Legislation on Air Pollution

By FREDERICK S. MALLETTE

THERE IS considerable evidence to show that today the forms and degrees of air pollution are demonstrably worse than ever in human history. The causes of this increase in pollution are, briefly: the tremendous growth of population in our cities, owing to both migration and birth rate; the enormous increase in numbers of automobiles, trucks, and buses and their associated exhaust gases; the incineration of vast volumes of rubbish; the combustion, both domestic and industrial, of megatons of fuels; and the great expansion of manufacturing processes of all kinds, resulting in new and, as yet, uncontrolled effluents.

The atmospheric sewer is backing up and, like a swarming bacterial colony, we are beginning to suffer from the accumulation of our own wastes.

To control the atmospheric byproducts of modern civilization, we have turned to a good old-fashioned remedy, the law. We are trying, at the moment, to legislate air pollution out of existence. The solution to the problem is not quite so simple.

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Modern Legislation

Most early laws and ordinances dealt with smoke only; fly ash or soot appeared in the picture somewhat later. In this country, the earliest recognized instance occurred not quite 100 years ago, when an 1864 lawsuit in St. Louis resulted in a judgment declaring smoke to be a nuisance. This action was followed 3 years later by adoption of an ordinance requiring that the chimneys of all manufacturing establishments be at least 20 feet above the adjoining buildings.

Chicago adopted its first smoke ordinance in 1881. This provided that the emission of dense smoke "shall be a public nuisance." No definition of smoke or of its density was given.

A 1912 survey by the United States Bureau of Mines found that 12 cities with a population of less than 50,000 had either a smoke ordinance or a smoke inspector and that about 19 cities of 50,000–200,000 were active in the suppression of smoke. Of the 28 cities with more than 200,000 population, 23 showed activity.

Contra Costa County, Calif., in 1915, adopted an ordinance restricting "fume" strength as an outgrowth of the Selby smelter problem. However, the first countywide legislation and enforcement appeared in Hudson County, N. J., in 1931.

The first State legislation appeared in 1909 in Rhode Island, covering smoke emission in cities over 150,000 population. Domestic

sources were exempted, as were locomotives at the time of starting and feeding fires while in roundhouses or yards.

Massachusetts, in 1910, introduced in its smoke control law a device for estimating smoke density which is still extant, namely, the Ringelmann chart. The chart was devised in the 1880's by a French professor of agricultural engineering and was first used in this country in 1899. With all its shortcomings, it is still widely used although several other devices have been introduced. The model ordinance published by the American Society of Mechanical Engineers, which has formed the basis for most municipal smoke abatement ordinances in this country, includes the Ringelmann chart.

For a number of years, New Jersey and metropolitan New York have been disturbed by interstate air pollution. Bills were introduced in the legislatures of both New Jersey and New York to institute an interstate survey, but until 1955, when New Jersey finally passed a matching bill, these had been passed only by New York. The New Jersey bill provided for an investigation of the area in question to determine whether an interstate air pollution problem exists and, if so, to recommend appropriate controls, an agency to apply them, and to suggest the draft of legislation necessary to implement the findings.

The Interstate Sanitation Commission was directed to undertake the study, for which New York and New Jersey each provided $30,000. The terminal date for the presentation of findings and recommendations was set for February 1956. However, the investigation has been delayed because of legal complications over jurisdiction.

A joint resolution by both houses of the Congress signed August 3, 1956, by the President, approves the present bi-State arrangement in which the State of Connecticut, the third member of the Interstate Sanitation Commission, has acquiesced. Bills have been passed by both the New York Legislature and the New Jersey Assembly, updating and approving the commission's plans for proceeding.

Both Canada and the United States have shared concern over air pollution in two areas: one at Trail, B. C., from 1928 to 1935, and the other at Detroit, Mich., and Windsor, Ont., since 1950. The International Joint Commission undertook the Detroit-Windsor investigation, which originally was concerned with smoke from the vessels traversing the Detroit River. This joint interest in smoke control has been expanded into a comprehensive study to determine the effect of air pollution on almost every aspect of community life.

Local Accomplishments

St. Louis was probably the first large city to make an effective reduction in smoke pollution. Before 1940, particularly in the winter, dense smogs were frequent occurrences. It was not uncommon there to have lights and headlights burning until noon. Now there is acceptable evidence to prove that a marked reduction in smoke pollution has been brought about by the city.

Essentially, this improvement was achieved through enactment and enforcement of an ordinance prohibiting the sale of high volatile coal in the city except in sizes under 2 inches. It was also required that all bituminous coal containing over 12 percent ash or 2 percent sulfur be washed.

Allegheny County

For many years, efforts at smoke control in Pittsburgh had such little success that the place was widely known as the "Smoky City." Residents of Pittsburgh can truly testify to the density and irritating qualities of the "black days." Until the late 1940's, Pittsburgh was deteriorating in every way, but finally a great civic movement—the Allegheny Conference on Community Development—arose to resuscitate the decaying city. It was the force behind this great effort which brought about the change in the Pittsburgh atmosphere.

The details of the city of Pittsburgh and Allegheny County ordinances are too complex for a brief discussion. Based in large part upon the St. Louis ordinance, these ordinances brought about a marked reduction in the smoke content of the air, principally by increased inspection and enforcement and by restricting the volatile content of solid fuels. It should not be assumed, however, that a miracle has occurred and that there is no pollution left to be con-

trolled in Pittsburgh and Allegheny County: quite the contrary. Nevertheless, a truly remarkable improvement has been achieved. There are many technical problems left to solve, but, at least, attention is being given them. Under study are effective and economical control methods—especially for steel processes—which may replace conventional and costly equipment presently available.

Los Angeles County

Los Angeles' smog began to appear as a serious problem during the industrial expansion and population growth of the World War II period. More than $1 billion in new capital was invested from 1941 to 1950, and more than 5 million people were added to the population of Los Angeles County. People began to be aware of an irritation of the eyes and respiratory tract. This smarting of the membranes and lachrymation were associated with the presence of a noticeable haze. Two other features of the smog, whose relationship was not learned until later, were damage to vegetation, especially certain truck garden crops, and accelerated cracking of rubber, most noticeable in the sidewalls of tires.

Insistent public demand brought about the passage, in 1947, of a State enabling act which created control districts to be activated by any county that determined control to be necessary. At least 4 California counties have active districts, and several other districts have been authorized; there is one authorized 9-county group in which 6 counties are organizing.

The California State enabling act specifically and generally prohibits air pollution and provides for the establishment of local rules and regulations by each control district. Those of the Los Angeles Air Pollution Control District provide a permit system for both construction and operation of any equipment which may cause emission of air contaminants. Detailed plans and specifications must be filed before permits are granted for new construction or modernization. Under these provisions the district engineers have approved permits for well over $100 million, of which over 15 percent is for control equipment. The rules also apply restrictions for specific pollutants such as particulate matter, sulfur gases, and the solid products of combustion in excess of certain concentrations.

The Los Angeles County Air Pollution Control District, the enforcing body, has had a harried history. Although smog may occur during any month of the year, it is most prevalent during the late summer and the autumn and may even extend through December into January, as it did in 1953. In 1954, a 17-consecutive-day episode occurred during which public protest became uproarious. The board of county supervisors—the governing body—reorganized the agencies, providing for enforcement by strenuous prosecution. So many violations were cited that a special smog court was set up. However, in spite of the vigorous enforcement effort, on September 13, 1955, the worst smog ever recorded occurred. The lesson to be learned from the situation is that the problem of urban air pollution should be tackled in its potential state rather than when it becomes an actual and serious problem.

Other California Developments

Two events in southern California are noteworthy. The first is the use of the Ringelmann chart to judge the opacity of plumes composed of other than black smoke, the original purpose for which the chart was devised. The other is the refusal of an operating permit for a steam power station because, among other reasons, of the high sulfur content of the fuel which it proposed to use.

Early in 1955, local courts affirmed violations of the opacity sections of the Los Angeles regulations wherein plumes of blue, yellow, or even white effluents were judged by inspectors making a mental translation of the Ringelmann chart. The United States Supreme Court has since refused to review, in effect thus supporting the finding.

In the other instance, the El Segundo station of the Southern California Edison Company was refused an operating permit on the grounds of the high sulfur content of the fuel proposed for use and of the inability to reduce the opacity of its plumes. Construction permits for additional proposed steam stations were also refused. As a result, the company has under-

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". . . it is hereby declared to be the policy of Congress to preserve and protect the primary responsibilities and rights of the States and local governments in controlling air pollution, to support and aid technical research to devise and develop methods of abating such pollution, and to provide Federal technical services and financial aid to State and local government air pollution control agencies and other public or private agencies and institutions in the formulation and execution of their air pollution abatement research programs. To this end, the Secretary of Health, Education, and Welfare and the Surgeon General of the Public Health Service (under the supervision and direction of the Secretary of Health, Education, and Welfare) shall have the authority relating to air pollution control vested in them respectively by this Act.

"The Surgeon General is authorized, after careful investigation, and in cooperation with other Federal agencies, with State and local government air pollution control agencies, with other public and private agencies and institutions, and with the industries involved, to prepare or recommend research programs for devising and developing methods for eliminating or reducing air pollution. For the purpose of this subsection the Surgeon General is authorized to make joint investigations with any such agencies or institutions.

"The Surgeon General may (1) encourage cooperative activities by State and local governments for the prevention and abatement of air pollution; (2) collect and disseminate information relating to air pollution and the prevention and abatement thereof; (3) conduct in the Public Health Service, and support and aid the conduct by State and local government air pollution control agencies, and other public and private agencies and institutions of technical research to devise and develop methods of preventing and abating air pollution; and (4) make available to State and local government air pollution control agencies, other public and private agencies and institutions, and industries, the results of surveys, studies, investigations, research, and experiments relating to air pollution and the prevention and abatement thereof.

"The Surgeon General may, upon request of any State or local government air pollution control agency, conduct investigations and research and make surveys concerning any specific problem of air pollution confronting such State or local government air pollution control agency with a view to recommending a solution of such problem.

"The Surgeon General shall prepare and publish from time to time reports of such surveys, studies, investigations, research, and experiments made under the authority of this Act as he may consider desirable, together with appropriate recommendations with regard to the control of air pollution.

"There is hereby authorized to be appropriated to the Department of Health, Education, and Welfare for each of the five fiscal years during the period beginning July 1, 1955, and ending June 30, 1960, not to exceed $5,000,000 to enable it to carry out its functions under this Act and, in furtherance of the policy declared in the first section of this Act, to (1) make grants-in-aid to State and local government air pollution control agencies, and other public and private agencies and institutions, and to individuals, for research, training, and demonstration projects, and (2) enter into contracts with public and private agencies and institutions and individuals for research, training, and demonstration projects. . . .

"When used in this Act—

"The term 'State air pollution control agency' means the State health authority, except that in the case of any State in which there is a single State agency other than the State health authority charged with responsibility for enforcing State laws relating to the abatement of air pollution, it means such other State agency;

"The term 'local government air pollution control agency' means a city, county, or other local government health authority, except that in the case of any city, county, or other local government in which there is a single agency other than the health authority charged with responsibility for enforcing ordinances or laws relating to the abatement of air pollution, it means such other agency; and

"The term 'State' means a State or the District of Columbia."

taken a $1.75 million research program to find, hopefully, the answers to its difficulties.

Federal and State Legislation

Several attempts at Federal legislation on air pollution followed the 1948 catastrophe in Donora, Pa. Last year, for the first time, there was major national legislation on this problem. Pertinent sections of Public Law 159 (84th Cong.), which became effective on July 14, 1955, are reproduced in the inset.

In general, Federal legislation aims toward research, cooperation with local agencies, and financial assistance to other groups rather than in the direction of enforcement. In some of these fields the Federal Government is already active. Early in 1955, the Public Health Service intensified its program of air pollution research and technical assistance to State and local agencies at the Robert A. Taft Sanitary Engineering Center, Cincinnati.

It is difficult to keep track of all statutes pending in State legislatures. However, at least 70 bills were considered by 12 State legislatures in 1955, but the number may well be 100. Almost 40 of the 70 bills were before the California Assembly. They provided, among other things, for the amplification of the present law for the formation of county air pollution control districts, for the creation of regional control districts, or for statewide control. One bill, passed to remedy the problem in the San Francisco Bay area, permits the creation of the 9-county district mentioned previously.

New Jersey passed a State air pollution control statute in 1954. Enforcement under this act has been in the hands of the bureau of adult and occupational health of the State department of health. Codes covering various air pollution problems are being formulated by the Air Pollution Control Commission, a body representing industry, the general public, the technical societies, and other responsible groups in New Jersey. The commission recently completed work on its first code—on the control of open fires and dumps, which are major sources of air pollution in the northeastern section of the State. The code went into effect May 1, 1956, and affects scrap dealers and others with unsatisfactory incinerators.

Other States which considered air pollution legislation in 1955 were Arizona, Michigan, and Virginia. The Michigan bill would create air pollution control districts. Virginia's and Arizona's bills were for statewide authority. One bill in the Arizona House of Representatives went to the extreme of proposing to prohibit "the construction of oil refineries or other smoke-producing industries within 15 or 20 miles of any city or town."

Municipal and County Control

The tendency, in recent years, to convert from coal to oil or gas as a domestic fuel is helping to reduce smoke in urban atmosphere, but it does not completely eliminate it. A poorly adjusted oil burner can lay down a smoke screen worthy of a naval operation. Furthermore, high-sulfur oils contribute large quantities of sulfur dioxide to the atmosphere.

So many cities and towns have recently adopted or are presently considering smoke abatement or air pollution control ordinances that it is almost impossible to keep track of them. To mention a few:

Reno, Nev., Huntington and Wheeling, W. Va., Albuquerque, N. Mex., East Providence, R. I., Denver, Colo., Boyertown, Pa., Norfolk, Va., and Fair Lawn Borough, N. J., have all adopted new ordinances. Cleveland, Ohio, is modifying its present ordinance, and Charlotte, N. C., is reviving its old ordinance.

These are only isolated examples. However, the pattern of municipal legislation is much the same. In the absence of expert technical guidance, most local governmental bodies perforce use the scissors-and-paste method. They base their new ordinances on those of nearby or well-known cities or occasionally utilize so-called "model ordinances."

The typical city smoke control ordinance is relatively simple. It provides for the prohibition of black smoke of a given density (usually No. 2 Ringelmann) and forbids the emission of fly ash of a certain concentration (usually not exceeding 0.85 lb. per 1,000 lbs. of gases).

There is a trend, however, toward broader municipal air pollution control ordinances, based on the Los Angeles County ordinance as a model which prohibits the emission of all toxic

and nuisance effluents, with even specific levels for certain gases such as sulfur dioxide.

One of the most noticeable results of the Los Angeles smog activity has been a tendency for other areas to copy its regulations. Honolulu, Hawaii, is one; Louisville, Ky., was another, but then abandoned the idea and is presently embarked upon a comprehensive air pollution survey.

Elsewhere across the country there are current efforts to emulate the California model county control districts.

The county control-district type of air pollution agency will be more prevalent in the future. It solves the problem of control in the large city that is unable to control smaller, neighboring suburbs. For similar reasons interstate compacts probably will be employed to handle the problems faced by New York with pollution drifting from industrial New Jersey, by St. Louis with pollution drifting from the adjacent industrial areas across the river in Illinois, by Cincinnati with pollution from Kentucky communities, and by many other cities.

Cost of Control

The control of air pollution is not going to be cheap. In fact, it is going to be expensive. The cost of providing pure water or good sewage disposal was high in dollar outlay although not in relation to the advantage gained. It will be the same with pure air. But, as with water and sewerage costs, the outlay may be less than the cost of continuing pollution. This consideration provides the opportunity for a carefully planned program of education.

In many communities, educational programs are being assumed by the chambers of commerce. Programs may be undertaken by a college or university or in some areas by research organizations, such as Stanford Research Institute of California with its series of air pollution symposiums, Mellon Institute of Pittsburgh with its Industrial Hygiene Foundation meetings, the Air Pollution Foundation, the Southern Research Institute, and others.

Research organizations can aid also in the development of community educational programs by bringing to air pollution control a scientific and impartial point of view. Surveys and other studies will help in determining whether a pollution problem is real and whether the health considerations are transitory and superficial or chronic and basic. Research projects can be set up to study the nature of air pollution and how it can be best eliminated or controlled. These great economic, technological, and social issues challenge the statesman and legislator no less than the industrialist, scientist, and engineer.

Mintener Resigns

Mr. Mintener

"It is a matter of deepest regret to me and, I know, to all my associates in the Department, that Bradshaw Mintener is resigning his position as Assistant Secretary of Health, Education, and Welfare.

"In the two years Mr. Mintener has held this post, he has made a great contribution to the work of this Department. The fine spirit of our organization, particularly in the field, is due in large measure to his activities. His sound advice on the problems of the Food and Drug Administration has been instrumental in laying a proper foundation for a greatly needed expansion of its activities which are so vital to everyone in the Nation.

"I am sorry Mr. Mintener could not stay longer in Government service."

—Marion B. Folsom,
Secretary of Health, Education, and Welfare.