The Problem of Denial

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The author wrote the seminal work Overshoot: The Ecological Basis of Revolutionary Change in 1980. The following ass-kicking paper was written in October 1995 as an inquiry into public denial of ecological overshoot. It could have been written today, an unsettling fact that adds to the paper's importance. Of great value is Catton's demolition of cornucopianism. - JL, ed.

ABSTRACT

Abundant evidence suggests industrial civilization must be "downsized" to curb damage to the ecosphere by the "technosphere." Trends behind this prospect include prodigious population growth, urbanization, cultural dependence upon ravenous use of fossil fuels and other nonrenewable resources, consequent air pollution, and global climate change.
Despite prolonged Cold War distraction and entrenched faith that technology could always enlarge carrying capacity, these trends were well publicized. But there remain eminent writers who persist in denying that human carrying capacity (Earth's maximum sustainable human load) has now been or ever will be exceeded. Denials of ecological limits resemble anosognosia (inability of stroke patients to recognize their paralysis). Some denial literature resembles their confabulations (elaborately unreal stories concocted as rationalizations). Denial by opponents of human ecology seems to be a way of coping with an insufferable contradiction between past convictions and present circumstances, a defense against intolerable anomalous information.

The passionate drive in the 104th U.S. Congress "to kill many environmental protection laws ... in the name of less government" (Wager 1995, 3) stands in stark contrast to the ecological wisdom implicit in a two-centuries-old statement William Ophuls used as a tone-setting epigraph for his book on Ecology and the Politics of Scarcity (see Ophuls and Boyan 1992, vi). Humans, said Edmund Burke,

> ... are qualified for civil liberty in exact proportion to their disposition to put moral chains upon their own appetites.... Society cannot exist unless a controlling power upon will and appetite be placed somewhere, and the less of it there is within, the more there must be without. It is ordained in the eternal constitution of things, that men of intemperate minds cannot be free. Their passions forge their fetters.

That these aphoristic sentences imply an important ecological principle becomes sharply visible in light of some conceptualizations recently set forth by Barry Commoner (1990). People, he said, live in two worlds. We live not only in the natural world that evolved physically, chemically, and biologically over Earth's five billion years, but also in a world humans have made. He insists we need to understand how these two worlds (Commoner calls them "the ecosphere" and "the technosphere") interact, especially now that the technosphere has become so enormous and consequential, breaching the division between the two worlds. What we still euphemistically call "acts of God" are no longer uninfluenced by human societal activity. Collectively, we now significantly alter the natural processes of the ecosphere, "the thin global skin of air, water, and soil, and the plants and animals that live in it"

According to Commoner (1990, 15), "What we call the 'environmental crisis' — the array of critical unsolved problems ranging from local toxic dumps to the disruption of global climate" — results from a drastic mismatch between the ecosphere's "cyclical, conservative, and self-consistent processes" and the technosphere's "linear, innovative, but ecologically disharmonious processes."

While Commoner's statement carries real meaning to human ecologists, I am sure it is completely opaque to the person who happens to "represent" my Congressional district. It is probably meaningless to most of her House colleagues, and to most members of the Senate. It would probably find little resonance with most of the voters who put them in Congress. The aim of this paper is to try to shed some light on the apparent refusal of ostensibly educated individuals to realize the urgent need, as Commoner puts it, for ending the "suicidal war" between technosphere and ecosphere. Never have so many seemed so oblivious to so momentous a future-shaping condition.

THE BASIC CHANGES

Human ecologists could well be dismayed by the apparent preoccupation of society's decision makers with matters of less basic importance to our global prospects than the following facts:

(1) Human numbers on this planet are much greater today (and still growing) than they were just half a century ago (Demeny 1986, 29-33; Ehrlich and Ehrlich, 1990; Keyfitz, 1991).

(2) A greater fraction of the world's people today live in cities, and many cities are faced with problems of serious air pollution (Demeny, 1986,55-58; Lowe, 1991).

(3) Industrialization has enabled and required mankind to use fossil fuels and other nonrenewable resources at prodigious rates, with little regard for the finiteness of the Earth's deposits of these substances (Young, 1992; Flavin and Lenssen, 1994,29-49; Inkeles, 1994; Szell, 1994).

(4) The combustion products we have been putting into the atmosphere may be causing climate change (Tangley, 1988;Abrahamson, 1989;Rathjens, 1991;Revkin, 1992; Ravin and Lenssen, 1994,50-70; Wigley, 1995).

(5) Other products of modem chemistry have been accumulating in the upper atmosphere and wreaking havoc with the protective ozone layer (Benedick, 1991; Litfin, 1994, 52-77).

Could mass media preoccupation with less crucially significant matters explain why there appear even now to be so many literate and educated people who remain unconcerned about these facts, or who deny their truth or at least their importance?

MEDIA TREATMENT

It is instructive to trace the entry of these topics into the print media to see just how long there has been information about them readily available to the reading public. For that purpose, it was a simple expedient to explore entries in the many volumes of the Readers Guide to Periodical Literature, a standard resource in many libraries. Without parading details of this exploration, it suffices to say that all five facts have had appreciable public exposure in the print media.2 The treatments of the five topics attained clarity and explicitness at varying dates:

(1) exploding population was publicized from the 1950s;

(2) air pollution received explicit attention by the time of World War II;

(3) ravenous industrial dependence on exhaustible resources was explicitly depicted from 1973 onward;

(4) treatment of global warming by the greenhouse effect of C02 etc. in the atmosphere became fairly clear from the mid-1950s;

(5) depiction of the ozone layer got explicit coverage from 1985.

Thus, for a decade at minimum, and for several decades in some cases, these facts have been "available" to the general reader — and to politicians.

FLAWED ACCOUNTING, WISHFUL THINKING

Until the end of the 1980s, public views of nearly everything were colored by the dangerous rivalry between two nuclear-armed superpowers, each defining the other ideologically as evil. When the Cold War ended at last, it became possible for a writer desiring to educate people to ecological facts of life to suggest that the visible failure of communism was accompanied by an as yet unrecognized failure of Western capitalism (Orr, 1992, ix). "Our failures," he said, "are still being concealed by bad bookkeeping (both fiscal and ecological), dishonest rhetoric, and wishful thinking." But he insisted "the day of reckoning" was coming soon, for "the world ... is not without limits" recognizable by an ecologically literate person.

Most people are not yet ecologically literate, even this many years after the well-publicized 1972 United Nations Conference on the Human Environment that met in Stockholm. So "the health of the planet" continued to deteriorate (Brown et al., 1991, 20-21). As many people as existed altogether in 1900 were added to the Earth's load between

1972 and 1991, while the world lost nearly 200 million hectares of trees, an area the size of the United States east of the Mississippi. Deserts have expanded by 120 million hectares, claiming more land than is planted to crops in China and Nigeria combined. The world's farmers lost about 480 billion tons of topsoil, roughly equal to that which covers the agricultural land of India and France. And thousands of plant and animal species with which we shared the planet in 1972 no longer exist. So it may have been a display of exaggerated faith in popular wisdom when a pair of demographers (Tsui and Bogue, 1978, 3) wrote that "No social problem, other than war, has attracted greater and more sustained public concern during the decades since World War II than the 'population explosion'."

MYOPIA AND OVERSHOOT

Not only were there Cold War blinders restricting people's perceptions of the world for so many years; there was also a consummate faith that continuing technological innovations will enable Earth's human carrying capacity to be expanded "to almost any required size" (Ehrlich et al., 1971, 41). This exuberant worldview has been expressed in professional scientific journals, not just in more popular media. Examples have appeared in Scientific American (e.g. Hopper, 1976; Revelle, 1976), BioScience (e.g. Weinberg, 1973), and The Sciences (e.g. Ausubel, 1993), as well as in Science, official organ of the American Association for the Advancement of Science, which published the following assertion (Simon, 1980):

> Incredible as it may seem at first, the term 'finite' is not only inappropriate but is downright misleading in the context of natural resources....Even the total weight of the earth is not a theoretical limit to the amount of copper that might be available to earthlings in the future. Only the total weight of the universe — if that term has a useful meaning here — would be such a theoretical limit. In summary, because we find new lodes, invent better production methods, and discover new substitutes, the ultimate constraint upon our capacity to enjoy unlimited raw materials at acceptable prices is knowledge. And the source of knowledge is the human mind. Ultimately, then, the key constraint is human imagination and the exercise of human skills. Hence an increase of human beings constitutes an addition to the crucial stock of resources, along with causing additional consumption of resources (1435-1436).

The idea in that final sentence recurred in the context of some analysis of carrying capacity estimates; ex-President Bush was quoted insisting that every human possesses not just a consuming mouth but also productive hands (Cohen, 1995a). Here, and again in a subsequent book, Cohen (1995b) implied that "the historical record of faster-than-exponential population growth" might well continue to be "accompanied by an immense improvement in average well-being." While human population had increased fourfold between 1860 and 1991, human use of inanimate energy increased 93-fold in the same period.3 Human influence upon the planet had thus grown enormously faster than mere human biomass. Is this fact a basis for optimistic amazement, or should it be arousing deep anxiety?

The point of the statement from George Bush (echoing Friedrich Engels) was to suggest that human carrying capacity may be not just burdened by more people but could actually be raised by them.4 But no such faith can eliminate mathematical limits (see Cohen, 1995b: Appendix

6). Anyway, carrying capacity is not simply "Earth's maximum supportable human population" (Cohen, 1995a, 342); the concept should denote Earth's maximum sustainable load. The concept of human carrying capacity is not qualified sufficiently by noting that the load depends on level of living as well as number of people. What the carrying capacity concept must spotlight is the issue of system durability; how long can an ecosystem support a given load? It is true that the load varies with level of living. It is no less essential to recognize the idea (which should be so simple) that overuse of an environment reduces its load-supporting capacity for future generations of users.

As Ehrlich et al. (1971,41) suggested a generation ago, it already "seems clear that a population size smaller than that of 1970 will be necessary, if all human beings are to have a high material standard of living, and if a comfortable margin for error is to be maintained against ecocatastrophes." More recently a writer for Worldwatch Institute has stated flatly that "we have surpassed the planet's carrying capacity" (Postel, 1994,4), saying what makes this evident is the extent of depletion and damage to natural capital. "The earth's environmental assets are now insufficient to sustain both our present patterns of economic activity and the life-support systems we depend on".5

As if to remove all doubt as to what is meant by asserting the human load already exceeds Earth's carrying capacity, the head of the Worldwatch Institute insists "Time is not on our side. The world has waited too long to stabilize population.... If we care about the future, we have no other choice but to launch a worldwide effort to stabilize our life-support systems — soils, fisheries, aquifers, and forests — and the climate system" (Brown, 1995, 141; cf.Catton, 1980). And as he pointed out, this would take a massive mobilization of financial and political resources comparable to organizing to fight World War II. Absent that, "we will leave our children a world without hope."6

PERSONAL EXPERIENCE

For emphasis let me now personalize the changes that have led to these somber assessments. There are almost three times as many people now living on this planet as there were when, as a boy, I first asked an adult what was the world's total population. Within my lifetime, I have seen small towns grow to become cities, spreading over once open countryside. In the first third of my life, automobiles and highways, although already well-established as a means of family mobility, had not yet displaced trains and railroads as the major choice for long distance travel. Nor had the airlines yet proliferated to the point of near extinction of rail passenger service. The changes in transportation I've experienced and witnessed in one lifetime, together with other industrial growth, have caused world extraction of crude oil to double each decade. This means that in each of the first five or six decades of my life we humans extracted and used as much petroleum as had been used in all previous time — including the immediately preceding decade. High school mathematics was more than enough to make it evident that this decennial doubling could not go on forever.

As a visible indication of climate change, I have personally become acquainted with glaciers in both the northern and southern hemispheres and have seen that they are now hundreds of meters shorter than when I first laid eyes on them. And although I have no direct personal experience of stratospheric ozone thinning, I am inclined to trust the scientific literature on that subject (e.g. Cicerone, 1987; Kerr, 1988; Rowland, 1989; Firor, 1990).

DENYING REALITY

There are others who deny the whole idea that carrying capacity has now been, or ever will be, exceeded by the human load. Writing of a future "age of abundance," an economist at the Cato Institute in Washington, DC, has argued that just because a grocery store stocks only a three days supply of milk no one worries that life after the third day must be lived without milk, and similarly, we should not expect to run out of copper simply because copper mining companies calculate that they have only a certain number of years of reserves. When they use up those reserves, they will have a renewed incentive to locate new sources of supply (Moore, 1995,116).

He insists, therefore, that the only reliable measure of "a resource's supply is the change in its market price." In support of that view, he cites Julian Simon's book. The Ultimate Resource, a title alluding to human brains and reflecting a faith that ever-increasing numbers of them on this planet will ensure an escalation of solutions to outrace any escalation of problems.

In a more recent book, Simon (1994,65) has asserted that we already have in the world's libraries "the technology to feed, clothe, and supply energy to an ever-growing population for the next 7 billion years." After noting the relative recency of much of our technological knowledge, Simon adds, "Even if no new knowledge were ever invented after those advances, we would be able to go on increasing forever, improving our standard of living and our control over our environment."

If most human ecologists would regard this as quite preposterous and detached from reality, I have felt almost as stunned each time I have read the negating paraphrase by Julian Simon and Herman Kahn (1984,1-2) of the summary of The Global 2000 Report to the President:

If present trends continue, the world in 2000 will be less crowded (though more populated), less polluted, more stable ecologically, and less vulnerable to resource supply disruptions than the world we live in now. Stresses involving population, resources, and environment will be less in the future than now... The world's people will be richer in most ways than they are today ... The out look for food and other necessities of life will be better ... life for most people on earth will be less precarious economically than it is now.
The emphases and ellipses are by Simon and Kahn, obviously intended to make their glowing expectations contrast maximally and point-for-point with the Global 2000 summary they were paraphrasing.

Knowing these two men to be both intelligent and educated, I have wondered every time I looked at the quoted passage how they could so flagrantly deny what so many ecologists regard as the real state of the world.7 As long ago as 1956, a past president of the American Ecological Society, who was then president of the American Association for the Advancement of Science, and would shortly thereafter serve as president of the American Society of Naturalists, wrote: "I have yet to meet a biologist who shares the optimistic unconcern about natural resources that is so prevalent among a considerable group of technologists and economists" (Sears, 1956,22).

In addition to Simon and Kahn, other authors have exhibited similarly sublime denial. Two astonishing books by Wattenberg (1984; 1987) asserted that "the bad news" is just plain wrong, and that far from overpopulation, fertility rate declines in industrial nations should be seen as a dangerous "birth dearth." Just recently, Wattenberg (1995) reasserted his "birth dearth" concept with specific reference to the United States, arguing this country needs immigrants to offset the effects of past fertility declines on the present young adult (labor force) strata in our population pyramid.

A pair of economists, writing about "the doomsday myth" (Maurice and Smithson, 1984), claimed modem economic problems do not significantly differ from crises that have been occurring and getting solved over the past 10,000 years. Energy shortage problems in the 1970s are alleged to have been a "created crisis" (Sutton, 1979). And anyway some problems are better left unaddressed, according to a civil engineer, an economist, and an environmental engineer who argued that recycling, for example, is often too costly and has doubtful environmental value (Hendrickson et al., 1995).

Not surprisingly, an advertisement for the Mobil Corporation answers its own headline question, "Running out of oil?" by proclaiming, "Not in your lifetime nor your grandchildren's." The ad's aim, as it appeared in Newsweek for May 8,1995 (15), was to forestall "Forcing the market to make the transition to alternative fuels prematurely" which, it said, "will harm the economy, consumers and taxpayers."

And, just possibly, Mobil Corporation?

In many instances, perhaps, denial may express a vested interest. But there are common occurrences of denial in other life contexts. In American Holocaust, Stannard (1982) presented what a catalog blurb for the book called "A devastating portrait of the death, disease, misery, and apocalyptic destruction experienced by American Indians during the centuries after 1492." The pre-European inhabitants of this continent did indeed experience those woes, yet most European-descended Americans today tend not to think about the Indians' plight. Further, it is possible to be so committed to reserving the term "holocaust" for another particular disaster that one objects to its use in the title of a book about American Indians. Katz (1994) has argued that "the Holocaust" is a singular event in human history and the only example of true genocide.

And yet, remarkably, there was frequent resort to denial by survivors of that World War II, Nazi-inflicted Holocaust (Salamon, 1994). It appears that fear of ostracism by a society disinterested in what had transpired in those death camps caused many survivors to avoid speaking about what they had experienced. Denial, said the paper reporting this, "is considered one of the least mature defense mechanisms. Yet, it is the one most often employed when stressors are the most overwhelming."

MOTIVATION FOR DENIAL

This may be a clue to the Simon-Kahn puzzle. What could be more overwhelming than clear realization of the full implications of finding the world truly in a condition of life-support system erosion by severe overload? How tempting to deny the breakdown is happening, or ever could happen.

Alcoholics are commonly seen as persons overwhelmed by experiences or circumstances beyond their ability to cope, and denial is common among them and their families (Crisman, 1991). Realizing this, it seemed plausible to look into writings by psychiatrists and associated treatment professionals in search of some principles that would help explain how Simon and Kahn could contend the Global 2000 Report was diametrically wrong.

After searching not very profitably through a number of papers in psychiatric and related journals,' I happened to en counter in Discover magazine an unexpectedly suggestive article. It described research by a neuroscientist and physician at the University of California at San Diego. He studies a rather amazing form of denial. The researcher's name is Vilayanur Ramachandran, and the form of denial he has been studying is called anosognosia. "One of the best-known victims of the condition was Supreme Court Justice William 0. Douglas, who suffered a right-hemisphere stroke in 1974 that paralyzed his left side and eventually forced his retirement. He initially dismissed the paralysis as a myth, and weeks later was still inviting reporters to go on hiking expeditions with him. When one visitor asked about his left leg, he claimed he had recently been kicking 40-yard field goals with it" (Shreeve, 1995).

As Dr. Ramachandran describes it, anosognosia is a condition in which the patient does not just ignore his or her paralysis, but actively denies it "in spite of... complete inability to move." To explain away the real condition, the patient often concocts "elaborate stories or chillingly unreal rationalizations." (Confabulations is the term for these stories.)

Simon's notion that the existing contents of libraries ensure perpetual growth and progress for 7 billion years certainly resembles a confabulation (see Berlyne, 1972; Mercer et al., 1977; and Shapiro et al., 1981). The resemblance seems all the more striking the more one reads about anosognosia and its effects.9 Ramachandran's explanation for anosognosia says that this form of denial is a way of coping with an insufferable contradiction that confronts stroke

patients; their paralysis is an incompatible, identity-threatening anomaly that contradicts their prior experience of themselves and their milieu.

Ramachandran has begun trying to use this unusual "window into the brain" to understand new aspects of the functioning circuitry of that truly remarkable but vulnerable organ. He postulates what he calls an "anomaly detector" as a kind of decision-making center somewhere in the brain. He has not located it specifically, but feels it must be in a part of the brain that usually interacts with the part affected by the stroke his patients have suffered, i.e., the right hemisphere. Anosognosia involves a breakdown of anomaly detection, so the patient is truly unaware of his paralysis and consequent disabilities.

In a Dictionary of Medical Syndromes (Magalini et al., 1990, 54) there is this description of anosognosia:
Inability of the patient to recognize a body or functional defect.... Denies the existence of the condition and attempts to disprove it by going through psychic process that lets him convince himself that what is said by the physician is false.

Here, of course, there is no mention of an "anomaly detector" in the patient's brain. But the reference to a "process that lets him convince himself" of the falsity of what is said by the physician (ordinarily a trusted authority) seemed a close parallel to the case of Simon and Kahn having convinced themselves the things said not only in the Global 2000 Report but by other knowledgeable writers before and since are false.

It is not the intention of the present paper to impute neurological or psychological aberration to Simon, or Kahn, or Wattenberg, or anyone else writing denials of global ecological peril. If the insights derived from accounts of anosognosia are to shed real light on the Simon-Kahn type of denials, we have to suppose there are sociocultural, interpersonal processes of "anomaly detection," not just organic ones within the individual brain. We must also suppose these interpersonal processes are subject to deflection, and that the deflective influences are discoverable sociocultural forces.

Reading a description of anosognosia (and other related forms of denial or "neglect") coupled with suggestions for care of the patient by family members (Caplan et al., 1994, 214-221) caused me to recall a long forgotten instance of denial in my own extended family. It did not have to do with stroke or paralysis, but it did indeed suggest "anomaly detection" may be sometimes a fallible interpersonal process, not just a neural function in the patient's own brain.

The example that came to mind was a memory of my mother sadly telling of a visit with her elderly parents when her father, my grandfather, a retired physician, was dying (in effect, of old age). He had had a fall which broke a hip. Bedridden, he developed gangrene in his feet. My mother forlornly described the way her mother had turned back the blankets to show my mother the condition of my grandfather's feet,

while pathetically insisting my mother must confirm my grandmother's wishful perception of (nonexistent) signs of improvement. Denial by solicited agreement.10

There are indeed social psychological patterns that resemble anosognosia, and they are not simply manifestations of neurological impairment. This is clearly evident in the case of Woodrow Wilson, 28th president of the United States, who suffered a stroke on October 2,1919, while winding up a nationwide speaking tour to raise public support for the proposed League of Nations. Despite paralysis of the left side of his body, he remained "under the illusion, persistently fostered by those around him, that he was on the way to recovery" (Hecksher, 1991,632-633. emphasis added; see also Hoover, 1958; Walworth, 1965; Grayson, 1977). Both Mrs. Wilson and the president's doctor. Rear Admiral Grayson, are said to have feared Wilson would "fall back into his post stroke depression" if told the plain truth about his disability.

In the aftermath of World War I, Wilson's supreme mission was to ensure future world peace by establishing the League of Nations. Led by those close to him to believe his infirmity was abating, he meant to continue campaigning for the League's establishment "Undated rough notes in longhand reveal that at some time during [the spring of 1920] Wilson drafted a document entitled '3rd Inaugural'" (Hecksher, 1991, 633). Third term candidacy was his imagined way of bringing to ultimate fruition the presumed public support for his League by overcoming the growing opposition in the Senate. Neither his wife nor his physician would tell him, during that spring, that it was an "utter impossibility" for him to run for a third presidential term.

This tragedy of Woodrow Wilson helps clarify what stroke patients with anosognosia and writers who deny global ecological peril have in common: a compulsion to overcome what social psychologists call cognitive dissonance (Festinger, 1957). According to theory, cognitive dissonance can be strongly aversive. A person will attempt to reduce or eliminate such dissonance between two or more cognitions. The person will act to avoid events or stimuli that would increase it. The severity or intensity of cognitive dissonance depends on the importance to the individual (...and to his peers? ...to his reference group?) of the cognitions involved. New cognitions that will add weight to one side of the aversive contradiction can reduce the intolerable dissonance — either by diminishing the contradiction or by reducing its perceived importance (Zajonc, 1968, 360-361).

Now let us imagine a scholar who happens to be deeply committed to what Murray (1972, 219) called "the American economic model." Our scholar then encounters "cognitions" like the following:

[This model, which] values increasing growth, waste (non-recycling of essential materials), and competition [clearly violates] ecological principles that have been established by observations: Competition results in elimination of competitors; continually growing populations eventually collapse; and ecosystems whose essential materials are not recycled cannot be sustained.

There is no reason to believe that economic systems based on principles that bring collapse to ecological systems are immune to a similar fate.

These statements are certainly dissonant with his prior convictions. It should be no surprise if this committed scholar tries to reduce dissonance by amassing additional "cognitions" supporting his adherence to "the American economic model."

CONCLUSION

By thinking of denial as a defense against intolerable anomalous information, we come back to the classic assertion by Paul Sears (1964,11) that ecology "if taken seriously as an instrument for the long-run welfare of mankind, would ... endanger the assumptions and practices accepted by modern societies...." Ecology, he said, affords by its very nature a continuing critique of human operations within the ecosystem. He agreed with F. Fraser Darling that we humans are an integral part of the ecosystem, albeit the most dominant species. Without resorting to Barry Commoner's military metaphor, Sears was already expressing concern about that clash between technosphere and ecosphere later named, described, and deplored by Commoner as a "suicidal war."

Ecological understanding of nature's limits and man's place in nature contradicts deeply entrenched cultural expectations of endless material progress. This fact has been expressed repeatedly by assorted writers who came to it from various directions. In his important but too-seldom-read book on the relation between societal forms and the kinds of energy converters used, Cottrell (1955, 2)" wrote forty years ago that clear understanding of that relation was "likely to raise questions about the reliability of certain propositions which are basic to the policies of both the Communist and the Free World. Some of the makers of these policies will be unwilling to accept its implications," especially if, as Garrett Hardin (1985, 469) contended three decades later, ecology "demands that our current political, social, economic, and moral order be stood on its head."

Simple inability to do that, or committed reluctance to consider how that might happen, seem widespread. Perhaps that is what motivates men like Simon and Kahn to scorn such views and information as were presented in the Global 2000 Report. It challenged beliefs and attitudes that were central to their very identity as humans made in the Western industrial mold. In the same way, and just as fundamentally, it must challenge the beliefs and attitudes crucial to the identities of members of the 104th Congress of the United States. Is it possible that for them, "downsizing" government (to "balance the budget" by 2002 A.D.) has a "latent function"? — it has helped divert attention from humanity's involvement in that "suicidal war" on the ecosphere. If surviving that conflict requires downsizing industrial civilization, rather than just the federal government, how long can the world afford such diversion of those who purport to shape the course of history? When will evidence (or social pressure) suffice to emancipate them from habits of denial?

ENDNOTES

Revised version of paper presented at the 1995 meetings of the Society for Human Ecology, October 19-22, 1995.

The phrase "population explosion" began to show up in titles of magazine articles more than four decades ago; it headlined a Time story in October 1953, and again in October 1957. A Newsweek article in March 1956 was headed "Too many people." The concept of air pollution had apparently established itself in the educated American vocabulary by the time of World War I. Items listed in early volumes of Readers Guide pertained to indoor air problems (ventilation). The word "smog" began to show up in article titles just before World War II.

First appearance of the phrase "Energy Crisis" as a heading came in vol. 33, covering March 1973 to Feb. 1974 publications. In vol. 35, covering March 1975 to Feb. 1976, "Energy policy" loomed as an important category, with over 140 items listed.

Editors of Readers Guide did not deem "Greenhouse effect" a sufficiently meaningful phrase to use it as a heading until vol. 46, covering 1986 publications. By 1994, however, this heading's enduring importance was reflected in 19 items listed under it. And as early as the 1950s and 1960s there were published articles listed under "Climate" that had begun to deal with the kind of climate change now familiarly designated as "the greenhouse effect," or sometimes simply as "global warning."

Readers Guide long had the word "Ozone" among its headings, though most early volumes listed only a handful of articles (often as few as one or two per year or more). These articles usually had to do with chemical actions of ozone on materials, or on plants, animals, or humans, from direct exposure to this 3-atom form of oxygen. Its corrosive or respiratory effects were all that concerned writers — until vol. 44 of Readers Guide, covering March 1984 to Feb. 1985 publications, with listings of nine items pertaining to stratospheric ozone and what was happening to it. Subsequent volumes have also contained listings of items on this aspect of the topic.

Expectation that ongoing advances in technology will continue releasing human societies from carrying capacity limits was embraced by Hawley (1975,10).

Cohen questioned not only Malthus but also Liebig, whose law of the minimum, an important basis for understanding the carrying capacity concept, was declared misleading on several counts

Marine biologist Sylvia Earle would seem to agree: "If it were possible to start again, with the planet as it was 10,000 years ago — or even 500 years or 200 or 20 — with knowledge now gained, there would be a better chance to achieve the much-discussed goal of 'sustainable use* of planetary resources" (Earle, 1995, 219). She reports observing "hundreds of ominous signs." The former vision of "limitless fish in an infinitely productive ocean" has been shattered in one generation. "Greatly expanding demand to feed growing populations of people coupled with the means to find, capture, and transport animals from all parts of the sea to distant lands have drastically altered the nature of ocean ecosystems in a few decades. Even familiar staples of the early part of this century — cod, herring, haddock, pollock, halibut, several kinds of salmon, and tuna— are in sharp decline after years of heavy fishing pressure" (Earle, 1995,169).

6. Cf. Murray (1972,219): "There is no question that collapse is inevitable. The question seems to be how much longer businessmen can continue making profits at the expense of future generations."

7. Assorted other instances of denial are reviewed by Ellsaesser (1992,1-26). Herman Kahn, in collaboration with Ernest Schneider, dubbed The Global 2000 Report "Globaloney 2000" (Kahn and Schneider, 1981). Max Singer (1992,35) asked, "How do we know that the rest of the world also will become modem and wealthy? Because we can recognize the powerful process that has been shaping events, and see that that process is still working, and that there is no reason for it to stop now." And according to Andrew Kenny (1994), "The Earth is Fine; The Problem is the Greens" (i.e., the environmentalists, with their "misguided belief in global warming"). When his article was reprinted in The Christchurch Press in New Zealand it was given the headline, "The great ozone scare — why it is a lot of unscientific nonsense."

8. One study compared the effectiveness of "situation redefinition" versus "attention diversion" as means of reducing stress due to a "nonambiguous threat" (Bloom, 1977). It shed no light on Simon and Kahn. A paper that summarized psychiatric literature about interactional aspects of denial and defense looked promising at first. It suggested, among other generalizations, that denial may be shared. Individuals in interpersonal situations may use denial as a means of avoiding disruption of the relationship (Dorpat, 1989). Without knowing the interaction networks of men like Simon and Kahn, and their peers' beliefs, this paper could not illuminate their denial. Several other papers (Wurmser, 1989; Moses, 1989;

Wangh, 1989; Wasyliw, et al. 1994; Langer, 1994) also failed to show how it is possible for learned men to reject ecological facts such as the ones I have listed in this paper.

9. The term was first used by Babinski (1941) in a French journal. The following papers enhanced my understanding of its modern usage: Kihistrom and Tobias (1991);

Weinstein (1991); Holmes (1994). A partial version of the denial process was evident among polio patients and their families as studied by Davis (1956), and I remember my own partial denial in a Navy hospital suffering from a smashed pelvis and imagining I'd be out in a few days rather than a few months.

10. For more insight into this pattern of behavior, see Festinger et al. 1956.

11. George Lundberg (1956. 377) began a review of Cottrell's book by predicting it would "doubtless be dismissed as 'defeatist' in some circles," and said it laid itself "wide open to this treatment... by proclaiming ... 'that the energy available to man limits what he can do and influences what he will do'" — a thesis that challenged the cornucopian claims of both the Free World and its Communist rivals. Labeling such a book "defeatist," said Lundberg, was "a curious form of sympathetic magic." The label, he said, "is sometimes regarded as constituting a refutation of the data, the reasoning, and the conclusions of any work that calls into question the wishful thinking which constitutes the principle basis of much contemporary social science." Cottrell's thesis about the societal relevance of energy availability and the nature of different energy converting technologies was, Lundberg recognized, dissonant with customary social science (and Western cultural) cognitions.

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