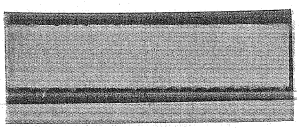
THE THIRD WAVE
...by Alvin Toffler

INTRODUCTION

Pg. xx To begin with, many of today's changes are not independent of one another. Nor are they random. For example, the crack-up of the nuclear family, the global energy crisis, the spread of cults and cable television, the rise of flextime and new fringe-benefit packages, the emergence of separatist movements from Quebec to Corsica, may all seem like isolated events. Yet precisely the reverse is true. These and many other seemingly unrelated events or trends are interconnected. They are, in fact, parts of a much larger phenomenon: the death of industrialism and the rise of a new civilization.

A COLLISION OF WAVES
SUPER-STRUGGLE

Pg. 4 Until now the human race has undergone two great waves of change, each one largely obliterating earlier cultures or civilizations and replacing them with ways of life inconveivable to those who came before. The First Wave of change-the agricultural revolution-took thousands of years to play itself out. The Second Wave-the rise of industrial civilization- took a mere three hundred years. Today history



is even more accelerative, and it is likely that the Third Wave will sweep across history and complete itself in a few decades. We, who happen to share the planet at this explosive moment, will therefore feel the full impact of the Third Wave in our own lifetimes.

Pg. 5 Above all, as we shall see, Third Wave civilization begins to heal the historic breach between producer and consumer, giving rise to the "prosumer" economics of tomorrow. For this reason, among many, it could - with some intelligent help from us - turn out to be the first truly humane civilization in recorded history.

Pg. 8 For the purposes of this book we shall consider the First Wave era to have begun sometime around 8000 B.C. and to have dominated the earth unchallenged until sometime around A.D. 1650-1750. From this moment on, the First Wave lost momentum as the Second Wave picked up steam. Industrial civilization, the product of this Second Wave, then dominated the planet in its turn until it, too, crested. This latest historical turning point arrived in the United States during the decade beginning about 1955 - the decade that saw white-collar and service workers outnumber blue-collar workers for the first time.

Pg. 11 Put differently, they are engaged in a squabble for the proverbial deck chairs on a sinking Titanic.

THE THIRD WAVE
...by Alvin Toffler

THE SECOND WAVE
The Architecture of Civilization

The Violent Solution

Pg. 17 The Civil War was not fought exclusively, as it seemed to many, over the moral issue of slavery or such narrow economic issues as tariffs. It was fought over a much larger question: would the rich new continent be ruled by farmers or industrializers, by the forces of the First Wave or the Second? Would the future American society be basically agricultural or industrial? When the Northern armies won, the die was cast. The industrialization of the United States was assured. From that time on, in economics, in politics, in social and cultural life, agriculture was in retreat, industry ascendant. The First Wave ebbed as the Second came thundering in.

Living Batteries

Pg. 19 All First Wave societies thus exploited energy sources that were renewable. Nature could eventually replenish the forests they cut, the wind that filled their sails, the rivers that turned their paddle wheels. Even animals and people were replaceable "energy slaves."

The Covert Cirriculum

Pg. 23 Built on the factory model, mass education taught basic reading, writing, and arithmetic, a bit of history and other subjects. This was the "overt cirriculum." But beneath it lay an invisible or "covert cirriculum" that was far more basic. It consisted- and still does in most industrial nations - of three courses: one in punctuality, one in obedience, and one in rote, repetitive work. Factory labor demanded workers who showed up on time, especially assembly-line hands. It demanded workers who would take orders from a management hierarchy without questioning. And it demanded men and women prepared to slave away at machines or in offices, performing brutally repetitious operations.

Pg. 23 Taken together, the nuclear family and the factory-style school formed part of a single integrated system for the preparation of young people for roles in industrial society. In this respect, too, Second Wave societies, capitalist or communist, North or South, were all alike.

Immortal Beings

Pg. 23 In all Second Wave societies a third institution arose that extended the social control of the first two. This was the invention known as the corporation. Until then, the typical business enterprise had been owned by an individual, a family, or a partnership. Corporations existed, but were extremely rare.

THE THIRD WAVE
...by Alvin Toffler

The Music Factory

Pg. 25 The more tickets he could sell, naturally, the more money he could make. Hence more and more seats were added. In turn, however, larger concert halls required louder sounds-music that could be clearly heard in the very last tier. The result was a shift from chamber music to symphonic forms.

The Paper Blizzard

Pg. 29 Each of these spheres performed a key function in the larger system, and could not have existed without the others. The techno-sphere produced and allocated wealth; the socio-sphere, with its thousands of interrelated organizations, allocated roles to individuals in the system. And the info-sphere allocated the information necessary to make the entire system work. Together they formed the basic architecture of society.

The Invisible Wedge

Pg. 31 Nevertheless, all this commerce represented only a trace element in history, compared with the extent of production for immediate self-use by the agricultural slave or serf. Even as late as the sixteenth century, according to Fernand Braudel, whose historical research on the period is unsurpossed, the entire Mediterranean region - from France and Spain at one end to Turkey at the other - supported a population of sixty to seventy million, of which 90 percent lived on the soil, producing only a small amount of goods for trade. Writes Braudel, "60 percent or perhaps 70 percent of the overall production of the Mediterranean never entered the market ecomony." And if this was the case in the Mediterranean region, what should we assume of Northern Europe, where the rocky soil and long cold winters made it even more difficult for peasants to extract a surplus from the soil?

Breaking The Code

Pg. 40-1 In Second Wave societies, hiring procedures as well as work were increasingly standardized. Standardized tests were used to identify and week out the supposedly unfit, especially in the civil service. Pay scales were standardized throughout whole industries, along with fringe benefits, lunch hours, holidays, and grievance procedures. To prepare youth for the job market, educators designed standardized cirricula. Men like Binet and Terman devised standardized intelligence tests. School grading policies, admission procedures, and accreditation rules were similarly standardized. The multiple-choice test came into its own.

THE THIRD WAVE
...by Alvin Toffler

Specialization

Pg. 42-3 By the time Henry Ford manufacturing Model T's in 1908 it took not eighteen different operations to complete a unit but 7,882. In his autobiography, Ford noted that of these 7,882 specialized jobs, 949 required "strong, able-bodied, and practically physically perfect men," 3,338 needed men of merely "ordinary" physical strength, most of the rest could be performed by "women or older children," and, he continued coolly, "we found that 670 could be filled by legless men, 2,637 by one-legged men, two by armless men, 715 by one-armed men and 10 by blind men." In short, the specialized job required not a whole person, but only a part. No more vivid evidence that overspecilization can be brutalizing has ever been adduced.

Pg. 43 Thus, health in Second Wave societies came to be seen as a product provided by a doctor and a health-delivery bureaucracy, rather than a result of intelligent self-care (production for use) by the patient Education was supposedly "produced" by the teacher in the school and "consumed" by the student.

Synchronization

Pg. 44 The widening split between production and consumption also forced a change in the way Second Wave people dealt with time. In a market-dependent system, whether the market is planned or free, time equals money. Expensive machines cannot be allowed to sit idly, and they operate at shythms of their own. This produced the third principle of industrial civilization: synchronization.

Pg. 45 Second Wave husbands continually complained that their wives kept them waiting, that they had no regard for time, that it took them forever to dress, that they were always late for appointments. Women, primarily engaged in noninterdependent housework, worked to less mechanical rhythms. For similar reasons urban populations tended to look down upon rural folk as slow and unreliable. "They don't show up on time! You never know whether they'll keep an appointment." Such complaints could be traced directly to the difference between Second Wave work based on heightened interdependence and the First Wave work centered in the field and the home.

Concentration

Pg. 46 First Wave societies lived off widely dispersed sources of energy. Second Wave societies became almost totally dependent on highly concentrated deposits of fossil fuel.

THE THIRD WAVE
...by Alvin Toffler

Pg. 46 Nor was it only energy and work that were concentrated. Writing in the British social science journal New Society , Stan Cohen has pointed out that, with minor exceptions, prior to industrialism "the poor were kept at home or with relatives; criminals were fined, whipped or banished from one settlement to another; the insane were kept in their families, or supported by the community, if they were poor." All these groups were, in short, dispersed throughout the community.

Industrialism revolutionized the situation. The early nineteenth century, in fact, has been called the time of the Great Incarcerations- when criminals were rounded up and concentrated in prisons, the mentally ill rounded up and concentrated in "lunatic asylums," and children rounded up and concentrated in schools, exactly as workers were concentrated in factories.

Pg. 47 Socialist managers were also convinced that concentration of production was "efficient." Indeed, many Marxist ideologues in the capitalist countries welcomed the growing concentration of industry in capitalist countries as a necessary step along the way to the ultimate total concentration of industry under state auspices. Lenin spoke of the "conversion of all citizens into workers and employees of one huge 'syndicate' - the whole state." Half a century later the Soviet economist N. Lelyukhina, writing in Voprosy Ekonomiki could report that "the USSR possesses the most concentrated industry in the world."

Whether in energy, population, work, education, or economic organization, the concentrative principle of Second Wave civilization ran deep-deeper, indeed, than any ideological differences between Moscow and the West.

Maximization

Pg. 47 The split-up of production and consumption also created, in all Second Wave societies, a case of obsessive "macrophilia" - a kind of Texan infatuation with bigness and growth. If it were true that long production runs in the factory would produce lower unit cost, then, by analogy, increases in scale would produce economies in other activities as well. "Big" became synonymous with "efficient," and maximization became the fifth key principle.

Pg. 49 The hiring of a crew to build a home or to demolish one both added to GNP, even though one activity added to the stock of housing and the other subtracted from it. GNP also, because it measured only

THE THIRD WAVE
...by Alvin Toffler

Pg. 49(cont'd) market activity or exchanges, relegated to insignificanc a whole vital sector of the economy based on unpaid production-child-rearing and housework, for example.

Pg. 50 Employees were divided into "line" and "staff." Daily reports were initiated to provide data on car movements, loadings, damages, lost freight, repairs, engine miles, et cetera. All this information flowed up a centralized chain of command until it reached the general superintendent who made the decisions and sent orders down the line.

Pg. 51 The gradual centralization of a once decentralized economy was aided, moreover, by a crucial invention whose very name reveals its purpose: the central bank.

Pg. 52 These principles in turn, each reinforcing the other, led relentlessly to the rise of bureaucracy. They produced some of the biggest, most rigid, most powerful bureaucratic organizations the world had ever seen, leaving the individual to wander in a Kafka-like world of looming mega-organizations. If today we feel oppressed and over powered by them, we can trace our problems to the hidden code that programmed the civilization of the Second Wave.

THE TECHNICIANS OF POWER
The Integrators

Pg. 55 Yet history played a trick on him. For the very same interdependency gave even greater leverage to a new group- those who orchestrated or integrated the system. In the end it was neither the owners nor the workers who came to power. In both capitalist and socialist nations, it was the integrators who rose to the top.

Pg. 55 It was not ownership of the "means of production" that gave power. It was control of the "means of Integration." Let's see what that has meant.

The Integrational Engine

Pg. 57 Out of this driving need for the integration of Second Wave civilization came the biggest coordinator of all-the integrational engine of the system: big government. It is the system's hunger for integration that explains the relentless rise of big government in every Second Wave society.

Pg. 57 Free marketeers have argued that governments interfere with business. But left to private enterprise alone, industrialization would have come much more slowly-if, indeed, it could have come at all.

THE THIRD WAVE
...by Alvin Toffler

Pg. 57 (cont'd)-8 Governments quickened the development of the railroad. They built harbors, roads, canals, and highways. They operated postal services and built or regulated telegraph, telephone, and broadcast systems. They wrote commercial codes and standardized markets. They applied foreign policy pressures and tariffs to aid industry. They drove farmers off the land and into the industrial labor supply. They subsidized energy and advanced technology, often through military channels. At a thousand levels, governments assumed the integrative tasks that others could not, or would not, perform.

Pg. 58 Across the board, therefore, in socialist as well as capitalist industrial societies, the same pattern emerged-big companies or production organizations and a huge governmental machine. And rather than workers seizing the means of production, as Marx predicted, or capitalists retaining power, as Adam Smith's followers might have preferred, a wholly new force arose to challenge both. The technicians of power seized the "means of integration" and, with it, the reins of social, cultural, political, and economic control. Second Wave societies were ruled by the integrators.

Pg. 60 In every Second Wave society, consequently, a parallel architecture of elites sprang up. And-with local variation-this hidden hierarchy of power was born again after every crisis or political upheaval. Names, slogans, party labels, and candidates might change; revolutions might come and go. New faces might appear behind the big mahogany desks. But the basic architecture of power remained.

Pg. 60 Today, as the Third Wave of change begins to batter at this fortress of managerial power, the first fleeting cracks are appearing in the power system. Demands of participation in management, for shared decision-making, for worker, consumer, and citizen control, and for anticipatory democracy are welling up in nation after nation. New ways of organizing along less hierarchical and more ad-hocratic lines are springing up in most advanced industries. Pressures for decentralization of power intensify. And managers become more and more dependent upon information from below. Elites themselves, therefore are becoming less permanent and secure. All these are merely early warnings-indicators of the coming upheaval in the political system.

The Third Wave, already beginning to batter at these industrial structures, opens fantastic opportunities for social and political renovation. In the years just ahead startling new institutions will replace our unworkable, oppressive, and obsolete integrational structures.

THE THIRD WAVE
...by Alvin Toffler

THE HIDDEN BLUEPRINT

The Represento-Kit

Pg. 66 Just as the factory came to symbolize the entire industrial techno-sphere, representative government (no matter how denatured) became the status symbol of every "advanced" nation. Indeed, even many non-industrial nations-under pressure from colonizers or through blind imitation-rushed to install the same formal mechanisms and used the same universal represento-kit.

The Reassurance Ritual

Pg. 70 In theory, the need to stand for re-election guaranteed that representatives would stay honest and would continue to speak for those they represented. Nowhere, however, did this prevent the absorption of representatives into the architecture of power. Everywhere the gap widened between the representative and the represented.

Pg. 70 If Second Wave political structures are increasingly out of date, unable to cope with today's complexities-part of the trouble, as we shall see, lies in another crucial Second Wave institution: the nation-state.

A FRENZY OF NATIONS

Changing Horses

Pg. 72 Yet without political integration, economic integration was impossible. Costly new Second Wave technologies could only be amortized if they produced goods for larger-than-local markets. But how could businessmen buy and sell over a large territory if, outside their own communities, they ran into a maze of different duties, taxes labor regulations and currencies? For the new technologies to pay off, local economies had to be consolidated into a single national economy. This meant a national division of labor and a national market for commodities and capital. All this, in turn, required national political consolidation as well.

Put simply, a Second Wave political unit was needed to match the growth of Second Wave economic units.

Pg. 74 Nationalist uprisings triggered by the industrial revolution in the United States, in France, in Germany and the rest of Europe, can be seen as efforts to bring the level of political integration up

THE THIRD WAVE
...by Alvin Toffler

Pg. 74 (cont'd) to the fastrising level of economic integration that accompanied the Second Wave. And it was these efforts, not poetry or mystical influences, that led to the division of the world into distinct national units.

THE IMPERIAL DRIVE

Gas Pumps in the Garden

Pg. 79
The success of the drive to create a single integrated world market can be measured in the fantastic growth of world trade once the Second Wave passed through Europe. Between 1750 and 1914, the value of world trade estimated to have multiplied more than fiftyfold, rising from 700 million dollars to almost 40 billion dollars. If Ricardo had been right, the advantages of this global trade should have accrued more or less evenly to all sides. In fact, the self-serving belief that specialization would benefit everyone was based on a fantasy of fair competition.

It presupposed a completely efficient use of labor and resources. It presupposed deals uncontaminated by threats of political or military force. It presupposed arm's-length transactions by more or less evenly matched bargainers. The theory, in short, overlooked nothing-except real life.

Socialist Imperialism

Pg. 85 What Lenin overlooked is that many of the same imperatives that drove capitalist industrial nations operated in socialist industrial nations as well. They, too, were part of the world money system. They, too, based their economies on the divorce of production from consumption. They, too, needed a market (albeit not necessarily a profit-oriented market) to reconnect producer and consumer. They, too, needed raw materials from abroad to feed their industrial machines. And for these reasons they, too, needed an integrated world economic system through which to obtain their necessities and sell their products abroad.

Pg. 88 The grand design should now be clear. Second Wave civilization cut up and organized the world into discrete nation-states. Needing the resources of the rest of the world, it drew First Wave societies and the remaining primitive peoples of the world into the money system. It created a globally integrated marketplace. But rampant industrialism was more than an economic political, or social system. It was also a way of life and a way of thinking. It produced a Second Wave mentality.

THE THIRD WAVE
...by Alvin Toffler

Pg. 88 (cont'd) This mentality stands today as a key obstacle to the creation of a workable Third Wave civilization.

INDUST-REALITY

The Progress Principle

Pg.90
The first of these core beliefs to do with nature. While socialists and capitalists might disagree violently about how to share its fruits, both looked upon nature in the same way. For both, nature was an object waiting to be exploited.

Pg. 92 Just as Social Darwinism rationalized capitalism, this cultural arrogance rationalized imperialism. The expanding industrial order needed its lifeline to cheap resources, and it created a moral justification for taking them at depressed prices, even at the cost of obliterating agricultural and so-called primitive societies. The idea of social evolution provided intellectual and moral support for the treatment of non-industrial peoples as inferior-and hence unfitted for survival.

Pg. 93 Throughout Second Wave civilization, therefore, three key concepts-the war with nature, the importance of evolution, and the progress principle-provided with ammunition used by the agents of industrialism as they explained and justified it to the world.

The Software of Time

Pg. 96
It is worth noting, however, that linear time was a precondition for indust-real views of evolution and progress. Linear time made evolution and progress plausible. For if time were circular instead of linelike, if events doubled back on themselves instead of moving in a single direction, it would mean that history repeated itself and that evolution and progress were no more than illusions-shadows on the wall of time.

Repackaging Space

Pg. 97 This remarkable coordination of specialized spaces-necessary to get the right people to the right places at the right moment-was the exact spatial analogue of temporal synchronization. It was, in effect, synchronization in space. For both time and space had to be more carefully structured if industrial societies were to function.

THE THIRD WAVE
...by Alvin Toffler

The 'Stuff" of Reality

Pg. 100 Some two thousand years before the rise of industrialism Democritus put forward the then extraordinary idea that the universe was not a seamless whole but consisted of particles-discrete, indestructible, irreducible, invisible, unsplittable. He called these particles 'atomos'. In the centuries that followed, the idea of a universe built out of irreducible blocks of matter appeared and re-appeared. In China shortly after Democritus' time, in the Mo Ching a "point" was apparently defined as a line that had been chopped into such short segments that it could no longer be subdivided. In India, too, the theory of the atom or irreducible unit of reality cropped up not long after the time of Christ. In ancient Rome, the poel Lucretius expounded the atomist philosophy. Nevertheless, this image of matter remained a minority view, often derided or neglected.

Pg. 101 Meanwhile, Rene' Descartes, a Jesuit-trained mathematician whom Gassendi criticized, contended that reality could only be understood by breaking it down into smaller and smaller bits. In his own words, it was necessary "to divide each of the difficulties under examination into as many parts as possible." Side by side, therefore, as the Second Wave begun its surge, philosophical atomism advanced with physical atomism.

Pg. 101 There were political and social reasons, too, for the acceptance of the atomic model of reality. As the Second Wave crashed against the old pre-existing First Wave institutions, it needed to tear people loose from the extended family, the all-powerful church, the monarchy. Industrial capitalism needed a rationale for individual-ism. As the old agricultural civilization decayed, as trade expanded and towns multiplied in the century or two before the dawn of industrialism, the rising merchant classes, demanding freedom to trade and lend and expand their markets, gave rise to a new conception of the individual-the person as atom.

Pg. 102 The person was no longer merely a passive appendage of tribe, caste or clan but a free, autonomous individual. Each individual had the right to own property, to acquire goods, to wheel and deal, to prosper or starve according to his or her own active efforts, with the corresponding right to choose a religion and to pursue private happi-ness. In short, indust-reality gave rise to a conception of an individual who was remarkably like an atom-irreducible, indestructible, the basic particle of society.

THE THIRD WAVE
...by Alvin Toffler

The Ultimate Why

Pg. 103 Second Wave civilization found its answer to the mysteries of causation in Newton's spectacular discovery of the universal law of gravitation. For Newton, causes were "the forces impressed upon bodies to generate motion." The conventional example of Newtonian cause and effect is the billiard balls that strike one another and move in response to one another. This notion of change, which focused exclusively on outside forces that are measurable and readily identifiable, was extremely powerful because it dovetailed perfectly with the new indust-real notions of linear space and time. Indeed, Newtonian or mechanistic causation, which came to be adopted as the industrial revolution spread over Europe, pulled indust-reality together into a hermetically sealed package.

Pg. 104 Matter can only be understood in terms of motion-i.e., movement through space. Events occur in a (linear) succession, a parade of events moving down the line of time. Human passions like hatred, selfishness, or love, d'Holbach went on, could be compared to physical forces like repulsion, inertia, or traction, and a wise political state could manipulate them for the public good just as science could manipulate the physical world for the common good.

CODA: THE FLASH FLOOD

Pg. 106 Any search for the cause of the industrial revolution is doomed. For there was no single or dominant cause. Technology, by itself, is not the driving force of history. Nor, by themselves, are ideas or values. Nor is the class struggle. Nor is history merely a record of ecological shifts, demographic trends, or communications inventions. Economics alone cannot explain this or any other historical event. There is no "independent variable" upon which all other variables depend. There are only interrelated variables, boundless in complexity.

Pg. 107 As we have seen, this invisible wedge produced the entire modern money system with its central banking institutions, its stock exchanges, its world trade, its bureaucratic planners, its quantitative and calculating spirit, its contractual ethic, its materialist bias, its narrow measurement of success, its rigid reward systems, and its powerful accounting apparatus, whose cultural significance we routinely underestimate. From this divorce of producer from consumer came many of the pressures toward standardization, specialization, synchronization, and centralization. From it came differences in sexual role and

THE THIRD WAVE
...by Alvin Toffler

Pg. 107 (cont'd) temperament. However we evaluate the many other forces that launched the Second Wave, this splitting of the ancient atom of production consumption must surely rank high among them. The shock waves of that fission are still apparent today.

Pg. 111 However, once again it would be a mistake to glamorize these early subsistence economies. It is questionable whether the populations of even the non-industrial regions of the earth are worse off today than they were three hundred years ago. In terms of life span, food intake, infant mortality, literacy, as well as human dignity, hundreds of millions of human beings today, from teh Sahel to Central America, suffer indescribable miseries. Yet it would be a disservice to them to invent a fake, romantic past in our rush to judge the present. The way into the future is not through reversion to an even more miserable past.

Pg. 112 Two changes, by themselves, make the "normal" continuation of industrial civilization no longer possible.

First, we have reached a turning point in the "war against nature." The biosphere will simply no longer tolerate the industrial assault. Second, we can no longer rely indefinitely on nonrenewable energy, until now the main subsidy of industrial development.

THE THIRD WAVE
THE NEW SYNTHESIS

Pg. 120 For it is beginning to dawn on us that our obsessive emphasis on quantified detail without context, on progressively finer and finer measurement of smaller and smaller problems, leaves us knowing more and more about less and less.

THE COMMANDING HEIGHTS

Pg. 121 Until 1973, that is, when the Yom Kippur War broke out and the Organization of Petroleum Exporting Countries suddenly stepped out of the shadows. Choking off the world's supply of crude oil, it sent the entire Second Wave economy into a shuddering down-spin.

THE THIRD WAVE
...by Alvin Toffler

The Sun and Beyond

Pg. 122 And the basic question becomes not whether oil should sell at forty dollars per barrel or whether a nuclear reactor should rise at Seabrook or Grohnde. The larger question is whether any energy base designed for industrial society and premised on these Second Wave principles can survive. Once asked in this form, the answer is inescapable.

Through the past half-century, fully two thirds of the entire world's energy supply has come from oil and gas. Most observers today, from the most fanatic conservationists to the deposed Shah of Iran, from solar freaks and Saudi sheikhs to the button-down, briefcase-carrying experts of many governments, agree that this dependency on fossil fuel cannot continue indefinitely, no matter how many new oil fields are discovered.

Pg. 126 This new base will have characteristics sharply different from those of the Second Wave period. For much of its supply will come from renewable, rather than exhaustible sources.

Pg. 127 In short, though nuclear reactors or coal gasification or liquefaction plants and other such technologies may seem to be advanced or futuristic and therefore progressive, they are, in fact, artifacts of a Second Wave past caught in its own deadly contradictions. Some may be necessary as temporary expedients, but they are essentially regressive. Similarly, though the forces of the Second Wave may seem powerful and their Third Wave critics feeble, it would be foolish to bet too many chips on the past. Indeed, the issue is not whether the Second Wave energy base will be overthrown, superseded by a new one, but how soon. For the struggle over energy is inextricable interwined with another change of equal profundity: the overthrow of Second Wave technology.

Pg. 128 These new industries differed marketly from their predecessors in several respects: they were no longer primarily electromechanical and no longer based on the classic science of the Second Wave era. Instead, they rose from accelerating breakthroughs in a mix of scientific disciplines that were rudimentary or even nonexistent as recently as twenty-five years ago-quantum electronics, information theory, molecular biology, oceanics, nucleonics, ecology, and the space sciences. And they made is possible for us to reach beyond the grosser features of time and space, with which Second Wave industry concerned itself, to manipulate, as Soviet physicist B. G. Kuznetsov has

THE THIRD WAVE
...by Alvin Toffler

Pg. 128 (cont'd) noted, "very small spatial region (say, of the radius of an atomic nucleus, i.e., 10^{-13} centimeters) and temporals of the order of 10^{-23} seconds."

Pg. 128 It is from these new sciences and our radically enhanced manipulative abilities that the new industries arose-computers and data processing, aerospace, sophisticated petrochemicals, semiconductors advanced communications, and scores of others.

Pg. 129 Today, four clusters of related industries are poised for major growth and are likely to become the backbone industries of the Third Wave era, bringing with them, once more, major shifts in economic power and in social and political alignments.

Pg. 129-130 Electronics and computers clearly form one such interrelated cluster. The electronics industry, a relative newcomer on the world scene, now accounts for more than $100 billion in sales per year and is expected to his $325 billion or even $400 billion by the late 1980's. This would make it the world's fourth largest industry, after steel, auto, and chemicals. The speed with which computers have spread is so well known it hardly needs elaboration. Costs have dropped so sharply

and capacity has risen so spectacularly that, according to Computerworld magazine, "If the auto industry had done what the computer industry has done in the last 30 years, a Rolls-Royce would cost $2.50 and get 2,000,000 miles to the gallon."

Machines in Orbit

Pg. 131 The space industry forms a second cluster in the emerging technosphere. Despite delays, five space shuttles may soon be moving cargo and people back and forth between the earth and outer space on a weekly schedule. The impact of this is as yet underestimated by the public, but many companies in the United States and Europe regard the "higher frontier" as the source of the next revolution in high technology and are acting accordingly.

Into The Depths

Pg. 133 The push into the depths of the sea provides us with a mirror image of the drive into outer space, and lays the basis for the third cluster of industries likely to form a major part of the new technosphere. The first historic wave of social change on earth came when our ancestors ceased to rely on foraging and hunting, and began instead to domesticate animals and cultivate the soil. We are now at precisely

THE THIRD WAVE
...by Alvin Toffler

Pg. 133 (cont'd) this stage in our relationship to the seas.

The Gene Industry

Pg. 135 With information on genetics doubling every two years, with the gene mechanics working overtime, New Scientist magazine reports that "genetic engineering has been going through an essential tooling up phase; it is now ready to go into business." The distinguished science commentator, Lord Ritchie-Calder, explains that "Just as we have manipulated plastics and metals, we are now manufacturing living materials."

Pg. 137 It is too early to say with confidence how biotechnology will develop. But it is too late to turn back to zero. We cannot undiscover what we know. We can only fight to control its application, to prevent hasty exploitation, to transnationalize it, and to minimize corporate, national and interscientific rivalry in the entire field before its too late.

The Techno-Rebels

Pg. 138 The basic questions asked of new technologies during the past three hundred years, in both capitalist and socialist nations, have been simple: do they contribute to economic gain or military clout? These twin criteria are clearly no longer adequate. New technologies will have to pass far stiffer tests-ecological and social as well as economic and strategic.

Pg. 140 On the other side, we find once more a small, vocal fringe of romantic extremists hostile to all but the most primitive First Wave technologies, who seem to favor a return to medieval crafts and hand labor. Mostly middle-class, speaking from the vantage point of a full belly, their resistance to technological advance is as blindly indiscriminate as the support of technology by Second Wave people. They fantasize about a return to a world that most of us-and most of them-would find abhorrent.

Pg. 140-141 The techno-rebels have not as yet formulated a clear, comprehensive program. But if we extrapolate from their numerous manifestos, petitions, statements, and studies, we can identify several streams of thought that add up to a new way of looking at technology-a positive policy for managing the transition to a Third Wave future.

THE THIRD WAVE
...by Alvin Toffler

Pg. 140-141 (cont'd) The techno-rebels start from the premise that the earth's biosphere is fragile, and that the more powerful our new technologies become, the higher the risk of doing irreversible damage to the planet. Thus they demand that all new technologies be prescreened for possible adverse effects, that dangerous ones be re-designed or actually blocked-in short, that tomorrow's technologies be subjected to tighter ecological constraints than those of the Second Wave era.

DE-MASSIFYING THE MEDIA

Pg. 145 For the spy's basic business is information-and information has become perhaps the world's fastest growing and most important business. The spy is a living symbol of the revolution now sweeping the infosphere.

The De-Massified Media

Pg. 148 Nor were such losses due merely to the rise of television.

Each of today's mass-circulation dailies now faces increasing competition from a burgeoning flock of mini-circulation weeklies, biweeklies, and so-called "shoppers" that serve not the metropolitan mass market but specific neighborhoods and communities within it, privinding far more localized advertizing and news. Having reached saturation, the big-city mass-circulation daily is in deep trouble. De-massified media are snapping at its heels.*

Pg. 150 In any case, the shift toward diversity in print is paralleled in radio. The soundscape is being de-massified along with the printscape

Not until 1977, however, did the Second Wave media suffer their most startling and significant defeat. For a generation the most powerful and the most "massifying" of the media has, of course, been television. In 1977 the picture tube began to flicker. Wrote Time magazine, "all fall, broadcast and ad executives nervously peeked at the figures ...they could note believe what they were seeing...For the first time in history, television viewing declined."

Pg. 150 Cable television today already reaches into 14.5 million American homes and is likely to spread with hurricane force in the early 1980's. Industry experts expect 20 to 26 million cable subscribers by the end of 1981, with cabling available to fully 50 percent of U. S. households. Things will move even faster once the shift is made from copper wires to cheap fiber optic systems that send light pulsing through

Pg. 150-151 (cont'd) hair-thin fibers. And like short-run printing presses or Xerox copiers, cable demassifies the audience, carving it into multiple mini-publics. Moreover, cable systems can be designed for two-way communication so that subscribers may not merely watch programs but actively call various services.

Blip Culture

Pg. 153 The de-massification of the media de-massifies our minds as well. During the Second Wave era the continual pounding of standardized imagery pumped out by the media created what critics called a "mass mind." Today, instead of masses of people all receiving the same messages, smaller de-massified groups receive and send large amounts of their own imagery to one another. As the entire society shifts toward Third Wave diversity, the new media reflect and accelerate the process.

Pg. 155 Instead of merely receiving our mental model of reality, we are now compelled to invent it and continually reinvent it. This places an enormous burden on us. But it also leads toward greater individuality

a demassification of personality as well as culture. Some of us crack under the new pressure or withdraw into apathy or anger. Others emerge as well formed, continually growing, competent individuals albe to operate, as it were, on a higher level. (In either case, whether the strain proves too great or not, the result is a far cry from the uniform, standardized, easily regimented robots foreseen by so many sociologists and science fiction writers of the Second Wave era.)

THE INTELLIGENT ENVIRONMENT

Pg. 162 Literacy, of course, is more than a job skill. It is the doorway to a fantastic universe of imagination and pleasure. Yet in an intelligent environment, when machines, appliances and even walls are programmed to speak, literacy could turn out to be less paycheck-linked than it has been for the past three hundred years. Airline reservation clerks, stockroom personnel, machine operators, and repairmen may be able to function quite adequately on the job by listening rather than reading, as a voice from the machine tells them, step by step, what to do next or how to replace a broken part.

THE THIRD WAVE
...by Alvin Toffler

Pg. 163-164 At the same time, the intelligent environment may eventually begin to change not merely the way we analyze problems and integrate information, but even the chemistry of our brains. Experiments by David Krech, Marian Diamond, Mark Rosenzweig, and Edward Bennett, among others, have shown that animals exposed to an "enriched" environment have larger cerebral cortices, more glial cells, bigger neurons, more active neurotransmitters, and larger blood supplies to the brain than animals in a control group. Can it be that, as we complexify the environment and make it more intelligent, we shall make ourselves more intelligent as well?

The Social Memory

Pg. 165 So long as this remained true, the size of the social memory was sorely limited. No matter how good the memories of the elderly, no matter how memorable the songs or lessons, there was only so much storage space in the skulls of any population.

Pg. 165 Second Wave civilization smashed the memory barrier. It spread mass literacy. It kept systematic business records. It built thousands of libraries and museums. It invented the file cabinet. In short, it moved social memory outside the skull, found new ways to store it, and thus expanded it beyond its previous limits. By increasing the store of cumulative knowledge, it accelerated all the processes of innovation and social change, giving Second Wave civilization that most rapidly changing and developing culture the world until then had known.

Pg. 166 What makes the leap to a Third Wave info-sphere so historically exciting is that it not only vastly expands social memory again, but resurrects it from the dead. The computer, because it processes the data it stores, creates an historically unprecedented situation: it makes social memory both extensive and active. And this combination will prove to be propulsive.

Pg. 166 In all previous societies the info-sphere provided the means of communication between humans. The Third Wave multiplies these means. But it also provides powerful facilities, for the first time in history, for machine-to-machine communication and, even more astonishing, for conversation between himans and the intelligent environment around them. When we stand back and look at the larger picture, it becomes clear that the revolution in the info-sphere is at least as dramatic as that in the techno-sphere-in the energy system and technological base of society.

The work of constructing a new civilization is racing forward on

THE THIRD WAVE
...by Alvin Toffler

Pg. 166 (cont'd) many levels at once.

BEYOND MASS PRODUCTION

Pg. 169 For mass production is not what this facility is all about. We have moved beyond mass production.

Mouse Milk and T-shirts

Pg. 169 In the United States today only 9 percent of the total population-20 million workers-manufacture goods for some 220 million people. The remaining 65 million workers provide services and manipulate symbols.

Pg. 169 The essence of Second Wave manufacture was the long "run" of millions of identical, standardized products. By contrast, the essence of Third Wave manufacture is the short run of partially or completely customized products.

Pg. 171 The car manufacturers in Europe, the United States, and Japan now mass-manufacture components and sub-assemblies, then plug them together in myriad ways.

Pg. 171 According to Robert H. Anderson, head of the Information Services Department at the Rand Corporation, and an expert on advanced manufacturing "It will be no harder in the near future to custom produce something... than it is to mass produce...today...We're beyond the modularization stage where you make a lot of modules and plug them together...and we're getting on to the stage of just plain custom production. Just like clothes."

Pg. 172 The new laser machine operates on a radically different principle. It does not cut 10 or 50 or 100 or even 500 shirts or jackets at a time. It cuts one at a time. But it actually cuts faster and cheaper than the mass-production methods employed until now. It reduces waste and eliminates the need for inventory. For these reasons, according to the president of Genesco, one of the largest manufacturers of apparel in the United States, "The laser machines can be programmed to fill an order for one garment economically." What that suggests is that some day even standard sizes may disappear. It may be possible to read one's measurements into a telephone, or point a video camera at oneself, thus feeding data directly into a computer, which in turn will instruct the machine to produce a single garment, cut exactly to one's personal, individualized dimensions.

THE THIRD WAVE
...by Alvin Toffler

Pg. 173 Finally, while Second Wave manufacture was Cartesian in the sense that products were broken into pieces, than painstakingly reassembled, Third Wave manufacture is post-Cartesian or "wholistic." This is illustrated by what has happened to common manufactured products like the wristwatch. Whereas watches once had hundreds of moving parts, we are now able to make solid-state watches that are more accurate and reliable-with no moving parts at all. Similarly, today's Panasonic T. V. set has half as many parts as the sets of ten years ago. As tiny microprocessors-those miracle chips again-turn up in more and more products, they replace impressive numbers of conventional components. Exxon introduces the "Qyx" - a new typewriter with only a handful of moving parts as against the hundreds in the IBM Selectric. Similarly, a well-known 35mm camera, the Canon AE-1, is now made with 300 fewer parts than the model is superseded. Fully 175 of these were replaced by a single Texas Instruments chip.

The Death of the Secretary?

Pg. 175 Moreover, while the average factory worker in the United States today is supported by an estimated $25,000 worth of technology, the office worker, as one Xerox salesman puts it, "works with $500 or $1000 worth

of old typewriters and adding machines, and is probably among the least productive workers in the world.? Office productivity has climbed a bare 4 percent over the past decade and conditions in other countries are probably even more pronounced.

Pg. 177 But making paper copies of anything is a primitive use of such machines and violates their very spirit. For the ultimate beauty of the electronic office lies not merely in the steps saved by a secretary in typing and correcting letters. The automated office can file them in the form of electronic bits on tape or disk. It can (or soon will) pass them through an electronic dictionary that will automatically correct their spelling errors. With the machines hooked up to one another and to the phone lines, the secretary can instantly transmit the letter to its recipient's printer or screen. The equipment thus can capture an original, correct it, duplicate it, send it, and file it in what amounts virtually to a single process. Speed increases. Costs go down. And the five steps are compressed into one.

THE ELECTRONIC COLLEGE

The Telecommuters

Pg. 187 The implications of their finding are startling. Studying 2,048

THE THIRD WAVE
...by Alvin Toffler

Pg. 187 (cont'd) insurance company employees in Los Angeles, the Nilles group found that each person, on average, traveled 21.4 miles a day to and from work (as against a national average of 18.8 miles for urban workers in the United States). The higher the managerial scale, the longer the commute, with top executives averaging 33.2 miles. All told, these workers drove 12.4 million miles each year to get to work, using up nearly a half-century's worth of hours to do so.

At 1974 prices, this cost twenty-two cents per mile, or a total of $2,730,000-an amount borne indirectly by the company and its customers. Indeed, Nilles found that the company was paying its downtown workers $520 a year more than the going rate in the dispersed locations- in effect, "a subsidy of transportation costs." It was also providing parking spaces and other costly services made necessary by the centralized location. If we now assume a secretary was earning in the neighborhood of $10,000 a year the elimination of this commuting cost could have permitted the company to hire nearly 300 additional employees, or, alternatively, to add a substantial amount to profits.

The key question is: When will the cost of installing and operating telecommunications equipment fall below the present cost of commuting? While gasoline and other transport costs (including the costs of mass-transit alternatives to the auto) are soaring everywhere the price of telecommunications is shrinking spectacularly. At some point the curves must cross.

The Home-Centered Society

Pg. 191 This implies less forced mobility, less stress on the individual fewer transient human relationships, and greater participation in community life. Today when a family moves into a community, suspecting that it will be moving out again in a year or two, its members are markedly reluctant to join neighborhood organizations, to make deep friendships, to engage in local politics, and to commit themselves to community life generally. The electronic cottage could help restore a sense of community belonging, and touch off a renaissance among voluntary organizations like churches, women's groups, lodges, clubs, athletic and youth organizations. The electronic cottage could mean more of what sociologists, with their love of German jargon, call "gemeinschaft."

Pg. 193 By themselves, such massive historical shifts would easily justif the claim that we are on edge of a new civilization. But we are simul-

THE THIRD WAVE
...by Alvin Toffler

Pg. 193 (cont'd) taneously restructuring our social life as well, from our family ties and friendships to our schools and corporations. We are about to create, alongside the Third Wave techno-sphere and info-sphere, a Third Wave socio-sphere as well.

FAMILIES OF THE FUTURE

Pg. 194 Eventually unemployment came to be seen in a more sensible light-not as the result of individual laziness or moral failure but of giant forces outside the individual's control. The maldistribution of wealth, myopic investment, runaway speculation, stupid trade policies, inept government-these, not the personal weakness of laid-off workers, caused unemployment. Feelings of guilt were, in most cases, naïvely inappropriate

Pg. 194 When a tiny minority is involved, the crack-up of their families may reflect individual failures. But when divorce, separation, and other forms of familial disaster overtake millions at once in many countries, it is absurd to think the causes are purely personal.

Pg. 194-195 The fracture of the family today is, in fact, part of the general crisis in industrialism-the crack-up of all the institutions spawned by the Second Wave. It is part of the ground-clearing for a new Third Wave socio-sphere. And it is this traumatic process, reflected in our individual lives, that is altering the family system beyond recognition.

The Pro-Nuclear Campaign

Pg. 196 If we really want to restore the nuclear family to its former dominance, there are things we could do. Here are a few:

1) Freeze all technology in its Second Wave stage to maintain a factory-based, mass production society. Begin by smashing the computer. The computer is a greater threat to the Second Wave family than all the abortion laws and gay rights movements and pornography in the world, for the nuclear family needs the mass-production system to retain its dominance, and the computer is moving us beyond mass production.

2) Subsidize manufacture and block the rise of the service sector in the economy. White-collar, professional, and technical workers are less traditional, less family-oriented, more intellectually and psychologically mobile than blue-collar workers. Divorce rates have risen along with the rise in service occupations.

THE THIRD WAVE
...by Alvin Toffler

Pg. 197 8) Cut the standard of living of the entire society to pre-1955 levels, since affluence makes it possible for single people, divorced people, working women, and other unattached individuals to "make it" economically on their own. The nuclear family needs a touch of poverty (not too much, not too little) to sustain it.

9) Finally, remassify our rapidly de-massifying society, by resisting all changes-in politics, the arts, education, business, or other fields-that lead toward diversity, freedom of movement and ideas, or individuality. The nuclear family remains dominant only in a mass society.

Pg. 202 Which specific family forms vanish and which ones proliferate will depend less on pulpit-pounding about the "sanctity of the family" than on the decisions we make with respect to technology and work. While many forces influence family structure-communication patterns, values, demographic changes, religious movements, even ecological shifts-the linkage between family form and work arrangements is particularly strong. Thus, just as the nuclear fmaily was promoted by the rise of the factory and office work, any shift away from the factory and office would also exert a heavy influence on the family.

THE CORPORATE IDENTITY CRISIS

Kabuki Currency

Pg. 213 Today a new crisis has struck. But this one is different. Unlike all previous crises during the industrial era, it involves not only money but the entire energy base of the society. Unlike the crises of the past, it brings inflation and unemployment simultaneously, not sequentially. Unlike those of the past, it is directly linked to fundamental ecological problems, to an entirely new species of technology, and to the introduction of a new level of communications into the production system. Finally, it is not, as Marxists claim, a crisis of capitalism alone, but one that involves the socialist industrial nations as well. It is, in short, the general crisis of industrial civilization as a whole.

The Accelerative Economy

Pg. 215 In this hotted-up environment, the big corporations are driven almost willy-nilly to invest and borrow in various currencies not on an annual, a ninety-day, or even a seven-day basis, but literally on an overnight or minute-to-minute basis. A new corporate officer has appeared in the executive suite-the "international cash manager," who remains plugged into the worldwide electronic casino twenty-four hours a day, searching for the lowest interest rates, the best currency bargains, the fastest turnaround.*

THE THIRD WAVE
...by Alvin Toffler

THE DE-MASSIFIED SOCIETY

Pg. 216 Even more mystifying and upsetting for them is the crack-up of the industrial mass society in which they were trained to operate. Second Wave managers were taught that mass production is the most advanced and efficient form of production...that a mass market wants standardized goods...that mass distribution is essential...that "masses of uniform workers are basically all alike and can be motivated by uniform incentives. The effective manager learned that synchronization, centralization, masimization, and concentration are necessary to achieve his goals. And in a Second Wave environment these assumptions were basically correct.

Pg. 217 The fast-increasing variety of goods and services in the high-technology nations is often explained away as an attempt by the corporation to manipulate the consumer, to invent false needs, and to inflate profits by charging a lot for trivial options. No doubt, there is truth to these charges. Yet something deeper is at work. For the growing differentiation of goods or services also reflects the growing diversity of actual needs, values and life-styles in a de-massified Third Wave society.

Redefining the Corporation

Pg. 220 Today's corporate critics start from a totally different premise. They attack the artificial divorce of economics from politics, morality, and the other dimensions of life. They hold the corporation increasingly responsible, not merely for its economic performance but for its side effects on everything from air pollution to executive stress. Corporations are thus assialed for asbestos poisoning, for using poor populations as guinea pigs in drug testing, for distorting the development of the non-industrial world, for racism and sexism, for secrecy and deception. They are pilloried for supporting unsavory regimes or political parties, from the fascist generals in Chile and the racists in South Africa to the Communist party in Italy.

Pg. 220 What is at issue here is not whether such charges are justified-all too often they are. **What is far more important** is the concept of the corporation they imply. For the Third Wave brings with it a rising demand for a new kind of institution altogether-a corporation no longer responsible simply for making a profit or producing goods but for simultaneously contributing to the solution of extremely complex ecological, moral, political, racial, sexual, and social problems.

Instead of clinging to a sharply specialized economic function, the corporation, prodded by criticism, legislation, and its own concerned

THE THIRD WAVE
...by Alvin Toffler

Pg. 220 (cont'd) executives, is becoming a multipurpose institution.

A Pentagon of Pressures

Pg. 221 The corporation is being transformed into an environmental, as well as an economic, institution--nto by do-gooders, radicals, ecologists, or government bureaucrats, but by a material change in the relationship of production to the biosphere.

Pg. 222 In this finely strung socio-sphere, corporate decisions are closely scrutinized. "Social pollution" produced by the corporation in the form of unemployment, community disruption, forced mobility, and the like is instantly spotted, and pressures are placed on the corporation to assume far greater responsibility than ever before for its social, as well as economic, "products."

A third set of pressures reflects the changed info-sphere. Thus, the demassification of society means that far more information must be exchanged between social institutions-including the corporation-to maintain equilibrial relationships among them.

Pg. 222 A fourth pressure on the corporation arises from politics and the power-sphere. The rapid diversification of society and the acceleration of change are everywhere reflected in a tremendous complexification of government. The differentiation of society is mirrored in the differentiation of government and each corporation must therefore interact with more and more specialized units of government. These units badly coordinated and each with its own priorities, are, moreover, in a perpetual turmoil of reorganization.

Many Bottom Lines

Pg. 226 The multipurpose corporation that is emerging demands, among other things, smarter executives. It implies a management capable of specifying multiple goals, weighing them, interrelating them, and finding synergic policies that accomplish more than a single goal a time. It requires policies that optimize not for one, but for several variables simultaneously. nothing could be further from the single-minded style of the traditional Second Wave manager.

Pg. 228-229 What is happening, therefore, is a thoroughgoing reconceptualization of the meaning of production and of the institution that, until now, has been charged with organizing it. The result is a complex shift to a newstyle corporation of tomorrow. In the words of Wiliam

THE THIRD WAVE
...by Alvin Toffler

Pg. 228-229(cont'd) Halal, professor of management at American University, "just as the feudal manor was replaced by the business corporation when agrarian societies were transformed into industrial societies, so too should the older model of the firm be replaced by a new form of economic institution...." This new institution will combin economic and trans-economic objectives. It will have multiple bottom lines.

The transformation of the corporation is part of the larger transformation of the socio-sphere as a whole, and this is turn paralle the dramatic changes in the techno-sphere and info-sphere. Taken together they add up to a massive historical shift. But we are not merely altering these giant structures. We are also changing the way ordinary people, in their daily lives, behave. For when we change the deep structure of civilization, we simultaneously rewrite all the codes by which we live.

DECODING THE NEW RULES

Pg. 231 We saw earlier how the Second Wave brought with it a "code book" of principles or rules that governed everyday behavior. Such principles as synchronization, standardization, or maximization were applied in business, in government, and in a daily life obsessed with punctuality and schedules.

Today a contercode book is emerging--new ground rules for the new life we are building on a de-massified economy, on de-massified media, on new family and corporate structures. Many of the seemingly senseless battles between young and old, as well as other conflicts in our classrooms, boardrooms, and political backrooms are, in fact, nothi more than clashes over which code book to apply.

The new code book directly attacks much of what the Second Wav person has been taught to believe in--from the importance of punctualit and synchronization to the need for conformity and standardization. It challenges the presumed efficiency of centralization and professionalis It compels us to reconsider our conviction that bigger is better and ou notions of "concentration." To understand this new code, and how it contrasts with the old one, is to understand instantly many of the otherwise confusing conflicts that swirl around us, exhausting our ener and threatening our personal power, prestige, or paycheck.

THE THIRD WAVE
...by Alvin Toffler

The Sleepless Gorgon

Pg. 234 So far has this process advanced that a 1977 study by researchers at Georgetown University suggested that in the future almost all jobs could be part-time. Entitled "Permanent Part-Time Employment: The Manager's Perspective, the study covered 68 corporations, more than half of which already used part-timers. Even more noteworthy is the fact that the percentage of "Umemployed" workers who want only part-time work has doubled in the past twenty years.

The New Matrix

Pg. 245 Most important, we are also radically decentralizing the economy as a whole. Witness the rising power of small regional banks in the United States as against that of the handful of traditional "money market" giants. (As industry becomes more geographically dispersed, firms that previously had to rely on "money center" banks have increasingly turned to the regionals. Says Kenneth L. Roberts, president of First American, a Nashville bank, "The future of U. S. banking no longer lies with the money market banks.") And as with the banking system, so too with the economy itself.

Small-Within-Big is Beautiful

Pg. 247 Today, we are beginning to realize that neither big "nor" small is beautiful, but that appropriate scale, and the intelligent meshing of both big "and" small, is most beautiful of all. (This is something that E.F. Schumacher, author of Small is Beautiful, knew better than some of his more avid followers. He once told friends that, had he lived in a world of small organizations, he would have written a book called Big is Beautiful.)