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AIR POLLUTION CONTROL PROGRAMMES AND THEIR
LEGAL VALIDITY

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Introduction

The continued search for scientific knowledge and the continued industrial expansion have resulted in a rapidly advancing and changing environment. Man has the ability and, in most cases, the desire to change this environment to suit his needs. New cities are built to house the growing population, new areas are developed for recreational purposes, and new products are manufactured to satisfy the demands of the society. The period when man adjusted to his environment is changing to the era in which the environment is adjusted to suit man.

As a result of these scientific and technological advances, it is taken for granted that everyday conveniences are readily at hand in most parts of the world. Little or no thought is given by the average society how this high standard of living has been developed. It is sufficient for man to know that there is a constant search in progress to find new and better means for the protection of the society he lives in. Man's present day conceptions of modern living are based on the scientific discoveries which have resulted in the increased comfort and safety of human life during the past few generations.

In his pursuit of an ever higher standard of living man completely overlooked the side effects that may arise from this venture. While some of these side effects may be of little significance to the society, there are some that are of major importance to the health of the individual. Among these harmful side effects, the problem of air pollution has gained strong impetus in recent years. The significance of this problem is due mainly to the sudden increase in population and industry in a certain, confined area. In addition, no thought was given to the harmful effects caused by the emission of the by-products from the everyday activities which are such an integral part of every modern, technologically advanced society.

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The fact that air pollution is existing can be demonstrated in every community. It is, however, a bit more difficult to demonstrate its magnitude and extent. Consequently, it is even more difficult to describe the ways and means of abating or even controlling air pollution. Even so the law is as old or even older as the pollution problem, the difficulties in the control of pollution lay more in the interpretation and in the acceptance of these laws; the most difficult problem for society seems to be its acceptance of the fact that these laws are made for its protection. It is intended herein to describe the problem of air pollution and its legal control from an engineer's point of view who has limited knowledge of this complex problem. It is not claimed that the interpretation of the legal validity of air pollution control is conclusive, but it is hoped that it will inspire the individual reader to think in depth about this critical problem.

The Air Pollution Problem

The term air pollution comes into being in the presence of man-made or natural substances in the air in such quantities and of such quality and for a certain duration that it will alter its purity and thus adversely affect man's well being or his property. This definition, although just a single sentence and adapted from the definition of water pollution has a wide latitude of application and may be used to permit the recognition of the pollution, either sensory or by physical measurements. Both methods are used for the identification of pollution, each having its strength and its weakness. These methods, being man-made, are subject to discussion and hence to diverse opinion. It may be well to review the flow chart as illustrated in Figure 1.

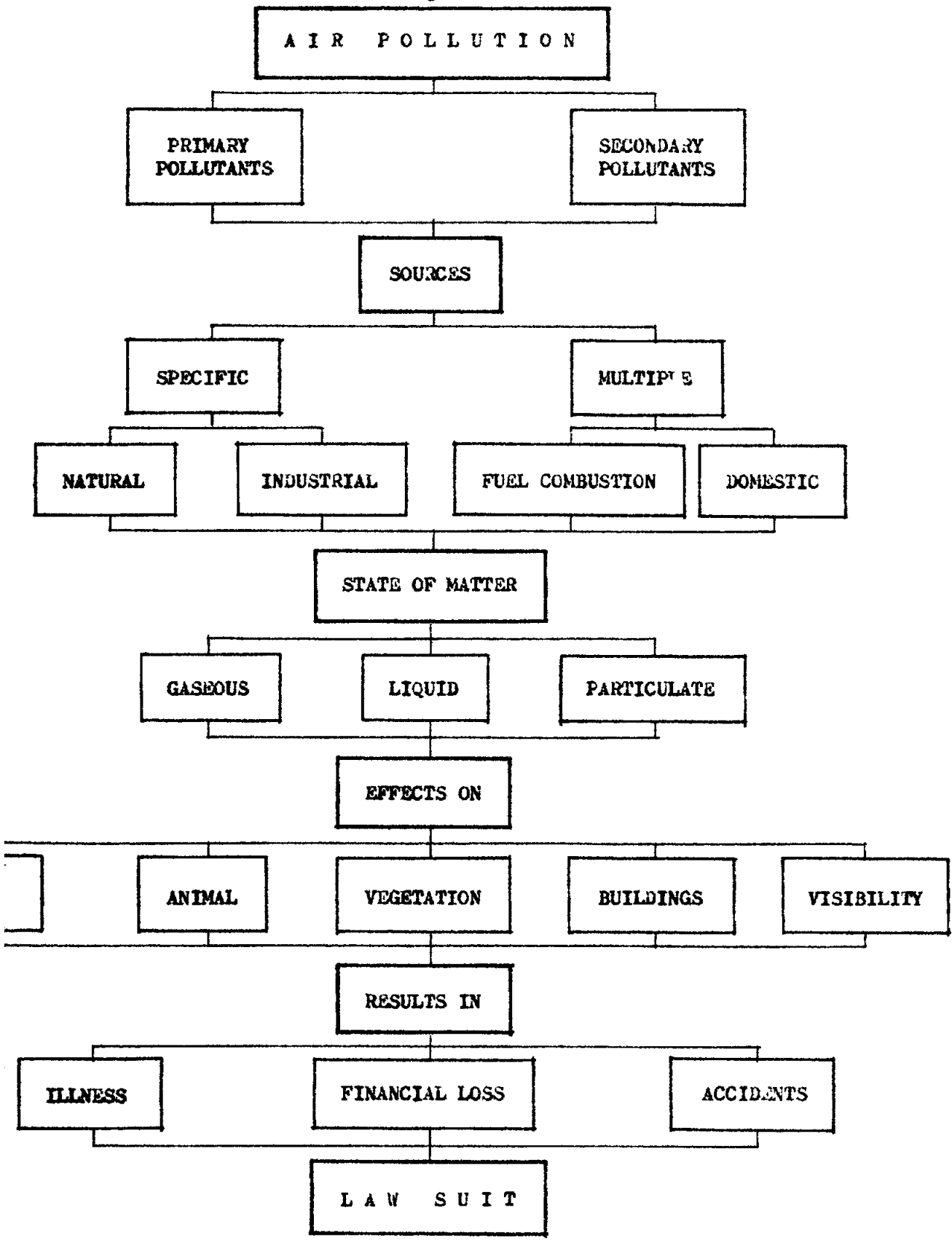


FIGURE 1

While natural air pollution sources have been with man for a long time, the man-made pollution sources have had the greatest impact on his well being. Of the latter sources, the emission from moving vehicles has, perhaps, focused the greatest attention to the public in recent years. Most of these sources discharge, or emit, chemical compounds of complex nature and if these compounds interact with the atmosphere in the proper concentration, at the proper time, and under proper meteorological conditions, they produce different compounds by photochemical reactions and hence are termed secondary sources of pollution.

Pollution may be emitted in a particulate, gaseous, or liquid state. Of these three (3) states the gaseous state is of prime importance to the health of man and animals, while the other two (2) states are more detrimental to man's property. In some cases pollutants may cause a reduction in visibility and thus may result in public traffic hazards. As a consequence, the financial loss to the individual and to his community may be of considerable magnitude. While man may be willing to accept air pollution as a "nuisance" he cannot and he will not tolerate a financial loss. Hence he will seek to protect his assets by one or the other means such as (1) a complaint to his political representative at the local, state, or national level, (2) he seeks an injunction with the local health authorities, and (3) a suit may be filed against the owner, claiming damages. Neither of these ways seems to be a "reasonable" approach to alleviate the problem or at least, to control the source within "reasonable limits. The action of an individual to solve the problems of his society are, in most cases, impeded, for he lacks the ability and the power to successfully solve this difficult task. Representatives of the people at the various levels are, for all practical purposes in most countries, not in a position to solve all these problems for the individual mainly because they are elected by the people but they are supported financially during their pre-election time by the industry. The alleviation or control of the problem by legal court action has been solved satisfactorily in very few instances. This approach has generally caused a great deal of frustration, and the loss

of time and even more money than the amount of damage that was claimed by the plaintiff. The plaintiff, being the individual who commences a personal law suit to obtain a remedy for an injury to his rights.

Air Pollution Control

The aims and objectives of controlling any type of pollution are to maintain a "reasonable" degree of a clean environment for the benefit of:

1. Maintaining a high level of public health
2. Protecting the plant and animal life
(natural as well as agricultural)
3. Protecting private and community properties
4. Continuing economic development and growth

and thus air pollution is no exception. While standards for the measurement of pollutions in the fields of water pollution and nutrition have been widely accepted, the methods for the quantitative analysis of air pollutants have not had this type of coordination. In addition, the laws and/or regulations for the control or abatement of air pollution are, in some cases, not as clear and specific to afford uncontested enforcement. At the present many of these regulations or laws may be read as:

"Any person or group of persons discharging such amounts of contaminants into the environment as to interfere with the "comfortable" enjoyment of life is a public nuisance and is guilty of misdemeanor and shall be fined accordingly".

Although the above statement may be a regulation that can be applied to any type of contaminant, it is evident that it becomes subject to many arguments. Many court suits have been dismissed because neither party could define accurately the term "reasonable" in order to enable a decision by the courts. The term "comfortable" can only be interpreted or defined in accordance with the standard of living of one individual and with his state of mind. Two individuals having the same profession and the same income level may differ completely in their opinion on what is "comfortable".

In view of these human variables, in addition to the many variables that are brought about by nature, it seems like an impossible task to find the proper solution to any air pollution programme so that it may stand before any court.

The Air Pollution Control Programme

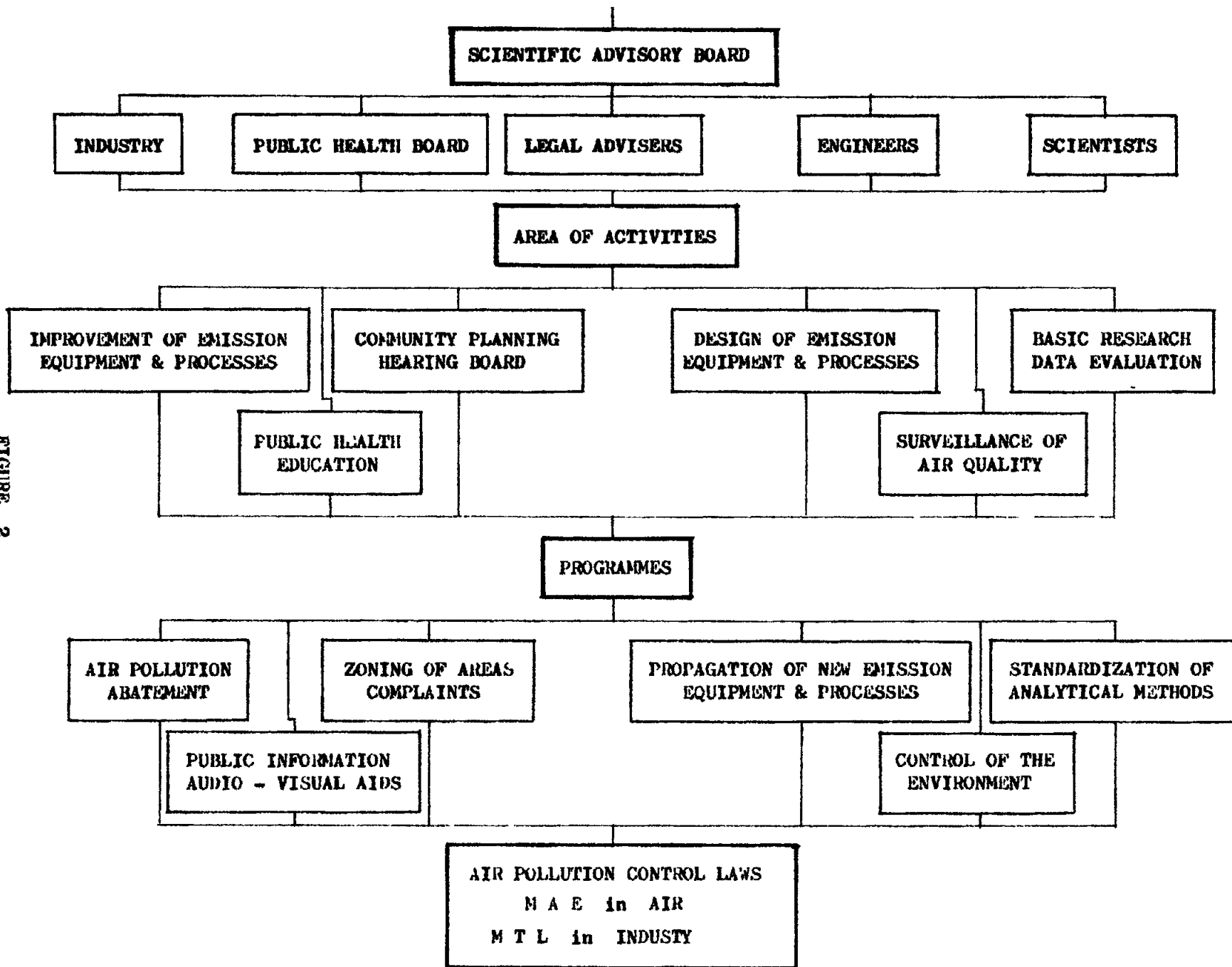
It is evident from the aforementioned that a sound programme cannot be accomplished by an individual of society. But the problem can and will be solved with the help and cooperation of the various levels of a community. There are many ways in which the solution to this problem can be achieved. Figure 2 illustrates one route of approach to a programme that tends to be economical as well as feasible.

The Air Pollution Control Programme should be organised and directed by a scientific advisory board composed of appointed representatives from public and industrial branches of the community. Each of these representatives should be a qualified professional in his specific field having a sincere interest in the further development of his environment. The final goals to be achieved are: (1) to improve the present conditions of the environment, (2) to control the allowable emission in the future, and (3) to construct air pollution laws that are based on solid knowledge.

Perhaps the most important part in this venture is the improvement and the control of the emission of pollutants from the existing industries. These industries, being in operation for many years and contributing to the wealth of the community, are suddenly faced with modifying their emission equipment and thus are burdened with a financial investment that does not result in a direct recovery of their investment. In addition, it is difficult, if not impossible, to force the industry to modify his equipment. The closing of the industry would be the worst of the two "evils", it would result in unemployment and hence in more financial loss to the society.

Another very important factor in this programme is a sound public health education. It is believed in some countries, that the education of the public and the focusing of their attention toward a clean environment

FIGURE 2



has had the best results. Emphasis is placed on the emission of pollution from domestic sources such as heating systems and the burning of garbage on their own premises. In addition, the public should be instructed of the steps to be taken by the individual in case of an emergency due to an air pollution disaster. Audio-visual aids should demonstrate pollutants from all sources for then the individual would obtain a basic knowledge in the identification of the pollution problem. Hence he may be able to aid in the surveillance of some of the sources of air pollution.

To frame the basic findings of the problem in a community and to aid in the regulation of the future, the legal advisers should be chosen on the basis of the merit of their accomplishments. These advisers have a number of functions to perform for (1) they should define the present problem, (2) aid in the legal development of the rules and regulations for the zoning of the community area, and (3) define and establish future laws for the control of pollution. They are, indeed, the center and core of the programme and they bear a great part of the responsibility for a successful completion of such a venture.

The engineers have so far received very little attention in this discussion, although they participate in a number of areas in an air pollution control programme. Some of the more important functions of the engineers are to (1) develop new equipment and processes for abating air pollution, (2) provide the required assistance in the field operations, and (3) aid and participate in the basic research programme. While anyone may be able to develop the equipment and processes for abating sources of air pollution from existing industries, it is the job of the engineer to do it at reasonable costs. Hence, the engineer is required to demonstrate a broad knowledge of the particular problem and to also demonstrate engineering skill in the approach of the design of the equipment. In addition, a great deal of flexibility is required when communicating with the management of the industry. Many times the engineers are required to aid in the detection and location of the sources of pollution and, hence, in the preparing of the report. This report serves, in many cases, as the basis for legal action and thus requires the engineers to appear as expert witnesses before the courts. Also their participation in the basic research programme enables them to obtain a

a broader knowledge of the air pollution problem.

It has been demonstrated that complaints have been dismissed by the courts because of poor correlation of the collected data. Therefore, it is evident that the basic research group must solve a number of problems of diverse characteristics. Some of the more important problems that must be solved in the near future are: (1) the determination of the effect of air pollution on man, animals, and vegetation, (2) the development and the modification analytical methods for the quantitative and qualitative identification of pollutants and hence determine threshold limits, (3) the design and testing of field equipment for monitoring air pollution (4) the correlation of distinct emissions of air pollutants, (5) the collection and evaluation and the statistical analyses of the data and thus make recommendations for quality standards to meteorological data, and

Legal Bases for the Control of Air pollution

A review of the previous discussion reveals that a control programme of such magnitude and diversity can only be solved if and when all of the remaining questions are satisfied. With an increase in scientific and technological knowledge it will be possible to legally define some of the terms that are so much subject to arguments at the present. While the present "common law" rules assure a plaintiff of his rights, be it a "private" or "public" nuisance, the distinctions are highly elusive, and if not present in the proper form of action may result in severe consequences. Hence, it is evident that the basic foundation for a solid and sound air pollution programme must be based on the findings of the scientific advisory board. The transition of the many, presently existing, undetermined variables into determinants of known magnitude will inevitably result in air pollution laws and statutes that will clearly identify such terms as "nuisance, trespass" and "intentional" or "unintentional". In addition it will be possible then to characterize air pollution to the extent where it will be obeyed by every individual of a community without exception.

Conclusion

Although the task of alleviating and controlling the air pollution problem is not an easy one, it will and shall be solved in the near future. The problem has been created mainly by man and thus it can only be solved by man. But it appears reasonable to believe that any society that is faced with this problem will make every effort to alleviate it and those societies, blessed with the absence of the problem will make every effort to prevent it from encroaching upon them. As air pollution control programmes are being governed more and more by the local authorities, its impact will spread to the state, national, or even international level and hence the laws and statutes may stand before any court without being subject to frustration and ridicule. Finally, this outline is not meant to be a scientific contribution but it is hoped that it will inspire the individual to think of how he can contribute his share for the final solution of the problem. If this air has been accomplished, if only to some small extent, this individual is looking most hopefully into the future.