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Advisory Committee Meeting with Attachments

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AMERICAN PETROLEUM INSTITUTE
MEDICAL ADVISORY COMMITTEE

Twenty-second Meeting
November 12, 1956
Conrad Hilton Hotel
Chicago, Illinois

MEMBERS PRESENT

L. E. Curtis, M. D. Chairman
V. C. Baird, M. D., Vice Chairman
F. D. Gassaway, M. D., Secretary

W. O. Armstrong, M. D.	B. S. Miller, M. D.
Iamson Blaney, M. D.	C. R. Miller, M. D.
F. F. Boys, M. D.	T. H. Mitchell, M. D.
Richard Call, M. D.	M. N. Newquist, M. D.
Kieffer Davis, M. D.	J. W. Osborn, M. D.
R. E. Eckardt, M. D.	B. B. Reeve, M. D.
T. M. Frank, M. D.	J. C. Ruddock, M. D.
C. H. Hine, M. D.	G. M. Saunders, M. D.
T. J. Kelly, M. D.	R. Schneider, M. D.
E. K. Linder, M. D.	Leo. J. Wade, M. D.

TECHNICAL ADVISORS PRESENT

W. L. Avrett, Jr.	R. M. Landon
R. D. Bent	L. Mittelman
C. T. Brown	C. A. Neilson
R. C. Cole	A. C. Pabst
E. K. Daniels	T. B. Rendel
H. W. Gerarde, M. D.	L. E. Renes
N. J. Gothard	F. E. Rosenstiehl
Paul D. Halley	Jack Spence
J. W. Hammond	

OTHERS REGISTERED

N. W. Bolyard	Standard Oil Company (Indiana)
Philip Drinker	Harvard University
M. D. Cjerde	Standard Oil Company (Indiana)
R. Sarfeh, M. D.	National Iranian Oil Co.
W. E. Scovill	Standard Oil Company (Ohio)
D. V. Stroop	American Petroleum Institute
Norman Thompson	Sun Oil Company
John B. Tuttle	Esso Standard Oil Company
J. H. Yates	Esso Standard Oil Company

MEMBERS NOT REGISTERED

Marshall Clinton, M. D.	E. P. Luongo, M. D.
J. W. Crookshank, M. D.	R. C. Page, M. D.
K. R. Fourcher, M. D.	R. J. Potts, M. D.

API 07268

MINUTES OF TWENTY-FIRST MEETING

ACTION: The committee voted to approve the minutes of the Twenty-first Meeting as circularized by letter dated May 31, 1956.

II

SUBCOMMITTEE REPORTS

A. Operating Subcommittee - L. E. Curtis, M. D., Chairman

Dr. Curtis made a brief informal report on the subcommittee meeting which had been held on November 11, 1956.

B. Program Subcommittee - B. B. Reeve, M. D., Chairman

Dr. Reeve read his brief report which is attached to these minutes as Appendix A.

ACTION: The committee accepted the report and voted to hold a public group session on Monday Morning, November 11, 1957, at the 37th Annual Meeting of the American Petroleum Institute in the Conrad Hilton Hotel, Chicago, Illinois.

C. Subcommittee on Atmospheric Pollutants - John C. Ruddock, M. D., Chairman

Dr. Ruddock presented the subcommittee report with recommendations which is attached as Appendix B.

ACTION: After adoption of two amendments the committee adopted the subcommittee recommendations as follows:

1. It is the opinion of the MAC that liaison with the Smoke and Fumes Committee should be continued and that each of these committees should be advised continuously concerning the findings and conclusions of the other concerning atmospheric pollutants.
2. It is recommended that all matters pertaining to effect of air pollutants on human health and welfare which are not technical or analytical in their nature be referred to the MAC for advice or for recommendations on study and research.
3. It is recommended that \$20,000 1957-1958 be allocated by the API for the use of the Subcommittee on Atmospheric Pollutants of the MAC in order to activate a research project on clinical and physiological effects of air pollution.

- (a) To evaluate the direction and extent of current research now being carried on.
 - (b) To determine the physiological significance, if any, of atmospheric pollutants resulting from the production, transportation, and use of petroleum products, the subject pollutants to be determined by consultation with the appropriate technical committee of the API.
4. It is recommended that the subcommittee on atmospheric pollutants review suitable research facilities and solicit experimental designs by which such studies may be undertaken.
5. It is recommended that the Smoke and Fumes Committee sponsor a research project, the purposes of which would be:
- (a) To develop analytical methods for the quantitative analysis of 3-4 benzpyrene and other polycyclic compounds in the exhaust of gasoline motors, Diesel engines and atmosphere.
 - (b) To determine the stability of 3-4 benzpyrene under varying conditions of atmospheric exposure.
6. It is recommended that the chairman of the Subcommittee on Atmospheric Pollutants should be instructed to establish liaison on specific work with members of organizations, such as the Association of American Railroads and Automobile Manufacturers Association, on matters concerning medical research in atmospheric pollution.

D. Subcommittee on C9-C12 Aromatics - C. H. Hine, M. D., Chairman

Dr. Hine presented the subcommittee report which is attached as Appendix C.

ACTION: The committee voted to accept the report with its recommendation for the extension of the study through the fiscal year 1957-58 at an additional cost of \$20,000.

E. Subcommittee on Carcinogenicity - Robert E. Eckardt, M. D., Chairman

Dr. Eckardt presented the subcommittee report which is attached as Appendix D.

ACTION: The committee voted to accept the report.

F. Subcommittee on Economic Poisons - J. W. Osborn, M. D., Chairman

Dr. Osborn presented the subcommittee report which is attached as Appendix E.

ACTION: The committee voted to accept the report.

G. Subcommittee on Physical Agents - Lamson Blaney, M. D., Chairman

Dr. Blaney presented the subcommittee report which is attached as Appendix F.

ACTION: The committee voted to accept the report.

H. Subcommittee on Toxicological Reviews - H. W. Gerarde, M. D., Chairman

Dr. Gerarde presented the subcommittee recommendations which are attached as Appendix G.

ACTION: The committee voted to accept the recommendations as presented.

I. Subcommittee on Industrial Hygiene - P. D. Halley, Chairman

Mr. Halley presented the subcommittee report which is attached as Appendix H.

ACTION: The committee voted to accept the subcommittee report.

Note: Without objection, Chairman Curtis requested the Subcommittee on Industrial Hygiene to review and report on a monograph which had been referred to him by the M. W. Kellogg Company.

J. Subcommittee on Dermatology - Leo J. Wade, M. D., Chairman

Dr. Wade presented the report dated October 24 which had been sent to members.

ACTION: The committee voted to accept the subcommittee report.

III

Philip Drinker

Philip Drinker discussed subjects and developments of interest to members of the committee.

IV

REPORTS BY LIAISON MEMBERS

Brief informal reports were made by or on behalf of all liaison members of the Medical Advisory Committee.

EXECUTIVE SESSION

A. Budget for 1957 - 1958.

The Medical Advisory Committee reviewed the 1957-58 budget estimates as follows:

University of Cincinnati	- MC - 1	\$38,000.00
University of Texas	- MC - 2	14,000.00
Carl A. Nau, M. D.	- MC - 2 Services	6,000.00
Philip Drinker	- Retainer	3,000.00
" "	- Toxicological Reviews	6,000.00
Committee on Noise in Industry		5,000.00
Xerosine Project (Treatment)		5,000.00
Miscellaneous Expense		500.00
		<u>\$77,500.00</u>

ACTION: The committee voted to recommend the budget to the Medical and Health Committee for approval and for authorization for the solicitation of oil company contributions in 1957 in the same amounts as those made in 1956 which, in the aggregate amounted to \$79,750.00.

B. Subcommittee Assignments

ACTION: The committee voted to delegate responsibility of supervision of the American Standard Association projects and committee assignments to the Subcommittee on Industrial Hygiene.

C. Twenty-third Medical Advisory Committee Meeting

ACTION: The committee voted to hold its 23rd Meeting on April 20, 21, 22 at St. Louis, Mo., immediately preceding the meeting of the Industrial Medical Association.

VI

ADJOURNMENT

There being no further business before the committee, the meeting was adjourned.

F. D. Gassaway, M. D.
Secretary

Approved by:
L. E. Curtis, M. D.
11/30/56 Chairman.

APPENDIX A
To Minutes of 22nd MAC Meeting

PROGRAM SUBCOMMITTEE
B. B. Reeve, Chairman

The Program Subcommittee prepared the Medical and Health Program which you heard this morning. We want to thank the speakers for their fine presentations.

We have prepared for the A.P.I. Medical Advisory Committee program for tomorrow, which is to be held in Private Dining Room #3. Everyone has been sent a copy of the program. The Committee hopes every member will be present and participate in this discussional meeting.

We are looking for suggestions as to how we can improve these meetings. Already we have obtained some suggestions that will be discussed at the meeting.

The Program Subcommittee proposes that a decision be obtained from the A.P.I. Medical Advisory Committee at this time as to whether another open meeting should be held, in order that the oncoming Program Subcommittee can begin planning.

The Program Subcommittee wishes to thank the members of the Medical Advisory Committee for their help in developing the programs for this year.

B. B. Reeve, Chairman

Lamson Blaney, M.D.
F. D. Gassaway, M.D.
E. K. Linder, M.D.
J. W. Osborn, M.D.
G. M. Saunders, M.D.

APPENDIX B
To Minutes of 22nd MAC Meeting

REPORT OF THE SUBCOMMITTEE ON ATMOSPHERIC POLLUTANTS
OF THE MEDICAL ADVISORY COMMITTEE
TO THE AMERICAN PETROLEUM INSTITUTE

J. C. Ruddock, M. D., Chairman

The duties of the Subcommittee on Atmospheric Pollutants are:

1. To keep the Medical Advisory Committee continuously informed of the status of research which has been completed or is contemplated which concerns directly or indirectly the effects of atmospheric pollutants on the health and welfare of human beings.
2. To establish liaison with the Smoke and Fumes Committee of the Division of Refining, and especially its Technical Advisory Committee, in order to keep the Medical Advisory Committee informed of the technical findings of this committee; to become cognizant of analytical tools of research; and further, to advise the Smoke and Fumes Committee (and especially its Technical Advisory Committee) concerning the aspects of the Medical Advisory Committee's interest which may affect the recommendations and conclusions of the Technical Advisory Committee.

Under the present administrative setup, the chairman of the Subcommittee on Atmospheric Pollutants acts as liaison with the Smoke and Fumes Committee of the Division of Refining.

Following a proposal of the Medical Advisory Committee at its meeting in April, 1956, the chairman of the MAC, Dr. Curtis, attended a meeting of the Smoke and Fumes Committee in Montreal in May, 1956. Dr. Curtis was given the privilege of the floor and made a request that \$20,000 be given for a program to review the literature to date concerning the effects of atmospheric pollutants on human beings and particularly those pollutants which may emanate from the production, manufacture or use of petroleum products.

The Smoke and Fumes Committee denied the request of the MAC on the grounds that they do not wish to be required to judge the merit of requests on matters outside their scope. Further, they were unwilling to act as a collection agency for the MAC and requested that any items proposed by the MAC be presented to the Board via the chairman of the Medical and Health Committee rather than to the Smoke and Fumes Committee. This matter was presented to all members of the Smoke and Fumes Committee by ballot letter vote, and all members approved of the action denying our request.

It was unfortunate that at the time of the action by the Smoke and Fumes Committee there was confusion in relation to instructions of the Board of Directors of the API and apparently some confusion of communication in setting up the desired procedural directives.

This matter was then taken up by the Executive Committee of the Board at a meeting at White Sulphur Springs on September 26, 1956, with the following resulting recommendations:

1. The Medical Advisory Committee serves as a service group to the four API operating divisions.
2. Medical aspects of operating problems, regardless of origin, should be considered jointly by interested divisional committees and medical committees.
3. If such problems involve expenditures, budgetary requests should be referred to the interested operating division for endorsement and inclusion in its budget with the understanding that the Medical Advisory Committee shall be responsible for the expenditure of such funds.

Almost immediately following this meeting, the chairman of the Subcommittee on Atmospheric Pollutants met with the Technical Advisory Subcommittee of the Smoke and Fumes Committee in New York City. This subcommittee approved of the manner in which we were approaching the subject of our project and felt that our request was reasonable. All present agreed that some \$20,000 should be allocated to us but that the manner in which it was requested must be left up to the Smoke and Fumes Committee as a whole. Excellent liaison was effected at this meeting, and it is hoped that their recommendations of approval of the manner in which we approached our project will be helpful. Liaison will be continued with the Smoke and Fumes Committee at their next meeting in November, 1956, in Chicago.

NEED FOR FURTHER LIAISON.

It is evident that money spent on the meticulous unraveling of the chemistry of atmospheric pollutants, the identification of the elements of atmospheric pollution and the determination of analytical methods for research and identification has yielded much essential information concerning the chemical reactions to the diffusion of pollutants. When these elements are discovered and identified, what are we going to do with the information? Certainly the sources of the constituents of air pollution are important if we are to eliminate pollution at the source. There is much that we can do to alleviate the situation, given proper information; we cannot of course change certain meteorological phenomena or the direction of the wind, and we cannot move mountains nor, as yet, change inversion layers that are so intimately related to the rays of the sun.

When the Technical Advisory Subcommittee can report identification of pollutants in the atmosphere, it is hoped that information will be given as to the quantity and density of "Substance X" as it is found under all conditions of weather, population density, geographical location, seasonal changes, etc., and the lengths of time it is present under these various

conditions. It is then recommended that this information be given in full to the YAC and that research be undertaken to determine whether or not "Substance X" is hazardous or only a nuisance to the human being.

There are many poisonous and noxious fumes which only become noxious when they exceed a certain density and are either respired or ingested--not once but continuously over a certain period of time. The human being may withstand the effects of a relatively large dose for a relatively short time without harmful effect, but cannot withstand the same ingestion or respiration of the substance for a long period of time. It is therefore necessary that certain standards be developed, which are scientific and not based on assumption or fear, concerning concentrations of pollutants which the human being may contact without harmful effect.

The YAC does not have any specific problem of research to recommend at this time except that we be allowed to keep abreast of work in progress or projected which will give us a base of attack on problems when further study is indicated.

Attention is called to Air Pollution Abatement Manual by E. M. Adams, published by Manufacturing Chemists' Association, Inc., Washington, D. C., 1951. In his chapter on physiological effects, Adams states: "Regardless of the nature of the problem, the causal relationship is to be proved by establishing these four points:

1. A toxic effect has occurred.
2. A pollutant capable of causing this effect is (has been) present.
3. There is (has been) an excessive exposure to the pollutant.
4. Other causes of the toxic effect do not exist.

"By 'toxic effect' is meant real injuries which are self-evident or readily demonstrable by an appropriate medical examination."

These four precepts which have been proposed by Adams, correspond to like precepts established by Koch, which are known as Koch's postulate, and which are still used in identifying positively the effects of bacterial infection.

3,4 Benzpyrene together with several other polycyclic hydrocarbons have been identified in the air of cities both in the United States and abroad. It has been suggested that these substances may result from the combustion of a variety of organic substances including fuels derived from petroleum. The significance of these substances in the production of human lung cancer has not been established, but certain epidemiological evidence suggests that regions of high atmospheric pollution show an increased frequency of pulmonary cancer.

Though certain data are available which purport to describe concentrations of 3-4 benzpyrene in urban air and in the exhaust of gasoline engines

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the subcommittee is not convinced that these values and their distribution frequency have been adequately defined.

The allegation has been made that the products of partial oxidates of petroleum products (including peroxides, epoxides and cronides) are also suspect of carcinogenicity for man. While the evidence presented to support this assumption is of doubtful significance the physiological effects of these compounds are worthy of a more critical study.

Summary and Recommendations.

1. It is the opinion of the MAC that liaison with the Smoke and Fumes Committee should be continued and that each of these committees should be advised continuously concerning the findings and conclusions of the other concerning atmospheric pollutants.
2. It is recommended that all matters pertaining to effect of air pollutants on human health and welfare which are not technical or analytical in their nature be referred to the MAC for advice or for recommendations on study and research.
3. It is recommended that \$20,000 1957-1958 be allocated by the API for the use of the Subcommittee on Atmospheric Pollutants of the MAC in order to activate a research project on clinical and physiological effects of air pollution.
 - (a) To evaluate the direction and extent of current research now being carried on.
 - (b) To determine the physiological significance of atmospheric pollutants resulting from the production, transportation, processing and use of petroleum products.
4. It is recommended that the subcommittee on atmospheric pollutants review suitable research facilities and solicit experimental designs by which such studies may be undertaken.
5. It is recommended that the Smoke and Fumes Committee sponsor a research project, the purposes of which would be:
 - (a) to develop analytical methods for the quantitative analysis of 3-4 benzpyrene and other polycyclic compounds in the exhaust of gasoline motors, Diesel engines and atmosphere.
 - (b) to determine the stability of 3-4 benzpyrene under varying conditions of atmospheric exposure.

APPENDIX C
To Minutes of 22nd MAC Meeting

Report of the Subcommittee on C₉-C₁₂ Aromatics

C. H. Hine, M.D., Chairman

Since the previous report, three additional exposure chambers have been activated, and animals are currently being exposed to the following materials:

1000 ppm benzene
2000 ppm benzene
2000 ppm C₉-C₁₀
1000 ppm C₉-C₁₀
500 ppm C₁₁-C₁₂
1000 ppm N-decane (C₁₀)

Monitoring of the chambers by ultraviolet and infrared spectrometry has indicated a satisfactory reduplication of nominal exposures concentration with little daily variation. From the general toxicity standpoint, exposure to 500 ppm of C₁₁-C₁₂ produces the greatest effect and mortality. Rats exposed to 1000 ppm of benzene show no unusual reaction. Rats exposed to 2000 ppm show some depression. Rats exposed to 1000 ppm of C₉-C₁₀ show irritation and depression; when exposed to 2000 ppm C₉-C₁₀, severe depression is noted, followed later by tolerance. Rats exposed to 1000 ppm of n-decane show some stimulation.

Hematological study of exposed rats has determined hemoglobin, hematocrit, and counts of the RBC, WBC, differential and reticulocytes. The principal investigator concludes that both stimulation and depression of the hematopoietic system has resulted. Study of the bone marrow is reported to reveal significant increases in the following cells: megablasts, promyelocytes, myelocytes and monocytes.

Desoxyribosenucleic acid assay of the bone marrow of a limited number of animals indicated that no changes occurred in rats exposed to 1000 ppm of benzene but that there was a lowering of the level in animals exposed to 2000 ppm of benzene. Exposure to 2000 ppm of C₉-C₁₀ also lowered the DNA level. Slight stimulation was noticed in animals exposed to n-decane. Other findings were equivocal.

Red blood cell counts have been made on mice exposed to the same series of compounds. A reduction in the number of red blood cells occurred with most materials. It would appear from this preliminary observation that C₉-C₁₀ and C₁₁-C₁₂ fractions have effects on the red blood count of mice similar to that of benzene.

Irritation studies have been carried out utilizing the eyes of rabbits. The greatest irritation appeared to occur with 500 ppm of C₁₁-C₁₂. Painting experiments on mice have resulted in a marked systemic effect, indicating toxicity from percutaneous absorption as well as irritation.

From the preliminary data presented, it appeared desirable to sacrifice significant numbers of animals at stated time intervals so that statistical comparison might be made between groups. While certain trends have been noted in the data obtained to date, there is considerable internal variation, and the need for utilizing sufficient numbers of animals to provide a statistical basis of comparison is evident. From the experience to date, the rat appears to be fairly refractive to those effects of benzene which occasionally occur in exposed men; therefore, consideration will be given to finding a more sensitive species. Dr. Nau recommended that, at the present rate of progress and anticipated work load, the project should continue for at least another year, commencing July 1957.

RECOMMENDATIONS OF THE SUBCOMMITTEE

The Subcommittee recommends that the present study be extended through the fiscal year 1957-58 and that additional monies in the amount of \$20,000 be solicited for support.

APPENDIX D
To Minutes of 22nd MAC Meeting

Report of the Subcommittee on Carcinogenicity

R. E. Eckardt, M. D., Chairman

Wax
rept.
by
Eckardt

PART 1 - API RESEARCH PROJECT MC-1

In respect to the Subcommittee's report on the research activities at the Kettering Laboratories, there is little additional to report beyond that was reported by the Subcommittee in April. Budget proposals were submitted at that time and need no revision other than that the Subcommittee does not believe it will need \$15,000 for epidemiological studies in 1957-1958. The Subcommittee submits without comment an interim report* from the Kettering Laboratory dated November 1, 1956.

PART 2 - TOXICOLOGY of PETROLEUM WAX

Recent newspaper publicity concerning the carcinogenicity of waxes which may be used on milk cartons, have lead the Subcommittee on Carcinogenicity to consider it advisable to conduct biological testing which will help evaluate the carcinogenicity of waxes. In addition, it is the belief of the Subcommittee on Carcinogenicity that waxes, other than milk carton waxes which might also be used in the food industry, should also be included in this testing program in order to develop a more complete picture of the situation concerning waxes. In view of this, the subcommittee recommends the following courses of action to the Medical Advisory Committee:

- 1) A survey of the types of waxes which are used in the food industry should be undertaken in order that a complete understanding of the types of waxes which come in contact with food can be had by the subcommittee.
- 2) Following the above survey a selection of samples from these waxes should be made in order to provide a potential range of carcinogenic activity in the waxes sampled, which will be determined by the following factors:
 - a) The crude source.
 - b) The oil content.
 - c) The degree and type of refining.

*Note - Copies of the Interim Report were distributed to those in attendance at the 22nd MAC Meeting. Copies are available to other members of the Medical Advisory Committee upon request to D. V. Stroop. 11-30-56

- 3) The available biological methods for carcinogenic testing of materials, comparable to waxes which find their way into food usage, should be reviewed and from them a selection of biological methods to be used in the testing program should be made, but these should probably include:
 - a) Feeding.
 - b) Skin applications.
- 4) The Subcommittee be empowered to solicit, in addition to a proposal from the Kettering Laboratory which it has already reviewed, research proposals on the carcinogenicity of waxes from the following laboratories:
 - a) The Hazleton Laboratories.
 - b) The Institute of Industrial Medicine of New York University.
 - c) The Department of Pharmacology of the University of Miami Medical School, under Dr. William Deichmann.
 - d) The laboratories of Dr. Phillip Shubik of the Chicago Medical School.
 - e) Industrial Bio-Test Laboratories, Incorporated, under the direction of Dr. Joseph Colandra in Chicago.
 - f) Stanford Research Institute, Department of Biology, M. V. Velde, M. D., and G. N. Newell, Ph.D., Directors.
 - g) UCLA, Department of Medicine, Dr. F. Bryan, Director. When these proposals have all been reviewed, the Subcommittee will make specific recommendations as to where these studies should be conducted. It is expected that this can be completed by January, 1957.
- 5) That the Medical Advisory Committee recommend to the Medical and Health Committee of the Board that \$50,000 be made available through the appropriate API Division or Divisions Budget beginning July 1, 1957 to cover the costs of such carcinogenic testing of waxes, at a laboratory to be determined as in (4) above. The Subcommittee believes that an equivalent amount of money will be needed each year for the next 3-4 years in order to study the problem adequately.

- 6) Subject to review and concurrence by API executive officers and others concerned, that a letter similar to the attached be sent by the proper authority of the API.

RESPECTFULLY SUBMITTED,

Members of the Subcommittee on Carcinogenicity

R. E. Eckardt, M. D. - Chairman

E. W. Adams

C. H. Hine, M. D.

E. K. Linder, M. D.

R. C. Mithoff

M. N. Newquist, M. D.

A. C. Pabst

R. E. Eckardt, M. D./cjh
Chairman, Subcommittee on Carcinogenicity
November 5, 1956

Attachment - Proposed letter to Leroy E. Burney, Surgeon-General, September 13, 1956.

Rough Draft #1
September 13, 1956
R. E. Eckardt, M. D./cjh

Leroy E. Burney, M. D.
Surgeon-General
U. S. Public Health Service
U. S. Department of Health,
Education, and Welfare
Washington, D. C.

Dear Dr. Burney:

On Tuesday, August 21, 1956, a news report of a symposium of The International Union Against Cancer, held in Rome on August 10-15, 1956, appeared in THE NEW YORK TIMES, under the by-line of Arnaldo Cortesi, which said, in part, the following:

"The report said certain mineral oils and paraffins used for coating milk cartons had produced cancer in man and experimental animals."

Subsequently, in TIME MAGAZINE of August 27, 1956, there appeared the following:

"Among suspects (as cancer causing agents) certain paraffins used for coating milk cartons."

As anticipated, these two news articles have precipitated a multitude of inquiries to our industry from container manufacturers, dairies, and even milk consumers. In essence, these inquiries have concerned themselves with the validity of these news releases.

In our attempt to develop the facts in this situation, Dr. Hueper has kindly provided a copy of the manuscript which he delivered at Rome, which was referred to in THE NEW YORK TIMES article, as well as a copy of the Report of the Symposium at Rome. After careful perusal of both of these documents, the only reference we could find which could have been misinterpreted by the news reporters is contained on page 22 of the Report of the Symposium and reads as follows:

"4. Since various petroleum constituents including certain mineral oils and paraffin, have produced cancer in man and experimental animals, the presence of such chemicals in foods appears to be objectionable, particularly when such materials are subjected to too high temperatures."

You will note that no specific reference is made to milk carton coatings.

The petroleum industry has been aware of its responsibilities to its own employees, its customers, and the general public, in the field of carcinogenesis. In this respect, it has had a Subcommittee on Carcinogenicity of its Medical Advisory Committee for over 10 years. During the past 8 years, the Subcommittee

APPENDIX E
To Minutes of 22nd MAC Meeting

REPORT OF SUBCOMMITTEE ON ECONOMIC POISONS TO A.P.I., M.A.C.
J. W. Osborn, M. D., Chairman

I. The Medical and Health Committee of the A.P.I. Board of Directors has authorized the Medical Advisory Committee and the Interdivisional Committee on Labeling to co-operate with other A.P.I. Committees and other interested agencies in a program of parental education for the prevention of accidental poisoning of children through the ingestion of kerosine.

To implement this charge the Subcommittee on Economic Poisons has taken the following steps:

1. Members of the Subcommittee submitted recommendations for procedure.

2. These recommendations were summarized and used as an agenda for discussion at a meeting in Cleveland on October 26, 1956 with the following in attendance:

Dr. J. W. Osborn, Chairman; Chairman of API, MAC Subcommittee on Economic Poisons.

Dr. Torald Sollmann, Chairman of Amer. Med. Assoc., Committee on Toxicology.

Dr. Jay M. Arena, Chairman of Subcommittee on Kerosine Poisoning of AMA, C.O.T.

Dr. Ralph C. Lohrey, Chairman of Child Safety Committee of Cleveland Academy of Medicine, representing Dr. George N. Starbuck, Chairman of American Academy of Pediatrics Committee on Child Accident Prevention.

Dr. Irving Sunshine, Ph.D., Toxicologist, Member of Dr. Lohrey's Child Safety Committee.

Mr. Otto C. Haier, Manager of Safety, Standard Oil Co. (Ohio) and an M.A.C. Technical Advisor to Dr. Osborn.

3. Direct liaison with the Interdivisional Committee on Labeling in relation to the preparation of a suitable precautionary label for Kerosine.
4. The full subcommittee met in Chicago on November 10, 1956 to review developments to date and to prepare this progress report to the M.A.C. Thirteen other M.A.C. members, technical advisors and guests were present.

II. The Subcommittee submits the following comments and recommendations:

has sponsored research on carcinogenicity in the amount of almost \$750,000. In a considered review of potential carcinogenic problems, our Subcommittee has concluded that no hazard to the consumer or the general public, arises out of the use of paraffin coated milk containers. In brief, its reasons for so believing have resulted from (1) a careful study of men in our industry exposed to the refined paraffin which is used in milk container application. Such clinical and epidemiological studies have never revealed a case of human cancer which has resulted from exposure to the refined paraffin. (2) The painting of 5 refined paraffins, similar to those used in milk container applications, on 150 mice for almost 500 days resulted in the production of no skin or other cancers in these animals. We believe that this human epidemiological data and animal experimental data reduce the potential hazard to the minutest possibility.

However, in our continuing and unrelenting efforts to discharge our responsibilities to our customers and the general public, we are requesting of you an interpretation and clarification of the statements which appeared in THE NEW YORK TIMES and TIME MAGAZINE.

Very truly yours,

1. To implement an effective program in prevention of accidental kerosine poisoning, education should begin within the petroleum industry, as follows:
 - a. The petroleum industry should carry out an active program of education to its employees and retail dealers.
 - b. Use of precautionary labeling.
 - c. Use of suitable containers to promote safe usage in the home.
 - d. Active planning with other API Committees such as the Agricultural Committee and the Public Relations and/or Advertising Committee.
2. To implement an effective program outside the petroleum industry, further developments are needed. The Subcommittee recommends that the following organizations be contacted to see which is willing and best prepared to organize a coordinated program of public education on the prevention of kerosine poisoning:

American Public Health Association
American Medical Association
American Academy of Pediatrics
National Advertising Council
National Safety Council

When this is determined and the program approved by the A.P.I., reasonable financial support should be given toward the program by the A.P.I.
3. Treatment of kerosine poisoning should not be separated from prevention. Present methods of treatment used may actually be contributing to severity and death rates. Basic research is needed. The A.P.I. should expect to provide reasonable financial support to qualified basic research in this field, but only after any specific research proposal has been submitted to the M.A.C. and recommended by it to the Medical and Health Committee. The A.M.A. Committee on Toxicology and the American Academy of Pediatrics Committee on Child Accident Prevention are among those specifically interested in such support. The A.P.I. should be prepared to act in furnishing financial support in this field.
4. On October 12, 1956 the American Medical Association's Board of Trustees announced publicly in the newspapers its authorization for the A.M.A. Committee on Toxicology to draft a recommended "model" law on labeling of many possibly harmful chemicals not now so regulated. Among these are "heating and cooking fuels" and other materials containing petroleum distillates as vehicles or additives. The A.M.A. Committee plans to consult other organizations and individuals who are interested in this problem, such as the American Academy of Pediatrics,

American Public Health Association, American Pharmaceutical Association, National Safety Council, "leading trade associations", and various state and national government regulatory agencies.

The Subcommittee on Economic Poisons recommends that the M.A.C. transmits this information to the Medical and Health Committee to be sure that the A.P.I. is cognizant of this proposed "model" law and will be thus alerted.

5. The subcommittee recommends that the M.A.C. specifically proposes A.P.I. Funds in the amount of \$10,000 for the fiscal year 1957-58 in anticipation of acting on specific Research and Educational proposals in the field of Kerosene Poisoning from agencies outside the petroleum industry, in the following manner and amounts:

- a. \$5,000 on the MAC Budget, for subsidizing basic research in treatment.
- b. \$5,000 on the Budget of the Operating Division or Divisions (presumably the Marketing Division) considered most suitable by the Medical and Health Committee, for subsidizing an Educational Program.

These amounts are being asked for the first year with the probability that the Educational Program will require annual contributions for several years.

III. Other activities of the Subcommittee continue to be collection and dissemination of information about economic poisons of a specific or general nature, including revised lists of active Poison Control Centers, thought to be of value to M.A.C. members and their technical advisors.

IV. The Subcommittee requests that this report be accepted by the M.A.C.

Respectfully submitted,

J. W. Osborn, M. D.
Chairman, Subcommittee on Economic Poisons

Subcommittee Members approving:

R. C. Cole
J. W. Hammond
C. H. Hine, M. D.
M. N. Newquist, M. D.
Ralph Schneider, M. D.
J. W. Osborn, M. D.

Subcommittee Members disapproving:

None.

APPENDIX F
To Minutes of 22nd MAC Meeting

REPORT OF SUBCOMMITTEE ON PHYSICAL AGENTS
Larson Blaney, M. D., Chairman

The subcommittee met on the morning of November 11th, all members except one being present, and in addition, several visitors. The chairman reported upon the information received up to the present time as the result of a preliminary noise survey procedure made available in August to all members of the M.A.C. Six Companies reported their findings which were for the most part confined to refinery studies. A seventh made available the results of a survey by the Subcommittee on Noise in Industry (American Academy of Ophthalmology and Otolaryngology). Using an overall sound level of 95 db for a period of 40 hours per week as a criteria for dangerous exposure approximately one to eight per cent of employees was found to be at risk. The principal areas and trades concerned were shops, canning, power plants, compressors, furnaces, utility plants, pump rooms, automotive laboratories, control rooms, drum cleaning, heavy vehicle and crane operators, turbiners, chippers, sculkers, boiler makers and pneumatic tool operators.

In discussing the findings the following points were made. The number of persons involved would vary in a given refinery from year to year and between refineries in accordance with the type of operation. Individuals would have varied exposure because of job changes. The difficulty of determining the cause of a hearing loss in an individual case will remain until adequate continuous studies are made of the environment and the persons at risk. At least one company represented has a well rounded program of noise control for individual and community protection and is utilizing ear defenders where necessary. Another organization has the impression that the incidence of hearing loss among individuals with exposure of a lower degree than that selected by the subcommittee in its survey is significant. It was pointed out that the number of potential compensation awards may be great. It was the consensus of the meeting that this brief survey should serve to alert all members of the M.A.C. to the potential problems of excessive noise exposure so that individual action might be taken for control.

The subcommittee felt that its future activities in regards to noise should take the form of gathering and distributing to the M.A.C. information of significant value to its members on this subject.

The matter of potential exposure to radio active materials and x-ray was then discussed. While isotopes supplied by the A.E.C. are adequately controlled at present because of regulations by that body, there may be a considerable number of additional sources in refineries whose use is not strictly regulated. One situation was mentioned where injury was claimed but the employer had no adequate records to indicate whether this had been possible or not. Many states have already taken action to see that sources of radiation are properly supervised and exposures are recorded. The regulations cover both industrial and medical equipment. Legislation has followed the lines suggested in the N.B.S. handbook number 61 in New York, Pennsylvania, and Texas. Two companies represented on the Subcommittee have initiated broad control procedures, while a third will do so in the near future. The importance of knowing the nature and degree of all potential radio active hazards was emphasized. The subcommittee proposes to conduct a brief survey similar to the one on noise exposure to gather together information which will indicate to what extent a problem of control exists.

(2)

The subject of radiant heat exposure was then discussed briefly. It is recognized that selected acclimated groups of employees have been able to work under conditions which may be considered extreme - 140° F - for the most part with few casualties. Among the companies represented by those members present no formal control measures were reported in use. However, it was agreed that it would probably be necessary to give this matter further consideration in the future as working conditions in general were improved.

Respectfully submitted,

Members of the Subcommittee on
Physical Agents

Lamson Blaney, M.D., Chairman
Keiffer Davis, M.D.
J. W. Osborn, M.D.
R. J. Potts, M.D.
Paul D. Halley
Nathan Van Hendricks

November 12, 1956

APPENDIX 3
To Minutes of 22nd MAC Meeting

The Subcommittee on Toxicological Reviews Recommends:

1. That Prof. Phillip Drinker be retained to revise present Toxicological reviews and prepare new ones on compounds to be selected by the Subcommittee.
2. That revisions of present Toxicological Reviews begin at once on:

Benzene	Cyclohexane	Mesitylene
Toluene	Methyl Cyclohexane	Naphthalene
Xylene	Naphthenil Acids	Aromatic Solvent Naphtha
Cumene	Copper Naphthenate	Butadiene
Kerosine		
3. That the Toxicological Reviews not needing revision be appropriately stamped to show that no new information has become available since the Review was first issued.
4. That the M.A.C. membership be circularized for new cpds for which a Toxicological Review should be prepared.
5. That a decision should be reached on each review as received from Prof. Drinker as to whether or not it should be published as an official API publication.
6. That \$6,000 be made available to the Subcommittee for the year July 1, 1957 - June 30, 1958 for the continuation of the Subcommittee work.

APPENDIX E
To Minutes of 22nd VAC Meeting

REPORT OF THE SUBCOMMITTEE ON INDUSTRIAL HYGIENE
P. D. Halley, Chairman

On Sunday, November 11, 1956, the Subcommittee on Industrial Hygiene held its first meeting at the Conrad Hilton Hotel in Chicago. In attendance were the following:

P. D. Halley, Chairman
E. K. Daniels
J. W. Hammond
W. V. Hendricks
L. E. Renes
J. A. Spence

In addition there were seven guests.

Business consisted of defining the scope of the Subcommittee's activities and responsibilities. It was agreed that the Subcommittee be concerned with health protection problems common to the petroleum industry in general. It is recommended that its responsibilities be as follows: First, to advise concerning Industrial Hygiene matters related to those problems referred to it by the Medical Advisory Committee; Second, to seek out and evaluate industry-wide environmental health problems referring to those of significance to the Medical Advisory Committee with recommendations for handling when indicated; Third, develop and provide Industrial Hygiene practices and methods considered of value in controlling environmental health hazards common to the petroleum industry.

Several items were brought to the Subcommittee's attention for future consideration. Among these were the need for information on Industrial Hygiene practices and for the possible study of metal carbonyls and catalysts such as cobalt-molybdenum.

The Committee suggests that the Chairman of the Medical Advisory Committee appoint one or two physicians to the Committee.

It is expected that this Subcommittee will be active prior to the April, 1957 meeting.

Paul D. Halley, Chairman