

# WELCOME TO THE CONFERENCE

*Leo Weaver \**

LADIES AND GENTLEMEN: Welcome to the Surgeon General's Conference on Solid Waste Management for Metropolitan Washington.

I have only a few brief remarks to make before we turn to the major business of the conference.

We have some preliminary information on attendance figures based on the list of people who had pre-registered for the conference by yesterday afternoon. These figures are a little out of date by now, but they give some indication of the wide-ranging interest in the subject of this conference.

Of the 310 persons who had pre-registered as of yesterday, 130 represented citizens' organizations, business and professional groups, private industry, and other segments of the community outside of official government agencies. Sixteen Members of Congress or their representatives were pre-registered, 38 State officials, 53 officials of local and regional government agencies, and 73 persons representing the Federal Government.

We will have more up-to-date registration figures as soon as they can be compiled.

Now I would like to say just a word about the organization of the program.

The first plenary session this morning is intended as an introduction to the conference by the two people who had most to do with its being called — the Surgeon General of the Public Health Service, Dr. William H. Stewart, and Senator Joseph D. Tydings of Maryland.

Following these two keynote addresses, Dr. Richard A. Prindle, who is an Assistant Surgeon General of the Public Health Service, will discuss the health implications of the solid waste management problem, a subject that is, of course, of vital interest to us in the Public Health Service, but certainly no less vital to the people of Metropolitan Washington.

The panel session this afternoon is designed to present a status report on the solid waste problem of the Washington area as a background against

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which the two concurrent panel sessions scheduled for tomorrow morning will proceed to explore the technological and the planning aspects of the overall effort to control the solid waste problems of this metropolitan area.

Finally tomorrow afternoon we will hear the reports of the panel chairmen and then I will attempt to summarize what has been said at this conference in terms of a pattern for future action.

In addition to these formal sessions, we have been fortunate in arranging two luncheon meetings at which we will hear two distinguished speakers, Dr. Royce Hanson, President of the Washington Center for Metropolitan Studies, and Senator William B. Spong, Jr., of Virginia, who, with Senator Tydings, has been keenly interested in the development of this conference.

I do not want to delay the business at hand any longer. Let me just say that we are very glad to welcome you to this conference. We are assembled to discuss a subject of urgent importance to the people of the metropolitan Washington area and to the entire nation. I earnestly hope that what we do and say here in the next two days can help to provide a pattern for action that will serve as a model of the best that can be accomplished when people with a common problem come together to figure out how to meet that problem.

## INTRODUCTION OF KEYNOTE SPEAKERS

*Jerome H. Svore \**

THE SURGEON GENERAL has said many times that one of the most serious threats to the health of the nation lies in the environmental hazards of the American cities. This, of course, is where the majority of the people in the United States live today. Thus, he has directed that top priority be given to the work of the Public Health Service in this new center of Urban and Industrial Health.

One of the programs within the Center deals with the subject that we will be talking about here today — namely, solid wastes. The Surgeon General, working closely with Senator Joseph Tydings of Maryland, has convened this conference on solid wastes problems of the Washington Metropolitan area for two reasons: In the first place, he has stated that the time to cope with the serious pollution problems in the District of Columbia and in neighboring Maryland and Virginia, is long overdue. Secondly, he has said that Washington should serve as a model for other cities throughout the nation to emulate in ridding themselves of pollution hazards. I am honored to be able to introduce to you the Surgeon General of the Public Health Service, Dr. William H. Stewart.

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\* General Chairman of the Conference, and Director, National Center for Urban and Industrial Health.

## CONFERENCE KEYNOTE ADDRESS

*William H. Stewart* \*

I AM PLEASED to welcome you to this conference and to share with Senator Tydings the job of sounding a keynote for your deliberations during the next two days. I haven't checked with the Senator to make sure that his keynote and mine are tuned to precisely the same pitch, but I know that he and I agree as to the theme.

Metropolitan Washington shares with every American community the tough, practical problem of what to do with megatons of wastes generated by the processes of modern living. It shares with the larger urban centers the confrontation between the fact of jurisdictional boundaries and the necessity of metropolitan unity.

In addition, Metropolitan Washington bears a unique burden. Our mantle of smoke from smoldering refuse is more than a local nuisance. The dirt and refuse in our alleys is more than a local disgrace. This is the nation's showcase city. The millions who come here should find a model environment. Instead, when they look behind the monuments, they find something less.

I hope that this meeting may represent a step toward that model city we all want for our nation's capital. I hope that in the years ahead we can look back to this day and say that here and now Metropolitan Washington began to create for itself a truly healthful environment.

What kind of a healthful environment are we after? It seems to me that it has two important dimensions.

The first, of course, is the dimension of safety. Later this morning Dr. Prindle is going to talk about the specific health hazards inherent in the unsuccessful disposal of wastes. They are, as you know, numerous.

Some of these hazards relate to the familiar public health problems of communicable disease, the problems associated with filth, rats, and vermin which we know how to control but can never afford to overlook.

Others are newer, less completely understood, harder to handle. These stem from the increasing quantity and variety of chemicals released into the air from many sources including the imperfect burning of solid wastes.

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Every year we are learning more about the damage done when we breathe this kind of air, day in and day out. Everything we learn makes control of this kind of pollution increasingly urgent.

Thus the first objective is an environment that is safe, free of specific hazard to health. No individual, no family should be exposed to unnecessary, preventable risk as the price they pay for urban living. This, I submit, is an absolutely minimal objective. Yet in very few places have we achieved even this minimum. Certainly we have not done it here.

Meanwhile we are beginning to aspire to a higher definition of the healthful environment. We have recognized that the healthy person is not merely un-sick. And we are beginning to envision an environment that is not merely safe, but positively conducive to productive and self-fulfilling existence.

The Congress, in its declaration of purpose accompanying the Comprehensive Health Planning Amendments enacted last year, stated this higher goal in these terms: "The fulfillment of our national purpose depends on promoting and assuring the highest level of health attainable for every person, in an environment which contributes positively to healthful individual and family living . . .".

Where does the Kenilworth Dump fit in that context? Can we find ways of jurisdictional cooperation that will move Metropolitan Washington forward in reaching this national purpose?

This is the second dimension of the healthful environment. It demands concern for sanity as well as sanitation. It involves us in combat with ugliness as well as with hazard.

Happily, the successful disposal of solid wastes moves us forward in both dimensions at once. Unhappily, neither motivation alone nor both combined has yet moved us to the kind of action the situation requires.

What kind of action? It seems to me that two major thrusts are needed. One is national in scope — a serious, large-scale effort to generate new and better ways of disposing of solid wastes. The other is local — a serious, large-scale effort to put into practice, here in the Washington metropolitan area, the best methods now available.

The national thrust is essentially one of research and development. The basic technologies for waste collection and disposal have remained relatively unchanged during a quarter-century in which the size of the problem has magnified enormously. The methods used — incineration, landfill, composting, salvage and reclamation — have been studied here and there,

refined in certain ways, occasionally used in an imaginative way. But to my knowledge there has been no great advance.

Neither has there been an effort to achieve such an advance on a scale commensurate with the size of the problem. We spend in the United States upwards of \$3 billion to collect and dispose of refuse and other solid wastes. How much have we, as a nation, spent to find a better way of doing it?

This, it seems to me, poses a special sort of challenge for our nation's engineering schools. Increasingly over the years, and at a very rapid rate since World War II, we have looked to the universities and their professional schools for the new knowledge and techniques that change the face of the world. This has been notably true in medicine and in chemistry and physics. It is also significantly true in the behavioral and social sciences.

Is there a partnership evolving in the engineering world between the university and society, similar to these others? My impression is that there is an excellent partnership in improving the means of production and increasing output. What we urgently need in addition is a partnership devoted to problems of consumption and disposal of unconsumed wastes. Having engineered a beer can that is easier to open, we need to engineer a better way of getting rid of the can afterwards.

This is a facetious example of a deadly serious problem. Every day our urban communities produce more than 800 million pounds of solid wastes. I have not the slightest doubt that American science and technology can develop better disposal methods, if we can find a way to harness them to the task. How can we stimulate high priority attention to a problem that has been accorded the lowest of low priorities in the past?

Let us turn now to the local challenge, here in the Washington area. It differs from the national challenge in nature and scope. But it is no less complex, and it is certainly no less urgent. This is the challenge of doing something now to make the Washington area a better place in which to live. For if it is true that existing methods need to be improved, it is equally true that these existing methods, whatever their shortcomings, can be applied to far better effect than they are now, right here in this city and its environs.

You will be spending today and tomorrow searching for ways of doing just that. In your discussions I hope you will base your thinking on the fact that the Washington metropolitan area is essentially indivisible.

I can understand, and even sympathize with, the suburban attitude summed up in the phrase, "Not in my back yard." Unfortunately, how-

ever, life in the metropolis is not that simple. The city of Washington is everybody's front yard. Whether or not the smoke from Kenilworth or one of the old incinerators ever blows our way, every one of us partakes of the total environment of the Washington community. This is true of the air we breathe, the water we drink, the transportation we use, and the wastes we accumulate. Going it alone means going it badly; in the long run it also means going it expensively.

The situation here is complicated in many ways — by the unique political nature of the Federal City; by the fact that the District is completely hemmed in with nowhere to expand, nothing to annex; and by other special circumstances added onto the normal complexities of any major metropolitan area.

Yet despite these obstacles there are beginnings of effective metropolitan cooperation in some fields — sewage disposal, water supply, and others. I see no reason why solid waste disposal cannot be added to the list, from this day forward. In fact I see no reason why it might not set a pattern for improved collaboration in other areas as well.

We in the Public Health Service are eager to help in any way we can. The Solid Waste Disposal Act of 1965 has given us specific mechanisms for assistance for the first time. Our new National Center for Urban and Industrial Health will provide the strongest central focus yet developed for work in this field.

Needed now is a focus and a determination to build a more healthful environment for our national capital and all its people. That, I hope and believe, is what you are here to develop.

## KEYNOTE ADDRESS

*Joseph D. Tydings* \*

MR. CHAIRMAN, DR. STEWART, LADIES AND GENTLEMEN: I am delighted that, under Dr. Stewart's direction, the United States Public Health Service has convened this conference on solid waste management for the Washington metropolitan area. And I am equally delighted at the impressive response shown here today by the leadership of the community. This conference hopefully will mark the beginning of wide-ranging community effort to anticipate, and to find solutions for the burgeoning problems of solid waste disposal in the Metropolitan area.

It seems to me that there are three vital ingredients to successfully meeting these problems. The first ingredient — and in many ways, the most important — is public awareness that the problem exists and public demand that the problem be solved. Recently — but only recently — this public attitude has been evident regarding solid waste problems. The growth of national awareness regarding the hazard of air pollution has been the key. And this growing public awareness has been quite remarkable.

Ten years ago, air pollution activities in most areas of this country were limited to smoke control ordinances. The prevailing national opinion was "if you can't see it, it can't hurt you." In a brief decade, we have realized how short-sighted — how dangerously short-sighted — this view was. Increasing public attention has been focused on the serious health hazards created by pollutants and gaseous wastes in our atmosphere. And the economic consequences of pollution — losses to business and farms — have become clear.

As public concern about air pollution has grown, the link between solid waste disposal and air pollution has become evident. In terms of arousing public opinion, you might even say that we in the Washington area are 'fortunate' to have the Kenilworth Dump in our midst as an object lesson in the link between solid waste problems and air pollution problems. After seeing the full-page pictures of the dump in *Time* magazine a few months ago, some of my colleagues in the Senate suggested to me that my campaign to end the fires might deprive the rest of the nation of a valuable example of what must be avoided. This suggestion could initiate the formation of a national committee to preserve the Kenilworth Dump. I have some different ideas about this, which I'll discuss later.

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\* United States Senator from the State of Maryland.

But we must acknowledge that the Kenilworth Dump has served one constructive purpose — it has dramatized the problem of solid waste disposal for the citizens of this area. And the general national concern regarding the dangers of air pollution has also dramatized the problem for us. Earlier this year, I conducted six days of hearings on air pollution in the Washington area, and one particular incident from those hearings illustrated for me the growth of public awareness of these problems. One of the witnesses at the hearings was S. Smith Griswold, an Associate Director of the National Center for Air Pollution Control. In response to a leading question from me, Mr. Griswold stated that Washington, D.C., was the fourth dirtiest city in the United States. This statement — as I am sure many of you recall — caused something of a furor in the area. The press immediately picked it up, and denials were forthcoming from many sources. “Washington is not fourth dirtiest,” some said. “It’s the fourteenth dirtiest, or the fortieth dirtiest.” But this numbers game didn’t fool anyone. The businessman going to his office — where the windows had been washed last month and were now streaked with dirt again — and the housewife taking down her drapes again this year because they were covered with soot — suddenly realized that Washington was a dirty city. And most importantly, they realized that this dirt was not necessary. Something could be done. From that conclusion, it is a short step to say, “Something *must* be done.”

I think that step has been taken in the Washington area. That is why all of you are here today. You are here because you are willing to acknowledge our public responsibility to build on citizen awareness of the problem of air pollution and solid waste disposal. You are here to do something about the problems.

Now we must search out the second vital ingredient for meeting the problem. That is the existence of an adequate technology. The basic purpose of this conference is to bring forward the latest technology for meeting the solid waste disposal problem.

We in this area have much to learn. It is obvious to me, from simply reading through the program for this conference, that the participants at this conference have a great deal that they can teach to us.

One lesson is obvious. We must put ourselves in a position to examine the problem, and possible solutions to the problem, from all possible angles. It is not enough for us to assume that the recent trends of vastly expanding per capita production of solid waste must continue. We cannot simply say, “In the next ten years public authorities will be responsible for disposing

of an amount of solid waste which will grow at the same rate as has occurred in the last ten years." We must make a determined effort, first of all, to stop the production of waste before it becomes a public responsibility.

For example, when the container industry in the last several years, moved almost exclusively to "throwaway" bottles, cans and cartons to replace the returnable bottles, it had much greater impact than simply removing a good source of income for young boys who were energetic enough to round up a collection of bottles to exchange for the two-cent deposit. Of course, I don't want to minimize that unfortunate result of the movement to "throwaways." But the container industry also brought the nation a vastly expanded public problem of solid waste disposal. I am sure that this consequence was not brought dramatically enough to the attention of the container industry in order to prevent considerable investment in new facilities. In the future, we must be able to anticipate these problems.

Dealing with the container industry was perhaps necessarily a responsibility for the Federal government, in view of the national character of the issue. But whenever new construction, or new production methods, are brought to any locality, local officials must be alert to the possible problems of solid waste disposal that these new methods or new buildings can bring with them. Both through consultation and through regulation, authorities must focus attention on ways to avoid production of more mountains of solid waste.

In short, we must engage in farsighted planning to meet our problems — in this area as in all others. And we must bring to bear all possible technical assistance. The architects who design buildings, the engineers who design equipment, those active in the construction trades who make waste in the process of constructing buildings, and whose buildings in turn make more waste — all of these experts, and many more, must be involved in planning to meet solid waste problems. To paraphrase a famous statement about war, solid waste disposal problems are too complex and too interrelated to the whole functioning of our industrial society to leave exclusively to the sanitation engineers.

Public awareness of the problem is the first step. We have that now. The second step in meeting the problem is tapping all possible technological assistance. We are making an excellent beginning — though only a beginning — at this conference today. The third step which I want to discuss as a vital ingredient in meeting the problem is to ensure that our institutions of government are properly organized to use the available technology for meeting the problem.

To many people, the political problems appear the most intractable. But unless we can solve these problems, we cannot solve our problems at all. The Kenilworth Dump serves, once again, as a dramatic example. After burning and polluting there since 1942, public awareness has finally become sharply focused on the need to eliminate the dump. A variety of technological means were immediately evident for solving the problem — and, as at least a short-run and rapid solution, a sanitary landfill seemed the best candidate. Congress has acted to make funds available. But today the fires still burn.

I do not wish in any way to belittle the difficulties that stand in the way of ending the fires. I don't want to suggest that those citizens who live near the proposed site for the sanitary landfill are in any way wrong to insist that one public nuisance — the dump — must not be replaced by another, closer to their homes. These citizens have legitimate interests which must be satisfied.

Of course, the citizens of the metropolitan area generally have equally legitimate interests in ending the fires and the resultant air pollution at the dump. It is a truism that these fires are a regional problem. The pollution they cause is not restricted to the boundaries of the District of Columbia. Prevailing winds don't restrict themselves to one jurisdiction rather than another.

But even though the Kenilworth Dump is obviously a regional problem, our political institutions at least at the moment seem incapable of viewing, and acting on, the problem with a true regional perspective. Each day that the fires at the dump burn is another indictment of the inadequacy of our institutions of government. If we can't solve this blatant, outrageous problem, I can't see how we can hope to meet any of the regional problems of air pollution control and solid waste disposal, that will confront us in a very short time.

This conference is not only an opportunity for learning, and anticipation of future problems. It is also an occasion for informal consultation, and solution of present problems. I am hopeful that, during the course of these two days, some solution toward ending the fires at Kenilworth will be begun.

The problem does not rest solely on the shoulders of the District officials. Nor should it rest exclusively at the door of the Prince Georges County government. And the problem must clearly not be 'solved' at the expense of the legitimate interests of the citizens living near Muirkirk. The pollution from the fires does not end in the District, nor in Prince Georges County.

The air of the entire Metropolitan Washington area is polluted by the fire. It is inconceivable to me that somewhere among the many resources of this area, we cannot find the means to solve this problem.

For the long run, I believe you should explore the question of whether our regional solid waste disposal problems can best be solved by some formalized system of regional cooperation — perhaps a compact arrangement, or an outgrowth of the Council of Governments, or some other form of regional consultation and cooperation. We cannot depend on improvisation and makeshift arrangements indefinitely. The problems are too great for that. But at the moment, regarding Kenilworth, we have only the possibility of improvisation. And I hope that some inspired improvisation will take place here during the next two days.

Once again, I congratulate the Surgeon General, and the Department of Health, Education, and Welfare, for having convened this invaluable conference. And I congratulate all of you participating in the conference for your awareness of the problems of solid waste management, and your willingness to commit yourselves to solve these problems.

## HEALTH ASPECTS OF SOLID WASTE DISPOSAL

*Richard A. Prindle \**

By THE YEAR 2000, the population of the United States is expected to double. Our cities and their surrounding urbanized areas are already bearing the brunt of this explosive growth with its accompanying increase in industrial activities. This growth, coupled with the rising per capita rate of refuse production, results in an ever increasing volume of solid wastes that must be regularly collected, transported, and disposed.

Refuse disposal facilities in urbanized areas must be operated without creating public health hazards or nuisances. Too often, however, refuse disposal operations are open dumps — festering scars on the landscape. Flies, rats, and other disease-carrying pests find large quantities of food, a favored breeding medium, in the piles of exposed refuse. The polluted drainage from open dumps is an additional insult to ground and surface water supplies in the area. The characteristic foul odors, produced by decomposition, together with the smoke created by open burning, are often identifiable for miles.

Unless an objectionable dump is nearby, the average citizen's interest is limited to having his refuse collected regularly. This lack of public concern is a real handicap to responsible local officials in obtaining the necessary funds to operate adequate refuse collection and disposal systems. Without sufficient funds it is extremely difficult to plan and construct needed facilities in time to prevent them from being overloaded. The technical problems involved have appeared so deceptively simple compared with other environmental problems that only a handful of communities have maintained sufficient records to enable them to determine the costs of providing this service or to make realistic plans for needed facilities.

Each day, urban communities across our nation produce more than 800 million pounds of solid wastes, and by 1980 that figure is expected to be three times higher. What exactly are solid wastes? They include food wastes (garbage); paper, paper products, wood, bedding, metals, tin cans, crockery, glass, dirt (rubbish) and ashes; dead cats and dogs, sweepings and leaves, and abandoned cars and trucks; food processing wastes, lumber

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and metal scraps, and cinders from factories and plants; such residue as lumber, masonry, metals, paints, and concrete from demolition and new construction projects; some radioactive materials, explosives, pathologic wastes from hospitals, and so on, from hotels, institutions, stores, and industries.

Collecting and disposing all these wastes is extremely costly. According to the American Public Works Association, the annual outlay for refuse collection and disposal services — more than \$3 billion — is exceeded only by expenditures for schools and roads. And still the disposal effort is inadequate. There are only slight improvements in disposal practices now in wide use over those of a quarter-century ago.

The United States Public Health Service recently reported the startling fact that less than half of the cities and towns in the United States with populations of more than 2,500 dispose of community refuse by approved sanitary and nuisance-free methods. Open dumps still flourish, contributing to air pollution and serving as feeding and breeding places for rats and flies. Improperly designed municipal incinerators spew huge quantities of contaminants into the atmosphere. A great number of sanitary landfills are sanitary in name only; they have been allowed to deteriorate and pollute the ground water.

It is necessary to remind ourselves that disposal of solid wastes is fundamentally a health problem. Just as we who are concerned with this problem are conscious of the fact that no really new or radically different ideas have emerged in waste disposal operations for half a century, so we must also remember that 46 years ago one of the pioneers in the field laid down three basic requirements for waste disposal. The first was “the absence of danger to public health.” And it still holds true. In other words, the barriers and difficulties we face here are, economic and engineering and jurisdictional, but the reason we are concerned is for the protection of the public health.

Let us examine the nature of the various health factors that create our concern.

The most common disposal system of serious danger to health is, of course, the open dump with its flies and rats. Among the diseases that have been directly or indirectly associated with the insanitary open dump are typhoid fever, cholera, summer diarrhea, dysentery, anthrax, trachoma, plague, and trichinosis. The importance of adequate refuse handling in controlling communicable disease was long ago recognized.

Of more important current significance is the fact that in a large propor-

tion of open dumps, the volume of solid wastes is reduced by regular burning and thus adds significantly to the air pollution problem. Improperly designed and operated municipal incinerators also contribute significant quantities of objectionable air contaminants. Added to these sources, backyard trash burners, on-site incinerators, and on-site open burning of bulky refuse contribute additional air contaminants in most communities.

One scientist noted a few years ago that according to data collected in Statewide air pollution surveys "burning dumps cause air pollution problems in about 25 percent of the urban communities of the country. . . . They are the most frequently reported cause for localized air pollution problems."

Water pollution is also becoming a serious factor in the solid wastes problem. Wherever refuse is deposited on land, the impact on surface waters or subterranean aquifers may be significant. The available information concerning the effects of refuse fills on the quality of the adjacent ground water has been organized and reviewed by a research contractor for the California State Water Pollution Control Board. This study was done because the drinking water supply of a major city was becoming objectionable. The study showed that there are three basic mechanisms by which refuse fills can pollute the ground water: (a) horizontal leaching of the refuse by ground water; (b) vertical leaching by percolating water; and (c) the transfer of gases produced during refuse decomposition by diffusion and convection.

From an occupational health and accident prevention standpoint, solid waste handling presents additional formidable problems. A study of the Department of Sanitation of New York City found that arthritis, cardiovascular disease, muscle and tendon diseases (particularly muscle ailments affecting the back), skin diseases, and hernia could all be classified as occupational diseases of refuse collectors. Sanitation workers were also found to have an extremely high injury frequency rate, exceeding that of all other occupations previously studied, with the exception of logging. The study report also observed that "the rate was more than twice as high as that for firemen and policemen, and surpasses even that of stevedores."

Many fires and home accidents are caused by poor refuse handling practices. Discarded items that are not properly stored for collection are also particularly attractive to children. Unsanitary and unsafe conditions in yards and family refuse storage areas have resulted in literally thousands of minor and severe accidents.

While the accident aspect of the problem is in a sense minor, it illustrates the manner in which the problem is growing. If we carelessly bury our solid wastes we run the risk of polluting drinking water supplies, and we also begin to run out of convenient burial plots. If we throw it on burning dumps, we create air pollution and odor nuisances. If we burn it in poorly designed and operated incinerators, we pollute the air, and we must still dispose of the ash.

In an effort to learn more about the public health aspects or disease relationships of solid wastes, the Public Health Service contracted with the Life Systems Division of Aerojet-General Corporation, Azusa, California, to conduct a comprehensive literature survey of the field. Although there is a paucity of past work on the etiologic factors of solid wastes, an attempt has been made to cover the field comprehensively enough to meet the needs of public health practitioners.<sup>1</sup> From the 1,236 articles, books, reports, proceedings, and other sources perused, 755 abstracts were chosen for reference and inclusion in the annotated bibliography.

No single treatise in the past has attempted to correlate the available information as to various diseases directly or indirectly related to solid wastes. Such a work was obviously desirable due to the complexity of the solid waste public health interface.

Solid wastes have been demonstrated conclusively to be associated with some diseases in the United States. Although the incidence of disease due to wastes is low in the country as a whole, it is demonstrably higher in certain population groups — particularly those suffering from a lack of general sanitation, including proper waste disposal means. In the chain of disease leading from waste to humans, the major point of attack must be those wastes which contain disease agents or serve as sources of propagation for carriers of disease. Wastes must be so handled or treated that the pathogens they contain are destroyed, not merely reduced in numbers, and carriers of pathogens denied access to the wastes for breeding or sustenance. To the extent that known effective measures are not feasible at this time, research should be directed at the development of effective, yet practical, methods.

Since lack of data is extensive in regard to chemical wastes, two major paths are advised by the Aerojet-General report: (a) delineation of the type and degree of contamination of the environment due to chemical

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<sup>1</sup>Hanks, T. G. *Solid waste/disease relationships; a literature survey*. Public Health Service Publication No. 999-UIH-6. Cincinnati, National Center for Urban and Industrial Health, 1967. 179 p.

wastes, and (b) accelerated and long-range studies on effects of chemical waste materials common to the environment in the concentrations found there. The knowledge needed is that of the effect of decades of exposure to trace amounts of waste substances.

Correction measures against disease cannot deal exclusively with a relatively limited aspect of a health problem as complex as that associated with solid wastes. Educational and legal weapons are required. Considering the deficiencies of health education as a whole in America's school system, it is not entirely appropriate to select the public and personal health aspects of solid wastes as the focus of expanded instruction on health. Yet from a system of education developed on this aspect of health, an inclusive health education program of value might arise. Certainly some means developed for use in the schools is needed for breaking some children from the cultural morass of insanitary practice to which their early environment commits them.

Education of industry, the general public, the medical profession, and government officials is an added requirement. Educational and motivational materials and techniques need to be developed for the accomplishment of these goals. Strict legal controls and their enforcement are mandatory. However, regulations must be based on reasonable standards. At the present level of knowledge, it is not possible to adopt standards directed at all aspects of environmental contamination, including sources of solid wastes. For example, research is needed to permit the development of standards on chemical and other contamination arising from solid wastes. In the interim, considering the tendency of contaminants to ignore jurisdictional boundaries, the legal and governmental means necessary for the effective application of regulatory standards need to be developed.

The Aerojet-General report refers pointedly to the hazard arising from compartmentalized approaches to the control of environmental pollution. In almost every action to be recommended for the management of solid wastes there is a parallel requirement which relates to water- and air-pollution control measures. That is, corrective measures (or research directed at their development) cannot be considered separately from overall waste management problems. The obvious conclusion is that environmental health is not a subject for dissection. Specialists may be required for diagnosis, but the therapy must be unified, and even the diagnostic effort must be integrated. The basic requirement, therefore, is an integrated program of study, analysis, and action.

It is reassuring that at last the nation's solid waste problem is becoming the subject of so much high-powered thinking and planning, as evidenced

by the conferees attending this meeting. The attention is long overdue. As President Johnson observed when he signed the Solid Waste Disposal Act in 1965, "Rachel Carson once wrote, 'In biological history, no organism has survived long if its environment became in some way unfit for it, but no organism before man deliberately polluted its own environment.'"

## POLITICS AND TRASH

*Royce Hanson \**

ON A NUMBER OF OCCASIONS in my career as an after-dinner or luncheon speaker, I have been accused of talking trash. This, however, is the only occasion where I am willing to concede the point. I hasten to add that my expertise in this subject is limited to my generation of it, and not to its disposal. I assume, however, because I wish so to assume, that the invitation to me to speak at this conference is based not on my contributions to the problem, but on my interest in regional solutions to regional problems, and that the planners of this conference harbored some vague hope that I would find a clever means of fitting their problem into some framework that I felt overconfident about. Inasmuch as I am the region's foremost authority on what voters will not accept in regional ideas, I have decided to talk with you about the political aspects of solid waste management.

That the subject is one fit for political controversy few here would deny. The hearings on air pollution and this conference itself testify to the political mileage and the political misery inherent in such things as the Kenilworth Dump. The problem is how to meet the political problem of solid waste management. I assume that the technical problems are solvable.

What, then, constitutes the political problem? Let me enumerate a few of the factors in the equation. First, there is the factor of money. Political money is different from economic money. Political money is what people visualize something costing, not its cost as measured against time and benefits. Unfortunately for solid waste, its management costs more than a street-crossing light or another policeman, but not as much as a nuclear power plant or a major dam. Waste management falls within that range of public expenditures which is too large to be considered trivial and yet not large enough to be beyond the comprehension of the average householder. There is also something ludicrous about a society spending more to rid itself of its wastes than to feed its poor. It thus falls prey to ridicule. I recall some years ago the defeat, in a state which shall remain anonymous, of legislation to require the cooking of municipal garbage destined for hogs. It progressed well until one of its opponents tagged it the "Hot Lunch for Hogs" bill. I might add that the same legislature wrecked the school lunch program.

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\* Luncheon address by the President, Washington Center for Metropolitan Studies.

In light of these impediments to financing and to a serious debate of the problem, the devising of political strategy becomes very important. A countervailing factor which has already been introduced into the discussion in this area is the contribution made by present outmoded practices of waste management to air pollution. This is a dramatic and potent weapon. Unfortunately, for the ambitions of the solid waste disposers, the fallout from Kenilworth is relatively limited geographically, and hence it is limited politically.

Finding technically acceptable landfill or incinerator locations is sufficiently difficult in itself. Finding locations that are politically acceptable is even more difficult. In some area jurisdiction there is no suitable space. This means two easily recognized political problems arise. We must ask our neighbors to accommodate our refuse. There is, throughout our country a stout resistance to the intergovernmental commingling of waste — especially illicit commingling — such as now occurs when refuse trucks bootleg one jurisdiction's waste to another's disposal facility. Legalizing this traffic will be a problem of some consequence, but convincing some jurisdictions that it is in their own interest to accept other's debris is more difficult. A major job remains to be done by the region and its governments in developing public acceptance of required facilities. The recent concern of residents in Prince Georges County only underscores this point.

A second, even more difficult political problem relates to the hauling problem. I realize that hauling distance and hauling methods are important technical problems. The hauling route is the political problem. What will the trucks pass? What streets will be used? What will their effect be on appearance, on levels of noise, on the safety of the neighborhoods they traverse? No one really likes to live on the road to the dump. The type of vehicle may also be an important consideration in final development of the long-range system. Large, enclosed vans may be politically preferable, as well as technically preferable, to a constant stream of load packers or open trucks. This in turn raises other questions about the adequacy of existing regulations of both public and private refuse collection vehicles in the metropolitan area.

We can anticipate a period of agitation by local neighborhood associations sufficient to kill important projects unless the ground is well prepared politically through an extensive information and education campaign, and through sensitive accommodation of local feeling. Otherwise, community response to receiving the regional landfill award will be less than enthusiastic.

An intelligent and sensitive public program can, however, abate if not prevent much damaging hostility.

In conferences of this type there is always much talk of subjecting the problem to a systems approach. I heartily endorse this view, and urge upon you consideration of politics as a part of the system. The key to the politics of the system is the average household, which we often overlook in our focus on delivery and disposal. It is the household, however, which generates the work, and which must be politically satisfied to pay for the technical system. Now, let us look at solid waste management from the household point of view, in the context of our regional waste management objectives.

First of all, the household does not ordinarily view waste management in regional terms, except in the rare case where the head of the house finds it necessary to go to the incinerator or landfill himself. The household is primarily concerned with two politically critical aspects of waste management — getting the stuff off its premises as fast as possible and the neatness of the collection service. There is substantial evidence in many cities that good sanitary services to households is good politics. “Backward” cities such as Lima, Peru, provide daily refuse collection. Local communities in the Washington area have cheerfully paid added taxes for better trash collections. I think these lessons ought not be ignored in developing a regional waste management system or improved local systems. Only a very few ever see the landfill, or comprehend its later uses as a regional asset. Everyone sees and smells his own refuse can, and the litter in his yard or the street. I suggest, therefore, that from a very practical political as well as sanitary engineering and public health point of view, there may be considerable utility in linking new programs to better household service as well as to grand objectives such as abatement of air pollution and ex urban golf courses. Most of us can exist with Kenilworth’s fires, but not with a heap of trash composting on the back step. Aside from the political values, it does seem unfortunate that the world’s most disposable society can’t dispose of its throwaways more efficiently.

Finally, there is the problem of the political responsibility and organization for development and operation of a regional system of waste management. The initial impulse will probably be to create a special purpose authority to handle the problem, give it eminent domain and a protected source of revenue. For myself, I am innately suspicious of this approach, partly because of some of the political considerations I have raised. In addition, a regional system of landfills and incinerators should be developed in the

context of a regional plan and regional and local capital budgets. Otherwise, additional political difficulties are certain to occur. The staging of housing development and the planning of transportation facilities is important to both the technical and political success.

In addition, local officials will remain the principal focus of political action, and they should therefore be directly involved in finding a solution and pursuing it. They will probably retain responsibility for what matters to the household — collection. They should therefore retain control over what matters to society — disposal.

It would seem to me, then, that as a minimum, the Council of Governments (COG) is the appropriate organization to provide general policy guidance for development of the system. Since there is, from my point of view at least, a need for immediate action to put out the fires at Kenilworth and to provide other needed planning for the long-range program, there may be a need for a temporary nonprofit corporation, composed of COG directors and staff, to begin the work, prior to the necessary statutes or interstate compacts.

It is in this context that the necessary *quid pro quos* can be developed between refuse producing and refuse disposing jurisdictions. It is in this context that effective planning and staging can take place. And it is in this context that political saleability for the needed system is most likely to occur.

If COG cannot respond quickly and effectively, another approach will have to be devised, but I am confident that the political climate is now conducive to positive and progressive action. Moreover, there is no quicker, surer way presently at hand. I see no reason why, with the work now in progress and the threat of Congressional action, a decision could not be reached within a few months — or even sooner on immediate problems such as Kenilworth. We should, and can, avoid another regional special purpose authority. If we cannot, we will have to undergo another conference at some future date, on the disposal of our governmental waste products, and the answers to that kind of problem are even more complex than those you are considering today.

## SOLID WASTE DISPOSAL STUDY FOR THE WASHINGTON METROPOLITAN AREA

*L. W. Bremser \**

TYPICAL OF MANY large metropolitan areas, the Washington metropolitan region has refuse disposal problems which virtually defy solution except by cooperation between, or among, jurisdictions. Recognizing this, the three principal planning agencies for the metropolitan area, in July, 1965, authorized a study of refuse disposal covering the entire region. The Northern Virginia Regional Planning Commission, the Metropolitan Washington Council of Governments, and the Maryland-National Capital Park and Planning Commission jointly sponsored the study which was partially financed by a grant from the Home and Housing Finance Agency (HHFA). The study has been completed and a review report has been submitted.

The Washington metropolitan region, shown in the frontispiece includes the District of Columbia; Charles, Montgomery, and Prince Georges Counties in Maryland; Arlington, Fairfax, Loudoun, and Prince William Counties, and the cities of Alexandria, Fairfax, and Falls Church in Virginia.

Solid wastes considered included normal residential and commercial refuse plus excavated and dredged materials. Sewage solids, agricultural wastes, and discarded automobiles were specifically excluded.

Principal phases of the study included: (1) determination of the current status of solid waste programs in the region; (2) projection of population and refuse quantities by jurisdictions; (3) study of alternative disposal methods and land requirements for disposal; (4) inventory and evaluation of possible disposal sites; (5) study of transportation methods and costs; (6) recommendations for a long-range refuse disposal program, including specific alternative sites for disposal facilities, areas to be served by each, and comparative overall costs; (7) consideration of administrative and financial arrangements, including possible cooperative or joint management arrangements between jurisdictions.

### *Current Status*

Acceptable refuse collection service is provided in most urban areas of the metropolitan region. Public agencies have assumed responsibility for

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