resistance in marketing through the normal channels of distribution. The consumers of such a factory are so "close" to the manufacturer, their relations are so intimate, that buying from that factory has the force of tradition. Such a factory can make shipment promptly; it can adjust its production to the peculiarities of its territory, and it can make adjustments with its customers more intelligently than factories which are situated at a great distance. High pressure methods of distribution do not seem tempting to such a factory. They do not tempt it for the very good reason that such a factory has no problem to which high pressure distribution offers a solution.
>
> It is the factory which has decided to produce trade-marked, uniform, packaged, individualized, and nationally advertised products, and which has to establish itself in the national market by persuading distributors to pay a higher than normal price for its brand, which has had to turn to high pressure distribution. Such a factory has a selling problem of a very different nature from that of factories which are content to sell only where and to whom they can sell most efficiently.[63]

For those whose low overhead permits them to produce in response to consumer demand, marketing is relatively cheap. Rather than expending enormous effort to make people buy their product, they can just fill the orders that come in. When demand for the product must be created, the effort (to repeat Borsodi's metaphor) is comparable to that of making water run uphill. Mass advertising is only a small part of it. Even more costly is direct mail advertising and door-to-door canvassing by salesmen to pressure grocers in a new market to stock one's goods, and canvassing of grocers themselves by sales reps.[64] The costs of advertising, packaging, brand differentiation, etc., are all costs of overcoming sales resistance that only exist because production is divorced from demand rather than driven by it.

[61] Ibid., p. v.
[62] Ibid., p. 4.
[63] Ibid., pp. 112–113.
[64] Ibid., p. 136.

And this increased marginal cost of distribution for output above the natural level of demand results, in accordance with Ricardo's law of rent, in higher average price for all goods.[65]

For those who can flexibly respond to demand, also, predictability of consumer demand doesn't matter that much. Of the grocer, for example, Borsodi pointed out that the customer would always have to eat, and would continue to do so without a single penny of high pressure marketing. It was therefore a matter of indifference to the grocer whether the customer ate some particular product or brand name; he would stock whatever goods the customer preferred, as his existing stocks were used up, and change his orders in keeping with changes in customer preference. To the manufacturer, on the other hand, it is of vital importance that the customer buy (say) mayonnaise in particular — and not just mayonnaise, but his particular brand of mayonnaise.[66]

And the proliferation of brand names with loyal followings raises the cost of distribution considerably: rather than stocking generic cornflakes in bulk commodity form, and replacing the stock as it is depleted, the grocer must maintain large enough stocks of all the (almost identical) popular brands to ensure against running out, which means slower turnover and more wasted shelf space. This is another illustration of the same general principle we've already seen: push distribution results in the costly disruption of flow by stagnant eddies and flows, in the form of ubiquitous inventories.[67]

The advantage of brand specification, from the perspective of the producer, is that it "lifts a product out of competition":[68] "the prevalence of brand specification has all but destroyed the normal basis upon which true competitive prices can be established."[69] As Barry Stein described it, branding "convert[s] true commodities to apparent tailored goods, so as to avoid direct price competition in the marketplace."

> The distinctions introduced — elaborate packaging, exhortative advertising and promotion that asserts the presence of unmeasurable values, and irrelevant physical modification (colored toothpaste) — do not, in fact, render these competing products "different" in any substantive sense, but to the extent that consumers are convinced by these distinctions and treat them as if they were different, product loyalty is generated.[70]

Under the old regime, competition between identifiable producers of bulk goods enabled grocers to select the highest quality bulk goods, while providing them to customers at the lowest price. Brand specification, on the other hand, relieves the grocer of the responsibility for standing behind his merchandise and turns him into a mere stocker of shelves with the most-requested brands.

The process went on until — decades later — the very idea of a return to price competition in the production of goods, instead of brand-name competition for market share, would strike manufacturers with horror. Price competition is the worst nightmare of the oligopoly manufacturer and the advertising industry:

---

[65] Ibid., p. 247.
[66] Ibid., pp. 83–84.
[67] Ibid., p. 84.
[68] Ibid., p. 162.
[69] Ibid. pp. 216–17.
[70] Stein, *Size, Efficiency, and Community Enterprise*, p. 79.

> At the annual meeting of the U.S. Association of National Advertisers in 1988, Graham H. Phillips, the U.S. Chairman of Ogilvy & Mather, berated the assembled executives for stooping to participate in a "commodity marketplace" rather than an image-based one. "I doubt that many of you would welcome a commodity marketplace in which one competed solely on price, promotion and trade deals, all of which can be easily duplicated by competition, leading to ever-decreasing profits, decay, and eventual bankruptcy." Others spoke of the importance of maintaining "conceptual value-added," which in effect means adding nothing but marketing. Stooping to compete on the basis of real value, the agencies ominously warned, would speed not just the death of the brand, but corporate death as well.[71]

It's telling that Chandler, the apostle of the great "efficiencies" of this entire system, frankly admitted all of these things. In fact, far from regarding it as an "admission," he treated it as a feature of the system. He explicitly equated "prosperity" to the rate of flow of material through the system and the speed of production and distribution — without any regard to whether the rate of "flow" was twice as fast because people were throwing stuff in the landfills twice as fast to keep the pipelines from clogging up.

> The new middle managers did more than devise ways to coordinate the high-volume flow from suppliers of raw materials to consumers. They invented and perfected ways to expand markets and to speed up the processes of production and distribution. Those at American Tobacco, Armour, and other mass producers of low-priced packaged products perfected techniques of product differentiation through advertising and brand names that had been initially developed by mass marketers, advertising agencies, and patent medicine makers. The middle managers at Singer wee the first to systematize personal selling by means of door-to-door canvassing; those at McCormick among the first to have franchised dealers using comparable methods. Both companies innovated in installment buying and other techniques of consumer credit.[72]

In other words, the Sloanist system Chandler idealized was more "efficient" because it was better at persuading people to throw stuff away so they could buy more, and better at producing substandard shit that would have to be thrown away in a few years. Only a liberal of the mid-20th century, writing at the height of consensus capitalism, at a time when the first rumblings of New Left critique were only just issuing from Port Huron, and when his own establishment liberalism was as yet utterly untainted by the thinnest veneer of greenwash, could write such a thing from the standpoint of an enthusiast.

The overall system was a "solution" in search of a problem. State subsidies and mercantilism gave rise to centralized, overcapitalized industry, which led to overproduction, which led to the need to find a way of creating demand for lots of crap that nobody wanted.

[71] Naomi Klein, *No Logo* (New York: Picador, 1999), p. 14.
[72] Chandler, *The Visible Hand*, p. 411.

Political Capitalism

Despite all the state intervention up front to make the centralized corporate economy possible, state intervention is required *afterward* as well as before in order to keep the system running. Despite all the microeconomic mechanisms described above, and all the techniques of demand management, the system chronically tends toward excess productive capacity and insufficient demand. Large, mass-production industry is unable to survive without the government guaranteeing an outlet for its overproduction. As Paul Baran and Paul Sweezy put it, monopoly capitalism

tends to generate ever more surplus, yet it fails to provide the consumption and investment outlets required for the absorption of a rising surplus and hence for the smooth working of the system. Since surplus which cannot be absorbed will not be produced, it follows that the *normal* state of the monopoly capitalist economy is stagnation. With a given stock of capital and a given cost and price structure, the system's operating rate cannot rise above the point at which the amount of surplus produced can find the necessary outlets. And this means chronic underutilization of available human and material resources.... Left to itself — that is to say, in the absence of counteracting forces which are no part of what may be called the "elementary logic" of the system — monopoly capitalism would sink deeper and deeper into a bog of chronic depression.[73]

The state, faced by chronic crises of overaccumulation and overproduction, adopted policies described by Gabriel Kolko as "political capitalism."

> *Political capitalism* is the utilization of political outlets to attain conditions of stability, predictability, and security — to attain rationalization — in the economy. Stability is the elimination of internecine competition and erratic fluctuations in the economy. Predictability is the ability, on the basis of politically stabilized and secured means, to plan future economic action on the basis of fairly calculable expectations. By security I mean protection from the political attacks latent in any formally democratic political structure. I do not give to rationalization its frequent definition as the improvement of efficiency, output, or internal organization of a company; I mean by the term, rather, the organization of the economy and the larger political and social spheres in a manner that will allow corporations to function in a predictable and secure environment permitting reasonable profits over the long run.[74]

The state played a major role in cartelizing the economy, to protect the large corporation from the destructive effects of price competition. At first the effort was mainly private, reflected in the trust movement at the turn of the 20th century. Chandler celebrated the first, private efforts toward consolidation of markets as a step toward rationality:

> American manufacturers began in the 1870s to take the initial step to growth by way of merger — that is, to set up nationwide associations to control price and production. They did so primarily as a response to the continuing price decline, which became

[73] Baran and Sweezy, *Monopoly Capital*, p. 108.

[74] Gabriel Kolko, *The Triumph of Conservatism: A Reinterpretation of American History 1900–1916* (New York: The Free Press of Glencoe, 1963) 3.

> increasingly impressive after the panic of 1873 ushered in a prolonged economic depression.[75]

The process was further accelerated by the Depression of the 1890s, with mergers and trusts being formed through the beginning of the next century in order to control price and output: "the motive for merger changed. Many more were created to replace the association of small manufacturing firms as the instrument to maintain price and production schedules."[76]

From the turn of the twentieth century on, there was a series of attempts by J.P. Morgan and other promoters to create some institutional structure for the corporate economy by which price competition could be regulated and their respective market shares stabilized. "It was then," Paul Sweezy wrote,

> that U.S. businessmen learned the self-defeating nature of price-cutting as a competitive weapon and started the process of banning it through a complex network of laws (corporate and regulatory), institutions (e.g., trade associations), and conventions (e.g., price leadership) from normal business practice.[77]

But all these attempts at private cartelization were failures: the trusts were less efficient than their smaller competitors. They immediately began losing market share to less leveraged firms outside the trusts. The dominant trend, despite attempts to suppress it, was competition. The trusts were miserable failures. Subsequent attempts to cartelize the economy, therefore, enlisted the state.

As recounted by Kolko, the main force behind the Progressive Era regulatory agenda was big business itself, the goal being to restrict price and quality competition and to reestablish the trusts under the aegis of government. His thesis was that, "contrary to the consensus of historians, it was not the existence of monopoly that caused the federal government to intervene in the economy, but the lack of it." In the face of the resounding failure of voluntary private cartels, big business acted instead to cartelize itself through the state — hence, the Progressive regulatory agenda.

> If economic rationalization could not be attained by mergers and voluntary economic methods, a growing number of important businessmen reasoned, perhaps political means might succeed."[78]

Kolko provided considerable evidence that the main force behind the Progressive Era legislative agenda was big business. The Meat Inspection Act, for instance, was passed primarily at the

[75] Chandler, *The Visible Hand*, p. 316.
[76] Ibid., p. 331.
[77] Paul Sweezy, "Competition and Monopoly," *Monthly Review* (May 1981), pp. 1–16.
[78] Kolko, *Triumph of Conservatism*, p. 58.

behest of the big meat packers.[79] This pattern was repeated, in its essential form, in virtually every component of the "Progressive" regulatory agenda.

The various safety and quality regulations introduced during this period also worked to cartelize the market. As Butler Shaffer put it, the purpose of "wage, working condition, or product standards" is to "universalize cost factors and thus restrict price competition."[80] Thus, the industry is partially cartelized, to the very same extent that would have happened had all the firms in it adopted a uniform quality standard, and agreed to stop competing in that area. A regulation, in essence, is a state-enforced cartel in which the members agree to cease competing in a particular area of quality or safety, and instead agree on a uniform standard which they establish through the state. And unlike private cartels, which are unstable, no member can seek an advantage by defecting.

More importantly, the FTC and Clayton Acts reversed the long trend toward competition and loss of market share and made stability possible.

> The provisions of the new laws attacking unfair competitors and price discrimination meant that the government would now make it possible for many trade associations to stabilize, for the first time, prices within their industries, and to make effective oligopoly a new phase of the economy.[81]

The Federal Trade Commission created a hospitable atmosphere for trade associations and their efforts to prevent price cutting.[82] Shaffer, in *In Restraint of Trade*, provides a detailed account of the functioning of these trade associations, and their attempts to stabilize prices and restrict "predatory price cutting," through assorted codes of ethics.116 Specifically, the trade associations established codes of ethics directly under FTC auspices that had the force of law. Prominent among the list of unfair business practices were "selling of goods below cost or below published list of prices for purpose of injuring competitor" and "use of inferior materials or deviation from standards."[83] The second item, in practice, criminalized innovation by individual companies faster than an industry as a whole was willing to agree on.

The two pieces of legislation accomplished what the trusts had been unable to: they enabled a handful of firms in each industry to stabilize their market share and to maintain an oligopoly structure between them.

It was during the war that effective, working oligopoly and price and market agreements became operational in the dominant sectors of the American economy. The rapid diffusion of

[79] Ibid., pp. 98–108. In the 1880s, repeated scandals involving tainted meat had resulted in U.S. firms being shut out of several European markets. The big packers had turned to the government to inspect exported meat. By organizing this function jointly, through the state, they removed quality inspection as a competitive issue between them, and the government provided a seal of approval in much the same way a trade association would. The problem with this early inspection regime was that only the largest packers were involved in the export trade, which gave a competitive advantage to the small firms that supplied only the domestic market. The main effect of Roosevelt's Meat Inspection Act was to bring the small packers into the inspection regime, and thereby end the competitive disability it imposed on large firms. Upton Sinclair simply served as an unwitting shill for the meat-packing industry.

[80] Butler Shaffer, *Calculated Chaos: Institutional Threats to Peace and Human Survival* (San Francisco: Alchemy Books, 1985), p. 143.

[81] Ibid., p. 268.

[82] Ibid., p. 275.

[83] Ibid., pp. 82–84.

power in the economy and relatively easy entry virtually ceased. Despite the cessation of important new legislative enactments, the unity of business and the federal government continued throughout the 1920s and thereafter, using the foundations laid in the Progressive Era to stabilize and consolidate conditions within various industries. And, on the same progressive foundations and exploiting the experience with the war agencies, Herbert Hoover and Franklin Roosevelt later formulated programs for saving American capitalism. The principle of utilizing the federal government to stabilize the economy, established in the context of modern industrialism during the Progressive Era, became the basis of political capitalism in its many later ramifications.[84]

The regulatory state also provided "rationality" by the use of federal regulation to preempt potentially harsher action by populist governments at the state and local level, and by preempting and overriding older common law standards of liability, replacing the potentially harsh damages imposed by local juries with a least common denominator of regulatory standards based on "sound science" (as determined by industry, of course). Regarding the second, most "tort reform" amounts to indemnifying business firms from liability for reckless fraud, pollution, and other externalities imposed on the public.

State spending serves to cartelize the economy in much the same way as regulation. Just as regulation removes significant areas of quality and safety as issues in cost competition, the socialization of operating costs on the state (e.g. R&D subsidies, government-funded technical education, etc.) allows monopoly capital to remove them as components of price in cost competition between firms, and places them in the realm of guaranteed income to all firms in a market alike. Transportation subsidies reduce the competitive advantage of locating close to one's market. Farm price support subsidies turn idle land into an extremely lucrative real estate investment. Whether through regulations or direct state subsidies to various forms of accumulation, the corporations act through the state to carry out some activities jointly, and to restrict competition to selected areas.

An ever-growing portion of the functions of the capitalist economy have been carried out through the state. According to James O'Connor, state expenditures under monopoly capitalism can be divided into "social capital" and "social expenses."

> *Social capital* is expenditures required for profitable private accumulation; it is indirectly productive (in Marxist terms, social capital indirectly expands surplus value). There are two kinds of social capital: social investment and social consumption (in Marxist terms, social constant capital and social variable capital).... Social investment consist of projects and services that increase the productivity of a given amount of laborpower and, other factors being equal, increase the rate of profit.... Social consumption consists of projects and services that lower the reproduction costs of labor and, other factors being equal, increase the rate of profit. An example of this is social insurance, which expands the productive powers of the work force while simultaneously lowering labor costs. The second category, social expenses, consists of projects and services which are required to maintain social harmony — to fulfill the state's "legitimization" function.... The best example is the welfare system, which is designed chiefly to keep social peace among unemployed workers.[85]

[84] Kolko, *Triumph of Conservatism*, p. 287.

[85] James O'Connor, *Fiscal Crisis of the State* (New York: St. Martin's Press, 1973), pp. 6–7.

Monopoly capital is able to externalize many of its operating expenses on the state; and since the state's expenditures indirectly increase the productivity of labor and capital at taxpayer expense, the apparent rate of profit is increased. "In short, monopoly capital socializes more and more costs of production."[86]

O'Connor listed several ways in which monopoly capital externalizes its operating costs on the political system:

Capitalist production has become more interdependent — more dependent on science and technology, labor functions more specialized, and the division of labor more extensive. Consequently, the monopoly sector (and to a much lesser degree the competitive sector) requires increasing numbers of technical and administrative workers. It also requires increasing amounts of infrastructure (physical overhead capital) — transportation, communication, R&D, education, and other facilities. In short, the monopoly sector requires more and more social investment in relation to private capital.... The costs of social investment (or social constant capital) are not borne by monopoly capital but rather are socialized and fall on the state.[87]

The general effect of the state's intervention in the economy, then, is to remove ever increasing spheres of economic activity from the realm of competition in price or quality, and to organize them collectively through organized capital as a whole.

State Action to Absorb Surplus: Imperialism

The roots of the corporate state in the U.S., more than anything else, lie in the crisis of overproduction as perceived by corporate and state elites–especially the traumatic Depression of the 1890s–and the requirement, also as perceived by them, for state intervention to absorb surplus output or otherwise deal with the problems of overproduction, underconsumption, and overaccumulation.

According to William Appleman Williams, "the Crisis of the 1890's raised in many sections of American society the specter of chaos and revolution."[88] Economic elites saw it as the result of overproduction and surplus capital, and believed it could be resolved only through access to a "new frontier." Without state-guaranteed access to foreign markets, output would fall below capacity, unit costs would go up, and unemployment would reach dangerous levels.

Accordingly, the centerpiece of American foreign policy to the present day has been what Williams called "Open Door Imperialism"[89]: securing American access to foreign markets on equal terms to the European colonial powers, and opposing attempts by those powers to divide up or close markets in their spheres of influence.

Open Door Imperialism consisted of using U.S. political power to guarantee access to foreign markets and resources on terms favorable to American corporate interests, without relying on direct political rule. Its central goal was to obtain for U.S. merchandise, in each national market, treatment equal to that afforded any other industrial nation. Most importantly, this entailed active engagement by the U.S. government in breaking down the imperial powers' existing spheres

[86] Ibid., p. 24.

[87] Ibid., p. 24.

[88] William Appleman Williams, *The Tragedy of American Diplomacy* (New York: Dell Publishing Company, 1959, 1962) 21–2.

[89] Williams, *The Contours of American History* (Cleveland and New York: The World Publishing Company, 1961).

of economic influence or preference. The result, in most cases, was to treat as hostile to U.S. security interests any large-scale attempt at autarky, or any other policy whose effect was to withdraw major areas of the world from the disposal of the U.S. corporate economy. When the power attempting such policies was an equal, like the British Empire, the U.S. reaction was merely one of measured coolness. When it was perceived as an inferior, like Japan, the U.S. resorted to more forceful measures, as events of the late 1930s indicate. And whatever the degree of equality between advanced nations in their access to Third World markets, it was clear that Third World nations were still to be subordinated to the industrialized West in a collective sense.

In the late 1930s, American leadership fears that Fortress Europe and the Greater East Asian Co-Prosperity sphere would deprive the American corporate economy of vitally needed raw materials, not to mention outlets for its surplus output and capital, led FDR to maneuver the country into another world war. The State Department's internal studies at the time estimated that the American economy required, at a minimum, the resources and markets of a "Grand Area" consisting of Latin America, East Asia, and the British Empire. Japan, meanwhile, was conquering most of China (home of the original Open Door) and the tin and rubber of Indochina, and threatening to capture the oil of the Dutch East Indies as well. In Europe, the worst case scenario was the fall of Britain, followed by the German capture of some considerable portion of the Royal Navy and subsequently of the Empire. War with the Axis would have followed from these perceived threats as a matter of course, even had FDR not successfully maneuvered Japan into firing the first shot.[90]

World War II, incidentally, also went a long way toward postponing America's crises of overproduction and overaccumulation for a generation, by blowing up most of the capital in the world outside the United States and creating a permanent war economy to absorb surplus output.

The American policy that emerged from the war was to secure control over the markets and resources of the global "Grand Area" through institutions of global economic governance, as created by the postwar Bretton Woods system, and to make preventing "defection from within" by autarkic powers the centerpiece of national security policy.

The problem of access to foreign markets and resources was central to U.S. postwar planning. Given the structural imperatives of "export dependent monopoly capitalism,"[91] the threat of a postwar depression was very real. The original drive toward foreign expansion at the end of the nineteenth century reflected the fact that industry, with state capitalist encouragement, had expanded far beyond the ability of the domestic market to consume its output. Even before World War II, the state capitalist economy had serious trouble operating at the level of output needed

[90] Laurence H. Shoup and William Minter, "Shaping a New World Order: The Council on Foreign Relations' Blueprint for World Hegemony, 1939–1945," in Holly Sklar, ed., *Trilateralism: The Trilateral Commission and Elite Planning for World Management* (Boston: South End Press, 1980), pp. 135–56

[91] "Now the price that brings the maximum monopoly profit is generally far above the price that would be fixed by fluctuating competitive costs, and the volume that can be marketed at that maximum price is generally far below the output that would be technically and economically feasible.... [The trust] extricates itself from this dilemma by producing the full output that is economically feasible, thus securing low costs, and offering in the protected domestic market only the quantity corresponding to the monopoly price–insofar as the tariff permits; while the rest is sold, or "dumped," abroad at a lower price.... "–Joseph Schumpeter, "Imperialism," in Imperialism, Social Classes: Two Essays by Joseph Schumpeter. Translated by Heinz Norden. Introduction by Hert Hoselitz (New York: Meridian Books, 1955) 79–80. Joseph Stromberg, by the way, did an excellent job of integrating this thesis, generally identified with the historical revisionism of the New Left, into the theoretical framework of Mises and Rothbard, in "The Role of State Monopoly Capitalism in the American Empire" Journal of Libertarian Studies Volume 15, no. 3 (Summer 2001), pp. 57–93. Available online at <www.mises.org>.

for full utilization of capacity and cost control. Military-industrial policy during the war exacerbated the problem of over-accumulation, greatly increasing the value of plant and equipment at taxpayer expense. The end of the war, if followed by the traditional pattern of demobilization, would have resulted in a drastic reduction in orders to that same overbuilt industry just as over ten million workers were being dumped back into the civilian labor force.

A central facet of postwar economic policy, as reflected in the Bretton Woods agencies, was state intervention to guarantee markets for the full output of U.S. industry and profitable outlets for surplus capital. The World Bank was designed to subsidize the export of capital to the Third World, by financing the infrastructure without which Western-owned production facilities could not be established there. According to Gabriel Kolko's 1988 estimate, almost two thirds of the World Bank's loans since its inception had gone to transportation and power infrastructure.[92] A laudatory Treasury Department report referred to such infrastructure projects (comprising some 48% of lending in FY 1980) as "externalities" to business, and spoke glowingly of the benefits of such projects in promoting the expansion of business into large market areas and the consolidation and commercialization of agriculture.[93] The Volta River power project, for example, was built with American loans (at high interest) to provide Kaiser aluminum with electricity at very low rates.[94]

State Action to Absorb Surplus: Creation of New Industries

Government also directly intervened to alleviate the problem of overproduction, by its increasing practice of directly purchasing the corporate economy's surplus output — through Keynesian fiscal policy, massive highway and civil aviation programs, the military-industrial complex, the prison-industrial complex, foreign aid, and so forth. Baran and Sweezy point to the government's rising share of GDP as "an approximate index of the extent to which government's role as a creator of effective demand and absorber of surplus has grown during the monopoly capitalist era."[95]

> If the depressive effects of growing monopoly had operated unchecked, the United States economy would have entered a period of stagnation long before the end of the nineteenth century, and it is unlikely that capitalism could have survived into the second half of the twentieth century. What, then, were the powerful external stimuli which offset these depressive effects and enabled the economy to grow fairly rapidly during the later decades of the nineteenth century and, with significant interruptions, during the first two thirds of the twentieth century? In our judgment, they are of two kinds which we classify as (1) epoch-making innovations, and (2) wars and their aftermaths.

By "epoch-making innovations," Baran and Sweezy referred to "those innovations which shake up the entire pattern of the economy and hence create vast investment outlets in addition to the

[92] Gabriel Kolko, *Confronting the Third World: United States Foreign Policy 1945–1980* (New York: Pantheon Books, 1988), p. 120.

[93] *United States Participation in the Multilateral Development Banks in the 1980s. Department of the Treasury* (Washingon, DC: 1982), p. 9.

[94] L. S. Stavrianos, *Promise of the Coming Dark Age*, p. 42.

[95] Baran and Sweezy, pp. 146–147.

capital which they directly absorb."[96] As for wars, Emmanuel Goldstein described their function quite well: "Even when weapons of war are not actually destroyed, their manufacture is still a convenient way of expending labor power without producing anything that can be consumed." War is a way of "shattering to pieces, or pouring into the stratosphere, or sinking in the depths of the sea," the output of excess productive facilities.[97]

The highway-automobile complex and the civil aviation system are textbook examples of the phenomenon Paul Baran and Paul Sweezy described in Monopoly Capitalism: government's creation of entire new industries to soak up the surplus generated by corporate capitalism's chronic tendencies toward overinvestment and overproduction.

Of the automobile-highway complex, Baran and Sweezy wrote, "[t]his complex of private interests clustering around one product has no equal elsewhere in the economy — or in the world. And the whole complex, of course, is completely dependent on the public provision of roads and highways."[98] Not to mention the role of U.S. foreign policy in guaranteeing access to "cheap and abundant" petroleum.

> One of the major barriers to the fledgling automobile industry at the turn of the century was the poor state of the roads. One of the first highway lobbying groups was the League of American Wheelmen, which founded "good roads" associations around the country and, in 1891, began lobbying state legislatures….
>
> The Federal Aid Roads Act of 1916 encouraged coast-to-coast construction of paved roads, usually financed by gasoline taxes (a symbiotic relationship if ever there was one). By 1930, the annual budget for federal road projects was $750 million. After 1939, with a push from President Franklin Roosevelt, limited-access interstates began to make rural areas accessible.[99]

It was this last, in the 1930s, that signified the most revolutionary change. From its beginning, the movement for a national superhighway network was identified, first of all, with the fascist industrial policy of Hitler, and second with the American automotive industry.

> The "most powerful pressure group in Washington" began in June, 1932, when GM President, Alfred P. Sloan, created the National Highway Users Conference, inviting oil and rubber firms to help GM bankroll a propaganda and lobbying effort that continues to this day.[100]

One of the earliest depictions of the modern superhighway in America was the Futurama exhibit at the 1939 World's Fair in New York, sponsored by (who else?) GM.

> The exhibit… provided a nation emerging from its darkest decade since the Civil War a mesmerizing glimpse of the future–a future that involved lots and lots of roads. Big

[96] Ibid., p. 219.

[97] George Orwell, *1984*. Signet Classics Reprint (New York: Harcourt Brace Jovanovich, 1949, 1981), p. 157.

[98] Ibid., pp. 173–174.

[99] Jim Motavalli, "Getting Out of Gridlock: Thanks to the Highway Lobby, Now We're Stuck in Traffic. How Do We Escape?" *E Magazine*, March/April 2002 <www.emagazine.com>.

[100] Mike Ferner, "Taken for a Ride on the Interstate Highway System," *MRZine* (Monthly Review) June 28, 2006 <mrzine.monthlyreview.org>.

> roads. Fourteen-lane superhighways on which cars would travel at 100 mph. Roads on which, a recorded narrator promised, Americans would eventually be able to cross the nation in a day.[101]

The Interstate's association with General Motors didn't end there, of course. Its actual construction took place under the supervision of DOD Secretary Charles Wilson, formerly the company's CEO. During his 1953 confirmation hearings, when asked whether "he could make a decision in the country's interest that was contrary to GM's interest,"

> Wilson shot back with his famous comment, "I cannot conceive of one because for years I thought what was good for our country was good for General Motors, and vice versa. The difference did not exist. Our company is too big."[102]

Wilson's role in the Interstate program was hardly that of a mere disinterested technocrat. From the time of his appointment to DOD, he "pushed relentlessly" for it. And the chief administrator of the program was "Francis DuPont, whose family owned the largest share of GM stock…."[103]

Corporate propaganda, as so often in the twentieth century, played an active role in attempts to reshape the popular culture.

> Helping to keep the driving spirit alive, Dow Chemical, producer of asphalt, entered the PR campaign with a film featuring a staged testimonial from a grade school teacher standing up to her anti-highway neighbors with quiet indignation. "Can't you see this highway means a whole new way of life for the children?"[104]

Whatever the political motivation behind it, the economic effect of the Interstate system should hardly be controversial. Virtually 100% of the roadbed damage to highways is caused by heavy trucks. And despite repeated liberalization of maximum weight restrictions, far beyond the heaviest conceivable weight the Interstate roadbeds were originally designed to support,

> fuel taxes fail miserably at capturing from big-rig operators the cost of exponential pavement damage caused by higher axle loads. Only weight-distance user charges are efficient, but truckers have been successful at scrapping them in all but a few western states where the push for repeal continues.[105]

As for the civil aviation system, from the beginning it was a creature of the state. The whole physical infrastructure was built, in its early decades, with tax money.

---

[101] Justin Fox, "The Great Paving How the Interstate Highway System helped create the modern economy–and reshaped the FORTUNE 500." Reprinted from *Fortune*. CNNMoney.Com, January 26, 2004 <money.cnn.com>.

[102] Edwin Black, "Hitler's Carmaker: How Will Posterity Remember General Motors' Conduct? (Part 4)" *History News Network*, May 14, 2007 <hnn.us>.

[103] Ferner, "Taken for a Ride."

[104] Ibid.

[105] Frank N. Wilner, "Give truckers an inch, they'll take a ton-mile: every liberalization has been a launching pad for further increases – trucking wants long combination vehicle restrictions dropped," *Railway Age*, May 1997 <findarticles.com>.

> Since 1946, *the federal government has poured billions of dollars into airport development.* In 1992, Prof. Stephen Paul Dempsey of the University of Denver estimated that *the current replacement value of the U.S. commercial airport system* — virtually all of it developed with federal grants and tax-free municipal bonds — *at $1 trillion.*
>
> Not until 1971 did the federal government begin collecting user fees from airline passengers and freight shippers to recoup this investment. In 1988 the Congressional Budget Office found that *in spite of user fees paid into the Airport and Airways Trust Fund, the taxpayers still had to transfer $3 billion in subsidies per year to the FAA* to maintain its network of more than 400 control towers, 22 air traffic control centers, 1,000 radar-navigation aids, 250 long-range and terminal radar systems and its staff of 55,000 traffic controllers, technicians and bureaucrats.[106]

(And even aside from the inadequacy of user fees, eminent domain remains central to the building of new airports and expansion of existing airports.)

Subsidies to the airport and air traffic control infrastructure of the civil aviation system are only part of the picture. Equally important was the direct role of the state in creating the heavy aircraft industry, whose heavy cargo and passenger jets revolutionized civil aviation after WWII. The civil aviation system is, many times over, a creature of the state.

In *Harry Truman and the War Scare of 1948*, Frank Kofsky described the aircraft industry as spiraling into red ink after the end of the war, and on the verge of bankruptcy when it was rescued by Truman's new bout of Cold War spending on heavy bombers.[107] David Noble pointed out that civilian jumbo jets would never have existed without the government's heavy bomber contracts. The production runs for the civilian market alone were too small to pay for the complex and expensive machinery. The 747 is essentially a spinoff of military production.[108]

The permanent war economy associated with the Cold War prevented the U.S. from relapsing into depression after demobilization. The Cold War restored the corporate economy's heavy reliance on the state as a source of guaranteed sales. Charles Nathanson argued that "one conclusion is inescapable: major firms with huge aggregations of corporate capital owe their survival after World War II to the Cold War...."[109] According to David F. Noble, employment in the aircraft industry grew more than tenfold between 1939 and 1954. Whereas military aircraft amounted to only a third of industry output in 1939. By 1953, military airframe weight production was 93% of total output.[110] "The advances in aerodynamics, metallurgy, electronics, and aircraft engine design which made supersonic flight a reality by October 1947 were underwritten almost entirely by the military."[111]

As Marx pointed out in Volume Three of *Capital*, the rise of major new forms of industry could absorb surplus capital and counteract the falling direct rate of profit." Baran and Sweezy, likewise, considered "epoch-making inventions" as partial counterbalances to the ever-increasing surplus.

---

[106] James Coston, Amtrak Reform Council, 2001, in "America's long history of subsidizing transportation" <www.trainweb.org>.

[107] Frank Kofsky, *Harry Truman and the War Scare of 1948* (New York: St. Martin's Press, 1993).

[108] Noble, *America by Design*, pp. 6–7.

[109] Nathanson, "The Militarization of the American Economy," in David Horowitz, ed., *Corporations and the Cold War* (New York and London: Monthly Review Press, 1969), p. 214.

[110] David F. Noble, *Forces of Production: A Social History of American Automation* (New York: Alfred A. Knopf, 1984), pp. 5–6.

[111] Ibid., p. 6.

Their chief example was the rise of the automobile industry in the 1920s, which (along with the highway program) was to define the American economy for most of the mid-20th century.[112] The high tech boom of the 1990s was a similarly revolutionary event. It is revealing to consider the extent to which both the automobile and computer industries, far more than most industries, were direct products of state capitalism.

Besides civilian jumbo jets, many other entirely new industries were also created almost entirely as a byproduct of military spending. Through the military-industrial complex, the state has socialized a major share — probably the majority — of the cost of "private" business's research and development. If anything the role of the state as purchaser of surplus economic output is eclipsed by its role as subsidizer of research cost, as Charles Nathanson pointed out. Research and development was heavily militarized by the Cold War "military-R&D complex." Military R&D often results in basic, general use technologies with broad civilian applications. Technologies originally developed for the Pentagon have often become the basis for entire categories of consumer goods.[113] The general effect has been to "substantially [eliminate] the major risk area of capitalism: the development of and experimentation with new processes of production and new products."[114]

This is the case in electronics especially, where many products originally developed by military R&D "have become the new commercial growth areas of the economy."[115]

Overall, Nathanson estimated, industry depended on military funding for around 60% of its research and development spending; but this figure is considerably understated by the fact that a significant part of nominally civilian R&D spending is aimed at developing civilian applications for military technology.[116] It is also understated by the fact that military R&D is often used for developing production technologies that become the basis for production methods throughout the civilian sector.

In particular, as described by Noble in *Forces of Production*, industrial automation, cybernetics and miniaturized electronics all emerged directly from the military-funded R&D of WWII and the early Cold War. The aircraft, electronics and machine tools industries were transformed beyond recognition by the military economy.[117]

"The modern electronics industry," Noble writes, "was largely a military creation." Before the war, the industry consisted largely of radio.[118] Miniaturized electronics and cybernetics were almost entirely the result of military R&D.

> Miniaturization of electrical circuits, the precursor of modern microelectronics, was promoted by the military for proximity fuses for bombs.... Perhaps the most significant innovation was the electronic digital computer, created primarily for ballistics calculations but used as well for atomic bomb analysis. After the war, the electronics industry continued to grow, stimulated primarily by military demands for aircraft and missile guidance systems, communications and control instruments, industrial

[112] Baran and Sweezy, p. 220.
[113] Nathanson, "The Militarization of the American Economy," p. 208.
[114] Ibid., p. 230.
[115] Ibid., p. 230.
[116] Ibid., pp. 222–25.
[117] Noble, *Forces of Production*, p. 5.
[118] Ibid., p. 7.

> control devices, high-speed electronic computers for air defense command and control networks…, and transistors for all of these devices…. In 1964, two-thirds of the research and development costs in the electrical equipment industry (e.g., those of GE, Westinghouse, RCA, Raytheon, AT&T, Philco, IBM, Sperry Rand_ were still paid for by the government.[119]

The transistor, "the outgrowth of wartime work on semi-conductors," came out of Bell Labs in 1947. Despite obstacles like high cost and reliability, and resistance resulting from path dependency in the tube-based electronic industry, the transistor won out

> through the large-scale and sustained sponsorship of the military, which needed the device for aircraft and missile control, guidance, and communications systems, and for the digital command- and-control computers that formed the core of their defense networks.[120]

In cybernetics, likewise, the electronic digital computer was developed largely in response to military needs. ENIAC, developed for the Army at the University's Moore School of Electrical Engineering, was used for ballistics calculations and for calculations in the atomic bomb project.[121] Despite the reduced cost and increased reliability of hardware, and advances in computer language software systems, "in the 1950s the main users remained government agencies and, in particular, the military. The Air Force SAGE air defense system alone, for example, employed the bulk of the country's programmers…"

SAGE produced, among other things, "a digital computer that was fast enough to function as part of a continuous feedback control system of enormous complexity," which could therefore "be used continuously to monitor and control a vast array of automatic equipment in 'real time'…." These capabilities were key to later advances industrial automation.[122]

The same pattern prevailed in the machine tool industry, the primary focus of Forces of Production. The share of total machine tools in use that were under ten years old rose from 28% in 1940 to 62% in 1945. At the end of the war, three hundred thousand machine tools were declared surplus and dumped on the commercial market at fire-sale prices. Although this caused the industry to contract (and consolidate), the Cold War resulted in a revival of the machine tools industry. R&D expenditures in machine tools expanded eightfold from 1951 to 1957, thanks to military needs. In the process, the machine tool industry became dominated by the "cost plus" culture of military industry, with its guaranteed profit.[123]

The specific technologies used in automated control systems for machine tools all came out of the military economy:

> …[T]he effort to develop radar-directed gunfire control systems, centered at MIT's Servomechanisms Laboratory, resulted in a range of remote control devices for position measurement and precision control of motion; the drive to develop proximity fuses for mortar shells produced miniaturized transceivers, early integrated circuits,

[119] Ibid., pp. 7–8.
[120] Ibid., pp. 47–48.
[121] Ibid., p. 50.
[122] Ibid., p. 52.
[123] Ibid., pp. 8–9.

> and reliable, rugged, and standardized components. Finally, by the end of the war, experimentation at the National Bureau of Standards, as well as in Germany, had produced magnetic tape, recording heads (tape readers), and tape recorders for sound movies and radio, as well as information storage and programmable machine control.[124]

In particular, World War II R&D for radar-directed gunfire control systems was the primary impetus behind the development of servomechanisms and automatic control,

> pulse generators, to convey precisely electrical information; transducers, for converting information about distance, heat, speed, and the like into electrical signals; and a whole range of associated actuating, control and sensing devices.[125]

Industrial automation was introduced in private industry as an offshoot of the military economy. The first analog computer-controlled industrial operations were in the electrical power and petroleum refining industries in the 1950s. By 1959, Texaco's Port Arthur refinery placed production under full digital computer control, and was followed in 1960 by Monsanto's Louisiana ammonia plant and B. F. Goodrich's vinyl plant in Calvert, Kentucky. From there the revolution quickly spread to steel rolling mills, blast furnaces, and chemical processing plants. By the 1960s, computerized control evolved from open-loop to closed-loop feedback systems, with computers making adjustments automatically based on sensor feedback.[126]

Numerically controlled machine tools, in particular, were first developed with Air Force money, and first introduced (both with Air Force funding and under Air Force pressure) in the aircraft and the aircraft engines and parts industries, and in USAF contractors in the machine tool industry.[127]

So the military economy and other state-created industries were an enormous sponge for surplus capital and surplus output. The heavy industrial and high tech sectors were given a virtually guaranteed outlet, not only by U.S. military procurement, but by grants and loan guarantees for foreign military sales under the Military Assistance Program.

Although apologists for the military-industrial complex have tried to stress the relatively small fraction of total production represented by military goods, it makes more sense to compare the volume of military procurement to the amount of idle capacity. Military production runs amounting to a minor percentage of total production might absorb a major part of total idle production capacity, and have a huge effect on reducing unit costs. Besides, the rate of profit on military contracts tends to be quite a bit higher, given the fact that military goods have no "standard" market price, and the fact that prices are set by political means (as periodic Pentagon budget scandals should tell us).162 So military contracts, small though they might be as a portion of a firm's total output, might well make the difference between profit and loss.

Seymour Melman described the "permanent war economy" as a privately-owned, centrally-planned economy that included most heavy manufacturing and high tech industry. This "*state-controlled economy*" was based on the principles of "maximization of costs and of government subsidies."[128]

---

[124] Ibid., p. 47.

[125] Ibid., pp. 48–49.

[126] Ibid., pp. 60–61.

[127] Ibid., p. 213.

[128] Seymour Melman, *The Permanent War Economy: American Capitalism in Decline* (New York: Simon and Schuster, 1974), p. 11.

> It can draw on the federal budget for virtually unlimited capital. It operates in an insulated, monopoly market that makes the state-capitalist firms, singly and jointly, impervious to inflation, to poor productivity performance, to poor product design and poor production managing. The subsidy pattern has made the state-capitalist firms failure-proof. That is the state-capitalist replacement for the classic self-correcting mechanisms of the competitive, cost-minimizing, profit-maximizing firm.[129]

A great deal of what is called "progress" amounts, not to an increase in the volume of consumption per unit of labor, but to an increase in the inputs consumed per unit of consumption — namely, the increased cost and technical sophistication entailed in a given unit of output, with no real increase in efficiency.

The chief virtue of the military economy is its utter unproductivity. That is, it does not compete with private industry to supply any good for which there is consumer demand. But military production is not the only such area of unproductive government spending. Neo-Marxist Paul Mattick elaborated on the theme in a 1956 article. The overbuilt corporate economy, he wrote, ran up against the problem that "[p]rivate capital formation… finds its limitation in diminishing market-demand." The State had to absorb part of the surplus output; but it had to do so without competing with corporations in the private market. Instead, "[g]overnment-induced production is channeled into non-market fields–the production of non-competitive public-works, armaments, superfluities and waste.[130]

> In order to increase the scale of production and to accummulate [sic] capital, government creates "demand" by ordering the production of non-marketable goods, financed by government borrowings. This means that the government avails itself of productive resources belonging to private capital which would otherwise be idle.[131]

Such consumption of output, while not always directly profitable to private industry, serves a function analogous to foreign "dumping" below cost, in enabling industry to operate at full capacity despite the insufficiency of private demand to absorb the entire product at the cost of production.

It's interesting to consider how many segments of the economy have a guaranteed market for their output, or a "conscript clientele" in place of willing consumers. The "military-industrial complex" is well known. But how about the state's education and penal systems? How about the automobile-trucking-highway complex, or the civil aviation complex? Foreign surplus disposal ("export dependant monopoly capitalism") and domestic surplus disposal (government purchases) are different forms of the same phenomenon.

[129] Ibid., p. 21.
[130] Paul Mattick, "The Economics of War and Peace," *Dissent* (Fall 1956), p. 377.
[131] Ibid., pp. 378–379.

III. Conclusion

So the unique potential of electrical power, for many decades, was diverted into a mass-production cul de sac. Only with the decay of the Sloanist system, beginning with the economic stagnation and oil shocks of the 1970s, did electrical power begin to live up to its decentralizing potential. A new mode of industrial production emerged based on the unique potential of electrical power: first the large-scale lean production methods developed by Taichi Ohno, the basis for the Toyota Production System developed in the '50s and '60s, which began to cause American industry such grief in the 1980s; and second the model of networked manufacturing (most notably that of Emilia-Romagna) that became so prevalent in the stagnation of the '70s and '80s. As Piore and Sabel put it, industry rediscovered, after a century-long dead end, how to integrate electrical power into manufacturing.

The decay of Sloanism, and the industrial models that are supplanting it, will be the topic of the next C4SS paper.

Kevin Carson
MOLOCH: Mass-Production Industry as a Statist Construct
July 2009

Retrieved on 3rd September 2021 from c4ss.org
Center for a Stateless Society Paper No. 3

theanarchistlibrary.org