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AMERICAN PETROLEUM INSTITUTE
MEDICAL ADVISORY COMMITTEE

SIXTH MEETING

Minutes of Meeting
November 13, 1947
Stevens Hotel
Chicago, Illinois

MEMBERS PRESENT

McIver Woody - Presiding
J. P. Holt - Secretary

V. C. Baird
F. F. Boys
W. W. Brooks
Kieffer Davis
A. E. Hoag
R. A. Jewett
T. J. Kelly
W. R. Levis
E. K. Linder
R. C. Page
B. B. Reeve

ASSOCIATES PRESENT

E. W. Adams
L. C. Beard, Jr.
R. S. Bonsib
R. C. Cole
A. E. Dooley
H. W. Field
H. G. M. Fischer
N. J. Gothard
R. B. Roaper
H. R. Warrick
F. M. Watkins
H. D. Wilde
H. H. Zuidema

GUESTS

R. C. Alden
Marshall Clinton, Jr.
Philip Drinker
F. F. Heyroth

ADVISOR

D. V. Stroop - API

Total in Attendance - 31

MEMBERS ABSENT

W. O. Armstrong
D. M. English
T. M. Frank
W. A. Morrison
M. N. Newquist
H. S. Thomson

ASSOCIATES ABSENT

C. R. Brown
R. S. Driver
E. W. Isom
A. J. Koewing, Jr.
H. P. Lankelma
D. W. Larmer
C. R. McKay
G. H. Taber, Jr.

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I

INTRODUCTION OF NEW MEMBERS AND GUESTS

The new member, Dr. W. W Brooks; the new associates, Mr. A. E. Dooley, Mr. H. W. Field, and Mr. H. G. M. Fischer; and the guests, Mr. R. C. Alden, Dr. Marshall Clinton, Jr., Professor Philip Drinker, and Dr. F. F. Heyroth, were recognized.

II

MINUTES OF PREVIOUS MEETING

Action — The minutes of the previous meeting, April 28, 1947, were approved as circularized by D. V. Stroop.

III

REPORT OF SUBCOMMITTEE ON CARCINOGENICITY - DR. McIVER WOODY, CHAIRMAN

The report of the Subcommittee on Carcinogenicity was presented and is given in full in Appendix A.

Dr. F. F. Heyroth of the Kettering Laboratory of Applied Physiology, University of Cincinnati School of Medicine, presented a progress report on the experimental carcinogenic studies that they are carrying out on several petroleum samples for the API. His report is given in full in Item 4 of Appendix A.

Mr. H. G M. Fischer discussed the carcinogenic problem and outlined the activities of the Technical Advisors of the API Subcommittee on Carcinogenicity. The report of the meeting of the Technical Advisors held on October 13 and October 14, 1947, and a letter from Mr. H. G. M. Fischer, dated November 4, 1947, to the Technical Advisors of the API Subcommittee on Carcinogenicity, relative to this problem are given in full in Appendix B.

Action — In receiving the subcommittee's report, the Medical Advisory Committee voted to adopt the following recommendations:

1. That the initial work and cost of the physical and chemical studies on various petroleum samples of interest to this committee should be carried out by the laboratories of the various petroleum companies represented on the committee.

2. That an epidemiological survey concerning cancer in the petroleum industry should be made by individual companies according to a common plan of procedure, under the coordination and guidance of some institution equipped to manage, adviee and interpret the results obtained.

3. That the API make the neceseary arrangements with some well-recognized institution to secure the full-time services of a trained scientist to work on the carcinogenic problems under consideration by the API Medical Advisory Committee.

4. That the Medical Advisory Committee request an appropriation of $25,000 to cover the first year of the program described under Items 2 and 3 above, with the understanding that larger amounts in the order of $50,000 will be required in succeeding years.

5. That all companies having experimental data concerning the carcinogenic problem should make this data available to the committee in order that future experiments on this problem can be planned more intelligently.

IV

REPORT OF SUBCOMMITTEE ON CUTTING FLUIDS - DR. B. B. REEVE, CHAIRMAN

The report of the Subcommittee on Cutting Fluids was presented and is given in full in Appendix C.

Action

In receiving the subcommittee's report, the Medical Advisory Committee voted to adopt the following recommendations:

1. That the literature survey* on Cutting Fluid Dermatitis should be accepted as presented.

2. That no research program be inaugurated until a more promising lead of approach is found. The survey recommendations are not concrete and are not specific for cutting fluid dermatitis.

3. That animal experiments do not appear feasible at this time.

4. That the literary survey on cutting fluid dermatitis should be kept up-to-date and supplemented by an active file maintained on clinical reports.

5. That emphasis should be placed, at least for the present time, on prevention rather than the research approach of cutting fluid dermatitis.

6. That composite information be accumulated on prevention of cutting fluid dermatitis in the form of an API bulletin, to be made available to industry through the members of the API. It was the understanding of the committee that Mr. Bonsib would prepare the necessary material.

Dr. L. C. Beard made the following recommendation which was also adopted (See Appendix D for details):

That the secretary, after checking with D. V. Stroop, should request Harvard University to publish in the technical literature the paper "Dermatitis from Cutting Oils" after suitable editing.

V

REPORT OF SUBCOMMITTEE ON FLUORIDES - DR. A. E. HOAG, CHAIRMAN

The report of the Subcommittee on Fluorides was presented to the committee and is given in full in Appendix E.

(* "Dermatitis from Cutting Oils - A Critical Review" was prepared under the auspices of the Subcommittee on Cutting Fluids of the Medical Advisory Committee of the American Petroleum by Mr. Bertrand C. Kriete, under the direction of Marshall Clinton, M.D., of Harvard University.)

Action

The report was received and adopted by the committee.

It was the consensus that the future work of the subcommittee will consist in obtaining from the University of Cincinnati, where work on the toxicity of fluorides is being carried out under the sponsorship of the API and certain industrial groups, reports on the toxicity of fluorides and in arranging for the distribution of forthcoming reports from this laboratory so that the information may be readily available to the members of the API Medical Advisory Committee.

VI

REPORT OF SUBCOMMITTEE ON PERMISSIBLE CONCENTRATIONS - DR. V. C. BAIRD, CHAIRMAN

The report of the Subcommittee on Permissible Concentrations was presented and is given in full in Appendix F.

Action

In receiving the subcommittee's report, the Medical Advisory Committee voted to adopt the following recommendations:

1. That the preparation of toxicological reviews will be continued at Harvard University under the direction of Professor Philip Drinker. The subjects of these reviews should be the remaining compounds named on the original list prepared by the Medical Advisory Committee. (See Minutes of Meeting of November 16, 1945.) Professor Drinker agreed to provide the members and associates of the committee readily available information on particular substances as requested.

2. That Professor Drinker should represent the committee at a meeting of the Association of Governmental Industrial Hygienists in Boston in the Spring, at which time maximum allowable concentrations of certain substances of interest to the petroleum industry will be discussed. (See Appendix F for full details.)

3. That the designation "API Toxicological Reviews" should be retained instead of using some other designation.

4. That $10,000 should be appropriated to Harvard University to continue the work of Professor Drinker and associates for the period April 1, 1948 to April 1, 1949. Professor Drinker plans to continue preparation of toxicological reviews and to initiate a screening test program approved at the committee's meeting on April 28, 1947.

5. That all members should submit to the committee, prior to April 1948, any new compounds on which they require toxicological reviews or screening tests.

It was the consensus of the committee that the work at Harvard University under the direction of Professor Drinker should continue for three years or more, and should include:

(a) Literature surveys on compounds recommended by the committee.

(b) Investigation by means of screening tests on certain compounds on which the committee feels more information is needed.

(c) Other such research problems as may be authorized by the committee from time to time.

It was the consensus of the committee that trade names should not be used in the title of the toxicological reviews, except in certain cases where the chemical name of the compound was given and the trade name was added because it served to identify the compound to a large number of people.

VII

REPORT OF SUBCOMMITTEE ON MEDICAL POLICIES AND PRACTICES-DR. R.A. JEWETT, CHAIRMAN

The report of the Subcommittee on Medical Policies and Practices was presented to the committee and is given in full in Appendix G.

Action In reviewing the subcommittee's report, the Medical Advisory Committee voted to adopt the following recommendations:

1. That copies of the booklet, including questionnaire, "How Do We Rate" put out by the National Association of Manufacturers should be procured and sent to all members of the Medical Advisory Committee. Members should be requested to fill out the questionnaire and to return it to the chairman of the Subcommittee on Medical Policies and Practices.

2. That a mailing list of all petroleum companies having some form of medical service should be made up, with the idea of obtaining information from them and of disseminating to them information about medical policies and practices, as prepared and adopted by the Medical Advisory Committee.

3. That each company represented in the American Petroleum Institute should be requested to develop a procedure for the employment and rehabilitation of handicapped veterans and also a procedure for assisting the handicapped employee.

4. That it is good medical practice to administer tetanus toxoid to certain employees subject to occupational injuries.

5. That in addition to keeping mortality statistics as approved by the committee in a past meeting, morbidity data also should be kept. The use of standard nomenclature should be employed.

6. That a clearing house should be established for the collection and dissemination of data on medical policies and practices of oil companies. This is to be carried out in accordance with the counsel and advice of Mr. Stroop.

It was voted to refer back to the subcommittee for further study the following recommendation:

That the subcommittee's report on Tours which was approved by the Subcommittee on Medical Policies and Practices and given in the

Minutes of the Meeting of November 14, 1946, be adopted. (See Appendix C in Minutes of Meeting of November 14, 1946.)

The committee voted against the adoption of the following recommendation:

That articles for company magazines or house organs should be written by each subcommittee outlining the work done or being done, insofar as it is practical. (See Appendix G for details.)

The committee voted to accept the following recommendation made by Dr. V. C. Baird (given in full in Appendix H):

That the API Public Relations Committee should be requested to advise the Medical Advisory Committee at its 1948 Spring meeting concerning what information relative to the activities of this committee should be brought to the attention of various petroleum companies and employees in these companies.

VIII

REPORT OF EDITORIAL COMMITTEE - DR. J. P. HOLT, CHAIRMAN

The report of the Editorial Committee was presented to the committee and is given in full in Appendix I.

Action — In receiving the Editorial Committee's report, the Medical Advisory Committee voted to adopt the following recommendation in the report:

That before these toxicological reviews are published by the API, a committee should be appointed to get in touch with the Manufacturing Chemists' Association and discuss any differences that exist between the data given in these toxicological reviews and in similar reports prepared by the Manufacturing Chemists' Association.

IX

NEW BUSINESS

Dr. R. C. Page suggested that at future meetings of the committee some diversion in the form of panel discussions would be desirable. He recommended that the chairman of the Medical Advisory Committee consider the possibility of arranging a scientific program, utilizing outside medical experts, to be held at some convenient time during the course of the next meeting of the Medical Advisory Committee in November 1948.

Action — The committee voted to accept the above recommendation.

Dr. V. C. Baird recommended that all meetings of the Medical Advisory Committee and its subcommittees be closed to all persons except members, associates and invited guests.

Action — The committee voted to accept the above recommendation.

X

NEXT MEETING

It was voted that the next meeting should be held concurrently with the meeting of the American Association of Industrial Physicians and Surgeons. The chairman will inform the members of the committee in the near future as to the date and place of the meeting.

J. P. Holt, M.D.
Secretary

Approved:
McIver Woody, M.D.
Acting Chairman

1-13-48

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APPENDIX A

REPORT TO THE API MEDICAL ADVISORY COMMITTEE

BY THE SUBCOMMITTEE ON CARCINOGENICITY

Dr. McIver Woody - Chairman

November 13, 1947

The Subcommittee on Carcinogenicity submits the following report:

1. The subcommittee met on August 26th and September 9th, 1947, and, at the request of the Chairman, Mr. H. G. M. Fischer called a meeting of the Technical Advisors on October 13th and 14th, 1947.

2. The group of Technical Advisors was charged with the task of drawing up physical and chemical specifications that might serve to distinguish petroleum fractions that are carcinogenic from those that are not. A report covering the results of their first meeting has been accepted by the subcommittee and a copy is attached hereto.

   In connection with this report the question was raised as to whether or not the work outlined should be carried out as a cooperative effort by the several companies involved rather than farmed out to some central research laboratory under API sponsorship. It was the opinion of the subcommittee that the preliminary technique had best be developed by the petroleum laboratories involved. It was felt, however, that the sooner a central laboratory could be selected the sooner it will be able to take over the burden of this work on a permanent basis.

3. Although it was assumed that this new program outlined by the Technical group would yield samples for animal testing at an early date, it is now evident that it will be some time before the screening tests have been developed to the point where a judicious selection of samples can be made.

4. Dr. Heyroth reported on the progress of the experimental work being carried on at Kettering Laboratory of Applied Physiology, as follows:

   Thirteen groups of experimental animals, each composed of 20 male mice of C_3H strain, were employed in the program for investigating the carcinogenicity of oils. Each of the eight oils submitted to the Laboratory was tested upon a separate group. The remaining five groups were used for gaining assurance as to the suitability of the technical methods and choice of strain of mice for the investigation. The mice of one group were subjected to weekly applications of water alone upon the skin of their backs in order to learn the incidence of spontaneous cutaneous tumors in mice of this strain. No tumors were encountered during a period of 62 weeks. A second group was subjected in a like fashion to weekly applications of a white oil, with a generally similar result. The remaining three control groups were employed to gain definite assurance that a known carcinogen -- 20-methyl cholanthrene -- would cause cancers in these mice. This carcinogen was applied to these groups respectively in the form of (1) an approximately saturated solution in white oil, (2) a 0.3% solution in benzene and, (3) a 0.6% solution in benzene. The solution in white oil induced tumors in 12 of the 20 mice, the tumors appearing at various intervals between the 13th and 40th weeks. The 0.3% solution in benzene led to the appearance of tumors

in 11 animals between the 23rd and 31st weeks. The 0.6% solution in benzene gave riee to tumore in 18 animale by the 23rd week. In all five groupe numerous animals died from various causes, often before they had been subjected to a carcinogen for a long enough period for its action to become evident.

Of the eight oile eubmitted by the committee, No. W-3632 gave rise to tumors in 14 of the 20 mice by the 34th week, at which time the remaining six had died of other causes without having developed tumore. The data suggest that the oil is intermediate in carcinogenicity between an 0.3% and an 0.6% eolution of methyl cholanthrene in benzene. The nature of the tumore as malignant squamous cell carcinomas was established by histologic examination.

Although 12 of the 20 mice subjected to oil No. W-3631 had died without showing eigns of tumore by the 54th week, this oil is not devoid of carcinogenicity for six of the group developed tumors. The first appeared in the 30th week, and the other five after the 49th week.

Fifteen of the 20 mice eubjected to oil No. W-3630 died without tumore, and the remaining five are apparently free from tumors at the 62nd week.

The remaining eix oils have given rise to no tumors, although the numbers of weekly applications have ranged in these groups from 46 to 62.

A more complete report is to be submitted when the animals now alive shall have died and been eubmitted to pathologic examination.

In view of these results Dr. Heyroth suggested that the following work might be advisable:

(a) Extension of the work with oil No. W-3632 to mice of other strains suitable for this type of work. The uee of mice of heterogeneous origin ie important because inbred strains are now available only in small numbere.

5. In addition to Dr. Heyroth's above suggestion it wae believed that the following types of animal experimentation could be carried out profitably:

(a) Effect of dilution on carcinogenic properties of hydrocarbons.

(b) Apply known carcinogen to animals and remove periodically by washing.

(c) Effect of limited number of applications.

(d) Application of a carcinogen at several separate sites in what ie believed to be sub-threehold amounts with the object of learning whether or not the amounts absorbed may summate to produce a cancer in any internal organ.

6. As a result of a discuseion of the literature eurvey on occupational cancer prepared under Dr. Drinker's direction,it was recommended that an epidemiological survey of the petroleum induetry be made by individual companiee according to a common plan and procedure, all of which would be under the coordination and guidance of some institution equipped to manage and adviee and interpret the reeulte obtained.

7. It was recommended that the API make necessary arrangements with some well recognized institution to secure the full time services of a trained scientist to work on the carcinogenic problems under consideration by the API Medical Advisory Committee.

8. It was recommended that the Medical Advisory Committee request an appropriation of $25,000 to cover the first year of the program described under item six and seven above, with the understanding that larger amounts, in the order of $50,000, will be required in succeeding years.

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APPENDIX B

November 4, 1947

Please address reply to
the writer at -
Standard Oil Development Co.
Room 717, 26 Broadway
New York City

To the Technical Advisors of the
API Subcommittee on Carcinogenicity
and Guests

Gentlemen:

Attached is copy of my letter dated November 4, 1947, to Dr. McIver Woody, transmitting minutes of our meeting on October 13 and 14. You will note that the minutes have been modified in accord with suggestions received from some of you. Other items that require further consideration are the following:

1. There appears to be a divided opinion concerning the substitution of a Vacuum Distillation Test for the ASTM procedure as outlined under Item A. Messrs. Zuidema and Warrick feel that the procedure might be qualified by retaining the ASTM test as stated and that, if cracking is observed before the 700°F. vapor temperature is reached, the sample be subjected to further investigation.

   I am inclined to question our ability to properly specify the "cracking" point and also its reproducibility by the ASTM procedure. I shall send you a copy of the simple Vacuum Distillation Test as proposed in my letter of October 1 and shall leave it to your judgment to decide what you want to do with it.

2. Concerning the choice of alpha methyl naphthalene, Dr. Beard has expressed the view that it is not available in a pure state. This was recognized when we discussed the matter and, as stated in the minutes (Page 7), Mr. Priestley was delegated to develop source and purity of this and other possible solvents. Furthermore, I have written to Dr. J. P. Holt and have asked him whether alpha methyl naphthalene is a satisfactory solvent from a medical viewpoint. Pending the classification of this item, I believe we should adhere to our original proposal. Dr. Beard recommends as a possible substitute orthoxylene, which has a boiling point of 144°C. (292°F.) as compared with alpha methyl naphthalene, whose boiling point is approximately 472°F.

3. Mr. Levin has suggested that, on Page 6, Item 4 be added to the list of samples to be submitted for further tests; namely "Heptane Insolubles dissolved in alpha methyl naphthalene." You will recall that we discussed this matter at our meeting and decided for the time being not to include this material in our list of samples for further testing (admitting that it may be an active material) until we knew more about its composition. This is covered in Item D, Page 6, which states that "....any material precipitated out will be separated and retained for further investigation." I would suggest that we first determine whether any such material is precipitated, and second, establish by analysis what its composition is, before we list it as an ear-marked sample for further investigation.

4. Mr. Zuidema suggested that Item A be amplified to explain more clearly why the 700°F. cut point was chosen. You will recall that we had decided not to refer in the minutes to any biological tests and, therefore, reference to this property was omitted. I am sure that all those who attended the meeting are aware of the reasons for stipulating the 700°F. cut point, and unless I receive further comments supporting Mr. Zuidema's suggestion, I would prefer to leave the item as written.

5. As to Dr. Beard's question whether this investigation should be undertaken as a cooperative effort by the individual laboratories or should be farmed out and paid for through API Research, I believe my comments in the attached letter to Dr. Woody are self-explanatory.

It may be possible for us to get together for a discussion of the above items while at Chicago. If not, I shall appreciate hearing from you at your early convenience.

Very truly yours,

/s/ H. G. M. Fischer
H. G. M. FISCHER

HGMF:HG

Dr. J. P. Holt
Standard Oil Co. (N.J.)
Medical Department
30 Rockefeller Plaza

November 4, 1947

Please address reply to
the writer at -
Standard Oil Development Co.
Room 717, 26 Broadway
New York 4, New York

Dr. McIver Woody
Medical Department
Standard Oil Co. of N.J.
26 Broadway
New York City

Dear Dr. Woody:

By way of your letter of September 10, 1947, you, as chairman of the API Subcommittee on Carcinogenicity, authorized me to call together the group of technical advisors for the purpose of drawing up physical and chemical specifications that might serve to distinguish petroleum fractions that are carcinogenic from those which are not. You also requested that the group of advisors "determine what refining processes produce such fractions and what samples should be obtained for further study and investigation."

You expressed the hope that a progress report might be available for incorporating in your Subcommittee's report to be presented at the November meeting of the API. I am submitting the following review in response to your request.

A meeting was held in the API board room, New York City, on October 13 and 14. Attendance and recommended action are recorded in the attached minutes. A rough draft of the minutes was sent to all participants for review. Approval or suggested changes have been received from the majority. Such changes as are not in conflict with matters actually discussed have been made, and I am submitting the minutes in the belief that they properly reflect the consensus of the group.

I doubt that your committee will wish to concern itself with the technical details; however, your committee's approval is solicited of the general approach which the advisors group proposes to follow; namely, first to establish a reliable and reproducible method for concentrating and separating those fractions containing or consisting of high molecular weight, condensed ring hydrocarbons. This approach appeared to the advisors group as an essential first step toward the desired objectives. You may wish to have your subcommittee act on this matter at the Chicago meeting.

In this connection, I wish to call attention to a rather fundamental question posed by Dr. L. C. Beard, Jr., who regrettably was unable to attend the meeting of the advisors group. Dr. Beard commented on the minutes in his letter of October 27, 1947, from which I quote:

"One thing in the proposed method of attack worries me somewhat and that is the duplication and drain on our already over-taxed technical personnel, entailed in this cooperative work. The purpose of API Research is to relieve our individual laboratories of the individual burden of working on problems in which there is a community of interest. It appears to us that it might be cheaper to us individually if this work could be farmed out and paid for through API Research. I recognize clearly the need by any such procedure of keeping the

results of such investigations strictly confidential. I think some consideration might well be given to this aspect of the matter."

In view of the possibility that Dr. Beard's proposal (if accepted) will alter the course contemplated by the advisors group, as outlined in the attached minutes, a decision by your committee would appear to be pertinent.

I am planning on attending your Chicago meeting and shall be available to explain in greater detail the subject under consideration, if you so desire.

Very truly yours,

/s/ H. G. M. Fischer
H. G. M. FISCHER

HGMF:HC
CC: Technical Advisors of the
API Subcommittee on
Carcinogenicity.

MINUTES

On October 13 and 14, 1947, a meeting of the Technical Group of the Medical Advisory Committee of the API was held in the API Board Room, New York, N.Y.

The purpose of the meeting was to set up suitable procedures for the separation and analysis of high molecular weight, condensed ring, aromatic hydrocarbons which may be present in certain refinery streams and petroleum products.

The attendance of regular members was as follows:

Mr. R. S. Bonsib	Standard Oil Co. (N.J.)
Mr. H. G. M. Fischer	Standard Oil Development Co.
Mr. H. P. Lankelma	The Standard Oil Co. (Ohio)
Mr. H. R. Warrick	The Texas Co.
Mr. H. H. Zuidema	Shell Oil Co., Inc.

Dr. L. C. Beard, Jr. of Socony-Vacuum Oil Company, Inc., was unable to attend.

In addition to the regular members, the following guests were present:

Dr. E. W. Adams	Standard Oil Co. (Ind.)
Dr. F. P. Hochgesang	Socony-Vacuum Oil Co., Inc. (Substitute for Dr. L. C. Beard, Jr.)
Dr. J. P. Holt	Standard Oil Co. (N.J.)
Mr. H. Levin	The Texas Co.
Mr. W. Priestley, Jr.	Standard Oil Development Co.

Mr. H. G. M. Fischer acted as chairman in accord with authorization conveyed by McIver Woody, M.D., in a letter dated September 10, 1947.

Mr. W. Priestley, Jr. was appointed as secretary pro-tem.

The procedure agreed upon for the separation and analysis of high molecular weight, condensed ring, aromatic hydrocarbons is summarized below:

A. All samples will be screened by a simple distillation using the ASTM D158-41 procedure. Those samples which have more than 2% boiling above 700°F. will be submitted to further investigation. The 700°F. cut point was based upon the boiling point of aromatics containing four or more condensed rings and was selected so as to eliminate compounds that are lower boiling than four ring structures. Samples which do not contain more than 2% boiling above 700°F. will not be investigated for the time being.

B. If the residue boiling above 700°F. from the ASTM distillation exceeds 2%, a second distillation will be carried out on the original oil (Material A), employing a Widmer still at 20 mm. of mercury absolute pressure, to obtain a 400°F.-700°F.* fraction and a sufficient sample of 700°F.* plus material for investigation. The details of construction and operation of the Widmer column will be supplied by Mr. Levin.

(* At 760 mm. absolute pressure. Standardized method of conversion from boiling points at 20 mm. to be stipulated.)

C. On the residue obtained from the Widmer distillation (Material B), the following inspections will be obtained:

1. Specific gravity.
2. Molecular weight by the boiling point method employing C.P. benzene.
3. Melting point by ASTM method D97-39, or other suitable procedure.
4. Ultimate analysis for C, H, S, N. O by difference.
5. Refractive index, and specific dispersion if the color permits.
6. Bromine number.
7. Kattwinkle test.

D. The residue after inspection will be separated into two fractions by silica gel percolation. Prior to the percolation, the residue will be dissolved in two volumes of normal heptane to one volume of sample. The mixture will then be centrifuged and any material percipitated out will be separated and retained for further investigation. The liquid from the centrifuging operation will be put through a silica gel column for separation into aromatic and non-aromatic fractions. The details of the operation of the silica gel column will be supplied by Mr. W. Priestley, Jr.

E. The non-aromatic fraction (Material C) from the silica gel percolation will be retained for further investigation if it appears desirable. The aromatic fraction (Material D) will be inspected in the same manner as the original residue (Material B). In addition, the ultraviolet spectrum of the aromatic fraction will be determined.

A review of the ultraviolet spectra of condensed ring aromatics available in the literature will be made by Mr. W. Priestly, Jr. From this study, a specification will be set so that if the ultraviolet absorption is below a certain value at a specified wave length, the material under investigation can be considered essentially free of four or more ring aromatics.

F. The following samples will be submitted for further tests as directed by the Medical Advisory Committee:

1. Original (Material A).
2. Aromatic fraction (Material D) dissolved in 400-700°F.** Widmor still-cut of original oil, to give the same concentration* of the heavy aromatics as present in the original oil.
3. Aromatic fraction (Material D) dissolved in Alpha methyl naphthalene to give the same concentration* of the heavy aromatics as present in the original oil.

Alpha methyl naphthalene (B.P. 472°F.) was chosen as a standardized solvent suitable for rendering soluble any difficultly soluble components, and is preferred to benzene (B.P. 176°F.) by reason of its more favorable volatility.

(* A higher concentration may also be investigated if found desirable.)

(** At 760 mm. absolute pressure.)

The source and purity of alpha methyl naphthalene and other possible solvents, will be investigated by Mr. W. Priestley, Jr.

G. In order to firm up the techniques outlined above, 5 gallons of a suitable oil to be known as API Sample 1-C will be supplied by the Standard Oil Development Company to each of the companies listed on Page 5. In transferring and storage of these samples, a blanket of oxygen-free nitrogen will be used. Results of these investigations will be forwarded to Mr. H. G. M. Fischer for compilation. This compilation will show whether the procedure agreed upon gives reproducible results, and can be adopted or whether revision or modification will be required.

H. All material not specifically ear-marked for inspection at this time should be retained for future investigation, if found desirable.

The Standard Oil Development Company agreed to supply the following information:

1. A list of selected high molecular weight, condensed ring, aromatic hydrocarbons.
2. Inspections of the distillate and residual samples previously submitted by the API.
3. Sources of oxygen-free nitrogen.
4. The ultraviolet absorption technique.
5. Ultraviolet spectra obtained from the literature.

Dr. E. W. Adams agreed to supply upon request, a sample of the 81-91% fraction from hydroformer bottoms for further testing. This fraction appears to be of interest for establishing the possible existence of high molecular weight, condensed ring, aromatics in the 0-90% overhead cut from hydroformer bottoms.

Mr. H. H. Zuidema agreed to supply, if available, the fluorescence spectra of polycyclic aromatics.

The possible use of Infra-red, Raman and Fluorescence spectra in this study was discussed. It was concluded that further investigations are required before adoption of these optical methods can be recommended.

The meeting adjourned at 1:00 p.m. on October 14, 1947.

Respectfully submitted,

/s/ William Priestley, Jr.
William Priestley, Jr.
Secretary

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APPENDIX C

REPORT TO THE API MEDICAL ADVISORY COMMITTEE

BY THE SUBCOMMITTEE ON CUTTING FLUIDS

Dr. B. B. Reeve - Chairman

November 13, 1947

A comprehensive literary survey on cutting fluids dermatitis has been made by Mr. Bertrand C. Kriete of the Harvard University School of Public Health, a copy of which has been presented to the members of the Medical Advisory group. This survey has completed as far as possible all of the recommendations suggested by the API Medical Advisory Committee, as outlined in the report of the Subcommittee on Cutting Fluids, as presented at the Fifth Meeting held on April 28, 1947.

Recommendations:

1. We recommend acceptance of the literary survey as presented.

2. Until a more promising lead of approach is found we recommend that no research program be inaugurated. The survey recommendations are not concrete and are not specific for cutting fluid dermatitis.

3. Animal experiments are not recommended as they do not appear feasible at this time.

4. The literary survey on cutting fluid dermatitis should be kept up-to-date and an active file maintained on clinical reports.

5. It is recommended by this committee, at least for the present time, that emphasis be placed on prevention rather than the research approach of cutting fluid dermatitis.

6. The subcommittee recommends composite information be accumulated on prevention of cutting fluid dermatitis in the form of an API bulletin, to be made available to industry through the members of the API.

/s/ B. B. Reeve Chairman

/s/ A. E. Hoag
Robert C. Page
H. R. Warrick
F. F. Boys
H. H. Zuidema
F. M. Watkins
E. W. Adams
L. C. Beard, Jr.
N. J. Gothard
Thomas J. Kelly

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APPENDIX D

DR. L. C. BEARD'S RECOMMENDATION ON
MR. BERTRAND C. KRIETE'S REPORT ON
"DERMATITIS FROM CUTTING OILS"

The Harvard University School of Public Health has prepared for the API Medical Advisory Committee and sponsored by API funds, a very creditable review of the technical literature on cutting fluid dermatitis. It is felt this report, suitably edited, should be published by the Harvard School of Public Health in the technical literature, with an acknowledgment to API support. Knowledge of the facts will assist industry to a better understanding of this problem and to the prevention of dermatitis. Publication should also modestly assist API public relations by evidencing the interest and expenditure of API funds in this respect. It is moved that, after checking with Mr. Stroop as to the propriety, such request be forwarded to the Harvard School of Public Health by the secretary.

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APPENDIX E

REPORT TO THE API MEDICAL ADVISORY COMMITTEE

BY THE SUBCOMMITTEE ON FLUORIDES

Dr. A. E. Hoag - Chairman

November 13, 1947

It was thought desirable at this time to briefly review the history, accomplishments and proposed plans of the Subcommittee on Fluorides.

It will be recalled that in January 1946 considerable hysteria arose amongst farmers and residents in the industrial regions of Southern New Jersey relative to the potential hazards due to hydrogen fluoride. A group of citizens in this area employed a consulting chemist in Philadelphia, who wrote a report on such hazards, which was far from factual and added to the furor. Indignation meetings were held and law suits initiated. A number of commercial plants, including both chemical plants and oil refineries were involved.

Socony-Vacuum, while not directly involved in these matters, but operating an HF alkylation plant at Paulsboro, New Jersey, undertook a systematic and complete study of the HF problem as related to public health and how an HF alkylation plant could be operated without hazard to animals, crops or persons in its environments. These findings were made available to the API Medical Advisory Committee in a report of some fifty pages, which was distributed at a meeting of the API Medical Advisory Committee in November 1946. At this same meeting the Subcommittee on Fluorides was formed.

Comments were solicited from the members of said subcommittee on the report, as well as any information that any of the members might have relative to the problem generally. The response to this request was not very productive. However, there were some questions raised on the plant physiological effects of HF, and in February 1947 conversations were had with the Boyce Thompson Institute at Yonkers, New York, and the information so obtained was made available to the members of the subcommittee.

Correspondence was also held with Dr. Marshall Clinton, Jr., on the problem generally, and at his suggestion a conference was held with Dr. F. C. Frary, Director of Research of the Aluminum Company of America regarding their experiences. Dr. Frary was found to be perhaps one of the best informed men in the world on this subject and the results of these conversations were made verbally available to the membership of the subcommittee at its meeting held in Buffalo on April 27, 1947.

At this same time, attention was directed to the existence of an industrial group sponsoring work at the Kettering Laboratories on the toxicity of fluorides. It was agreed in principle, subject to letter confirmation of the final proposals, that your chairman be empowered to carry on negotiations with said industrial group and with Dr. Robert A. Kehoe, directed to permitting the participation of the API Medical Advisory Committee in the work of the industrial group for a payment of $2,500 per year.

These negotiations were carried forward and the industrial group indicated their willingness for such participation and Dr. Kehoe presented a proposition in this respect. This whole matter culminated in Mr. D. V. Stroop's letter of October 3, 1947 to the members and associates of the Medical Advisory Committee. In substance this letter stated that unless comments to the contrary were had by October 27, he would advise Dr. Kehoe as per his attached letter that the API would implement participation in the work of the industrial group at the Kettering Laboratories by a contribution of $2,500 for the year 1947-1948. No adverse comments to Mr. Stroop's proposition were received. Final acceptance by Dr. Kehoe of the Institute's proposal mailed on October 28 has been received as per attached copy of Dr. Kehoe's letter of November 5, 1947 to Mr. Stroop.

The future work of the Subcommittee on Fluorides, therefore, will be to obtain from Dr. Kehoe copies of such past reports on the toxicity of fluorides as may be pertinent, and to arrange for the distribution of forthcoming reports so that the information can be readily made available to the members.

While the situation in South Jersey has quieted down, yet interest in fluorides is increasing. Use of HF and BF_3 as catalysts continues. Work on fluorination has been stimulated by the development and sale of a laboratory fluorine generator; one company is marketing elementary fluorine in iron cyclinders. As evidence of the interest in this field, 34 papers were presented at a symposium on fluorine chemistry at the September 1946 meeting of the American Chemical Society and 11 papers were given at the last meeting in September 1947. Fluor-carbons have been used as very stable lubricants for special applications; one remarkable new plastic "Teflon" consists only of fluorine and carbon; fluorine has shown promise as an initiator of chlorination. Many other examples could be cited why work on the toxicity of fluorides should continue.

At the subcommittee meeting held on November 12, 1947, the above report was accepted. In regard to the matter of reports, Dr. F. F. Heyroth of the Kettering Laboratories agreed to supply the chairman, for distribution to subcommittee members, with 10 copies of reprints of previous publications on their work on fluorides and with 10 copies of their next (and first) annual report to the "industrial group." It was the sense of the meeting that the chairman should receive and distribute reports and technical communications.

/s/ A. E. Hoag, Chairman

UNIVERSITY OF CINCINNATI

Cincinnati 19, Ohio

Kettering Laboratory of Applied Physiology
College of Medicine - Eden Avenue

November 5, 1947

Mr. David V. Stroop
Director, Department of Safety
American Petroleum Institute
50 West 50th Street
New York City 20

Dear Mr. Stroop:

Please accept my thanks for your letter of October 28 which completely clarifies matters from my viewpoint, in relation to the contribution of $2,500 on the part of the American Petroleum Institute, toward the development of information on fluorine and fluorine compounds (in accordance with our purposes as restated in your letter), for the period of twelve months immediately following your making of the contribution. I consider it entirely acceptable, that you should reconsider this matter as you desire, from year to year.

It so happens that I shall be at the meeting of the Medical Advisory Committee in the Hotel Stevens on November 12, at which time details related to this matter can be discussed. Meanwhile I am authorized by the industrial sponsors of the project to include your group among the sponsors. Therefore, this can be regarded as formal notification of the acceptance of your contribution under the conditions set forth in your letter.

Very truly yours,

/s/ Robert A. Kehoe, M.D.

RAK ef

Dictated but not read.

C.C.: Mr. S. C. Ogburn, Jr.
Dr. A. E. Hoag

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APPENDIX F

REPORT TO THE API MEDICAL ADVISORY COMMITTEE

BY THE SUBCOMMITTEE ON PERMISSIBLE CONCENTRATIONS

Dr. V. C. Baird - Chairman

November 13, 1947

1. (a) We submit the list of compounds given in the attached letter from Dr. Marshall Clinton, Jr. to Dr. V. C. Baird, on which toxicological reviews have been prepared, for final approval and referral to the Editorial Committee.

   (b) A number of last minute changes concerning the above reviews have been taken into consideration by Dr. Clinton and have been incorporated in the final reviews that will be submitted to the Editorial Committee.

2. The work on the toxicological reviews will be continued at Harvard under the direction of Professor Philip Drinker on the remaining compounds given on the original list that was approved by the Medical Advisory Committee.

   Professor Drinker has agreed to provide readily available information on particular substances at the request of members or associate members of the API Medical Advisory Committee. Copies of such inquiries and replies should be sent to Mr. Stroop for distribution to all members of the committee.

3. A new list of tentative maximum allowable concentrations for various substances is being prepared by the Association of Governmental Industrial Hygienists for consideration at their Spring meeting in Boston. Many of these substances are of interest to the petroleum industry.

   It is Professor Drinker's opinion that some of these proposed limits are unreasonably low.

   Professor Drinker has offered to represent the API Medical Advisory Committee at the public meeting of this group. He proposes to circularize the Medical Advisory Committee stating which maximum allowable concentrations appear to be unreasonable, giving the evidence to support his views. If any member of the committee is in disagreement with Professor Drinker's views, and he expresses this by letter to Professor Drinker, no action will be taken on that particular substance.

4. The committee recommends that the designation, "API Toxicological Reviews" be retained.

5. It is recommended that $10,000 be appropriated to Harvard University to continue the work of Professor Drinker and associates for the period, April 1, 1948 to April 1, 1949. Professor Drinker plans to continue preparation of Toxicological Reviews and to initiate the screening test program approved at the committee meeting in April, 1947.

6. All members are requested to submit, prior to the April, 1948, meeting, any new compounds on which they require toxicological reviews or screening tests.

7. It is anticipated that the work at Harvard under Professor Drinker will continue for 3 years or more and will consist of:

   (a) Literature surveys on compounds recommended by the committee.

   (b) Investigation by means of screening tests on certain compounds on which the committee feels more information is needed.

   (c) Other such research problems as may be authorized by the committee from time to time.

HARVARD UNIVERSITY

SCHOOL OF PUBLIC HEALTH

Department of Industrial Hygiene

55 Shattuck Street
Boston 15, Massachusetts

October 29, 1947

Dr. V. C. Baird
Humble Oil & Refining Company
Post Office Box 2180
Houston 1, Texas

Progress Report

Dear Dr. Baird:

The work being carried on at Harvard for the Subcommittee on Permissible Concentrations has proceeded during the period from May to November, 1947, despite my resignation from Harvard.

Corrected final reviews on the following twenty-two substances were distributed on September 8, 1947, in order to permit their consideration for acceptance as official reviews at the November meeting. These corrections included all suggestions received up to the time they were sent to Mr. Stroop, but unfortunately, do not include a few additional comments received by us at a later date. These corrections were made subsequently on our copies, however, and can be incorporated in the texts approved at the meeting. The title of the twenty-two reviews are as follows:

Ditertiary butyl para cresol	Mercury
Acetone	Methyl ethyl ketone
Acrylonitrile	Morpholine
Alkyl disulfides	Naphthenic acids
Alkyl Mercaptans	N-butyl P-amino phenol
Carbon monoxide	Phosphoric acid
Diethylene glycol	Phosphorous pentasulfide
Dowtherm A	Silica
Hydrogen Fluoride	Sulfur dioxide
Kerosine	Thiophene and derivatives
Maleic anhydride	Thiophenol and the aromatic mercaptans

In addition, considerable other work has been accomplished. A fairly detailed review on the status of Occupational Cancer has been prepared and distributed under the joint auspices of the Subcommittee on Carcinogenesis and Permissible Concentrations. A detailed, comprehensive review on Dermatitis due to Cutting Fluids was prepared under the auspices of the Subcommittee on Cutting Fluids and sent to Dr. Reeve for approval. At Dr. Reeve's request, stencils are now being prepared on this review. Tentative drafts on phenyl naphthylamine and U.O.P. #5 were also distributed.

At present, literature survey information has been collected, but it has not been put into final form for distribution to the Medical Advisory Committee. This information consists of a number of substances. The question has arisen as to whether these are of sufficient interest to justify the effort required to complete them, and whether any further literature survey work should

be started. It is the opinion of our two groups that the literature survey work accomplished so far, covering forty of the more important substances, has exhausted the cream of this work, and that further efforts along these lines may not be justified. It would perhaps be desirable for the API Medical Advisory Committee to decide whether any of the reviews on which data has been accumulated should be completed for distribution prior to the API meeting in the spring of 1948, and whether any further work along these lines should be undertaken. The reviews on which the available information has been compiled and which only require a moderate amount of work for completion include the following:

Tricresyl phosphate
Barium chloride
Barium hydroxide
Barium nitrate
Benzoldehyde
Calcium chloride
Calcium hypochlorite
Hydrocyanic acid
Pyridine
Di alkyl sulfates
Nickel carbonyl
Alkyl sulfuric acids
Ethylene dichloride
Mesitylene
Alpha naphthol
Tributyl phosphite
Alkyl thioethers
Triphenyl phosphate
Nitroparaffins
Alkyl peroxides
Alkyl nitrates
Amyl alcohol
Carbon black
Acetylene
Cyclohexane

As already stated, we believe that further work on some of the above compounds is not justified, while others should be completed before the next API Medical Advisory Committee meeting. An expression of opinion on this matter from the committee will be appreciated. If the committee desires, the work can be accomplished by collaboration between Dr. Clinton in Buffalo and Professor Drinker and his group at Harvard.

Professor Drinker has definite recommendations concerning the continuation of other phases of this work, which he will communicate to you.

Very truly yours,

/s/ Marshall Clinton
Marshall Clinton, M.D.

MC/F

HARVARD UNIVERSITY

SCHOOL OF PUBLIC HEALTH

Department of Industrial Hygiene

55 Shattuck Street
Boston 15, Massachusetts

October 27, 1947

Dr. Marshall Clinton
University of Buffalo
School of Medicine
Buffalo, New York

Dear Dr. Clinton:

The substances which I mentioned in my last letter are all completely written up now. I have begun to work on the following list of substances:

Aniline & homologs
Anthracene
Chromate salts
Methyl Chloride
Naphthalene
Naphtha light
Naphtha solvents
B-Naphthol
Sulfur Trioxide
Trichlorethylene

On completing reports on the above, I intend to start work on these substances:

Acid, acetic
Alcohol, Butyl
Alcohol, Propyl
Freon
Hydroquinone
Lead oxide
Lead Sulfide
Mesityl Oxide
Methyl Cyclopentane
Methyl Cyclohexane
Triethanol amine

Sincerely yours,

Dorothea K. Lear

Philip Drinker

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APPENDIX G

REPORT TO THE API MEDICAL ADVISORY COMMITTEE

BY THE SUBCOMMITTEE ON MEDICAL POLICIES AND PRACTICES

Dr. R. A. Jewett - Chairman

1. Supplementing the original questionnaire made up from the questions asked at the first meeting and turned over to this committee for recommendation, it is recommended that the booklet "How Do We Rate," put out by the National Association of Manufacturers, be procured and sent to all the members of the Medical Advisory Committee, filling out the questions and then to be returned to the chairman of the Subcommittee on Medical Policies and Practices.

2. The subcommittee recommends that a mailing list of all petroleum companies having some form of medical service be made up with the idea of obtaining from them and disseminating to them information about medical policies and practices as approved and authorized by the API Medical Advisory Committee.

3. The subcommittee's report on Tours has been received. This report states that a rotation of shifts no oftener than every two to three months is desirable. Your subcommittee has approved this report and recommends it to you for adoption.

4. Your subcommittee recommends that each company represented in the American Petroleum Institute be requested to develop a procedure for the employment and rehabilitation of handicapped veterans and also a procedure for the handicapped employee.

5. Your subcommittee recommends your approval on the routine innoculation of employees against tetanus.

6. It is recommended that, in addition to keeping mortality statistics as approved by the committee in a past meeting, morbidity data also be kept. The use of standard nomenclature should be employed.

7. Since more and more questions are being asked of your committee and subcommittee concerning the collection of data on the policies and practices of other oil companies, it is recommended that a clearing house be established for the collection and dissemination of such data.

8. It is recommended that articles for company magazines or house organs be written by each subcommittee outlining the work done or being done insofar as it is practical and in such simple language that the laity may understand; the first series to outline the work of the Medical Advisory Committee and to be written by the chairman of the subcommittee; the first one to be written by the chairman of the Medical Advisory Committee:

   (a) Organization of the committee and why.
   (b) Work of the Subcommittee on Policies and Practices.

(c) Work of the Subcommittee on Permissible Concentrations.
(d) Work of the Subcommittee on Carcinogenicity.
(e) Work of the Subcommittee on Cutting Fluids.

A second series about the subjects considered and endorsed by the Medical Advisory Committee, such as:

(a) Value of preplacement and periodic physical examinations.
(b) Value of prepaid medical and hospital care.
(c) Value of periodic plant and office sanitary inspections.
(d) Value of keeping morbidity and mortality statistics.
(e) Time elapsing between tours from the health standpoint.

.....

List of questions submitted for answering since the last meeting:

1. Methods of taking blood serology in the sales department areas; are these done privately or by state laboratories?

2. Are chest X-rays done routinely and, if so, how are they handled in the field?

3. Are electrocardiograms done routinely, particularly on executives and service personnel over fifty years of age?

4. Are Wasserman's made routinely?

5. What efforts are being made in the industry for thorough vision testing of chauffeurs, particularly in reference to night vision, field of vision and depth perception?

6. Is it advisable to use local doctors for periodic examinations, or to send a full-time company doctor to the scenes of employment to make these examinations?

7. Is it advisable to keep morbidity statistical data on the incidence of disease? If so, can reliable information be obtained when the employees are scattered?

8. How many treatments, if any, should be allowed to employees suffering from sickness or non-occupational injury located where dispensary, plant, and office service is available, without a direct cost to the employee?

9. What use, if any, is being made of musical programs by radio in offices and plants?

10. Are X-ray examinations of the lumbar vertebrae of new employees of value in rating future disabilities?

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APPENDIX H

November 13, 1947

RECOMMENDATION:

Health education is an important function of this committee. There is certain information pertinent to the health and healthful working conditions of employees in the petroleum industry that is of interest to this committee and to the petroleum industry. It is desirable that this information be distributed to the petroleum companies represented in the API and to the employees of these companies. It is recommended that we solicit the advice of the API Public Relations Committee to advise us at the 1948 Spring meeting as to the desirable procedure to follow with regard to this matter.

V. C. Baird, M.D.

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APPENDIX I

November 13, 1947

Dr. M. N. Newquist, Chairman
API Medical Advisory Committee

Dear Sir:

A meeting of the Editorial Committee of the American Petroleum Institute Medical Advisory Committee was held in Mr. D. V. Stroop's office on July 29, 1947. Present at this meeting were:

Mr. D. V. Stroop
Dr. M. N. Newquist
Dr. Marshall Clinton, Jr.
Dr. J. P. Holt

The purpose of the meeting was to review and approve the introduction to the toxicological reviews prepared by Dr. Clinton, and to make editorial corrections of the finally approved toxicological reviews on:

Aluminum Chloride
Ammonia
Benzene
Boron Trifluoride
Carbon Tetrachloride
"Chlorex"
Cresol
Cumene
Furfural
Hydrogen Chloride
Hydrogen Sulfide
Iron Carbonyl
Nitrobenzene
Phenol
Styrene
Sulfuric Acid
Toluene
Xylene

With the exception of a few minor editorial changes and modifications, the introduction and toxicological reviews were approved. These papers have been submitted to the Safety Committee of the Board of Directors of the American Petroleum Institute for approval and authorization for publication.

It has been brought to our attention that Safety Data Sheets on many of the compounds listed above have been prepared by the Manufacturing Chemists' Association and that these reports are not in complete agreement with our toxicological reviews. Therefore, it is our recommendation that before these toxicological reviews are published by the API a committee should be appointed to get in touch with the Manufacturing Chemists' Association and discuss this problem.

Respectfully submitted,

J. P. Holt, M.D.
Chairman

Members:
Dr. V. C. Baird, Vice Chairman
Dr. Marshall Clinton, Jr.
Dr. M. N. Newquist (Ex-officio)
Mr. D. V. Stroop

Not For Publication

Copies from D. V. Stroop for Information of Members and Associates

of

API Medical Advisory Committee

September 16, 1947

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Minutes of Meeting of Subcommittee on Carcinogenicity

September 9, 1947

A special meeting of the Subcommittee on Carcinogenicity was held at 26 Broadway, New York City on Tuesday, September 9th, 1947. Those present were:

Dr. T. M. Frank	- Pan American Refining Corp.
Dr. A. E. Hoag	- Socony-Vacuum Oil Co., Inc.
Dr. J. P. Holt	- Standard Oil Company (N.J.)
Dr. T. J. Kelly	- Shell Oil Company, Inc.
Dr. M. N. Newquist	- The Texas Company
Dr. McIver Woody	- Standard Oil Company of N.J.
Dr. L. C. Beard, Jr.	- Socony-Vacuum Oil Co., Inc.
Mr. R. S. Bonsib	- Standard Oil Company (N.J.)
Mr. H. G. M. Fischer	- Standard Oil Development Co.
Mr. D. V. Stroop	- American Petroleum Institute

Dr. Robert Clinton Page, Mr. H. P. Lankelma, and Mr. H. R. Warrick had written that they would not be able to attend.

The minutes of the previous meeting were reviewed and amended as follows:

Paragraph 1, (b), third line, "a co-carcinogen and" should be "a co-carinogen or".

Paragraph 2, (a), sixth line, "to have at least a structure" should read "to have a structure".

In discussing heading No. 1, Mr. Fischer stated his reasons for recommending animal tests to determine the effect of different concentrations of methyl-cholanthrene dissolved in benzol as against the effect of the same concentrations dissolved in white oil. He was inclined to think that at least five concentrations should be tested so that two curves could be drawn, one showing the effect of the concentrations in benzol and the other the effect of the same concentrations in white oil.

Headings No. 3, 4, 5 and 6 were discussed together and general agreement was reached that the following questions should be investigated:

1 - Effect of actinic rays on skin contaminated with the possible carcinogen.

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2 - Effect of washing with soap and water, or some other solvent, after application of carcinogen.

3 - The value of protective creams.

4 - Effect of varying the site of application by painting a given animal at a different spot each time.

5 - Effect of applying carcinogen for a certain number of times (12 weeks?), then discontinuing applications and waiting to see whether a papilloma develops later on.

6 - The advisability of securing the services of a full-time research worker who could not only direct research on problems designated by the API, but also run tests for individual companies on samples submitted by them.

7 - It was agreed that it would be up to the individual companies to decide how much each company wants to do on its own, with the understanding that they will be kept informed as to the nature of the API work.

8 - It was agreed that it would be desirable to keep discussion within the Subcommittee on an informal basis so that each member could express his opinions freely without committing the company he represents. These discussions would serve as a basis for the Subcommittee's formal report, which would be limited to recommendations based on facts, rather than on mere opinions.

9 - The next meeting of the Subcommittee was set for 9 A.M., November 12th, at the Hotel Stevens in Chicago.

10 - Toward the close of the meeting, agreement was reached among those present that it would be desirable to appoint Mr. H. G. M. Fischer as Chairman of the Technical Group of the Subcommittee, with the understanding that he would call the technical advisers of the committee together to draw up physical and chemical specifications that might distinguish fractions that are carcinogenic from those which are not. Then, to determine what refining processes produce such fractions and what samples should be obtained for further study and investigation.

McIver Woody, M.D.
CHAIRMAN