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ECOLOGICAL MAN

A FEW hundred years ago—this history is counted in centuries rather than millennia—a species that we might call Exploitive Man became dominant in human affairs, his first habitat being mainly the Western hemisphere. The cause of his deviation from the ways of the earlier, comparatively unaggressive traditional societies we shall leave to historians, perhaps to Lynn White, Jr., with his theory of distorted religious sanction for the ravaging way of life. Today the tale of Exploitive Man's rise and ruthless advance to the point of climax—which seems to be also the point of decline and precipitous fall—has been often and well told. Here we shall be concerned with what comes next.

The first noticeable symptoms of the decline appeared in man's host—the ecosphere itself—which gave clear evidence of depletion, or exhaustion, of wearing out. A generation ago there were those who read the evidence correctly, warning that Exploitive Man was becoming obsolete. And now we may say, with little fear of contradiction, that his mode of adaptation is no longer feasible, that his view of self and of setting are anachronistic, while he himself is headed for extinction.

But while Exploitive Man has been fading away on stage his successor, Ecological Man, has been gathering strength in the wings. Young, both ontogenetically and phylogenetically he has only recently begun to forge the new views of self and of setting that distinguish him so radically from his exploitive forebears. Where exploitive man saw himself as master of all he surveyed and a member of a culturally cohesive and exclusive tribal group with a hierarchical ranking of power and authority, and his setting as that piece of territory he and his group "owned," Ecological Man sees himself as hopefully master of his own impulses and emotions, a self-governing member of the globally-distributedly human species, his setting as the whole ecosphere which he must share coequally with *all* life. His mode of adaptation, he is beginning to know, cannot be parasitically exploitive; it must be founded on such a sweeping knowledge of ecological imperatives that it will in fact be *symbiotic:* Ecological Man will learn to adapt in a way that benefits both him and his host.

Without question Ecological Man will prevail over Exploitive Man, no matter how presently outnumbered the former by the latter, just as the earliest primitive farmers prevailed over the vastly more numerous raiding nomads.

Always the greater awareness of self and of setting carries the irresistible advantage. At this moment we are far enough into our epochal turning-point to recognize that Mankind is in transition: *Homo sapiens exploitii* is obsolete (but tries to deny it) and is being displaced by *Homo sapiens ecologicum* (still too new a "variety" to have fully developed its capacities). The former fights with increasing ferocity but waning strength for survival itself, the latter reaches with growing strength and the impatient lustiness of youth for control of its own fate. The disruption of our time is a function of this struggle, the outcome of which is not in question: only the duration of the conflict cannot yet be measured.

The conflict seems to be generational: defensive Exploitive Man makes up the vast majority of the over-40 population, while the heaviest distribution (albeit still a minority) of Ecological Man occurs in the under-30 population. But the generational nature of the conflict is apparent only, an accident of evolutionary timing. The conflict is conceptual, not generational: it is between two varieties of Man, with differing views of self and of setting,

rather than between two generations of people more similar than different, ultimately, with regard to those views of molar significance. And since the awareness of self and setting of the relatively young specimens of Ecological Man is incrementally broader and deeper than that of now aging Exploitive Man, it seems to me inescapable that the initiative for finding ways to shorten this period of disruption lies with the young.

Their ways, however, no matter how rational, cannot be painless. Ecological Man and Exploitive Man have very little discourse in common—just as the early farmer and the last of the nomads had very little in common. So a rationally negotiated cease-fire is highly unlikely. If time allowed it, of course, Ecological Man could simply stop struggling and wait for the last of the exploitive old-guard to die off, mostly of natural causes. But time now seems not that forgiving: the planet, the ecosphere, the encompassing and life-supporting substrate for us all, is in too many places hurt and bleeding and by our own kind grossly over-populated. The time for easy-going, optimistic, no-cause-for-alarm first aid has passed, virtually unseen. What our planet, and our community, appear to need now is a concertedly heroic effort to meet a life-or-death emergency that few anticipated. In short, there is not the generosity of time that would allow the gradual passing of Exploitive Man. Ecological Man—despite his youth, his inexperience, his relatively small numbers—must act: now, quickly, ready or not, definitively. And in so acting he must be aware of the unhappy but inescapable fact that many of the exploitive old-guard (possibly including his own parents) will be utterly unable to comprehend the dedication of his motives, much less the necessity of his means; and he must be prepared to recognize that the same old-guard has at its disposal potentially destructive power previously unknown to man. But he can remember, too, that the speediest aspect of human evolution is cultural rather than genetic: even sixty-year-old exploiters can *learn* the ecological mode of adaptation, if they are adequately taught.

One obligation of the ecological minority, then, is to teach what it knows, or at least senses, about Man's adaptation to a threatened ecosphere to those of its exploitive elders (and anachronistic peers) who are educable. The familiar theme "Each one teach one" is here applicable. Child can teach parent, student can teach teacher, student can teach student and neighbor can teach neighbor. The "natural" increase in numbers of Ecological Man impelled by the imperatives of cultural evolution can be materially heightened by such teaching. A project of this sort is rather slow, relatively undramatic, often frustrating and frequently an eventual failure; it will appeal mainly to those quiet members of the emerging minority who are not attracted by the magnetic lode of political activism. But while its means may be less than colorful, and its practitioners not commonly charismatic, its achievements will be extremely important. A convert is more likely to be dedicated to the cause than a communicant "born" to it.

For those more drawn to direct private action a variety of paths is open. Irreparable damage to the environment can be sharply diminished, the transition from the exploitive to the ecological modes of adaptation can be quickened, and the associated disruptions overcome sooner, if substantial numbers of people simply refuse, so far as possible, to accept or to utilize the supposed benefits of the old mode. Unnecessary commodities and services need not be bought, for instance; and when an alternative exists between an environmentally more expensive necessary product and one less environmentally costly the former can be rejected, the latter chosen. Were many people to refrain from purchasing the incredible welter of completely unnecessary products and services currently on the market—from chewing gum to dinner jackets, from mascara to household deodorants, from commercial dating services to TV advertising—the most stubborn proponents of the exploitive mode would be shaken and possibly rendered educable. And were many to make necessary

purchases with an eye to environmental burden—five pounds of potatoes in the shopper's own bag, for example, rather than three pounds of pre-packaged frozen french-fries; New York to Washington by train or bus rather than by private car or commercial jet; soap and a cloth instead of an electric dishwasher—those stubborn ones would be genuinely disturbed and perhaps even eager to learn. Simultaneously Man's demands of the planet would be reduced, and of course the quality of life for those people making such choices would be in no real way materially reduced, not even if they also chose bicycles or motor bikes or 1500-pound cars in preference to chrome-covered 4000-pound luxury automobiles.

It is obvious that widespread behavior of this sort cannot occur without increasing the level of disruption with which we must already live. Young people purporting to teach their elders grate a bit harshly on elderly nerve-endings, and Exploitive Man's productive economy will founder if too many of the members of the society become careful and critical consumers. And certainly, in the short run, if the economy founders the society that supports it founders: if the society founders, each of its members suffers. But in the longer view if the productive economy—or, very much more precisely, the grossly over-productive economy—is *not* stopped, vast reaches of this planet will give out. And soon. In that event we should have to write not that each person suffers, but rather that great numbers perish.

To repeat myself, the ways of young Ecological Man will not be painless: we will encounter still greater disruption. Things, inevitably, will get worse before they get better. But at least the possibility exists that in time they *can* get better. And the more Ecological Man can arrange to organize himself, and to concentrate his efforts, the sooner the disruptions will end and that better time arrive.

Organization, however, is extremely difficult in the early stages of sweeping change. Conceptualization lags behind need, the offspring of invention cannot be conceived, much less emerge from the birth-canal, before Mother Necessity reaches maturity. And even then necessity cannot do it alone: she still requires insemination by the possible. But here we are: we have the need, we know what is possible. Since we are dealing with *cultural* processes we are not limited to an inherently biological timetable: gestation will be no slower than we make it.

A major current obstacle to organization is the fact that we are in transition. It is easy to identify thoroughbred specimens of Exploitive Man but difficult to find many "pure" specimens of the new breed because it is still so young. However, it is much less difficult to find large groups of people no longer truly exploitive but not yet consciously ecological: Their common bond is that growing dissatisfaction with the exploitive mode of adaptation that has so recently come to be labelled "alienation." The increase in numbers of the alienated, the country over, is obvious: what is less clear is that despite their superficial disparateness they have so much in common. Children bored in school, teachers frustrated by administrative rigidities, parents inflamed by ever higher school taxes; college students flailing out at "irrelevant" curricula and the draft and authoritarian faculties and administrations and institutional cooperation with the military; Blacks and Chicanos and Indians demanding a fair share of the power and the spoils; the not-very-silent majority appalled by a relentless inflation; middle-aged, middle-class, economically successful members of the Sierra Club and the Audubon Society and a thousand other conservation associations nauseated by environmental pollution: all share in the realization that "the system" is not meeting their particular needs. Whether they recognize it or not, they are all in agreement that the exploitive mode of adaptation no longer serves them well, or even that it has never served them at all.

Certainly, and unfortunately, the differences between some of these groups of alienated people

are so strong as to almost bury an awareness of their shared knowledge, of their equal access to the common culture pool. Militant Blacks, for example, with their goal of achieving the freedom to exploit as profitably as "Whitey" has exploited find it most improbable that they have anything in common with the affluent white college-housed offspring of successful exploiters, whose aim is to find brotherhood and "meaning" in a world whose gifts they take for granted. And worse, middle-class people in "middle America" who are oppressed by inflation and deeply concerned with breakdowns in law and order and "morality," the flag on their car windows, see long-haired "let it all hang out" youth wearing peace symbols as the enemy; and vice versa. More than either camp has begun to know, they are each reacting to the same phenomenon, the end of exploitation as the one and only mode of adaptation of man to his environment. Potentially even these opposed groups are partners in the inescapable need to develop a new mode of adaptation. Neither group is the other's enemy. In fact they share a common enemy (if indeed "enemy" is the right word): it is an obsolete *status quo ante* that fails steadily to satisfy the needs of Middle America, that is perceived as little more than merely irrelevant by the young, that has never equitably served the poor.

If the disturbed middle-aged of Middle America, and the disenfranchised darker-skinned minorities, and the unenchanted affluent young, were to join forces not to destroy the system (no need for its destruction: it is dying of natural causes), but to devise a new mode of adaptation for mankind as a whole, within a single human generation and by the turn of the next century Ecological Man would be directing the affairs at least of this nation. The youthful contingent could contribute its idealism, its critical faculties and its muscles; the older ones could add their wealth of technological experience; the darker-skinned group could add its ability to survive in the face of adversity. The contribution of each group would be essential, and as each learned from the others the coalition would become a cohesive polity with the strength, the intelligence, and the will to take the reins from the hands of vanishing Exploitive Man.

But only if they make common cause. The route to organization lies, I believe, in the recognition by each group that at root they share a rapidly widening awareness both of self and of setting. People already possessing the expanded awareness characteristic of Ecological Man are most readily visible among the young, almost regardless of color. Not so far along the path of transition from exploitive adaptation to ecological adaptation are the "middle" people: middle-class, middle-aged, middle America. So far their awareness of setting has grown enough that they realize the shortcomings of the traditional ways: it is only their awareness of self that lags behind. When they come to know themselves well enough to see that they are in fact competent judges and agents, capable both of critical appraisal and the instigation of constructive change, they too will be Ecological Men. And then the coalition will form, the old mode of adaptation will come to its end, the new will begin.

But what of the disruption that will accompany the change? Certainly in America it will be sweeping. Once educated youth, dark-skinned minorities, and the "middles" come together in action, much that we have taken for granted as "indispensable" aspects of the American way of life will go. Unlike obedient consumers, critically frugal users will not support an over-productive economy. Unnecessary products and services will go un-bought, factories will lie idle and rusting, unemployment will threaten to engulf the nation. The consequent loss of federal revenue, and the unwillingness of vast numbers of people to conform to the outmoded ways of Exploitive Man, will force abandonment of an essentially evangelical foreign policy and the machinery that provides its muscle. The government, still briefly in the hands of Exploitive Man, will see no choice but to radically alter

priorities—it will hope only temporarily—to quiet the people. As unnecessary productive facilities close down, as the inadequate distributive system falters even further, government on all levels, local to national, will "invent" work and pay workers from governmental treasuries first, from its printing presses later. Precedents developed in the New Deal days will be rediscovered and utilized—governmentally supported work crews similar to the WPA, work camps much like the CCC. Certain of the country's responses during World War II will be recalled: allocation of raw materials, governmental control of distribution, rationing of scarce necessities, "victory" gardens. And that new device, the guaranteed annual income, will be quickly seen as a necessity.

But in the main, during the earlier stages of sweeping disruption, we will be reminded of life during the Great Depression. Millions of people will learn to cooperate, to improvise, to make-do. For those whose personality structure is that of Ecological Man, or close to it, the necessary changes will be relatively easy to accept. For those who remain stubbornly exploitive in attitude they will be extremely difficult and, for some, lethal. Some Americans will die of starvation, and many will succumb to the symptoms of future-shock. But for others it will be a time of challenge, of excitement, of yearned-for but previously unexperienced "meaning" and relevance. During this phase we will begin the revival of our cities and the rescue of our land and air and water.

The one radical difference between the next economic depression—whenever it occurs—and the last one will be that the next one will not end. We will not be "rescued" from it by a global war, unless utter insanity is vastly more widespread than I believe it to be. As someone has written, the war after the next world war will be fought with spears. Rather, the next economic depression will mark the beginning of the dominance of Ecological Man.

In other words, the disaster I am presaging will be a disaster only in the terms of Exploitive Man. Ecological Man will see it as a personal cataclysm for those people unprepared for its rigours, but at the same time as the beginning of a new and potentially much more successful and enduring mode of adaptation by Man to this turf. It will not occur overnight: it very probably has already begun, it will likely reach its peak within a decade or two. At the moment it involves conflict between governed and governing, but as it progresses more and more of Ecological Man's own "kind" will be entering the edifice of government. Quite soon—and I believe or at least hope, soon enough—the people will be governed by leaders of their own kind, of their own choosing and the conflict between governed and governing will have passed. Then the building of Ecological Man's political, economic, and social structures will begin.

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The "futurology" in this essay is based on more than fantasy: it represents a simple linear extrapolation of changes, of trends, of developments already under way and even, in some locales and in some segments of the population, well-established. It has been impossible to overlook their emergence among articulate college students over the past twenty years, it is impossible now to be oblivious to their spread beyond the youthful population as one reads and attends to the news. And as is true of any time of change, countervailing trends—"reactionary" trends—are equally impossible to overlook.

Many political observers believe, as of this writing, that the country is drifting to the right, and they may well be correct. But given the accelerating appearance of the widened views of self and setting I have here tried to describe, particularly within the youthful generation, whatever repressive drift may now be taking place will be short-lived.

Certainly it is possible that the move toward repression will continue long enough to ignite a real explosion. It is impossible—for me, at least—to predict the duration and the nature of the short-run. The period of maximal disruption, in other words, could be a holocaust touched off by die-hard Exploitive Men, on the right or on the left. But even if such a catastrophe should occur the people most adequately equipped for survival are ecological in their orientation: in the long run, whenever it begins and in the wake of whatever disasters precede and accompany it, it is they who will ultimately prevail.

Another possibility is that the repressive forces of Exploitive Man will, for a time, equal the progressive drives of Ecological Man: that the two will face each other in a Mexican stand-off, that neither will prevail. And again, for what period of time I cannot guess. It could be, conceivably, a stretch of time long enough for the human population to grow wildly beyond its ecological parameters, for exploitive technology finally to totally deplete the earth's familiar resources without which we cannot currently conceive of continuing civilized life. But still, in this case too, it is Ecological Man who will ultimately prevail:

I am assuming that America will be the birth-place of the ecological era because we Americans have driven the vehicle of Exploitive Man farther and faster, and more heedlessly, than has any other society: but in so saying I am not advocating national self-flagellation. Those qualities in the American grain that have brought us, in so short a time, to indisputable eminence among exploitive societies—our zest for adventure, our eagerness to explore, our willingness to cast off the shackles of the past, our ability to suspend disbelief and to court a possibly audacious new belief—are precisely the attributes that will make it possible for us to advance on and to the future of Man. Certainly we are due little credit for despoiling as much of this land as we have, and none at all for our at best unthinking, at worst deliberate, misuse, abuse, and even destruction of other peoples, other species. But as societies go we are still young, still lusty, still able and even eager to meet the challenges of change: and at the same time I believe we have reached, or have almost reached, that level of young maturity that enables us to begin to learn from our mistakes.

At least this is the vision of America I see reflected in the eyes of our youth, and if the vision is clearer to me than it is to them, it is because I am older: I have seen it so often and so consistently. I am an optimist, my faith and my hope are with the young. I know them well enough to realize that few of them yet have sufficient confidence in their own emerging competence to enjoy being told the future is theirs, with its unknown possibilities and its back-breaking responsibilities, but nevertheless it is theirs. It is their future, and Man's, and the Earth's.

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REVIEW
THOUGHTS ON COMPETITION

A READER in England has sent us a clipping from the *Guardian* for May 18, in which the Royal Institution of Chartered Surveyors protests the claim of the British Monopolies Commission that price competition among professional men is "inherently desirable." Not so, the Surveyors maintain. Stressing competition would, the Institution declared, tend to make profitability "a test of professional efficiency." The Monopoly Commission, the spokesman for the Surveyors added, must have formed this opinion from its experience of commercial activity, and it was not the right body to study the professions.

Our reader finds it pleasant that somebody is saying a word or two in criticism of the spirit of competition. We can easily agree. Now and then one comes across a trace of ancient and honorable dignities in professional life, although it may be difficult to keep from regarding them as quaint. Years ago we read in one of the better magazines an article about lawyers by a lawyer. We've forgotten everything the writer said except the shock he reported of an aging attorney in a city in the Middle West. They had been talking about their profession, and at one point the older man looked at him in what seemed surprise. "You don't mean to tell me," he exclaimed, "that in New York men practice law for *money?"*

To say that the laborer is worthy of his hire is not the same as saying that men should work for money. But it has become practically an American heresy to suggest that there are better reasons for working; that the money a man makes, while necessary to him, should also be incidental. We have a lot of books on our social problems and on the offenses of industry and on waste in government, but the corruption of motives for the activities of daily life gets very little attention. Actually, the ideas which used to govern individual moral behavior seem to exist today only as atrophied inheritances embodied in custom. Doctors, for example, are not supposed to "advertise." Neither are members of many other professions. But you don't have to buy space in the daily papers or a magazine to create a certain "image" of professional competence. No external rule of moral control ever works well.

The value of "competition" is pretty obvious at a very gross level of human behavior. It may keep a man from getting lazy or sloppy, but it won't make him virtuous. Made into a rule of life, it may turn him into a rapacious predator who degrades everything he touches. The endless junk you find in the stores, today, is there at least partly because of price competition. There are many products which simply cannot be had in the best quality because of the need of the manufacturer to meet the competition of the mass market.

Making competition the rule of life is like making "survival" into a criterion of behavior. Both are necessary; neither is sufficient. Both relate to a rather low level of existence. What good is a violin? You can't club anybody with it. The bad effects of competition in education are now becoming notorious. Doing away with competition in the schools would not have to mean doing away with standards of excellence. A man can get a clue as to his own abilities from how others perform, but he doesn't undergo any important tests until he sets his own standards and tries to measure up to them, no matter what other people do. Further, we don't really know how to test people except for fairly superficial qualities; or, if we know, what we know is not being used in the schools. For example, the heads of medical schools have found that the students who make the best grades seldom turn out to be the best doctors. Other qualities besides a good memory and a facility with words on paper enter into the healing art. In the Humanities, a similar superficiality prevails. Alexander Meiklejohn once said, "Nothing is more revealing of the purpose of a course of study than the nature of the examination given at its close." Commenting on this, F. R. Leavis, the English literary critic and

authority, observed (in his book, *Education and the University*):

> Judged in this light, the underlying purpose of the English Tripos is to produce journalists. Not that the reading for it doesn't give intelligent men opportunities for educating themselves. But distinction of intelligence, though manifested in a special aptitude for a field of study, will not bring a man a distinguished place on the class-list unless he also has a journalistic ability—a gift of getting promptly off the mark several times in the course of three hours, and a fluency responsive to the clock. Such facility is not the profit towards which a serious critical training—serious education of any kind—tends, and the intelligent and sensitive, having become more and more aware of the difficulty of thinking anything with precision and delicacy and of writing anything that they can allow to stand, have commonly formed habits that handicap them badly in the examination room.

There are other objections, of course, to competition in schooling, but this one is pertinent at the highest levels. The rule determines the sort of men most likely to get to the top in a competitive, acquisitive society.

Another aspect of the rule of competition is its effect on general standards and concepts of value. Once competition becomes the most important factor in life, it soon establishes the coarsest possible measures of "success"—money and power. Competition as a rule also lends authority to the principle of "adversary" procedure in all human relations except the most intimate ones, and even these become infected. We know how thoroughly most lawyers are convinced that the adversary method of settling legal issues is the only workable procedure for the courts. Inevitably, money and power become the determining factors in litigation, so that the attempt to gain justice is obliged to find expression by the same methods. So it is that the conflicts of interest between capital and labor eventually resolve themselves into issues of power, with the result that power, and not justice, governs the outcome of the endless engagements between employers and employees. Yet as more than one student of economics has pointed out, the chief purpose of industrial enterprise is production, not power, which is irrelevant to production. Cooperation is the secret of production, not the composition of alien power groups through adversary procedures which can result at best in a truce between armed camps. The waste in the use of these illogical methods is beyond estimation.

It is sometimes supposed that the only reason companies seek a monopoly is in order to be able to charge outrageous prices without interference. There is, however, another reason, and it plays a larger part than may be supposed. Men get *tired* of fierce and endless competition. It is senseless and exhausting and they can't do their best work under those conditions. But because of the obvious danger that they will misuse their power, the government must step in and prevent monopoly, invoking the holy rule of competition. But the larger companies manage to get around anti-monopoly measures. Often they can control the prices their competitors dare to charge. In these circumstances, pricing is no longer established by competition but by the issues of public relations. Now competition has only rhetorical reality, and conflicts are resolved in a three-cornered contest between labor, capital, and government, in terms of the manipulation of power and public opinion. This, you could say, is the "mature" situation of an advanced industrial society.

Meanwhile, during the long years it took to reach this hardly admirable balance, the entirety of the culture has been saturated with the slogans of competition and its associated conceptions. The whole society, through the daily occupations of its providers, has been schooled in these "values." What has been accomplished is the vulgarization of life.

COMMENTARY
BEYOND "DE-SCHOOLING"

IVAN ILLICH, who is quoted in this week's "Children," writes with a capacity for accurate generalization that has brought him greater influence, today, than any other critic of education. Yet he needs careful reading. As with any maker of effective generalizations, it is important to see how he touches base in factual relationships. While his analyses sometimes seem a bit cryptic, he *does* touch base; the power of his arguments is not merely rhetorical. Even though the order of generalization may be very broad, its meanings are always given support.

In a CIDOC working paper dated April 21, he considers the hazards of a premature collapse or abolition of the schools, which might result in entrusting education to other "authorities" who would continue the abuses of schooling in a subtler fashion; learning would remain a marketable commodity. The reform that is needed is to make the *tools* of learning, of self-education, available to all. This would go far beyond "de-schooling." It implies revision in the very concepts and forms of knowledge: "We must favor the incorporation of scientific knowledge into tools or components within the reach of a great majority of people." This idea is spelled out in a variety of ways. Toward the end of this paper Illich says:

> The level of education in any society can be gauged by the degree of effective access each of the members has to the facts and tools which—within this society—affect his life. We have seen that such access requires a radical denial of the right to secrecy of facts and complexity of tools on which contemporary technocracies found their privilege, which they, in turn, render immune by interpreting its use as a service to the majority. A satisfactory level of education in a technological society imposes important constraints on the use to which scientific knowledge is put. In fact, a technological society which provides conditions for men to recuperate personally (not institutionally) the sense of potency to learn and to produce which gives meaning to life, depends on restrictions which must be imposed on the technocrat who now controls both services and manufacture. Only an enlightened and powerful majority can impose such constraints.

Illich would turn the facilities of technology—electronics, lithography, and computer techniques—into means for making the tools of learning easily available to all.

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As established last year, MANAS does not appear during July and August, so that the next issue readers will receive will be dated Sept. 1. So many subscribers generously approved the idea of a period of rest and refreshment for the MANAS staff that we have felt able to adopt it as a continuing policy. We hope that readers who miss the regular appearance of MANAS during July and August will consider purchase of a copy of *The Manas Reader* as an adequate substitute!

CHILDREN
. . . and Ourselves
NO SOLUTION FOR MASS PROBLEMS

THE May/June *Humanist* offers a general discussion of the question, "Can We Save the Public High Schools?", with five participants. They all agree that the task of improving the high schools is both necessary and difficult. Its scope is suggested by figures given by Galen Saylor:

> Currently about 15 million youth are enrolled in grades nine through 12 of our schools. This number will remain fairly constant for the remainder of the decade. Then, rather large increases will occur annually, with enrollments totaling about 22 million by the end of the century. Endeavoring to help this mass of young people analyze as fully as possible their capabilities and potentialities is, obviously, a Herculean task. But beyond that, to provide the kinds of schooling needed to develop each individual to his fullest possible measure of self-realization is a social burden of a magnitude never before faced by a nation.

The question arises: Is it even sensible for a "nation" to contemplate taking on such a responsibility? No one knows enough about "self-realization" to plan it for other people, and the idea of attempting this in behalf of twenty-two million children shows that the time has come to plan something very different in conception. The April 15 *New Schools Exchange* reports some of the dialogue in a conference held on Alternatives in Education by Paul Goodman, in which Goodman spoke of the low-tuition high schools which have been established in Denmark. Anyone can arrange to set one up and structure it flexibly. The structure, Goodman says, is very loose. The school can move as a group, from site to site. He also said that in Denmark "any twenty parents can set up a school with a licensed teacher," and that about ten per cent of the population do it. Education was once a do-it-yourself activity in the United States, and it would help matters enormously for it to become so, again, to the extent possible. If we had laws that encouraged this initiative instead of blocking it, considerable pressure might be removed from the public schools. And a great many fresh discoveries would be made about teaching and the learning process, and about the unpredictability of self-realization.

Another contributor to the *Humanist* discussion of the high schools points to the chief threat in the statistical approach. This writer, William N. Alexander, says:

> The greatest danger most high schools face today is not extinction, but threatened, perpetuated, or deepened mediocrity. The public's yearly investment of several billion dollars in over 16,000 public high schools will not be cut off, however much disenchantment may exist. But mediocrity can become more widespread and deeper unless more and more parents and citizens in general care about their high schools and cooperate to improve them.

This writer makes various recommendations, of which the last one seems the best:

> *Throughout the year, open the school after hours, for adult education and for recreation.* Despite the growth of adult education programs throughout the country, many rural areas, small communities, and parts of inner cities still lack educational facilities other than their public schools. High schools closed to adults and to students after hours and during the summer are incompatible with contemporary life styles and schedules. The community's high school cannot continue to operate only six to eight hours per day, 200 days per year, when the people of the community need its facilities for continuing education and recreation.

This would be a step toward making schools over into community learning centers. If the existing schools could become resource places for every sort of educational enterprise, they might in time resemble Ivan Illich's networks for the use of all students. In the May 1 *New Schools Exchange,* some statements by Illich are quoted from a report of the Center for the Study of Democratic Institutions. Asked how the schools could be "disestablished," he replied:

> First we must cease to give financial support to school systems. Such systems lead to regressive taxation in that the people who get a secondary education receive much more money back than their parents proportionately paid in taxes. Parallel with

> this must be some kind of guarantee against discrimination because of educational pedigree. We have rendered curriculum such a pedigree. These are complementary steps, both of them leading in the direction of increased guarantees. We must guarantee people their civil rights against the opinion of professional groups who define one's institutional treatment needs. Professionals cannot be trusted with defining human deficiencies. We must move away from the idea that people have an equal right to be treated by professionals and toward the idea that people have equal rights to the tools, rather than the treatment. . . .
>
> School conceals the contradiction between the structure it produces and the myth it proclaims, the structure being competitive, and the myth being equality. Unless we define which institutions we will call schools and which institutions we will not call schools, the attempt to distinguish between education and schooling or alternatives to the present system cannot go anywhere.

One contributor to the *Humanist* symposium believes that the critics of the schools are at last being heard and that this will lead to the redesign of high school programs of instruction. This writer, Paul R. Klohr, speaks of the far-reaching influence of A. H. Maslow, and of the impact of Charles Silberman's *Crisis in the Classroom.* He also refers to Alvin Gouldner's *The Coming Crisis of Western Sociology* as affording significant support to critics such as Silberman and, before him, Goodman, Holt, Friedenberg, Kozol, and others. After summarizing what he regards as various good signs, he writes:

> Finally, no discussion of radical alternatives, however incomplete it may be, should omit calling attention to Ivan Illich, who has repeatedly proposed that we "deschool" society. Confronted with such an idea, we are forced to reconceptualize what an educational agency such as a high school might become.

Again in the May 1 *New Schools Exchange*, Peter Marin, a contributing editor, quotes a long passage from Illich's review (in the *New York Times*) of *This Book Is About Schools.* Illich's point is that even teachers in the new "free" schools are still sure that children need "schooling." He says:

> Paradoxically, the free-school movement risks reinforcing the dominant system of compulsory knowledge and public training for corporate behavior. Free schools tend to be conservative without the redeeming traditionalism of the old. Both share a therapeutic orientation, a utopian vision of youth and attitude of condescension.
>
> In their therapeutic orientation, the new schools support the prevailing ethos. Like the public system from which they split, they rely on professional treatment to create the new man, whether he be democrat, socialist, nationalist or all of these at once. They lay the burden for carrying out the reform on the child, who is supposed to grow into the new man within a utopian reality enclave called school. The difference between the traditional and the new school is mainly one of the degree and style in which "school" is different from the "everyday world."

In the same issue of the *Exchange* there is this from John Holt:

> By now many people will have seen Ivan Illich's review in the *Times.* . . . I agree with him.
>
> Many people are asking themselves, "How do I live in a bad world when I'm trying to make it good?" Perhaps one answer is, "live in it as if it were good."
>
> To people who say to me, as many do, "I want to teach kids in a free school," I now almost always ask the question something like this: "What do you know that kids would voluntarily come to you to see, to do, to find out? If the teachers were paid by free students instead of by free schools, if children didn't have to associate with *any* adults except when they wanted to, for what reasons would they pay to associate with you?" Most people don't have an answer to that question. I think they should get one.

The best way to save the schools, then, would be to make them into centers of wholly voluntary learning. Since this will take time, the Danish alternative might be one way of getting things moving in the right direction.

FRONTIERS

Urban Ills

A BRILLIANT article in the *Saturday Review* for June 5, by Denis Hayes, tells how the Highway Trust Fund works. This fund is maintained by federal taxation of gasoline (at the rate of about $5-billion a year) and is largely devoted to the construction of interstate highways "linking all the nation's cities that have populations greater than 50,000." Once intended simply to connect the cities, the interstate highways now are designed to go *through* the cities, which is of course enormously expensive. The Highway Trust Fund, Mr. Hayes shows, has become a practical block to the building of local rapid transit systems by cities. As he says:

> . . . any piece of interstate highway, no matter how extravagant, costs the city or state that builds it only 10 cents on the dollar. The other 90 cents is paid by the Highway Trust Fund. Although buses, subways, and railroad trains carry many times more people than private automobiles do, cities and states preferring those facilities must pay from 33 cents to 50 cents on the dollar. With urban tax resources shrinking because of the amount of productive land eaten up by roads and parking spaces, local government officials find it hard to raise 33-cent dollars or 50-cent dollars when 10-cent dollars are so much more readily available.
>
> The simplest cure for automobiles in the cities, then, is to bust the Highway Trust and to release its monies on a fair, competitive footing for whatever means of conveyance proves most adaptable for human sensitivities.

Mr. Hayes thinks the Highway Trust can be busted, especially if enough people are helped to understand "how the Highway Trust is wrecking America, not only esthetically but economically and spiritually."

The ill is hardly exaggerated. A letter issued by the Highway Action Coalition (Suite 731, 1346 Connecticut Ave., N.W., Washington, D.C. 20036) states:

> More than 60 per cent of the total land area of most large American cities is devoted to the movement and storage of the automobile. Not only do cars in cities fail to transport people efficiently (as we all know from experience in rush-hour traffic jams) but, in addition, cars are the major source of urban air pollution. What's more, land that is taken out of private ownership to be used for streets or freeways is removed from the all-important tax-base, thus contributing to the financial crisis of urban areas. . . .
>
> The sacrosanct Highway Trust Fund . . . is a self-perpetuating mechanism. Money flows automatically into the fund, mainly from the 4-cent per gallon gasoline tax. The more the American public drives, the more gas is used. This causes the trust fund to grow, bringing about the construction of new highways. New highways encourage more people to use automobiles more often. Every time a road get crowded, the need for another road is proclaimed. And so by circular and self-perpetuating mechanisms, we are buried under concrete. . . .

Speaking of this sort of expansion of "services," Lewis Mumford said years ago: "When both the evil and the remedy are indistinguishable, one may be sure that a deep-seated process is at work." In *The City in History* and later works such as *The Pentagon of Power*, Mumford does much to show what that process is. The point, here, is that both kinds of investigation and work are necessary. We need the reforms which aim to weaken and destroy the *mechanisms* of mindless expansion and growth in the wrong directions, but we also need to understand why we are so susceptible to many other ills and excesses. The sharpshooting, problem-solving approach does not and cannot go deep enough.

The lead article in the April issue of *Environment* (438 N. Skinker Blvd., St. Louis, Missouri 63130), "The Causes of Pollution," illustrates the complexity of these mechanisms. The writers are Barry Commoner, Michael Corr, and Paul J. Stamler. It is usually claimed that pollution is caused by the three factors of population growth, affluence, and technology, with special emphasis on population. The point of this article is that the major offender is rather the *kind* of technology that has been developed in recent years. For example:

> Vehicles driven by the internal combustion engine are responsible for a major part of total air pollution, and are almost solely responsible for photochemical smog. From 1950-68 the total horsepower of automotive vehicles increased by 260 percent, the number of car registrations per capita by 100 per cent, and the motor fuel used per capita for transportation by 90 per cent, changes which dwarf population growth during the same period.

Again and again, these researchers show that the kind of technological activity is principally responsible for environmental decline. This is true of agriculture, which has turned increasingly to the use of nitrogen fertilizer, "which rose 534 per cent per capita between 1946 and 1968." The authors point out:

> . . . this intensive use of nitrogen fertilizer on limited acreage drives nitrogen out of the soil and into surface waters, where it causes serious pollution problems. Thus, while Americans, on the average, eat about as much food per capita as they used to, it is now grown in ways that cause increased pollution.

Next on the list is the vast number of synthetic products which have replaced natural ones—products which do not fit into nature's disposal systems and inevitably become pollutants. And the making of synthetic fabrics—to take the place of cotton—requires either petroleum or natural gas and also high-temperature processing, the one using up non-renewable resources, the other adding the pollution due to the generation of power to produce heat. Both the changes in materials used and the methods of production play a much larger part in pollution than the increase in population. It might be added that mercury is a catalyst required for the production of many of "the numerous synthetic compounds that have been massively produced during the last thirty years."

These are only a few of the highlights of an important article which shows that population growth is only a minor contributor to environmental problems.