Minutes of Meeting
Ethyl Medical Department
February 2, 1960
Vernon Manor Hotel
Cincinnati, Ohio

Present at Meeting:

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| Dr. Kehoe | Dr. Schradin |
| Dr. Kitzmiller | Dr. Bock |
| Dr. Princi | Dr. Sprunk |
| Mr. Wheeler | Dr. Brust |
| Mr. Cholak | Dr. Horton |
| Dr. Sanders | Dr. Davis |

Dr. Kitzmiller opened the meeting at 9:45 AM.

As the first order of business, Dr. Kitzmiller requested clarification of the role of Dr. Kehoe as consultant to Ethyl Corporation and to the Medical Department.

Dr. Kehoe replied as follows. He described the early history of his relationship to Ethyl Corporation. He stressed the delicate balance of relationships between his university responsibilities and his responsibilities to the Ethyl Corporation. Since 1953, however, his role has been that of consultant to the Corporation with particular reference to the experimental work performed at the Kettering Laboratory for the Corporation. He has been particularly concerned where the problems under consideration relate to the matters of the public health. He has continued to maintain relationships with the United States Public Health Service and the Canadian Government in these matters. In addition, he has been concerned with the tetramethyl lead program and the organic manganese and nickel programs. He stated that his present medical activities for the Corporation were entirely outside of the day-by-day activities of the Medical Department. Unless consulted by the Medical Department, he planned not to be concerned with the affairs and operation of the Medical Department.

Dr. Princi asked the question of who is to decide the priority of reports where individuals have dual responsibility, both to the Kettering Laboratory and to the Ethyl Corporation. Dr. Kehoe answered that the individual with dual responsibility would have to make his own decision as best he could. Dr. Princi raised a specific point in illustration of his question. It had to do with a memorandum from Dr. Horton to Dr. Brust concerning information about the toxicity of AN compounds for an Ethyl brochure. Neither Dr. Kitzmiller nor Dr. Sanders had been informed of this request.

Kehoe suggested that this was a problem of intra-laboratory unication. That properly, Dr. Kitzmiller and Dr. Sanders ld have been informed by means of carbon copies of the corre- ence. Dr. Kitzmiller added that generally he would like to ve copies of all memoranda concerning the activities of the al Department. However, in this instance he thought that the nge of toxicological information could be handled without irect knowledge. Dr. Kehoe suggested that generally these ems could be resolved without difficulty but that there be instances in which it would be difficult to decide where gations to the university ended and obligations to the Cor- ation started. He suggested that it would be important to ine responsibilities as carefully as possible to avoid future ficulties such as might arise in the areas of confidentiality nformation.

itzmiller raised the question of the handling of confidential mation by secretaries. Dr. Kehoe replied that in certain nces it is essential that secretaries be hired specifically e affairs of the Corporation and be permitted to handle con- tial information apart from the general university activities.

itzmiller raised the question which referred to an earlier ent of Dr. Kehoe's. Dr. Kehoe had stated that if the organi- al pattern interfered with the accomplishment of the work of partment that the organizational pattern would have to be ised. Dr. Kitzmiller suggested that if such were necessary he organizational pattern might be altered to avoid inter- with the accomplishment of the work of the department.

ust brought up the point that it is necessary for the Toxi- y Division to inform the Director of the Laboratory of its ivities even before the Director of the Medical Department of Corporation may be informed about the results of certain of experimental projects that relate to the Ethyl Corporation. Kehoe suggested that copies of correspondence sent to the Medical Director are not sufficient to inform the Director e Laboratory and that personal and telephone conversations ablish the job more effectively.

Sanders suggested that the problems of communication concern- experimental work were primarily a matter of Kettering Labora- organization and it was not primarily a matter of concern of Medical Department of the Corporation. He did request clari- ation of his source of information concerning toxicologic infor- ion if he were to remain the liaison between the Kettering Labo- ry and the Ethyl Research Laboratories at Detroit.

Sanders suggested that he be informed as to how much informa- were available about new materials and wanted to know whether t he was to get his information directly from the Director e Kettering Laboratory or from the Director of the Division

of Toxicology of the Kettering Laboratory. Dr. Kehoe suggested that this problem could not be resolved at a meeting such as the present one. He added that the Ethyl Corporation has usually received that information which is available as promptly as was practical to provide it.

Dr. Kitzmiller added that an organizational pattern is being set up for the Medical Department that will eliminate the difficulties which have arisen in the past. He asked Dr. Kehoe to clarify the area of activities of the Kettering Laboratory that are not the concern of the Medical Department of the Corporation.

Dr. Kehoe suggested that it would not be too difficult to separate the functions of the Medical Department of the Corporation from the activities of the Kettering Laboratory as related to the medical problems of the Corporation. Dr. Kehoe added that the toxicologic information of interest to the Detroit Laboratories of the Corporation could be handled directly by the Director of the Kettering Laboratory or by the persons in the laboratory concerned with the toxicology activities.

Dr. Kehoe added that there would be a time when the toxicologic information developed by the laboratory becomes of great importance to the Medical Department. He cited the example of tetramethyl lead in its early evaluation in the laboratory. He also suggested that the transfer of this information from the laboratory to the Medical Department of the Corporation could be accomplished easily.

Dr. Kitzmiller asked about the priorities of research on new products and as to whether or not this priority was directed by the needs of the Detroit Laboratory or by pressure from the Sales Department of the Corporation. Dr. Kehoe replied that in terms of the screening procedures the Kettering Laboratory knows only that the Ethyl Laboratories at Detroit or at Baton Rouge have become interested in the compounds submitted for toxicity screening.

Dr. Kehoe added that the laboratory is not concerned with the interest of other activities of the Corporation relating to new compounds screened by the Kettering Laboratory for the Detroit Laboratory.

Dr. Kehoe suggested that at the Detroit and Baton Rouge Laboratories, Drs. Sprunk and Bock were the members of the Medical Department of the Corporation concerned with the problem. Dr. Kitzmiller added that there is now a consulting team within the Medical Department to provide information to the medical departments at Detroit and Baton Rouge concerning the toxicity of new materials. Dr. Kitzmiller suggested that periodic progress reports from Dr. Brust to the Director of the Medical Department of the Corporation would help the Medical Department in advising

the physicians at Baton Rouge and at Detroit of the amount of information known on new compounds.

Dr. Brust requested information concerning his past failures to provide information to the Corporation. He added the following to illustrate his difficulties. He has received materials from the Ethyl Laboratory at Detroit for screening without any knowledge as to the potential use of the material to be screened. Expensive procedures may be carried out which contribute no useful information to the Detroit Laboratories before the Toxicology Division is aware of the potential use of the material. Dr. Kehoe suggested that further information be requested from the Detroit Laboratories before any screening procedures have been carried out.

Dr. Bock mentioned the fact that until a few years ago he represented the Medical Department at Baton Rouge and screened all materials for the benefit of the Kettering Laboratory before they were shipped from Baton Rouge to the Kettering Laboratory. In recent years, however, this system has broken down because of internal difficulties at Baton Rouge.

Dr. Bock mentioned that prior to 1945, the day-by-day medical activities at the Baton Rouge plant were managed by the DuPont Medical Staff located at that plant and that the Medical Department of the Ethyl Corporation had only an informal advisory relationship to that department. He added that the local medical activities at Baton Rouge have usually been a matter of concern only to the medical people at Baton Rouge.

Mr. Cholak raised a question of his relationship to the Medical Department of the Corporation. He wanted to know whether or not reports of analytical determinations go to the people in the Corporation who request the services. The alternative would be the submission of reports to the Director of the Kettering Laboratory. Dr. Kehoe replied that all work done by the Kettering Laboratory for the Ethyl Corporation should be reviewed by the Director of the Kettering Laboratory or by some person designated by him to review the reports. He added that charges are made to the Corporation by the Kettering Laboratory for work done as a service and therefore are primarily a function of the laboratory. He added that advice and consultation given by members of the Kettering Laboratory Staff to the Corporation at the time of visits to the places of manufacture or laboratory development are not matters of concern to the Kettering Laboratory directly.

Dr. Aitzmiller re-enforced the statement of Dr. Kehoe by reading a memo from Dr. Kehoe to the Kettering Laboratory Staff concerning the furnishing of information directly to the outlying establishments of the Ethyl Corporation. The memo requested that all analytical information performed for the Corporation by the Kettering Laboratory be submitted to the Director for review prior to the

sending of this information to the activity of the Corporation directly concerned.

Dr. Kehoe presented a discussion on the recent change in policy concerning the change in the limit of addition of tetraethyl lead to gasoline. Recently the United States Public Health Service agreed that the industry may increase the lead content of gasoline to the extent of 4 ml per gallon. Dr. Kehoe distributed copies of the recent Kettering Laboratory publication on the Expected Biological Effects of the Increase in the Leading of Gasoline. He also mentioned the fact that United States Public Health Service has published a report on the expected increase in the use of tetraethyl lead in gasoline.

The United States Public Health Service has adopted an attitude of neither permitting or prohibiting the increase in leading of gasoline but merely permitting the industry to proceed on its own. He added that the reversal in attitude by the Kettering Laboratory on the prohibition of increased lead content of gasoline was in measure influenced by the reports of the marketing people and the Detroit Laboratories that lead consumption would not go up markedly with the granting of permission to increase the lead limit from 3 ml to 4 ml per gallon. This privilege will only be used in areas where other methods of producing high octane gasoline are not available to the refiners.

The meeting was interrupted at noon for lunch.

Meeting was resumed at 1:00 PM without Dr. Kehoe.

Dr. Kitzmiller called for questions concerning the proceedings of the morning. Dr. Sprunk requested clarification of the memorandum concerning the reporting of Kettering Laboratory analytical results. Dr. Kitzmiller clarified this and reiterated the desires of Dr. Kehoe to review all Kettering analytical laboratory data prior to their being sent to the various departments of the Corporation. Dr. Kitzmiller also added that the Industrial Health Team of the Ethyl Corporation Medical Department at the Kettering Laboratory was prepared to go out to all outlying facilities of the Ethyl Corporation to advise concerning the role that the Kettering Laboratory should play in the control of hazards at the Research Laboratories and at manufacturing facilities of the Ethyl Corporation. Dr. Kitzmiller read the announcement and description of the Industrial Health Team of the Medical Department of the Corporation. This will be available for later inspection.

Dr. Princi elaborated on the concept of the Industrial Health Team as follows. All medical advice to the company should come from the Medical Director. All medical control at the plant or research laboratory level should be handled through the chief physician at

...nt or laboratory concerned. Dr. Princi described the ... of an hypothetical problem starting with production of ...aterial. The procedures described were aimed at the ...g of new information as rapidly as possible and the pub...g of this information in a company manual. This informa... should also be available for destribution to other activities ... Corporation and to Public Health officials who may be con... with the public health hazards associated with the use of ...aterial. Dr. Princi also described the Industrial Hygiene ... which is in the process of being prepared by Mr. Wheeler.

... Princi emphasized the need for an annual report which should ... submitted to the Medical Director. Dr. Princi requested that ...mmunications from members of the Corporation Medical Department ... the laboratory not go to Dr. Kehoe routinely. If it is neces... for Dr. Kehoe to be notified concerning these requests that ... so notified by separate communication.

... Hitzmiller clarified the role of Dr. Brust in the preparation ... Ethyl Medical Department manuals. Dr. Brust will furnish in...mation available in the reports of the Toxicology Division of ... Kettering Laboratory and material developed out of new experi...ntal work done by the Division of Toxicology.

... Brust raised the question of responsibility on the part of ...ersons traveling through the Detroit Laboratory who may be re...sted to give medical opinions on the scene. Dr. Princi reit...ated the policy that all members of the Cincinnati Medical De...rtment who visit other facilities of the Corporation will re...rt to the physician on the local scene and that all opinions ... recommendations be delivered either to the physician or in ...njunction with the physicians recommendations to the local peo...le. Dr. Brust raised the question of unofficial reports on tox...city studies and the hazards of reporting such information to ... research personnel before the final answer has been obtained. ...r. Princi replied that no information should be given unless ...ere is enough reason to be certain that the answer is valid. ...r. Sanders reiterated this point.

Dr. Bock commented on the prospective changes in the Medical De...rtment structure and in general expressed approval of the idea. ...e did raise several questions, however. The first question he ...aised was that of titles of persons. He suggested that each ...lant have its own plant Medical Director and that the head of ... Central Medical Department of the Corporation be called Chief ...edical Director of the Corporation. Dr. Bock also raised the ...question as to whether or not the plant physician should be re...sponsible for the environmental survey and control of the plant. ...e was of the opinion that the physician should be concerned only ...with the detection of illness of individuals who work within the ...plant. There was considerable difference of opinion among other

persons present as to whether the physician should be concerned with industrial hygiene problems. Dr. Kitzmiller reiterated the fact that the Industrial Health Team was designed to provide service to the physician on the local scene. The reports of this team will be made to the local plant physician. The local plant physician will then be responsible for the transmission of this information to plant personnel.

Dr. Bock agreed that the Medical Director at the plant could be the responsible person if his position in the management scale was commensurate with his responsibilities for the maintenance of the health of the plant. Dr. Kitzmiller suggested that Dr. Bock could command any of the resources of the Medical Department for the evaluation of problem situations by communicating directly with Dr. Princi.

Dr. Bock raised the question of the authority of the Medical Department to effect any changes in the operation of the plant. His experience at Baton Rouge had led him to the belief that management would have to be changed considerably before they would accept the concept that the Medical Department of the Corporation has authority to effect changes for the purposes of control of health hazards. Dr. Kitzmiller suggested that the Medical Department could use its influence if plant management were not receptive to suggestions made by the local medical department.

Mr. Cholak raised the question of whether or not the Industrial Hygienist, Mr. Wheeler, should inspect plants without prior announcement. He contended that the unannounced appearance of the Industrial Hygienist would not be calculated to engender the maximum of co-operation on the part of the plant manager. Dr. Princi agreed and stated that the description of the activities of the Industrial Hygienist should be re-written so that his visits to plants and research laboratories be primarily on a scheduled basis.

Mr. Wheeler explained that as of the present time he has covered only the manufacturing plants. He has been to the Detroit Laboratories once on an informal visit. He has been invited to the plant at Sarnia, but he has not as yet visited that plant.

It was agreed that the Industrial Hygienist and the Industrial Health Team would submit its report to both Dr. Princi and to the local plant Medical Director. The local Medical Director will then have the responsibility to bring the recommendations to the Industrial Health Team to the attention of the plant manager.

Dr. Bock mentioned that Mr. Turner has recently made specific recommendations in writing to the people who are in the research and development group concerning the communications pattern which should be followed for the purpose of handling the health control problems. Dr. Bock suggested that the Medical Department look into the specific

recommendations made by Mr. Turner in this respect to determine whether or not they are in harmony with the recommendations made by Dr. Princi at this meeting.

Mr. Wheeler brought up the question of the differences of medical practice among the various plants. He cited the differences in practice in regard to audiometry and to restrictions that exist between the Houston plant and the Baton Rouge plant.

Dr. Princi suggested that such differences in practice be brought up at annual meetings of the Medical Department and be discussed to determine whether or not there are good reasons for differences in practice.

Dr. Bock agreed with the desirability of working out details of policy procedures for the medical departments of all plants at subsequent meetings.

Dr. Kehoe returned to the meeting at this point. He distributed copies of the report of the United States Public Health Service concerning the addition of 4 cc of TEL to marketable gasoline. He stressed the points that (1) United States Public Health Service does not have the power to encourage the use of it, (2) that this report is neither a regulation nor should it be interpreted as an agreement between the United States Public Health Service and the industry to permit the industry to do this. Dr. Kehoe stated that to the best of his knowledge there are no state laws which restrict the use of tetraethyl lead in gasoline. He did mention the proposed law in the state of California which will set a maximum allowable concentration for lead in the atmosphere. Just what this limit will be and how it will be enforced were not discussed.

Dr. Kehoe described prospective use of tetramethyl lead in gasoline. He discussed the name of company involved and the geographical area in which this material is to be introduced. Dr. Kehoe described the experimental study in which the effects of tetramethyl lead in automotive fuel were studied in a group of taxi-cab drivers. He discussed the relative toxicities of tetraethyl lead and tetramethyl lead. He stressed the fact that the character of lead in the exhaust is not changed substantially when tetramethyl lead is substituted for tetraethyl lead in gasoline. Tetramethyl lead is considerably more volatile than tetraethyl lead. The rate of skin absorption of tetramethyl lead is much less than that of tetraethyl lead.

Dr. Kehoe has discussed the possibility of substituting tetramethyl lead for tetraethyl lead with persons in the United States Public Health Service. These discussions have been held at an informal level. At this point persons in the United States Public Health Service are deciding whether or not a statement should be issued

to the public relative to the substitution of tetramethyl lead for tetraethyl lead.

Under any circumstances, it will be the obligation of the Ethyl Corporation to continue to obtain data on the likely effects of tetramethyl lead on the public health until it is certain that these are not significantly greater than those of tetraethyl lead. Inasmuch as TML produces approximately one and one-half times the octane boost of TEL of the same inorganic lead content, Dr. Kehoe will suggest that for the present time the industry limit the addition of TML to the extent of 2 cc. Because TML is more volatile than TEL, Dr. Kehoe suggested that the handling problems associated with TML will be greater than those created by TEL. Mr. Wheeler added that the use of methyl chloride in the manufacture of TML may require more control than was required by the use of ethyl chloride in the production of TEL.

Dr. Bock described the prospective plans for following the men at Baton Rouge who will be making TML. Only three men will be concerned directly with its manufacture. The maintenance personnel will be used interchangeably in the TML and TEL units so that it will not be possible to follow their lead excretion rates as a control measure. No data were obtained from the personnel who worked with TML in the development stage.

Mr. Wheeler also raised the question of the inadvisability of aerating to scrub TML out of the sludge of the manufacture of TML. High volatility of TML makes it inadvisable to do this. How this problem will be handled has not yet been decided.

Dr. Brust described the experimental program contemplated for the evaluation of toxicity of TML.

Dr. Horton described prospective studies of the absorption and excretion of TML as determined by use of radio isotopes. At present, the laboratory is using tritiated compounds. In the near future they hope to incorporate the use of radium-D in tetramethyl lead for the purpose of following the metabolism of tetramethyl lead in animals.

Dr. Kitzmiller closed the meeting at 5:55 PM.