

AIR POLLUTION FOUNDATION
MEETING OF
EXECUTIVE COMMITTEE OF
BOARD OF TRUSTEES

Thursday, August 4, 1955
Board Room, Sixth Floor
Pacific Mutual Life Insurance Company
523 West Sixth Street, Los Angeles 14, California

3:30 p. m.

AGENDA

1. Minutes of Meeting of May 17, 1955
2. Chemical Corps Clearance - Resolution to exempt new Trustees (Gerald Kelly)
3. Schedule for Regular Meetings of Executive Committee and Board of Trustees During 12 Months Ending June 30, 1956
(L. B. Hitchcock)
4. Proposal of William C. Foster, Manufacturing Chemists' Assn., re "National Advisory Committee on Air Pollution."
(L. B. Hitchcock)
5. Resolution of Research Committee re 1956 Budget
(R. B. Allen)
6. Report of Finance Committee
(A. J. Gock)
7. Fund-raising Program for 1956
 - Needs and reasons
 - Assistance of President's office
 - Centralization of activity
 - Permanent Finance Secretary
 - Development of program, approach to more associations, sharing of work, and assignments

July 29, 1955

L. B. HITCHCOCK

5/20/55

MAY 21 1955

Dr. DuBridge:

Will you please have Miss Baker call your corrections and/or approval to me.

B. Keeler

POLLUTION FOUNDATION
Marion Banks
of Special Meeting
of the
tee of the Board of Trustees
Chairman of the Executive Committee,
May 17, 1955

notice duly given, a special meeting

of the Executive Committee of the Board of Trustees of the AIR POLLUTION FOUNDATION was held on the 17th day of May, 1955, at 12:00 o'clock noon, in Room 1 at the California Club, 538 South Flower Street, Los Angeles, California.

The following Executive Committee members were present:

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Also present were Dr. Fred D. Fagg, Jr., Trustee; Dr. Lauren B. Hitchcock, President; Dr. W. L. Faith, Vice President and Deputy Director; Mr. Earl C. Bolton, Assistant Secretary; and Mr. John D. Burton. Murray S. Marvin acted as Temporary Secretary of the meeting and recorded the Minutes.

RESOLVED, that the Foundation defer entering the following Executive Committee members are on hand to finance them.

AIR POLLUTION FOUNDATION
Minutes of Special Meeting
of the
Executive Committee of the Board of Trustees
May 17, 1955

Pursuant to notice duly given, a special meeting of the Executive Committee of the Board of Trustees of the AIR POLLUTION FOUNDATION was held on the 17th day of May, 1955, at 12:00 o'clock noon, in Room 1 at the California Club, 538 South Flower Street, Los Angeles, California.

The following Executive Committee members were present:

Raymond B. Allen
Asa V. Call
Lee A. DuBridge
Fred B. Ortman
James E. Shelton
Reese H. Taylor

Also present were Dr. Fred D. Fagg, Jr., Trustee; Dr. Lauren B. Hitchcock, President; Dr. W. L. Faith, Vice President and Deputy Director; Mr. Earl C. Bolton, Assistant Secretary; and Mr. John D. Burton. Murray S. Marvin acted as Temporary Secretary of the meeting and recorded the Minutes.

The following Executive Committee members were

absent;

F. Marion Banks
Arnold O. Beckman
A. J. Gock

Asa V. Call, Chairman of the Executive Committee, presided at the meeting.

The Minutes of the Executive Committee's meeting of April 13, 1955, having been circulated previously among the Committee members, were approved.

A summary of the Foundation's financial position (Attachment A) was distributed to each Committee member. The President explained that, unless additional funds could be obtained, the Foundation would have a deficit at the end of the year if all proposed commitments were undertaken. The importance of the planned Single Sampling Station was discussed. It was pointed out that failure to renew the S.R.I. program, the research results of which are presently inconclusive, would result in a total loss. The Committee felt it imperative, however, that the Foundation operate within its annual budget and not rely on next year's income to support commitments made in the current year. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the Foundation defer entering into further commitments until adequate funds are on hand to finance them.

Discussion was then held on the Foundation's duty to inform the public periodically concerning the nature and extent of air pollution, progress made in its elimination, and obstacles to such elimination. The sense of the meeting was that information such as that given in the President's excellent public speeches, and in the Foundation's press releases, technical reports and other publications were adequate to fulfill the Foundation's obligation in this field. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that termination of the employment of Robinson-Hannagan Associates, Inc., as public relations counselors to the Foundation, be referred to the Public Relations Committee for consideration.

Copies of Report No. 4, entitled, "The First Technical Progress Report," and Report No. 5, entitled "Hydrocarbon Audit," were distributed to each of the Committee members.

On recommendation of the Nominating Committee, and upon motion made, seconded, and unanimously carried, each of the following persons was elected to membership on the Board of Trustees, subject to his willingness to serve in such capacity:

Milo Bekins
J. Howard Edgerton

Leonard Firestone
Y. Frank Freeman
Ben P. Griffith
H. C. McClellan
Standish Mitchell
Kenneth T. Norris
Ford Twaits
James C. Zeder

In the absence of the Chairman of the Finance Committee, Mr. John D. Burton presented a progress report of the Foundation's fund raising campaign (Attachment B). Trustee responsibility for the Building Materials and Cement Manufacturing Industry Group was assigned to Garner A. Beckett, and that for the Construction Group to Ford Twaits, subject to his acceptance of membership on the Board. Mr. Burton stated that assistance from the citrus growers in the Food Processing Group was assured. Willard Keith was suggested as a contact in the Hotels Group, Charles DeToy in the Real Estate Group, Chapplett in the Aviation Industry Group, and Robert Swain in the Chemicals and Compounds Group.

The Chairman then announced that Leroy A. Garrett had submitted his resignation as Secretary, and Earl C. Bolton had submitted his resignation as Assistant Secretary. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the resignations of Leroy A. Garrett, as Secretary, and Earl C. Bolton, as Assistant Secretary, of the Foundation be accepted, effective at the close of this meeting.

RESOLVED FURTHER, that Leroy A. Garrett and Earl C. Bolton be accorded the appreciation

of the Board of Trustees for the services rendered by them as officers of the Air Pollution Foundation.

Upon motion made, seconded, and unanimously carried, Gerald G. Kelly was elected to the office of Secretary, and Murray S. Marvin was elected to the office of Assistant Secretary, both elections to be effective at the close of this meeting.

The meeting then considered amplifying and bringing up to date the Foundation's Statement of Policy. Upon motion, made, seconded, and unanimously carried, the Board adopted a revised Statement of Policy, a copy of which is appended to these Minutes (Attachment C).

Dr. DuBridge, Chairman of the Research Committee, reported that consideration had not yet been given to possible candidates for appointment to his Committee's Advisory Scientific Sub-Committee. A letter to the Research Committee from the President of the Foundation (Attachment D) was submitted as representing the views of the Research Committee on the Memorandum Report of Vance N. Jenkins, presented to the Executive Committee at its April 13, 1955, meeting.

The President reported that a hearing on Regulation VII of the Los Angeles County Air Pollution Control

EVIDENCE
ON JURY

L.B.H. District would be held on May 24th, that he had appeared ^{Los Angeles Chamber of Commerce} before the Warren Committee to point out various technical problems, and that ^{this is under Mr Beckman} the Chamber of Commerce Committee ~~on~~ ~~is~~ is recommending revision of the Regulation. It was the sense of the meeting that the members of the Foundation's staff and Board of Trustees who were on the Warren Committee should write to the County Counsel to reiterate their and the Foundation's position that the "standards" set forth in the proposed Regulation appear to be satisfactory, but that the present form of the "regulations" is not.

There being no further business before the meeting, it adjourned.

Temporary Secretary

JUN 1 1955

om the desk of
L. B. HITCHCOCK

May 31, 1955

UTION FOUNDATION

You will note that only Attachment A is sent with these minutes. The other attachments have been made a part of the record.

of Special Meeting
of the
tee of the Board of Trustees

As of this mailing Messrs. Bekins, Norris, and Zeder have accepted the nomination to the Board of Trustees.

ay 17, 1955

Given, a special meeting of the Executive Trustees of the AIR POLLUTION FOUNDATION, May 17, 1955, at 12:00 o'clock noon, in Room 101, 101 North Flower Street, Los Angeles, California.

Committee members were present:

Ed B. Allen
Asa V. Call

Lee A. DuBridge
Fred B. Ortman
James E. Shelton
Reese H. Taylor

Also present were Dr. Fred D. Fagg, Jr., Trustee; Dr. Lauren B. Hitchcock, President; Dr. W. L. Faith, Vice President and Deputy Director; Mr. Earl C. Bolton, Assistant Secretary; and Mr. John D. Burton. Murray S. Marvin acted as Temporary Secretary of the meeting and recorded the minutes.

The following Executive Committee members were absent:

F. Marion Banks
Arnold O. Beckman
A. J. Gock

Asa V. Call, Chairman of the Executive Committee, presided at the meeting.

The minutes of the Executive Committee's meeting of April 13, 1955, having been circulated previously among the committee members were approved.

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and that for the Construction Group to Ford Twaits, subject to his acceptance of membership on the Board, Mr. Burton stated that assistance from the citrus growers in the Food Processing Group was assured. Willard Keith was suggested as a contact in the Hotels Group, Charles Detoy in the Real Estate Group, Cyril Chappellet in the Aviation Industry Group, and Robert Swain in the Chemicals and Compounds Group,

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that the members of the Foundation's staff and Board of Trustees who were on the Warren committee should write to the County Counsel to reiterate their and the Foundation's position that the "standards" set forth in the proposed Regulation appear to be satisfactory, but that the present form of the "regulations" is not.

There being no further business before the meeting, it adjourned.

/s/ Murray S. Marvin
Murray S. Marvin
Temporary Secretary

AIR POLLUTION FOUNDATION

ATTACHMENT A

1. Bank Balance after bills paid 4/30/55	\$ <u>205,000</u>
2. Contributions received through 5/17/55	\$ 489,000
3. County & City Payments	191,000
4. Renewals Expected	<u>40,000</u>
5. Total Visible Income (5/17/55)	\$ 720,000
6. Present Commitments through 12/31/55 (Note 1)	<u>767,000</u>
7. Estimated Deficit as of 12/31/55	(47,000)
8. Minimum Additional Funds	
Priority Needs in 1955 (Note 2)	<u>113,000</u>
9. Total Additional Needed	\$ 160,000
10. Goal for Contributions	750,000
11. Contributions and Renewals (line 2 and 4)	<u>529,000</u>
12. Balance Expected	\$ 221,000

Note 1

Present Commitments through 12/31/55	\$ <u>767,000</u>
Research (34 Projects & Team)	557,000
General & Administrative	128,000
Public Information	72,000
Fund Raising costs	<u>10,000</u>
	\$ <u>767,000</u>

Note 2

Priority Needs in 1955	\$ <u>113,000</u>
Commitment Date (actual payments come later)	
5-20 Single Sampling Station	30,000
6-1 Film	6,000
6-1 TV	1,500
6-15 S.R.I. Renewal	40,000
6-15 Robinson-Hannagan	20,000
8-1 Publication of Reports	8,000
10-1 A.R.F. Renewal	<u>7,500</u>
Total Priority Needs	\$ 113,000

AIR POLLUTION FOUNDATION

Research Committee Meeting

Friday, July 1, 1955
Room 6, Third Floor
California Club
538 South Flower Street
Los Angeles 17, California

12:15 p. m.

Members

Dr. Lee A. DuBridge (Chairman), Dr. Raymond B. Allen
Mr. F. M. Banks, Dr. Arnold O. Beckman, Mr. Alden
G. Roach

Foundation

Dr. W. L. Faith, Dr. L. B. Hitchcock, Dr. M. Neiburger,
Dr. N. A. Renzetti, Dr. L. H. Rogers

Agenda

1. Research Program Proposed for 1956
2. Status of our 1955 Research Program
3. Research Activities of Others
4. Recommendations for Scientific Advisory Committee
5. State and Federal Air Pollution Research Funds

LBH:mek
Attachments

A I R P O L L U T I O N F O U N D A T I O N

M E M O R A N D U M

June 28, 1955

TO: Research Committee of the Board of Trustees

FROM: Air Pollution Foundation Team

SUBJECT: Research Program for 1956 (Proposed)

The team believes that the Foundation's research program for the year 1956 should be directed toward answering the following questions: What is smog? Where does it come from? How may smog sources be controlled?

In formulating a research program, the following facts have been taken into consideration:

1. API is carrying on certain basic investigations of the mechanism of smog formation.
2. CRC, AMA, and WOGA are carrying out considerable work on the analysis of automobile exhaust, the effect of fuels on exhaust analysis, the effect of engine variables on exhaust analysis, and the development of devices for the control of exhaust effluents.
3. Various organizations, such as Oxy-Catalyst, Inc, and the Clayton Manufacturing Company, are actively engaged in the development of afterburners and catalytic mufflers.
4. APCD is embarking on an air monitoring program, and is currently testing various exhaust control devices in its automotive laboratory.
5. Dr. Haagen-Smit is continuing his studies on ozone formation.
6. The University of California at Riverside is carrying on a broad program on smog damage to vegetation.
7. Various other organizations are engaged in instrument development and other phases of air pollution studies. This includes the engineering research program at UCLA.

The suggested projects are divided into four categories of descending priority. The suggested projects are outlined on the following pages.

CATEGORY I

1. Determination of the contribution of automobile exhaust to eye irritation. \$75,000

This project will make use of the radiation chamber presently at the Stanford Research Institute laboratories in Pasadena. We hope first to demonstrate that the addition of automobile exhaust in experienced concentrations to polluted night air will cause eye irritation. When this has been demonstrated, we will attempt to determine which components of the exhaust contribute most to eye irritation and the cycle of automobile operation during which they are produced. We will then determine how effective various control devices are in reducing eye irritation. During the course of this work, the synthetic atmosphere will be monitored for oxides of nitrogen, hydrocarbons, total oxidant, and ozone. The use of plants as an objective method of measuring smog manifestations should be limited to about ten per cent of the total cost of the project.

We suggest that this work be carried out at Stanford Research Institute if they can get proper clearance from their lawyers and insurance company to carry out an adequate program on the determination of eye irritation using human subjects. If they cannot do this, we should find some other place to which our radiation chamber could be transferred and the work carried out.

2. Continuation of the Armour Research Foundation project with the view in mind of finding means of quenching the ozone-forming reaction. \$25,000
3. Continuation of aerosol studies. \$35,000

The present aerosol program is directed toward determining the sizes of aerosols and differences in size distribution on smoggy days and in natural haze. An attempt will also be made to determine the chemical composition of the various size ranges. The continued program in 1956 will deal primarily with the mechanism of formation of aerosols.

4. Control of the formation of oxides of nitrogen in combustion processes. \$15,000

This will be a basic study, probably at a university, and will include a literature survey and basic laboratory work on the reaction kinetics of NO and NO₂ formation.

CATEGORY I (Cont.)

5. Control of particulate matter and aerosols in combustion effluents. \$15,000

This, again, will be a basic study, probably at a university, to determine better means of collecting particulate matter and aerosols and prevention of their discharge into the atmosphere.

6. Chemical studies of the atmosphere. \$50,000

This will be a cooperative study with the Air Pollution Control District's atmospheric monitoring program, and will probably include the monitoring of eye irritation at the various stations. It will also include some plant damage studies and the use of new instrumental methods in monitoring the atmosphere.

7. Development of an atmospheric hydrocarbon recorder. \$25,000

8. Meteorological and climatological studies. \$10,000

This will include trajectory studies to determine the frequency of various wind patterns and some upper air measurements.

Category I - Total \$250,000

CATEGORY II

9. Expansion of Project 1. \$50,000
10. Expansion of Project 6 to include correlation of data from the atmospheric monitoring program and a study of the effect of wind trajectories on pollution movement. \$50,000
11. Application of surface chemistry techniques to the identification of the eye irritants in the atmosphere. \$25,000
12. Identification of free radicals and peroxides in the atmosphere. \$25,000
13. Redox studies of the atmosphere. \$25,000
14. Literature study of feasible methods for automatic continuous measurements of olefins, acids, and aldehydes in the atmosphere. \$2,000

CATEGORY II (Cont.)

15. Mechanics of atmospheric reactions by spectrographic techniques.	\$75,000
16. Development of infrared techniques.	<u>\$35,000</u>
Category II - Total	<u>\$287,000</u>

CATEGORY III

17. Extension of Midwest Research Institute project.	\$40,000
18. Development of multirecording atmospheric monitoring instrument.	\$25,000
19. Absorption spectra of gaseous atmospheric pollutants.	\$15,000
20. Development of an NO ₂ spectrometer.	\$15,000
21. Effect of lube oil on hydrocarbons in automobile exhaust.	\$25,000
22. Determination of free halogens or halogen acid in auto exhaust.	<u>\$25,000</u>
Category III - Total	<u>\$145,000</u>

CATEGORY IV

23. Evaluation of the economic and technical aspects of more promising exhaust control devices.	\$15,000
24. Air tracer survey, 1956.	\$35,000
25. Atmospheric analytical studies by mass spectrometer.	\$25,000
26. Reactions of incinerator gases in the air.	\$20,000
27. Nuclear magnetic resonance, hydrocarbon analysis.	\$10,000
28. Inspection devices for automobile exhaust.	\$25,000

CATEGORY IV (Cont.)

29. Properties of organoperoxy free radicals.	\$25,000
30. Plant or animal physiology - correlation of live tissue test with eye irritation and plant damage.	\$25,000
31. Development of a suitable instrument to replace Ringelmann chart.	<u>\$10,000</u>
Category IV - Total	<u>\$190,000</u>
Categories I, II, III, and IV - Grand Total	<u><u>\$872,000</u></u>

SPECIAL CATEGORY

Combustion products (Operation Big Chamber). This operation should probably be underwritten with State funds or Public Health Service funds. \$500,000

Analysis of pollution sources in the Los Angeles Basin. This job can probably only be done by the Air Pollution Control District because they are the only group that can obtain legal entry to the sites of various sources. \$150,000

Development of gas chromatographic methods for atmospheric analysis. UCLA chemical department has applied to the National Science Foundation for financing.

Study of NO reactions in the atmosphere. Stanford University has applied to NSF for adequate funds,

Continuation of carbon isotope studies. This is currently being carried out at Caltech with NSF funds. It is hoped that NSF will continue to underwrite this project.

Continuation of microwave studies at UCLA. University funds.

Continuation of plant damage studies at the University of California at Riverside. University funds.

A I R P O L L U T I O N F O U N D A T I O N

M E M O R A N D U M

June 28, 1955

TO: Research Committee of the Board of Trustees

FROM: W. L. Faith

SUBJECT: Status of the Air Pollution Foundation's 1955 Research Program

Air tracer survey - completed as Report No. 7.

Trend in visibility, 1930-54 - completed. Results will be published in Report No. 8.

Inversion modification studies - discontinued, No useful results.

Smog-forming reactions. This work at Stanford Research Institute has been discontinued because of lack of funds. It was demonstrated that polluted night air when irradiated would produce various smog manifestations. Indications are that additions of automobile exhaust to this polluted air before irradiation resulted in more severe eye irritation and plant damage upon irradiation.

Review of literature on photochemical reactions in polluted atmospheres. This review is being made by Drs. Leighton and Perkins of Stanford University. Their report is due in December.

Application of "longpath" gas absorption cell to measurement of hydrocarbons in the atmosphere. A modification of the Perkins-Elmer infrared spectrograph has been made, and the unit will be tested out during the coming smog season by continuous monitoring of hydrocarbons in the atmosphere.

Photochemical studies. This project at Armour Research Foundation is a continuation and expansion of Dr. Haagen-Smit's classical studies.

Composition of automobile exhaust. This project at Midwest Research Institute involves the addition of ozone to automobile exhaust to determine the particular components of the exhaust that are responsible for plant damage and eye irritation. This system was chosen because ozone addition has in the past produced the same smog manifestations as irradiation of synthetic atmospheres. Experiments of this nature can be run much more cheaply than irradiation experiments.

Composition of incinerator gases. This project at Battelle Memorial Institute will determine the chemical and physical composition of the effluents from back-yard incinerators using typical mixtures of refuse and operated under various conditions.

Feasibility study of proposed solutions to automobile exhaust contribution to air pollution. This is a study of the economics of the enforced use of L. P. Gas, white gasoline, and alcohol-gasoline mixtures in the Los Angeles Basin. The report will be published as Report No. 11 early in August.

Evaluation of exhaust control devices. This study at Southwest Research Institute showed that the Houdry catalytic converter, in its present embodiment, was not suitable for recommendation for use in the Los Angeles Basin. The report will be published as Report No. 10 in July.

Evaluation of results of the 1954 aerometric survey. Data that are being correlated are oxidant, solar radiation, visibility reduction, hydrocarbons, NO₂, carbon monoxide, sulfur dioxide, lead and other particulates, aldehydes, eye irritation, temperature and humidity aloft, and air movement trajectories. The report is being written and will be published as Report No. 9 during July.

Photographic survey. This photographic survey of the smog in the Los Angeles Basin, and of various pollution sources has resulted in two films and numerous colored slides. It is essentially completed.

Continuous measurement of atmospheric ozone by spectrographic method. A suitable device was developed by Borman Engineering Company and will be checked out at the Pasadena air monitoring station during the next smog season. Some attention will be given to monitoring nitrogen dioxide and visual range by the same device.

Studies of infrared solar radiation absorption by smog. This study by Prof. Gates of the University of Denver has been completed, and the results were reported at the Third National Air Pollution Symposium.

Particle counter for aerosol research. This counter is being built for the Foundation at Stanford Research Institute and will be checked out on atmospheric studies at the Pasadena air monitoring station the last half of the year.

Aerosol conference. The minutes of this conference, which was held in conjunction with the Third National Air Pollution Symposium, are being written.

Aerosol research. An aerosol study program is being developed in which the differences in size distribution of aerosols on smoggy days and in natural haze will be determined. Chemical composition of the various size ranges will also be determined.

Conference on Incineration, Rubbish Disposal, and Air Pollution. The results of the conference were published during the early part of the year as Report No. 3 of the Foundation.

Meteorological report. The demand for Report No. 1 was such that reprints had to be made.

Report No. 2, "Combustion and Smog." Reprints were also made of this report to meet the demand.

"First Technical Progress Report." This was Report No. 4 of the Foundation, and was distributed during the month of May.

Hydrocarbon audit. This audit of the hydrocarbon emissions from refineries in the Los Angeles area was made in 1954, and published as Report No. 5 in 1955.

Statistical data. This report on the statistics of the Los Angeles Basin was completed and will be published as Report No. 6 in the near future.

AIR POLLUTION FOUNDATION

AIR POLLUTION RESEARCH ACTIVITIES OF OTHER ORGANIZATIONS

Los Angeles County Air Pollution Control District

Atmospheric sampling for pollution levels at 14 air monitoring stations.	\$327,500
Air movement studies to develop industrial zoning program.	\$25,000
Testing automobile exhaust control devices	
Development of automatic recording instruments for hydrocarbons, nitrogen dioxide, and ozone.	\$50,000
Effect of humidity on production of aerosols and eye irritation.	\$20,700
Analyses of emissions from industrial zones and evaluation of control devices.	\$65,000
Determination of the smog-forming potential of various gasoline hydrocarbons.	
Effect of smog on susceptible plants.	\$8,000

American Petroleum Institute - Smoke and Fumes Committee

A study of the mechanism of the reaction leading to the formation of ozone in polluted industrial atmospheres and the development of a method for the determination of amount of total organic substances in polluted industrial atmospheres. Contractor: Stanford Research Institute.	\$95,000 *
The selection and demonstration on an industrial scale of the method most suitable for the application of tracer techniques to the determination of the path of gases after determination from a given source. Contractor: The Industrial Hygiene Foundation of America, Inc.	\$16,931 *
The development of a method for the quantitative determination of small amounts of ozone in polluted industrial atmospheres. Contractor: Armour Research Foundation.	\$11,167 *
The determination of the amounts and types of partially oxidized hydrocarbons, thermally cracked hydrocarbons, and unchanged hydrocarbons present in the effluent gases from the various types of domestic and industrial devices and furnaces burning petroleum products. Contractor: Armour Research Foundation.	\$30,000 **

* Current annual rate of expenditure.

** Total expenditure. Project completed.

American Petroleum Institute - Smoke and Fumes Committee (Cont.)

A study of the reactions occurring in sunlight between nitrogen dioxide and hydrocarbons of the various types present in gasoline.

The investigation of the kinetics of the reaction in sunlight of ozone with hydrocarbons of the various types present in gasoline and the determination of the relative amounts and nature of the products formed.

A study of the reactions occurring in sunlight between nitric-acid vapor and hydrocarbons of the various types present in gasoline. Contractor for previous three projects: The Franklin Institute.

\$42,472 *

A study of the effect of various nitrogen oxides, nitric acid, and various particulate matter upon the sulfur dioxide-sulfur trioxide equilibrium in an atmosphere irradiated by sunlight. Contractor: University of Illinois.

\$10,400 *

A survey of the ozone content and ozone-forming capacities of the atmospheres of selected industrial cities. Contractor; Kettering Laboratory of the University of Cincinnati.

\$19,507 *

A study of the rate at which atmospheric visibility may be impaired as the result of the reaction of hydrocarbons and ozone which may be present as pollutants in the atmosphere. Contractor: University of Illinois.

\$10,000 *

Western Oil and Gas Association

Determination of the effect of automobile fuel distribution system, fuel boiling ranges, and fuel composition on the composition of automobile exhaust as determined by mass spectrometer, infrared spectrograph, and plant damage studies (by addition of ozone to exhaust).

University of California at Los Angeles - Department of Engineering

Feasibility studies of two basic exhaust control devices.

Microwave studies of the atmosphere.

Evaluation of the effectiveness of filters for small enclosed spaces.

Analysis of processes occurring in the lower atmosphere with the objective of dissipating smog.

* Current annual rate of expenditure.

University of California at Los Angeles (Cont.)

Effect of parameters on the combustion efficiency of incinerators (includes a survey of present municipal installations).

Feasibility study of a large air pollution study facility.

Coordinating Research Council, Inc. (API & SAE)

Development of analytical methods for hydrocarbons in automobile exhaust. (Six petroleum refiners, two chemical companies, and three automobile manufacturers)

Effect of engine variables on composition of automobile exhaust. (Most of the companies included in previous project)

Field survey of 1,000 automobiles in the Los Angeles area to determine composition of exhaust under various operating conditions. (To be initiated - fall, 1955)

Automobile Manufacturers Association

Development of exhaust hydrocarbon control devices. (All major auto companies)

Determination of Los Angeles traffic pattern. (To be initiated - fall, 1955)

University of California at Riverside

Effect of air pollution on crops. This includes plant fumigation studies and biochemical studies of fumigated plants.

Methods of reducing crop losses caused by air pollution. Two approaches are being made: (1) the spraying or treating of crops in the field to prevent damage, and (2) modifying the growth environment.

Identification of phytotoxicants. This project is dormant at the present time, but will be initiated in late summer, 1955.

AIR POLLUTION FOUNDATION

**RECOMMENDATIONS
FOR THE
SCIENTIFIC ADVISORY COMMITTEE
FOR THE
AIR POLLUTION FOUNDATION**

1. **Frances E. Blacet** **Chairman, Department of Chemistry
University of California at Los Angeles**
2. **Llewellyn M. K. Boelter** **Dean, College of Engineering
University of California at Los Angeles**
3. **William H. Claussen** **Chairman, Smoke & Fumes Committee
American Petroleum Institute**
4. **Arie J. Haagen-Smit** **Department of Biology
California Institute of Technology**
5. **Charles M. Heinen** **Member, Vehicle Combustion Products
Subcommittee,
Automobile Manufacturers Association**
6. **William N. Lacy** **Dean of Graduate Studies and Professor
of Chemical Engineering
California Institute of Technology**
7. **John T. Middleton** **Plant Pathologist
University of California at Riverside**
8. **Research Director** **Los Angeles County Air Pollution Control
District**
9. **Lawrence M. Richards** **Richfield Oil Company**
10. **Frank Stead** **Chief of Division of Environmental Health
California State Public Health Department**
11. **Robert E. Vivian** **Dean, College of Engineering
University of Southern California**
12. **A. M. Zarem** **Manager, Los Angeles Division
Stanford Research Institute**

JUL 7 - 1955

AIR POLLUTION FOUNDATION
RESEARCH COMMITTEE MEETING
July 1, 1955

A meeting of the Research Committee of the Board of Trustees of the Air Pollution Foundation was held at the California Club, Los Angeles, California, on Friday, July 1, at 12:15 p.m.

There were present:

L. A. DuBridge, Chairman presiding
R. B. Allen
F. M. Banks
A. O. Beckman

Absent:

A. G. Roach

Also present were the following members of the Foundation staff:

W. L. Faith
L. B. Hitchcock
M. Neiburger
N. A. Renzetti
L. H. Rogers

Dr. Faith reviewed the present research program of the Foundation. The status of the various projects was then discussed.

Dr. Faith reviewed the proposed research program for 1956. This proposed program, which is attached, was approved by the Research Committee. It was suggested by the Committee that we arrange to obtain the services of a capable Midwestern consultant in the field of photochemistry to visit the project at Armour Research Foundation from time to time to provide guidance for those working on the project.

With respect to Project 5, it was suggested that Drs. Renzetti and Rogers ask Dr. Stafford Warren of the University of California at Los Angeles to intercede with the Atomic Energy Commission to try to obtain whatever data they have on the control of particulate matter. Dr. DuBridge will also talk with Dr. Haworth concerning this matter.

With regard to Project 7, it was suggested that Dr. Rogers write up the requirements of a satisfactory atmospheric hydrocarbon recorder and send them to Dr. Beckman. Dr. Max Liston will be in the Los Angeles area in August and Dr. Beckman will ask him to talk with the Foundation scientists further regarding this matter.

WHEREAS the Research Committee approved the research program for 1956, it was therefore

RESOLVED: that the Research Committee recommends to the Board of Trustees that they endeavor to provide one million dollars (\$1,000,000) for the Foundation program for 1956 on the basis that needed research activity will require an expenditure of this order, and that the present staff can operate more efficiently in supervising this amount of work.

The Research Committee then discussed the need for a Technical Advisory Committee to aid in the development of the details of our research program. It was therefore

RESOLVED: that Dr. Hitchcock ask the following men to serve on this committee:

Francis E. Blacet	Chairman, Department of Chemistry University of California at Los Angeles
William H. Claussen	Executive Secretary, Smoke & Fumes Committee, American Petroleum Institute
Arie J. Haagen-Smit	Department of Biology, California Institute of Technology
Charles M. Heinen	Vehicle Combustion Products Subcom- mittee, Automobile Manufacturers Assn.
John T. Middleton	Plant Pathologist, University of California at Riverside
Research Director	L. A. County Air Pollution Control District
Lawrence M. Richards	Richfield Oil Corporation
Peter Kyropoulos	Department of Mechanical Engineering California Institute of Technology

On motion duly made and seconded, the meeting adjourned at
2:00 p. m.

7/6/55
WLFaith;mek
Attachment

A I R P O L L U T I O N F O U N D A T I O N

M E M O R A N D U M

June 28, 1955

TO: Research Committee of the Board of Trustees

FROM: Air Pollution Foundation Team

SUBJECT: Research Program for 1956 (Proposed)

The team believes that the Foundation's research program for the year 1956 should be directed toward answering the following questions: What is smog? Where does it come from? How may smog sources be controlled?

In formulating a research program, the following facts have been taken into consideration:

1. API is carrying on certain basic investigations of the mechanism of smog formation.
2. CRC, AMA, and WOGA are carrying out considerable work on the analysis of automobile exhaust, the effect of fuels on exhaust analysis, the effect of engine variables on exhaust analysis, and the development of devices for the control of exhaust effluents.
3. Various organizations, such as Oxy-Catalyst, Inc, and the Clayton Manufacturing Company, are actively engaged in the development of afterburners and catalytic mufflers.
4. APCD is embarking on an air monitoring program, and is currently testing various exhaust control devices in its automotive laboratory.
5. Dr. Haagen-Smit is continuing his studies on ozone formation.
6. The University of California at Riverside is carrying on a broad program on smog damage to vegetation.
7. Various other organizations are engaged in instrument development and other phases of air pollution studies. This includes the engineering research program at UCLA.

The suggested projects are divided into four categories of descending priority. The suggested projects are outlined on the following pages.

CATEGORY I

1. Determination of the contribution of automobile exhaust to eye irritation. \$75,000

This project will make use of the radiation chamber presently at the Stanford Research Institute laboratories in Pasadena. We hope first to demonstrate that the addition of automobile exhaust in experienced concentrations to polluted night air will cause eye irritation. When this has been demonstrated, we will attempt to determine which components of the exhaust contribute most to eye irritation and the cycle of automobile operation during which they are produced. We will then determine how effective various control devices are in reducing eye irritation. During the course of this work, the synthetic atmosphere will be monitored for oxides of nitrogen, hydrocarbons, total oxidant, and ozone. The use of plants as an objective method of measuring smog manifestations should be limited to about ten per cent of the total cost of the project.

We suggest that this work be carried out at Stanford Research Institute if they can get proper clearance from their lawyers and insurance company to carry out an adequate program on the determination of eye irritation using human subjects. If they cannot do this, we should find some other place to which our radiation chamber could be transferred and the work carried out.

2. Continuation of the Armour Research Foundation project with the view in mind of finding means of quenching the ozone-forming reaction. \$25,000
3. Continuation of aerosol studies. \$35,000

The present aerosol program is directed toward determining the sizes of aerosols and differences in size distribution on smoggy days and in natural haze. An attempt will also be made to determine the chemical composition of the various size ranges. The continued program in 1956 will deal primarily with the mechanism of formation of aerosols.

4. Control of the formation of oxides of nitrogen in combustion processes. \$15,000

This will be a basic study, probably at a university, and will include a literature survey and basic laboratory work on the reaction kinetics of NO and NO₂ formation.

CATEGORY I (Cont.)

5. Control of particulate matter and aerosols in combustion effluents. \$15,000

This, again, will be a basic study, probably at a university, to determine better means of collecting particulate matter and aerosols and prevention of their discharge into the atmosphere.

6. Chemical studies of the atmosphere. \$50,000

This will be a cooperative study with the Air Pollution Control District's atmospheric monitoring program, and will probably include the monitoring of eye irritation at the various stations. It will also include some plant damage studies and the use of new instrumental methods in monitoring the atmosphere.

7. Development of an atmospheric hydrocarbon recorder. \$25,000

8. Meteorological and climatological studies. \$10,000

This will include trajectory studies to determine the frequency of various wind patterns and some upper air measurements.

Category I - Total \$250,000

CATEGORY II

9. Expansion of Project 1. \$50,000
10. Expansion of Project 6 to include correlation of data from the atmospheric monitoring program and a study of the effect of wind trajectories on pollution movement. \$50,000
11. Application of surface chemistry techniques to the identification of the eye irritants in the atmosphere. \$25,000
12. Identification of free radicals and peroxides in the atmosphere. \$25,000
13. Redox studies of the atmosphere. \$25,000
14. Literature study of feasible methods for automatic continuous measurements of olefins, acids, and aldehydes in the atmosphere. \$2,000

CATEGORY II (Cont.)

15. Mechanics of atmospheric reactions by spectrographic techniques.	\$75,000
16. Development of infrared techniques.	<u>\$35,000</u>
Category II - Total	<u>\$287,000</u>

CATEGORY III

17. Extension of Midwest Research Institute project.	\$40,000
18. Development of multirecording atmospheric monitoring instrument.	\$25,000
19. Absorption spectra of gaseous atmospheric pollutants.	\$15,000
20. Development of an NO ₂ spectrometer.	\$15,000
21. Effect of lube oil on hydrocarbons in automobile exhaust.	\$25,000
22. Determination of free halogens or halogen acid in auto exhaust.	<u>\$25,000</u>
Category III - Total	<u>\$145,000</u>

CATEGORY IV

23. Evaluation of the economic and technical aspects of more promising exhaust control devices.	\$15,000
24. Air tracer survey, 1956.	\$35,000
25. Atmospheric analytical studies by mass spectrometer.	\$25,000
26. Reactions of incinerator gases in the air.	\$20,000
27. Nuclear magnetic resonance, hydrocarbon analysis.	\$10,000
28. Inspection devices for automobile exhaust.	\$25,000

CATEGORY IV (Cont.)

29. Properties of organoperoxy free radicals.	\$25,000
30. Plant or animal physiology - correlation of live tissue test with eye irritation and plant damage.	\$25,000
31. Development of a suitable instrument to replace Ringelmann chart.	<u>\$10,000</u>
	Category IV - Total <u>\$190,000</u>
	Categories I, II, III, and IV - Grand Total <u>\$872,000</u>

SPECIAL CATEGORY

Combustion products (Operation Big Chamber). This operation should probably be underwritten with State funds or Public Health Service funds. \$500,000

Analysis of pollution sources in the Los Angeles Basin. This job can probably only be done by the Air Pollution Control District because they are the only group that can obtain legal entry to the sites of various sources. \$150,000

Development of gas chromatographic methods for atmospheric analysis. UCLA chemical department has applied to the National Science Foundation for financing.

Study of NO reactions in the atmosphere. Stanford University has applied to NSF for adequate funds.

Continuation of carbon isotope studies. This is currently being carried out at Caltech with NSF funds. It is hoped that NSF will continue to underwrite this project.

Continuation of microwave studies at UCLA. University funds.

Continuation of plant damage studies at the University of California at Riverside. University funds.

AIR POLLUTION FOUNDATION

Minutes of Special Meeting
of the
Executive Committee of the Board of Trustees

August 4, 1955

Pursuant to notice duly given, a special meeting of the Executive Committee of the Board of Trustees of the AIR POLLUTION FOUNDATION was held on the 4th day of August, 1955, at 3:30 o'clock in the afternoon, in the Board Room, Sixth Floor, Pacific Mutual Life Insurance Company, 523 West Sixth Street, Los Angeles 14, California.

The following Executive Committee members were present:

Raymond B. Allen
Arnold O. Beckman
Asa V. Call
A. J. Gock
Fred B. Ortman
James E. Shelton
Reese H. Taylor

Also present were Dr. Lauren B. Hitchcock, President; Dr. W. L. Faith, Vice President and Deputy Director; Mr. Gerald G. Kelly, Secretary; and Mr. Murray S. Marvin, Assistant Secretary.

The following Executive Committee members were absent:

F. Marion Banks
Lee A. DuBridge

Asa V. Call, chairman of the Executive Committee, presided at the meeting. Murray S. Marvin, Assistant Secretary, recorded the minutes.

The minutes of the Executive Committee's meeting of May 17, 1955, having been circulated previously among the committee members, were approved.

The meeting then considered security clearance requirements, and upon the following findings and upon motion made, seconded, and unanimously carried, it was resolved as follows:

WHEREAS, The Armed Forces Industrial Security Regulation issued by the Department of Defense establishes procedures for granting security

clearances to private contractors' facilities where access to classified security information is required for contractual or other purposes, and this Security Regulation is applicable to this Corporation; and

WHEREAS, This Security Regulation requires personnel security clearances for all directors who will require access to classified security information in the conduct of the corporate business except those directors who are United States citizens and who are designated by name by the Board of Trustees as not requiring access to classified matter:

RESOLVED, that the trustees of the AIR POLLUTION FOUNDATION who will have no access to classified matter and who do not require access to classified matter are:

<u>Full Name</u>	<u>Address</u>	<u>Citizen of</u>
Milo W. Bekins	Bekins Van & Storage Company 1335 South Figueroa Street Los Angeles 15, California	United States of America
J. Howard Edgerton	California Federal Savings & Loan Association 5680 Wilshire Boulevard Los Angeles 36, California	United States of America
Leonard K. Firestone	Firestone Tire & Rubber Company of California 2525 Firestone Boulevard Los Angeles 54, California	United States of America
Y. Frank Freeman	Paramount Pictures Corporation 5451 Marathon Avenue Hollywood 38, California	United States of America
Ben P. Griffith	Board of Water & Power Commissioners, City of Los Angeles Box 3669, Terminal Annex Los Angeles 54, California	United States of America

<u>Full Name</u>	<u>Address</u>	<u>Citizen of</u>
H. C. McClellan	Old Colony Paint & Chemical Company Box 2176, Terminal Annex Los Angeles 54, California	United States of America
Standish L. Mitchell	Automobile Club of Southern California 2601 South Figueroa Street Los Angeles 7, California	United States of America
Kenneth T. Norris	Norris-Thermador Corporation 5215 South Boyle Avenue Los Angeles 58, California	United States of America
Ford J. Twaits	Ford J. Twaits Co. 449 South Beaudry Los Angeles 17, California	United States of America
James C. Zeder	Chrysler Corporation Engineering Division P. O. Box 1118 Detroit 31, Michigan	United States of America

and that this action of the Board is taken for the purpose of exempting the aforesaid trustees from the necessity of security clearance pursuant to the provisions of the Armed Forces Industrial Security Regulation.

The committee then scheduled meetings for the twelve-month period ending June 30, 1956. Upon motion made, seconded, and unanimously carried, the following Thursdays, at 3:30 o'clock in the afternoon were set for meetings of the Executive Committee:

October 6, 1955 ✓
December 8, 1955
January 19, 1956
March 8, 1956
June 7, 1956

and the following Thursdays, at 3:30 o'clock in the afternoon, were set for meetings of the Board of Trustees:

September 8, 1955
November 10, 1955 ✓
February 9, 1956
May 10, 1956

The November 10, 1955 meeting of the Board of Trustees was suggested as the Annual Meeting. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the Board of Trustees be requested to adopt an appropriate resolution designating the November 10, 1955 meeting to be in lieu of the 1955 Annual Meeting provided for in Article III, Section 1, of the By-Laws.

The president offered for the committee's consideration the proposal of William C. Foster, former president of the Manufacturing Chemists' Association, for establishment of a National Advisory Committee on Air Pollution Abatement. The proposed membership of the committee and the advantages of such an advisory body were discussed. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the AIR POLLUTION FOUNDATION endorses in principle the proposal of William C. Foster for the establishment of a permanent National Advisory Committee on Air Pollution Abatement as set forth in his speech delivered on April 20, 1955, before the Third National Air Pollution Symposium in Pasadena, California, but reserves full approval thereof until such time as the appointment, function, and program of the committee are available for examination.

Raymond B. Allen, chairman of the Research Committee, reported that a unanimous resolution had been adopted at the July 1, 1955 meeting of his committee recommending to the Board of Trustees that they endeavor to provide \$1,000,000 for the Foundation's program for 1956 on the basis that needed research activity will require an expenditure of this order. The president pointed out that the Foundation's staff was organized to handle a budget of this proportion and could do so efficiently. On recommendation of the Research Committee, and upon motion made, seconded, and unanimously carried, each of the following persons was selected to membership of a Technical Advisory Committee to the Research Committee, subject to his willingness to serve in such capacity:

Francis E. Blacet
William H. Claussen
Arie J. Haagen-Smit
Charles M. Heinen
John T. Middleton

Research Director of
Los Angeles County Air
Pollution Control District (when appointed)
Lawrence M. Richards
Peter Kyropoulos

The report of the Finance Committee was submitted by its chairman, A. J. Gock. A Statement of Net Assets, of Receipts and Expenditures, and a Summary of Contributors, as of July 31, 1955, was distributed to the meeting (Attachment A). An expected additional contribution from the Hotels Group was discussed. Mr. Walter Braunschweiger's work in the Rubber Manufacturing Group was commended.

The Fund-Raising Program for 1956 was next considered. The chairman suggested that a committee, composed of members of the Board of Trustees and staff, be formed for liaison with the County. He and the president agreed to arrange a meeting with the full Board of Supervisors, together with the Chief Administrative Officer and Director of the Air Pollution Control District.

The possibility of grants-in-aid to the Foundation from the Federal Government under the July 14, 1955, Act to provide research and technical assistance relating to air pollution control (Public Law 159, 84th Congress, Chapter 360, First Session S928), was then discussed. The president stated that he had discussed this matter with Russell S. McBride, the Foundation's Washington representative, who advised an early application. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the president prepare an application for grants-in-aid from the Federal Government, and, for that purpose, outline several research projects for which the funds would be expended, the amount requested, and the selection of the projects to be in the president's discretion.

The meeting's attention was called to the advisability of centralizing the fund-raising activities of the Foundation for economic and efficiency reasons. The president offered his assistance in this matter. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the fund-raising activities of the Foundation be centralized in the president's office under his direction and that he have discretion in the employment of assistants for those activities, all for the purpose of helping, but not supplanting, the Finance Committee of the Board of Trustees.

Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that A. J. Gock have authority to select members of the Board of Trustees for appointment on the Finance Committee.

The president was then directed to request each trustee to analyze various finance campaign suggestions, for discussion at the September 8, 1955 meeting.

A fourteen-minute colored motion picture entitled "Smog Men at Work" was then shown at the meeting. The president explained that the picture, depicting work being done by the Foundation and others, was prepared by the Foundation as part of its public information program for lay-group showing. The sense of the meeting was that the picture would help gain the understanding and confidence of the public. A recommendation was made that the picture be shown to the Board of Supervisors at the proposed liaison meeting.

There being no further business before the meeting, it adjourned.

/s/ Murray S. Marvin
Assistant Secretary

mek
August 12, 1955
Attachment

AIR POLLUTION FOUNDATION
BOARD OF TRUSTEES MEETING

Thursday, September 8, 1955
Room 1216, Southern California Gas Company
810 South Flower Street
Los Angeles 14, California

3:30 p. m.

AGENDA

1. Minutes of February 3, 1955
2. Resolution to Amend Article III, Section 1.
(time of annual meeting and set date for annual meeting in 1955.)
3. Resolution to Amend Article II, Section 10.
(where mentions in this section, change "president"
to "chairman of the Board.")
4. Appointment of Nominating Committee
5. Report of Finance Committee
 - a. Current campaign situation
 - b. Discussion of list of suggestions
 - c. Federal and County grants
6. Report of Treasurer
7. Report of Research Committee
8. Annual Joint Meeting with State Chamber of Commerce
November 10, 1955
9. Report of the President

AIR POLLUTION FOUNDATION

Minutes of Regular Meeting of Board of Trustees
September 8, 1955

Pursuant to notice duly given, a regular meeting of the Board of Trustees of the AIR POLLUTION FOUNDATION was held on the 8th day of September, 1955, at 3:30 o'clock in the afternoon in Room 1216, Southern California Gas Company, 810 South Flower Street, Los Angeles 14, California.

The following Trustees were present:

Raymond B. Allen
Milo W. Bekins
Walter Braunschweiger
Asa V. Call
Fred D. Fagg, Jr.
Ben P. Griffith
Roy M. Hagen
John A. McCone
William C. Mullendore
Kenneth T. Norris
Fred B. Ortman
Stephen W. Royce
James E. Shelton
Reese H. Taylor
P. G. Winnett

Also present were: Dr. Lauren B. Hitchcock, President; Dr. W. L. Faith, Vice President; Mr. Gerald G. Kelly, Secretary; and Mr. Murray S. Marvin, Assistant Secretary,

The following Trustees were absent:

John Leland Atwood
Marion Banks
Garner A. Beckett
Arnold O. Beckman
Edward W. Carter
Lee A. DuBridge
J. Howard Edgerton
Leonard Firestone
Y. Frank Freeman
A. J. Gock
Charles F. Kettering
H. C. McClellan
Standish Mitchell
Alden G. Roach
D. J. Russell
J. Philip Sampson
Ford Twaits
James C. Zeder

Dr. Raymond B. Allen, Chairman of the Board, presided at the meeting. Mr. Murray S. Marvin, Assistant Secretary, recorded the minutes.

The Chairman welcomed the newly elected members of the Board of Trustees.

The minutes of the February 3, 1955, Special Meeting of the Board of Trustees, having been circulated previously, were approved.

The desirability of amending the By-Laws to provide a flexible time and place for annual meetings and to provide for notice thereof was brought to the meeting's attention. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that Sections 1, 3, and 4 of ARTICLE III of the By-Laws are hereby amended to read as follows:

"1. Annual Meeting. Commencing in 1955, the Annual Meeting of the Board shall be held on such date in the month of October, November, or December and at such place as may be fixed each year by resolution of the Board or by written consent of all members of the Board.

"3. Special Meetings. Special meetings of the Board may be held at any time and place at the direction of the Board, or of the Chairman of the Board, or of the President, or of any three Trustees.

"4. Notices. No notice of a regular meeting shall be required. Notice of the time and place of a special meeting and of the Annual Meeting shall be mailed, telegraphed, or otherwise transmitted in writing to each Trustee at his address appearing on the records of the Foundation, not less than 96 hours prior to the time of the meeting if mailed, and not less than 48 hours prior to the time of the meeting if telegraphed or personally delivered. Notices need not specify the matters to be placed on the agenda for the meeting. Notice to any Trustee whose address does not appear on the records of the Foundation shall be effective if directed to General Delivery, Los Angeles, California."

The next scheduled meeting of the Board was suggested as the Annual Meeting for 1955. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the 1955 Annual Meeting of the Board of Trustees shall be held at the Ambassador Hotel, 3400 Wilshire Boulevard, Los Angeles 5, California, on Thursday, November 10, 1955, at 2:00 o'clock in the afternoon, in lieu of the regular meeting of the Board previously scheduled for that date.

A recommendation was made to amend the By-Laws so that the Chairman of the Board, rather than the President, would have the authority to appoint alternate Trustees to serve at Executive Committee meetings. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that Section 10 of ARTICLE II of the By-Laws is hereby amended to read as follows:

"10. Executive Committee. The Board shall create an Executive Committee, which shall be composed of nine Trustees. The Board shall fill vacancies in the Executive Committee and may remove and replace members of the Executive Committee at any time. The Chairman of the Board shall have the authority to appoint any Trustee to serve as an alternate member of the Executive Committee in the place of a member who is not present at a meeting. A quorum of the Executive Committee shall consist of five of its members or their alternates appointed by the Chairman of the Board. The Board may by resolution delegate to the Executive Committee any and all of the powers and authority of the Board in the management of the business and affairs of the Foundation except the power to adopt, amend, or repeal By-Laws. The Executive Committee may appoint its own Chairman and may from time to time designate by resolution the time and place for regular meetings. The provisions of these By-Laws concerning notice of meetings of the Board shall apply also to meetings of the Executive Committee."

The Secretary then reported that pursuant to ARTICLE II, Section 3 of the By-Laws, he had determined by lot the terms of office for members of the Board of Trustees elected subsequent to the last Annual Meeting of

the Board. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the terms of office of the following members of the Board of Trustees, having been determined by lot, shall expire respectively at the Annual Meetings of the years indicated:

Terms expiring in 1955:

Leonard K. Firestone
H. C. McClellan
D. J. Russell

J. Philip Sampson
Ford J. Twaits

Terms expiring in 1956:

Garner A. Beckett
J. Howard Edgerton
Ben P. Griffith

Charles F. Kettering
Kenneth T. Norris
James C. Zeder

Terms expiring in 1957:

J. L. Atwood
Milo W. Bekins
Y. Frank Freeman

A. J. Gock
Standish L. Mitchell

Appointment of the following Trustees to a new Nominating Committee was announced:

Fred D. Fagg, Jr., Chairman
Roy M. Hagen
Fred B. Ortman

The President presented a brief finance report showing that contributions to August 31, 1955, amounted to \$525,000 and that an additional \$75,000 in renewal contributions could be expected for the current year. He also reported briefly on meetings held in the Brewers, Aviation, and Food Groups.

The meeting next discussed various suggestions for improving the Foundation's finance campaign. Consideration was given to the use of quota formulas such as the type employed by the Los Angeles Area Building Fund. The Chairman reported that John D. Burton was no longer on the Foundation's payroll and that finance coordinating activities had been centralized in the Foundation's offices, but with the Trustees retaining fund-raising responsibility under the leadership of its Finance Committee.

The President then reported that prospects for neither a federal nor

county grant seemed favorable at the present time. He explained that reductions had been made in U. S. Public Health Service appropriations for nonmedical work, and secondly, that the Service's policy was to make only direct grants to organizations with their own research laboratories. The President stated that the Foundation was, therefore, urging Midwest Research Institute, Southwest Research Institute, and the University of California at Riverside to apply for Public Health Service grants for research on various air pollution projects recommended by the Foundation's staff,

To improve liaison with the County, the Chairman, together with Milo W. Bekins, Fred D. Fagg, Fred B. Ortman, and Stephen W. Royce, agreed to arrange an informal meeting with Supervisor John Anson Ford.

The Treasurer presented his report and distributed to the meeting a statement of assets and of receipts and expenditures through August 31, 1955 (Attachment A). He pointed out that expenditures for the Public Information Program had now been reduced to allow a greater allocation of funds to research projects; that expenditures to date were greater than those contemplated for the balance of the year; but that unless contributions in addition to those contemplated were received, there would be a \$25,000 deficit by December 31, 1955. Renewal contributions estimated at around \$275,000 are expected in the meantime.

Discussion then turned to research presently conducted by the County, the automotive industry, the University of California, and the State Health Department. The sense of the meeting was that the Foundation had served as a stimulus to increased research on the problem of air pollution.

The President announced the forthcoming all-day joint meeting with the State Chamber of Commerce to be held at the Ambassador Hotel on November 10, 1955, at which papers would be read by representatives of the Air Pollution Control District, the Air Pollution Foundation, and the oil, steel, and automobile industries with a view to informing the public on accomplishments in the field of air pollution.

The Vice President then presented to the Trustees a brief report on the Southwest Research Institute project which had analyzed proposals for the use by automobiles, trucks, and buses of liquified petroleum gas, for such use by public service buses only, for the use of alcohol or alcohol-gas blends, and for the use of the OCM catalytic muffler. Copies of Report No. 10 on the "Feasibility of Control Methods for Automobile Exhaust" were distributed at the meeting.

The President's report first dealt with the Foundation's practice of contracting to have its research performed by other organizations. The President stated that financial support from county and federal sources would be forthcoming if the Foundation would perform work itself, which could be accomplished either by operating leased laboratory facilities on the premise

that such operations would be supported by government funds, or by rendering consulting services to the Air Pollution Control District on an official contract basis, which would be mutually beneficial and within the spirit of the Foundation's Statement of Policy. The sense of the meeting was that the Foundation should not lease laboratory facilities, but that it could properly contract to render such consulting services. The suggestion was made that grants might be obtained for the Foundation from other sources, such as the Rockefeller Foundation.

The President then explained the difficult position of the Board of Supervisors, who have legal responsibility for dealing with the air pollution problem but who lack time and technical background to understand the problem fully. The proposals for the establishment of an Air Pollution Control Commission to advise the Board, or for a reorganization of the Air Pollution Control District on a regional basis to relieve the Board from any responsibility for air pollution control, were explained. While no official action was taken on either proposal, the sense of the meeting was that the President in his report on November 10 might suggest consideration for some form of Air Pollution Advisory Commission to be appointed by the Board of Supervisors without delegation of responsibility, comprised of a small number of competent salaried commissioners.

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

/s/ Murray S. Marvin
Assistant Secretary

Attachment

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Distributed
9/22/55

AIR POLLUTION FOUNDATION
(a California nonprofit corporation)
STATEMENT OF NET ASSETS AT AUGUST 31 1955

Cash in bank and on hand	\$ 56,269.64
U. S. Treasury ninety day bill, at cost	49,782.50
Advances to employees	139.90
Deposit with airlines	425.00
Scientific equipment, office equipment and automobile - each at nominal value of \$1	<u>3.00</u>
	\$106,620.04
Less - Withholding from employees for taxes, etc.	<u>3,225.64</u>
Net assets at August 31 1955	<u><u>\$103,394.40</u></u>

A I R P O L L U T I O N F O U N D A T I O N

Statement of Receipts and Expenditures
for the period January 1, 1955, thru August 31, 1955

	<u>Actual</u> <u>thru 8/31/55</u>	<u>% of Total</u> <u>Expenditures</u>
<u>Income:</u>		
Contributions	\$525,535.00	
Service Contracts	187,763.35	
Interest	1,024.67	
	<u>\$714,323.02</u>	

75,000

Expenditures:

Research Program:

Services and Purchases under Contracts and Agreements	\$377,994.34	62.18%
Research Staff Salaries	82,907.76	13.64
Scientific Equipment Purchased for General Use	903.87	.14
Other	<u>5,451.83</u>	<u>.90</u>
	\$467,257.80	76.86%

General and Administrative:

Salaries	\$ 31,693.65	5.21%
Travel and Sundry	11,145.22	1.83
Rent	5,184.00	.85
Office Equipment Purchased	9,282.65	1.53
Office Supplies	5,790.03	.95
Office Expense	8,738.32	1.44
Telephone and Telegraph	4,004.45	.66
Auto	738.20	.12
Insurance	1,360.48	.22
Group Insurance	450.34	.07
Taxes and Licenses	<u>2,721.68</u>	<u>.46</u>
	\$ 81,109.57	13.34%

*81
5.21
13.34*

Public Information Program:

Salaries	\$ 21,870.13	3.60%
Travel and Sundry	1,756.91	.29
Rent	946.25	.16
Office Equipment	1,415.59	.23
Office Supplies	2,480.53	.41
Office Expense	5,254.62	.86
Office Other	2,323.75	.38
Professional Services	<u>16,623.54</u>	<u>2.73</u>
	\$ 52,671.37	8.66%

**AIR POLLUTION FOUNDATION
Statement of Receipts and
Expenditures 1/1-8/31/55**

Page 2

	<u>Actual thru 8/31/55</u>	<u>% of Total Expenditures</u>
<u>Fund Raising</u>	\$ 6,929.19	1.14%
Total Expenses	<u><u>\$607,967.93</u></u>	<u><u>100%</u></u>
Less Excess of 1954 Expenditures over 1954 Receipts	<u><u>\$ 2,960.69</u></u>	
Excess of Receipts over Expenditures to date	<u><u>\$103,394.40</u></u>	

*607.
8 = 76,000/mo*

AIR POLLUTION FOUNDATION

Minutes of Regular Meeting
of the
Executive Committee of the Board of Trustees

October 27, 1955

Pursuant to notice duly given, a regular meeting of the Executive Committee of the Board of Trustees of the AIR POLLUTION FOUNDATION was held on the 27th day of October, 1955, at 3:30 o'clock in the afternoon, in the Board Room, Sixth Floor, Pacific Mutual Life Insurance Company, 523 West Sixth Street, Los Angeles 14, California.

The following Executive Committee members were present:

F. Marion Banks
Asa V. Call
A. J. Gock
Fred B. Ortman
James E. Shelton

Also present were Dr. Lauren B. Hitchcock, President, and Mr. Murray S. Marvin, Assistant Secretary.

The following Executive Committee members were absent:

Raymond B. Allen
Arnold O. Beckman
Lee A. DuBridge
Reese H. Taylor

Asa V. Call, Chairman of the Executive Committee, presided at the meeting. Murray S. Marvin, Assistant Secretary, recorded the minutes.

The minutes of the Executive Committee meeting of August 4, 1955, having been circulated previously among the committee members, were approved after insertion of the following phrase before the word "are" in the security clearance resolution adopted at that meeting:

"...and can be effectively denied access to classified information in the possession of the AIR POLLUTION FOUNDATION and do not occupy positions that would enable them to affect adversely the AIR POLLUTION FOUNDATION'S policies or practices in the performance of contracts with the Government..."

AIR POLLUTION FOUNDATION

Executive Committee - Minutes of Meeting
October 27, 1955

Page 2

After further consideration of the proposal for establishment of an Air Pollution Control Commission, previously discussed at the September 8, 1955, Regular Meeting of the Board of Trustees, the Executive Committee directed the President to make no reference to such a commission in his November 10, 1955, report. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the Foundation take no position at the present time on the advisability of the establishment of an Air Pollution Control Commission to advise the Board of Supervisors.

The President then outlined the Foundation's current finance program and reported that a campaign was underway in the southern section of the Brewers' Institute; that meetings had been held in the seven construction industry associations, each of which would solicit among its own members; and that the presidents of the four leading aviation companies had agreed to write personally to their ninety suppliers to request funds for the Foundation. The need for further attention to the bakery and hotels groups was stressed. The President pointed out that since smog is a national problem, the motors group should be persuaded to increase the amount of their contribution. The Committee approved Mr. Banks' suggestion that all present contributors should be requested to increase their contributions in light of the fact that funds previously anticipated from government agencies have not been forthcoming. The President reported that the prospect of a contribution from The Ford Foundation appeared hopeful.

The Committee commended the President for his speech and the Foundation program presented to the Kiwanis Club on October 26. Mr. Shelton agreed to arrange time for a similar program before the Rotary Club.

Copies of a Statement of Estimated Receipts and Expenditures for the Year 1955 and the proposed Budget for 1956 were distributed to the Committee members (Attachment A). The President pointed out that even after the trimming of \$9,000 from General and Administrative Expense, \$210,000 in additional funds would have to be raised for next year's operation and research.

The text of a proposed new brochure for the Foundation was examined. Approval was given to various changes in wording, to a briefer and broader description of air pollution, and to relocation to the front of the booklet of

AIR POLLUTION FOUNDATION

Executive Committee - Minutes of Meeting
October 27, 1955

Page 3

the statements relating to the Foundation's purpose and accomplishments.

Methods were discussed for fostering objective and constructive press, radio, and television reporting. The sense of the meeting was that public awards by the Foundation might create an undesirable competitive atmosphere, and that the Foundation instead should commend individual reporters and their newspapers or broadcasting stations by letter or by resolution of the Board.

The meeting approved as basically sound the policy statement of the Los Angeles Chamber of Commerce (Attachment B). Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that members of the Foundation's Staff and Board of Trustees are hereby authorized to counsel with the Los Angeles Chamber of Commerce on all phases of air pollution and methods of abatement for the purpose of assisting the Chamber in its program of action to reduce air pollution in the Los Angeles Basin.

The President reported that he had recently called on the President of the Hotel and Restaurant Employees' Union to inquire about the proposed formation of labor union air pollution committees and was informed that the purpose of such committees would be to determine a course of action and then to bring pressure on the Board of Supervisors to remedy the air pollution situation. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the Foundation shall neither foster the formation of labor union committees on air pollution nor endorse their programs, but shall assist such committees, if formed, by supplying them with information on all phases of air pollution and methods of abatement.

The regular meeting of the Executive Committee proposed for December 8, 1955, was cancelled, subject to special call in the event matters should arise requiring attention of the Committee.

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

MSM:mek
Attachments

/s/ Murray S. Marvin
Murray S. Marvin
Assistant Secretary

September 30, 1955

A I R P O L L U T I O N F O U N D A T I O N

Statement of Estimated Receipts and Expenditures for the year 1955
and
the Proposed Budget for 1956

	<u>Estimated for 1955</u>	<u>% of Total Expenditures</u>	<u>Proposed 1956 Budget</u>	<u>% of Total Expenditures</u>
<u>Income:</u>				
Contributions	\$531,685			
Contributions - Anticipated Renewals	10,000			
Service Contracts	190,263			
Interest	<u>1,200</u>			
	<u>\$733,148</u>			
			<u>\$750,000</u>	
<u>Expenditures:</u>				
<u>Research Program:</u>				
Services and Purchases under Contracts and Agreements	\$422,628	56.37%	\$450,000	60.00%
Research Staff Salaries	126,522	16.88	130,840	17.44
Scientific Equipment Purchased for General Use	904	.12	-	-
Library Books and Periodicals	822	.11	900	.12
Professional Services	<u>6,678</u>	<u>.89</u>	<u>6,200</u>	<u>.83</u>
		<u>74.37%</u>		<u>78.39%</u>
			<u>\$557,554</u>	
<u>General and Administrative:</u>				
Salaries	\$ 47,000	6.27%	\$ 50,000	6.67%
Travel and Sundry	15,000	2.00	11,300	1.51
Rent	7,701	1.03	7,551	1.01
Office Equipment	10,000	1.33	1,000	.13
Office Supplies	7,500	1.00	7,500	1.00
Office Expense	11,000	1.47	11,000	1.47
Telephone and Telegraph	6,500	.87	6,600	.88

General and Administrative:
(continued)

	<u>Estimated for 1955</u>	<u>% of Total Expenditures</u>	<u>Proposed 1956 Budget</u>	<u>% of Total Expenditures</u>
Auto	\$ 1,000	.13%	\$ 1,200	.16%
Insurance	2,000	.27	2,000	.27
Group Insurance	1,000	.13	1,500	.20
Taxes and Licenses	<u>3,200</u>	<u>.43</u>	<u>3,200</u>	<u>.42</u>
	\$111,901	<u>14.93%</u>	\$102,851	<u>13.72%</u>

Public Information Program:

Salaries	\$ 32,500	4.34%	\$ 35,000	4.67%
Travel and Sundry	2,700	.36	1,500	.20
Rent	1,606	.21	1,980	.26
Office Equipment	1,416	.19	1,000	.13
Office Supplies	1,200	.16	1,000	.13
Office Expense	4,180	.56	4,000	.53
Public Service and Community Information	8,000	1.07	4,729	.64
Professional Services	<u>16,624</u>	<u>2.21</u>	<u>-</u>	<u>-</u>
	\$ 68,226	<u>9.10%</u>	\$ 49,209	<u>6.56%</u>

Fund Raising:

	12,000	1.60	10,000	1.33
Total Expenses	<u>\$749,681</u>	<u>100.00%</u>	<u>\$750,000</u>	<u>100.00%</u>

NOV 5 1955

AIR POLLUTION FOUNDATION

704 SOUTH SPRING STREET
LOS ANGELES 14, CALIFORNIA
Tel.: MAdison 6-9441

LAUREN B. HITCHCOCK
President and Managing Director

TRUSTEES

RAYMOND B. ALLEN
Chairman
ARNOLD O. BECKMAN
Vice-Chairman
JAMES E. SHELTON
Treasurer
J. L. ATWOOD
F. M. BANKS
GARNER A. BECKETT
MILO W. BEKINS
WALTER BRAUNSCHWEIGER
ASA V. CALL
EDWARD W. CARTER
LEE A. DuBRIDGE
J. HOWARD EDGERTON
FRED D. FAGG, JR.
LEONARD K. FIRESTONE
Y. FRANK FREEMAN
A. J. GOCK
BEN P. GRIFFITH
ROY M. HAGEN
CHARLES F. KETTERING
H. C. McCLELLAN
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STANDISH L. MITCHELL
WILLIAM C. MULLENDORE
KENNETH T. NORRIS
FRED B. ORTMAN
ALDEN G. ROACH
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D. J. RUSSELL
J. PHILIP SAMPSON
REESE H. TAYLOR
FORD J. TWAITS
P. G. WINNETT
JAMES C. ZEDER

November 4, 1955

Dr. Lee A. DuBridge, President
California Institute of Technology
1201 E. California
Pasadena 4, California

Dear Lee;

Subject: Annual Meeting, Board of Trustees, Frenchette Room,
Hotel Ambassador, November 10, 1955, 2:00 p.m.

Replies received from the trustees supplemented by telephone
calls yesterday morning indicate that we will not have a quorum.

We note that you have accepted and hope that we may count on
you as we hope to persuade enough of the doubtful ones to at least
reach the quorum.

Sincerely,



L. B. Hitchcock

LBH:ma

W. L. FAITH
*Vice President and
Chief Engineer*
GERALD G. KELLY
*Secretary of the
Foundation*

AIR POLLUTION FOUNDATION
BOARD OF TRUSTEES MEETING

Thursday, November 10, 1955
 Frenchette Room, Hotel Ambassador
 3400 Wilshire Boulevard
 Los Angeles 5, California

2:00 p. m.

AGENDA

1. ✓ Minutes of Meeting of September 8, 1955
2. ✓ Report of Nominating Committee
3. Election of Trustees
4. Election of Officers
5. Appointment of Chairmen
 - Finance Committee Gock
 - Research Committee Allen
 - Public Information Committee Banks
6. Report of Finance Committee
7. President's Report
8. Resolution Commending CBS Radio Station KNX

Bv Cull Loh Form Mel	Roy Res Sam Skelton Turin
Loh Ortman Skelton Mathews Kelly Marvin	

AIR POLLUTION FOUNDATION

Minutes of the Annual Meeting of the Board of Trustees

November 10, 1955

Pursuant to notice duly given, the Annual Meeting of the Board of Trustees of the AIR POLLUTION FOUNDATION was held on the 10th day of November, 1955, at two o'clock in the afternoon in the Frenchette Room, Hotel Ambassador, 3400 Wilshire Boulevard, Los Angeles 5, California.

In the absence of Dr. Raymond B. Allen, Chairman of the Board, and Dr. Arnold O. Beckman, Vice Chairman of the Board, Mr. Asa V. Call presided at the meeting. Mr. Murray S. Marvin, Assistant Secretary, recorded the minutes.

The minutes of the September 8, 1955, regular meeting of the Board of Trustees, having been circulated previously, were approved.

On recommendation of the Nominating Committee, represented by Dr. Fred D. Fagg, Chairman, and upon motion made, seconded, and unanimously carried, the following persons were elected to the Board of Trustees for a term to expire at the Annual Meeting in 1958:

Walter Braunschweiger
Asa V. Call
Lee A. DuBridge
Leonard K. Firestone
Roy M. Hagen
H. C. McClellan
Stephen W. Royce
D. J. Russell
John Philip Sampson
James E. Shelton
Ford J. Twaits

On recommendation of the Nominating Committee, and upon motion made, seconded, and unanimously carried, each of the following persons was elected to the office designated opposite his name:

<u>Name</u>	<u>Office</u>
Lee A. DuBridge	Chairman
Fred B. Ortman	Vice Chairman
James E. Shelton	Treasurer
R. S. Weatherly	Assistant Treasurer
Gerald G. Kelly	Secretary
Murray S. Marvin	Assistant Secretary

Dr. DuBridge thereupon took the chair and appointed each of the following Trustees to chairmanship of the committee designated opposite his name:

<u>Chairman</u>	<u>Committee</u>
A. J. Gock	Finance
Raymond B. Allen	Research
F. M. Banks	Public Information

In the absence of the Chairman of the Finance Committee, the President gave the Finance Report. Copies of a Statement of Net Assets at October 31, 1955, and Receipts and Expenditures for the period January 1, 1955, through October 31, 1955, were distributed (Attachment A). The President pointed out that reductions in expenditures had practically eliminated the prospective deficit for the remaining six weeks of the current year. The receipt from contributors of \$295,950 for next year's operation, plus \$8,000 in pledges, was reported. The President stated that funds could be expected from new contributors, including the soft drink bottlers, the brewers, and the building and construction groups. The Trustees noted that the Executive Committee had, at its meeting on October 27, 1955, approved the suggestion that all present contributors be requested to increase their contributions, and endorsed this recommendation with the request that the Finance Committee advise the board as to the percentage increase which they consider necessary and appropriate.

Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the President be commended for his speech entitled "What the Air Pollution Foundation is Doing," presented at the Southern California Conference on Elimination of Air Pollution held at the Ambassador Hotel immediately prior to this meeting.

RESOLVED FURTHER, that the President's speech be printed and copies appropriately distributed.

The President reported briefly on the discussion held at the Executive Committee meeting of October 27, 1955, on the manner by which objective and constructive press, radio, and television reporting might be fostered. Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that the Columbia Broadcasting System's Radio Station KNX, Los Angeles, California, its News Bureau, and in particular, Mr. William W. Kenneally, be commended for the constructive and objective qualities of its one-hour summary

of the Los Angeles smog problem, entitled "A Brown Study," broadcast on September 30, 1955, and that copies of this Resolution, signed by the President on behalf of the Board of Trustees of this Foundation, be sent to the President of Columbia Broadcasting System, Director of Station KNX, and to Mr. Kenneally,

Upon motion made, seconded, and unanimously carried, it was

RESOLVED, that Dr. Raymond B. Allen be accorded the appreciation of the Board of Trustees for his services as Chairman during the past year,

There being no further business before the meeting, it adjourned,

/s/ Murray S. Marvin
Assistant Secretary

11/29/55
MSM:mek
Attachment

AIR POLLUTION FOUNDATION

(a California nonprofit corporation)

STATEMENT OF NET ASSETS AT OCTOBER 31, 1955

Cash in bank and on hand	\$115,696.02
Pledges Receivable (1956)	20,000.00
Advances to employees	152.43
Deposit with airlines	425.00
Scientific equipment, office equipment and automobile - each at nominal value of \$1	<u>3.00</u>
	\$136,276.45
Less - Withholding from employees for taxes, etc.	<u>3,268.33</u>
Net assets at October 31, 1955	<u><u>\$133,008.12</u></u>

A I R P O L L U T I O N F O U N D A T I O N

Statement of Receipts and Expenditures
for the period January 1, 1955, thru October 31, 1955

Income:

Contributions*	\$599,135.00	
Service Contracts	190,263.35	
Interest	<u>1,242.17</u>	
		<u>\$790,640.52</u>

Expenditures:

Research Program:

Services and Purchases under Contracts and Agreements	\$378,408.50	
Research Staff Salaries	104,714.50	
Scientific Equipment Purchased for General Use	903.87	
Library Books and Periodicals	354.63	
Professional Services	<u>5,661.38</u>	
		\$490,543.33

General and Administrative:

Salaries	\$ 39,191.19	
Travel and Sundry	12,531.47	
Rent	6,442.50	
Office Equipment	10,133.69	
Office Supplies	6,048.30	
Office Expense	9,490.60	
Telephone and Telegraph	5,280.52	
Auto	1,116.80	
Insurance	1,577.68	
Group Insurance	566.95	
Taxes and Licenses	<u>2,964.42</u>	
		95,344.12

Public Information:

Salaries	\$ 27,179.69	
Travel and Sundry	2,394.06	
Rent	1,276.25	
Office Equipment	1,415.59	
Office Supplies	963.79	
Office Expense	3,558.55	
Public Service and Community Information Expense	7,547.00	
Professional Services	<u>16,623.54</u>	
		60,958.47

Fund Raising:

7,825.74

Total Expenses

\$654,671.71

Less Excess of 1954 Expenditures over
1954 Receipts

\$ 2,960.69

Excess of Receipts over Expenditures
at October 31, 1955

\$133,008.12

*Includes \$70,950 considered as 1956 contributions.