

Medical Dept History

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The attached material written
in 1947 may provide some back-
ground on the Medical department.

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Ethyl's Medical Department

Oct. 1947

The Medical Department of Ethyl Corporation came into existence in June of 1924, under conditions which, antedating the origin of the Corporation itself, were to exert their influence upon the form and functions of medical activities of the Corporation throughout the years up to the present time. At that time, the operations of General Motors Chemical Company in Dayton, Ohio, were just emerging from their early developmental state into the commercial blending and distribution of an antiknock compound. Coincident with the increasing scale of these operations, the toxic properties of the constituents of the antiknock compound gave first evidence of their true significance, when, without apparent warning, a group of workmen fell ill and two of them died with what is now recognizable as tetraethyl lead poisoning. This situation called for some combination of medical care for the sick men, and a thoroughgoing investigation of the disease from which they were suffering and the environmental and physiological conditions which gave rise to it. The present head of the Medical Department, Robert A. Kehoe, a physician and a physiologist in the University of Cincinnati Medical School, was near at hand and known to Thomas Midgley, manager of General Motors Chemical Company, and was approached for advice and assistance. The time (May, being at the end of the academic year, it was possible, without delay, to undertake the proposed task. The work of the first summer, carried out in the Dayton plant, resulted in a clinical characterization of tetraethyl lead poisoning, a preliminary and rough interpretation of the nature and the approximate order of magnitude of the hazards of handling tetraethyl lead and certain halogen carriers, and the development of certain principles for the control of the hazards. The care

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of the sick employees, together with the medical selection and supervision of the personnel of the plant, represented a first responsibility, which on many days, especially at first, left little time for anything else. However, as the conditions in the plant responded to the application of good engineering practices based upon the accumulating medical and physiological information, the uncertainties of the medical approach tended to disappear, the anxiety of the employees was replaced by confidence in their security, and the time required for such work decreased in favor of greater experimental efforts. By the end of September of 1924 the situation appeared to be well in hand. One could then view the future of this phase of the industry with reasonable assurance, and could begin to take thought for the actual or potential hazards of its other aspects.

From late in 1923 on, experimental work on the most significant problem of public health, - that of the contamination of the air of streets, highways, and repair and storage establishments with particulate lead compounds in the exhaust gas of motor vehicles -, had been under investigation at the Pittsburgh Experimental Station of the U. S. Bureau of Mines, at the instigation of Midgley. Participation in regular (monthly) conferences on this problem inducted the new medical consultant of General Motors Chemical Company into the consideration and practical appreciation of these problems, and prompted him to advise an extension of the experimental program of the Bureau of Mines to include the potential hazards of the slight but prolonged exposure to tetraethyl lead through contact with leaded gasoline and exposure to its vapors. This was initiated by means of animal experimentation and carried out in rough parallel with experiments conducted in the laboratories of General Motors Chemical Company by Kehoe, with the assistance of Graham Edgar and the technical research

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staff of General Motors Chemical Company of which he was the head. A little later, Kehoe and Edgar expanded these experimental observations into the field of commercial distribution and use of leaded gasoline by undertaking a study of the comparative lead exposure of unexposed and exposed garage mechanics, drivers of cars, and filling station attendants.

The foregoing account of the early medical and experimental work is of more than casual importance in the history of the Medical Department of the Corporation in that they lead up to an event of major importance associated with the date, May 20, 1925. This date, referred to elsewhere in the annals of Ethyl Corporation, is that of a conference of prominent medical men, public health authorities, representatives of industry and labor and other interested persons, called by Surgeon General Hugh Cummings to consider the problem of public health presented by this industrial enterprise. The proceedings of this conference are recorded in detail in U. S. Public Health Bulletin No. 158, and its conclusions need not be restated here. It is pertinent to note, however, that the conservative recommendations of this Conference were arrived at after a lengthy discussion in which highly emotional, sometimes lurid, and wholly unsubstantiated statements were tempered by the observations and facts made available by the experimental work authorized and sponsored by the predecessors of Ethyl Corporation. The effect of this crucial test of the practical merits of medical and toxicologic research, upon the executives and medical advisors of the Corporation, was of the greatest moment in establishing the character of future relationships of the Medical Department and its future medical and hygienic policies. As a part of his report of experimental work to the Conference, Kehoe presented the incomplete results of clinical observations on garage mechanics, drivers of cars and filling station attendants, and the analytical results on

their excretions. A full report of these results was prepared shortly thereafter by Kehoe and Edgar and presented to the Board of Directors of Ethyl Corporation. Since, by that time, the investigation of the Public Health Service was under way, these results were not published until a considerably later date (J.A.M.A. 37: 2081, 1926). The subsequent confirmation of these results, in part and officially, in the investigation of the Public Health Service, and more validly and significantly by the later extensive investigations sponsored by Ethyl Corporation in the Kettering Laboratory of Applied Physiology in the University of Cincinnati, served to establish the prestige of the Medical Department in the industry and among technical and medical people in related fields, thereby implementing its subsequent efforts to promote the broad hygienic program adopted by the Corporation. From the general medical and scientific viewpoint, moreover, this Conference and date have still greater significance, in that the data of Kehoe and Edgar, presented then, gave statement, for the first time, to certain facts as to the lead exposure, absorption and excretion of normal healthy individuals in the American population. These facts, following their confirmation and further elucidation, were destined to have a profound effect upon hygienic concepts and practices in the lead trades and in the community as a whole, with respect to the physiological significance of lead exposure.

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January of 1926, following upon the report of the investigation of the Public Health Service, saw the resumption of the commercial operations of Ethyl Corporation and the organization of the Medical Department. At that time the medical and hygienic program of the industry as a whole came actually to be centered in one group, namely, the Medical Department and the medical research organization of Ethyl Corporation. This functional coordination of these activities at one

place, essentially under one head and general program, has such significance in relation to the past history as well as the probable future of Ethyl Corporation that it deserves emphasis. Only by the force of unusual circumstances, among which the initial deadly threat to the survival of the industry looms large, could have brought the three industrial groups engaged separately in, (1) the manufacture of the antiknock compound (Du Pont), (2) the sale and distribution of the compound (Ethyl Corporation), and (3) the manufacturers and distributors of leaded gasoline (a number of the oil companies, under one professional influence. This came about largely by reason of a verbal agreement, on the part of Ethyl Corporation, with the United States Public Health Service, to implement a series of recommendations made by the Surgeon General of the United States Public Health Service, for the control of the hazards of the business. The fulfillment of this agreement made it necessary for Ethyl Corporation to establish medical policies and procedures which under ordinary conditions would have been regarded as intrusions into the affairs of the manufacturers of the product as well as the customers of the Corporation. Before long, however, there was general acceptance of the fact that the medical advisors of Ethyl Corporation alone, among those who might otherwise exercise influence in these matters, had access to the information that was required to provide intelligent hygienic guidance. In short, the facilities for medical and hygienic research made available by Ethyl Corporation then and expanded since from time to time as required, have always constituted the cornerstone on which the wisdom and adequacy of medical policy and procedure for the control of the hazards of this industry have been based. One aspect of the coördination referred to was accomplished through the multiple role of Kehoe, who, as a member of the medical faculty of the University of

unbiased research in this and other phases of industrial health, while acting as chief medical consultant (Medical Director; to Ethyl Corporation, and medical consultant, in relation to the manufacture of tetraethyl lead, to Du Pont. The other factor in the application of one hygienic policy in the industry arose from the urgent need of controlling the manifest hazards of the operations involved in the mixing of the antiknock compound with gasoline. The most careful consideration of this serious hygienic problem, on the part of executives and medical advisors of Ethyl Corporation, resulted in the development of a program whereby the Corporation undertook to provide the medical and hygienic supervision of mixing plants and mixing personnel, and to set up, in detail, the regulations under which this work was to be done. This program involved the unique feature of formal acceptance (by contract), on the part of the refiners and distributors of gasoline, of medical regulations and instructions issued by Ethyl Corporation.

The foregoing items of policy and procedure may appear to be given undue importance in this recital. Moreover, they may be suspected of attributing undue prominence to medical work and personnel. On the other hand the purpose of this history is to recount and explain the past as a guide to the future. The emphasis, therefore, is upon ideas and principles arrived at largely through an interpretation of the acts and developments which grew out of the problems of the time and the compulsions of circumstances. E-00149

In the matter of developments, it may be remarked that the natural outgrowth of the principle of research as the basis of medical and hygienic practice in industry was the relationship between Ethyl Corporation and the Kettering Laboratory of Applied Physiology in the Medical College of the University of Cincinnati. The acceptance and

the creation of this Laboratory and in its development as a responsible public source of medical and hygienic information. At the time of the creation of the Laboratory, and since, other industrial organizations joined Ethyl Corporation in providing these facilities for the University of Cincinnati and in supporting the investigative program. However, Ethyl Corporation was the prime mover in founding the Laboratory, as well as its principal source of financial and moral support in its developmental period. The staff of this Laboratory began its work in the Physiology Department of the Medical College of the University of Cincinnati, late in 1925. Dr. Kehoe found it impossible to continue to absent himself from his duties in the University, and, at the same time, it had come to be apparent that the investigative program, engaged in on behalf of Ethyl Corporation, fitted into the public pattern of university activities. Accordingly equipment and such personnel as were willing to do so, were transferred from the Dayton laboratories of Ethyl Corporation (in the General Motors Research Laboratory) to Cincinnati. The group so installed remained nominally in the employ of Ethyl Corporation for a time as a matter of convenience, and additions were made to the staff on that basis. Eventually, however, the policies of the University required that the research activities of this group be absorbed into the academic structure of the University of Cincinnati, and all the individuals were given formal appointments in the Department of Physiology of the Medical College. A separate laboratory building soon came to be a necessity for carrying on the increasing volume of work on the problems of Ethyl Corporation and those of certain other industrial organizations. Several of such organizations joined Ethyl Corporation in making a gift of funds to the University of Cincinnati,

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by means of which a new laboratory was built. This laboratory received its name, in honor of Mr. C. F. Kettering, on its completion and dedication in December of 1931. Its activities have continued to expand until, in 1941, a small addition to the building was made, through a further contribution by Ethyl Corporation, and in 1947-48 this addition was extended so as to double the size of the original building. The latter was made possible by the contributions of about a score of large industrial organizations, which, with Ethyl Corporation, had supported the investigative program of the Laboratory. Through its encouragement and financial support of this enterprise, Ethyl Corporation has acquired access to experimental facilities for the systematic investigation of its own medical and hygienic problems, and at the same time has been actively instrumental in the development of a much needed center for industrial medical investigation and training.

The peculiar responsibilities and activities of the Medical Department of Ethyl Corporation also resulted in the creation and development of an allied organization devoted to the maintenance of the safety of all field operations in the Sales Department of the Corporation. The origin, growth and development of this organization and of its functions represents a chapter, in itself, of great interest and importance in the history of the activities of Ethyl Corporation. Its somewhat unique character, guided, as it is in all matters of hygienic policy, by the Medical Department, and yet administered and directed by sales executives, constitutes an example of the capacity of a rather large number of individuals to cooperate in single-minded devotion to an high purpose. The safety organization, managed with great zeal and meticulous attention to detail for many years by C. F. Lewis and now under the capable direction of E. O. Jones, had its

origin and its most important initial function in the work of designing and maintaining field equipment for mixing "Ethyl" antiknock compound with gasoline. The pioneer in this work, when the present type of commercial operations began in 1920, was E. M. Walters. Near the end of the first year of these operations he introduced the idea and designed the first equipment by which pumps could be eliminated in the actual movement of the compound, and an "eductor", activated by a stream of gasoline, was employed to draw the product from its container into the gasoline with which it was to be mixed. The adoption of this principle, whereby contact of the concentrated material with the moving parts of mechanical equipment could be avoided, and the product could be handled at reduced rather than elevated pressures, has contributed incalculably to the simplicity and safety of the mixing operations, and has represented a fundamental contribution to the control of the hazards of this occupation. Walters, as Assistant Sales Manager of the Corporation, in which capacity he had many other responsibilities, continued to direct all the work related to mixing installations, maintaining a continued contact with the Medical Department for advice and approval of specific plans and specifications for such equipment, until his untimely death in December of 1935. During his regime and largely through his initiation and design, the bulk type of mixing equipment (tankcar-to-weightank), now in use most widely, was developed and introduced. This constituted a second fundamental step in securing the safety of these operations by the application of sound engineering. In later years the further design of mixing equipment, the engineering features of the operations, and the technical supervision of mixing plants passed through various stages of development, with authority residing in various hands, and with significant contributions made by various persons, all of whom

The responsibility of the latter for final decision with reference to the compatibility of proposed engineering procedures with the ultimate safety of personnel concerned with the transport of the product and with mixing operations, has never been a matter of question or controversy. From the organizational viewpoint, certain changes occurred from time to time, engineering and technical field supervision of mixing plants being first a function of the Sales Department in collaboration with the Medical Department, then being transferred, as to its responsible direction, to the Medical Department, and later returning to the Sales Department, where it operates at present as an integrated part of a service organization to the customers of the Corporation. The present stage of the organization became mandatory, partly because of the variety of the operations and the necessity of their integration with other field activities, but largely because of the emergence of an hazard which for a time required heroic efforts on the part of the entire field staff of the Corporation for its control. This hazard - that associated with the cleaning of gasoline storage tanks - now recognized as the most serious of the occupational hazards of the industry, because of the virtual universality of its geographic occurrence, and because of the difficulty of keeping it under observation, was not anticipated originally by the Medical Department or by the technical personnel of the Corporation. It was recognized for the first time and somewhat incompletely in 1923, and regulations were issued by the Medical Department for its control. These regulations required modification, shortly after their initial issuance, in order to cover the various features of the hazard as they came to light, but even after they reached their present satisfactory state (1932 with only slight changes in detail, since,, they were ineffectual because they were not always applied at a point

where a tank used for the storage of leaded gasoline was being cleaned. The problem has been a difficult one, since it is many sided, involving, in some measure, all transporting equipment for gasoline and all containers used in storing and handling leaded gasoline, in all parts of the world. After a series of cases of poisoning, numbering more than one hundred among employees of American manufacturers and distributors of gasoline, of whom more than a score died, it became apparent that steps had to be taken to bring this hazard under control, despite the reluctance, on the part of representatives of Ethyl Corporation, to extend their activities further into the operations of customer companies. In 1936, following a series of meetings of executives of the Sales Department and representatives of the Medical Department with various groups of the field staff, a program of observation and investigation was worked out, whereby, until further notice, the large proportion of the gasoline storage tanks in the United States and Canada, that were to be entered for cleaning, were to be observed by representatives of the Corporation during their cleaning. Samples of their water bottoms and of scale and sludge were to be obtained for examination, and detailed information concerning the previous use of the tanks was to be assembled for study. The plan of an integrated experimental study was worked out in advance through the collaboration of the Sales and Medical Departments, with the understanding that the information was to be gathered in the field and furnished to the Medical Department. All of the samples were to be analysed and all of the results were to be correlated and interpreted in the Kettering Laboratory of Applied Physiology under the direction of the Assistant Medical Director of the Corporation, Dr. W. F. Machle, who was also the Associate Director of the Laboratory.

After many months of faithful and intelligent work on the part of the field staff, and after further months of careful statistical study of the results, a report was issued in 1940, which pointed clearly to the necessity of maintaining the intensive organized collaboration of field personnel of Ethyl Corporation in the tank-cleaning operations of customer companies. The history of this collaboration, and the developments that have followed further investigation of various aspects of this problem would take us far afield into a voluminous account of organizational and technical details. The basic facts, recounted as briefly as possible, will serve to demonstrate the functional and historical association of field and service staff with the activities of the Medical Department, thereby illustrating the point that industrial safety and hygiene in the hazardous chemical trades is largely, of necessity, and by its very nature, a medical matter which requires medical research and medical direction for its implementation.

While the various activities of the Corporation were developing and expanding, the Medical Department grew in size and in the scope of its activities. The first year of business after the investigation of the Public Health Service, (1926), can be said to be the actual beginning of planned commercial operations, and the first stage in the organization of a Medical Department. During that year, and subsequently, additions were made to the traveling medical staff with headquarters in Cincinnati, as the systematic examination and re-examination of an increasing number of mixing personnel in the refineries of customer companies required. Men of high calibre and of sound medical training were needed for this work, and despite the personal and professional difficulties associated with this unusual type of medical practice, such men were found and retained for pro-

longed periods of time. This was made possible because the executives of the corporation were willing to follow the policy required to mitigate certain unattractive qualities of much of the medical work. Members of the staff of the Medical Department were given opportunities and were encouraged to engage in other investigative and professional activities that were not incompatible with their responsibilities to Ethyl Corporation. By such means they were spared the rigors of continuous traveling and were enabled to avoid a degree of isolation from other professional colleagues and activities, which would have made such a position unacceptable at any price to a well trained and generally competent physician. Through the operation of this policy the physicians of the Medical Department, as a rule, have conducted their work as virtually full-time (in the sense of continuous responsibility) members of the staff and with the benefits and privileges associated therewith, while engaged in restricted private medical practice or in organized investigative work. Several of them have had formal membership in the medical faculty of the University of Cincinnati, by virtue of their appointment to the Staff of the Kettering Laboratory.

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The first physician to be added to the medical staff was Dr. Karl W. Kitzmiller (1926). The next, within a few months, was Dr. W. F. Machle (1926), to be followedⁱⁿ succession by Dr. L. L. Crudgington and Dr. Lester W. Sanders (1927), Dr. L. J. Schradin (1929), and Dr. Francis F. Heyroth (1942). Dr. Crudgington relinquished his duties in 1934, in order to devote himself to the practice of obstetrics and to take up more extensive duties on the obstetrical staff of the Cincinnati General Hospital (the teaching hospital of the College of Medicine of the University of Cincinnati). Dr. Machle, who became Assistant Medical Director in 1936 with headquarters in Cincinnati.

was on military leave from October of 1942 until October 1945, during which he directed the U. S. Army Medical Research Laboratory at Fort Knox, Kentucky. He returned as head of the New York office of the Medical Department, taking this part of a new function of the Medical Department which will be referred to later. The other members of the medical staff as named above have continued their professional services on behalf of the Corporation. Dr. Kitzmiller has been Assistant Medical Director since 1946.

The original program of the Medical Department was concerned with the medical supervision of (1) members of the field staff of Ethyl Corporation whose occupations involved actual or potential exposure to lead hazards, (2) members of the technical staff of Ethyl Corporation in research and testing laboratories, and (3) employees of customer companies in the United States and Canada engaged in mixing operations or in other occupations which gave rise to hazardous exposure to tetraethyl lead. The physicians were also required to investigate reported cases of illness among garage mechanics, refinery personnel engaged in handling leaded gasoline, filling station attendants and all other persons, including the drivers of automobiles, when any of such cases were thought or alleged to be due to exposure to leaded gasoline or to the exhaust gases of automobiles using leaded gasoline as a fuel. Medical representatives were also to consult with and advise refinery superintendents and other executives and technical personnel of customer companies on problems arising from their use of the antiknock compound, and to maintain such regular contact with regional and local representatives of customer companies as to be acquainted with their problems. This was facilitated greatly by the eventual development by Ethyl Corporation of a trained staff of regional and local representatives, whose relations with the personnel

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of customer companies, whether in the promotion of sales or in the technical control of hazards, were of great help to the physicians. The technical supervision of mixing plants and the medical supervision of the personnel were coördinated effectively by an arrangement whereby the doctor visited the plants in the company of the appropriate member of the field organization.

With the advent of a program of health and sickness benefits, provided by Ethyl Corporation for all of its employees, in 1947, the work of the Medical Department was expanded to include medical examinations for all new and prospective employees. As far as possible, these examinations were carried out by traveling members of the medical staff. However, the geographic distribution of division offices, and the fact that the headquarters of the Medical Department was in Cincinnati and not New York or Detroit, made for inconvenience and delay in the performance of these examinations. For this reason, a group of local medical consultants was engaged to carry out pre-employment examinations of applicants for positions in Ethyl Corporation when and as requested, and to report these to the Medical Department. These consultants were located in New York, in relation to the New York office and the Yonkers Laboratory, in Detroit, and in other cities in which there were division offices. Members of the Medical staff have maintained close professional contact with these consultants, familiarizing them with the relevant medical policies of the Corporation, and integrating their work with that of the Medical Department.

The foregoing development led to the advisability of further extension of the medical services of the Corporation to its employees, and paved the way for the present program of medical service and, so to speak, medical maintenance. Plans were laid during the war, and

consummated as soon as possible after its close, for providing not only pre-employment examinations for all employees, but also annual examinations, with somewhat limited opportunities for certain types of medical advice in the interim. This required the development of a medical office in New York, and an extension of the medical facilities of the Detroit Laboratory. Dr. Machle took over the responsibility for this development in New York, and soon associated with himself an office and laboratory staff of two persons and an assistant physician, Dr. Emil Beyer. At the same time, this group took over the responsibility for all personnel of Ethyl Corporation in the New England and Philadelphia area, and for mixing personnel of customer companies in that area.

The Detroit Laboratory, under the medical supervision of Dr. Sanders as the visiting physician, had first acquired the services of a nurse for first aid and minor medical service to its staff in 1942. With the adoption of the more comprehensive program of medical work, it became advisable to engage the services of a physician to visit the Laboratory daily and to set up and maintain a schedule of periodic examinations. Dr. Carl^{J.} Sprunk of Detroit assumed these duties, in which capacity he now acts as assistant to Dr. Sanders.

At the end of the war it was possible to augment the staff of traveling physicians so as to lighten the load of medical work which had increased steadily during the war and of necessity had been assumed by the existing staff. Dr. Earl Doty was appointed in this role in 1945, first as assistant to Dr. Schradin, then as a staff member assigned to an area in which he assumed full responsibility for the medical supervision of personnel of both Ethyl Corporation and oil companies.

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While the augmented medical program was being planned and

implemented, a new phase of medical work came into being, in that Ethyl Corporation took over the operation of its manufacturing plant in Baton Rouge in September of 1945. It became necessary to organize a plant medical service, without delay. Fortunately this was not as difficult as might have been expected, since the Medical Director of Ethyl Corporation, acting as a special medical consultant to E. I. Du Pont de Nemours and Company, had had intimate and continual familiarity with the Baton Rouge plant and its personnel throughout the entire period of the existence of the plant. After a period during which the physicians of the Du Pont medical staff remained at the plant to carry on the medical services as they had before, Dr. Joy C. A. Bock was appointed to head the Medical Staff at Baton Rouge. Dr. William W. Corbett, formerly of the Du Pont organization, elected to remain, and other physicians were found to assist Dr. Bock in the work at Baton Rouge. The present medical service at Baton Rouge, which will require some expansion when a new medical building has been completed, consists of four physicians, Dr. H. C. Harris having joined Dr. Bock and Dr. Corbett in November of 1945, and Dr. George D. Licks having come in October of 1947. The full staff of the plant dispensary, in conformance with the requirements of the varied services, (formally approved by the American College of Surgeons) is made up of nurses, technicians in the clinical and X-Ray laboratories, and secretarial assistants.

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The beginning of commercial operations in Mexico in 1934 required the appointment of a physician residing in and licensed in that country to supervise the mixing personnel of the gasoline distributing companies. This was accomplished when Dr. W. J. Lynn agreed to undertake this work. Dr. Lynn died in November of 1937, and was succeeded by Dr. Salvador Bermudez, who is associated with

the School of Public Health in Mexico City. Dr. Bermudez maintains a close consulting relationship with Mr. L. M. Phillips, who represents Ethyl Corporation commercially in Mexico, and sends reports frequently to the Medical Director.

The activities of the Medical Department over the years, and its present function have been indicated in the preceding account. In order to summarize them and to demonstrate the functional pattern of the Department as a whole, a chart has been prepared and is attached. Two additional features of the medical activities mentioned in the chart as duties of the Medical Director appear to require elaboration as history and as present policy.

The occupational hazards involved in the conduct of this business enterprise, and the justified concern manifested by health authorities and by the public in relation to the effects of exposure to lead compounds, have necessitated the maintenance of close and mutually frank relationships between the Medical Department of Ethyl Corporation and responsible public health officials. Such a liaison has been maintained with the U. S. Public Health Service, and when Ethyl Corporation has extended its activities into other countries, the public health authorities have been consulted beforehand and put in possession of all the available information relating to occupational or public health. By such a policy, and by virtue of the systematic publication of the results of investigations carried out in a responsible institution of learning, the good faith of the Corporation has been shown and its medical representatives have been accorded a respectful hearing. Indeed, on several occasions, their professional assistance has been sought in dealing with problems of public and governmental

policy and procedure, in relation to this industry.

The conduct of the admittedly hazardous business of the Corporation has been fraught with more than an ordinary need for means of defense against litigation based upon false claims of injury to the health and well-being of persons engaged in the occupations or merely represented in the general population. It has been one of the factors which has justified the expense of a program of hygienic research sponsored by the Corporation. In addition, it has been a duty of the Medical Department to maintain an intimate and detailed acquaintance with all of the activities of the Corporation which might, conceivably, result in medico-legal complications. It is true unfortunately, that very few of the business operations of the Corporation fall outside this category. Consequently, the Medical Department has been required to enter into the discussion of a number of policies and procedures which, ordinarily, would be regarded as strictly related to commercial matters. It has had a degree of authority deliberately delegated to it by executives of the Corporation, the exercise of which, under other circumstances, might have had an arbitrary and dogmatic character. The point which has been made and implemented, is that if the Medical Department must assume professional responsibility for the guidance of the Corporation in matters of public policy related to health, - as it must under the circumstances, it must have minute and detailed knowledge of what is going on in the activities of the Corporation and, in many instances, be in a position to direct the Corporation. It must also have an authority commensurate with this responsibility. This has translated itself into an organizational relationship which is not common in American industry. The Medical Director has derived his authority directly from the Board of Directors of the Corporation.