AN ABSTRACT OF THE THESIS OF

Sally J. Morita for the degree of Master of Arts in Interdisciplinary Studies in the co-departments of History, Education and Anthropology presented on May 22, 1986.

Title: Technological Progress, Disacculturation, and Our Public Schools

Abstract approved: Redacted for Privacy

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The problems facing our nation's public schools today cannot be divorced from our enthusiasm for technology and the positive relationship we believe it shares with our perception of progress. Based on the second law of thermodynamics, the law of entropy, author Jeremy Rifkin argues that the development of increasingly "efficient" technologies is more cause for concern than congratulations - increasing the scale and pace of activity in our lives hastens the overall process of the dissipation of energy in our environment and increases the amount of disorder in the world. What's more, Rifkin believes we rationalize our actions on the basis of our views of the order found in nature when, in fact, our views about nature and progress reflect our own dominant modes of activity.

From an anthropologist's perspective, schools can be numbered among the various exosomatic instruments that we humans use to

capture, transform, and process sources of energy from our environment. Only when societies have reached a certain stage of technological sophistication and organizational complexity has the suggestion for the need for schools arisen. This paper examines the relationship between the rise of industry in America and the birth and expansion of our public schools.

Americans place great faith in education and we have organized our schools on the basis of our ideas about progress. During the Enlightenment, men were equally enthralled by the discovery of order in nature and the human capacity to appreciate and manipulate this order. As the nineteenth century progressed, Americans became greatly attracted to Herbert Spencer's ideas about evolution and progress, ideas which reflected the more impersonal nature and increased organizational complexity of American society after the Civil War. In our nation's public schools, these ideas were reflected in the express transformation of public schools into comprehensive socializing institutions during the Progressive era. With continued technological progress, the expanding number of socializing and vocational responsibilities assumed by schools has led to their overshadowing the teaching of basic skills and academic subjects.

Two recent movements in education - the Back to the Basics movement and the Home Schooling movement - are also discussed as re-evaluations of the relationship between public schools and changes in American society.

Technological Progress, Disacculturation, and Our Public Schools

by

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A THESIS

submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Master of Arts
in
Interdisciplinary Studies

Completed May 22, 1986

Commencement June 1987

APPROVED:

Redacted for Privacy

Professor of History in charge of major

Redacted for Privacy

Professor of Education in charge of co-field

Redacted for Privacy

Associate Professor of Anthropology in charge of co-field

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Date thesis is presented May 22, 1986

Typed by researcher for Susan E. Bastendorff

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> We are talking about changes which render whole life patterns pointless, which disturb value systems, create alienation, make life boring or frustrating or not worth living, raise crime and suicide and alcoholism rates, and much more. In anthropological terms we are talking about disacculturation. We are doing to ourselves what we have already done to many primitive peoples, plunging them into a technological world for which their institutions and values are unfitted.
>
> Gordon Rattray Taylor
> Rethink, p. 324

In 1983 the National Commission on Excellence in Education, created by Secretary of Education T. H. Bell, released "An Open Letter to the American Public" entitled "A National Ar Tisk: The Imperative for Educational Reform." Perhaps the most frequently heard statement from this much-publicized report was "If an unfriendly power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war."[1] We were informed by the authors of this report that our educational institutions had seemingly lost sight of the basic purposes of schooling and the nation had been engaging in "unthinking, unilateral, educational disarmament."[2] This report was soon followed, according to one estimate, by no less than 36 other reports sponsored by national educational bodies.[3] An ABC News Closeup program entitled "To Save Our Schools, To Save Our Children" captured well the dominant anxiety underlying

this wave of concern when it reported - "We have staked the survival of the American idea on an educated citizen. Our security, our economic competitiveness in the world and our leadership depend on it."[4]

In analyzing the relationship between technology and education, the prevailing note struck has been one of increasing opportunities. For example, writing in 1969, social scientist Kenneth Keniston wrote -

> The burgeoning of technology [in] . . . the rapidly industrialized nations has enormously increased opportunities for education, has prolonged the postponement of adult responsibilities and has made possible an extraordinary continuation of emotional, intellectual and ethical growth for millions of children and adults.[5]

Similar declarations linking technology with unparalleled opportunities can still be heard today.

In my opinion, assessments such as Keniston's are far too sanguine. Something, clearly, has gone wrong. When reports such as the one released by the Bell Commission mention the fact of our rapidly changing world in the same breath that they talk about "ever-larger opportunities for those prepared to meet them" and the need for educational reform with the goal of creating a "Learning Society," despite the deference they pay to the idea of leisurely learning, it is clear that what is really being talked about is the necessity for learning new job skills.[6] What these reports are talking about, but avoid saying so in blunt terms, is the often painful reality of human obsolescence in a technologically and economically competitive world. Recently, a mockery has been made of Keniston's "enormously increased opportunities for

education" for children in the phenomenon of "superbabies" and "supertots" where well-meaning parents, anxious to ensure the future success of their children fill the lives of their offspring with home lessons and outside learning activities. In an article entitled "Bringing Up Superbaby," Newsweek magazine described the new ABCs of childhood as "Anxiety, Betterment, [and] Competition."[7] In some places, children must now successfully cut the mustard during interviews in order to gain entrance into pre-school. Over the past few years a number of books have been published expressing growing concern over what is happening to childhood. Well-known author Vance Packard entitled his 1983 book Our Endangered Children: Growing Up in a Changing World. Packard believes that children are confronting some modern forms of damnation in today's world. "Unwittingly," he writes, "we have developed an anti-child culture."[8] Paul Goodman made the same point thirty years ago.

Paul Goodman wrote about education and what ailed our public school system during the 1950s and 60s. He remains an incisive critic for the 1980s. One criticism that cannot be directed at him was that he treated the problems of schools in isolation from their environment. Equally important, instead of writing about increased opportunities, he wrote about slamming doors. Goodman began his book Growing Up Absurd with the following statement: "My strategem in this book is a simple one. I assume that the young really need a more worth-while world in order to grow up at all."[9] He made the important observation that - "Growing up as a human being, a 'human nature' assimilates a culture[.]"[10] In a culture where young people are thwarted or starved of real

opportunities for worth-while experience, they turn to deviant objects or solutions. He called this "The beautiful shaping power of our human nature."[11] Over the past several years we have witnessed an alarming increase in the number of young people committing suicide, crimes and running away. Almost prophetically, Goodman was writing about "early resigned" and "early fatalistic" youth in the 1950s.[12] In our present look for answers, we might do well to look at what he had to say about the roots of this despair -

> A society cannot have decided all possibilities beforehand and have structured them. If society becomes too tightly integrated and pre-empts all the available space, materials, and methods, then it is failing to provide for just the margin of formlessness, real risk, novelty, spontaneity, that makes growth possible. This almost formal cause importantly drives young people out of the organized system . . .[13]

"Our society," Goodman wrote, "pre-empts literally too much of the space."[14] The phenomenon of superbabies epitomizes his point both splendidly and with a vengeance. Our situation, he said, "looks busy and expansive, but it is rationally at a stalemate."[15]

To the American mind, the admission that we have created a state of affairs where activity and aggrandizement, i.e., achievement are the norm and yet few things seem to be getting better strikes at the very heart of our idea of progress. Over the years, the activity in our public schools has mirrored the busy and expansive nature of American society. Looking at the problems besetting public education today, we might well question whether or not much of this activity has also been "rationally at a stalemate." In searching for the causes of "educational disarmament" in America, perhaps we should begin by re-examining our

present ideas about the relationship between technology, progress, and education.

The intent of this paper is to show how ideas about the nature of technology, progress, and society converged during the nineteenth century and then to examine the unsettling impact of the resulting philosophy of progress upon public education in America. In developing these ideas, this paper builds on the writings of author Jeremy Rifkin. Rifkin states that all of our convictions about the order found in nature and upon which we base our convictions about social order, are biased by our own technological achievements.[16] During the eighteenth and nineteenth centuries, the beginning years of the Industrial Revolution, Western man believed that he had discovered progress in nature. Social philosphers believed that human society should be organized on the basis of the perceived order or principles upon which nature's progress was thought to depend. During the late nineteenth century, many Americans became attracted to philosopher Herbert Spencer's ideas about progress and social order, ideas which reflected the transformation of American society with advancing industrialization. In our nation's public schools, these ideas were reflected in the express transformation of public schools into comprehensive socializing institutions during the Progressive era.

The expansion of the role of public education can also be explained within the framework of Rifkin's writings. Rifkin argues that the second law of thermodynamics - the law of entropy - destroys the notion of technological progress as we have thus far perceived it. All so-called advances in technology, he writes, increase the amount of disorder in our environment.[17] A number of

historians - Michael Katz, Joel Spring, Charles Karier and others - have argued that American public schools were advocated first and foremost as institutions of social control. Perhaps one plausible explanation for the assumption of socialization functions by our public schools and their increasing number at the expense of teaching basic skills and academic subjects lies in the law of entropy.

The conclusion of this paper develops further the idea that the unsettling impact of the prevailing perception of progress upon American public education is part of a greater pattern of rapid technological progress and disorder in our lives.

I. TWO EXPLORATIONS OF THE RELATIONSHIP BETWEEN TECHNOLOGY AND PROGRESS: HERBERT SPENCER AND JEREMY RIFKIN

> To have lived when this prodigious truth was advanced, debated, established, was a rare privilege in the centuries. The inspiration of seeing the old isolated mists dissolve and reveal the convergence of all branches of knowledge is something that can hardly be known to men of a later generation, inheritors of what this age has won.
>
> John Fiske on the writings of Herbert Spencer[1]

The observation has been made that the capitalist economy and bicycle riding have the following in common: stability requires forward motion.[2] A similar observation can be made of the idea of progress. The promise of progress is that of increasing welfare in a constantly changing, unsettled environment. In his book History of the Idea of Progress, Robert Nisbet has been careful to point out the close relationship in the late eighteenth and nineteenth centuries between faith in the idea of progress and what we today would call economic growth.[3] Conceived in these terms, the assurance of continued progress has always been linked with the innovation of increasingly sophisticated or "efficient" technologies.

In his book Entropy - A New World View, contemporary author Jeremy Rifkin writes that energy is the basis of human activity, just as it is the basis of all life. While all living things are engaged in the process of extracting energy from their surroundings, Rifkin writes that only homo sapiens use exosomatic instruments, or external aids, to help facilitate this process.[4] Technology can be defined as the entire range of tools that humans design to capture,

transform, and process available energy from the environment. Stated in yet another way, technology serves to extend or amplify the human body in order to transform more and more of nature into ourselves.[5] The appeal that technology holds for us lies in what it has to offer us in the way of material plentitude, security and self-perpetuation.[6]

Rifkin also believes that our relationship with technology extends far beyond material considerations. In his book Entropy - A New World View and, more forcefully, in his more recent book Algeny: A New Word - A New World, he argues that every civilization justifies its behavior by claiming to have natural order on its side. And where do we get our ideas of the order found in nature? Rifkin believes that our concepts of nature are anthropocentric. Cosmologies, he believes, tell us more about how people are interacting with their physical environments and with each other than they tell us about nature herself. "Through our cosmologies," he aruges, "we turn our technological relationship(s) with nature into timeless truths."[7]

During the decades following the Civil War, the two men who figured greatly in the cosmological constructs of most Americans were Herbert Spencer and Charles Darwin. Hitherto it has been assumed that Darwin discovered a law of nature and certain members of society exploited it for their own political and economic ends. Equally important to how Darwin's theory was exploited however, Rifkin argues, is how his theory was conceived. Recent scholars including Silvan Schweber, John C. Greene, and Alexander Sandow have suggested that the derivation of the theory itself was just as socially biased as the ends to which it was later used.

In his book Algeny, Rifkin traces a direct line of thought from

economist Adam Smith to biologist Henri Milne-Edwards to Darwin. In The Wealth of Nations, Smith wrote -

> The greatest improvement in the productive powers of labour, and the greater part of the skill, dexterity and judgement with which it is anywhere directed, or applied, seem to have been the effects of the division of labour.[8]

According to Smith's way of thinking, author Garry Wills writes - "the invisible hand of providence work(ed) best when a busy mind parcel(led) out all of the separate operations in making a pin."[9] Henri Milne-Edwards extended Smith's concept of the division of labor to the rest of the animal kingdom in 1834. Milne-Edwards believed that in the ascending series of living organisms culminating in man, the body of each animal becomes increasingly complex with the parts becoming more and more dissimilar to one another. He went on to conclude that the same principle which guided nature in the perfectibility of living organisms, i.e., the division of labor, was also of the greatest importance in the progress of industrial technology.[10] "What Darwin discovered [then]," Rifkin writes, "was not so much nature as it was but the workings of nineteenth-century industrialism, which he then unconsciously projected onto nature."[11] Evolution came to be seen as "a process of ever-increasing order brought about as a result of each succeeding species being better equipped to maximize its own self-interest and provide for its material needs."[12] It became a fundamental assumption that the economy of nature was designed by Providence to maximize production and efficiency.[13]

Although Rifkin confines his analysis largely to Darwin, more importantly, his thesis can be applied to Herbert Spencer as well, for it was Spencer, more than Darwin, who was regarded as the

scientific thinker par excellence in post-Civil War America among both laymen and academics. In an introductory essay to a recent collection of Spencer's writings, Stanislav Andreski states that the process of evolution in the sense that Spencer defined it is much more visible in human history than in the realm of organic nature. Andreski comments -

> Assuming the truth of the biological theory of evolution, we can surmise that the lions came into existence later than the amoebas, but there is no evidence that, by multiplying, the lions have ever threatened the existence of the amoebas. In the realm of human social aggregates, on the other hand, the complex formations have not only come into existence later than, and have originated from, simpler structures, but they have been for millennia, and still are, displacing the latter by absorbing or exterminating them.[14]

Spencer's thoughts on evolution or, as he called it, his synthetic philosophy bore the stamp of recent developments in the sciences. The idea of evolution preceded the 1859 publication of Charles Darwin's The Origin of Species. In the field of physics, the work of Joule, Meyer, Helmholtz, Kelvin, and others had yielded the laws of thermodynamics. Spencer based his theory of evolution on the first law of thermodynamics concerning the conservation of energy.[15] He defined evolution as a process characterized by

> an integration of matter and concomitant dissipation of motion; during which the matter passes from an indefinite incoherent homogeneity to a definite coherent heterogeneity; and during which the retained motion undergoes a parallel transformation.[16]

Stated more simply, Spencer saw evolution as a universal process of increasing differentiation (specialization) and integration (interdependence).[17]

In an essay entitled "Progress: Its Law and Cause," Spencer illustrated this process of universal evolution by describing the difference between "barbarous" and civilized peoples. "Barbarous" tribes were "a homogeneous aggregate of individuals having like powers and life functions[.]" "Very early, however, in the life process," he wrote, "we find an incipient differentiation between the governing and the governed."[18] One characteristic of advanced nations was their "minute division of labour."[19] Considering his time period, Spencer believed that in the evolution of society, the relatively undifferentiated (the "indefinite incoherent homogene[ous]") character of nineteenth century would progress to the next stage through the means of free competition. He and his disciples envisioned that the condition of laissez faire they advocated would bring about a state of affairs where the various interests of the competing (unequal) classes would be engaged in a kind of dialectical, efficiently functioning order (the state of definite coherent heterogeneity).[20] In an individual man the process of increasing heterogeneity could not go on forever, for death and decay would set in, but in society, Spencer believed this process would eventually lead to the establishment of a stable, harmonious, and completely adapted state.[21] He also believed that there existed a positive relationship between progress and technology in this evolutionary process. In his view, subsistence pressures were the immediate cause of progress. Pressure for survival placed a premium on intelligence, skill, self-control, and the ability to adapt by technological innovation.[22] Advances in social evolution, then, were presumed to rest on the development of increasingly sophisticated technologies.

In stark contrast to Spencer's view of the relationship between technology and progress is the picture that Rifkin draws. The contrast is all the more startling because both men look at energy considerations based on the laws of thermodynamics. Spencer's cosmology is firmly grounded in the first law of thermodynamics - the conservation of matter and energy. Rifkin's thinking, on the other hand, is dominated by the second law of thermodynamics - the law of entropy.

According to the first law of thermodynamics, energy cannot be created or destroyed, only transformed from one state to another. According to the second law of thermodynamics, energy is always transformed in one direction - from usable to unusable, available to unavailable, or ordered to disordered - and every time this occurs in a closed system, a penalty is exacted. That penalty is a loss in the amount of energy available to perform future work. Entropy is a measure of the amount of available or free energy that has been transformed into unavailable energy or energy in a bound state. Another name for this accumulation of unavailable energy is pollution.[23] Recycling efforts do not circumvent the entropy process, they only require less energy and produce less entropy than when starting from scratch.[24] Pockets of order can be created, but only at the expense of creating greater disorder or entropy in the surrounding environment.[25] Isaac Asimov has summarized both laws thus: "The total energy content in the universe is constant and the total entropy is continually increasing."[26]

Both Rifkin and Spencer endorse what Rifkin calls the "deprivation, crisis, experimentation" theory of history which

maintains that pressures upon subsistence lie behind critical technological innovations.[27] Rifkin's understanding of the law of entropy, however, leads him to a far less rosy conclusion about the nature of this process. Whereas Spencer would see progress behind mankind's successive use of wood, coal, and uranium, Rifkin states that each one of these energy sources represents an increasingly less available form of energy than the one preceding it; qualitative changes in our use of energy resources occur when the entropy level in the environment becomes so high that old ways of doing things become inoperative.[28] He continues -

> The Entropy Law also tells us that each of these qualitative shifts in the environment is more harsh and exacting in terms of available energy than the preceding one. This is because, with each successive stage, the stock of available energy in the world has dissipated to a lower and lower level. The overall disorder of the world is always increasing; the amount of available energy is always decreasing. Since human survival depends upon available energy, this must mean that human life is always becoming harder and harder to sustain and that more work, not less is necessary to eke out an existence from a more and more stingy environment. . . . more complex technologies must be devised at each stage of history just to maintain a moderate level of human existence.[29]

"[E]very so-called advance in efficiency, as measured by new technologies designed to speed up the energy flow," Rifkin writes, "has only hastened the overall process of dissipation of energy and disorder in the world."[30] He draws the conclusion that the law of entropy destroys the notion of material progress in history just as it turns upside down our belief that science and technology can create a more ordered world.[31]

The relationship between the birth and expansion of our nation's public schools and the rise of industry can conceivably be placed within the framework of the process that Rifkin has outlined, i.e., the expenditure of greater and greater amounts of energy/effort to maintain the status quo or, more appropriately here, to achieve ever-increasing economic growth rates and increased material prosperity. A rise in entropy would be the result in both cases. Rifkin would include schools, as well as man's other social, economic, and political institutions, among the exosomatic instruments that we humans create to appropriate more of the surrounding environment unto ourselves. Like machines, Rifkin writes, human institutions function as energy transformers.[32] When a society attempts to get more and more energy out of its environment, either new institutions and technologies are created or those already in existence grow increasingly complex.[33] When disorders mount along an established energy flow line and the flow becomes impeded, these disorders are dealt with by expanding an institution's functions or range of control.[34] Historically, the birth of the public school system in America cannot be separated from the larger events of the Industrial Revolution. Agitation for expanding the role of public schools has often occurred during periods marked by intense activity and concerns about social order and/or worries about technological competitiveness.

II. THE FORCES OF PROGRESS AND "ADJUSTING TO" SOCIETY

> [W]hen the enlightened thinker shifted his attention from the physical realm to the social, he transformed his natural laws into natural rights. The modern naturalists, on the other hand, more rigorously carried natural law into the social realm and insisted upon its coercive power over man and society.
>
> Stow Persons, American Minds, p. 243

What is probably most important about Spencer's conception of progress was his denial of human control. In "Progress: Its Laws and Cause," he wrote -

> the current conception of Progress [is] more or less vague [and] in great measure erroneous. It takes in not so much the reality of Progress as its accompaniments - . . . progress in intelligence . . . is commonly regarded as consisting in the greater number of facts known and laws understood; whereas the actual progress consists in those internal modifications of which this knowledge is an expression . . . . [S]ocial progress consists in . . . changes of structure in the social organism.[1]

Later in the same essay he stated unequivocably - "Progress is not an accident, not a thing within human control, but a beneficent necessity."[2] Historian Lawrence A. Cremin has stated Spencer's point of view thus: "human perfection is ultimately attainable, but men are infinitely more the creatures of history than its creators."[3]

Spencer's view of progress was both an extension and repudiation of the idea of progress inherited from the Enlightenment. During that age men, greatly inspired by Newton, were literally captivated by what they believed to be the discovery of natural order

in the universe and their ability to appreciate this order. In the words of historian Henry Steele Commager -

> It was an age of science, it was the age of philosophy, it was the age of enlightenmnet. Everywhere the scientists were philosophers, and most of the philosophers were scientists, while all were enlightened. . . .[4]

> "Order," they knew, "[was] Nature's first law," and they made it their own, for they were in harmony with Nature. They organized, they systematized, they classified, they codified, and all Nature, the universe itself, fell into order at their bidding.[5]

Inspired by Newton's work in discovering the laws of motion, many of these men aspired to duplicate his success by uncovering laws governing the behavior of man. In Rifkin's words -

> [These men hoped] to figure out exactly how the natural laws applied to human beings and social institutions and then apply them. . . . [T]he final pay-off would be a perfectly ordered society. . . . History was now seen as a progressive journey from the rather disordered and confused state that society found itself in to the well-ordered and wholly predictable state represented by the Newtonian world machine.[6]

One of the more important themes during this time was the belief that modern society was bien organisée and this made it more natural than earlier societies. Man could achieve his accord with nature only by the use of the most sophisticated techniques. Complexity was an imitation of nature's own multiplicity. Wills writes - "[I]n specific observations, in the division of labor, in development of specialities, in cultivation and expertise. . . . One travel[ed] toward unity through complexity."[7]

However much these men entertained a mechanical or lawful and orderly view of the universe and man, the equally important

theme of man's creative ability to achieve a harmonious or perfectly-ordered world through first understanding and then manipulating the laws of nature shined through in their thinking. Anthropologist Marvin Harris, the foremost proponent of cultural materialism, makes the point -

> In actual practice, . . . none of the eighteenth century heralds of the "new science" was capable of sustained adherence to the emergent conception of undeviating orderliness. Throughout the period there runs a countercurrent that threatens to efface the mechanistic posture. This was the widely held belief that men in general at all times possessed the ability to change their social orders by exercising choice, rational or irrational, as the case might be.[8]

For almost the first time in modern history, Commager states, it was assumed that "men were not the sport of Nature or the victims of society, but that they might understand the one and order the other."[9] With reason as their guide, these men firmly believed "they could penetrate to the truth about the Universe and about Man, and thus solve all those problems that pressed upon them so insistently."[10] Inasmuch as this efficacious view of man persisted, proponents of public education were likely to stress the inherent abilities of individuals. Their pedagogical thinking was more likely to be free of behaviorist elements. Goodman has made the observation that when men such as Jefferson and Madison advocated compulsory schooling, they were proud and conscious makers of a revolution as well as being strongly influenced by Congregational or town-meeting ideas. Freedom required vigilance; men could not be both ignorant and free. To these men, "citizen" meant society-maker, not one "participating in" or "adjusted to" society.[11]

In his book Civilizing the Machine: Technology and Republican Values in America, 1776-1900, historian John F. Kasson details how the American Revolution coincided with the advent of industry in America and how these events affected the character of the nation. As hard as it may seem for the twentieth century mind to believe, the propriety of introducing labor-saving technology as well as some of its products into America were once considered critical issues concerning the destiny of the nation. Influential citizens questioned whether the introduction of domestic manufactures into the country would help integrate the new nation or prove to be a divisive force; whether technology would help ensure America's independence, economic and social stability, and moral rectitude or subvert them.[12] In his Notes on the State of Virginia (1785), Jefferson admonished his countrymen that "for the general operations of manufactures, let our workshops remain in Europe." Any loss in these goods, he maintained, would be made up "in the happiness and permanence of government."[13] Under the pressure of ideas and events following the year 1765, the image of an agrarian America intensified and became an American symbol of republican virtue. The independent yeoman farmer became a symbolic hero and a favorite persona in revolutionary literature.[14]

But even so ardent an exponent of agrarian life as Jefferson was enamoured with science and the fruits of technology and both held wide appeal for the developing nation. In the Federalist Papers, Madison disagreed with Montesquieu over the possibility of creating a viable republic in a country so large as the United States. Conventional wisdom held that a republican form of government was

possible only within a relatively limited area inhabited by a small and homogeneous population. Madison argued that intercourse throughout the new nation would be facilitated by "new improvements." The unity which nature had intended, Madison suggested would be realized through technological innovations. This vision of the promise of technology was extended and amplified throughout nineteenth and into the twentieth centuries.[15]

The combined impact of new technological developments helped to alter the complexion of the idea of progress as time went on. Kasson writes that within half a century after the American Revolution, only a few doubtful voices were raised about technology. For most doubt became unthinkable and Americans "hailed the union of technology and republicanism and celebrated their fulfillment in an ever more prosperous and progressive nation." To an extent unthinkable a generation earlier," Kasson writes, "Americans after the War of 1812 defended the merit of their institutions and appealed to the world to judge them according to the standard of prosperity."[16]

Expressing a similar conclusion, historian Arthur A. Ekirch writes -

> The material expansion of the nation was dramatically emphasized by the stream of inventions which accompanied the industrial reolution. During the years from 1815 and 1860, the older interest of the 18th century enlightenment in pure science was supplanted by the increasing domination of utilitarian science. To the generality of Americans, it was the practical application of science that furnished the most obvious evidence of progress.[17]

Both Kasson and Ekirch document how intimately faith in the idea of progress came to rest on technology. What misgivings there were

about this relationship, Kasson says, should not be overemphasized -

> In the case of so many Americans, what is truly striking is the resiliency of their abounding faith and delight in technology, even when it conflicted with their own experience.[18]

The Industrial Revolution brought about nothing short of a profound change in the human experience. In addition to its more obvious material manifestations, the development of new technologies also increased the rate of change to unprecedented new levels and profoundly altered the social context or nature of contact betwen individuals. It was the creation of this new social environment that prompted Disraeli's phrase that the Industrial Revolution had split England into "two nations."[19] Although this profound change was recognized and generously commented on during the nineteenth and early twentieth centuries, it is largely unappreciated today.[20] Historian Michael Katz has remarked that the words "industrialization" and "urbanization" have been used so much, they have become abstractions almost devoid of any power to suggest the pain and tensions of people caught up in a profound alteration of the human experience.[21] One aspect of human experience that underwent profound alteration was the means whereby children entered the adult world.

In an essay entitled "The Shaping of Men's Minds: Adaptations to Imperatives of Culture," anthropologist Yehudi A. Cohen looks at socialization and education and discusses the nature of both processes. Cohen defines education as "the inculcation of standardized and stereotyped knowledge, skills, values, and attitudes by means of standardized and stereotyped procedures." This includes anything from recitations of myth, lore, and etiquette by elders to

youth to formal school settings.[22] He defines socialization as "the inculcation of basic psychological patterns through spontaneous interaction with parents, siblings, and others[.]" This interaction may be predictable, but it is not stereotyped or standardized in the sense that it occurs at regular times, in predictable ways, and at set places.[23] He suggests the following hypothesis:

> the quantitative role played by socialization in the development of the individual is in direct proportion to the extent to which the network of kin relations coincides with the network of personal relations. Correlatively, education tends to increase proportionally with the degree to which the network of kin relations fails to coincide with the network of personal relations.[24]

Socialization, then, is prominent in social systems where kinship is the primary basis upon which economic, political, and other social relationships are organized. He also notes that one of the characteristic features of kinship-based social systems is their reliance on particularistic or personal (as opposed to standardized or universal) criteria in conducting social relationships.[25]

Cohen also writes that every society or culture has a highly specific attitude toward change and that rate of change becomes a feature of that culture. He speculates that in societies where the rate of change is slow and change is disvalued, socialization will play the predominate role in the educating individuals.[26] Conversely, in societies such as the United States, where mobility is highly prized and, for the most part, continual change is regarded as progressive, there is a heavy reliance on schools to educate individuals. Anthropologist Margaret Mead has similarly drawn

attention to the function of modern education in creating discontinuities.[27] If what Cohen writes seems sound, it should prove to be no surprise that the first widespread campaign to create a national model for a public school system in the United States began in New England where first and traumatic upheavels of the Industrial Revolution were felt. Proponents of public schools acknowledged the havoc caused by these changes when they advocated public schools as a means of addressing this stretching or tearing of the social fabric.

In colonial America, the basic unit of production had been the family and most families worked their own land and/or owned the tools of their means of livelyhood. The transmission of the productive skills to children was a relatively simple process because these skills were passed on within the family from generation to generation largely unchanged. In addition, the transition from childhood to adulthood did not require adaptation to a whole new set of social relationships. Although the extended family was no longer the norm, communities were likely to be tightly knit; people did not move around very much.[28]

After the Revolutionary War, commerce grew dramatically, setting in motion developments that radically altered this state of affairs. In their book Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life, Samuel Bowles and Herbert Gintis write -

> In the fifteen years before 1807, the value of foreign trade increased fourfold. Larger commercial interests profited from the expansion of trade, amassed substantial amounts of capital, and sought new arenas for profitable

> investment. Increasingly, capital was used for the direct employment of labor in production rather than remaining confined to the buying and selling of commodities and related commercial activities. The expansion of capitalist production, particularly the factory system as well as the continuing concentration of commercial capital, undermined the role of the family as the major productive unit of both child-rearing and production. . . . Ownership of the means of production became heavily concentrated in the hands of landlords and capitalists. Faced with declining opportunities for an independent livelyhood, workers were forced to relinquish their control over their labor in return for wages, or piece rates. The pay workers received increasingly took the form of a "wage" rather than a "piece."[29]

Horace Mann, the prominent Massachusetts advocate of public schools during this turbulent period of the 1830s and 40s, is a good example of a historical figure whose thoughts on education reflected the buoyant optimism of the Enlightenment. Mann possessed boundless faith in the idea of progress and the perfectibility of human institutions and human life. In common with many of our early statesmen, he shared the belief that public schools would lay the foundation for the responsible exercise of citizenship in a free society. Although it is certainly true that he saw the ensurance of social harmony as the primary goal of public education, it should at least be acknowledged that he recognized the existence of the ever-present conflict between enlightenment and social control in public education.[30] The nature of this conflict was muddled by later educational reformers and social scientists.

Looking about him, Mann argued that the conditions in America were changing. Unlike earlier times, when incomes and social status were based on property passed on from generation to generation, in the industrial society that was emerging, one's status would be

determined by one's abilities and willingness to work.[31] In the creation of an educational system that provided all children with the opportunity to develop their talents, Mann saw the assurance of a more open society with greater equality of economic opportunity. Well aware of the social turmoil caused by the growth of industry, he asserted - "Nothing but universal education can counter work [the] tendency of the domination of capital and the servility of labor." Mann believed that public schools could function as "the balance wheel of the social machinery," eliminating poverty and securing abundance for all. Properly administered, he wrote, schools could provide a generation of

> [s]ober, wise good men to prepare for the coming events, to adjust society to the new relations it is to fill, to remove the old, and to substitute a new social edifice, without overwhelming the present occupants in ruin.[32]

In the public schools, then, Mann and many others sought a solution to the problem of ensuring continued economic growth without social disorder.

As the nineteenth century progressed and technology became more and more of a factor in the lives of Americans, the idea of progress became more impersonal and complex in ways that reflected the changing social environment. Whereas during the Enlightenment, the themes of a universe guided by natural laws and man's ability to influence history existed side by side, as the nineteenth century progressed, men and women found themselves feeling increasingly powerless and alienated from their surroundings. The influential social thinking of such men as Adam Smith, Spencer, Darwin, Marx, and Engels all reflected in varying degrees an "invisible hand" view of

the universe where individuals were, in great measure, powerless to interfere with the progressive course of human history.

Again, of all these men, it was Herbert Spencer's explanation of the nature of the universe and history that most Americans were familiar with. Spencer condemned the teaching of history when taught as a hodge-podge of valueless facts. In an essay entitled "What Knowledge is of the Most Worth", he wrote of the study of history - "[F]acts, . . . should be so arranged that they may be comprehended in their ensemble, and contemplated as mutually-dependent parts of one great whole."[33] Concerning the value of this type of teaching, he wrote -

> Such alone is the kind of information respecting past times which can be of service to the citizen for the regulation of his conduct. The only history that is of practical value is what may be called Descriptive Sociology. And the highest office the historian can discharge, is that of narrating the lives of nations, so as to furnish materials for a Comparative Sociology; and the determination of the ultimate laws to which social phenomena conform.[34]

In his other writings, Spencer made it quite clear what he believed this history as descriptive or comparative sociology would reveal: a universal and impersonal process of homogeneity being replaced by heterogeneity. Insofar as human history was concerned, this meant evolution or progress from monolithic, static and repressive types of social organization to more diversified, plural, and individualistic forms of social organization.[35] For Spencer, this process required of humans that they continually adapt their ways to the changing social environment.[36] He warned that evil would result from the failure to adapt and human tampering would impede what was already a gradual process.[37]

Spencer's characterization of the evolution as a process of increasing heterogeneity (i.e. greater specialization and interdependence) fit well with the transition that America was undergoing with the impact of industrialization. Amid the general turmoil of the late nineteenth century, his ideas about progress and history provided the assurance that there was cosmic order behind the chaos of labor unrest, agrarian protest, and rapid urbanization. During the Progressive era, many prominent American social thinkers either implicitly or explicitly adopted his views about progress and changing social organization when, in formally recognizing the transition of America from an agrarian and rural country to an industrial and urban nation, they sought measures to adapt Americans to the changing environment. Of Spencer's influence, Nisbet writes -

> It is impossible to think of any single name more deeply respected, more widely read among social philosophers and scientists, and more influential, in a score of spheres, than was that of Herbert Spencer. His influence in the social sciences was immense, not least in American colleges and universities during the last quarter of the nineteenth century. . . . It is a matter of record that one and all of the exponents of the New Liberalism proceeded from, and expressed admiration for Herbert Spencer.[38]

"All of the social sciences without exception. . . ," Nisbet writes, "were almost literally founded on the rock of faith in human progress[.]"[39]

The influence of Spencer's ideas was, in many ways, regrettable. In looking at his impact on the American social sciences, historian Christopher Lasch writes that, in attempting to explain the increasingly dense network of interpersonal relations characteristic of technologically-advanced societies, American social

scientists converted commonplace truisms about the interrelatedness or interdependence of all social phenomena into the highest principles of their respective sciences. Men's increasing alienation from their own works only created the illusion that society obeyed laws of its own and acted like an autonomous organism, totally independent of human will. "In reality," Lasch writes, "this 'interdependence' merely reflect[ed] changing modes of domination." In an unfortunate twist of the Enlightenment belief in the orderliness of the universe, what was in reality "the rule of force gave way to the rule of law." In many respects, what was true for the social sciences was equally true for the field of education which embarked upon a vigorous effort to be counted among the social sciences during the Progressive era. The results of this effort were far from satisfactory. Accepting "interdependence" as a kernel of wisdom, critical awareness of the fundamental conflict between human nature and culture or human nature and the socialization process (so stressed in Freud's work) was lost.[40] In the eyes of many social scientists, social philosophers and educators, social conflict - personal and class - became dysfunctional; the solution lay in better socialization.[41] Progressives came to regard American public schools as a key institution in which to carry out a scientific socialization process complementary to their prescription of the nation's needs. In the nation's classrooms, the line between education as enlightenment and social control disappeared with the blessing of American educators. The school policies and instructional methods developed during this period established dominant traditions for the next half century and more. Ironically, in a cruel twist of Spencer's unmitigated defense

of individual freedom, historian Joel H. Spring writes -

> The corporate image of society turned American schools into a central institution for the production of men and women who conformed to the needs and expectations of a corporate and technocratic world. [42]

III. TECHNOLOGICAL PROGRESS IN THE CLASSROOM

> Social, political, and industrial changes have forced upon the schools responsibilities formerly laid upon the home. Once the school had mainly to teach the elements of knowledge, now it is charged with the physical, mental, and social training of the child as well.
>
> Abraham Flexner and Frank P. Bachman, The Gary Schools (1918), p. 17

As stated before, schooling for the purposes of socialization did not begin during the Progressive era. During the early nineteenth century, however, there were no state-wide compulsory attendance laws (Massachusetts passed the first one in 1852, Mississippi the last in 1918) and the socialization process carried out in schools was far less subtle.[1] Nor was the process endowed with the aura of evolutionary science.

To an extent that must be understood in terms of the period's general enthrallment with the mechanical arts, early advocates of public education found in the factory a suitable model for schools. A popular and widespread educational method employed by free schools during the early part of the nineteenth century was the Lancasterian or monitorial system.[2] In a typical Lancasterian school, the teacher sat above his/her pupils and assistants on a raised plaform or stage. Moving up and down long rows of younger students, unpaid older pupils functioned as assistants or monitors, conveying the instructions of the teacher, carrying out lessons in a step-by-step routine, and maintaining strict order.[3] One proponent of this method praised it as "a system which is, in education, what the neat finished machines for abridging labor and expense are in the mechanic arts."[4]

One unidentified French observer, who declared the system a "masterpiece" picturesquely described it as a "manufactory of knowledge."[5]

Bowles and Gintis also provide evidence of the unaffected association between the schools and factories in their book Schooling in Capitalist America. They report that in 1852 the school committee in Lowell, Massachusetts approved of the innovation of a graded school system which allowed for a more standardized curriculum, graded texts, and the establishment of standards of student progress with the following statement:

> The principle of the division of labor holds good in schools, as in mechanical industry. One might as justly demand that all operations of carding, spinning and weaving be carried out in the same room, and by the same hands, as insist that children of different ages and attainments should go to the same school, and be instructed by the same teacher. . . . What a school system requires is that it be systematic; that each grade, from the lowest to the highest, be distinctly marked, and afford a thorough preparation for each advanced grade.[6]

The impersonality of the Lancasterian system - with its lack of teacher-student contact - and the graded school system in Lowell, reflected the impersonality of the factory system and changing social environment. Martin Carnoy has observed that factory managers did not want to hire and train new people every week, nor did they want to constantly watch their workers to make sure they were doing their jobs correctly. "Urban communities," he writes, "were not cohesive enough to control directly the actions of individuals living in them."[7] By employing more abstract means, then, schools both taught and disciplined

students in ways that conditioned them to accept the new social and work environments.[8]

A prominent theme during the Progressive era was the transformation of the American life. Americans living during decades of rapid change following the Civil War were convinced that they were living in a transitional period between the America of the long-hallowed independent yeoman and a future dependent on the cooperative activities in urban areas and large-scale industries.[9] Three important Progressive thinkers who wrote on this subject were sociologist Edward Alsworth Ross, political reformer Herbert Croly and philosopher-educator John Dewey. All of these men, in their various ways, regarded interdependence as the new ruling principle of the nation. In urging cooperation as the new guiding sentiment, they put forward new definitions of freedom and individualism to accomodate the changing nature of American society. All of them drew attention to the role that education could play in assisting this transformation. Generally speaking, Nisbet writes, ideas about freedom and progress changed during the late nineteenth century. Until that time, modern ideas about progress had been associated with the idea of negative freedom. Having once been emphasized the ideas of independence and individual rights, after that time ideas about freedom became inseparable from the idea of membership in some proferred community and, when deemed necessary, the use of coersion and strict discipline in maintaining that community.[10]

Spring attributes the first explicit ideology of social control to sociologist Edward Alsworth Ross. Ross' articles

were first published in the American Journal of Sociology between 1896 and 1898. In 1906 they were published together in a book entitled Social Control. The book is said to have attracted a wide audience among sociologists and educators.[11]

In his articles and book, Ross argued that, in the past, the family, church, and community had functioned to ensure social unity and stability by instilling moral values and a sense of social responsibility among its members. These institutions, however, were deteriorating under the impact of the sweeping changes of the late nineteenth century and Ross suggested the use of new social control mechanisms. Among his suggestions were the use of mass media, propoganda, and education. Reliance on education as a means of social control was, in fact, he argued, becoming a characteristic of American society. In writing about schools, he paid particular attention to the process of schooling (as opposed to subject matter) as the key to preparing young people for membership in society.[12] He believed that schools could carry out this socialization process in a scientific and impartial manner. In the past, he believed, American society had been controlled by class interests. In the future, America would be guided by an "ethical elite" - rational social scientists who would promote the general welfare of the public.[13]

In 1909, three years after Social Control was published, Herbert Croly's book The Promise of American Life appeared. Croly's book probably qualifies as much as any publication in being called the handbook of the Progressive era. In his book, Croly wrote about the "American National Promise" (the improvement of "popular

economic conditions, guaranteed by democratic political institutions, . . . resulting in moral and social amelioration") and the difference between how that promise had been realized in the past and how it was to be realized in the future.[14]

Croly wrote that the first two generations of Americans had been well-situated from an economic standpoint. When the country was young, economic opportunities had been abundant and accessible. Conditions were such that, given a fair start, an individual could scarcely avoid prospering.[15] In this early environment, an open competitive market and self-centered individualism had functioned well in the realization of a good life.[16]

The economic situation in the country, however, had changed. In describing this change, Croly wrote -

> the dominant note of the period from 1870 to the present day has been the gradual disintegration of [an] earlier national consistency, brought about by economic forces making for specialization and organization of all practical affairs, for social classification, and finally for greater individual distinction.[17]

In a more mature America, Croly wrote, the open competitive market and selfish individualism worked against the continued realization of the national promise. If Americans wished to keep alive this promise, they would have to be willing to sacrifice some of the most important and most cherished ingredients of the accepted American tradition.[18] In this redemption of the national promise, Croly found a cause worth fighting for. More than through any toying with the nation's laws and institutions, Croly felt that the most effective means of keeping the promise of American life alive was "collective education." "[A]ny success in the achievement of

the national purpose," he asserted, "will contribute positively to the liberation of the individual[.]"[19]

In essense, both Ross and Croly were restating Horace Mann's conviction that public schools could serve as "the balance wheel of the social machinery." For all of these men, public education represented a means of restoring a missing sense of community to American society. It was, however, John Dewey who made the most celebrated statements on this theme.

First presented a series of lectures, John Dewey's best-selling tract The School and Society was published in year 1899, soon after the last of Ross' articles had appeared in the American Journal of Sociology. In his lectures and tract, Dewey called attention to the educative roles of agrarian households and neighborhood communities in the past stating -

> We cannot overlook the factors of discipline and of character-building involved in this kind of life; training in habits of order and industry, and in the idea of responsibility, of obligation to do something, to produce something, in the world."[20]

Life in America, however, had undergone a profound change. The growth of industry and the division of labor, he stated, had practically eliminated the role of households and communities in teaching the habits of social discipline and work.[21] As part and parcel of the whole process of social evolution, Dewey urged that schools change with the times and assume the educative roles once left to the home and community.[22] In order to do this, he urged that schools become small communities in their own right, designed to encourage in students an understanding of the inter-dependent nature of industrial civilization.[23] The two major educa-

tional objectives of his Laboratory School in Chicago were to make students aware of the social value and interrelatedness of the subject matter they were studying and to help them become better aware of their role and importance in society.[24]

Although the achievement of social unity through social understanding was clearly the intent behind Dewey's push for social education, the history of American education during the Progressive era (and much that has happened since), reflects more a perversion of Dewey's thinking than anything he intended. Martin S. Dworkin has stated that while Dewey may have been the period's leading theoretician of educational reform, his leadership was and has been that of "a reverently misinterpreted prophet rather than of a carefully obeyed commander."[25] Far from what Dewey has intended, social education developed into a means of imposing social order and ensuring the continued progress of American industry.

In The Schools and Society, Dewey approvingly noted a number of changes taking place in the nation's schools. The subject that he paid particular attention to was the introduction of manual training.[26] Beginning in the 1870s, a small number of manual training schools were established to provide an alternative to the emphasis on formal studies in public schools. By the 1880s, a number of private and public manual training schools had been created and manual training courses had been introduced into a number of high schools.[27] This activity mushroomed into a general industrial education movement which encompassed the issues of child-labor and compulsory education, vocational guidance, the creation of the junior high school, the neighborhood school concept and more.[28] Led by businessmen and industrialists, this school

reform movement soon attracted philanthropists, bankers, social workers and educators. Historial Sol Cohen writes - "Few movements in the history of American education have taken so sudden and powerful a hold on the minds of school reformers."[29]

This outburst of educational reform during the Progressive era was a response to the tumultuous series of changes that took place in America in the decades following the Civil War. This turbulent, if not chaotic period, witnessed the rise of big centralized industry, the rapid and unregulated growth of cities, the contrast between the extravagance of the Robber Barons and poverty of the urban "masses," labor unrest, the sensational copy of the muckrakers, rural distress, and much more. Responding to the immense problems of this time period, the Progressives saw themselves, first and foremost, as reformers.

Spurred on by the muckraking of John Spargo, Robert Hunter, Edwin Markham and others in the early 1900s, Progressives launched a crusade against child labor that became intimately intertwined with campaigns for compulsory school attendance and vocational education. Cohen writes - "from the beginning all those concerned with the child labor problem insisted on the centrality of the schools in any program of child labor reform."[30] Lasch states that the current concern about the family coming apart has a long history. Similar concern was expressed about poor and immigrant families during the Progressive era to justify the expansion of public schools and social welfare services.[31] Ellen Richards, one of the founders of professional social work, remarked that the school was "fast taking the place of the home, not because it wishes to do so, but because the home does not fulfill its function."[32] "Opponents of

child labor," Lasch writes, "proposed to transfer children from parental exploitation to the loving care of the school."[33]

Initially, the main thrust of the industrial education movement had been directed at high school students. A large number of students, however, left school before being exposed to industrial education. In seeking the reasons for the high drop out rate, instead of looking at poverty, unsympathetic or incompetent teachers, and ineffective enforcement of compulsory education laws as possible causes, school reformers fixed their attention on the public school curriculum, this meant at least one of three things: the school curriculum did not interest students, it was not meeting their needs and/or it was beyond their intellectual capacities. Reformers argued that all three to be the case and proceeded in their efforts to revise the curriculum.[34]

The rationale for education reform during this period was clearly expressed in the 1918 report Cardinal Principles of Secondary Education. Written by the National Education Association-sponsored Commission on the Reorganization of Secondary Education, the opening section of this report began by stating the necessity for a comprehensive reorganization of secondary school education. "Society is always in the process of development" the report began -

> Within the past few decades changes have taken place in American life profoundly affecting the activities of the individual. . . . In many vocations there have come such significant changes as the substitution of the factory system for the domestic system of industry; the use of machinery in place of manual labor; the high specialization of processes with a corresponding subdivision of labor; and the breakdown of the apprentice system. In connection with home and family life have

> frequently come lessened responsibility on the part of the children; the withdrawal of the father and sometimes the mother from the home occupations to the factory or store; and increased urbanization, resulting in less unified family life.[35]

Going further, the report's authors spoke of the increased enrollment of students possessing "widely varying capacities, aptitudes, social heredity, and destinies of life."[36] Recent developments in pedagogical science (largely the work of Edward L. Thorndike), they argued, had demonstrated the importance of adjusting the curriculum to differences in student ability and discredited the idea that certain subjects disciplined the mind or trained its faculties better than others.[37] Scant attention was given to traditional academic subjects, the emphasis instead being placed on the school's role in becoming a comprehensive socializing institution.

Underlying all the changes being purposed for secondary education lay the authors' conception of a democratic society. The ideal of democracy, they wrote -

> involves on the one hand specialization whereby individuals and groups of individuals may become effective in the various vocations and other fields of human endeavor, and on the other hand unification whereby the members of that democracy may obtain these common ideas, common ideals, and common modes of thought, feeling, and action that make for cooperation, social cohesion, and social solidarity.
>
> Without effective specialization on the part of groups of individuals there can be no progress.[38]

More succinctly, Thomas James and David Tyack have stated - "They saw differentiation and specificity of training for social adjustment as the key to progress."[39]

CONCLUSION

> If you heap upon the school all of the problems that the family, the church, the political system, and the economic system cannot solve, the school becomes a kind of well-financed garbage heap.
>
> Neil Postman, Teaching As a Conserving Activity, p. 110

Ultimately, Dewey hoped Progressive education would enable individuals to steer clearly through the maze of urban and industrial America. As more broadly conceived by Dewey, Goodman has said the following about Progressive education -

> It was the first thoroughgoing analysis of the crucial modern problem of every advanced country in the world: how to cope with high industrialism and scientific technology which are strange to people; how to restore competence to people who are becoming ignorant; how to live in the rapidly growing cities so that they will not be mere urban sprawl; how to have a free society in mass conditions; how to make the high industrial system good for something, rather than a machine running for its own sake.[1]

As things happened, though, the Progressive education movement ran away from Dewey. During the 1920s and increasingly in the 1930s and 40s, he expressed his disappointment in Progressive education. Drawing attention to what he considered to be its extremist and romantic oversimplifications, he warned against the aimlessness and dangerous permissiveness of "the child-centered school" and criticized the minimization and elimination of subject matter.[2] Dewey died in 1952 and, some 30 years later, his criticisms about the wayward path of public education are still being heard today.

In analyzing the shortcoming of Progressive education, we might first turn to Neil Postman who, admittedly says nothing new about the role of education, but says it in a novel way. Postman states that education is best conceived of as a thermostatic activity. "Nothing is good in itself," he writes.

> There is no change, development, or growth . . . - at any level of organization - that will not soon turn lethal if there is no counterveiling tendency in the system."[3]

Education, then, should be balance-centered. In a culture over-dosing on change, Postman counsels - "Progress is not the schools' most important product."[4] Few, if any, educational reformers in the Progressive era would have agreed. More would have cheered John Dewey's colleague Albion Small when, in an 1896 speech entitled "The Demands of Sociology Upon Pedagogy," he described the three great realities of modern life as interdependence, cooperation, and progress.[5] These principles were incorporated into the public school system.

Returning to Rifkin and the law of entropy, Rifkin would likely draw the following picture of public school reform during the Progressive era. The tremendous surge in industrial activity during the late nineteenth century created a great amount of disorder in the living environment, disrupting life patterns and values, including the tradition of democratic thought regarding education. In their efforts to bring some control to the situation, Progressives turned to the public schools - ostensively humane institutions - making attendance mandatory and transforming greatly the nature of the schools. Having once assumed the responsibility for handling

the problems of social adjustment in a rapidly changing environment, the schools' responsibility for the "the whole child" has since mushroomed as the fallout from technological progress has continued to make inroads on the quality of national, community, and family life. The cumulative result of this process in our public schools has been the overshadowing of the three R's and academic studies by an expanding social adjustment curriculum and by the problem of keeping the turbulence of the outside world outside the school walls.

The law of entropy suggests that as long as we continue to possess faith in the idea of progress - in the sense of continued technological "progress" and increasing material wealth - we can expect increasing disorder in our environment. Thus far, our public schools have been trying to bear the social costs of this perception of progress. If past history is any guide, heaping many more responsibilities on their shoulders will only succeed in further disfiguring them. Instead of providing solutions to our manifold problems, our schools have become reflections of the ills of society. Not surprisingly, during this recent period of concern about school reform and technological competitiveness, suggestions have been made in favor of increasing the amount of time students spend in school and adding to the schools' already immense load of non-academic responsibilities. Some educators believe the time is coming when elementary schools will provide care for the children of working parents.[6] Increasing demands on the public school system are almost certain to be made in the expected upcoming age of bioengineering. The goal of this new science, Rifkin states -

> is to rival the growth curve of the Industrial Age by producing living material at a tempo far exceeding nature's own time frame and then converting that living material into an economic cornucopia.[7]

Rifkin also believes that progress in bioengineering will be rationalized by a new cosmology - a new temporal theory of evolution. According to this theory, progress in evolution is seen as a steady advance in the ability to process information. Going up the evolutionary chain, each species is supposedly better able to control greater and greater amounts of information. The more successful a species is at processing more complex, diverse kinds of information, the better able it is to adjust to a greater array of environmental change.[8] Rifkin's response to this theory is -

> In a society of increasing complexity, in which the progress of collecting, exchanging, and discarding information is proliferating at an unparalleled speed, and in which success is measured in terms of one's ability to process larger and larger chunks of information, it is easy to see why biologists might come to see the same forces at work in nature.[9]

If we choose to then, we can rationalize subjecting ourselves to even more disruptive changes in the future. We need to do some radical rethinking.

One thing we cannot do is continue to place our faith in public education to help us deal with, if not, solve the social problems stemming from continued technological progress. Indeed, public education has played a role in blinding us to the recognition that a problem exists. When the educator-authors of the Cardinal Principles of Secondary Education recognized the disruption of family life during the early twentieth century, their response

was to "solve" this problem by placing the family's child-rearing responsibilities into the hands of their own profession. In keeping with the evolutionary outlook of the social sciences at this time, Lasch writes that this expropriation was rationalized as "an abstract, impersonal social process variously described as 'the decline of the extended family,' the 'transfer of functions.' [or] structural and functional 'differentiation.'"[10] Whatever their reasons were, by claiming responsibility for socialization or social adjustment, educators of the Progressive era made a portentous decision about the nature of technological progress and the capacity of individuals to bear its consequences. Few contemporary educators have strayed from this position. If American education has been engaging in a process of "unthinking, unilateral, educational disarmament" over the years, it is largely the result of the imperative that educators have felt to constantly adapt and re-adapt the school and its occupants to an environment that is constantly in a state of upheaval.

Rifkin does not believe there is any way to circumvent the law of entropy. Attempts to find a way around it, he reports, have only ended in strengthening it. Inescapable it may be, but we need not be overwhelmed by its effects either. Here we have been our own worst enemies. Our economic system and many of our values extol the virtues of instability. Vance Packard was only half right when he said we have created an anti-child culture. It is just that now, when the lives of children and families of all socio-economic levels are being affected, the popular press has reported that the pressure to succeed has insituated its way into the playpen

and the American family is falling apart. "In fact," Lasch writes, "the family has been slowly coming apart for more than a hundred years."[11]

Recently, concerns about the integrity of the family and the role of schools in playing an ever-expanding role in the socialization process has caused some parents to rebel and adopt a position close to Goodman's, namely, that society, as embodied in our public schools, pre-empts too much control over their lives and the lives of their children. This is the point of convergence between the recent Home School and Back to the Basics movements. The parent-advocates of the Home School movement have responded to these concerns by removing their children from public schools and educating them at home, the advocates of the Back to the Basics movement by calling for the minimization or complete elimination of socialization activities from public education.[12]

Having turned their backs on some long-standing trends in American education, both of these movements certainly invite controversy. In focusing on their merits and demerits though, we risk losing sight of their larger significance. In addition to being radical and reactionary, these movements can also be seen as being "unprogressive." Their conviction that our public schools have been adversely affected by harmful currents emanating from the outside world can also be perceived as the failure of public education to rise to the challenge of our rapidly changing environment. In seeking to gain some measure of control over the education of their children, the advocates of both of these movements are seeking a greater measure of certainty or stability in their own lives and

the lives of their children. In doing so, and sometimes consciously on the part of Home Schoolers, they challenge the wisdom of our prevailing views about technological progress.

Philip Slater once wrote - "The core fallacy behind the idea of progress is the notion that it is possible to optimize everything at once."[13] Idealizing our freedoms - free enterprise, freedom of choice, freedom of scientific inquiry and so on - we have sanctified the idea that we can live well and responsibly without a sense of limits to guide us. Technology has been the chief means through which we have tried to fight off realizing the reality of our situation. But if technology creates new possibilities and opportunities, it also causes new problems and anxieties as well. In spite of (Rifkin would say because of) all our technological sophistication and material affluence, we have merely substituted new, if not more harrowing, uncertainties for older fears.

NOTES

INTRODUCTION

1. A Nation At Risk: The Imperative for Educational Reform; A Report to the Nation and the Secretary of the Education, by the National Commission for Excellence in Education, by David P. Gardner, Chairman (Washington, D.C.: U.S. Government Printing Office, 1983), p. 5. In recent years, there have been much-publicized climbs in SAT scores and some people have begun to breath a littler easier. For seventeen years, beginning in 1962 (during a period when Vance Packard reports a 400 percent increase in money spent on public education and the introduction of many new educational technologies), national average scores on the Scholastic Aptitude Tests declined, hitting an all-time low in 1980. The recent rise in SAT scores, however, is hardly a just cause for rejoicing. In many ways, our reliance on these tests epitomizes what is wrong with our schools and society. Educator and social critic Neil Postman has observed - "as a technicalized people, we want tests which do not require us to listen to what children have to say, or to read what they have written. We want tests that can be given in a day or two to everyone. We want tests that do not rely on human judgment. And we want numbers."

2. Ibid., p. 5.

3. George Hanford, "An Educational System That Has No Losers; Vital Speeches of the Day, July 15, 1985, p. 595.

4. "To Save Our Schools, To Save Our Children," an ABC News Closeup, September 4, 1984.

5. Kenneth Keniston. "Does Human Nature Change in a Technological Revolution" in Technology and Social Change, ed. Wilbert E. Moore (Chicago: Quadrangle Books, 1972), pp. 50-51.

6. Tenley Ann Jackson, Lynn Langway, Don Shirley, James Whitmore and Marsha Zadarsky, "Bringing Up Superbaby," Newsweek, March 28, 1982, p. 62.

7. A Nation At Risk, p. 13. The authors of A Nation At Risk leave little room to doubt this conclusion. The report opens with the following lines: "Our nation is at risk. Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world."

8. Vance Packard, Our Endangered Children: Growing Up in a Changing World (Boston: Little, Brown and Company, 1983), pp. xx, 3.

9. Paul Goodman, Growing Up Absurd (New York: Vintage Books, 1956), p. xvi.

10. Ibid., p. 3.

11. Ibid., p. 13.

12. Ibid., chapters ix and x.

13. Ibid., p. 129.

14. Ibid., p. 129.

15. Ibid., p. 32.

16. Jeremy Rifkin, Entropy - A New World View (New York: Bantam Books, 1981), p. 66.

17. Jeremy Rifkin, Algeny: A New Word - A New World (Penguin Books, 1984), pp. 34-35, 39-40.

PART ONE

1. John Fiske, quoted in Richard Hofstadter, Social Darwinism in American Thought, 1860-1915 (Philadelphia: University of Pennsylvania Press, 1945), p. 1.

2. Samuel Bowles and Herbert Gintis, Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life (New York: Basic Books, Inc., Publishers, 1976), p. 232.

3. Robert Nisbet, History of the Idea of Progress (New York: Basic Books, Inc., 1980), p. 177.

4. Jeremy Rifkin, Entropy - A New World View (New York: Bantam Books, 1981), p. 57. With apologies to the other tool-using primates, they not achieved the same proficiency that humans have.

5. Ibid , p. 57 and Jeremy Rifkin, Algeny: A New Word - A New World (Penguin Books, 1984), p. 197.

6. Rifkin, Algeny, p. 197.

7. Ibid., pp. 32, 56, 198.

8. Ibid., pp. 86-87.

9. Garry Wills, Inventing America: Jefferson's Declaration of Independence (Garden City, New York: Doubleday & Company, Inc., 1978), p. 115.

10. Rifkin, Algeny, pp. 87-88.

11. Ibid., p. 108.

12. Rifkin, Entropy, p. 29.

13. Rifkin, Algeny, p. 165.

14. Stanislav Andrewski, ed., Herbert Spencer: Structure, Function and Evolution (New York: Charles Scribner's Sons, 1971), pp. 8, 9-10.

15. Richard Hofstadter, Social Darwinism in American Thought, 1860-1915 (Philadelphia: University of Pennsylvania Press, 1945), p. 23.

16. Herbert Spencer, quoted in Stow Persons, American Minds: A History of Ideas (Malabar, Florida; Robert E. Krieger Publishing Co., Inc. 1983), p. 247.

17. Andreski, op. cit., p. 8.

18. Herbert Spencer. Essays on Education and Kindred Subjects (London: J. M. Dent & Sons Ltd., last reprinted 1966), p. 161.

19. Spencer, op. cit., p. 163.

20. Persons, op. cit., p. 247.

21. Ibid., p. 248 and Hofstadter, op. cit., p. 24.

22. Hofstadter, op. cit., p. 25. Persons writes - "Naturalistic social theory pictured social reality as consisting of a structure of several levels. The bottom or basic level was composed of the technological or industrial means by which the society converted nature's resources to social uses. . . . All constructive social changes were presumed to originate in technological innovations. . . . the different parts or levels of society changed at different rates, depending upon their proximity or remoteness from the prime source of change in the technology."

23. Rifkin, Entropy, pp. 6, 34-35.

24. Ibid., p. 37.

25. Ibid., p. 43.

26. Isaac Asimov, quoted in Entropy, p. 33.

27. Ibid., p. 65.

28. Ibid., pp. 75, 65.

29. Ibid., pp. 65-66.

30. Ibid., pp. 66.

31. Ibid., p. 6.

32. Ibid., p. 87.

33. Ibid., p. 91.

34. Ibid., p. 89.

PART TWO

1. Herbert Spencer, Essays on Education and Kindred Subjects (London: J. M. Dent & Sons ltd., last reprinted in 1966), p. 155.

2. Ibid., p. 195.

3. Lawrence A. Cremin, The Transformation of the School: Progressiveism in American Education, 1876-1957 (New York: Vintage Books, 1964), p. 93.

4. Henry Steele Commager, The Empire of Reason: How Europe Imagined and America Realized the Enlightenment (Garden City, New York: Anchor Press/Doubleday, 1977), p. 1.

5. Ibid., pp. 1-2.

6. Jeremy Rifkin, Entropy - A New World View (New York: Bantam Books, 1981), p. 23.

7. Garry Wills, Inventing America: Jefferson's Declaration of Independence (Garden City, New York: Doubleday & Company, Inc. 1979), p. 115.

8. Marvin Harris, The Rise of Anthropological Theory: A History of Theories of Culture (New York: Thomas Y. Crowell Company, 1968), p. 20.

9. Commager, op. cit. p. 71.

10. Ibid., p. 40.

11. Paul Goodman, Compulsory Mid-education and The Community of Scholars (New York: Vintage Books, copyrights 1962 and 1964), p. 19.

12. John F. Kasson, Civilizing the Machine: Technology and Republican Values in America, 1776-1900 (Penguin Books, 1977), p. 3.

13. Ibid., p. 16.

14. Ibid., p. 7.

15. Ibid., pp. 34-35.

16. Ibid., pp. 3,40.

17. Arthur Aphonse Ekirch, The Idea of Progress in America 1815-1860 (Columbia Univeristy Press, 1944; reprint ed., New York: Peter Smith, 1951), p. 107.

18. Kasson, op. cit., p. 48. Nathaniel Hawthorne satirized the attitudes of Americans toward technology in his short story "The Celestial Railroad."

19. Ibid., pp. 57-58. Disraeli said, "There is far less personal communication between the master cotton spinner and his workmen, between the calico printer and his blue-handed boys, between the master tailor and his apprentices, than there is between the Duke of Wellington and the humblest labourer on his estate, or than there was between good old George the Third and the meanest errand-boy about his palace." (Quoted by Kasson on pp. 57-58.)

20. The Enlightenment interest in human history generated a large number of works on the idea of universal history or stages in the social evolution of mainkind. This interest continued into the 19th century when anthropology and sociology became academic fields in their own right. Karl Marx, Friedrich Engels, Emile Durkheim and Lewis Henry Morgan all wrote works contrasting the nature of industrial and pre-industrial or "primitive" societies. In America, Progressive thinkers were well-versed on the impact of the rise of industry in America.

21. Michael B. Katz, The Irony of Early School Reform (Cambridge, Massachusetts: Harvard University Press, 1968), p. 5.

22. Yehudi Cohen, "The Shaping of Men's Minds: Adaptations to Imperatives of Culture," in Anthropological Perspectives on Education, eds. Murray L. Wax, Stanley Diamond and Fred O. Gearing (New York: Basic Books, Inc., Publishers, 1971), p. 22.

23. Ibid., pp. 25, 22.

24. Ibid., p. 22.

25. Ibid., p. 25.

26. Ibid., p. 34.

27. Margaret Mead, "Our Educational Emphasis in Primitive Perspective," in Education and Culture, Anthropological Approaches, ed. George D. Spindler (New York: Holt, Rinehart and Winston, 1963), p. 361. Mead wrote - "The drama of discontinuity which has been such a startling feature of modern life, and for which formal education has been regarded in great measure as responsible, suggested to men that perhaps education might be a device for creating a new kind of world by developing a new kind of human being."

28. Samuel Bowles and Herbert Gintis, Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life (New York: Basic Books Inc., publishers, 1976), p. 156.

29. Ibid., p. 157.

30. Cremin, op. cit., p. 8-11.

31. Bowles and Gintis, op. cit., p. 23.

32. Horace Mann, quoted in Bowles and Gintis, op. cit., pp. 24, 166-67.

33. Spencer, op. cit., p. 27.

34. Ibid., p. 29. Spencer believed that scientific knowledge was of the greatest worth.

35. Robert Nisbet, History of the Idea of Progress (New York: Basic Books Inc., Publishers, 1980), p. 229-30.

36. Cremin, op. cit., p. 93 and Hofstadter, op. cit., p. 26.

37. Stow Persons, American Minds: A History of Ideas (Malabar, Florida: Robert E. Krieger Publishing Company, Inc., 1983), p. 248 and Hofstadter, op. cit., p. 26.

38. Nisbet, op. cit., p. 235.

39. Ibid., p. 175.

40. Christopher Lasch, Haven in a Heartless World: The Family Besieged (New York: Basic Books, Inc., Publishers, 1979), pp. 23-24.

41. Both Goodman and Lasch make this point. See Growing Up Absurd (pp. 9-10) and, in particular, the section entitled "Psychoanalysis as a Theory of Family Dynamics: Malinowski's 'Refutation' of Freud" in Haven in a Heartless World. Rifkin attributes this line of reasoning to what he calls our mechanical world view. In Entropy he writes - "The mechanical paradigm proved to be irresistable. It was simple, it was predictable, and above all it worked. Here, it appeared, was the long-sought-for explanation for how the universe functioned. There was an order to things, and that order could be ascertained by mathematical formulas and scientific observation. Still, as European scholars looked around them, they wondered why the normal activities of people in society often seemed so muddled and chaotic. The erratic behavior of people did not seem to square with the well-ordered mechanical explanation of the world that Bacon, Descartes, and Newton had put forth. The dilemma was quickly resolved: if society was misbehaving then it could only be due to the fact that it was not adhering to the natural laws that govern the universe."

42. Joel H. Spring, Education and the Rise of the Corporate State (Boston: Beacon Press, 1972), p. 1.

PART THREE

1. Joel Spring, Education and the Rise of the Corporate State (Boston: Beacon Press, 1972), p. 162-163 and Lawrence A. Cremin, The Transformation of the School: Progressivism in American Education, 1876-1957 (New York: Vintage Books, 1964), p. 127.

2. Spring, op. cit., p. 45.

3. David Nasaw, Schooled to Order: A Social History of Public Schooling in the United States (New York: Oxford University Press, 1979), pp. 20-21.

4. A quotation in Spring, op. cit., p. 45.

5. Ibid.

6. Samuel Bowles and Herbert Gintis, Schooling in Capitalist America: Educational Reforms and the Contradictions of Economic Life (New York: Basic Books, Inc., 1976), pp. 167-68.

7. Martin Carnoy, Education as Cultural Imperialism (New York: David McKay Company, Inc., 1974), p. 241.

8. Ibid., p. 241. [Also see Yehudi Cohen's sections on Shaping of Men's Minds: Adaptations to Imperatives of Culture," in Anthropological Perspectives on Education, eds. Murray L. Wax, Stanley Diamond and Fred O. Gearing (New York: Basic Books, Inc. 1971).]

9. Spring, op. cit., p. 2.

10. Robert Nisbet, History of the Idea of Progress (New York: Basic Books, Inc., Publishers, 1980), p. 238.

11. Clarence J. Karier, Paul C. Violas, and Joel Spring, Roots of Crisis: American Education in the Twentieth Century (Chicago: Rand McNally College Publishing Company, 1973), pp. 30-31.

12. Ibid., pp. 31-32.

13. Karier, Violas, and Spring, op. cit., p. 49.

14. Herbert Croly, The Promise of Amerian Life (New York: The Macmillan Company, 1909), p. 22.

15. Ibid., pp. 17-18.

16. Ibid., p. 22.

17. Ibid., p. 104.

18. Ibid., pp. 5, 21-22.

19. Ibid., pp. 400,406.

20. John Dewey, The School and Society (Chicago: The University of Chicago Press, 1915), p. 7.

21. Ibid., p. 9.

22. Ibid., pp. 4-5.

23. Ibid., pp. 15-22.

24. Spring, op. cit., p. 50.

25. Martin S. Dworkin, Dewey on Education, Classics in Education No. 3 (New York: Bureau of Publications, Teachers College, Columbia University, 1959), p. 9.

26. Dewey, op. cit., p. 4-5, 10-11.

27. Cremin, op. cit., pp. 26-27, 32.

28. Sol Cohen, "The Industrial Education Movement, 1906-17," American Quarterly 20 (1968): 95-96. The original intent behind junior high schools was to introduce educational planning and vocational guidance at an earlier age. Large numbers of students dropped out of school before being exposed to industrial education in high school. In junior high schools students, differentiated according to their abilities and vocational goals, were to be divided into groups pursuing separate courses of study. For more information concerning the history of the junior high school and vocational guidance see Joel H. Spring's chapter on "Vocational Guidance, the Junior High School, and Adolescence" in Education and the Rise of the Corporate State (Boston: Beacon Press, 1972), pp. 91-107.

The neighborhood school concept was another means of differentiating students according to their so-called needs. The statement most often quoted in reference to this concept was one made by the Superintendent of Cleveland schools, William H. Elson, in 1910. Elson stated - "It is obvious that the educational needs of children in a district where the streets are well paved and clean, where the homes are spacious and surrounded by lawns and trees, where the language of the child's playfellows is pure, and where life in general is permeated with the spirit and ideals of America - it is obvious that the educational needs of such a child are radically different from those of the child who lives in a foreign and tenement section."

29. Ibid., p. 96.

30. Ibid., pp. 96-97.

31. Christopher Lasch, Haven in a Heartless World: The Family Besieged (New York: Basic Books, Inc., Publishers, 1979), pp. xx, 14.

32. Quoted in Lasch, op. cit., p. 14.

33. Lasch, op. cit., p. 14.

34. Cohen, op. cit., pp. 103, 97-100.

35. Cardinal Principles of Secondary Education by the Commission on the Reorganization of Secondary Education, U.S. Bureau of Education Bulletin No. 35, by Clarence D. Kingsley, Chairman (Washington, D.C.: U.S. Government Printing Office, 1928), pp. 1-2. The seven major objectives of education as set forth by the Commission on the Reorganization of Secondary Education were health, command of fundamental processes (the three R's), worthy home membership, vocation, civic education, worthy use of leisure, and ethical character. This report is often contrasted with 1893 National Education Association-sponsored Report of the Commission on Secondary School Studies written by the so-called "Committee of Ten" under the chairmanship of Charles W. Eliot. The report of the Committee of Ten stated that the goal of secondary education was develop and discipline the minds of pupils through the study of academic subjects.

Although state-supported schools had no place in Spencer's evolutionary views, Spencer did write on education. Historian Lawrence A. Cremin believes that of his many works, Spencer's writings on education were probably the most widely read in America. Spencer's influence on the 1918 Commission on the Reorganization of Secondary Education seems undeniable. In one of his essays on education, he wrote - "To prepare us for complete living is the function which education has to discharge; and the only rational mode of judging an educational course, is to judge in what degree it discharges such function. . . . It must not suffice simply to think that such or such information will be useful in after life, or that this kind of knowledge is of more practical value than that; but we must seek out some process of estimating their respective values[.]" In his effort to rate the areas of knowledge that education should most concern itself with, he classified "the leading kinds of activity which constitute human life" into five categories. These categories concerned personal health or safety, vocational skills, family life, citizenship, and leisure.

36. Ibid., p. 2.

37. Ibid., p. 2 and Geraldine M. Joncich, Psychology and the Science of Education: Selected Writings of Edward L. Thorndike, Classics in Education No. 12 (New York: Bureau of Publications, Teachers College, Columbia University, 1962), p. 23.

38. Cardinal Principles of Secondary Education, p. 15.

39. Thomas James and David Tyack, "Learning from Past Efforts to Reform the High School," Phi Delta Kappan 64 (February 1983): 403.

CONCLUSION

1. Paul Goodman, Compulsory Mis-education (New York: Vintage Books, 1962), p. 41.

2. Martin S. Dworkin, Dewey on Education, Classics in Education No. 3 (New York: Bureau of Publications, Teachers College, Columbia University, 1959), p. 9.

3. Neil Postman, Teaching As a Conserving Activity (New York: Delta Publishing Co., Inc., 1979), pp. 18-19. Postman traces this idea as far back as Plato.

4. Ibid., p. 21.

5. Cited by Lawrence A. Cremin in The Transformation of the School: Progressivism in American Education, 1876-1957 (New York: Vintage Books, 1964), p. 99.

6. "To Save Our Schools, To Save Our Children," an ABC News Closeup, September 4, 1984.

7. Jeremy Rifkin, Algeny: A New Word - A New World (Penguin Books, 1984), p. 11.

8. Ibid., p. 212.

9. Ibid., p. 212.

10. Christopher Lasch, Haven in a Heartless World: The Family Besieged (New York: Basic Books, Inc., 1979), pp. xxii, 25.

11. Ibid., p. xx.

12. For more information concerning the advocates and goals of these two movements see Ben Brodinsky, "Back to the Basics: The Movement and its Meaning," Phi Delta Kappan 58 (October 1977): 522-527; Richard A. Bumstead, "Educating Your Child at Home: The Perchemides Case," Phi Delta Kappan 61 (October 1979): 97-100, and Diane Divoky, "The New Pioneers of the Home-Schooling Movement," Phi Delta Kappan 64 (February 1985): 391-394.

13. Philip Slater, Earthwalk (New York: Bantam Books, 1975), p. 3.

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