

CHAPTER 5

Industrialism: Invention Is the Mother of Necessity



THE DEVELOPMENT OF INDUSTRIALISM

Industrial capitalist societies are both the most efficient and the most wasteful ever. (We'll see why.) *Industrialism* has been the basis for much of modern well-being; but as it now functions, it seems likely to destroy Mother Nature (and ourselves). In attempting to explain our current predicament, what follows is a selective summary of industrialism's development. (For a fuller discussion, see Bowden.)

In the ensuing discussion and its many parts, it will be useful to keep in mind several related questions:

1. What is produced—and why?
2. What is not produced—and why?
3. How are things produced?
4. What are the structures of control of production?
5. What is consumed?
6. Who is doing the consuming?
7. How well are human and natural resources used, as measured in terms of satisfaction, stability, safety, time, the environment, needs and possibilities?
8. How much of our wastes are destructive ones?

Implicitly or explicitly, those are the questions guiding what follows.

Industries and Industrial Societies

First, a word about *industrialism*. It does not refer simply or mostly to *nonagricultural production*. From the time that *Homo sapiens* began to make tools and weapons and up into the industrial revolution (1750–1850), there had been industries. But they were small and not part of what is now meant by industrial production.

Those industries — for clothing, household items, weapons — began as human beings did. The scale of production was a human one. When the industrial revolution began, they were called *handicraft* or *cottage industries*. The producers of clothing were mostly farm families, who made cloth (and shoes) on the side. They used spinning wheels. In the towns, skilled craftsmen made tools and weapons (and fancy clothes for the rich).

Industrialism goes far beyond that. To begin with, it points to a society with very complicated ways of producing all kinds of things in *huge* quantities. It refers to a particular kind of society, one that uses machinery in factories, machines that run on coal, oil, electricity. And producing just about everything. Quantities? For the past 150 years, the amounts of everything have gone sky high compared with before 1800.

Industrial societies have some common characteristics:

1. They all must have huge cities. There were cities before industrialism (Paris, London, Shanghai), but there are no industrial societies without them. China, for example, had Shanghai centuries before its industrialization. But just since its industrialization began in the 1980s, China has built close to *200 cities with populations over 1 million* — with disastrous consequences for its peasant population. This is China’s version of Britain’s enclosure movement. (See above and *Part III*.)
2. Industrial capitalist societies, as noted earlier, are divided into two major classes: capitalists and workers.
3. All industrial societies must soon have a population at least half of which has at least a high-school education.
4. Industrial societies cannot function without strong governments to deal with their many social, political, and external complexities.

Before industrialism became dominant, some of the above characteristics existed — cities and education, for example — but they were not really essential. Now they are.

The Role of Technological Invention

Now to technology itself. There is an old saying, “necessity is the mother of invention.” There is much truth in that. But in his *Imperial Germany and the Industrial Revolution*, Veblen was probably expressing a stronger truth when he turned that around to say that “invention is the mother of necessity.”

Veblen’s position could be put more loosely as “one new technology requires

another.” Or, as “one thing is the result of many others and leads to the need for many, many more.”

A good example is what happened in the cotton textile industry: As you read the bit of history that follows, you will also see how invention was the mother of necessity.

In Britain, as the eighteenth century went on,

rising foreign demand [for its cotton textiles] spurred mechanization of the industry. More specifically, an *imbalance* between the *spinning* and *weaving* processes led to many of the innovations. The spinning *wheel* was not as productive as the hand *loom*, especially after the 1730s, when the flying *shuttle* was invented and the weaving process speeded up considerably. This imbalance was reversed by three later inventions: the spinning *jenny* [1769], with which one person could spin several threads simultaneously; the water *frame* (1775) which improved spinning by using *roller* operating at different speeds; and the *mule* (1770s) which contained features of the other two and permitted the application of steam power. These new inventions could be used most economically in factories located near sources of water power (and later *steam* power)...each employing...from 150 to 500 people...and textile manufacturing in England was rapidly transformed from a cottage to a factory industry. (See Hunt.)

Note that in the progression of inventions for individuals in their cottages—spinning wheels, hand looms, the spinning jenny and the water frame—all of those were powered by hands or feet.

But the *mule* could only be used with steam power. That meant factories, larger-scale production, many more workers, and the modernization of the steam engine—previously small and used for coal mining—so it could be used in factories. And so on.

Before you could say industrial revolution, there were big jumps in domestic and foreign trade, which also gave rise to spider webs of *internal* transportation, the railroad, and the 1850s, the modern corporation. Partnerships could no longer handle the financing.

All of that brought whole continents together, made for greatly increased volumes of production, required more efficient machinery, a machine-*tool* industry, larger factories, cheaper steel, and on and on and on.

Put that all together, and it adds up to the necessity to go beyond tinkering and brainy inventions like the steam engine. In addition, an understanding of the basic elements of life—*science*—was needed.

Science had its origins in the ancient world. But modern science was a result

of both the techniques and the needs of modern industry. And science-plus-industrialism's products have also given rise to many serious problems: among many others, those related to oil or automobiles or nuclear power and nuclear weapons.

The most obvious of those problems are also the most serious: those related to environmental or war destruction—or both, since war always entails an assault upon the environment.

The New Big Producers: The USA and Germany

The growth of industrialism was both dependent upon and brought about *non-technological* changes in our economic, political, and social lives. We start with the economy, since very little of importance has happened in capitalist economies that did not also allow or cause big changes in their politics and culture.

Industrialism inevitably came to mean always increasingly large-scale production. The leaders in those developments were not the British, but the USA and Germany. Britain was not the strongest and wealthiest nation, but it was the first with industrialism.

Leaders almost always end up resting on their oars. Veblen noted in 1915 that the British are paying the penalty for having been thrown into the lead [and] then being held back by the dead hand of their achievements...[as the Germans] show the advantages of borrowing. (*Imperial Germany...*)

The British were the main traders and financiers for other nations, especially the USA and Germany. The USA had much greater amounts and kinds of natural resources; the Germans had only forests and (the wrong kind of) coal. They *had* to use science to go ahead.

The Second Industrial Revolution

Germany did not even become a nation until the second half of the nineteenth century. It had evolved from over 300 principalities. Each of those had a government and bureaucrats who had to know how to read and write. As a result, Germans became the best-educated nation in the world. That educational underpinning combined with Germany's needs to spur Germany to lead the scientific and technological advances of the late nineteenth century. It was called *the second industrial revolution*. It was very different from the first—and both of them very different from the recent and ongoing third industrial revolution.

The first revolution was dominated by steam and simple machinery; the

second was dominated by technologies made possible by advances in chemistry and physics. They made larger-scale production both possible and necessary. (As *Part III* shows, the *third* revolution—electronics, biotechnology—is still going on.)

Although the ideas for those second-generation developments were mostly German, they were put to use most successfully in the USA. That was made easy by our excellent natural resources and our large population—important for both production and consumption.

The larger the scale, the cheaper became each unit produced. The evolving technology created cheaper steel, cheaper machinery, cheaper food and clothing, and—importantly—cheaper transportation of light and heavy products *and* of people.

Building the U.S. Railroads

So, remarkably, by the end of the Civil War and the outbreak of World War I, the USA had laid over 200,000 miles of railroad track. Here another tracing out of some of the interactions between technology and social processes:

The economic costs of ‘laying’ those rails were of course high: for steel, machinery, fuel, lumber, labor, land, buildings. But the influence and power of business in government was also becoming ‘higher’; The U.S. government gave the rail companies 242,000 square miles of land. That equalled two-thirds of the total cost of rail construction. Those great chunks of ‘land grants’ were on both sides of the tracks. On those lands arose towns, cities, and farms. That made the lands increasingly valuable and made the railroads always richer. They still own a lot of it. That’s politics. (See Du Boff.)

That’s only one interaction.

Importing Labor to Lay the Railroad Tracks

Let’s look at another interaction. Who was it who did the hard, dirty, and dangerous work of laying all the railroad tracks in the West? For the routes west of the Mississippi, the answer was immigrants. But *which* immigrants? The railroad years saw always rising immigration to the USA from Europe. That was just enough to keep the factories in the East, Midwest, and Pacific Coast going. But what about the freed slaves of the South? Couldn’t they have become a source of the needed labor? That was out of the question.

The story is an ugly one as noted earlier in the *Foreword*. In those same years, the U.S. Congress gave the South the freedom to mistreat—and hold—its

black population almost as though they were still slaves. That meant that in the very years in which that railroad was being built, it was extremely difficult and dangerous for free blacks to leave the South.

So if there was to be a rail network extending from the territory west of the Mississippi River to the Pacific Ocean, it needed an additional labor force. The solution was found in importing very cheap—in truth, *slave*—labor from China.

Tens of thousands of Chinese men were forcibly imported and treated in horrible ways very similar to those perpetrated upon African-Americans before and after the Civil War. They came to be called (by themselves and us) *coolies*—the term for *bitter strength* in Chinese. The coolies labored for many decades in rail construction in the West. A high percentage of them died—from disease, malnutrition, beatings, and murder.

As the twentieth century began and the railroads neared completion, the Chinese were released from that work. The greatest number of them came to live on the West Coast, mostly in San Francisco. Mostly poor and easily distinguishable as Asians, they were severely discriminated against.

Item In my hometown of San Francisco (not the most racist city in the USA), until after the 1950s neither blacks nor Asians could rent or buy a house or apartment except in *their district* (that is, their own *ghetto*).

Real Progress: From Literacy to University

Those are only a few examples of negative consequences of technological progress. One of its *positive* consequences was that in the USA and everywhere else industrialization came to make it necessary and possible for workers to learn to read and write. Until the very end of the nineteenth century, whether in Britain or the USA, a large majority could not do either. However, as the twentieth century began, those who had at least a grammar school education were in the majority.

Then, as World War I ended (1918), the second industrial revolution had made a high school education increasingly necessary for any kind of a good job—whether blue collar in a factory, or white collar in the always more numerous offices—and schools. (See Faulkner.)

Story—An Education for School My mother was born in Brooklyn in 1893. Her emigrant father was a carpenter. The family went to San Francisco after the 1906 earthquake and fire, so that he could get a job. My mother had finished grammar school, but nothing more. In the 1920s, divorced from my father,

she began to do sales work for a company making *comptometers*. It was a non-electrical finger-operated machine with a keyboard something like a huge typewriter (with no ribbon) for doing math. As they became popular, there was a need for high school teachers who understood them. She applied for the job. To be a high school teacher you had to have a college degree. She had never even been in a high school. She told the officials that both her high school and college documents were burned up in the big fire of 1906—when she was only 13. But she was pretty. They believed her. And she was a fine teacher.

Now the *third industrial revolution* is coming to mean that a *college* education is required for what is termed “a good job.” However, going to college becomes always more expensive, and even with one, those highly prized good jobs are always harder to find—whether in the USA or Europe. (See *Part III*.)

THE CORPORATE RISE TO DOMINANCE

Now we return to the first industrial revolution and what its factory sizes meant for the size of companies.

The companies of Britain’s industrial revolution were *tiny* compared to today’s. An individual or one or two partners owned and controlled virtually all of the mines and the mills. By the 1850s, that arrangement wouldn’t work. So it was that in 1855 the modern corporate form was invented. Since then, it has changed in all ways, mostly for the worse.

The corporation was created, independently and simultaneously, in Britain and the USA, and for the same reason: The large-scale factories required amounts of financing a few individuals could not raise. The corporation solves that problem by getting large numbers of individuals to buy its shares in the stock market.

But what first arose out of need soon became a spawning ground for increasingly large-scale, national, and global financial activities, some legal, some not—but none having the needs of the society in mind.

The Robber Barons: Early Fun and Games

From the 1870s on, the corporate form opened wide the door for:

1. The monopolistic control of markets
2. Widespread business corruption
3. Wild speculation

Those dominating the history of the first decades of corporate fun and games were called *The Robber Barons*. (Josephson) Their offspring—J. P. Morgan and John D. Rockefeller the best-known—were able not only to become *very* rich, but also to become *very* powerful and *very* respectable.

Now a few words about John D. and J. P., as examples of what has been going on even more ever since. Rockefeller went from being a nobody to becoming a household name by making one big company out of lots of small ones, first in trains and then, his big triumph, in oil.

When he got started, oil was used mostly for illumination (as kerosene). *Oil for the Lamps of China* was the title of a famous book in the nineteenth century. By the early twentieth century, John D. had merged many oil companies into the giant Standard Oil. A skilled controller of energy and transportation, Standard Oil became a model for many other industrial corporations. John D. and his companies went on to become big dealers in finance and politics.

J. P. Morgan became the first really big giant of the financial world (as his company is still—if also in legal troubles). His first big victory was in 1901. In the 1870s there were thousands of small steel companies. By the 1890s they had become hundreds of larger steel companies. J. P. made all of them in one giant company—U.S. Steel (USS), biggest in the world until after World War II. J. P. made millions just for organizing that deal, and USS was the first billion-dollar firm. And for a while I worked for it.

From Combinations to Mergers and Acquisitions

The combination process that was young when J. P. started became more rapid and always more inclusive; now it's called M&A's (for "mergers and acquisitions").

The *annual* number of M&A's rose from a handful in 1895 to 2,000-to-3,000 between 1900 and 1905, settled down to 1,000 to 1,500 in the 1920s, and broke all previous records in the 1970s when they went over 3,000 in one year. (See Du Boff.)

But that was just the beginning. In 1985 they shot up to 5,000. But that's still peanuts! In the 1990s and particularly since the year 2000, those numbers have come to look small. M&A's are the name of the game.

But it was not only the great rise in the numbers of M&A's that was disturbing. At least for an economy priding itself on its *free markets*—that is, an economy of small, individually weak companies all competing with each other with the

lowest possible prices. One thing was that the M&A's were always combines of already very large firms (from earlier M&A's).

But that's not all. As the numbers went up, so too did what was being brought together—that is, what kinds of companies were being combined into one and what they were doing with their great business and political power.

Before World War I, the *combinations* were what were called *horizontal*; many firms all making the same kind of thing (such as shoes or steel). By the 1920s, to those M&A's were added a new kind: *vertical*. A steel company buys up a coal company or a bridge-making company; three very different stages of production now all wrapped up in one company. (Du Boff)

But also in the 1920s there began the so-called “conglomerate” mergers. Company One's products or services have *nothing* in common (except moneymaking) with the companies Two, Three, and Four that they merge with. An ominous example is General Electric buying up *media* companies (and then buying up other media and even airplane engine companies).

Even Bigger Still: Multinational and Transnational Corporations

From the 1960s on, there were two additional developments with M&A's:

1. They became international, which meant *multinational* corporations (MNCs).
2. Then, from the 1980s on, they became *transnational* corporations (TNCs). (Ravenscroft/Sherer)

From MNC to TNC was more than a change in words—and it too had a lot to do with the evolving third industrial revolution. At the center of that revolution were extraordinary changes in communications, production, and transportation.

More of all this will be examined along with globalization in *Part III*. What follows here is meant to shed light on the changes technology both creates and depends upon—the needs that lead to inventions and the inventions that create new needs. The differences between MNCs and TNCs illuminate both ends of that process.

MNCs and TNCs do have much in common, of course. Both are very big companies dependent upon substantial big international markets for what they sell; and both have led to frequent and reckless deals.

Whatever they might have in common, the MNC was usually a company that

had branches in other countries. The MNCs did not export their *factories*. The TNCs do.

They could do that—they would say they *have* to do that—because of the dazzling new technologies of communications, production, and transportation. *Have to?* Well, if they didn't, someone else would.

Can You Export an Entire Factory?

Here's a lesson in economics. In the case for global free trade made by the economist Ricardo in 1817, he argued that *all* nations would be best off, *if* certain conditions were met. Then followed the assumptions.

Theory is a kind of shorthand guess at describing reality. *Assuming something* is a central and necessary characteristic of *all* theory (whether in physics, chemistry, or economics). If the set of assumptions is not met, the theory falls apart. The *major assumption* for Ricardo—the condition that had to be met—was that capital equipment would not move from one country to another. He assumed it could not. Indeed, in his time, that was a sensible assumption to make. The industrial revolution had just begun, and Britain was the *only* nation with even the first stages of what would become industrial equipment.

However, and as noted earlier, recent technological developments have not only improved transportation and communications, they have also led to the “smallifying” of capital equipment.

Example Before World War II, the main producing facilities for steel were huge, and they were stuck in one place. (Think Pittsburgh or Youngstown.) Now, steelmaking equipment is transportable, and the production of steel is broken down into many different factories where one did it before. Not only that, there are also many steel factories all over the world—in Brazil and India, for example. They have made business difficult for U.S. Steel. Their very existence makes Ricardo's theory useless.

But that theory is still the theoretical justification for globalization—which, as will be seen in *Part III*, is steadily ruining the economies of what used to be the top industrial economies in the world: including ours in the USA.

What only began in the 1980s was quite common a decade later. New factories sprang up around the world whose machinery (and other nonhuman capital) had been shipped abroad, mostly to take advantage of local and regional human capital, in the form of *very cheap labor*. Also facilitating the move were the modern developments of rapid transportation and almost instant communications.

That was the heart of globalization. And like Britain's trading and lending

in the nineteenth century, globalization has reared up and kicked back on the major economies. The biggest kick is being given by China's economy—to the USA and most of Europe.

End of econ lesson.

TODAY: THE ERA OF FINANCIALIZATION

Finance, Not Production

The TNCs also paved the way for the financialization of the U.S. economy (among others). The strength and dynamism of the USA for more than a century was based on its industrial production. No more. Nor these days is there all that strength and dynamism.

Industrial capitalist economies are always somewhat stormy. But financialization, because of its combination of enormous borrowing and raging speculation adds *fragility* to that economic weather report. Pretty dangerous stuff. Here are a few examples (with more later on).

In this era of *financialization*, it has become common for giant companies (of all sorts) to be caught with their financial pants down. One *star* company after another—Enron the best-known (up to now)—is found to have lied, cheated, and stolen on a grand scale. So what? Well, in the case of Enron, billions were stolen, its product (electric power) broke down, and power costs for you and me soared. All of that (and more) so that just a handful of execs could have fun, play games with their power, and get a lot richer.

Corruption and greed are not new to the world of capitalism. What is new is how much easier it is to steal *big* when companies are concerned more with finance than with production—and when they are helped by crooked accounting companies. And, usually, they get away with it. All we learn about are the minority, who are reckless and stupid enough to get caught.

CEO's: Financial Affairs and Lavish Life Styles

All of that is related to another common shift. Until recently the presidents of corporations (now called CEO's) almost always had a lot of experience and knowledge concerning the products and production of their companies.

That is always less true. Now you can be the CEO in Company B only because of a spectacular record with the *financial affairs* of Company A. (And you don't need to know a thing about the widgets that either company makes or any services that either provides.) How does it work?

The deal you had with Company A was juicy: A yearly salary of \$1 million or more, *plus* several millions worth of stock options, to be sold at just the *right time*. And you, as CEO can *create* the right time to cash in, and since you created it, you will certainly know about before everybody else.

Plus Company A gave you living expenses, because you obviously have a lot of living to do. These included:

- Your fancy apartment (make that *very fancy* apartment: for the CEO of TYCO, complete with a \$6,000 shower curtain)
- Your car (with driver)
- Your yacht (and crew)
- Your country club and city club dues
- Your leased private jet (with aircrew)
- Paid vacations
- Complete medical coverage for your entire family
- Millions of dollars of (paid-up) insurance
- An offshore account (or two or three...to avoid those *pesky* taxes)
- A fat retirement

That's what you had with Company A. And all these necessities of executive life are assured even if, as is now common, Company A does badly under your rule. (Especially its workers!) You're set. So why would you ever leave?

Because Company B *raises* the ante. As for Company A—except for maybe hanging onto some particularly valuable stock—forget it, it's ancient history. *You're outta there.*

Worse than a Casino

When, more than 50 years ago, the head of GM said “What's good for General Motors is good for America,” some agreed and some sneered. But, whatever was wrong with that (and plenty was), the concern was with the company's production and sales, not with the secret manipulation of its financial assets. Times have changed.

Speculation in stocks and bonds are only part of the problem. Like a lot of things (drinking, driving fast...) that are OK up to a point, speculation *can* serve a useful function. But in the 1920s—neither for the first nor last time—it got out of hand. Writing in 1936, with the 1929 stock market collapse still in mind, Britain's leading economist warned that

Speculators may do no harm as bubbles on a steady stream of enterprise. But

the position is serious when enterprise becomes the bubble on a whirlpool of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done. The measure of success obtained by Wall Street, regarded as an institution of which the proper social purpose is to direct new investment into the most profitable channels in terms of future yield, cannot be claimed as one of the outstanding triumphs of free market capitalism—which is not surprising, if I am right in thinking that the best brains of Wall Street have in fact been directed towards a different object. (J. M. Keynes [1883–1946])

But compared with today, the Wall Street Keynes was concerned with was kids playing marbles. Now, the financial world—especially in the USA—is worse than a gambling casino. The damage done by gamblers is limited to the game’s losers, and their families, whereas what’s going on now harms the society as a whole. Disaster looms.

As will be discussed at length in *Part III*, the damages lurking around the corner now are *without* limits. They threaten the entire global economy and the societies that depend upon it. Two recent headlines from the *New York Times* give a flavor of the new century:

1. “Rude Awakening for spendthrifts”
2. “Pension plans turn to richer, shakier ground” (2005-11-28) They both concern the USA. But the USA is the gorilla in the living room of the world economy.

The first article concerned average borrowing and spending: In the 1980s and 1990s, “total household saving based on *earnings*” was always positive, usually close to \$200 billion; in the past 5 years, household *spending* exceeded earnings by always higher amounts—“plunging to \$600 *billions* more than earnings by the fall of 2005.”

The second article’s “Turning of pension funds to richer, shakier ground,” refers to the speculation of those funds in derivatives and hedge funds. Both derivatives and hedge funds are instruments, relatively new features of financialization. And they are both potential instruments of mass destruction.

When pension funds are discussed later it will be seen that they are on—or over—the edge of the cliff, taken there by unregulated managers. (Another article: *NYT*, 2005-12-02.) It’s bad enough that “innocent” speculators are hurt. It’s much worse when the workers and their families lose their pensions (their means of life) because *others* have been gambling with them.

THE MANY PROBLEMS OF INDUSTRIALIZATION

Mass Production, Mass Man, Mass Woman

Now, and before turning to the meanings of industrialism for our natural environment, here a comment on how greatly modern technologies and industrialism have affected “our heads, our hearts, and our minds”—our thoughts, feeling, and behavior.

The mass production of our time has not only meant very big companies, but very big factories and offices and cities and very big...almost everything, Hooray? Yes and no.

Cheers for the abilities and needs of modern societies to provide its people with more comfort, more education, more health care, more, more, more of...no matter what. Two or three cheers for those who have *made it*.

For those who have not? For the poor? The UN estimates that 45 percent of the world’s people are poor; and in the USA, by even its own understated measures, at least a fifth of us are. Industrialism has a significant downside.

In the industrialization that may be seen as beneficial something negative was lurking. Its unspoken name was *Problems*. As the twentieth century unrolled, Problems jumped out of hiding, bringing various troubles, up to and including disasters.

As those Problems are now (and again in *Part III*) noted, it is important also to remember that the premodern world was nothing like heaven on earth. As pointed out earlier, life was typically nasty, brutish, and short for almost everyone, everywhere (if also mirth and merriment for the handful on top).

Of course many parts of the lives of most of us in the rich countries are *much* better than those of the majority centuries ago. But (to raise a point also touched upon before) in gaining what *could* be a bountiful society for all, *not only is it not bountiful for most, but it is detrimental or injurious for almost everyone*.

Almost all of us suffer, because mass production has brought with it not only mass *consumption* but also a mass *mentality*.

Whether in the USA or France or Italy or wherever in (at least) the rich countries, we have become something like soldiers marching to the same tune, in the same direction, at the same time. Like soldiers—and their officers—we plod along without a clear idea of where we are going, or why. One deservedly respected economist wrote a good book about that: *The Joyless Economy* (Scitovsky).

These mass-mankind tendencies—at work, shopping, at school, in

recreation—had already become noticeable as the twentieth century began. Then, as modern industrialism strengthened and spread, and as modern communications and advertising increased their skills, the march toward conformism was strengthened for almost all.

Now, whether on the job, in a theater or a concert, out shopping or at home, we are part of a crowd, try as we might to be individuals. We, too, have been mass produced.

The origins of this “mass-ness” in our lives were in the economy, in the size and scope of production and consumption. But what began there has now come to dominate almost everything. Perhaps everything that’s gone wrong was unavoidable. With the Big Four dominating, probably so.

Money, Capitalism, and Politics

What has gone wrong includes our politics. Our politics—who gets elected to do (or not to do) what is ostensibly good for society—are dominated by those who dominate our economy.

It is now almost impossible to win an election without lots of money for TV and billboard and periodical ads—millions to be the mayor of New York; much the same, if a bit less, for San Francisco. For President of the USA? Several *billion* dollars—that’s several *thousands* of millions of dollars.

Then, once elected, and in addition to playing the game with those who bought the election for you, you are visited regularly by \$250,000-a-year-lobbyists representing, usually, the paymasters of your election (who sell cars, beef, oil, pharmaceuticals, soap, fashions, fast food—you name it).

There are at more than 90,000 paid lobbyists in Washington, D.C., alone. (Phillips, *Arrogant Capital*) And the companies they represent have at least that many also plying their trade in state capitols and in city halls.

Selling Soap, Selling Candidates

On top of which are the friendly strangers who visit our homes for many hours each day. We glue our eyes and ears to the images of newsreader-actors, who lull (or frighten) us with the latest corporate-approved tales of the day, spinning a sly web of predigested sound bytes, talking heads, and corporate video news releases. We tune into myriad versions of sugar-coated unreality—sitcoms, soap operas, reality shows, game shows. And sports makes us all heroes for a day. With television, wish fulfillment is only a channel hop away.

During the intermissions, we are enraptured by photogenic pitchmen (and

pitchwomen), highly paid to shape popular culture, massaging their (pretested) promises of a better life to suit the needs of those who sell the cars...the beef...the oil...the pharmaceuticals...the soap...the fashions...the fast food...*the candidates*.

Never mind that people who watch TV are not soothed by the activity, but agitated, disturbed—and chronically misinformed. (See the alarming and comprehensive book by Neil Postman: *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*.)

INCREASING INDUSTRIAL EFFICIENCY, INCREASING WASTE

Industrial economies have been the most efficient. But as they have become always more efficient they have also become always more wasteful. How can both be the case?

The answers are complicated. Put simply:

- *Efficiency* is in how things are produced in a particular factory.
- *Waste* is caused by what is produced and how it is used in the society.

The Sales Effort — What a Waste

But why has waste always increased? At the very center of the structure of waste in the industrial sector is *the sales effort*, led by television, and ultimately the shaping of social mentality, which is consumerism. That sales effort is part of industrial waste. The larger the commitment to selling, the more waste produced. And sales and marketing budgets—advertising and public relations—are ever on the increase: burgeoning waste.

Let us consider the matter of toothpaste. The modern factory produces and packages toothpaste with great efficiency. Contrast that with the contrived and massive inefficiency of an economic system that has people pay for toothpaste a price over 90 percent of which is owed to the marketing, not to the production, of the dentifrice.

In other words, if you pay \$3 for a tube of toothpaste, no more than \$0.30 of that represents the costs of the toothpaste itself, the tube enclosing it, and the wages involved. The rest (at least \$2.70) goes for variations, advertising, and profits. There's a lot of waste there.

A Culture of Consumerism

If sales were determined only by people's needs, our culture wouldn't boast of "keeping up with the Joneses"; nor would we have our consumeristic economy.

Consumerism does not mean just buying any more than gluttony means just eating. It is pernicious, pathological, a disorder. It is consumerism that explains why the inefficiency of the economy as a whole (rather than its individual plants) continues to get worse. The USA led the way for consumerism; massive and always cleverer advertising turned that trick.

Item The best job opportunities for experts in social psychology are with the biggest consumer goods companies—luring people into the abyss of consumerism.

Production Is for Profit

In capitalist economies, the aim of production is to make a profit. *Period.* At least two things must be done to achieve that goal:

1. Keep costs down

Costs for labor, materials, and machinery are kept down by increasing *productivity*. Technological progress lowers the unit costs. And a big company can push down the price of its materials when they are bought from smaller companies. Further, holding back unionism lowers the cost of the package of wages and benefits. (Workers who unite tend to be more expensive for the capitalist class.)

2. Keep sales up—*at a good price*

This is waste, pure and simple.

Toothpaste isn't important. Automobiles are. And as is true for almost all consumer goods (and such things as computers), the processes within which they are made and sold become always more efficient and, at the same time, always more costly to the society.

KEEPING UP WITH THE AUTOMOBILE INDUSTRY

Cars are thought to be synonymous with our transportation *needs*. These needs include getting back and forth to work, getting to where we shop (for food and clothing), going to the doctor, attending a show...And the cheaper, the faster, and the safer the better, no?

If you live in a city or a suburb in the USA, the cheapest, fastest, and safest way to do those things (and much else) is by public transportation (if it still exists)—buses, streetcars, trains, and where I live, cable cars. But for some time now, the public transportation scenario is bad and always getting worse.

Automobiles have their own set of associated problems. If you take your own car, you'll get into a traffic jam, maybe even gridlock. You are polluting the air every minute your motor is running, and you and your passengers will be

endangered by your own or others' lousy and inconsiderate driving. And then consider cost to you.

What a Passenger Vehicle Really Costs

Add all this up:

1. The price you paid for the car
2. Your interest costs on your car loan
3. The cost of insurance (on the car, driver(s), passengers; liability, uninsured motorist)
4. The cost of routine maintenance (parts and labor), preventive maintenance, and unscheduled repairs
5. The cost of fuel and oil for your vehicle
6. The cost of a garage (freestanding, dedicated, or rented)
7. Tickets—parking, speeding, or worse
8. Tolls (bridges, roads), taxes and fees, licenses
9. Parking expenses (meters, short-term garage stays, ferries)
10. What you could have been doing with the time wasted in traffic
11. In the worst case, court costs, fines, hospital stays, jail time

Have I left something out? Oh, yeah! Doctor's fees for heart attacks from fright.

Ah, but you want to go on a vacation, or visit a friend out in the country (and don't wish to have your trip determined by train schedules). Well, there are rental cars; and now there is rental car-sharing that is both inexpensive and convenient.

GM Murders Public Transportation — and Makes a Killing

If we had allowed our public transportation systems to rise with need—instead of the opposite (see below)—and if we were to calculate the costs of having and using a car (or two cars, as is true for close to a majority of families), public transportation would also cost *much* less. And if it were not for the auto industry's smart tricks, there would be much more and better and cheaper public transportation than now.

What smart tricks? Start here:

- One bus can eliminate 35 automobiles.
- One streetcar, subway, or rail transit vehicle can substitute for 50 passenger cars.
- One train can displace 1,000 cars or a fleet of 150 cargo-laden trucks.

So what would *you* do if you were in the transportation business—that is, if you were a big company selling not streetcars, subways, railcars, or buses, but *automobiles*?

Well, let's take a quick look at what the GM did, when before World War II, it was the biggest car company in the world. (Now it's edging toward bankruptcy.)

In the 1930s they started a drive to increase auto and truck sales by getting rid of rail and bus systems. How? They bought 'em up and closed down more than 100 electric rail systems in 45 cities—including New York, Philadelphia, Baltimore, St. Louis, Oakland and San Francisco, Salt Lake City, and Los Angeles. (Snell)

Earlier, in the 1920s, GM also took the first steps toward making the industry into what it has been since the 1920s. GM was the first to become a merger of most of its main competitors: Buick, Cadillac, Chevrolet, and Pontiac. Those mergers were soon duplicated by Ford and Chrysler.

1923: GM Creates the Modern U.S. Auto Industry

In 1923 GM introduced three big and enduring changes, with a fourth appearing about the same time. These would propel the U.S. auto industry in the modern and vastly more wasteful age.

1. *A different model every year*—With the many changes and variations almost entirely for *looks* (not for better functioning or safety—that is, not for actually driving better)
2. *General Motors Acceptance Corp. (GMAC)*—Through which customers could for the first time *borrow* money to buy a car
3. *Mass advertising*—Calculated to lure the public into buying...buying...buying
4. *Planned obsolescence*—Ford and the others also went along with what GM also did (but could not advertise). Starting in the 1920s, cars were designed to wear out, need repairs, and just generally not function properly after only 3 years. *Planned obsolescence* was what the car makers themselves called it.

It should have been called *deliberate waste*. But what it was, was *good business*. It created the used-car market (for folks with middle and lower incomes), and it stimulated the parts business for older cars—for long a major source of GM profits through its longtime subsidiary, Delphi (which filed for bankruptcy in 2005).

Story My wife is Italian. She has three brothers, who together own and run an

automobile parts factory. There they make everything except the chassis and the engine, and they sell their products all over the world. Two of the brothers are on selling trips much of the time—to Japan, France, Sweden, Korea (all places with lots and lots of cars).

One day, curious, I asked one of them, “Marco, how come you never come to visit us in the USA?”

He replied, “We can’t sell our parts to U.S. companies.”

“Why not?”

“Because we guarantee all parts for ten years.”

So my brother-in-law’s parts are just *too good* for us. That’s U.S. car manufacturers’ planned obsolescence for you.

Boom, Consolidation, and Now Speculation

So what did all that mean? To whom and to what?

Item In 1939, a Federal Trade Commission did an inquiry on the auto industry. In it GM had to present statistics. The numbers GM produced showed that only 15 percent of its gross income was for production; the other 85 percent was for advertising, distribution, and profits. GM’s stated profits from 1928–1939—during the worst depression in history—were *very* high, averaging 35 percent as a return on net worth. (And 10 percent on net worth is usually considered high). The production costs included those deemed *necessary* for the annual trivial style changes of their dozens of different models. (See FTC.)

Given the advertising associated with all of that, Ford and the others soon had to join in. But soon, also, there were fewer and fewer others. By 1930, the hundreds of U.S. auto producers of about 30 years earlier had shrunk to fewer than 30. By 1965, there were only three: GM, Ford, and Chrysler. (And now Chrysler has been taken over by the German firm Daimler.)

GM’s bonds in 2005 are rated by Wall Street as *junk bonds*. Since the 1960s, GM has reduced its U.S. production by half and plans to reduce jobs in seven of its North American plants. So now is it “What’s Bad for General Motors is Good for America” or what?

By itself, that’s bad enough. But now discharged employees have to worry about their pensions. They are at serious risk, because—like many hundreds of other companies, large and small—GM has been what they call “investing” the pension funds. That is, translating the corporate spin into English, they have been speculating—or in plain talk, *gambling*—with the pension funds. And GM hasn’t been much good at it.

The Forever Car

GM did not have to be the ruler of the roost and king of planned obsolescence. There once was a very different kind of U.S. car company...

Story About 50 years ago, a Detroit engineer produced a strange automobile named after himself: The Tucker. It was different—very different. It was designed “seldom or never to need an oil change,” and “to be the same every year,” and “to last forever.” Tucker produced a few in the old way (that is, on a small scale). But he couldn’t get financing from any bank to do mass production. Nobody would lend him the money. It seems the big auto companies had seen to that. Surprise: Business is business. (A film was made about it in 1988, *Tucker: The Man and His Dream*.)

Squashing the too-durable, Tucker was smart for the car companies (that is, for their profits), but not good for us.

While I was driving across the Golden Gate Bridge not long ago, a Tucker whizzed by me. It looked snazzy. I tried to catch up, pass, and ask the guy driving it, “Hey, when did you last change your oil?” Couldn’t pass him. (Maybe because my car was old: 8 years old.)

Corporate Functioning: Organized Waste, Organized Gambling

Unfortunately, that long story about the car industry and its marketing schemes is not unique. By now, almost all industries producing durable consumer goods follow the same procedures: do cosmetic changes of the product’s appearance, sell on credit, and advertise till the cows come home.

And except for selling on credit, the *nondurable* goods producers are doing the same thing. Recall the earlier example of toothpaste.

Put together toothpaste *and all the other things* we buy over the counter *plus* durables (such as cars), and you and I are paying a lot of money for a lot of waste.

Selling and speculating, not production, have become the main activities of companies. Whether for cars, or fridges, computers or toothpaste, what most companies are doing could be called *organized waste and gambling*.

HOW INDUSTRIAL CAPITALISM THREATENS THE ENVIRONMENT

Now we turn to a broader discussion of waste and the other activities of industrial capitalism that threaten the environment.

War: Destructive and A Terrible Waste

Both the preparation for war and war itself are an important part of the environmental problem. To begin with, every year, military expenditures for the world come to about \$1 trillion. The USA is the leader in that race. We account for almost half of those expenditures.

Item The Pentagon alone (that is, the U.S. military) is the seventh biggest buyer of oil in the world. Not to forget its enormous purchases of weapons, tanks and trucks, subs and aircraft carriers, fighters and bombers, all using up lots of metal, machinery, labor, oil. For what will be discussed in detail in *Part III*.

Fortunately, most of the weaponry is seldom or never used. That which *is* used is destructive of soldiers and civilians, of houses, factories, dams, etc. War is a terrible waste, whatever else it is.

The wastes and destruction from war started long before industrialism. It was just as insane in the past as it has been ever since. Referring to early colonialism, Tawney wrote:

Applied to the arts of peace, the new resources commanded by Europe during the first half of the sixteenth century might have done something to [get rid of]...disease and famine, and to raise the material fabric of civilization to undreamed of heights. Its rulers, secular and ecclesiastical alike, thought otherwise. When disease and famine were ceasing to be necessities imposed by nature, they re-established them by political art. The sluice which they opened to drain away each new [increase of] wealth was war.

During the Vietnam War (which in Vietnam is called *The American War*), those of us against it sang “When will they ever learn?” It depends upon who is meant by *they*. If *they* means most of us, *maybe* we’ve learned that already. But if it means most businesses, especially the biggest ones, what they have learned is how good war is for business. *Their* business.

During World War II, only 100 giant companies got *two-thirds* of the dollar value of military contracts. Nowadays, the top 25 companies get more than half, and the top 10 get 40 percent of the total—now about \$500 billion yearly. (Cypher)

“War is hell,” said Gen. Sherman 150 years ago. But war is not hell for the military contractors. It’s Santa Claus!

Peace: Less Destructive, Even More Wasteful

But the prizes for massive waste and destruction of resources, equipment, and

even of lives, do not go only to war. Even in the bloody twentieth century there has been more waste, if less destruction, in the periods of *peace* than in those of war. No joke.

Peacetime in the twentieth century saw the persistent restriction of production in agriculture and industry; the squandering of labor, materials, and equipment in the promotion, packaging and selling of commodities; the pervasive practices of deliberate obsolescence; and—not least—the unused productive capacities of factories, the unemployed, and the underemployed.

Waste, all waste.

1980: What Could Have Been

Here is one measure of waste. It refers to 25 years ago (and counts 70 percent of military expenditures as somehow useful) and should be seen as a big understatement:

[U]seful output in the U.S. economy could have been \$1.2 trillion higher in 1980 than it actually was...49.6% higher than its actual level. (Edwards)

Some of that waste was destructive to the environment. Some of it, unemployment and underemployment, was destructive of human beings—destructive to their health, their morale, their dignity. And all of it was unnecessary.

The Environment in Crisis: An Introduction

Since the beginning of our species, human beings have both depended upon and feared the natural environment. Humans depended upon it for food and clothing and shelter, feared it because of dangerous animals, poisonous plants, storms, floods, fires, and so on.

The environment, however, had nothing to fear from human beings and our activities until recently—that is, until industrialism took hold, deepened, and spread. In the past, all we could do to Mother Nature was cut down trees, catch fish and kill a few animals, dam up a small river, and the like. Our actions at their worst only left a scar.

In the past century or so, things have changed—a lot. Here is a good summary:

What is at stake in the [environmental] crisis we face today is the very capacity of the earth to maintain advanced forms of life. The crisis is being drawn together by massive increases in the “typical” forms of *air and water pollution*, by a mountainous accumulation of *nonbiodegradable wastes, lead residues, pesticide*

residues, and *toxic additives* in foods; by the expansion of cities into vast urban belts, by increasing stresses due to congestion, noise and mass living; by the wanton scarring of the earth as a result of mining operations, lumbering, and real estate speculation. (Bookchin)

That was written 35 years ago. Note that he did not even mention most of what now needs to be listed *now* as part of the environmental crisis:

- Global warming
- Accumulating nuclear wastes with no place to hide
- Deforestation
- *Most* cities' air dangerously polluted by CFC's (chlorofluorocarbons) from cars and factories
- *Thousands* of animal and plant species permanently disappeared
- Poisoned rivers, dead and dying lakes and even parts of oceans ("dead zones")
- Melting glaciers
- The ozone hole (fluctuating)
- An always rising need for water with always more limited supplies of *clean* water

Had enough? Unless we change our ways, that list of horrors will always get longer, and more dangerous—both to us and to all the rest of life on earth.

If you are in your 80s, as I am, you won't be around to see the worst of it. But, if you are around 50 or younger, as bad as such matters are already, they will multiply and get much worse over the next 35 years—just as they did after Bookchin wrote.

Count on it, unless—? Unless a lot of us get to work immediately to change those ways. And change them a lot. (Environmental problems are discussed in detail in Chapter 14.)

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