

FILE NAME: Oil Industry and American Petroleum Institute (API)

DATE: 1949 Feb 1

DOC#: API023

DOCUMENT DESCRIPTION: Minutes of the Subcommittee on Carcinogenicity
with Attachments

January 4, 1949

Dr. Robert A. Kehoe
Kettering Laboratory of Applied Physiology
College of Medicine
University of Cincinnati
Cincinnati 19, Ohio

Dear Doctor Kehoe:

I am reminded of the provisions set forth in the letter of agreement dated June 15, 1948, whereby we agreed to pay the University of Cincinnati a balance of \$25,000 on January 1, 1949 and the University agreed to return any balance remaining in the fund on June 30, 1949.

It is my understanding that circumstances beyond the control of the University have delayed the work planned for the period ending June 30, 1949 and that it may be possible that the \$65,000 remitted by letter dated July 6, 1948 may be sufficient to cover all expenditures for the period. If this is true you may feel it will be unnecessary for us to send you the \$25,000 which is now due and payable.

A statement of your wishes in the matter will be appreciated.

Very truly yours,

DVS:d
cc: Mr. Lacey Walker
Dr. McIver Woody

STANDARD OIL DEVELOPMENT COMPANY

RESEARCH AND DEVELOPMENT DEPARTMENT

15 WEST 51ST STREET, NEW YORK 19, N. Y.

H. M. FISCHER
ASST. MANAGER

January 7, 1949

Mr. D. V. Stroop
American Petroleum Institute
50 West 50th Street
New York City

Dear Mr. Stroop:

You will recall that among the recommendations adopted at the meeting of the A.P.I. Medical Advisory Committee Sub-Committee on Carcinogenicity on November 11, 1948, at Chicago, Item 4 (appearing in the minutes) reads as follows:

"That the fundamental chemical and physical studies that are indicated to investigate the operational technical aspects of this problem may require considerably more money than anticipated; and it is recommended that the technical advisers group consider the problem again and present their recommendations to the Sub-committee on Carcinogenicity."

In this connection, Dr. McIver Woody, Chairman of the Sub-committee on Carcinogenicity, has written me as follows:

"Now that Dr. A. Wesley Horton has been selected by Dr. Kehoe to investigate the chemical aspects of the problem, it will be greatly appreciated if you would call a meeting of the technical advisers to confer with Dr. Horton on methods of selecting samples for future testing, taking into account the nature of the crude, its source, the temperature conditions, etc."

As I understand the situation, it is desired that the technical advisers redefine the objectives of the program to be coordinated by Dr. Horton and aid him with the selection of suitable samples for study by the Kettering Laboratory of Applied Physiology, University of Cincinnati, College of Medicine, under the direction of Dr. R. A. Kehoe.

Mr.D.V.S.

-2-

1/7/49

st I shall be glad to conduct this meeting in response to Dr. Woody's invitation and would suggest the date of January 31, 1949, in the A.P.I. Board Room on the 20th floor at ~~30 Rockefeller Plaza~~ ^{SOWSO}, New York City, at 10:00 A.M.

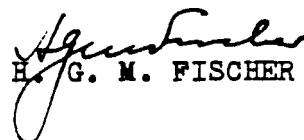
Since the group will wish to arrive at definite conclusions and recommendations, it is hoped that the technical advisers will find it convenient to attend this meeting in person.

If you are in agreement with this method of putting into effect the recommendation adopted by the Medical Advisory Committee, I shall appreciate your extending an invitation to Dr. Horton and the associate members of the Medical Advisory Committee to attend this meeting and to others who you feel would be interested in participating in the discussion.

Please advise.

Very truly yours,

HGMF:HC
CC:Dr.McI.Woody
Dr.J.P.Holt


H. G. M. FISCHER

UNIVERSITY OF CINCINNATI
CINCINNATI 19, OHIO

ENTERING LABORATORY OF APPLIED PHYSIOLOGY
COLLEGE OF MEDICINE—EDEN AVENUE

January 12, 1949
(via air mail)

CABLE ADDRESS: KETLAB. CINCINNATI
TELEPHONE: UNIVERSITY 2665

RD
424

Mr. D. V. Stroop,
American Petroleum Institute,
50 West 50th Street,
New York 20, New York.

Dear Mr. Stroop:

In reply to your letter of January 10th,
I shall plan to attend the meeting of the Sub-Committee
on Carcinogenicity on Monday, January 31st.

Very truly yours,


A. Wesley Horton

AWH:fe

API 04825

ESSO STANDARD OIL COMPANY

MEDICAL DEPARTMENT

ESSO BUILDING, 15 WEST 51ST STREET, NEW YORK 19, N. Y.

MCIVER WOODY, M. D.
MEDICAL DIRECTOR
JOHN S. DENHOLM, M. D.
ASSISTANT MEDICAL DIRECTOR
ROBERT P. SIM, M. D.
SENIOR PHYSICIAN
PETER P. LEONE, M. D.
PHYSICIAN

ALBERT C. GRUNOW, M. D.
CLINICIAN
CLYDE M. BERRY, PH. D.
INDUSTRIAL HYGIENIST

January 12, 1949.

Mr. D.V. Stroop
American Petroleum Institute
50 West 50th Street
New York 20, N.Y.

Dear Mr. Stroop:

A special meeting of the Subcommittee on Carcinogenicity will be held in Room 1000, 15 West 51st Street, New York City, at 9:30 A.M. on Tuesday, February 1st, 1949.

I hope you can arrange to be present, especially as both Mr. H.G.M. Fischer and Dr. A. Wesley Horton may have something interesting to tell us.

Very truly yours,

McIW:EH

McIvory

UNIVERSITY OF CINCINNATI

COLLEGE OF MEDICINE
CINCINNATI 19, OHIO

ED
FILE
MAC

RETERING LABORATORY OF APPLIED PHYSIOLOGY

January 12, 1949

CABLE ADDRESS: KEYLAB, CINCINNATI
TELEPHONE: UNIVERSITY 2608

Mr. D. V. Stroop,
The American Petroleum Institute,
50 West 50th Street,
New York City 20.

Dear Mr. Stroop:

Thanks very much for your letter of January 4 to which I am glad to reply. I have checked up on our expenditures up to the present time, and I have considered carefully our probable expenditures during the first half of the year 1949. It seems quite clear to me that we shall not be able to carry out the extensive work that would be desirable between now and June 30, 1949. We shall do the best we can, but even so it seems quite clear to me that the funds now in our hands will support our work adequately until July 1. There is no necessity, therefore, for your sending us the additional \$25,000.00 at this time.

I anticipate that we shall be able to get our work well under way before July 1, and certainly the sums previously agreed upon will be required to conduct the work properly after July 1.

With kindest personal regards,

Cordially yours,

Robert A. Kehoe
Robert A. Kehoe, M. D.

RAK ef

C.C.: Mr. Lacey Walker
Dr. McIver Woody

January 20, 1949

Mr. John R. Suman
Standard Oil Co. (New Jersey)
30 Rockefeller Plaza
New York 20, N.Y.

Dear Mr. Suman:

For your file I am returning herewith the memorandum (1-13-49) from Doctor Page, which you handed to me in Washington on January 13th.

It now develops that five members of the API Medical Advisory Committee have been invited to attend the National Cancer Conference in Memphis, February 25-27, 1949.

All, or most, of these members will attend a meeting of the API Subcommittee on Carcinogenicity to be held on February 1st. At that time the subject of Doctor Page's memorandum will be discussed to a conclusion which will be transmitted to you.

Very truly yours,

DVS:d
Enclosure
cc: Mr. William R. Boyd, Jr.

API 04828

1/13/49

MEMORANDUM FOR MR. SUMAN:

It has just been brought to my attention that the Chairman of the Medical Advisory Group of API has been asked to participate in the American Cancer Society Meeting in which the Federal Government will also take part. It so happens that Jersey has already been brought into the picture. The American Cancer Society group have learned through some channel that Jersey has been taking on some rather extensive research on the heavy catalytic cycle gas problem. In fact, Dr. Molt has already been asked to participate in the forthcoming American Cancer Society meeting. According to commitments that we have made, it seems most probable that he will have to participate.

Since it is probable that the American API may be asked to make a statement to the press relative to the cancer problem as related to the petroleum industry, this matter is being brought to your attention now. Mr. Stroop will undoubtedly give you all other pertinent details.

Dr. Robert C. Page

(C O P Y)

STANDARD OIL COMPANY

(INDIANA)

RESEARCH DEPARTMENT
WHITING RESEARCH LABORATORY
P. O. Box 431, WHITING, INDIANA

W. ADAMS
ASST. DIRECTOR OF RESEARCH

January 26, 1949

API Medical Advisory Committee

Mr. D. V. Strop
American Petroleum Institute
50 West 50th Street
New York 20, New York

Dear Sir:

Replying to your letter of January 10, I regret to advise it will be impossible for me to attend the meeting scheduled for Monday, January 31, 1949.

Very truly yours,



E. W. ADAMS

EWA/lsg
cc H.G.M. Fischer

P.S. I am greatly interested in the decisions and recommendations which will be made in this meeting and trust that you will send me a copy of the minutes. E.W.A.

CONFIDENTIAL

MINUTES

SUBCOMMITTEE ON CARCINOGENICITY

February 1, 1949

FILE

A meeting of the Subcommittee on Carcinogenicity was convened at 10 A.M., Tuesday, February 1st, 1949, at 15 West 51st Street, New York City.

MEMBERS PRESENT:

T.M. Frank
A.E. Hoag
J.P. Holt
T.J. Kelly
W.R. Lewis
M.N. Newquist
C.A. Swan
McIver Woody

A.E. Dooley
H.G.M. Fischer
H.P. Lankelma
K.G. MacKenzie
H.R. Warrick
H.B. Wilson (representing H.H. Zuidema)

VISITORS:

R.C. Cole

GUESTS:

A.W. Horton - University of Cincinnati
D.V. Stroop - American Petroleum Institute

TOTAL IN ATTENDANCE - 17

MEMBERS ABSENT:

L.E. Curtis

L.C. Beard
R.S. Bonsib
A.J. Koewing, Jr.

Mr. Fischer, reporting on the January 31st meeting of the technical advisors of the Subcommittee presented the following objectives for discussion:

- 1 - Establish in what crudes and fractions thereof, compounds are present that may have carcinogenic properties and the types of processes that may either concentrate or create them and, if so, under what conditions.
- 2 - Establish analytical procedures to permit distinguishing between fractions that according to biological testing possess carcinogenic properties and those that do not. It would be helpful if a carcinogenic index could be devised for a refiner

to evaluate the degree of carcinogenicity of materials and products.

It was agreed that the following processes and materials should be studied:

STRAIGHT THERMAL PROCESSES:

- Gas oil cracking
- Viscosity breaking of residues
- Naphtha reforming
- Coking
- Gas reversion
- Steam cracking

CATALYTIC PROCESSES:

- Houdry
- TCC
- FCC
- Houdryflow
- Cycloversion
- Hydroforming
- Desulfurization (marginal case)

SPECIFIC PRODUCTS:

- Red waxes
- Slack waxes
- Certain raw lube stocks (untreated)
- Solvent extracts (furfural, phenol, sulfur dioxide)
- Acid oils from acid sludge (marginal case)

PRODUCTS FROM OTHER INDUSTRIES:

- Coal tar
- Water gas tar
- Shale oil - domestic and British sources.

Jersey will make available to Dr. Horton all its available data and information and it is to be hoped that other companies will do the same.

Dr. Horton reviewed the Kettering Laboratory report which was distributed to the members last November, pointing out that the findings contained in the body of the report are based on histological study of tissue sections, as well as on gross observations, while the graph, which was prepared earlier, is based on gross observations only. He was requested to prepare a summary of the report, including a revised graph showing cancers as determined by histological examinations and the grade of malignancy.

Dr. Horton then reported on the status of the building program at Kettering Laboratory, saying that adequate space for the chemical laboratory should be available by April 1st; and the animal rooms should be ready for use about June 1st.

Dr. Holt described the meeting to be held in Memphis February 24th to 27th under the sponsorship of the American Cancer Society and the National Cancer Institute (USPHS), at which Dr. Hoag, Dr. Newquist, Dr. Woody, Mr. Fischer and he will be members of the panel on environmental cancer. Recorders will take down all that is said in the panel discussions, have it mimeographed for use of the participants

at the next session; and the moderator of each panel will present a summary at the general meeting at the close of the conference. The proceedings of the meeting will be published in the Society's magazine and other journals.

Dr. Hoag was glad that the petroleum industry is being represented so that inaccurate statements may be corrected. He cited as an example the tendency of uninformed persons to say that refined paraffin wax produced cancer. He felt that the various companies should try to get the facts to the employees and said that he is preparing an article for Socony's employee magazine titled "Some Things You Should Know About Cancer", and including some discussion of skin cancer.

Mr. Cole was of the opinion that all these recent developments were forcing the petroleum industry to take action. He suggested that all API companies should institute the indicated control steps soon.

Dr. Kelly reported that a bulletin "Environmental Cancer" has been published by the National Cancer Institute and is available from the Superintendent of Documents, Washington, D.C. at a price of twenty cents.

Dr. Frank reported that local management was supporting his medical program and that more information (possibly including pictures) from the API would be helpful in informing management more thoroughly of the problem.

Dr. Swan stressed the importance of any publicity or information being accurate and complete.

Dr. Levis said that in the matter of giving out information it was essential to be factual and to create the opportunity for its release.

Mr. Stroop believed that the publicity problem was not so disturbing; that the API had a good defense against possible misstatements because of the investigations now in progress by the API and the individual companies.

Dr. MacKenzie said that with the Cancer Society now in the picture, added weight would be given to the problem. He cited reports on incidence of skin cancer among various groups and recommended that in all information releases, the complete story be given to show that there are other things than certain petroleum products which may cause skin cancer.

Dr. Newquist recommended that the statement now on file with the API be reviewed and brought up to date if necessary.

Dr. Holt pointed out that in his opinion, and it was the view of the Jersey Company, that the employees should be told that a potential hazard exists relative to the handling of high boiling oils, and that reasonable precautionary measures should be instituted to prevent skin contact and ingestion of these materials. These views and suggestions are based on the biological and experimental results which have shown that these materials cause the development of cancer when applied repeatedly to the skin of mice and other animals.

Dr. Hoag said that Socony has started an educational program by first informing local plant doctors who, in turn, are gradually telling foremen groups and the employees about cancer, including skin cancer. He said that the men have been

told to go to the medical department when they notice warts or other skin lesions.

Dr. Newquist was of the opinion that it would be inadvisable to single out the term skin cancer and that it would be better to tie it in with other conditions. Any examination directed toward skin cancer should be tied in with the periodic examinations.

Mr. Fischer pointed out that with precautionary measures in effect, such as tagging lines and tanks, provision of showers, emphasis on personal hygiene, the men will ask why. If they are told merely that the materials are irritants, they may become careless and not follow the precautions.

Mr. Fischer, in response to a request for information, said that, while not all fractions boiling above 700° F. were carcinogenic, they should be considered as suspicious until proven otherwise. Waxes were in a class by themselves. The normally crystalline carcinogens in crudes (e.g. Lima crude) may be concentrated during certain steps in wax processing. The 700° F. cut-point applied only to hydrocarbons; other carcinogenic compounds that boil below 700° F. may be present, such as aromatic amines perhaps in shale oils, certain sulfur and oxygenated compounds.

Dr. Holt, in discussing the effect of dilution, said tests show that 65-69% mixtures of decanted oil in non-carcinogenic oil have essentially the same potency as undiluted decanted oil, 50% mixtures about 3/4 the original potency, 29% mixtures 1/3 to 1/4 of the original potency. No data are available as yet on the potencies of blends containing less than 25% decanted oils.

Mr. Fischer, in reply to an inquiry about crank-case drainings, said that he had no information as to their carcinogenicity but would suspect them because of the severe conditions that crank-case oils may undergo.

Dr. Frank said he had seen a statement that pipeline paint may be carcinogenic.

It was decided to hold another meeting of the Subcommittee after the Memphis meeting and before the Detroit meeting, the time and place to be determined by the Chairman.

A.E. Dooley
Secretary

McIver Woody
Chairman

UNIVERSITY OF CINCINNATI
COLLEGE OF MEDICINE
CINCINNATI 19, OHIO

LETTERING LABORATORY OF APPLIED PHYSIOLOGY

February 28, 1949

CABLE ADDRESS: KETLAB, CINCINNATI
TELEPHONE: UNIVERSITY 2665

Mr. D. V. Stroop,
The American Petroleum Institute,
50 West 50th Street,
New York City 20.

9/65,000 June

Dear Mr. Stroop:

I am sending you herewith an account of the financial status of the American Petroleum Institute project for the investigation of petroleum compounds as of January 1, 1949.

Very truly yours,

E. R. Fortlage

E. R. Fortlage, Secretary to
Dr. Kehoe

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Enc.

UNIVERSITY OF CINCINNATI
KETTERING LABORATORY OF APPLIED PHYSIOLOGY
ACCOUNT OF THE AMERICAN PETROLEUM INSTITUTE

For the Fourth Quarter of 1948

SALARIES (Based on Proportion of Time Actually Spent
on Project)

Robert A. Kehoe	- Supervision	34.60
Francis Heyroth	- Chemical and Toxicological Asst.	41.57
Karl Kitzmiller	- Pathological Assistance	138.40
Wesley Horton	- Chemical Assistance	420.00
Sylvan Witherup	- " "	60.00
J. F. Treon	- " "	31.11
Dan Duvall	- Technical Assistance	44.44
Tom Gahegan	- " "	16.28
Ruth Tolger	- " "	3.52
		789.92

MISCELLANEOUS EXPENSE

Traveling Expense - November and December		
Chicago to Cinti. (Dr. Wesley Horton)	17.61	
Cinti. to Chicago " " "	108.03	
Philadelphia to N.Y. " " "	22.37	
Cinti. to Chicago (Dr. R. A. Kehoe)	52.50	
Cinti. to Chicago (Dr. F. F. Heyroth)	41.88	
		242.39
Proportion of Secretarial, Library, Janitors, Wash Boys, Draftsman, Shipping Clerks, Animal Caretakers, Histopathological Preparation		238.55
Proportion of Heat, Gas, Electricity, Steam, Telephone, Maintenance, Pensions, Annuities etc d		393.00
		1663.86

Balance Remaining for Work in 1948 at end of Third Quarter 1948	\$24,261.84
Expenditures 4th Quarter 1948	1,663.86
Balance Remaining for Work in 1949	22,597.98

from DVS 4/1 ...
API MI - A - C -

March 3, 1949

Dr. W. A. Lalande, Jr., Pennsylvania Salt Manufacturing Co.
Mr. C. O. Henke, E. I. Du Pont de Nemours and Company
Dr. D. A. Irwin, Aluminum Company of America
Mr. Basil Horerfield, Reynolds Metals Company
Mr. E. M. Watson, Universal Oil Products Company
Dr. D. Stinson, American Petroleum Institute

Gentlemen:

Prior to our meeting on March 30, I send herewith the summarized account of all expenditures made in connection with the work on fluorides for the year 1948. All receipts have been included and are itemized on the second sheet of the account.

In accordance with my best judgment, I have assumed that the contribution of the American Petroleum Institute (which has been continued for a second year) should be added to the sum to be spent in 1948. This has made it possible to provide the services of the library without curtailing the experimental work, and also to absorb the increase in the cost of experimentation (over that estimated in 1946) represented in necessary increases in the salaries of personnel and increases in the cost of supplies of all kinds. I trust that this will meet general approval, but the matter should be discussed at the meeting and a policy decided upon for the future.

The cost of the library work will be decreased considerably in 1949, since the intensive work of surveying prior literature has been done. This will provide additional funds for the experimental work program. It was necessary to curtail the work somewhat in the last quarter of 1948, so as not to make inroads upon the funds available for subsequent years.

Sincerely yours,

Robert A. Kehoe
Robert A. Kehoe, M. D.

RAK:ef

Dictated but not read.

Enc.

Aluminum Company of America

Share of Expense as Itemized	4000.00
Balance Remaining from 1947 Appropriation -	1000.00
Receipts 1948	<u>3000.00</u>
	<u>4000.00</u>

American Petroleum Institute

Share of Expense as Itemized	2500.00
Balance from 1947 Appropriation	2500.00
Receipts 1948	<u>2500.00</u>
	5000.00
Balance for 1949 Appropriation	2500.00

E. I. duPont de Nemours and Company

Share of Expense as Itemized	5000.
Receipts 1948	

Pennsylvania Salt Mfg. Company

Share of Expense	
Balance due from 1947	2000.00
Receipts 1948	<u>4000.00</u>
	<u>2000.00</u>
Balance due on 1948 Appropriation	2000.00

Arnolds Metals Company

Share of Expense as Itemized above	4000.00
Balance due from 1947 appropriation	4000.00
Receipts 1948	<u>8000.00</u>
	<u>4000.00</u>

Universal Oil Products Company

Share of Expense as Itemized above	1000.00
Receipts 1948	<u>0000.00</u>
Balance due on 1948 Appropriation	1000.00

UNIVERSITY OF CINCINNATI
 KETTERING LABORATORY OF APPLIED PHYSIOLOGY
 ACCOUNT OF THE FLUORINE PROJECT

1948

PAID (Based on Proportion of Time Actually
 Spent on Project)

Robert A. Kehoe	- Supervision (General)	8.33
Francis Heyroth	- Supervision	59.56
Edward Largent	- Principal Investigator	1779.72
Jacob Cholak	- Supervisor of Analytical Work	239.94
Frank Dutra	- Pathological Assistance	22.67
Marjorie Christian	- Review of Literature	1300.00
John Lesick	- Review of Literature	36.10
Alno Blackston	- Analytical Asst. and Experimental Sub.	1312.08
Charles Fox	- Analytical Assistance	983.98
Leo Broering	- "	606.06
Jim Zoller	- "	464.25
Morris Blackston	- "	131.10
Jim Roth	- "	49.00
Anton Michels	- "	426.67
John Cappel	- "	97.02
Wm. Holden	- "	415.08
Edward Sigmon	- "	205.80

3637.36

MISCELLANEOUS EXPENSE

Food and Expenses Incurred in the Collection of Samples by Experimental Subject	2037.00
Laboratory Supplies	2923.54
Proportion of Secretarial, Library, Wash Boys, Shipping Clerks, Draftsman etc	2177.88
Proportion of Heat, Gas, Telephone, Postage, Electricity, Pensions, Annuities, Postage, Maintenance etc	3047.43

TOTAL 18,823.21

Receipts 1948	16,500.00
Balance due on 1948 appropriation	<u>3,000.00</u>

Total Receipts Toward Prosecution of Program	19,500.00
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Total Expenditures 1948	<u>18,823.21</u>
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Balance Remaining for 1949	\$ 676.79
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Copy from D. V. Stroop for Information of Members and Associates of
API Medical Advisory Committee.

.....3-14-49

March 8, 1949

Dr. W. A. LaLande, Jr., Pennsylvania Salt Manufacturing Co.
Mr. C. O. Henke, E. I. du Pont de Nemours and Co.
Dr. D. A. Irwin, Aluminum Company of America
Mr. Basil Horsfield, Reynolds Metals Co.
Mr. E. M. Matson, Universal Oil Products Co.
Mr. D. V. Stroop, American Petroleum Institute

Gentlemen:

Prior to our meeting on March 30, I send herewith the summarized account of all expenditures made in connection with the work on fluorides for the year 1948. All receipts have been included and are itemized on the second sheet of the account.

In accordance with my best judgment, I have assumed that the contribution of the American Petroleum Institute (which has been continued for a second year) should be added to the sum to be spent in 1948. This has made it possible to provide the services of the library without curtailing the experimental work, and also to absorb the increase in the cost of experimentation (over that estimated in 1946) represented in necessary increases in the salaries of personnel and increases in the cost of supplies of all kinds. I trust that this will meet general approval, but the matter should be discussed at the meeting and a policy decided upon for the future.

The cost of the library work will be decreased considerably in 1949, since the intensive work of surveying prior literature has been done. This will provide additional funds for the experimental work proper. It was necessary to curtail the work somewhat in the last quarter of 1948, so as not to make inroads upon the funds available for subsequent years.

Sincerely yours,

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

RAK ef

Dictated but not read.

Enc.

API 04840

Aluminum Company of America

Share of Expense as Itemized \$ 4,000

Balance Remaining from 1947 Appropriation \$1,000

Receipts 1948 3,000 4,000

American Petroleum Institute

Share of Expense as Itemized 2,500

Balance from 1947 Appropriation 2,500

Receipts 1948 2,500 5,000

Balance for 1949 Appropriation 2,500

E. I. du Pont de Nemours and Company

Share of Expense as Itemized 5,000

Receipts 1948

Pennsylvania Salt Manufacturing Company

Share of Expense

Balance due from 1947 2,000

Receipts 1948 4,000
2,000 2,000

Balance due on 1948 Appropriation 2,000

Reynolds Metals Company

Share of Expense as Itemized Above 4,000

Balance due from 1947 Appropriation 4,000

Receipts 1948 8,000
4,000 4,000

Universal Oil Products Company

Share of Expense as Itemized Above 1,000

Receipts 1948 0

Balance due on 1948 Appropriation 1,000

UNIVERSITY OF CINCINNATI
KETTERING LABORATORY OF APPLIED PHYSIOLOGY
ACCOUNT OF THE FLUORINE PROJECT

1948

SALARIES (Based on Proportion of Time Actually
Spent on Project)

Robert A. Kehoe	- Supervision (General)	\$ 8.33
Francis Heyroth	- Supervision	59.56
Edward Largent	- Principal Investigator	1,779.72
Jacob Cholak	- Supervisor of Analytical Work	239.94
Frank Dutra	- Pathological Assistance	22.67
Marjorie Christian	- Review of Literature	1,800.00
John Lesick	- Review of Literature	36.10
Elmo Blackston	- Analytical Asst. and Experimental Sub.	1,312.08
Charles Fox	- Analytical Assistance	983.98
Leo Broering	- " "	606.06
Jim Zoller	- " "	464.25
Morris Blackston	- " "	131.10
Jim Roth	- " "	49.00
Anton Michels	- " "	426.67
John Cappel	- " "	97.02
Wm. Holden	- " "	415.08
Howard Sigmon	- " "	205.80
		8,637.36

MISCELLANEOUS EXPENSE

Food and Expenses Incurred in the Collection of Samples by Experimental Subject	2,037.00
Laboratory Supplies	2,923.54
Proportion of Secretarial, Library, Wash Boys, Shipping Clerks, Draftsman, etc.	2,177.88
Proportion of Heat, Gas, Telephone, Postage, Electricity, Pensions, Annuities, Postage, Maintenance, etc.	3,047.43
TOTAL	18,823.21

Receipts 1948	\$ 16,500.00
Balance due on 1948 Appropriation	<u>3,000.00</u>
Total Receipts Toward Prosecution of Program	19,500.00
Total Expenditures 1948	<u>18,823.21</u>
Balance Remaining for 1949	676.79

CONFIDENTIAL

MINUTES

SUBCOMMITTEE ON CARCINOGENICITY

March 11, 1949

A meeting of the Subcommittee on Carcinogenicity was convened at 10 A.M., Friday, March 11th, 1949, at 15 West 51st Street, New York City.

MEMBERS PRESENT:

A.E. Hoag
J.P. Holt
W.R. Levis
M.W. Newquist
McIver Woody

R.S. Bonsib
A.E. Dooley
H.G.M. Fischer
H.P. Lankelma
K.G. MacKenzie

GUESTS:

A.W. Horton - University of Cincinnati
J.J. Phair - University of Cincinnati
D.V. Stroop - American Petroleum Institute

TOTAL IN ATTENDANCE - 13

MEMBERS ABSENT:

L.E. Curtis
T.M. Frank
T.J. Kelly
C.A. Swan

L.C. Beard
~~A.J. Keowing, Jr.~~
H.H. Zuidema

Dr. J.J. Phair, Professor of Preventive Medicine, University of Cincinnati, was introduced. Minutes of the meeting of February 1st were approved.

Dr. Horton reported that his laboratory equipment is being assembled and his new facilities will be available about May 1st. In the meantime, he is visiting refineries and studying the various types of catalytic cracking units and their operation for the purpose of making the proper choice of samples.

He stated that Shell had offered to cooperate in a pilot-plant operation to yield samples which could be used to determine effects of variables, such as natures of

feed, temperature, rate of through-put, etc. He thought this approach to the problem might yield valuable data and samples that could be studied concurrently with: (a) the search for an analytical tool, and (b) the animal testing of the list of materials recommended by the technical advisors to the Subcommittee in its January 31st, 1949 meeting.

Dr. Holt said that before deciding on the inclusion of the pilot plant approach, the technical advisors should be consulted.

Mr. Fischer felt that the pilot plant phase, while of scientific interest, might not answer the practical problems because of the great variations in feed stocks. He feared that it might bog down the animal testing program and believed that it should receive a low priority until answers to the practical phases of the problem had been obtained.

Mr. Bonsib agreed with Mr. Fischer's comments because of the many variations in feed stocks.

Dr. Horton replied that refinery samples would present these same variations and complications. It was his plan to get the pilot plant runs on three selected feeds containing; 0, 30 and 60 per cent aromatics respectively.

Mr. Lankelma, while agreeing with Mr. Fischer, believed that sooner or later this phase would have to be a part of the study.

Mr. MacKenzie thought that the nature of the charge stock was of minor importance compared to operating conditions; and that one run on a paraffinic stock should settle the question of the effects of time and temperature.

Mr. Fischer said that his company had tested samples from different feed stocks and had concluded that fluid-catalytic cracking operations presented a carcinogenicity problem. He recommended that the analytical study be given priority.

Dr. Horton urged that Shell's offer be considered because of the time required to prepare the samples. He pointed out that oil 3632 was being fractionated and that the fractions would be tested on animals. An attempt was being made to isolate the carcinogens in hope of obtaining an analytical tool.

It was the unanimous opinion of the Subcommittee that the analytical work on oil 3632 should go ahead.

Dr. Horton said that this analytical work may be long and complex; he thought that the other phases should not be delayed.

Dr. Holt divided the problem into four aspects:

1. Does a problem exist? That was the question two or three years ago. Work to date indicates that there is a potential problem.

2. Where does it exist; in what operations, oils, fractions, materials, etc. is there a hazard that requires protective measures?
3. Can these operations be changed to control the problem?
4. Development of a technique to eliminate animal testing.

If a study of the processes were added, there would not be sufficient facilities available. He recommended that a list be made of all samples to be studied and that the Subcommittee then schedule them for priority in testing.

Mr. Fischer said that such a list of samples had been approved at the last meeting of the technical advisors and that Dr. Horton was to collect the samples listed and report to the Subcommittee. The proposed schedule of testing them and the analytical work on oil 3632 should be continued concurrently. His personal view was that samples obtained from a pilot plant run should be placed way down on the list.

Dr. Horton estimated that when the new facilities are available about June 1st, 4,500 mice could be handled which would mean that 150 to 200 samples could be undergoing tests at one time.

Dr. Hoag said that the first oils to study were those to which exposures are now occurring, in order to determine control measures.

Dr. Newquist was of the opinion that, while it was very important to test various oils in order to determine which ones present a hazard and call for protective measures; nevertheless, the analytical work should be continued. Also, because of the limited number of samples that can be tested, the pilot plant studies should get under way.

Dr. Woody said that this question would be up for discussion again at the April meeting in Detroit and that, in the meantime, Dr. Horton would discuss it with Dr. Kehoe and Dr. Heyroth.

Dr. Holt proposed that Dr. Horton prepare a summary showing the total number of samples that may be desirable to study at Cincinnati between July 1949 and July 1951 and the order in which they should be studied. Dr. Horton agreed to submit such a list by May 15th.

Reporting on the National Cancer Conference recently held in Memphis, Dr. Hoag said that Dr. Holt and Mr. Fischer were to be congratulated on their handling of the subject. Dr. Newquist added that the cancer question was now an open story. He also commended Dr. Holt for his presentation; no hysteria was aroused and what was said was not embarrassing.

Dr. Woody submitted a revision of our confidential memorandum of April 2nd, 1948 proposed by Dr. Curtis. On page 3, the third sentence in the last paragraph was changed to read as follows:

"Experiments in the laboratory have shown that certain of the high-boiling materials from these newer processes cause the development of tumors and cancers on mice."

and the foot-note was omitted.

Dr. Phair said that he planned to get acquainted with the medical directors of the various companies to see what medical records are available and to determine whether epidemiological techniques could be applied to advantage. The long "incubation period" was one of the factors that complicated the problem. The adoption of control measures might be better than attempts to eliminate the hazard. In response to a question from Dr. Newquist, Dr. Phair said that a cancer registry for the petroleum industry was an inherent objective of the control program. He added that he had doubts as to the successful enforcement of laws requiring the reporting of cancer cases, as has been proposed by some investigators.

The next meeting of the Subcommittee will be held in Detroit April 1st, 1949.

A.E. Dooley
Secretary

McIver Woody
Chairman

PERSONAL AND CONFIDENTIAL MEMORANDUM FOR INFORMATION OF
W. R. BOYD, JR., PRESIDENT, AMERICAN PETROLEUM INSTITUTE

5/11/49

It has been stated that petroleum products cause cancer. To the uninformed, this sounds like a very serious matter and in the interest of understanding and proper evaluation of such a statement, the following facts are presented.

Very little is accurately known about the causes of cancer. Causative agents which have been cited in the Technical Literature include soot, coal and gas tar, asphalt, crude oil, unrefined paraffin wax, certain chemicals, pitch, arsenic compounds, nickel compounds, chromium compounds, and sunlight. It has also been recently proposed that cosmic rays may contribute to cancer. There is also medical evidence, although controversial, that mechanical irritations such as injuries caused by blows may be contributive. Other possible producing causes which have been cited are internal secretions produced by the body itself.

The number of cases of cancer reported to have been caused by contact with industrial materials is exceedingly small as compared to those which arise from unknown causes.

With regard to the petroleum industry, few cases of cancer have been reported. Reference is made to the Government Bulletin No. 284 of the U. S. Public Health Service from which the following abstract is taken:

"Disabling morbidity and mortality from cancer among male employees of oil refining company with reference to age, site and duration.
W. M. Gafaer and Rosedith Sitgreaves. Public Health Reports 55: 1517 (Aug. 23) 1940.

"The authors studied the records of the members of a sick benefit plan connected with an oil refining company. The study covers a period of 6 years, from 1933 to 1938, during which there was approximately 60,000 years of membership for the male employees. There were 70 cases of cancer, 46 of which ended in death. The cases which did not end in death terminated in recovery or in sufficient improvement for return to work. The 46 deaths yield an average annual death rate of 0.78 per thousand. The population exposed represents an age distribution ranging approximately from 15 to 69 years. The calculated crude death rate from cancer for white males from 15 to 69 years of age throughout the entire United States for the years 1933 to 1937 is 0.96 per thousand, while the experience of the industrial department of a large life insurance company for 1935 gives a rate of 0.86. Previous studies have indicated that certain types of mineral oils possess carcinogenic activity; the present experience is therefore not unfavorable."

The above quotation shows that up to 1938, mortality per thousand persons due to cancer from all causes in the petroleum industry, as represented by this group, was less than in the United States as a whole.

Turning now to the reports in the medical literature that petroleum products cause cancer, we find the following:

Clinical and experimental data show a great difference in the carcinogenic (cancer causing) properties of semi-refined and refined oils and paraffin waxes, depending, in part, upon the chemical composition of the raw materials and, in part, upon the method of fractionation, distillation and refining (1). According to Schwartz (2) oils derived from shales are more carcinogenic than petroleum oils, while pure medicinal petroleum oils are non-carcinogenic. Scott and others (3) (4) have reported the occurrence of a significant incidence of skin cancer among workers in Scottish shale oil refineries. He noted that in these workers malignancy was preceded by the presence of warty growths, and that the change of these growths to cancer could occur long after withdrawal from exposure.

The so-called "mule spinner's cancer," which generally involves the scrotum, occurring among textile workers in the cotton textile industry in England, is the commonest cancer associated with oils. In the process of operating the machine (mule) that makes the yarn, the mule spinners have skin contact with the oil that is used to lubricate the spindles. A study of the problem by a committee appointed by the British Government (5) indicated that the high incidence of scrotal cancer among mule spinners was a result of long contact with lubricants of the type used. Altogether 345 scrotal cancers causing death among mule spinners were reported in England from 1911 to 1935 (6). Only six reports of mule spinner's cancer are on record in the U.S.A., and only two of these were positively contracted as a result of exposure in the United States (1). The difference in the origin of lubricants is presumed to account for the variation in incidence of the disease.

Individuals employed in filter press operations in which paraffin wax is separated from certain petroleum oils have been reported by Heller and others (7) (1) to develop skin cancer. Wood (8) states that pure paraffin wax is not productive of cancer and Schwartz (2) reports that workers with refined white paraffin do not suffer from dermatoses, epitheliomas (skin cancers), or papillomas (wart-like growths) which affect those who handle crude paraffin wax.

Schwartz (2) has reported the presence of epitheliomas in oil field workers in California.

Individuals who developed cancer from exposure to oil or paraffin wax have generally been exposed to the material for a period of from 10 to 50 years (1). The mortality, based on certain English statistics, from paraffin wax cancer was 13 per cent, and from mule spinner's cancer 51 per cent of those having cancers (1).

Approximately 43 cases of paraffin cancer have been reported in Germany and Austria; a few cases of oil cancer in France; about 150 cases of paraffin wax cancer and over 1,500 cases of oil cancer have been reported in Great Britain; in the United States approximately 50 paraffin wax and 12 oil cancers have been reported (1).

From this information it is clear that few cases have been reported in this country compared to the number of cases that have been reported in England. This appears to be due to the fact that the mineral oils that have been used in this country were much less carcinogenic than certain oils from shale used in England; for example, it is stated (1), on the basis of experimental studies, that refined American oils were only one-twelfth as potent in the production of cancer as oil from shale and that a worker in contact with Pennsylvania oil is only one-fiftieth as likely to develop skin cancer as a worker exposed to oil from shale.

Experimental studies on mice with various fractions of crude shale oil (9) showed these materials to be carcinogenic; while experimental studies on mice by Twort and Ing (10) on various brands of purified liquid paraffin oils showed these products to be non-carcinogenic. Davis states (11) that animal experimental studies on slack wax and pressed distillate have failed to cause cancer of the skin. Extensive experimental studies by Twort and associates (12) demonstrated the carcinogenic properties and potency of certain crude and refined mineral oils.

Epitheliomas of the skin caused by occupational contact with mineral oil and paraffin are included among the compensable diseases in Argentina, Australia (West Australia and Queensland), Belgium, Cuba, Great Britain, Ireland, Rumania, Venezuela, Germany, Russia and Mexico and in the U.S.A., the states of California, Connecticut, District of Columbia, Illinois, Indiana, Massachusetts, Missouri, New York, North Dakota, North Carolina, Wisconsin, Ohio, Pennsylvania, Rhode Island and Washington (1).

At first glance, the above evidence may seem formidable, but let us examine the matter a little more closely. First, those hydrocarbons which cause skin cancers are relatively high boiling (above 700°F.). Such compounds, therefore, are not found in gasoline, kerosene, and home heating oils. Lubricating oils generally are treated with sulphuric acid or other agents which will remove a substantial portion of any cancer-causing materials that may be present. American crude oils, according to the record, contain less cancer-causing materials than oils from shale which were largely responsible for the initial unfavorable showing experienced by the British textile industry in the use of lubricating oils from shale.

The petroleum industry has been studying the possibility that products from the newer processes of refining are more carcinogenic than those used before the war. To date, there is no evidence of cancer among employees that can be attributed to exposure to those products. Experiments in the laboratory have shown that certain of the high-boiling materials from these newer processes cause the development of tumors and cancers on mice. Products derived from certain sources and processes that have been employed for many years have shown a similar tendency to some degree. Extensive work is in progress in biological and analytical laboratories with the objective of developing a clearer understanding and a better knowledge of the compounds that possess carcinogenic activity and the process features that may influence such activity.

The question naturally arises as to what protection can be afforded. The most important protective measure is personal cleanliness, and this applies not only to workers in the petroleum industry, but also to those who use petroleum products. Oil-impermeable protective outer garments, clean under-clothing, and daily showers at the end of work are recommended as well as periodic medical examinations. In other words, with adequate medical supervision and the pursuit of habits of cleanliness, the chances of industrial cancer from petroleum are remote.

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This confidential memorandum summarizes the primary sources of information known to members of the Institute's Medical Advisory Committee which has recommended its transmittal to the President for such use as he may deem necessary or desirable.

Submitted by:

M. N. Newquist, M.D.
Chairman, Medical
Advisory Committee.

4-2-48
Amended 3-11-49

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CONFIDENTIAL

AMERICAN PETROLEUM INSTITUTE
SUBCOMMITTEE ON CARCINOGENICITY

SPRING MEETING

Minutes of Meeting
April 1, 1949
Book-Cadillac Hotel
Detroit, Michigan

MEMBERS PRESENT

Marshall Clinton
L.E. Curtis
T.M. Frank
J.P. Holt
T.J. Kelly
M.N. Newquist
McIver Woody

ASSOCIATES PRESENT

L.C. Beard, Jr.
R.S. Bonsib
A.E. Dooley
H.G.M. Fischer
H.P. Lankelma
K.G. Mackenzie
H.H. Zuidema

VISITORS

V.C. Baird
F.F. Boys
Kieffer Davis
A.E. Hoag
E.K. Linder
E.P. Luongo
R. Clinton Page
B.B. Reeve

E.W. Adams
R.C. Cole
H.J. Gothard
R.M. Landon
F.M. Watkins

GUESTS

S.J.M. Auld
R.D. Bent
J.W. Hammond
R.A. Kehoe
W.L. Simpson
J.B. Stucker
H.G.S. vanRaalte
H.R. Warrick

Institute of Petroleum, London
Atlantic Refining Company, Philadelphia
Humble Oil Company, Houston
University of Cincinnati
Detroit Institute of Cancer Research
Pure Oil Company, Chicago
Shell Oil Company, Curacao, Neth. Antill.
The Texas Company, New York

ADVISORS

D.V. Stroop - API

TOTAL IN ATTENDANCE - 36

MEMBERS ABSENT

W.R. Lewis
C.A. Swan

New members of the Subcommittee and guests were introduced.

Minutes of the three previous meetings, November 11th, 1948, February 1st, 1949 and March 11th, 1949 were approved after a change was made on Page 3, Line 9 of the March 11th, 1949 minutes by substituting the word "suggested" for "approved".

Dr. Kehoe stated that of the \$40,000. capital funds provided by the API, \$30,478. had been applied to building costs and \$8,264. had been put into special equipment, leaving a balance of \$1,258. to provide additional equipment as needed. Of the API grant for current expenditure, there remained a balance of \$22,598. as of December 31st, 1948, of which about \$14,660. would be used during the first six months of this year, giving a balance of some \$7,000. as of July 1st, 1949. Current expenses from July 1st, 1949 to June 30th, 1950 were estimated at \$122,600., of which about 25% would be covered by from payments from individual companies for testing their samples, leaving some \$90,000. to \$100,000. to be provided by the API.

Thanks to the API grant for capital expenditures, which came in the nick of time, facilities would be available by July 1st for a colony of 10,000 mice which would permit simultaneous studies on 175 to 200 samples. The API would have first claim on these facilities; but after that, samples submitted by any individual company would be accepted for testing provided that they would not interfere with the API schedule.

In addition to Dr. Kehoe, Dr. Heyroth and Dr. Dutra, 11 other persons would be required. Of these, Dr. A. Wesley Horton was already engaged in securing the necessary refinery and chemical data. Dr. J.J. Phair would start work on the epidemiological phases of the problem after July 1st. Other personnel would include: a chemist to assist Dr. Horton; a record clerk to maintain complete records on all the mice; three technicians to do the actual application of samples to the mice; one technician to prepare tissue sections for the pathologist; and two animal caretakers. A principal investigator was yet to be selected. This investigator would have to be an excellent pathologist, as well as a good administrator because he would be responsible for:

- a. Supervising application of the samples to the mice.
- b. Establishing standard criteria for:
 1. Determining existence of tumors.
 2. Differentiating between tumors and dermatitis.
 3. Establishing whether tumors are benign or malignant.

Dr. Newquist asked about the method of selecting samples for testing. Dr. Kehoe replied that this would be the duty of Dr. Horton, working with the Subcommittee and its technical advisors.

Mr. Beard asked whether results of tests of samples submitted by individual companies would be available to the API. Dr. Kehoe said they would be available only with the consent of the particular company and then only on a confidential basis.

Mr. Fischer thought the proposed program was well organized but wondered whether the personnel proposed by Dr. Kehoe would be sufficient to carry on all the necessary work.

Dr. Newquist thought experiments on primates should be started at an early date because of the time required to get results. Dr. Kehoe replied that investigators of carcinogenicity of petroleum and its products had two objectives: first, to find a tool for determining potencies; and second, to determine whether results of animal tests are applicable to man. The first phase required a group of stable, non-variable animals, such as the highly inbred C₃H mouse strain. This stability and lack of variability between the individual animals was not found in primates. As to the second phase, there was no definite evidence as yet that the results obtained in mice were applicable to man. It might be necessary to use other animals to establish the relationship. In that case, the laboratory had other animals available and, while it was not anticipated that monkeys would be used at first, this might be done later. Human experiments could not be set up until a good deal more information and knowledge was available, and even then only carried out under his personal responsibility.

Dr. Simpson pointed out that since susceptibility varies between individuals and since humans are not homogeneous, any tests on humans would have to be done with statistically significant groups (many thousands) and that therefore, as far as establishing potencies is concerned, this approach would not be practical. Furthermore, a carcinogen too low in amount to produce a local reaction, might be absorbed and produce a carcinoma elsewhere in the body.

Col. S.J.M. Auld, Chairman of the Research Group of the Institute of Petroleum, London, described the carcinogenicity problem in England and asked for an exchange of information between the API and the Institute of Petroleum. Mule spinner's cancer was still a problem in England, 20 deaths having occurred in 1947. After the earlier work in the nineteen twenties, there had been a lull but the subject was brought up again after the war, largely due to the action of the trade unions. The University of Birmingham had started research work and had found that extracts from solvent refining operations produced skin conditions which were "more than a mere dermatitis". More recently suspicion had been cast on some cutting oils and some motor oils from Scotland (not shale oils). The publicity attending the use of mineral oils as cooking oils during the war caused the Government to enter the picture with the result that the Medical Research Council (a government group) and the Institute of Petroleum (which succeeded the Petroleum Board) were now cooperating as a joint committee. Under the direction of Messrs. Squiers, Cook, Ferguson, Woodhouse, Irvine and Auld, a long-range research study has been started, beginning with an investigation of these three crudes:

Venezuelan crude - naphthenic type

Middle East crude - Kuwait

Mid-Continent crude (USA) - of importance in lubricants.

A certain amount of support was given still to the unfortunate formula by Twort regarding refractivity; but later work indicated that the higher the aromaticity, the higher the carcinogenicity. The industry in England had made white oils available but there has been little demand for them as yet. There was no evidence that solvent refined oils are carcinogenic. Shale oils were going out of the picture. Some preliminary idea on potency of oils might possibly be had by determining their effects on plants. It appeared that the fractions which are the most active plant poisons are those that seem to possess the highest carcinogenic potency and that perhaps by fractionating the oils and testing these

fractions on plants some index of carcinogenicity might be developed.

Dr. Woody read a letter from the American Cancer Society requesting the API to report the amount of money it was spending on cancer research, so the Society could include it in their report of grants-in-aid for cancer research. Mr. Stroop was asked to obtain information on how this data would be used by the American Cancer Society.

Action by the Subcommittee - It was voted to recommend to the Medical Advisory Committee that:

- 1 - Information on carcinogenicity be exchanged with the Institute of Petroleum.
- 2 - The budget for the year beginning July 1st, 1949 for the program at Kettering Laboratory be increased to \$100,000.00

McIver Woody
Chairman

A.E. Dooley
Secretary

6-10-49
CONFIDENTIAL

AMERICAN PETROLEUM INSTITUTE
SUBCOMMITTEE ON CARCINOGENICITY
MINUTES OF INTERIM MEETING

June 3, 1949

An interim meeting of the Subcommittee on Carcinogenicity was held on Friday, June 3rd, 1949, at 15 West 51st Street, New York City.

MEMBERS PRESENT

Marshall Clinton
T.M. Frank
A.E. Hoag
J.P. Holt
T.J. Kelly
M.N. Newquist
McIver Woody

ASSOCIATES PRESENT

L.C. Beard, Jr.
H.P. Lankelma
K.G. Mackenzie
R.M. Shepardson (representing H.G.M. Fischer)
H.E. Zuidema

GUESTS

R.W. Faulk - Shell Oil Company
A. Wesley Horton - University of Cincinnati

ADVISOR

D.V. Stroop - API

TOTAL IN ATTENDANCE - 15

MEMBERS ABSENT

L.E. Curtis
W.R. Lewis
C.A. Swan

ASSOCIATES ABSENT

R.S. Bonsib
A.E. Dooley
H.G.M. Fischer

Minutes of the meeting of March 11th were approved as issued.

Mr. Stroop stated that the API prefers not to be included in the American Cancer Society's list of grants-in-aid for cancer research.

Dr. Horton submitted a progress report. (Copy of the report is attached as Appendix A).

Dr. Woody said the Federal Security Administration has awarded over \$450,000. in federal grants for cancer control and teaching activities. The

API 04856

largest amount, \$35,000. went to the Pennsylvania Department of Health, where Dr. Shilen, Director of the Division of Industrial Hygiene, has set up an occupational cancer control program with a physician and a nurse. At a later date, two engineers and a statistician will be assigned to the project. The attached forms (Appendix B) are being prepared in quantity for use in their surveys and are essentially identical with the form submitted to them by Dr. Husper to insure uniform data from the various states participating in the industrial cancer program. The oil industries located in the Philadelphia area are high on their agenda.

Dr. Hoag and Dr. Newquist spoke briefly concerning articles on cancer they have written for the Secony-Vacuum News and Texaco Topics respectively. It was agreed that other companies could well afford to follow their example.

T.M. FRANK
Secretary

McIVER WOODY
Chairman

APPENDIX A

API PROJECT ON CARCINOGENICITY AT THE UNIVERSITY OF CINCINNATI

The program at the Kettering Laboratory is roughly divided into three major phases. Of perhaps most immediate importance is the effort to pin point throughout the industry materials and operations which represent potential hazards from the cancer standpoint. The second phase, which will be prosecuted simultaneously with the first phase, will involve the concentration and isolation of the compounds responsible for the carcinogenic action of certain catalytically cracked oils which have already been tested biologically. From the physical and chemical properties of such concentrates, an effort will be made to develop an analytical tool which may then be applied to any refinery stream to determine its carcinogenicity without resorting to animal testing. The third major phase will be an epidemiological study of cancer in the petroleum industry.

In carrying out the first phase in the program, as described above, a series of typical refinery samples will be tested on suitable laboratory animals to determine their relative carcinogenic potencies. It is expected that, in the course of the coming year ending June 1, 1950, testing of approximately 150 to 200 such samples will be started at the Kettering Laboratory. Thus an average of about 12 samples from each of the following processes will be studied:

1. Non-catalytic gas oil cracking
2. Viscosity breaking of residues and extracts
3. Naphtha reforming
4. Polyforming
5. Coking operations
6. Houdry catalytic cracking
7. Fluid catalytic cracking
8. Thermoform catalytic cracking
9. Cycloversion
10. Houdryflow cracking
11. Hydroforming
12. Slack waxes and aromatic extracts therefrom
13. Solvent extracts from lube oils and heavy gas oils.

The potencies of the samples will be compared with those of coal tar and shale oil fractions on which clinical data is available from England.

In considering the selection of samples from each of the processes listed, attention is at present being restricted to those intermediates or products with a distillation end point above 650°F. On the basis of confidential information supplied to the Kettering Laboratory by each of the API member companies on such materials and the unit operations producing them, a sampling program is being organized which will cover the current range of variations in each process. Careful consideration is being given not only to the characteristics of the particular products which will be tested for carcinogenicity but to the feed stocks and the unit operating conditions as well. In this manner it will be possible to correlate the effect of the trends in available charge stocks and refining practices with the relative carcinogenic potencies of products formed. Thus, the results of the testing program now planned should permit prediction of potential hazards as unit operations change in the years to come.

As yet, a list of the specific samples to be tested during the coming year has not been prepared since the necessary data from the individual companies is not complete. However, sufficient information is available to permit the selection of a small number of samples from thermal cracking of high boiling materials, both virgin gas oils and those previously subjected to catalytic cracking. In addition it is planned to request samples of high boiling oils from TCC units since to date no physiological testing of the heaviest products from these operations has been carried out.

In reporting results of tests on future oil samples, a direct comparison with a solution of a known concentration of a standard carcinogenic hydrocarbon in a standard solvent will be made. Preliminary tests are being run with solutions of methylcholanthrene in benzene, at concentrations from 0.01% to 0.6%. Previous results have indicated that the tumor incidence curves for typical heavy catalytically

- 3 -

cracked oils may be compared nicely with the curves for such standard solutions.

In further work the effect of the benzene solvent on the tumor incidence and the induction period in mice will be determined. Various non-volatile solvents, such as methylnaphthalene, are being considered for this purpose. However, it must be kept in mind that benzene solutions of methylcholanthrene have been employed as standards for many years in studies by English scientists. Their use may therefore facilitate the interpretation of our laboratory results in terms of practical hazards to exposed workers.

A. Wesley Horton
A. Wesley Horton

June 3, 1949.

BIH-C-1a

OCCUPATIONAL CANCER RECORD

1. Name	2. Place of Death: City:	Hospital:
Residence		
3. State:	City:	Street:
4. Social Security No.	5. Sex	6. Color or Race:
	Age	
7. Date of Birth:	8. Years: Mos. Days:	9. Date of Death:
10. Occupation:	11. Industry or Business:	
	Method of Diagnosis	
12. Cause of Death:	13. Clinical: Biopsy: Autopsy: Other:	
14. Name of Physician:	15. Street:	16. City:
17. Clinical Diagnosis:	18. Pathologic Diagnosis:	19. Primary Site:
20. Date of First Symptoms:	21. Date of First Visit to Physician:	
22. Date of First Diagnosis:	23. Stage of Disease at First Diagnosis:	
24. History of Other Illnesses of Site Affected:	25. History of Injury to Site Affected:	

APPENDIX B

26. Exposure: Have you ever handled or worked near any of the following? If yes, give details.

NAME OF SUBSTANCE	NAME OF EMPLOYER	DATE	LENGTH OF EXPOSURE	DESCRIBE TYPE OF EXPOSURE AND ESTIMATE PERCENT OF WORKING TIME EXPOSED:

API 04861

BIH-C-1b
Occupational Cancer Record - Page 2

27. Occupational History: List Occupations in Chronological Order beginning with last or present one.

Dates		NAME OF EMPLOYER	ADDRESS OF EMPLOYER	TYPE OF BUSINESS OR PRODUCT MADE	TITLE OF JOB	TYPE OF WORK PERFORMED
FROM	TO					

28. Are there any other important materials to which you have been exposed? (Hobbies; Habits; Medicines; Cosmetics; Diets; Environment)

29. Additional Information Obtainable at: (List Physician; Laboratory; Hospital; Insurance Co; Plant Medical Department Clinic; Tumor Registry, etc.)

Name: Address:

Name: Address:

Name: Address:

30. Any other information pertaining to Tumor (Multiplicity, sites, etc.):

APPENDIX B

BIH-C-2

PLANT CANCER RECORD

1. Name of Company _____		2. Location: _____	
3. In operation since: _____		4. Products Manufactured: _____	
5. Number of workers employed:		In plant:	In office:
Male: _____		_____	_____
Female: _____		_____	_____
White: _____		_____	_____
Colored: _____		_____	_____
6. Name of plant official _____		7. Name of Plant Physician _____	
8. Insurance Carrier: _____		9. Carcinogenic hazards: _____	
10. Operations involved: _____		11. Number of workers exposed:	
		a. Constant exposure	
		b. Intermittent exposure	
		c. Occasional exposure	
12. Sex of exposed workers: Male: Female:		13. Race: White: Colored:	
14. Duration of exposure: Number: Years:			
Number: Years:			
Number: Years:			
15. Rate of turnover in exposed group (s) _____			
16. Cancers Observed in exposed group (s)		Total number:	Period:
17. Cancers by sites: _____			

APPENDIX B

API 04863

APPENDIX B

BIH-C-3

PLANT CANCER RECORD

Date: _____

1. Name of Company: _____

2. Location: _____

3. In Operation since: _____

4. Products Manufactured: _____

5. Number of Workers: Total
Females
Males
White
Colored

Office: _____

Production: _____

6. Name of Plant Manager: _____

7. Plant Physician: _____

8. Insurance Carrier: _____

9. Carcinogenic Hazards: _____

10. Operations Involved	Number of Workers				Exposure		
	Total	White	Colored	Male	Female	Constant	Intermittent Occasional
a							
b							
c							
d							
e							
f							
g							
h							
i							
j							
k							
l							
m							
n							

11. Type of Exposure	Duration of Exposure				Cancers Observed		
	Inhalation	Skin	Ingestion	Other	Average	Longest	Site Number Period
a							
b							
c							
d							
e							
f							
g							
h							
i							
j							
k							
l							
m							
n							

12. Rate of Labor Turnover: _____

UNIVERSITY OF CINCINNATI

COLLEGE OF MEDICINE
CINCINNATI 19, OHIO

ENTERING LABORATORY OF APPLIED PHYSIOLOGY

June 20, 1949

CABLE ADDRESS: KETLAB, CINCINNATI
TELEPHONE: UNIVERSITY 2665

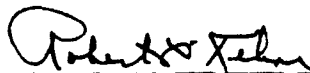
Mr. D. V. Stroop,
The American Petroleum Institute,
50 West 50th Street,
New York City 20.

Dear Mr. Stroop:

I send you herewith an account of expenditures made during the first quarter of 1949 in pursuit of the A.P.I. project. From this information you will recognize that I was correct in my statement that the funds on hand at the first of the year would be ample for the period ending June 30, 1949.

I am sure you and your associates would be pleased to know that our building program is completed for all practical purposes, and that we are now able to get things lined up so as to work in earnest. Within the next thirty days we shall be going forward on all of the fronts of our projected work for A.P.I.

Cordially yours,


Robert A. Kehoe, M. D.

RAK ef

C.C.: Dr. McIver Woody

Enc.

2-11-49
5-11-49

UNIVERSITY OF CINCINNATI
KETTERING LABORATORY OF APPLIED PHYSIOLOGY
ACCOUNT OF THE AMERICAN PETROLEUM INSTITUTE

FOR THE FIRST QUARTER OF 1949

SALARIES (Based on Proportion of Time Actually
Spent on Project)

Francis Heyroth	- Chemical and Toxicological Asst.	425.66
Frank Dutra	- Pathological Assistance	27.87
Joseph Treon	- Chemical Assistance	115.90
A. Wesley Horton	- Chemical Assistance	1800.00
Dan Duvall	- Technical Assistance	187.05
Tom Gahegan	- " "	85.87
Ruth Telger	- " "	27.31
George Nødderman	- " "	24.18
Wm. Poynter	- " "	108.59
		2802.43

MISCELLANEOUS EXPENSE

Purchase of Animals	63.00
Laboratory Supplies	945.89
Traveling Expense	890.92
Proportion of Secretarial, Library, Janitors, Wash Boys, Draftsman, Shipping Clerks, Animal Care- takers, Histopathological Preparation etc	907.70
Proportion of Heat, Gas, Electricity, Steam, Gas, Telephone, Maintenance, Pensions, Annuities etc . .	765.19
	6375.13

Balance Remaining at End of 1948 for work in 1949	\$22,597.98
Expenditures 1st Quarter 1949	<u>6,375.13</u>
Balance Remaining for Work in 1949	16,222.85

June 30, 1949

Dr. Robert A. Kahoe
Kettering Laboratory of Applied Physiology
College of Medicine
University of Cincinnati
Cincinnati 19, Ohio

Dear Doctor Kahoe:

Please accept our thanks for your letter of June 20 and the account of expenditures which seems to confirm your earlier estimate that there will be an unexpended balance in the fund at the University of Cincinnati on June 30, 1949 of \$7,858 or more.

We have taken that estimate into consideration in the preparation of the enclosed continuation agreement.

Four copies of the agreement have been signed by the President and Secretary and are submitted for acceptance and approval on behalf of the University of Cincinnati.

Upon receipt of two fully-enclosed copies we shall send you a check in the amount of \$49,413.

Very truly yours,

DVS:d

Enclosures

cc: Dr. A. E. Hoag
Mr. Lacey Walker
Dr. Halver Woody

AMERICAN PETROLEUM INSTITUTE

30 WEST 50TH STREET

NEW YORK 20, N. Y.

June 30, 1949

Board of Directors
University of Cincinnati
Cincinnati 9, Ohio

Gentlemen:

This communication is authority to continue work and to expand the scope of investigation of the toxicity and mode of action of certain petroleum products for the year ending June 30, 1950 according to the terms of the agreement dated January 8, 1946 and on the basis of a maximum budget for operating expenses of \$98,825 which is conditioned upon an unexpended balance of \$7,858 or more remaining in the fund at the University of Cincinnati as of June 30, 1949.

Upon receipt of your approval of the continuation and expansion of the project with this conditional maximum budget we shall pay you the sum of \$49,413, the balance of \$49,412, less the unexpended balance of \$7,858 or more, to be paid on January 1, 1950.

It is understood that any balance remaining in the fund on June 30, 1950 will be returned to the American Petroleum Institute, and that no excess over the amount of the budget is to be obligated or spent without written authorization.

Very truly yours,

AMERICAN PETROLEUM INSTITUTE

By MR. Boyd President

By Lang Secretary

Accepted and Approved

UNIVERSITY OF CINCINNATI
Through its Board of Directors

By Chairman

By Clerk

\$ 49,412.00 PAYMENT DUE
\$ 10,448.61 - UNEXPENDED BAL. 6/30/49
\$ 38,963.39 TO BE PAID
TO UNIVERSITY OF CINCINNATI
ON JAN 1 1950
DV/

UNIVERSITY OF CINCINNATI

COLLEGE OF MEDICINE
CINCINNATI 19, OHIO

MAC

RESEARCHING LABORATORY OF APPLIED PHYSIOLOGY

July 5, 1949

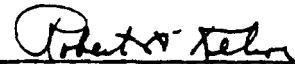
CABLE ADDRESS: KETLAN, CINCINNATI
TELEPHONE: UNIVERSITY 2665

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

Dear Mr. Stroop:

This is to acknowledge your letter of June 30 with the enclosed copies of the continuation agreement. The latter have been forwarded to the University, with our recommendation for their approval, and in due course the two executed copies requested will be returned to you.

Sincerely yours,


Robert A. Kenoe, M. D.

RAK ef

C.C.: Dr. A. E. Hoag
Mr. Lacey Walker
Dr. McIver Woody

UNIVERSITY OF CINCINNATI

COLLEGE OF MEDICINE
CINCINNATI 19, OHIO

LETTERING LABORATORY OF APPLIED PHYSIOLOGY

July 12, 1949

CABLE ADDRESS: KETLAB, CINCINNATI
TELEPHONE: UNIVERSITY 2668

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

Dear Mr. Stroop:

In accordance with Dr. Kehoe's letter of July 6 I am forwarding to you herewith two executed copies of the letter of June 30, extending the agreement between American Petroleum Institute and the University of Cincinnati to June 30, 1950.

Very truly yours,

E. R. Fortlage
E. R. Fortlage, Secretary to
Dr. Kehoe

ef

C.C.: Dr. A. E. Hoag
Mr. Lacey Walker
Dr. McIver Woody

Enc.

HARVARD UNIVERSITY
SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF INDUSTRIAL HYGIENE

55 Shattuck Street
Boston 15, Massachusetts

July 12, 1949

Mr. D. V. Stroop
American Petroleum Institute
50 West 50th Street
New York City

Dear Mr. Stroop:

Referring to my request that you pay the bill for killing the type of the Cutting Oil Review, we can take this out of our budget and get a refund later, as you suggest. If you wish to do so, please send copies of this letter, (extras are enclosed) to Dr. Hoag and his committee members, advise me accordingly, and we'll call the matter closed.

Mr. Kriste has been ill and that is why the paper was not revised as agreed upon. It will be done presently.

Sincerely yours,

Philip Drinker

PD:sl

Philip Drinker

Enc.

RD
Please
1 cc as
reprinted
Sent
7-13-49

July 12, 1949

Dr. Philip Drinker
Harvard University
School of Public Health
55 Shattuck Street
Boston 15, Mass.

Dear Doctor Drinker:

This is in reply to your letter of June 30 and results from my letter of July 6 to Doctor Hoag, a copy of which was sent to you.

Doctor Hoag suggests that I return the invoice to you with request that it be paid from your current funds with the understanding that the Subcommittee on Permissible Concentrations should request a corresponding increase in the next grant to be recommended for Harvard as outlined in the second alternative stated in my letter of July 6.

The invoice is returned herewith.

We trust that this procedure will be acceptable to you.

Very truly yours,

DVS:d

cc: Doctors V. C. Baird
J. P. Malt
A. E. Hoag
B. B. Reeve

Enclosure



SOCONY-VACUUM OIL COMPANY
INCORPORATED

26 Broadway, New York 4, N. Y.

INDUSTRIAL RELATIONS
W. H. MONTGOMERY
MANAGER

RD
PLS GIVE ME
FILE

Mr. D. V. Stroop
American Petroleum Institute
50 West 50th Street
New York 20, N. Y.

July 11, 1949

Re: "The Cutting Oil Dermatoses -
A Critical Review" by
B. C. Kriete

Dear Mr. Stroop:

Your communication of July 6, 1949 has been received and considered.

In my opinion, I would suggest that Method #2 be carried out. It would be much less expensive and would save a great deal of time.

Method #2: "Request Dr. Drinker to pay invoice from his current funds and request Medical Advisory Committee at its next meeting to recommend corresponding increase in payment to be made to Harvard on March 14, 1950 from \$10,000 to \$10,139.61 for the next fiscal year."

Very truly yours,

A. E. Hoag
A. E. Hoag, M.D.

AEH:DMM

July 6, 1949

Dr. A. E. Hoag
Socoxy-Vacuum Oil Company, Inc.
26 Broadway
New York 4, N.Y.

Dear Doctor Hoag:

For your consideration and advice I enclose copy of letter dated June 30 from Doctor Philip Drinker with which he sent me an invoice No. 17311 from The Williams and Wilkins Company, Baltimore, Maryland, amounting to \$139.61 to cover "charge for killing article 'The Cutting Oil Dermatoses - A Critical Review' by B. C. Eriks."

I find myself unable to pay this invoice as our expenditures are limited to amounts recommended by the Medical Advisory Committee and approved by the Safety Committee of the Board of Directors.

You will recall that \$2,500 was paid to Harvard University in November 1947 to reimburse the API fund there for costs in the preparation of the review.

Under the rather strict rules governing our handling of special funds, this matter may be handled in either of two ways, as follows:

1. Convince the Medical Advisory Committee by letter ballot on payment of \$139.61 invoice and secure approval from the Safety Committee of the Board by a second letter ballot.
2. Request Doctor Drinker to pay invoice from his current funds and request Medical Advisory Committee at its next meeting to recommend corresponding increase in payment to be made to Harvard on March 14, 1950 from \$10,000 to \$10,139.61 for the next fiscal year.

.....

Please let me know which course of action you would recommend.

Very truly yours,

DWS:d
Enclosure

cc: Doctors: V. C. Baird
Philip Drinker
J. P. Holt
B. B. Reeve

API 04874

HARVARD UNIVERSITY
SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF INDUSTRIAL HYGIENE

55 Shattuck Street
Boston 15, Massachusetts

June 10, 1949

Mr. D. V. Stroop
American Petroleum Institute
50 West 50th Street
New York City

Dear Mr. Stroop:

Herewith bill for \$139.51 for killing the article on
Butting bills as per vote of API Medical Committee at Detroit
last April. You will remember that the paper actually was in
galley proof, having been approved by the committee, then ap-
proval was withdrawn and we were stuck with the cost of print-
ing the galleys. I do not think it would be fair to charge
this against our own special budget.

Please advise.

Yours sincerely,



Philip Drinker

PD:sl

enc.

API 04875

July 15, 1949

Dr. Robert A. Kehoe
Nettering Laboratory of Applied Physiology
College of Medicine
University of Cincinnati
Cincinnati 19, Ohio

Dear Doctor Kehoe:

This is to acknowledge receipt of the two
executed copies of the continuation agreement of June 30,
1949 and to enclose the Institute's check in the amount
of \$49,413 in accordance with the terms of the agreement.

Very truly yours,

DVB:d
Enclosure

cc: Dr. A. E. Haag
Mr. Lacey Walker
Dr. McIver Woody

UNIVERSITY OF CINCINNATI

COLLEGE OF MEDICINE

CINCINNATI 19, OHIO

RESEARCH LABORATORY OF APPLIED PHYSIOLOGY

July 18, 1949

CABLE ADDRESS: KETLAB, CINCINNATI
TELEPHONE: UNIVERSITY 2868

Mr. D. V. Stroop,
American Petroleum Institute,
50 West 50th Street,
New York City 20.

Dear Mr. Stroop:

I herewith acknowledge with thanks receipt of American Petroleum Institute's check in the amount of \$49,413.00, covering expenditures to be made on their behalf.

Very truly yours,

E. R. Fortlage

E. R. Fortlage, Secretary to
Dr. Kehoe

ef

UNIVERSITY OF CINCINNATI
COLLEGE OF MEDICINE
CINCINNATI 19, OHIO

LETTERING LABORATORY OF APPLIED PHYSIOLOGY

September 1, 1949

CABLE ADDRESS: KETLAS, CINCINNATI
TELEPHONE: UNIVERSITY 2888

FILE
RD
12-1-49
12-1-49
12-1-49

Mr. D. V. Strop,
The American Petroleum Institute,
50 West 50th Street,
New York City 20.

Dear Mr. Strop:

I send you herewith an account of the expenditures made on
behalf of the A.P.I. project for the second quarter of 1949.

Very truly yours,

E. R. Fortlage

E. R. Fortlage, Secretary to
Dr. Kehoe

ef

Enc.

10,448.61
7,858.00
\$ 2,590.61
additional
having over
that of time
April 1948

UNIVERSITY OF CINCINNATI
KETTERING LABORATORY
ACCOUNT OF THE AMERICAN PETROLEUM INSTITUTE

FOR THE SECOND QUARTER OF 1949

SALARIES (Based on Proportion of Time Actually
Spent on Project)

Francis Heyroth	- Chemical and Toxicological Asst.	153.48
A. Wesley Horton	- Chemical Assistance	1800.00
Dan Duvall	- Technical Assistance	28.85
Wm. Poynter	- " "	38.74
Karl Korpi	- " "	113.24
Sylvan Witherup	- " "	10.77
		2145.08

MISCELLANEOUS EXPENSE

Purchase of Animals	87.00
Laboratory Supplies	990.92
Traveling Expense	1400.01
Proportion of Secretarial, Library, Janitors, Wash Boys, Draftsman, Shipping Clerks, Animal Caretakers, Histo- pathological Preparation etc	550.62
Proportion of Heat, Gas, Electricity, Steam, Gas, Telephone, Maintenance, Pensions, Annuities etc . .	600.61
	5774.24

2477.93
115123

Balance Remaining for Work in 1949 at End of First Quarter 1949	\$16,222.85
Expenditures Second Quarter 1949	<u>5,774.24</u>
Balance Remaining for Work in 1949	\$10,448.61
Receipts - July 18, 1949	<u>49,413.00</u>
Total Balance Remaining for Work in 1949 at End of Second Quarter 1949	\$59,861.61

October 19, 1949

Dr. McIver Woody
Esso Standard Oil Company
15 West 51st Street
New York 19, N.Y.

Dear Doctor Woody:

For your information we enclose copy of
budget data supplied to me by Doctor Kehoe with his letter
dated October 14th.

Very truly yours,

DVS:d
Enclosure

October 19, 1949

Dr. Robert A. Kahoe
University of Cincinnati
The Kettering Laboratory
College of Medicine
Cincinnati 19, Ohio

Dear Doctor Kahoe:

Thank you very much for your letter of
October 14 and the two copies of the estimated budget on
the API carcinogenicity project for the fiscal year
1950-51.

Very truly yours,

DWS:d

API 04881

UNIVERSITY OF CINCINNATI
DEPARTMENT OF PREVENTIVE MEDICINE AND INDUSTRIAL HEALTH

October 14, 1949

CABLE ADDRESS: KETLAB, CINCINNATI
TELEPHONE: CAPITOL 1414

THE KETTERING LABORATORY
COLLEGE OF MEDICINE—EDEN AVENUE
CINCINNATI 19, OHIO

Mr. D. V. Stroop,
The American Petroleum Institute,
50 West 50th Street,
New York City 20.

Dear Mr. Stroop:

I am sending you herewith tabulated information in response to your request for it in connection with preparing the budget of your organization, in connection with our work, for consideration at the November meeting.

This information may or may not be in the form in which you will wish to make use of it, but it will serve, I believe, to acquaint you with the outlook so far as we can see it.

If there is any other information you require, do not hesitate to let me know.

Sincerely yours,

Robert A. Kenhoe
Robert A. Kenhoe, M. D.

RAK ef

Enc.

API 04882

BUDGET DATA FOR AMERICAN PETROLEUM INSTITUTE
Investigation of Cutaneous Carcinogenic Materials by
Kettering Laboratory

Schedule I

Program with respect to Petroleum Technology and Epidemiology,
on behalf of A.P.I., (excluding testing of materials by means
of mice)

Compensation for Personnel	July 1949 to July 1950		July 1950 to July 1951 Estimated October 1949
	Estimated April 1949	Estimated * October 1949	
Supervision	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00
Principals - Petroleum Technician	7,200.00	7,200.00	7,200.00
Epidemiologist	5,000.00	2,500.00	5,000.00
Assistant Chemists	4,800.00	7,200.00**	8,800.00
Travel	7,500.00	5,000.00	5,000.00
Special equipment	-	7,500.00**	-
Laboratory supplies	-	3,500.00	3,500.00
Overhead	13,500.00	17,700.00	16,000.00
TOTALS	40,500.00	53,100.00	48,000.00

* Based on figures complete or largely complete to October 1, 1949

** Represents part of year compensation for two assistants

** Represents allocation of cost (50%) of infra-red spectrograph, to
the project

BUDGET DATA FOR AMERICAN PETROLEUM INSTITUTE

Investigation of Cutaneous Carcinogenic Materials by
Kettering Laboratory

Schedule II

Program with respect to Testing of Materials by means of mice,
on behalf of Petroleum Industry

Supervision	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00
pathologists	7,200.00	7,200.00	7,200.00
path-technicians	3,000.00	3,000.00	4,000.00
Animals	10,000.00	2,500.00	3,500.00
Technicians (animal tests)	7,200.00	4,980.00	5,200.00
Record Clerk	2,400.00	2,400.00	2,600.00
Animal Caretakers (2)	4,000.00	3,000.00	4,000.00
Special equipment (Cages, etc.)	7,500.00	5,276.00	-
Supplies	3,500.00	3,500.00	3,500.00
Overhead	23,650.00	17,178.00	16,250.00
TOTALS	70,950.00	51,534.00	48,750.00
Estimate of Cost Borne by Others		10,307.00	4,875.00
Estimate of Cost for A.P.I.	70,950.00	41,227.00	43,875.00

BUDGET DATA FOR AMERICAN PETROLEUM INSTITUTE
Investigation of Cutaneous Carcinogenic Materials by
Kettering Laboratory

Summation of Schedules I and II

Estimated Cost of Entire Program for A. P. I.

	July 1, 1949 to July 1, 1950		July 1, 1950 to July 1, 1951
	Estimated April 1949	Estimated October 1949	Estimated October 1949
	\$40,500.00	\$ 53,100.00	\$ 48,000.00
	70,950.00	41,227.00	43,875.00
TOTALS - Schedules I and II	111,450.00	94,327.00*	91,875.00
Balance on hand July 1949		59,861.61	
Estimated Requirement to July 1950		34,465.39	

* This sum differs from the original estimate of April 1949 by reason of an error (\$3,650) in estimating the overhead which also includes cost of care (not feed) of animals.

5-9 861.61 - BAL 6.30.4
 49 413.00 - PAYMENT 630
 \$ 10,448.61

PAYMENT TO BE MADE
 JAN 1 1950 UNDER CONTRACT -

\$ 49,412.00
 10,448.61
 \$ 38,963.39

Please insert
THIS END
in slot of
AUTOMATIC
TELEGRAPH
with message
facing outward

WESTERN UNION

JOSEPH L. EGAN
PRESIDENT

When placing
this telegram in
AUTOMATIC
TELEGRAPH
please observe
directions shown
on the cover

and the following telegram, subject to the terms on back hereof, which are hereby agreed to

TELEGRAM

CHECK

CHARGE TO THE ACCOUNT OF

PLACE

DATE

TIME PERIOD

AMERICAN PSYCHOLOGY INSTITUTE 30 W 90TH ST 9-29-49

**RE ROBERT A. KERR
UNIVERSITY OF CINCINNATI
KENTZLINE LABORATORY OF APPLIED PSYCHOLOGY
CINCINNATI OHIO**

**UNLICKING SUBJECTS ARE BEING PREPARED FOR FISCAL YEAR 1950-51. CAN YOU
AS ESTIMATE ON APT CAPABILITY IN SUBJECT?**

D V SHERO

AMERICAN PSYCHOLOGY INSTITUTE

PLEASE WRITE OR TYPE MESSAGE PLAINLY WITHIN THE BORDER—USE BLACK INK OR PENCIL—DO NOT

For Information Only - Not For Publication

Report to Subcommittee on Carcinogenicity
of the
API Medical Advisory Committee

on

PROJECT ON CARCINOGENICITY AT THE

UNIVERSITY OF CINCINNATI

The following discussion will be restricted to the technical aspects of the project. Doctor J. J. Pazair will attend the meeting in Chicago, November 10, 1949, and will describe at that time his tentative plans for an epidemiological study of actual cancer cases in the petroleum industry.

To date, process data on the various cracking and lube refining processes have been received from about sixty per cent of the cooperating oil companies. In line with the recommendations of the API Subcommittee in their meeting February 1, 1949, the samples listed in Table 1 have been requested and are, at this time, either under test on experimental animals or pending investigation.

Samples of various cokes and heavy coker gas oils will be requested in the near future. Operating data on the various catalytic processes, not included in Table 1, are not yet sufficiently complete to permit any logical selection of samples. Of the "specific products" recommended for study, particular attention has been given thus far to the solvent extracts (Samples API-14 through 17) of certain lube distillates. Since these extracts should contain the major portion of any carcinogenic components of the original raw lube stocks, it is felt that testing of the latter can well be postponed until the results of the tests on the extracts are known.

Further selection of samples will proceed cautiously until the survey of the cracking and lube refining operations covers at least eighty per cent of the oil companies. When that situation obtains, a list of approximately 100 to 150 samples from the various processes will be drawn up. This list will then be submitted to the Subcommittee for review before going ahead with the full scale testing program.

To conclude this discussion of samples from typical refinery streams, we should like to offer for consideration the following suggestion. It is felt that the data thus far obtained definitely rule out any possibility of the use of boiling point alone as a sufficient criterion for determining the dilution of a carcinogenic oil necessary to permit safe handling. A single case might be cited. A typical heavy catalytically cracked oil, containing less than ten per cent of material boiling over 700° F., has been tested on mice in the usual manner. Half of the animals given adequate exposure developed tumors, most of which were found to be malignant on postmortem examination. Hence it is urged that as much attention be given to the concentration of the aromatic component of an oil as to its boiling range in considering any formal recommendations on dilution.

The experiments previously mentioned, in which various concentrations of a standard carcinogenic hydrocarbon, Methylcholanthrene, in benzene are being tested, have proceeded very satisfactorily. The results will be presented graphically at the Chicago meeting. It has been found that with the C3H strain of mice, used in testing the first 8 oils, that the concentration of methylcholanthrene is inversely proportional to the times of appearance of tumors in the different groups of mice. Thus, with the C3H strain of mice the benzene solutions of this carcinogen offer an excellent set of standards for reporting the relative carcinogenicities of the oils to be tested.

Simultaneous experiments with a CFW strain from the Carworth Farms have brought out interesting differences in the effects of the polycyclic aromatic structure on mice. Based on time of appearance of tumors, this strain is more susceptible to the lower concentrations of methylcholanthrene (below 0.2 per cent) than is the C3H strain. Hence the CFW strain may be useful in accelerating the determination of relative potencies of the oils which are only mildly carcinogenic. However, perhaps due to some general toxicity of high concentrations of methylcholanthrene for this particular strain of mice, there is no further shortening of the induction period with concentrations higher than 0.2 per cent.

The technical personnel required to handle adequately the work of the carcinogenicity project are now assembled. The predicted expansion of the animal testing program may require an addition of one non-technical assistant. The group handling the actual testing of oils on the mice remains essentially the same as previously reported, with the addition on July 1st of Dorothy A. Templeton, B.S., who is responsible for keeping the records of the animals and for bio-statistical studies. Pathological examinations of sections are being made by Frank P. Cleveland, M.D., and Frederic Shaffer, M.S., under the general supervision of Frank R. Dutra, M.D.

By July 1, 1950, the animal testing program will be amplified considerably, involving about 6,000 mice required to test between 150 to 200 samples drawn from typical refinery streams. Further developments in the direction of an analytical tool based on the physical properties of the streams should aid in the selection of the samples. Further experiments are contemplated using standard carcinogenic hydrocarbons, such as Methylcholanthrene and 9,10-Dimethyl-1,2-Benzanthracene, in both a non-volatile solvent, dodecylbenzene, and in some solvent of very high viscosity to stimulate thermal tars. Experiments which have already been started involving washing animals with soap solutions at definite periods after application of a carcinogenic catalytically cracked oil will be continued and expanded. These tests have not been running long enough yet to permit more than a statement that the normal time of appearance of tumors has been delayed by washing.

Lastly, mention should be made of the fractionation studies being carried out in our chemical laboratory. Russell Tye, M.S., has been engaged in this work with the Laboratory since July 1st, and on October 3rd, Ruth C. Pierle, Ph.D., joined the group. Much of the work has been with Oil W-3632 (API-8), and with another FCCU decanted oil, API-12, which is a somewhat cleaner product to work with and about equally carcinogenic

to mice. Progress towards the development of a rapid analytical tool, which might be applied to any refinery stream to determine its carcinogenicity, has been very satisfactory. The technique is, at present, being applied to all of the oils which have been previously tested for the American Petroleum Institute or for individual oil companies. Details of the method and results of its application to the various oils will be discussed at the Subcommittee meeting, November 10th.

A. Wesley Horton

October 25, 1949

11-2-49

TABLE 1

API Sample Number	Process	Product	Gravity	Boiling Range	UOP "K" Factor
9	TCC	Syn. Tower Bottoms	18.4	425 - 756° F.	10.7 (70% aromatics by silica gel)
10	TCC	Fuel Oil	11.6	550-92% at 760°	10.7
11	Houdry	Syn. Tower Bottoms	4.3	438-81% at 700°	9.8
12	FCC	Decanted Oil	18.1	435-74% at 750°	11.3 (50% aromatics by silica gel)
13	Polyforming	Polyformer Tar	9.7	440-75% at 740°	10.4
14	Solvent Extrac- tion (Furfural)	Extract from Kansas 200 Stock	10.3	705-920°	10.8
15	Solvent Extraction (Furfural)	Extract from Okla. crude (for 400 Pale)	10.9	720-95% at 980°	11.1
16	Solvent Extraction (Phenol)	Extract from 900-X Coastal Distillate	11.0	790-50% at 915°	
17	Solvent Extraction (Duosol)	Extract from Calif. Waxy Residuum	7.0	650-50% at 950°	11.0
18	Viscosity Breaking of API 17 and San Joaquin Asphalt	Cracked Residuum	6.0		
19	Naphtha Reforming	Reformer Tar	17.0	355-94% at 706°	10.2
-	Wax Pressing	Slack Wax from Lima Crude			
-	FCC	Heavy Cycle Gas Oil	26.1	427-828°	11.6
-	Thermal Crack- ing (DeFlores) of FCC Heavy Cycle Gas Oil above	Thermal Tar	13.5	373-95% at 1050°	10.9

COPY - Mr. D. V. Stroop

October 31, 1949
(air mail
special delivery)

Dr. McIver Woody,
Medical Director,
ESSO Standard Oil Company,
15 West 51st Street,
New York 19, N. Y.

Dear Doctor Woody:

We have again reviewed the interim progress report submitted to you last week. Since none of the samples at present under test are far enough along to permit any definite conclusions regarding their physiological activity, it is felt that nothing more could be said about that phase of the program. As indicated in paragraph 4 of the report, our plans for animal tests of such materials in 1950 are necessarily on a tentative basis. We have reason to expect that we shall probably have 80 per cent of the companies represented on our data sheets within the next two months. Our full scale testing program on refinery samples for 1950 can then be organized and submitted to the Sub-Committee for review.

The necessary equipment for the fractionation work in the chemical laboratory was not available until about July 1st. Summer vacations postponed active initiation of these studies until August. Hence I am not unpleasantly surprised to find myself in a position to discuss even in a preliminary manner data which we believe will lead to a useful analytical tool in the determination of the carcinogenicity of petroleum products.

Thus, while many aspects of the project, plans for which have been previously reported to the Sub-Committee, have recently gotten under way, it is felt that the results of the present stage of the work hardly warrant any formal and lengthy discussion.

October 31, 1949

To complete the discussion of current work, I am adding the following paragraph to the report (to appear on Page 3 just preceding the final paragraph):

By July 1, 1950, the animal testing program will be amplified considerably, involving about 6,000 mice required to test between 150 to 200 samples drawn from typical refinery streams. Further developments in the direction of an analytical tool based on the physical properties of the streams should aid in the selection of the samples. Further experiments are contemplated using standard carcinogenic hydrocarbons, such as Methylcholanthrene and 9,10-Dimethyl-1,2-Benzanthracene, in both a non-volatile solvent, dodecylbenzene, and in some solvent of very high viscosity to simulate thermal tars. Experiments which have already been started involving washing animals with soap solutions at definite periods after application of a carcinogenic catalytically cracked oil will be continued and expanded. These tests have not been running long enough yet to permit more than a statement that the normal time of appearance of tumors has been delayed by washing.

A

Since receiving your letter of October 21st in which you indicated your concurrence in the idea that the members of the Sub-Committee should be given an opportunity to review this progress report before the meeting, I have talked with some of the members personally. All have been quite pleased to hear that they would receive the report in advance. Hence, with the inclusion of the preceding paragraph, I hope that you will find the report which you have in hand suitable for distribution. I can assure you that the technical aspects of our work are covered completely therein and could in no sense be rendered confusing by anything I plan to say on November 10th. The graphs which I

Dr. McIver Woody

- 3 -

October 31, 1949

shall bring to the meeting show only the preliminary results of the methylcholanthrene experiments, which are by no means complete as yet and include no microscopic examinations. You will recall that last Wednesday we discussed the choice between lantern slides and photostats. Since we were in agreement that the incomplete nature of the experiments did not warrant a permanent record, I shall present the data we have on slides as suggested.

I believe that the members of the Medical Advisory Committee would have a much better opportunity to talk over the program with their technical associates and prepare their suggestions concerning future work if they did receive this material prior to the Chicago meeting. However, if you wish, I shall have the report mimeographed here to be handed out November 10th. If this is your desire, please advise me by Friday, November 4th, so that our secretary will have time to do the work before I leave Cincinnati on November 8th.

Sincerely yours,

A. Wesley Horton

AWH:fe

✓ cc: Mr. D. V. Stroop

Report to Subcommittee on Cancer

API-70

Committee

51

~~API~~ PROJECT ON CARCINOGENICITY AT THE
UNIVERSITY OF CINCINNATI

The following discussion will be restricted to the technical aspects of the project. Doctor J. J. Phair will attend the meeting in Chicago, November 10, 1949, and will describe at that time his tentative plans for an epidemiological study of actual cancer cases in the petroleum industry.

To date, process data on the various cracking and lube refining processes have been received from about sixty per cent of the cooperating oil companies. In line with the recommendations of the API Sub-Committee in their meeting February 1, 1949, the samples listed in Table 1 have been requested and are, at this time, either under test on experimental animals or pending investigation.

Samples of various cokes and heavy coker gas oils will be requested in the near future. Operating data on the various catalytic processes, not included in Table 1, are not yet sufficiently complete to permit any logical selection of samples. Of the "specific products" recommended for study, particular attention has been given thus far to the solvent extracts (Samples API-14 through 17) of certain lube distillates. Since these extracts should contain the major portion of any carcinogenic components of the original raw lube stocks, it is felt that testing of the latter can well be postponed until the results of the tests on the extracts are known.

Further selection of samples will proceed cautiously until the survey of the cracking and lube refining operations covers at least 80 per cent of the oil companies. When that situation obtains, a list of approximately 100 to 150 samples from the various processes will be drawn up. This list will then be submitted to the Sub-Committee for review before going ahead with the full scale testing program.

To conclude this discussion of samples from typical refinery streams, we should like to offer for consideration the following suggestion. It is felt that the data thus far obtained definitely rule out any possibility of the use of boiling point alone as a sufficient criterion for determining the dilution of a carcinogenic oil necessary to permit safe handling. A single case might be cited. A typical heavy catalytically cracked oil, containing less than 10 per cent of material boiling over 700° F., has been tested on mice in the usual manner. Half of the animals given adequate exposure developed tumors, most of which were found to be malignant on postmortem examination. Hence it is urged that as much attention be given to the concentration of the aromatic component of an oil as to its boiling range in considering any formal recommendations on dilution.

The experiments previously mentioned, in which various concentrations of a standard carcinogenic hydrocarbon, Methylcholanthrene, in benzene are being tested, have proceeded very satisfactorily. The results will be presented graphically at the Chicago meeting. It has been found that with the C3H strain of mice, used in testing the first 8 oils, that the concentration of methylcholanthrene is inversely proportional to the times of appearance of tumors in the different groups of mice. Thus, with the C3H strain of mice the benzene solutions of this carcinogen offer an excellent set of standards for reporting the relative carcinogenicities of the oils to be tested.

Simultaneous experiments with a CFW strain from the Carworth Farms have brought out interesting differences in the effects of the polycyclic aromatic structure on mice. Based on time of appearance of tumors, this strain is more susceptible to the lower concentrations of methylcholanthrene (below 0.2 per cent) than is the C3H strain. Hence the CFW strain may be useful in accelerating the determination of relative potencies of the oils which are only mildly carcinogenic. However, perhaps due to some general toxicity of high concentrations of methylcholanthrene for this particular strain of mice, there is no further

Table 1

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-	Thermal Cracking (DeFlores) of FCC Heavy Cycle Gas Oil above)	Thermal Tar	13.5	373-95% at 1050°	10.9

ESSO STANDARD OIL COMPANY

MEDICAL DEPARTMENT

ESSO BUILDING, 15 WEST 51ST STREET, NEW YORK 19, N. Y.

McIVER WOODY, M. D.
MEDICAL DIRECTOR
JOHN S. DENHOLM, M. D.
ASSISTANT MEDICAL DIRECTOR
ROBERT P. SIM, M. D.
SENIOR PHYSICIAN
PETER P. LEONE, M. D.
PHYSICIAN

THOMAS G. ELIAS, M. D.
CLINICIAN
CLYDE M. BERRY, PH. D.
INDUSTRIAL HYGIENIST

November 1, 1949.

VIA AIR MAIL

Dr. A. Wesley Horton
University of Cincinnati
Department of Preventive Medicine
and Industrial Health
Cincinnati 19, Ohio

Dear Dr. Horton:

On receiving your letter of yesterday, I consulted Dr. Hoag and Mr. Stroop, both of whom were quite willing to be guided by your desire to have your progress report circulated prior to the meeting. In line with your request, the additional paragraph "By July 1, 1950 delayed by washing". will be inserted just before the concluding paragraph of your report.

Sincerely,

McIV:EH

McIVER WOODY

cc: Dr. A. E. Hoag
✓ Mr. D. V. Stroop

October 25, 1949

Dr. McIver Woody,
ESSO Standard Oil Co.,
15 West 51st St.,
New York 19, N. Y.

Dear Doctor Woody:

I am attaching the promised report for distribution to members of the API Medical Advisory Committee prior to the Chicago Meeting.

I am looking forward to seeing you on Thursday or Friday. I shall telephone you when I arrive in town to arrange a suitable time for a meeting.

Sincerely yours,

A. Wesley Horton

AWH:fe
encl.

cc: Dr. A. E. Hoag,
✓ Mr. D. V. Stroop
with attachments.

CONFIDENTIAL

For Information Only - Not For Publication

AMERICAN PETROLEUM INSTITUTE

SUBCOMMITTEE ON CARCINOGENICITY

Minutes

Minutes of Meeting
November 10, 1949
Stevens Hotel
Chicago, Illinois

Members Present

Marshall Clinton
L. E. Curtis
T. M. Frank
T. J. Kelly
M. N. Newquist
C. A. Swan
McIver Woody

Associates Present

L. C. Beard, Jr.
A. E. Dooley
R. W. Faulk
H. G. M. Fischer
H. P. Lankelma

Visitors

W. O. Armstrong
F. F. Boys
J. W. Crookshank
Kieffer Davis
A. E. Hoag
E. K. Linder
J. W. Long
B. B. Reeve

E. W. Adams
C. T. Brown
R. C. Cole
N. J. Gothard
L. M. Henderson
C. A. Neilson
R. M. Shepardson
F. M. Watkins

Guests

R. D. Bent - The Atlantic Refining Company
R. E. Eckardt - Standard Oil Company (New Jersey)
E. A. Evans - President, Institute of Petroleum, London
A. W. Horton - University of Cincinnati
W. J. McGill - Standard Oil Company (Indiana)
R. C. Mithoff - California Research Corporation
J. J. Phair - University of Cincinnati
W. D. Seyfried - Humble Oil and Refining Company
H. R. Warrick - The Texas Company
W. O. Wilson - Standard Oil Company (Indiana)

Advisor

D. V. Stroop - American Petroleum Institute

Total in Attendance - 39

Members Absent

J. P. Holt
W. R. Levis

K. G. Mackenzie

.....

New members and guests were introduced.

Minutes of the June 3, 1949 interim meeting were approved.

Dr. A. Wesley Horton, Assistant Professor of Industrial Hygiene, University of Cincinnati, reviewed briefly the progress report which was sent to the subcommittee members prior to the meeting. He said that data obtained so far indicate that the use of the boiling point alone is not a sufficient criterion for determining the dilution of a carcinogenic oil necessary to permit safe handling. The aromatic content must also be taken into account.

Dr. Horton presented a series of lantern slides to show the progress being made at the University of Cincinnati toward developing an analytical tool. The technique is being applied to all oils which have been previously tested on animals at Cincinnati.

This predicted expansion of the animal testing program may require the addition of one or two non-technical assistants.

Dr. J. J. Phair, Professor of Preventive Medicine, University of Cincinnati, in discussing the epidemiological aspects of this problem reported on the advantages and disadvantages of various approaches. He proposed the establishment of a cancer registry for the petroleum industry at the University of Cincinnati and submitted a preliminary form for recording data on cancer cases. He requested that the subcommittee members submit suggestions as to changes in the form and how it should be used. It was the consensus of the subcommittee that legal advice be obtained as to whether reporting such cancer cases to the University of Cincinnati would be an invasion of an individual's rights.

Dr. Elliott A. Evans, President of the Institute of Petroleum, London, reported briefly on the cancer problem as it relates to the petroleum industry in England. He said that in England the chief interest was the problem of effects on users of petroleum products. He requested that the exchange of information between the API and his organization be continued.

Those subcommittee members who had written articles on cancer for their company employee publications reported that such articles had caused no adverse results.

The subcommittee recommended to the Medical Advisory Committee that:

1. Exchange of information between the API and the Institute of Petroleum, London, be continued as during the past year.
2. Legal advice be obtained as to whether an oil company has a right to report cases of cancer that occur among its employees to the University of Cincinnati.
3. Adequate funds be allocated to continue cancer research at the University of Cincinnati for the twelve months ending January 30, 1951.

A. E. Dooley
Secretary

McIver Woody, M.D.
Chairman

CANCER REPORT

See reverse for instructions

Send to

University of Cincinnati
Eden and Bethesda
Cincinnati 19, Ohio

(2) Reported by: _____

(3) Name: _____ (4) Born-Year: _____ (5) Country: _____

(6) Address _____ (7) Sex: MF (8) Race: WC (9) Status: MSWD

Number
Street:

City: _____ State: _____ (10) Social Security Number: _____

CLINICAL

(11) DIAGNOSIS: _____ (12) Site: _____ (13) Stage: _____

First First Visit First First

DATES: (14) Symptoms: _____ (15) Physician: _____ (16) Diagnosis: _____ (17) Treatment: _____ (18) Death: _____

PATHOLOGIC

DIAGNOSIS: (19) Date: _____ (20) Biopsy _____ (21) Autopsy _____ (22) Findings: _____

TREATMENT

(23) ADVISED: _____ (24) RECEIVED: _____

Surgery	Radiation
X-Ray	Other

Surgery	Radiation
X-Ray	Other

(25) COMPLICATIONS: _____

ADDITIONAL

(26) INFORMATION: _____

(27) Discovered by: _____ in a (28) ☐ routine ☐ special ☐ other examination

Personal

(29) Physician: _____ Address: _____

Clinic or

(30) Laboratory: _____ Address: _____

(31) Hospital: _____ Address: _____

(32) OCCUPATIONAL RECORD: List positions chronologically beginning with last or present one

FROM	TO	EMPLOYER	ADDRESS	PRODUCT	JOB DESCRIPTION

(33) CONTACT with possible Carcinogens	Agent	FROM	TO	DEGREE-Exp.		TYPE-Exp.		Agent	FROM	TO	DEGREE-Exp.		TYPE-Exp.	
	HEAT			Hvy.	Lgt.	Cont.	Occ.	CHROMATE			Hvy.	Lgt.	Cont.	Occ.
	LIGHT			Hvy.	Lgt.	Cont.	Occ.	ARSENIC			Hvy.	Lgt.	Cont.	Occ.
	TRAUMA			Hvy.	Lgt.	Cont.	Occ.	ASBESTOS			Hvy.	Lgt.	Cont.	Occ.

WORK IN THE PETROLEUM INDUSTRY

(34) COMPANY:

(35) REFINERY:

FROM	TO	Department	Job description	Products handled

(36) COMPANY:

(37) REFINERY:

FROM	TO	Department	Job description	Products handled

MEMORANDUM

November 10, 1949

SUBJECT: RECEIPTS, EXPENDITURES AND ALLOCATIONS -- API MEDICAL RESEARCH FUND

Contributions Received

1945	\$28,900.00	
1947	27,800.00	
1948	98,300.00	
1949	<u>64,340.00</u>	
TOTAL		\$219,340.00

Expenditures Made Prior to November 10, 1949

<u>Harvard University</u>		
Toxicological Reviews	\$37,000.00	
Cutting Oil Study	<u>2,500.00</u>	
		39,500.00
<u>University of Cincinnati</u>		
Carcinogenicity	120,413.00	
Fluorine Study	<u>5,000.00</u>	
		125,413.00
<u>Miscellaneous</u>		
Books for Committee Use		<u>57.77</u>
TOTAL EXPENDITURES		<u>164,970.77</u>
BALANCE ON DEPOSIT		<u>54,369.23</u>

Payments Required to Continue Current Projects Unitl 6-30-50

<u>Harvard University</u>		
Toxicological Reviews (3-14-50 to 6-30-50)	3,000.00	
<u>University of Cincinnati</u>		
Carcinogenicity	38,963.39	
Fluorine Study (11-28-49 to 6-30-50)	<u>1,500.00</u>	
		<u>40,463.39</u>
TOTAL PAYMENTS TO 6-30-50		<u>43,463.39</u>
BALANCE AVAILABLE 7-1-50		<u>10,905.84</u>

Tentative Budget for Year Ending 6-30-51

<u>Harvard University</u>		
Toxicological Reviews	10,000.00	
<u>University of Cincinnati</u>		
Carcinogenicity	92,000.00	
Fluorine Study	<u>2,500.00</u>	
		<u>94,500.00</u>
TOTAL TENTATIVE BUDGET		<u>104,500.00</u>
CONTRIBUTIONS NEEDED TO FINANCE TENTATIVE BUDGET		<u>93,594.16</u>

NOTE: If 1949 contributors should give 150% of the 1949 contributions the total for 1950 would amount to \$96,510.

November 14, 1949

Dr. Robert A. Kehoe
University of Cincinnati
Lettering Laboratory of Applied Physiology
Cincinnati 19, Ohio

Dear Doctor Kehoe:

At its 1949 annual meeting the Institute's Medical Advisory Committee voted to continue its financial support to the cooperative study on fluorine at a rate not to exceed \$2,500 per year.

We wish to change the annual date of payment on this account from November 28th to July 1st to make it concurrent with other special projects; therefore, we are planning to send you \$1,500 on November 28th to cover the next seven months. Will this be satisfactory to you?

Very truly yours,

DVS:d

UNIVERSITY OF CINCINNATI
DEPARTMENT OF PREVENTIVE MEDICINE AND INDUSTRIAL HEALTH

November 17, 1949

THE LETTERING LABORATORY
COLLEGE OF MEDICINE—EDEN AVENUE
CINCINNATI 19, OHIO

CABLE ADDRESS: KETLAB, CINCINNATI
TELEPHONE: CAPITOL 1414

137
MY LETTER
PLS

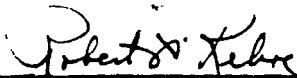
Mr. D. W. Stroop,
American Petroleum Institute,
50 West 50th Street,
New York City 20.

Dear Mr. Stroop:

I am glad to know from your letter of November 14 that the Medical Advisory Committee saw fit to approve the continuation of A.P.I. financial support to the cooperative study of fluorine.

Any manner in which it is convenient to you to furnish the funds will be entirely satisfactory for our purposes. You will remember that we applied the first grant of funds as at the beginning of the calendar year, which came some months after the receipt of the grant. Since that time we have continued to employ these funds on that kind of a delayed schedule within our own budgetary year, which coincides with the calendar year. Therefore, any means by which we receive the funds, during the continuation of this project will be wholly satisfactory.

Sincerely yours,


Robert A. Kehoe, M. D.

RAK ef

AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20, N. Y.

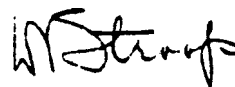
November 25, 1949

Dr. Robert A. Kehoe
University of Cincinnati
The Kettering Laboratory
College of Medicine
Cincinnati 19, Ohio

Dear Doctor Kehoe:

Pursuant to the understanding reached
by our letters of October 28 and November 5, 1947 as
modified by letters dated November 14 and 17, 1949, we
are enclosing the Institute's check in the amount of
\$1,500 payable to the University of Cincinnati as our
contribution towards the development of information on
fluorine and fluorine compounds for the seven-month
period ending June 30, 1950.

Very truly yours,



D. V. Stroop

DVS:d

Enclosure

cc: Mr. Baird H. Markham
Dr. A. E. Hoag
Mr. Lacey Walker
Members, Safety Committee
of the Board of Directors
Members, Medical Advisory Committee

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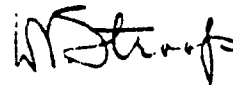
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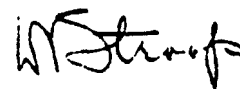
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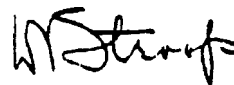
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AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20, N. Y.

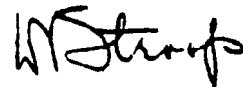
November 25, 1949

Dr. Robert A. Kehoe
University of Cincinnati
The Kettering Laboratory
College of Medicine
Cincinnati 19, Ohio

Dear Doctor Kehoe:

Pursuant to the understanding reached
by our letters of October 28 and November 5, 1947 as
modified by letters dated November 14 and 17, 1949, we
are enclosing the Institute's check in the amount of
\$1,500 payable to the University of Cincinnati as our
contribution towards the development of information on
fluorine and fluorine compounds for the seven-month
period ending June 30, 1950.

Very truly yours,



D. V. Stroop

DVS:d

Enclosure

cc: Mr. Baird H. Markham
Dr. A. E. Hoag
Mr. Lacey Walker
Members, Safety Committee
of the Board of Directors
Members, Medical Advisory Committee

UNIVERSITY OF CINCINNATI
DEPARTMENT OF PREVENTIVE MEDICINE AND INDUSTRIAL HEALTH

November 29, 1949

THE KETTERING LABORATORY
COLLEGE OF MEDICINE—EDEN AVENUE
CINCINNATI 19, OHIO

FILE
CABLE ADDRESS: KETLAB. CINCINNATI
TELEPHONE: CAPITOL 1414

Mr. D. V. Stroop,
American Petroleum Institute,
50 West 50th Street,
New York City 20.

Dear Mr. Stroop:

I herewith acknowledge with thanks receipt of American Petroleum Institute's check in the amount of \$1500.00, covering expenditures to be made on behalf of the Fluorine Project for the period December 1, 1949 to June 30, 1950.

Very truly yours,

E. R. Fortlage
E. R. Fortlage, Secretary to
Dr. Kehoe

ef

ESSO STANDARD OIL COMPANY

MEDICAL DEPARTMENT

ESSO BUILDING, 15 WEST 51ST STREET, NEW YORK 19, N. Y.

FILE

McIVER WOODY, M. D.
MEDICAL DIRECTOR
JOHN S. DENHOLM, M. D.
ASSISTANT MEDICAL DIRECTOR
ROBERT P. SIM, M. D.
SENIOR PHYSICIAN
PETER P. LEONE, M. D.
PHYSICIAN

THOMAS G. ELIAS, M. D.
CLINICIAN
CLYDE M. BERRY, PH. D.
INDUSTRIAL HYGIENIST

December 1, 1949.

Dr. D.V. Strop
American Petroleum Institute
50 West 50th Street
New York 20, N.Y.

Dear Mr. Strop:

As requested in your letter of yesterday, I am herewith
returning the statement of expenditures made at the Kettering Laboratory.

Very truly yours,

EH
Enc.

Wood

November 30, 1949

Mr. McIver Woody
Esso Standard Oil Company
15 West 51st Street
New York 19, N. Y.

Dear Doctor Woody:

For your information and possible comment
there is enclosed statement of expenditures made at the
Kettering Laboratory on behalf of the American Petroleum
Institute for the third quarter of 1949.

Please return the statement for our
file.

Very truly yours,

DVS:d
Enclosure

UNIVERSITY OF CINCINNATI
DEPARTMENT OF PREVENTIVE MEDICINE AND INDUSTRIAL HEALTH

November 26, 1949

THE LETTERING LABORATORY
COLLEGE OF MEDICINE—EDEN AVENUE
CINCINNATI 19, OHIO

CABLE ADDRESS: KETLAB, CINCINNATI
TELEPHONE: CAPITOL 1414

Mr. D. V. Strop,
The American Petroleum Institute,
50 West 50th Street,
New York City 20.

Dear Mr. Strop:

I am sending you herewith, for your information, a statement of expenditures made on behalf of The American Petroleum Institute for the third quarter of 1949. If you have any question or comments, Doctor Kehoe would appreciate your bringing them to his attention.

Very truly yours,

E. R. Fortlage
E. R. Fortlage, Secretary to
Dr. Kehoe

ef

Enc.

UNIVERSITY OF CINCINNATI
KETTERING LABORATORY
ACCOUNT OF THE AMERICAN PETROLEUM INSTITUTE

For the Third Quarter 1949

SALARIES (Based on Proportion of Time Actually
Spent on Project)

Francis Heyroth	- Chemical and Toxicological Asst.	208.71
A. Wesley Horton	- Chemical Assistance	1800.00
Dorothy Templeton	- Technical Assistance	404.84
Russell Tye	- " "	750.00
Karl Korpi	- " "	110.38
Sylvan Witherup	- " "	53.05
Edward Swillinger	- " "	22.24
Carol Brown	- " "	4.50

3353.72

MISCELLANEOUS EXPENSE

Purchase of Animals	125.80
Laboratory Supplies	6607.53
Traveling Expense	332.46
Proportion of Secretarial, Library, Janitors, Wash Boys, Draftsman, Shipping Clerks, Animal Caretakers, Histopathological Preparation etc	1139.33
Proportion of Heat, Gas, Electricity, Steam, Gas, Telephone, Maintenance, Pensions, Annuities etc	1076.99

Total 12,635.83

Balance Remaining for Work in 1949
at End of Second Quarter 1949 \$59,861.61

Expenditures Third Quarter 1949 12,635.83

Balance Remaining for Work in 1949
at End of Third Quarter 1949 \$47,225.78

December 31, 1949

MEMORANDUM

SUBJECT: RECEIPTS, EXPENDITURES AND ALLOCATIONS -- API MEDICAL RESEARCH FUND

Contributions Received

1945	\$28,900.00	
1947	27,800.00	
1948	98,300.00	
1949	<u>64,340.00</u>	
TOTAL		\$219,340.00

Expenditures Made Prior to December 31, 1949

<u>Harvard University</u>		
Toxicological Reviews	\$37,000.00	
Cutting Oil Study	<u>2,500.00</u>	
		39,500.00
<u>University of Cincinnati</u>		
Carcinogenicity	120,413.00	
Fluorine Study	<u>6,500.00</u>	
		126,913.00
<u>Miscellaneous</u>		
Books for Committee Use	<u>27.77</u>	
TOTAL EXPENDITURES		<u>166,470.77</u>
BALANCE ON REPORT		52,869.23

Payments Required to Continue Current Projects Until 6-30-50

<u>Harvard University</u>		
Toxicological Reviews (3-14-50 to 6-30-50)	3,000.00	
<u>University of Cincinnati</u>		
Carcinogenicity	<u>38,963.39</u>	
TOTAL PAYMENTS TO 6-30-50		<u>41,963.39</u>
BALANCE AVAILABLE 7-1-50		10,905.84

Budget for Year Ending 6-30-51

<u>Dr. Philip Drinker - Harvard University</u>		
Medical Advisory Services	5,000.00	
<u>University of Cincinnati</u>		
Carcinogenicity	92,000.00	
Fluorine Study	<u>2,500.00</u>	
		<u>94,500.00</u>
TOTAL BUDGET		<u>99,500.00</u>
CONTRIBUTIONS NEEDED TO FINANCE BUDGET		\$ 88,594.16

1-10-50

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