

CONSERVATION AND COMMON SENSE

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It is a pleasure to be here this evening and to have this opportunity to share a few thoughts with you at the Soil Conservation Society of America's symposium on land application of waste materials.

Last December, your Executive Vice President, Wayne Pritchard, sent me a copy of the materials sent to the technical speakers outlining the chapters of what will become a book at the conclusion of your three-day meeting. Mr. Pritchard very considerately suggested that I not be frightened by it--that the program committee would like my presentation to be in a much lighter vein, giving some of the experiences I have had.

Well, I looked boldly through the outline of what will become a 20-chapter volume covering--comprehensively, it seems to me--every conceivable facet of the land application of waste materials, and had the sinking feeling that there is nothing I could say to you that you do not already know all about. Then my attention turned eagerly to the suggestion that I talk in a lighter vein. This offered no relief. As a civil servant in the Federal government who has worked for many years in the vineyards and wastelands of the environmental protection area, I could be fairly certain that my lighter vein, along with several others, had already been cut and drained several times--bureaucratically speaking, of course.

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Well then, I thought, how about concentrating on Mr. Pritchard's suggestion that I talk about some of the experiences I have had. That would be all right, provided I could have an absolute guarantee of successful plastic surgery, a new identity, and safe, surreptitious flight to a faraway foreign land. So, you did not frighten me, Mr. Pritchard--you scared me half to death.

A number of important events had to occur before you could convene this symposium on the land application of waste materials. Among others, it required 500 million years of vertebrate history; the evolution of the hominid brain to its present size, which was completed within the last one million years; the Industrial Revolution, which began roughly three hundred years ago, the creation of this country, which, as we all know, is celebrating its 200th birthday; and, finally, the occurrence and celebration of Earth Day, just six years ago. All of these events, except the last, had to occur before we could create the immense land disposal and related environmental problems which confront us today. The last--Earth Day--had to occur before any appreciable number of us became aware of the fact that, in the process, we had created a complex fabric of interwoven by-product problems capable of smothering all of our accomplishments.

A year or two ago, I read a series of essays by Richard N. Goodwin entitled "Reflections on the American Condition," I was particularly struck by two statements which illustrate two strongly-held and long-prevailing views in American thought which are at the root of our current

environmental concerns. At one point Mr. Goodwin wrote, "...by the 19th Century, many believed that the whole of existence could be compacted within the framework of scientific reason." At another, he wrote, "Technology, moreover, provided the belief in the compelling miracles of scientific reason. It pumped riches from the earth, illuminated the night, carried men into the skies. It worked. This dazzling success was the key to power. The metamorphoses were ready: first, it works; then, if it works, it must be true; and, finally, if it is true, then it alone must be true."

Until the beginning of this decade we were terribly certain that through the random use of science and technology--through automation, through nuclear power, and through chemistry--we were moving toward a better life for everyone. Look up, America! See what you've got. In April, 1970, for the first time, we asked ourselves: Is it the real thing?

That occasion marked the beginning of what I believe can accurately be called a worldwide environmental revolution. I do not use the word "revolution" lightly--I use it, because the environmental movement so seriously challenges so many powerful traditional cultural values that have come to us from the original industrial revolution. Moreover, they challenge just as certainly every society on this globe, regardless of the form of government that society might have. So, Earth Day 1970 has implications far profounder than its overt manifestations--the rallies, the teach-ins, the hundreds of articles and broadcasts it spawned.

The wave of environmental awareness which crested in 1970 certainly

did not come out of nowhere. More things than I could possibly recount contributed significantly. Certainly of great and immediate importance were the two major streams of growing concern about air pollution and water pollution. These had clearly distinct and separate origins. The conservation movement, as you know, had its genesis in concern for forests, plains, and wildlife, and, hence, was focussed primarily on water problems, since water is so essential to what naturalists regard as the natural world. The traditional conservation community was somewhat late in joining the movement to control air pollution, because air pollution was regarded fundamentally as a health problem, most directly affecting urban areas. As long as those important streams of concern and interest were separate, there was little chance for broad public understanding of the root issues of the environmental dilemma.

Throughout the 1960's, there was growing public indignation about the problems of air and water pollution, and, though many at that time may have thought that the total solution to the problems was simply to place stoppers, so to speak, on the main stacks and outfalls of industries and municipalities, this illusion faded as interest in air and water pollution finally merged. Only then did we open our eyes to the fact that urban and rural environmental problems cannot be separated, that these problems stem from the uses and misuses of science and technology in this century, from the way cities are built, from the way our transportation needs are met or not met, from the way we extract resources, manufacture and distribute goods, dispose of wastes, from the way we think or fail

to think, and finally--and most important--from the way we feel about ourselves and the rest of mankind.

By 1970, we were finally ready to understand that society has to make difficult choices that require careful measurement of public benefit against public risk--that raise difficult questions about conflicting private and public rights--and it became clear that we have to make such decisions every day and every year in the social and economic spheres on the basis of scientific data which, at worst, is nonexistent, and at best, by the very nature of science, is often incomplete. Earth Day marked the beginning of the end of Science, spelled with a capital "S."

It is not surprising then, that Science's stepchild, Technology, is no longer automatically worshipped by everyone at that famous American shrine where progress and prosperity were always linked to growth. In the past six years, western man has begun to accept a fact so fundamental that it is perceived intuitively by primitive people--that is, that we live in a closed life-support system, in which all life elements, including that fallen god, Man, himself, are interdependent. With this realization, people have begun to recognize that scientists, businessmen, government officials, and all other "experts" are subject to human error--that their interpretations of scientific and social data can be greatly influenced by uncharted--including largely unconscious--factors of a personal and cultural nature. In contrast, most people, at the beginning of this century, believed that nothing would distort our

progress toward a technological heaven on earth, provided we stuck to the scientific method and were "rational" and "objective."

Well, the people no longer believe this. With the awakening came widespread public concern and protest about environmental degradation, which in this decade has produced truly meaningful changes in our attitudes, habits, and institutions. Growing concern about the pollution of air and water in the last decade led, at the dawn of this one, to a much broader environmental awareness, which both produced, and is symbolized by, the National Environmental Policy Act. This unique law, which marked the beginning of the end of 194 years of frontier philosophy, set forth the remarkable notion that man and nature must exist in productive harmony. It was a point of view that Thomas Jefferson knew very well, but in 1970 it struck us with all the impact of a profound idea that no one had ever thought of before.

For awhile everything went onward and upward swimmingly, and environmental progress was almost as wonderful as even the more youthful Earth Day celebrants could have hoped for. Then suddenly and unexpectedly, the advocates of the greening of America ran into some Arabs with a lot of brown oil.

The gasoline shortage which, in the fall of 1973, hit the average motorist harder than a six-inch snowfall, was also quite a significant event. It occurred less than four years after Earth Day. So we had 194 years of a general public intent to develop the biggest and the fastest and the first and the best of all the great technological machines. Then

we had less than four years to restructure some of our attitudes and institutions after our belated realization that the by-product problems of random technological development also needed attention, when suddenly everyone's attention was focussed on the energy shortage.

As soon as they were able to get their bearings, the view that most environmentalists took of the energy crisis was expressed in a statement that Russell Train, the Administrator of the Environmental Protection Agency, made not so very long ago. Mr. Train said, "The good news in the energy crisis is that it confirms what environmentalists have been saying all along: that if we continue to indulge in a 'no deposit, no return' attitude toward our earth and its resources, we will both run out of energy and irretrievably ruin our environment." Without question, Mr. Train was right.

But right does not make might--at least, not in the short run. The energy shortage was seized upon by those who were never very happy with what Earth Day symbolized in the first place, as a rallying cry for what has become, in effect, a counter-revolution to the Earth Day revolution. The counter-revolutionists imply that, in the name of acquiring energy, we must turn back the clock, give up the environmental gains we have achieved, and stop asking for more of them. They are appealing to the hearts and minds of millions upon millions of people who certainly must be confused at times by the strident, conflicting, and often absurd arguments of those who take their stand on the polar extremes of the environmental issue. The counter-revolutionists are now getting their

kicks by striking back at the barefoot ecologists who, since 1970, have been advocating that we throw out the baby with the wash. They urge that we turn our backs on the fantastic benefits, as well as on the problems, we have derived from the use of science and technology and give it all back to Mother Nature who, I presume, would turn the earth into a wilderness. Yet the counter-revolutionists are no more sensible than those they criticize. They talk as if Mother Nature were the enemy and, clinging to the social and environmental views which were in vogue in 1928, they urge us to give the earth over to the blind, multi-national bulldozer until, I presume, the whole planet would be paved over with asphalt and concrete.

It is instructive to note that, despite their apparently conflicting positions, these two extreme groups resemble each other in their fundamental disregard for the rights of a public accustomed to democracy. The blind bulldozer patrists ride roughshod over public opinion and preach a gospel of aggressive exploitation, deriding anyone who suggests we ought to look before we leap.

The barefoot mother-knows-best ecologists, in their zeal to protect what they regard as the natural world, also display an aggressive disregard of the real dilemmas posed to the public at large by environmental issues. Their motherly concern for the world does not always include a respect for the opinions and problems of the children of this planet, and their approach all too often, when the chips are down, turns out to be as tyrannical, angry, and dictatorial as those of their prime enemy--the

blind bulldozer patrists.

Now, in 1976, the latter are getting back at the former; they finally have their hands on the microphone again, and they are suggesting in every way possible that we need fuel and we had better get it, no matter what the environmental, occupational, or public health costs. They suggest in a variety of ways--some obvious and some not--that we can forget all this nonsense about using land properly, about controlling residuals, about controlling air pollution, about making the water really clean. They suggest we are over-concerned about vinyl chlorides, oxides of nitrogen, arsenic, mercury, and scores of other chemical compounds which have thrown a shadow over the shining dream. They say to hell with all this silly talk about saving the chimpanzee and the whale and the State of Montana. In short, like some of the environmentalists who made them so angry in 1970, they offer a simple answer to a host of complex problems.

They are feeling very strong right now. Recently Russell Train received a letter from an industrialist who complained that one of EPA's public information brochures, which includes a rather pretty picture of cans littering a beach, should not be distributed, because it is unfair to the cans.

Can the counter-revolutionists turn back the clock and bring back those wonderful times of yesteryear? We do not have to go very far back in time to remember how great it was for the original Pepsi generation. It wasn't so long ago that I was admonished by the principal physician of the Federal air pollution program who said, "If you are going to

persist in talking about the effects of air pollution on the respiratory system, be sure to cite the advantages which occur when heavy pollution obscures the sun and thereby cuts down on skin cancer rates." Never mind that everyone has to breathe but does not have to go naked in the sun. Never mind that skin cancer as a public health issue is minor compared to lung cancer and emphysema.

A little farther back, when particulate pollution in Pittsburgh was so heavy that you could literally walk into a building on many winter days, some members of the chamber of commerce, attempting to attract tourists to the city, explained that the sulfur in Pittsburgh's air should be an added attraction, since, as everybody knew, sulfur and molasses had been used for a long time as a springtime remedy for whatever ailed you. They did not say where tourists were to get the molasses, but there was plenty of sulfur in the air.

Those were the days when, if anyone suggested that air pollution smelled bad and ought to be curtailed, somebody would always say, "That's a good smell--that's the smell of money."

It wasn't so long ago, when the promoters of nonreturnable beverage cans were first acquainting the public with the advantages of that product. One of their advertisements showed a contented fisherman on a stream who had just finished his beer and had got rid of the empty can by throwing it into the water. Out of sight, out of mind was good advertising policy in the good old days.

The good old days were not so long ago, when we created the coal

mine waste piles of Appalachia, the uranium waste piles of Colorado, the dumps of all varieties in every region of the country, generally polluting the air and surface waters and continuously leaching a witch's brew of acids, organics, heavy metals, and other assorted contaminants into the groundwaters.

In between the strip-mine and the dump, we carried out the Nation's business as if the supply of energy and materials were limitless. In our design of almost anything you can name--from the buildings in which we live and work to the vehicles in which we transport ourselves to the hospitals in which we are born and the vaults into which we are put to final rest--we always gave far too little consideration to the conservation of materials and energy. The good old days when we conducted our personal, our governmental, and our industrial affairs as if energy and materials were meant to be squandered, as if the land, air, and water--the earth itself--were merely another disposable commodity.

The counter-revolutionists seem to be longing for a world that used to be or, better, a world that never was, and their longings do not square with reality. The realization that we had been fooling ourselves by seeking a fool's paradise, which surfaced at the beginning of this decade was, on the other hand, a movement toward reality--a return to common sense. Common sense, which was held in such high esteem by the founding fathers of our Nation, is the most important fuel upon which an open society runs. To quote Hannah Arendt, from her book The Human Condition:

"It is by virtue of common sense that the other sense perceptions are known to disclose reality, and are not merely felt as irritations of our nerves, or resistance sensations of our bodies. A noticeable decrease in common sense in any given community, and a noticeable increase in superstition and gullibility are, therefore, almost infallible signs of alienation from the world."

Alienation from the world, from common sense, from reality, results, at best, in gross absurdity; at worst, in disaster. A serious look at our traditional practices in virtually any aspect of waste management makes it quite clear that our traditional environmental behavior has been replete with absurdities--and marked by more than a few disasters. The more obvious disasters, of course, continue to occur with the surprising sudden impact of domestic time bombs, which no one intended to create in the first place. Recent incidents near Washington, D.C., involving Kepone at one industrial facility and arsenic at another, are typical examples. Others are no doubt silently waiting to explode in virtually every region of the country.

Earlier I remarked that right does not make might in the short run. But in the long run right prevails or, at least in an environmental sense, our irrational actions eventually bear their bitter fruit, and what we did not do right, we pay for. This point is certainly illustrated in the areas of municipal sludges, hazardous industrial wastes, and municipal solid waste, on which EPA's Office of Solid Waste Management Programs is currently placing its major resources and emphasis. As a more concrete

example, let me recount briefly some of the dynamics, contradictions, and, yes, absurdities inherent in the relatively discrete area of municipal solid waste management, which is familiar to everyone.

The collection and disposal of residential and commercial solid wastes is currently carried out at a total annual cost of about \$3.5 billion. It costs an average of \$26 to collect, process, and landfill a ton of municipal solid waste. It is expected that this cost will rise to \$50 a ton by 1985.

Most of this municipal waste ends up on the land. There are some 18,500 known land disposal sites in the United States. Some masquerade as sanitary landfills, but fewer than 6,000 of them meet State regulations. And there are unknown numbers of illegal open dumps.

Moreover, recent investigation gives us good reason to question whether the sanitary landfill which does comply with current standards of good practice, is really good enough to protect groundwater supplies from leachate damage.

Almost half of our cities estimate that they will run out of known and available municipal waste disposal sites within a few years. Our 48 largest cities now spend nearly half of their environmental budgets on solid waste collection and disposal.

Moreover, there is little incentive to curb municipal waste growth. The various costs of disposal are borne by taxpayers and are not included in the costs of the products that make up the waste stream. Those who

produce and those who consume products, therefore, do not receive the cost signals that would serve as incentives to curtail unnecessary contributions to the waste stream.

Projections to 1985 indicate that wastes disposed of will amount to some 30 million tons above the 1973 figure of 135 million even if the tonnages of waste recovered for recycling or use as fuel are increased almost fourfold over 1975 levels. There is no easy way out of the disposal problem alone.

How about the resource conservation side of municipal solid waste management?

Ironically, in spite of greatly increased environmental concern, we are currently recycling a lower percentage of our resources than ever before in history. The United States annually consumes over 200 million tons of major metals, paper, glass, rubber, and textiles. It has been estimated that about three-fourths of the total comes from virgin resources; the remaining quarter is obtained from resource recovery operations. Virtually all of the recovered materials are derived from discards of industrial processing and manufacturing, rather than from post-consumer waste discarded into the municipal solid waste stream.

The mixed municipal wastes from our larger urban areas now pose an environmental problem, but they could be made to generate 830 trillion BTU's of energy--the equivalent of 400 thousand barrels of oil per day, which is nearly a third of the Alaskan pipeline's projected flow. Seven percent of our iron, 8 percent of the aluminum, 5 percent of the copper,

3 percent of the lead, 19 percent of the tin, and 14 percent of the paper consumed each year could be supplied from what is now waste. And these are simply the obvious potentials, based on the recovery of mixed residential and commercial wastes.

EPA has identified over 60 major metropolitan areas where mechanical energy/materials recovery seems feasible. These areas account for about 180,000 tons of solid waste a day, 66 million tons annually, or more than half of the municipal waste stream.

Probably less than 2 percent of the energy and materials available from the municipal waste stream is being recovered today. Dry fuel production and steam recovery incinerators have been demonstrated and are actually being employed in a few cities. Energy recovery by dry or wet shredded fuel production as steam and as pyrolytic gas and oil should become viable, demonstrated technical alternatives by 1980. Mechanical materials recovery systems are somewhere between the demonstration and the operational phases.

There is growing evidence that utilities and private fuel users are beginning to view solid waste as an attractive fuel. High materials and energy prices, along with demands for environmentally sound disposal practices, will no doubt force municipalities to place more attention on resource recovery as it becomes more economically competitive with disposal.

Moreover, bills introduced in the past few years leave little doubt that Congress is seeking ways of increasing the incentives for municipalities and industries to engage in widespread post-consumer resource recovery operations.

Nevertheless, resource recovery must grow in a national soil and climate which, historically, has favored in countless ways the careless use of virgin materials and the random and heedless production and disposal of wastes. Oblique attention is just beginning to be slightly focussed on the inhibitions to resource recovery which are inherent in our tax structure, depletion allowances, transportation rates, and traditional attitudes.

Since even a doubling of current projections of resource recovery plant installations by 1985 would still leave over 70 percent of the municipal solid waste stream unrecovered--or 145 million tons destined for disposal--it is clear that waste reduction alternatives must be given serious consideration. Local public agencies, whose solid waste management expenditures dwarf those of the State and Federal levels, have virtually no influence over the types and quantities of wastes produced. Yet we continue to close our eyes to the fact that the producer of what ultimately becomes waste bases his decisions on the costs that he directly experiences, not on the costs incurred by those who must dispose of the wastes.

Waste reduction touches most directly at the heart of the environmental issue. The furor it has caused has been focussed primarily on packaging, but this may be deceptive, for the issue raises a central question which has very disturbing implications for those who hold the view that high energy/materials use and high consumption are necessarily the hallmark of a technologically advanced society. Behind the excess

packaging and the returnable versus the nonreturnable beverage container arguments lie more serious issues concerning, for example, long-lived tires, more durable appliances, smaller cars, more renovation in general and less demolition, and could involve the redesign of many thousands of products to make them require less energy, use less material, and last longer.

Packaging activity in the United States has grown at a very rapid rate over recent decades. Shipments of containers and packaging were valued at \$19.7 billion in 1971, an increase of 5 percent since 1970, and an increase of 82 percent since 1960.

The growth of packaging consumption has led to increased consumption of raw materials and energy, and an increased rate of generation of solid waste. In 1971, packaging accounted for approximately 47 percent of all paper production, 14 percent of aluminum production, 75 percent of glass production, more than 8 percent of steel production, and approximately 29 percent of plastic production. At that time, energy used for production of packaging materials represented an estimated 5 percent of total U.S. industrial energy consumption.

Post-consumer solid waste resulting from the discard of packaging material was estimated at between 40 and 50 million tons in 1971. Packaging was thus estimated to be between 30 and 40 percent of municipal solid waste, based on the EPA estimate of 125 million tons of municipal solid waste in 1971.

The leading edge of the packaging controversy has to do with the

returnable versus the nonreturnable beverage container. For many years, those who advocated use of the returnable beverage container based their case primarily on the litter problem, and those who felt differently countered by offering litter-control programs of one kind or another and by pointing out that littering in general was a personal problem that could be overcome only through public education. But in recent years, as the Environmental Protection Agency finished the resource recovery reports that were called for in the 1970 Resource Recovery Act and the energy shortage hit home, the battleground has shifted. When energy and materials consumption and attendant environmental damage are taken into account, the defense of the nonreturnable beverage container becomes difficult indeed. Difficult, perhaps, but it is defended with great amounts of vigor, determination, and money.

I think these brief facts make it clear enough that, no matter how hard he tries, the local public works director cannot be expected to cope in a really rational and environmentally sound way with the "simple" problem of municipal solid waste management. There are too many contradictions in the system--or non-system, and too many issues with broad national and even international implications clearly beyond his reach. Many extend far back in time.

Historically throughout the economy, the environmental, public health, and direct dollar costs of the disposal of waste have affected only slightly, if at all, the extraction, manufacturing, and distribution decisions of those sectors of the economy which produce the products which account for the size and nature of various waste streams.

Ironically, the progress we are making in air and water pollution control efforts is one of the important reasons why the undesirable consequences of mismanagement of solid wastes are beginning to be noticed. We are finding that more and more of the discards that we once dumped freely into the air or water are now being placed on the land in ways which too often allow them to find their way again into surface or ground waters, or into the air.

We may be on the threshold of accepting the fact that how a society treats its land and manages its solid waste is a fundamental environmental problem, just as air and water pollution control are, with far-reaching public health, economic, and social implications, and with an important bearing on the essential integrity of ecological systems upon which we depend for life itself. We may now be ready to admit that it is environmental folly to continue to consign valuable resources to the trash heap while the world's supplies of resources continue to dwindle.

Those who would turn back the environmental clock and have us believe that our environmental behavior patterns of the past should be continued simply close their eyes to the inherent contradictions in their attitudes. They know, however, that in an open society, it is public opinion which determines national directions and goals, so public concern about energy needs is exploited to the fullest. It is often implied that there is something vaguely un-American in the view that we should conserve resources and use science and technology selectively and with foresightful planning. Considering some of the methods the counter-revolutionists use,

perhaps Congress ought to undertake a study to determine whether the Environmental Impact Statements, known widely as EIS's, now required of federal agencies, should be supplemented by BSIS's to be prepared by advertisers.

The counter-revolutionists know that, ever since the beginning of this decade, the interest and attention of the public are the base on which improved environmental authorities, practices, and attitudes have been built. They are betting that the people are no longer concerned about the forests, plains, and mountains of this planet; about the misuse of natural resources; about noise and pollution. They are betting that the public no longer cares to be involved in the process of technology assessment which is occurring in our country. They are betting that the ordinary citizen is weary of participation in the tremendously important task of making or influencing decisions which in prior decades only the experts were expected to make--the expert scientist, the expert legislator, the expert lobbyist, the expert bureaucrat, the expert politician.

Will they win their bet? Mindful of the Chinese proverb, "To prophesy is extremely difficult--especially with respect to the future," I will, in this Bicentennial and election year, adroitly duck my own question and end my talk with another quotation from Ms. Hannah Arendt. In another of her books, On Revolution, published in 1963, she said the following, which in 1976 seems quite germane to our environmental dilemmas:

"...the revolutionary notions of public happiness and political freedom have never altogether vanished from the American scene; they have become part and parcel of the very structure of the political body of the republic. Whether this structure has a granite groundwork, capable of withstanding the futile antics of a society intent upon affluence and consumption, or whether it will yield under the pressure of wealth, as the European communities have yielded under the pressure of wretchedness and misfortune, only the future can tell. There exist today as many signs to justify hope as there are to instill fear."

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