

THE MORE THINGS CHANGE

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It is a truism for the living environment that life cannot sustain itself on its own wastes. The environment has self-cleansing properties which permit the dilution, reconstitution, and reuse by other natural processes of waste. These self-operative properties are what produces the flow of dynamic change that renews what is renewable within nature. The forces for renewal are powerful but they are not infinite. Already mankind has found the means to disrupt them in part and, unless steps are promptly taken to counteract the present trends, mankind will inadvertently and indifferently risk their total disruption.

In this light, the Air Conservation Commission of the American Association for the Advancement of Science in 1965 made a dramatic announcement about what they considered a necessary limitation upon human conduct.

"Any environment must be self-cleansing in order to sustain life. Unless the environment can dispose of life's by-products, life will cease."¹

What prompted this utterance and turned a truism into melodrama was the condition of the metropolitan atmosphere as the result of pollution emanating from four sources in high energy culture: motor vehicles, thermoelectric power generating stations, industry, and households because of their space heating and trash incineration.² The atmosphere had been turned into a sink by all of this and conditions, previously known only indoors, had been made a commonality outside in the general air supply for urban regions.

Much of this air contamination had been due to the efforts of urban-industrial civilization to introduce amenities within the home and factory by displacing objectionable substances into the outside air. At first the effect on the outside air, similar to a small amount of pollution discharged into a flowing stream, was not noticed. But as industrial development and urban concentrations progressed, the outdoor conditions acquired noticeably deteriorated characteristics that had once been known only in tightly confined spaces.³ Such amenities as indoor comfort and the luxury of private motor cars had been purchased at the price of polluting the formerly common air supply.

Through most of man's own biological history, his environment has been "characterized by the virtually unlimited availability of what we now refer to as 'pure air'. Only after humanity learned how to release the energy stored in plants and fossil fuel was this sort of environment modified by emitted waste. However, for thousands of years this energy conversion took place in low energy culture. Whatever the case of air pollution at the advent of fire's discovery by man, it was not until high energy culture that the products of combustion, along with other by-products of human activity, formed that massive pool of substances in the atmosphere to which man must now genetically adapt himself.⁴ The significance of this is as yet unknown. The time to accumulate a perhaps fatal experience has been insufficient. Furthermore, the atmosphere still possesses a truly formidable capacity to dilute, disperse, and destroy an enormous list of substances man chooses to indifferently discharge into it. The renewing environment's powers have till now indulged man in his use of them as sinks, but the time of that indulgence is drawing rapidly to a close, if it has not done so already.

The AALS Air Conservation Commission certainly did not take a position favoring environmental purity. So far from being advocates of atmospheric purity were they, that they defined pollution as the condition which

". . . occurs when these processes cannot keep up with the rate of discharge, and when . . . [there] is . . . a susceptible receptor, such as man."⁵

Very little shrift was extended to other life organisms. Air was viewed by them in terms of its physical properties and these had importance to the commission only insofar as they had bearing upon human well-being. Pollution was not something emitted into the atmosphere. Pollution was the result of the aerial processes being unable to keep up with the pace of the emissions. Nature had to the commission rather the value of a caged canary in a mephitic mine.

This attitude concerning the activities of high energy culture in its atmospheric emissions was underscored in the commission's six-point air pollution control and air conservation program. Even it would be regarded as too extreme, of course, by those zealous advocates of all the "benefits" and "amenities" of high energy culture who delight in denouncing all critics of those individuated pleasures as "doom-writers".⁶ The proposals, though, were really minimal, being intended to

". . . take into account (i) the volume and mobility of the air mass overlying the area where emissions occur; (ii) the interaction of pollutants and the self-cleansing attributes of the atmosphere; (iii) the topography of the region and any effects it may have on dispersing pollutants; (iv) the variables of meteorology; (v) the existing pattern of industrial practices, transportation, use of land, production of energy,

and all matters that pertain to their further development; and (vi) the range of sensitivity of human beings, plants, and animals in the region."⁷

Helpful as all these might be -- and, since the Air Quality Amendments Act of 1970 with its subsequent state enabling acts, may have become -- they call for no basic change in high energy culture. Instead, what they urge is a determination of nature's full ability to serve as a sink for waste. Every suggestion is cast in the form of using nature's resources to the fullest extent possible and of exploring the full range of the sensitivity of all living things, other than man, rather than making hard questions about the necessity internal to the maintenance of high energy culture of its present undifferentiated and open-ended demand structure.

It is a long-established demand structure and sometimes ancient documents are dug out of the files that impose a powerful sense of deja vu upon their readers. It is as if there is no new knowledge about man's responsibility to nature. They leave one with the sense that all that has been needed to be known was known long ago, and that man has chosen simply not to act upon the basis of that knowledge. Nature is exploited; the living and renewing environments are used as waste sinks; ecosystems are broken; and all of this is done with the knowledge of what is happening. But the knowledge, when contrasted with the demand for the individuated profits, becomes a matter of indifference. Such a document was uncovered in the records of the city of Cleveland in 1972 and concerned a report prepared in 1891 on the condition, effect, and treatment of air pollution in that city -- and all of the reasons given then as to why nothing could be done. As reading for a late 20th century reader, it is enlightening and disheartening in about equal parts.

In that year, J. E. Arthur, Professor of Botany at Purdue University and a consultant on the report, could say that the trees in Cleveland, the Forest City, were in "really deplorable condition". He insisted,

"I am fully convinced that the chief difficulty with these trees arises from the be-fouled condition of the atmosphere. The great amount of soft coal used for heating and in the production of power by the large manufacturing establishments and of crude petroleum burned at the refineries . . . covers trees, buildings, and other objects with a thick coating . . ."⁸

From the coal and oil being burned at that time, he reported that great quantities of oxides of sulphur were being emitted. It was his conclusion that ". . . the sulfurous acid forms when sulfur oxides produced during combustion combine with water vapor in the air". He was as unconfused about the reaction of water with oxides of sulphur in 1891 as he could have been in the 1970's.

The views of this consultant were supported contemporaneously by the chief of forestry of the United States Department of Agriculture, B. E. Fernow. This official informed Cleveland that its problems were not different than those of Pittsburgh and St. Louis. For all of them, the problems of air pollution were largely the result of particulate ash and oxides of sulphur. What gives Fernow's remarks an even more modern ring were his recommendations as to how the problem could be dealt with in order to reduce the effects of the pollution or to prevent the emission of the pollutants. It was his suggestion that this be done by the erection of high stacks, or by "smoke washing devices", or by the use of such a binding agent as lime for trapping the pollutants. In 1891 this federal official already had recommended in principle the same sort of control measures that had the United States Environmental Protection Administration in a quandary almost nine decades later: intermittent high stack policy, or precipitants, or the use of a limestone sludge.⁹ Truly, one could fervently say that the more there is change, the less change is made.

And if this could be said about air pollution conditions and suggestions for controlling them as between 1891 and the 1970's, the truth holds even stronger for the industry reaction to the report at that time. Industries' reasons then for not doing anything were no different than they were to be nearly nine decades later. What were they? First of all, industry, with a pious concern for air conditions, claimed high stacks would offer no solution since they could only spread the pollution by deteriorating whole air sheds. Environmentalists in the 1970's would agree with that, although by now industry would seemingly be pleased to settle for an intermittent high stack policy as the primary reliance in the battle to control air pollution. But that was only the opener in industry's 1891 defense. More importantly, industry insisted that there were no methods for removing sulphur oxides from air emissions. And more significantly, there was nothing "economically reasonable" or "technically feasible" for cleaning up the air in Cleveland.¹⁰ For those who have listened to industry spokesmen in the 1970's, the 1891 arguments almost seem like a rehearsal, a preview surviving from another age.

Certainly when this old report was re-read by Cleveland's commissioner for shade trees in 1972, he could only tell an interviewer the problems were no less severe than they had been in 1891 when the report had been filed with the old municipal division of public works. The major changes in the interval had been the substantial stoppage in the use of coal as a means of home heating and the arrival of the motor vehicle, burning gasoline and other distillates. What the city had attempted to do had been to "plant against pollution". It had found that the pine, the spruce, and the sugar maple had been the best indicators of severe air pollution. These, consequently, had been the most vulnerable to eventual elimination in a metropolitan area where the Cleveland Flats daily provide an exhibition in what an urban-industrial civilization means to nature. The Cleveland municipal government has for years planted only those trees which would best resist air pollution

on the assumption that air pollution is not going to stop. No one familiar with Cleveland would find that conclusion at all unpredictable in its accuracy.¹¹

Yet, realistic as the "plant against pollution" slogan sounds, it is not economically reasonable or technically feasible itself in the long run. It means that severe and worsening air pollution conditions are accepted as an unchangeable state of affairs so that the vulnerable species are eliminated first by the impact of the aerial pollutants and then by the decision not to replace them. Ultimately, though, all species have vulnerability to the air conditions when pollution reaches severe enough levels. One has to admit the value of trees in lowering certain pollution levels. The illusory appearance of forestation that many American cities have when viewed from a high building is a valuable resource for counteracting many of the varieties of pollution. To say that "planting against pollution" is inadequate is not to say that there has been no worth to nature in the program. But it is to say that, in the face of high energy culture wishing to use nature as a waste sink, it is doomed to failure. Eventually, at some point, the rise in pollution levels must become intolerable to all varieties of urban plant life. The necessity for the New York penthouse dwellers to wash their plant leaves each week indicates the limits for plant life under the imposition of massive air pollution.

The attitude of industry since 1891 has scarcely changed. Now as then the industrial managers insist that all known methods for eliminating sulphur oxides are "too expensive and too unreliable". Suggestions for pretreating fuels for the chemical removal of sulphur are given little higher priority than the cleaning of the emissions themselves. In the years of the mid-1970's, many have taken to their hearts the energy crisis as the ideal excuse for making no change at all in the accepted ways of converting fossil fuels to energy. They can agree that there is no extensive possibility of converting all energy sources from high sulphur coal to low sulphur coal, oil, or natural gas because either of the relative scarcity of the latter, or because of the environmental problems of ground restoration in the arid regions where the low sulphur coal is located, or because of the difficulty in handling the increase in particulate waste which the use of low sulphur coal would produce. Beyond this, however, there is little agreement.

The men who watched the trees dying in Cleveland from the sulphur content in the coal and oil during the late 1880's and early 1890's could return from their graves in the mid-1970's with a minimum of shock insofar as any overall improvement in air pollution would be concerned. They would find less particulate matter but they could still stand on Fair Hill, look to the horizon of the lake, and watch the pyrotechnical display over the Flats. The violence of it would still come home to them the way the concept of violence is brought vividly to the attention of a man who receives his first direct blow to the pit of his soft belly.

There have been changes, of course. There are pollutants in quantities from the automobiles which were not present then. A hugely larger metropolitan area suffers from the conditions of air pollution than was the case ninety years in the past and a much larger number of people have been brought under the influence of this severe air pollution. But the leaders of industry are still saying that very little is at all feasible or economically reasonable about removing sulphur from either the fuel or the smoke emissions when the fuel is burned; nor will there be anything much possible for a good many years.¹² For them, as for their predecessors in 1891, what is needed is a blanket delay and the pious expression of hope that someday some different course of action might be possible. Those who came back from their graves to the mid-1970's, with the 1891 report still in their minds, could really wonder if anything at all different had happened: urban industrial growth still insistent in how the resources of nature must be used to serve that growth and government still pliable in the presence of that insistence.

To behave in such a way over so long a period of time, when knowledge was available for further pursuing, is a datum. To watch the quality of the atmosphere deteriorate, to perceive the harm done to certain species of trees, to observe the biophysical bases of the urban environment decline decade after decade, to see so little change in nature while the rhetoric of the environmental revolution rolled on, serve to accumulate additional data of equal significance. For anyone who looks at the relationship between high energy culture and the environment that surrounds its demand structure, there has to be grave doubt as to whether a fairly long-run stability is possible.

One might be pleased about the strength of the current insistence on environmental protection in the presence of the demand levels of high energy culture. Still, the old attitudes exert a pervasive influence on behavior, even behavior that superficially is not exploitative of the environment. It is an influence that is felt in the way data is gathered for declared purposes of environmental protection. This is due to the fragmented character of all that relates to the living and renewing environment under the present demand structure of high energy culture. The result is that more current production of nature presents a Janus-face. One side is turned toward methods that would reflect the unity in nature; the other remains facing nature as something to be processed into human units of production and consumption. It is the latter direction that continues to serve as a contribution to the problem rather than as any sort of solution.

Much of the work being done by public authorities is not done for the forward-looking purpose of producing integrated action. It is carried on simply as a reflection of past needs and traditions.

In bureaucracy, archaisms stay on because no one seems able to find the bases to change them. Such decisions for change are more often political acts than technological ones; and this is often lost to sight by those making the criticisms. The fragmentary character of high energy

culture has created a political organization which justifies bureaucracies accumulating avalanches of disordered data. The result is a governmental action-reaction pattern that gives very limited significance to the data being taken and recorded by government, as pointed out with asperity by a Rutgers University study. As they note with technocratic disdain,

"Budgetary fluctuations and crash sampling efforts in response to crises . . . [produce] a vast avalanche of data in varying states of order and disarray. Taken together, these data do not add up to a congruent body of information . . ."13

What has made the encysted bureaucratic conduct a survivable possibility is that technology often passes by and makes comfortably irrelevant the data being so scrupulously collected by the supporters of the old ways.

However, this is more political than it is technocratic behavior; and the change has to be political. The pressure is growing politically in the late 20th century to adopt techniques that will reflect totally the extent of pollution and the sort of abatement of that pollution that might exist in any region where measurement is being conducted. There are so many interrelated connections that the inherited traditional way of considering them in a fragmented way is becoming less politically palatable. What might air abatement measures, for example, require? Possibly the use of cleaner fuels. If these are not available, then the collection of potential pollutants before their release to the atmosphere, or process changes meant to reduce emissions, or changes in transportation use systems that put a limitation on motor traffic in restricted zones. Manufacturers could be ordered to relocate either to prevent excessive build-up or to concentrate it. Activities could be temporarily suspended during emergency episodes; industries could be grouped geographically; or industry groups could be given relief from the anti-trust laws so that they could develop co-operative plans to jointly limit emissions. When the basic subject of the tests is the ambience of the air, these are all interlocked procedures because any one of them could be the means of relieving the pollution situation.

The demands which high energy culture will make upon nature must affect the bases and the subjects of measuring, monitoring, and model building by those charged with gathering data for environmental protection. Where the agencies charged with this function refuse to recognize the point of origin for the environment's difficulties and isolate themselves in technical exercises, any "solutions" they purport to offer can only intensify the problems. All decisions must be unraveled in order to show the extent of their effects. If an election is made to weight future decisions in favor of clean air users rather than waste emitters, the result of this election must affect the measurement studies in ways that would have had to be quite different if the opposite election had been made.

The renewable environment cannot continue to be treated as if it were a piece of machinery to be cannibalized and worked in as spare parts into other processes as needed by them. There is a collective worth in nature that constitutes a conferred value on humanity. In this sense, the value far transcends anything which mankind purports to confer through the employment of the price structure upon whatever is found in nature capable of reflection in price terms. Price simply cannot comprehend the worth of the life support mechanisms in nature. Any human action which does not rest upon this position lacks all practicality.

Treating nature in any of her systems as an inexhaustible source of supply or as sinks for wastes are practices that cannot continue as they have for so long. The political organizations that have been indifferent to the collective good, except as it could be made specific through granting contracts or making employment for waste treatment processes, must become more aware of the vital worth to mankind as a living species of the collectivity of nature. A competence must be created within the political and economic institutions of high energy culture capable of doing this; and stories of how difficult this must be shall have to be put in their proper perspective of survival versus a grave peril to survival.

Environmental protection, therefore, cannot be served by just creating another agency, or setting up another public measuring organization, or doing any of the discrete, isolating actions that have been considered solutions in the past. Solutions they are not. Instead, they are likely to perpetuate the fossilization of past practices in a fragmentary institutional setting incapable of being pulled together for integrated behavior and useful only as a clog to change, however badly the change might be needed.

But change of this sort needs no fettering. If mankind are to keep for themselves the major part of the values they have taken from nature, this realization is going to have to be acted upon very promptly. If mankind refuses, then the time will fatally go by in which positive action of any kind would have been possible.

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3. Ibid., p. 24.
4. Ibid., p. 23, p. 25.
5. Ibid., p. 36.
6. Such as the critic John Crosby from whom the term is taken, quoted in Roberto Vacca, THE COMING DARK AGES, tr. J. S. Whale, New York: Doubleday, 1973, pp. 2-3.
7. AIR CONSERVATION, op. cit., pp. 9-10.
8. William McCann, Cleveland PLAIN DEALER, July 22, 1972, p. 2B.
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10. Ibid., loc. cit.
11. Ibid., loc. cit., interviewing the Cleveland commissioner of shade trees, Hon. Ralph Ververka.
12. For example, see David Lore, "OEPA Buffeted by Crisis ", COLUMBUS DISPATCH, February 3, 1974, p. 19A.
13. G. W. Carey, L. Zobler, M. R. Greenberg, R. M. Hordon, URBANIZATION: WATER POLLUTION AND PUBLIC POLICY, New Brunswick: Center for Urban Policy Research, Rutgers University, 1972, p. 42.