SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING ST. ROOM 810
BURT LEIPER MADISON 6-9441

FOR RELEASE
SEPT. 29, 1954
WEDS. AM's & THEREAFTER

FOUNDATION SETS NIGHTTIME TRAP FOR CLUE TO SMOG

The Southern California Air Pollution Foundation is trapping night air in the Los Angeles Basin, subjecting it to artificial sunlight, then "dissecting" it chemically in the hope of determining the culprits responsible for smog.

The Foundation today announced a $126,000 contract with the Stanford Research Institute for this scientific inquiry after sundown. The contract is authorized for one year and will consist of five man-years of scientific effort.

A Foundation spokesman describes the purpose of this project as follows:

"Night air, which does not exhibit smog manifestations, will be subjected to artificial sunlight. In the past, such treatment has made the air smoggy. Different classes of chemicals then will be removed, one at a time, from this smoggy air. Then the air will be re-tested to see if it still produces smog effects. By this type of detective work, it is hoped the chemical culprits responsible for smog will be identified."

Dr. Fred Littman of the Stanford institute, whose pioneering work in air research is widely recognized, will conduct the experiments. SRI has had extensive experience in the studies of the atmosphere and its contaminants.

Dr. Lewis H. Rogers, Senior Chemist of the Foundation, is the project leader.

The objective is to determine the "parent substances" for smog. Under ideal conditions, contaminants would blow out of the basin during the late hours of the day and night. Because of sluggish wind conditions, this ventilation frequently does not occur. When the sun rises, the smog cloud is apt to appear simultaneously far inside the basin and in downtown Los Angeles.

"Going on the assumption that something in the Los Angeles air combines under the action of the sun to cause eye irritation and plant damage," said Dr. Rogers, "we also assume this 'something' is unstable, which, to all intents, disappears at night."

Dr. Littman further explains that the cause or causes of smog could be present much of the time, but due to their instability and minute concentration are difficult to analyse by conventional methods. Plant damage tests will be conducted and humans will be subjected to this nighttime smoggy air for fifteen minutes to a half hour at a time. Past experiments show eye irritation will usually come in the first fifteen minutes.

##

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING STREET ROOM 810
BURT LEIPER MADISON 6-9441

RELEASE DATE
SEPT. 8 AFTERNOON PAPERS
AND THEREAFTER

The U. S. Navy's lighter-than-air squadrons are patrolling the skies of the Los Angeles Basin for the purpose of determining the concentration, altitude and frequency of the contaminants blamed for smog in this region. The assistance of the Navy was secured upon recommendations of Charles S. Thomas, Secretary of the Navy.

The smog patrol is in addition to the routine training maneuvers of the U. S. Naval Air Reserve Training Unit at Santa Ana. Commander W. R. Peeler, USN, schedules flights in cooperation with the scientists of the Southern California Air Pollution Foundation. On specified days, when the winds are most sluggish, when the inversion layer is low, when conditions are most "favorable" for smog -- that is when the smog-sampling flight is added to the regulation patrol of Commander Peeler's airship squadrons. These blimp flights will continue through the month of November, in coordination with the overall ground and upper winds project now underway by the Foundation. This is another important leg of the Aerometric Survey.

Questions which the Foundation is asking on its Navy patrols through the Basin are these:

Do these contaminants, such as ozone and nitrogen dioxide, have a maximum concentration from the ground up to the base of the inversion, then decrease rapidly from the base of the inversion upward?

Or, to put it another way: Do the oxidants, or pollution formed by the action of the sun on the waste products of gasoline, auto exhausts and industry, show a marked decline above that temperature ceiling which locks contamination in the Basin?

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING ST. ROOM 810
BURT LEIPER MADISON 6-9441

RELEASE DATE
SEPTEMBER 8 AFTERNOON
PAPERS OR THEREAFTER

Is nitrogen dioxide in the air we breathe strictly a product of combustion engines; is there some other chemical or meteorological answer?

The log of a typical flight is as follows:

At 10 a.m. in the ready room at the Santa Ana base, Commander Peeler receives a report on the height of the inversion base, on visibility and wind conditions. A naval reserve unit is prepared to make the flight. In this case, Lieutenant Commanders James V. Priest of San Marino and Royal A. Lett, Jr., of Garden Grove are the pilots. Members of the crew are Donald L. Cameron of Westminster; Joseph W. Perry, Norwalk, Bob L. Cavness, Whiting, Indiana, and Lyle C. Miller, Corona Del Mar.

Foundation consultant on this flight is Dr. Morris Neiburger, senior meteorologist. Taking samples for this particular cruise is Maurice Ballas of the Truesdail Laboratories of Los Angeles. Dr. L. H. Rogers, Foundation's senior chemist, alternates with Dr. Neiburger.

"Our sampling flight pattern," says Dr. Neiburger, "is from Santa Ana out over the Los Angeles Harbor, then north to Dominguez, where we have a ground station. With the permission of the Civil Aeronautics Authority, we fly just below the airways.

"At 500 feet, over Dominguez, we take our first samples of oxidants and nitrogen oxides. The blimp is particularly apt for this purpose because of its ability to fly slowly and at low levels. Samples are taken over a relatively small area in the vicinity of the ground stations. Samples have been taken by air before, but not over a systematic period and location and with the frequency we contemplate.

"Each sample requires about seven minutes. A signal to the pilots and we rise to about 1,000 feet for our second sampling below the inversion layer.

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING STREET ROOM 810
BURT LEIPER MADISON 6-9441

RELEASE DATE
SEPTEMBER 8 AFTERNOON
PAPERS OR THEREAFTER

Then to 3,000 feet, where, on this particular flight we broke through the smog and haze where visibility was perfect.

"A sampling at 3,000 feet and then we set our aerial compass directly north on Figueroa Street for the downtown area. Our arrival over our downtown station, near City Hall and the Freeway "cloverleaf" is shortly before noon.

"Here, samples are taken in reverse order: at 3,000 feet, at 1,000 feet and at 500 feet.

"Then the blimp begins a series of up-and-down trips so we can determine the slope of the inversion layer from downtown to the ocean. Using Venice Boulevard as our marker, the blimp heads for the city of Venice. During each dip and each rise, we record time, temperature and humidity, which helps to fix the height of the base of the inversion layer."

From Venice, the Naval squadron carries out its routine training maneuvers. This particular day's smog mission has been completed. In two months or so, interpretation of data should be possible, Dr. Neiburger said. Findings will be related to the chemical and other observations and tests along the surface of the basin -- a part of the Summer and Fall program of the Southern California Air Pollution Foundation -- this part made possible by the U.S. Navy's lighter-than-air ships.

-0-

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING ST. ROOM 810
BURT LEIPER MADISON 6-9441

IMMEDIATE RELEASE

FOUNDATION ASKS QUESTION:

"WHAT IS AUTO EXHAUST"

The Southern California Air Pollution Foundation is asking the question: "What, exactly, is the makeup, or composition, of auto exhaust?"

The Foundation, granting that an exact chemical answer may never be found to this question, is placing the order for an alternative if such is found to be necessary. The order: to narrow the field of identification of components of that auto exhaust; to assess the evidence which, to a major degree, points the finger of responsibility for smog on the auto exhaust.

The Foundation anticipates many steps in seeking the answers; it is weighing the evidence on hand. It is making an independent check by contracting for the services of the Midwest Research Institute in Kansas City, Missouri. Chemists, mechanical engineers and plant pathologists, altogether a group of scientists at MRI whose combination of personnel has been selected by the Foundation as competent for the attempted task, will make this check on auto exhaust composition.

Dr. W. L. Faith, Deputy Director and Chief Engineer for the Foundation, announces the signing of a $37,850 contract with the Kansas City institute. This particular research, the first announced out-of-state project for the Foundation, initiates a much larger program concerned with the contribution of combustion to impurities in the Los Angeles air.

Dr. Faith said:

"We have very little information, actually, on composition of the auto exhausts. To a major degree we do have circumstantial evidence which points the finger directly at the exhaust as being responsible for smog, but we haven't the proof.

"Someone must develop better methods for analyzing exhaust gases under various conditions. We may never find out, chemically speaking, exactly which molecules of the auto exhaust lead to smog. If we find out, however, that certain parts of the exhaust gases are responsible, then we can go ahead with a program aimed at solution of the problem."

"Assuming that some material in the exhaust does cause our eyes to smart, that is does damage our plants and cut down our visibility, then we still must find the means to a device which reduces or remedies this problem."

"That is why the need still exists," Dr. Faith said, "for an independent check on the makeup of auto exhaust gases." He added that this is one purpose for the Foundation's August Conference on Vehicle Combustion Products and Other Emissions: to determine what industrial engineers know about the composition of these gases."

The August Conference will be clinical and technical, a concentration of scientific and industrial knowledge, men free to speak their minds at closed panel sessions at The Huntington-Sheraton in Pasadena on August 19, 20 and 21. Experts from all parts of the nation will study composition, analysis, the effects of fuels and additives, the engineering designs and devices, the chemical reactions in polluted atmospheres.

While this closed, clinical session is in progress, other experts will be working in Kansas City on the same problem. They will make use of test plants, plants which are excellent indicators of smog. They will use the pinto bean. They will subject this plant to combinations of auto exhaust and ozone, that high oxident content which is suspect in the atmosphere of the Los Angeles Basin.

They will probably take their samples from automobile engines operating under actual road conditions. One engine will be in excellent mechanical condition; another will have been driven upwards of 100,000 miles. Samples will be collected from engines at normal cruising speed, decelerating, idling. Gasolines will be used which contain additives; others will be free of additives.

Some of the methods will not be new. For instance, exhaust gases will be separated into classes, physically and chemically, for a lead as to the type of material causing plant damage. The theory: perhaps all classes of gas within that exhaust cause plant damage; perhaps only one. This is similar to work done previously by Dr. A. G. Haagen-Smit of the California Institute of Technology. There is a difference, however. Haagen-Smit's work was done with gasoline. The Midwest Research Institute will use fractions of auto exhaust instead of fractions of gasoline.

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING ST. ROOM 810
BURT LEIPER MA-6-9441

RELEASE AUG.9 A.MS

'WORLD'S BIGGEST AIR

LABORATORY' TEST BEGINS

Smog is a criminal with many disguises. There are many suspects and many clues to its identity.

Today, the Southern California Air Pollution Foundation joined hands with the Los Angeles Air Pollution Control District to help narrow the list of suspects and corner the elusive clues. Together, they launched "Operation Aeromet" in the biggest air laboratory in the world, the Los Angeles Basin.

Simultaneously and continuously, on a twenty-four hour basis, for the next 120 days, Man and his scientific machines will work on what is technically known as an Aerometric Survey. A calculated scientific Summer and Fall program will test new techniques, confirm or discard old ones, gather hundreds of data on suspects such as oxidants in the air, metallic dusts, nitrogen oxides, hydrocarbons and others.

Today, the press, radio and television newsmen examined what will be the largest research project of its kind ever attempted. They saw a single portion of that project at the Control District Office in Vernon. Other stations will be located at Venice, in the Wilshire District, in downtown Los Angeles, Pasadena and Burbank; additional ones at Dominguez, Artesia, Rivera, Bassett and Azusa; stations outside the Basin will be located at Santa Barbara and Riverside.

Operation Aeromet is largely a teamwork proposition, proposed by Dr. L. B. Hitchcock, President and Managi Director of the Foundation; approved for County participation by Gordon P. Larson, Director of the District. Funds for the survey were approved by the County Supervisors. This will amount to $128,550 for the current year.

Dr. Hitchcock told newsmen the Foundation's program will cost $100,000 a month in addition to operation costs, for the next five months of this year. This cost figure includes other projects to be conducted in what Dr. Hitchcock calls the

"biggest air laboratory in the world." He said the Aerometric Survey alone will require from 550 to 700 measurements per day for the next 120 days. This huge pile of findings will be correlated and interpreted by scientific methods with the help of mechanical analyzers. Results of the survey should be available early in 1955.

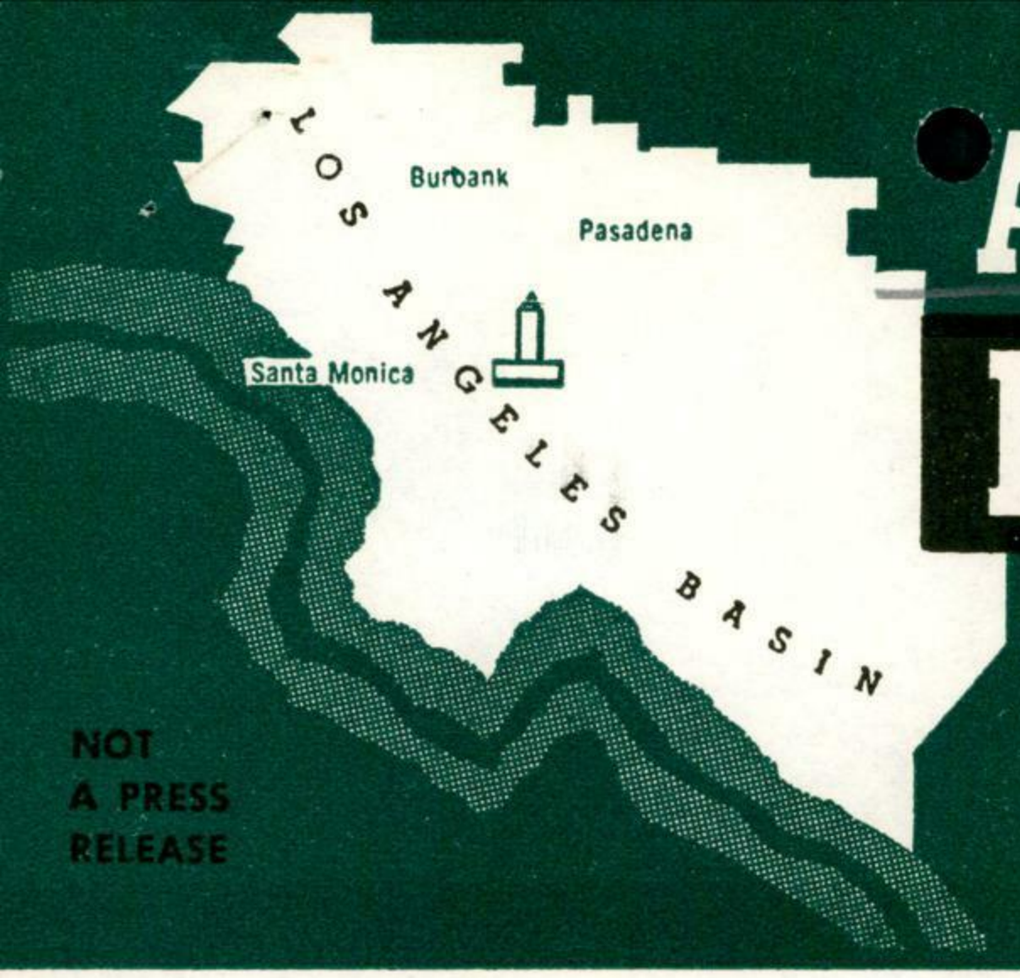
The juggernaut of the operation is the oxidant recorder. Huge blue-gray boxes, pumping in air from the Basin, hour by hour, day by day, will operate along known wind currents. Ozone (an oxidant) is a known suspect in the smog picture. Oxidants in the air usually hit a high peak in the Basin around noon. Often, their presence coincides with watery eyes, bad visibility and bad-tempered Angelenos.

This recorder and other measurements and detectors may establish a relationship between the time-of-day, temperature, wind direction, humidity, the presence of other contaminants in the air--hopefully a lead to the 'how' and the 'why' of smog.

On certain specific days, to be judged by the meteorologists, an air tracer device will spout into action. Extremely small particles will be ejected from a machine somewhere in the Area of Palos Verdes. The dispersal points will change. Miles away, sampling machines will pick up these tracers by use of filters.

The samplers operate much as vacuum cleaners, picking up these minute quantities of pseudo-pollutants. The air tracer study may confirm a theory: that the paths of the wind along the surface of the Basin are true indicators of the movements of pollutants. This may not be so. The technique would be a valuable one if proved to be sound. The Foundation and the District are placing a great measure of hope in Operation Aeromet to give the answer.

Operation Aeromet has many parts and parcels. On display was a sampler for nitrogen dioxide, a suspect in combustion processes. A plant damage project is being conducted at six stations by UC at Riverside, as well as the extensive work now in progress there. It is already known that smog damages plants. These plants will be exposed during the tests as a measurement of damage. Other operations include a hydrocarbon project, tests of visibility, measurements of sulphur dioxide and carbon dioxide. All this is now underway, in addition to a systematic recording of eye-irritation in the vicinity of the oxidant stations.



NOT
A PRESS
RELEASE

AIR POLLUTION FOUNDATION newsletter

PUBLISHED BY THE AIR POLLUTION FOUNDATION
FOR ITS OFFICERS, TRUSTEES AND CONTRIBUTORS

Burt Leiper, Editor 704 South Spring Street, Los Angeles 14 MAdison 6-9441

Dr. Vonnegut

Vol. 1, No. 6
Feb. 24, 1955

WHAT'S NEW SINCE LAST ISSUE

THE GOAL FOR 1955

We -- the Foundation, the District, the entire community need to intensify our attack against smog. Now that the battle lines are more clearly drawn, our rate of progress will depend on the amount of troops and ammunition we throw into the battle. Undoubtedly, there is a limit beyond which additional power would be unproductive, but we are a long way short of that today. In other words, this community with its tremendous industry and population, with the help of strengthened private and public agencies, can direct their efforts with more confidence now that such effort will be productive.

The Foundation's own research program for 1955 was approved at $1,600,000, subject to availability of funds. This limitation has enabled us to commit ourselves for research contracts only to a total of $651,000 as of January 1. In other words, there is important needed research waiting to be started right now, requiring funds of $1,000,000.

The largest and perhaps most important job which faces us in 1955 -- meaning by us, this whole community -- is to secure more information about the daily variation of smog over the Basin and where it comes from, in order to show more conclusively than is possible at present where added controls would produce immediate benefits. In other words, "monitoring" is essential to our continued progress. Incidentally, without monitoring, we will have no measure of the success of our combined efforts as we go along.

This major job, our 1955 Aerometric Survey, is directed entirely at our local air pollution problem and is due basically to our local peculiarities of topography and meteorology. For that reason we feel it is a job which the county, and the community it represents, should support.

We are reporting this condition to this community, because we believe you will wish to help to expedite the solution.

L. B. Hitchcock

L. B. Hitchcock,
President and Managing Director

FOUNDATION GETS UNDER WAY WITH BROAD PUBLIC INFORMATION PROGRAM

The Air Pollution Foundation this month shifted into high gear in its program of bringing to the public the full story of what the smog problem really is and what is being done about it.

Since its creation, the Foundation has followed a policy of doing first things first. This policy required scientific reviewing of all that had been done in the field by predecessors, and launching of new research projects to learn the answers to the many mysteries about air pollution.

However, as Dr. Lauren B. Hitchcock recalled in his President's Report last November, Objective No. 1 in the Foundation's list of seven original intentions was "to assemble a competent technical staff to organize and direct a broad program of cooperation, research and public information," and Objective No. 7 was "to publish current information by the most appropriate means on all phases of air pollution and its abatement."

Obviously, the technical work had to be launched with sure and firm hands first, but Dr. Hitchcock in that report drew a sketch of what was soon to follow when he said, "We believe we are now close to the time when we can help in a sound public information program."

As he has commented to numerous audiences since, "we have been doing our scientific job, but up until now we have been unable to deal with the equally important matter of human relations."

What Does The Public Want To Know?

An expanded public information staff has tested public opinion and satisfied itself that it now knows what the public wants to know.

Accordingly, an all-out drive has been started to:

1. Acquaint the public with the Foundation itself -- why it was created; who created it; why its creators felt an independent, nonprofit scientific research organization was necessary; who its contributors are; what the Foundation already has accomplished, and what it hopes to accomplish on both the short range and long range.

2. Acquaint the public with what other organizations, both private and public, have done and are doing toward smog abatement.

3. Acquaint the public with the reasons why research is necessary and why research takes time -- and why the public has everything to gain by being patient during the time that carefully thought out and carefully conducted research will take, and has everything to lose by being impatient and demanding "action first and thinking later."

Cooperation has been sought and is being pledged and activated by the traditional media of communication with the public -- press, radio and TV. The first chapter of a documentary movie has been completed, and additional chapters are being planned. A community action program is aimed at a fresh air information program stretching from San Fernando Valley to Orange County, from San Gabriel Valley to Palos Verdes.

The Press Wants To Help

On February 10, the trustees were host to the publishers and editorial executives of the Times, Examiner, Herald & Express, Mirror & Daily News and Citizen-News at luncheon at the Biltmore. Dr. Hitchcock explained the problems with which the Foundation is confronted in getting its message across to newspaper readers.

The next day, Dr. Hitchcock, assisted by Dr. W. L. Faith, APF deputy director and chief engineer, met the publishers and editors of the Los Angeles Basin's other papers, the correspondents for technical journals and radio and TV executives and newscasters, at luncheon at the Ambassador.

Both meetings were greeted enthusiastically by the guests, who during question-and-answer periods made clear that they are anxious to learn the facts themselves and anxious to assist in informing their own audiences.

Radio And Television On The APF Agenda

Radio and TV stations, too, are dedicated to the cause of informing the public, and will welcome all aid that the Foundation can give them in gathering the facts.

The Foundation is planning programs and spot announcements for these two media of communication to the public.

(As one example of the splendid cooperation we have been getting, perhaps you saw the shows the evening of February 17, on the Foundation-sponsored tests of the Houdry exhaust muffler -- KABC, KRCA and KHJ-TV.)

The Community Action Program

Community action means taking the Foundation's message out into the many individual cities and unincorporated communities of the sprawling Los Angeles Basin.

The Foundation, recognizing that one of the best means of accomplishing this objective is through a speaker's bureau, is aiming at service clubs, PTA's, women's organizations, church groups, chambers of commerce, etc.

Trained speakers are being obtained from Foundation contributors who have had years of experience in conveying their own companies' messages to the public.

They will be supplied with information kits to aid them in telling the full smog story.

The kits will contain concrete, specific suggestions which can be adopted by John Q. Public, his wife and his neighbor, in helping to reduce smog while scientists continue their research into the causes of air pollution and their hunt for new remedies. The suggestions will include tips on care of the family automobile and proper methods of backyard burning -- burning methods to be followed until a county-wide system of trash pickup and disposal is installed to end the evil of incinerators.

The kits also will contain well defined steps which can be taken by industrial plants during the same waiting period, while scientists are developing new answers to the smog problem. These recommended steps will be in conformity with rules and regulations enacted by the Los Angeles County Air Pollution Control District.

Short Range vs. Long Range

Is it possible to have two aims -- one short range, and the other long range -- and work on both at the same time?

The Foundation feels that nothing is impossible in the battle against air pollution and smog. First, we intend to establish once and for all in the public mind the Foundation's own unique identity, and second to paint the full smog picture in such sharp outline and discernable colors that it cannot be mistaken by this expanding community.

This is the goal of the Foundation's public information program.

THREE NEW TRUSTEES APPOINTED TO FOUNDATION BOARD

Three new members have been named to the APF Board of Trustees since the last NEWSLETTER, They are:

J. L. Atwood, president of North American Aviation, Inc.; Garner A. Beckett, president of Riverside Cement Co., and D. J. Russell, president of the Southern Pacific Company.

Elections took place at the Board's meeting February 3.

Atwood joined North American in 1934 as chief engineer and has served in various executive capacities since that time, being elected president in 1948. He lives at 201 Chadbourne Avenue, Los Angeles.

Beckett has held executive positions with Riverside Cement Company since 1921 and was named president in 1936. He lives at 706 N. Elm Drive, Beverly Hills.

Russell lives in San Francisco. His railroad career began in 1920 when he joined Southern Pacific in the engineering department. He has held numerous executive positions since 1934, chiefly in the company's main office at San Francisco but including two years as superintendent of the Los Angeles division. He has served as president since January 1, 1952.

Selection of the three new trustees was the first step under the recently adopted policy to enlarge the board from 21 members to 35, in order to obtain wider representation as the Foundation broadens its scope.

The 11 additional trustees, to be named in the near future, will include outstanding men in the fields of business, industry, science and education from Northern California and other sections of the nation -- in line with the Foundation's expanding program of scientific research into the causes of air pollution.

APF EXECUTIVE COMMITTEE FORMED

The Board of Trustees at its February 3 meeting approved the formation of a 9-member Executive Committee to expedite the steadily increasing work load of the board.

Trustees named to the committee were:

Dr. Raymond B. Allen, chancellor, University of California at Los Angeles, (Foundation chairman); Dr. Arnold O. Beckman, president, Beckman Instruments, Inc., (vice-chairman); James E. Shelton, president, Security-First National Bank, (treasurer.)

F. M. Banks, president, Southern California Gas Co., (public relations committee chairman); Dr. Lee A. DuBridge, president, California Institute of Technology, (research committee chairman); A. J. Gock, former chairman of the board, Bank of America, (finance committee chairman.)

Asa V. Call, president, Pacific Mutual Life Insurance Co.; Reese H. Taylor, president, Union Oil Company of California, and Fred B. Ortman, chairman of the board and president, Gladding, McBean & Co.

Dr. Lauren B. Hitchcock, president and managing director of the Foundation, will serve as an ex-officio member, and LeRoy A. Garrett, secretary to the board, will serve as committee secretary.

AMERICAN METEOROLOGICAL SOCIETY HITS BLEWETT THEORY

The president of the American Meteorological Society last month provided independent support of the Air Pollution Foundation's finding that the so-called "Blewett theory" is invalid.

Since the AMS is the national organization of meteorologists of the country, the Foundation forwarded to the Los Angeles County Board of Supervisors the full statement by the AMS president, A. F. Merewether.

Merewether's statement reached the Foundation in the form of a carbon copy of a letter he had sent from his New York headquarters to the West Coast magazine which first publicized the Blewett statement. He sent a copy to Dr. Morris Neiburger, our senior meteorologist, with permission for the Foundation to use it as the Foundation might see fit.

(Only a few days earlier, the Foundation, in reply to a formal request by the Board of Supervisors, had filed its analysis of Stephen E. Blewett's theory. The Foundation pointed out that scientific evidence shows that smog is man-made -- not a natural phenomenon, as contended by Blewett.)

Merewether said in his letter:

"I do not agree with the basic tenets of the Blewett report, that ozone and nitrous dioxide brought down from the stratosphere or off the Pacific Ocean are the cause of your smog, rather than man-made contaminants produced under an almost ideal weather and geographical setup. Air pollution is usually the result of a favorable weather condition of little wind and a low inversion, plus the introduction into the atmosphere of contaminants, such as industrial pollution, smoke, etc. The inversion acts as an impenetrable lid on top. The earth's surface prevents escape from below. If to these conditions there is added a barrier on the sides in the form of a range of mountains open only to a light wind bringing in moist air over a cool ocean, then you have the perfect setup.

"Since Los Angeles has all these, plus a highly industrialized population of some 5,000,000 people, daily pouring tremendous quantities of contaminants into this air trap, it is not at all surprising that conditions are as bad as they are."

SAN FRANCISCO WARNED OF SMOGGIER DAYS TO COME

As the San Francisco Bay Area continues to grow, its air pollution can be expected to "reach increasing levels of intolerability more and more frequently."

This warning was sounded by Dr. Lauren B. Hitchcock, February 21, at a State-wide Conference on Air Pollution Legislation conducted at San Francisco by the California State Chamber of Commerce.

"There seems little doubt from all preliminary reports that the Bay Area air pollution problem already exists, so far as can be estimated, very much like the Los Angeles problem about five years ago," the Foundation chief said.

Dr. Hitchcock emphasized that the Foundation is prepared to make its own findings available to all areas of the state which might request help in combating a growing smog problem, explaining:

"The cost of air pollution research is substantial, and duplication should be avoided so far as possible in the interest of both money and manpower.

"The job for which the Air Pollution Foundation was created does not have to be done over and over."

He recommended that the State support air pollution research through existing agencies, rather than creating new ones, and that a committee be appointed to study and recommend how air pollution fact-finding efforts in the State could best be co-ordinated. The conference voted overwhelmingly in support of both proposals.

REPORT NO. 3 OFF THE PRESS

The Foundation's scientific Report No. 3, covering the recent conference on incineration, rubbish disposal and air pollution, is now off the press. Copies have been sent to trustees, contributors and county and municipal officials. Additional copies are available at $3 each.

Chief Administrative Officer Arthur J. Will, Los Angeles County, distributed copies to members of a countywide conference called to consider ways and means of expediting collection and burial of rubbish and exiling of incinerators.

- 0 -

Also now available -- result of a second printing required by an unanticipated demand -- are copies of Report No. 2 on combustion.

Meanwhile, a second printing will be started within the next few days on Report No. 1, covering meteorology of the Basin. This report has been out of print since last July.

HOUDRY CONVERTER BEING TESTED

Newspapers, radio, TV and automotive and technical magazines have been showing a marked interest in the road tests arranged by the Foundation for the Houdry catalytic converter.

The muffler, designed by Eugene J. Houdry, who invented the catalytic cracking process for gasoline, is believed to be one of the most likely prospects for reducing hydrocarbon emissions for auto exhausts.

The tests were started this month at Southwest Research Institute, San Antonio, Texas.

Two mufflers for white gasoline are being tested on 1954 Power-Glide Chevrolets, and four for leaded gasoline are being used on a 1954 Ford V-8, a 1954 DeSoto V-8, a 1953 Buick and a 1953 Cadillac.

Each of the six Houdry-equipped autos are being subjected to 20,000-mile road tests simulating Los Angeles Basin driving conditions. At the end of each 1,000 miles, checkups are being made to determine whether the catalytic units still are functioning properly and what effects are discernable on the auto's engine.

SOMETIMES IT PAYS TO GET UP IN THE MORNING

The correspondent is Dr. S. S. Negus, chairman of the department of biochemistry, Medical College of Virginia, and director of public information for the American Association for the Advancement of Science.

His letter to the editor: "Hardly anybody takes time nowadays to commend anybody else for anything. This morning I feel like being unusual so want to congratulate you on the splendid job you are doing in editing the Air Pollution Foundation Newsletter. It is exceptionally newsworthy, well written and mimeographed neatly. I had to commend somebody this morning and you are the only one I could think of - other than my secretary who writes very neat letters."

Burt Leiper and Don Kirby, co-editors, thank S. S. Negus and his secretary for their neat commendation.

CONGRESSIONAL INTEREST IN SMOG GROWING

Russell S. McBride, the Foundation's Washington representative, this week sent copies of 14 new Congressional bills on air pollution to APF headquarters. Most of the new bills deal with providing a shorter amortization period for business firms installing control equipment, whereas most earlier bills dealt with proposals for federal research.

ELECTRICAL ENGINEERS GET SMOG LOW-DOWN

Members of the American Institute of Electrical Engineers (Basic Sciences Division) heard Dr. Hitchcock and Dr. Renzetti discuss "Smog from the Scientific Standpoint" at a meeting last February 3 at the University of Southern California.

Dr. Hitchcock described what the Foundation is measuring in the atmosphere and why, and Dr. Renzetti explained how the measurements are made.

- 0 -

On January 26, Dr. Hitchcock spoke before the Los Angeles Downtown Kiwanis Club. His topic was "Air Pollution -- A Community Problem." Simultaneously, Burt Leiper, APF Public Information Officer, was addressing the Los Angeles chapter of the Public Relations Society of America on "Building Public Understanding About the Smog Problem."

- 0 -

"Smog -- Whose Problem?" was the title of an address delivered by Dr. Hitchcock, February 9, to the Southern California Council of the State Chamber of Commerce at the Biltmore February 9.

TECHNICAL PROGRESS REPORT UPCOMING

Trustees and contributors were treated February 15 to an oral preview of the Foundation's forthcoming First Technical Progress Report at the Bank of America Building, Seventh and Flower Streets.

An audience of approximately 100 heard reports by the Foundation's team of scientists -- Dr. Lauren B. Hitchcock, Dr. W. L. Faith, Dr. Lewis H. Rogers, Dr. Nicholas A. Renzetti and Dr. Morris Neiburger, and saw the first section of the Foundation's new documentary sound film.

The report, in printed form, will be available within the next few weeks and will be mailed to all trustees and contributors. Copies will be sent also to scientists, editors and others interested in the smog abatement problem.

At the February 15 meeting, the Foundation team summarized the various sections of the full report, illustrating the points with pictures and data on slides.

OTHER COMING EVENTS

In preparation are two important Foundation documents -- Report No. 4 (Technical Progress Report) and Report No. 5 (hydrocarbon losses from the Petroleum industry in the Los Angeles Basin).

On Thursday, March 10, Dr. Hitchcock will be the speaker at the annual inspection and review of the U. S. Naval Air Reserve Training Unit at Santa Ana. Rear Admiral D. V. Gallery, chief of naval air reserve training, will inspect the complement of Commander A. L. MacCubbin, who recently became skipper of the Santa Ana lighter-than-airship training unit.

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING STREET ROOM 810
BURT LEIPER MA - 6-9441

HOLD FOR RELEASE
TUESDAY, NOV. 16, 1954
1:30 P.M.

FOUNDATION CHIEF URGES FUNDS FOR 'TOLERABLE AIR'

Hitchcock Says Temporizing, Shortcuts Spell Failure; Asks All-Out, United Front In First Annual Report

"Free as air" may be a household phrase, but it is out of date, Dr. Lauren B. Hitchcock said today as he made his first annual Progress Report as President and Managing Director of the Southern California Air Pollution Foundation.

"The air is no longer free in the Los Angeles Basin. The supply is limited," he told contributors, founders, and trustees for the Foundation who attended the Foundation's first birthday luncheon at the Ambassador Hotel.

"How much is tolerable air worth to people in the Basin?" he asked.

Proposing a research program for 1955 which would cost an estimated $1,800,000, the Foundation leader cautioned that the eventual cost may be comparable to other indispensable services, such as potable water, the sewage system, the harbor, and the freeways.

He placed the responsibility for tolerable air at the doors of industry and the public itself. The auto industry and the oil industry, who contribute to the Foundation, were reminded of their continuing responsibility. But the contribution to smog and air pollution of industry, substantial as it is, is about one-half of that from the public itself - from its automobiles and incinerators, he said.

"We in the Foundation are here," he said, "because we believe this job can be done. But a five-man scientific team can't do it alone. The Air Pollution Control District can't do it alone. Government can't do it alone. Citizens' committees can't do it alone. The problem is still with you because you temporized, because you hoped for shortcuts - and all this spells failure.

HITCHCOCK REPORT II

Hitchcock said the Foundation is tackling in a pioneering phase one of the biggest social problems man has yet encountered. He said the problem can be licked and a solution is possible, but not on a part-time basis.

Dr. Hitchcock said: "It became obvious to us some months ago that one of the most controversial and possibly significant sources of pollution in this Basin was the emission of hydrocarbons from our refineries. We made up our minds that an absolutely independent audit should be made. A nation-wide search by the Foundation resulted in the choice of the Southwest Research Institute of San Antonio, Texas, as a competent and impartial auditor. Under the direction of Dr. Judson Swearingen, a recognized authority who has never been in the employ of any petroleum company, a personal and physical check of all hydrocarbon losses was made in all of the major refineries in this Basin and in typical small independent refineries.

"Hundreds of samples were collected by the Institute and analyzed under their supervision. Capacities of storage tanks and characteristics of other equipment were determined independently by them. We believe our survey has been more thorough than those made by the petroleum refineries themselves."

The total hydrocarbon emission to the atmosphere as determined by the Institute was 251 tons a day as compared to the 224 tons-per-day loss reported by the Western Oil and Gas Association to the Stanford Research Institute. The difference between the losses of 251 and 224 tons is believed to be within the error to be expected from this type of estimate. Olefins, a more reactive form of hydrocarbons, included in these totals, were reported at 16.4 tons, compared with 12.2 tons reported by the Association.

The audit covered nine major and eleven independent companies in Los Angeles County. It included personal inspection of oil fields producing 52 percent of the County's output, refineries possessing 95 percent of the County's refining capacity and all bulk and marine terminals.

The Institute examined plant records, interviewed technical personnel, inspected facilities and collected and analyzed samples.

The Foundation President said further that it is beginning to appear that the contribution of pollution from industry, substantial as it is, is about half the contribution of the public itself through its automobiles and incinerators.

Basing his figures on the consumption of gasoline in the Los Angeles Basin, he said: "It is a matter of simple arithmetic to calculate that unburned gasoline from the exhaust pipe contributes about 1,000 tons per day of hydrocarbons, plus about 300 tons of organic acids and aldehydes, oxides of nitrogen and sulfur.

"This is not a matter of opinion," he added. "The automotive industry recognizes the automobile as the largest single source of hydrocarbons in our atmosphere. Competent scientific evidence is mounting to show that auto exhaust gases in the concentrations found in our atmosphere are capable of forming ozone and may be considered as a definite source of smog."

Hitchcock said further confirmation is needed in order to reach substantial agreement by all concerned on the cause-and-effect relationship between these various exhaust pollutants and the formation of smog. He said this research is an important part of the Foundation's 1955 program.

The Foundation President announced a contract with Battelle Memorial Institute in Columbus, Ohio, to study the composition of emissions from backyard incinerators. The purpose is to discover what and how much is emitted by different types of operation. Present findings do not agree. A Foundation conference on incineration, rubbish disposal and air pollution will be attended by national experts in Pasadena on December 2 and 3.

Dr. Fred D. Fagg, Jr., Chairman of the Foundation's Board of Trustees and President of the University of Southern California, reviewed the history of the Foundation since 140 citizens gathered at the same hotel one year ago.

It was on November 23, 1953, that the Board held its first meeting following its incorporation as an independent, non-profit scientific organization.

Hitchcock presented a program for the coming twelve-month period which amounts to $1,600,000 for research and totals $1,800,000 including operating expenses.

He said it is obvious that a program of such size would be possible only if supported largely by the County and the State. The Foundation, he explained, will seek $750,000 from its own supporters.

"We assume," he added, "that the County of Los Angeles, the State of California, with the Foundation, will find ways and means of carrying out this very necessary program."

He said that it is going to take the concentrated effort of industry, government and private agencies on a scale more comparable to wartime effort than typical peacetime civic welfare movements to develop practical, workable remedies. The Foundation, he said, is in an excellent position to catalyze this effort, contributing only so much of its own research as would stimulate and guide those who have the basic responsibility and the large resources.

"Look ahead two years -- four years -- or even six years," he cautioned. Using the Foundation's own statistical estimates, Hitchcock predicted a Basin population in 1960 of 6,200,000 persons, nearly 3,000,000 motor vehicles burning 18,000 tons of gasoline a day, 1,860,000 incinerators burning 6,200 tons of rubbish per day.

"Why go on?" the speaker asked. "How much worse does it have to get? How intolerable does our atmosphere have to get before enough people say 'this is the limit; I've had enough?' Is this community going to wait until that time comes (if it has not come already) to stop wrangling and criticizing each other, and unite behind a well-organized, large-scale attack on this problem?"

Turning to the Foundation's new and continuing program, Hitchcock said it is a minimum research plan, that anything less is temporizing a "community necessity above politics or any private interest."

If we start an all-out effort now, he continued, we may hope to have tolerable air in five years and relief perhaps sooner.

Hitchcock reported that his scientific task force was complete on May 1. In the past six months, more than thirty projects have been activated. These will have cost the Foundation about a half million dollars by the end of December. The most important of these is the Aerometric Survey, the objective of which is to sample the atmosphere at strategic points in the Basin and measure the formation, composition and movement of smog. He said many improvements have been made in the tools and methods and recommends a Summer and Fall survey for 1955, at a cost of $ 566,550.

He said that altogether, more than 100,000 measurements will have been made in this study by December 1. Hitchcock then demonstrated with charts a part of the findings of the Aerometric survey. He selected two of the smoggiest days of the Summer and Fall, September 24 and October 14, as compared with a pleasant day, October 25. This, he said, is only "two one-hundredths of one percent of the data to be included in the entire study."

Two stations chosen for comparison were downtown and Pasadena. The inversion height on the two smoggy days was about 500 feet; on October 25, it was 6,500 feet, or thirteen times as much volume in which the air pollution could disperse.

He demonstrated that the manifestations of smog are very different in different parts of the Los Angeles Basin. Plant damage downtown, for instance, may be slight while at other stations it is severe on the same day. Oxidant values are often the same at such times. Eye irritation reports in Pasadena, even on the day of little or no smog, were heavier than those downtown. Plant damage on September 24 was nearly twice that on October 14 (Black Thursday) in the downtown

Hydrocarbons have varied from close to zero up to 1.6 parts per million downtown and up to four-tenths part per million in Pasadena.

Aldehydes (oxidation product of hydrocarbon) as well as nitrogen dioxide, products of most combustion, have reached concentrations of seven-tenths part per million downtown.

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION

List of Contributors

American Airlines
American Motors Corporation
American Potash & Chemical Corporation
Associated Brick Mfgrs. of So. Calif.
Atchison, Topeka & Santa Fe Railway
Bank of America
Bankline Oil Company
Barker Bros. Corporation
Bechtel Corporation
Bendix Aviation Corporation
Bethlehem-Pacific Coast Steel Corporation
Beverly Hills Hotel
Braun, C. F., & Company
Broadway-Hale Stores, Inc.
Bullocks, Inc.
California Bank
California Exploration Company
California Southern Oil Company
Canadian Bank of Commerce
Chanslor-Western Oil & Development Co.
Checker Cab Manufacturers Corporation
Chrysler Corporation
Citizens Nat'l. Trust & Savings Bank of L.A.
Coldwell, Banker & Company
Columbia-Geneva Steel Div. & Consolidated Western Steel Div., U. S. Steel Corp.
Cooper Precision Products
Department of Water & Power
Desmonds, Inc.
Diamond T Motor Car Company
Disco Corporation
Duplex Truck Company
du Pont de Nemours, E. I. & Company, Inc.
E. & M. Oil Company
Elliott, D. W.
Ethyl Corporation
Farmers & Merchants Nat'l. Bank of L. A.
Fletcher Oil Company
Flexible Company
Flintridge China Company
Fluor Corporation
Ford Motor Company
Franco Western Oil Company
Fullerton Oil Company
General Motors Corporation
General Petroleum Corporation
Gladding McBean & Company
Gough Industries, Inc.
Graybar Electric Company
Griffith Company
Hancock Chemical Company
Havenstrite Oil Company
Hollywood Turf Club
Humble Oil & Refining Company
Hycon Manufacturing Company
Hydro-Aire, Inc.
Industrial Indemnity Company
International Harvester Company
Kaiser Motors Corporation
Kaiser Steel Corporation
Kern County Land Company
Kern Oil Company, Ltd.
Lloyd Corporation
Lockheed Aircraft Corporation
Long, Harry C.
Los Angeles County
Los Angeles Examiner
Los Angeles Herald & Express
Los Angeles Mirror
Los Angeles Times
Los Angeles Turf Club
Mack Trucks, Inc.
May Company
McCullough, I. T.
Merritt Annex Oil Company
Montecal Oil Company
Murvale Oil Company
National Oil Company
National Trust & Savings Association
North American Aviation, Inc.
Northrop Aircraft, Inc.
Ohio Oil Company
Ojai Oil Company
Pacific Clay Products
Pacific Mutual Life Insurance Company
Pacific Telephone & Telegraph Company
Pathfinder Oil Company
Peterbilt Motors Company
Petroleum Midway Company
Porter, B. J. Estate
Prudential Insurance Co. of America, The
Radioplane Company
Reo Motors Inc.
Reserve Oil & Gas Company
Richfield Oil Corporation
Riverside Steel Construction
Robinson, J. W. Company
Rowan, R. A. & Company
Schlitz Brewery Company
Sears Roebuck & Company

Security-First National Bank of L. A.
Shell Oil Company
Southern California Edison Company
Southern California Gas Company
Southern California Petroleum Corp.
Southern Counties Gas Company
Southern Pacific Company
Southern Pipe & Casing Company
Standard Oil Company of California
Studebaker-Packard Company
Sunray Oil Corporation
Taylor-Spotswood of California
Texas Company, The
Tide Water Associated Oil Company
Transco Products, Inc.
Twin Coach Company
Union Bank & Trust Company of L. A.
Union Oil Company of California
Union Pacific Railroad Company
United Air Lines
U. S. Royalty Oil Corporation
Walter Motor Truck Company
Weber Butler Oil Company
Western Gulf Oil Company
White Motor Company
Wilshire Oil Company

November 10, 1954
g

~~H. R. Stewart~~
2) B. Vonnegut

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING STREET ROOM 810
BURT LEIPER MA - 6-9441

HOLD FOR RELEASE DATE
EXPECTED TUESDAY, NOV.16,1954
CHECK FOR UPDATING ON LOS ANGELES SUPERVISORS' MEETING ABOVE DATE

FOUNDATION SMOG PROGRAM INCLUDES STOP-GAP MEASURES

The Southern California Air Pollution Foundation, in response to a request from Herbert C. Legg, Chairman Pro Tem of the County Board of Supervisors, has submitted a strongly reinforced and expanded research program aimed at combatting smog both on an emergency and long-range basis in 1955.

The program, submitted to the Board today (Tuesday, Nov. 16, 1954) combines highly practical research with basic research. It proposes a combination of manpower, resources and facilities of the County of Los Angeles, the Southern California Air Pollution Foundation, the State of California, and the United States Government.

Unprecedented in scope and in its over-all approach, it would cost an estimated $2,214,400.

"We are well aware that the total estimated cost is a large figure in comparison to what has been spent before," said Dr. Hitchcock, "but the state of our knowledge has reached the point where we can realistically assess the magnitude of our problem."

The proposed program offers the study and development of stop-gap, emergency action during the coming year. It includes the continuing search for better scientific tools, clearer identification of the contributors and contaminants identified with smog in the Los Angeles Basin.

It extends important research vigorously into significant fields which are either suspect or hopefully remedial.

It includes a study of the economics and feasibility of using non-leaded (white) gasoline in a catalytic converter for the auto exhaust.

It considers the more difficult task of developing a converter for use with leaded (presently-used) gasoline. It would explore the possibility of a blend of synthetic alcohol and gasoline as automotive fuel.

The feasible use of liquefied petroleum gas,or LPG, as an alternate fuel is proposed in one project. Limiting the use of motor vehicles somewhat as in World War Two, would not be overlooked, nor would the control of so-called "smokers," that is, autos which are emitting obvious fumes.

These are samples of the stop-gap program, a program which Hitchcock explained is the result of the evaluation by the five-man scientific team in the fields of engineering, chemistry, physics and meteorology; the result of a nation-wide acquaintance with other scientists in their respective fields; the ability of the Foundation to hire and consult with the country's leading authorities; the benefit of having the counsel of local scientists and the Los Angeles County Air Pollution Control District.

Dr. Hitchcock further explains that the public "should be told frankly and honestly that we have no reason to expect any significant relief for at least five years unless, unless we get united public support behind remedies which are suggested."

He emphasized that stop-gap procedures should be given close scientific examination because of the increasing probability that more desirable ultimate solutions may take several years.

The suggested support for the program is defined broadly as follows:

Southern California Air Pollution Foundation	$ 702,350
Los Angeles County	986,550
State of California	435,500
Federal Government	90,000
	$2,214,400

The program is endorsed by the research committee of the Foundation, including Dr. Lee A. DuBridge, President of the California Institute of Technology, Chairman; Dr. Raymond B. Allen, Chancellor, University of California at Los Angeles; Mr. F. M. Banks, President, Southern California Gas Company, and Dr. Arnold O. Beckman, President, Beckman Instruments, Inc.

In a letter to Supervisor Legg, Dr. Hitchcock said: "We believe all the listed projects are important and would not wish the order of listing to be given particular significance. We have placed certain speed-up programs first because they may offer earliest possible hope of relief on important pollution sources. Certain projects are suggested as appropriate for support by the County, State, or Federal Government. Support will be welcomed from any and all sources. We have submitted this program in direct response to your request, without consideration for the moment as to where the work will be done. It is obvious that a program of this size will be possible only if supported largely by County and State. The Foundation will continue to do all it possibly can with funds it can derive from private sources."

****

(Note: See Research Background Information Attached)

SOUTHERN CALIFORNIA AIR
POLLUTION FOUNDATION

HOLD FOR RELEASE DATE EXPECTED TUESDAY NOV. 16, 1954 - CHECK FOR UPDATING ON LOS ANGELES SUPERVISORS' MEETING ABOVE DATE

BACKGROUND FOR TWELVE-MONTH RESEARCH PROGRAM

While this is the biggest research program ever drawn up by anyone for the Los Angeles air pollution problem, it does not seek "bigness" for the sake of the word. On the basis of presently known facts and their relationship to the unknown, it could be three times as big. The expenditure of two and one-fourth million dollars represents less than one cent a week for every person in the Los Angeles Basin. The population of the Basin is more than 5,000,000 persons.

Every project is the result of careful study by our five specialists in chemistry, physics, engineering and meteorology. All available information has been assembled and evaluated. Never before has a team made such a concentrated and complete study with the sole purpose of developing at this stage a research program on smog and air pollution. This is the program with Foundation comments: (Note emphasis on words "feasibility" and "economic")

I. Feasibility & Economic Studies of 'Stop-Gap' Procedures

a. Development of Catalytic Converter for Auto Exhaust

1. Non-leaded (White) Gasoline
2. Leaded Gasoline $200,000

COMMENT: The much talked-about catalytic converter is successful on lift trucks in a warehouse, where carbon monoxide must be prevented. Now we must consider whether this can be adapted to an auto running on white gasoline; whether enough white gas can be provided without resorting to the extra boost by tetraethyl lead. We also recommend investigation of the development of a catalytic converter to work on our present leaded gasoline. The difficulties here are more complex. The stop-gap procedure is not as quick as for white gas.

b. Development of Alternate Fuels

1. Alcohol Blends $100,000

COMMENT: We suggest looking into the development of alternate fuels. A blend of synthetic alcohol with gasoline, for instance. Alcohol is made by a number of refineries. If necessary, most could install synthetic alcohol equipment which synthesizes alcohol from hydrocarbons. It has been claimed that fifteen percent of alcohol in gasoline improves combustion. Our first job would be to test this claim, or find out if other blends make a significant difference.

2. LPG $100,000

COMMENT: Liquefied petroleum gas or its equivalent was recommended in the Beckman report for trucks and buses. Evidence so far indicates LPG has a very clean exhaust. To use it on autos we would replace our carburetors with a simple injection system, with a high pressure storage tank and a high pressure fuel line to the engine. There is some apprehension about the dangers of autos carrying high-pressure cylinders. LPG is an established industry for home use. We propose investigation of the feasibility and economics of installing such a tank in the auto, surrounding it and protecting it as necessary.

c. Limiting Use of Motor Vehicles $10,000
d. Control of Excessive Fumes from 'Smokers' $10,000

COMMENT: These are more questions of sociology and government rather than research. During World War Two many drivers were limited to about two gallons of gasoline per week. We suffer from congested highways and a polluted atmosphere due to stagnant auto exhaust. We average less than 1.1 passengers per car. Cars are constantly boosting their horsepower. With one passenger per car, this is a waste of fuel and materials. As a stop-gap procedure, controlled or limited driving could reduce the number of cars on the highway about seventy-five percent. This is the world's richest car market with the highest per capita consumption of gasoline. A seventy-five percent reduction in auto travel might further stimulate industrial effort to eliminate pollution. Perhaps it would cut the three-to-five year estimate for improvement of the smog situation.

Ten thousand dollars may not be necessary for specific recommendations to stop the driving of automobiles which give off excessive fumes. The rule for proper maintenance could apply to trucks and buses too.

This entire first program for stop-gap measures recognizes the public need for emergency action. It is particularly appropriate for direct support by the County. The total cost: $420,000.

II. Development of Exhaust Control Methods

a. Oxidation of Auto Exhaust $75,000

COMMENT: This entire second program is directed largely at auto exhaust control methods, but of a longer range and with more thorough development. Under the oxidation program we would study the various catalysts to determine which is most efficient, test various designs and shapes to determine what temperatures are reached under prolonged operation, what metals can be used. All these basic things are still completely unknown.

b. Evaluation of Proposed Devices $75,000

COMMENT. A number of devices have been proposed by Houdry, Clayton and others. Even though designed and built without the benefit of fundamental data, it is possible some of these devices could help. A setup is needed to thoroughly test them under all road and traffic conditions.

c. Methods of Testing and Inspection $50,000

COMMENT: The converter would be of no use without methods of inspection. This might be a simple instrument available at all filling stations that would test the exhaust gases, just as you test your battery or tires. But this must be developed, or in no time at all nobody would know whether they were working or not.

d. Coordination with auto industry $25,000

COMMENT: A much closer coordination is necessary with the auto industry people. This would cover travel, conferences and related costs.

III. Control of Hydrocarbon Losses During Distribution

a. Filling Large Tanks $ 25,000

COMMENT: It may take a lot less than $25,000 to follow up and complete this control device which the newspapers report some of the local refineries are already doing. We don't know how well these devices to prevent fuel losses during the filling of large tanks will work. Nor do we know how soon they will be installed on all tank-filling operations.

b. Filling Vehicle Tanks $ 25,000

COMMENT: We have no evidence that such a device has been developed as yet. Most of the gasoline distrubuted in the County of Los Angeles is actually handled by some 8,000 independent dealers and not by the refineries at all. Continued control of hydrocarbon losses during marketing and distribution involves working closely with the petroleum industry and others. So we come to the last part of Program 3.

c. Coordination with Petroleum Industry and Dealers $ 5,000

IV. Determination of Smog-forming Potential of Various Pollution Sources

Large test chamber experiments working with actual pollutants, instead of synthetic mixtures; studying Los Angeles smog under controllable conditions.

Total $250,000

COMMENT: We would prefer to experiment with the entire Los Angeles Basin. This is impossible as we cannot control the weather. In Operation Pilot Plant we could control the temperature, wind, humidity, concentration of pollutants, the amount of light, etc. In a large chamber of special construction, perhaps as big as an airplane hanger, we could supply straight auto exhaust at one time, backyard incinerator smoke at another, hydrocarbons at another, then mixtures of two or more of these pollutants. We could find accurate answers to such questions as: "Does auto exhaust actually form smog?" or "What would be the effect of closing down the refineries, stopping all incinerators or keeping all cars off the roads?" Two years with this operation, whatever the cost, would be time and money saved in trying futile experiments on the whole Basin itself. Operation Pilot Plant is a natural for the University of California, with the main installation probably built at Riverside, with the help of experts from faculties at other campuses and perhaps some of the work carried on at other University of California campuses. Because its operation would increase understanding of air pollution problems in the San Francisco Bay Area, in San Diego and other cities, it is a good State project.

V. Economic and Fact-Finding Study of Public Transportation as One Possible Form of Relief (in cooperation with existing agencies and specialists)

Total $10,000

COMMENT: We probably need a great deal of information on various public transportation systems, their pros and cons. Here, we recommend only research with existing authorities and transportation experts to assess the advantage each method would offer to reduce air pollution. We have in mind cooperative studies with existing authorities such as the Los Angeles Transit Lines, Metropolitan Coach Lines, the Regional Planning Board and other such groups. It is obvious that trackless trolleys would provide rapid transit with no contribution to air pollution. What are the pros and cons of using them here? What improvement might come from using buses, even of the diesel or LPG types, or some type of petroleum fuel operation? It would mean fewer automobiles, providing the bus system is fast enough and good enough at a price the public can afford. We have the lowest per capita public transportation in the nation, less than the so-called motor capital of Detroit.

VI. Establish and Operate First-Class Public Information Bureau (Using all Media)

Cost not estimated

COMMENT: Those close to the air pollution problem agree that a first-class public information service should be organized and started by the best talent available in the country. It is not surprising if the citizens of Los Angeles County have a confused picture of the smog problem. While there is much we don't know about smog, there are some definite facts which have not been made clear to the public. We should inform them fully as to all that is really known and what we are trying to find out. The only way to do this is to use all media on a continuous basis. Random or spotty articles in the paper, a few minutes here and there on radio or television do not inform the public. Distortions become nation and world-wide. Photographs of a luncheon club wearing gas masks distort the situation, are bad publicity. Well-intentioned people, on the other hand, lead the public to expect relief next month or just around the corner. The public information and education service should be rendered by a completely objective impartial body, above political or selfish interest. Perhaps the Foundation or the Los Angeles Chamber of Commerce could do it, separately or in cooperation. Such an operation might be financed by the County.

VII. Research on Combustion Products

a. Composition of Auto Exhaust	$37,850
b. Composition of Incinerator Gases	$25,000
Total	$62,850

COMMENT: Neither of these fumes have been properly and sufficiently tested yet by anyone, although we have some information on auto exhaust composition.

The Foundation placed a project months ago at Midwest Research Institute in Kansas City on auto exhaust composition. This probably will take at least another year to complete. We have just placed a study on incinerator gases with the Battelle Institute in Columbus. We are underwriting these studies ourselves and will report to the public as soon as possible.

VIII. Feasibility and Economic Studies on Disposal of Refuse Without Burning

Total	$ 25,000

COMMENT: We have called a conference of national experts on December 2 and 3 which will do much to bring out the pros and cons of rubbish disposal by various means. As a result, we may recommend disposal of refuse by other means than burning in incinerators. Most ideal solution probably would be to haul the refuse away for use as landfill. It has been said there are enough badlands, ravines and marginal lands within economic radius of the metropolitan district to take care of burial of refuse for many years. Meantime, it could be possible to design, build and put into service some really efficient municipal incinerators, in order to have them available before the rubbish cemeteries are filled.

IX. Measurement of Pollutants, Reaction Products, and Other Factors in Our Environment Which, Separately or in Combination May Be Responsible for Smog

a.	Air Tracer Survey	$ 30,000
b.	Visibility	2,000
c.	Interpretation of 1954 Aerometric Survey	25,000
d.	Aerometric Survey, Winter-Spring, 1954-55	25,000
e.	Aerometric Survey, Summer-Fall, 1955	566,550
f.	Area Distribution of Sources of Air Pollutants	50,000
	Total	$698,550

COMMENT: Part of this program is already intensively underway. Further air tracer and visibility studies are needed. When we interpret and evaluate the results of the 1954 survey, we will be in position to conduct a still more effective survey next year, including an area distribution of sources of air pollutants, in which we would determine the quantities and sources more accurately. We must study our environment so we know what we are dealing with. We cannot control something unless we know what it is. Our atmosphere probably contains hundreds of pollutants and we know a little about a few of them.

We are recommending that the Aerometric Survey continue to be supported by the County. The Foundation will undertake the other five items.

X. Methods of Measurement

a.	Mass Spectrometer Studies	$ 50,000 *
b.	Development of an Automatic No 2 Instrument	2,500
c.	Development of Infrared Techniques	10,000 *
d.	Application of Non-Dispersive Infrared Analyzer for Carbon Monoxide	5,000
e.	Feasibility Study for Automatic Continuous Measurement of Olefins, Acids and Aldehydes	2,000
f.	Use of Microwave Spectra for Identification of Smog Constituents	33,000 *
g.	Continuous Measurements of Atmospheric Ozone by Spectrographic Method	20,000 *
h.	Paramagnetic Resonance Studies	27,500 *
i.	Nuclear Magnetic Resonance	35,000 *
	Total	$ 195,000

* Could well be supported by the State.

COMMENT: So far, in all air pollution work we have been working with tools comparable to the axe and the sledge hammer of pioneer days. We have selected carefully a list of the greatest needs for scientific tools, both for methods of measurement and instruments. They compare to the development of saws, planes, drills, levels and all the modern tools with which no builder would attempt anything in this modern world. We are trying to build something very important, at the same time seriously handicapped for tools. All scientists in the nation concerned with air pollution recognize this vital need. Much of this work could be done in the laboratories of the University of California and neighboring universities.

XI. Fundamental Research in Physics, Meteorology and Chemistry

a.	Inversion Modification Studies	$ 5,000
b.	Development of Machine Methods for Computing Wind Trajectories	25,000 F
c.	Smog-forming Reactions	126,000
d.	Review of Literature on Photochemical Reactions in Polluted Atmospheres	7,000
e.	Photochemical Studies	30,000
f.	Nature of Reactants with Neutral Buffered Potassium Iodide and Phenolphthalin	10,000
g.	Study of Carbon Isotopes In L. A. Atmosphere	5,000
	In General	10,000 F
h.	Measurement Composition and Mechanism of Formation of Aerosols	30,000 F
i	Absorption Spectra of Gaseous Atmospheric Pollutants	25,000 F
	Total	$273,000
	Total F (Federal support)	$ 90,000

COMMENT: Just as in measurements and instrumentation, we need more basic scientific knowledge bearing directly on air pollution. If we had the answers which these projects seek now, we would be in a very much better position to diagnose and prescribe. The total of $273,000 among nine specific projects is the result of competent scientific judgement, on our own team and from the counsel of those we have enlisted in our cause.

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING ST. ROOM 810
BURT LEIPER MADISON 6-9441

FOR RELEASE
SEPT. 29, 1954
WEDS. AM's & THEREAFTER

FOUNDATION SETS NIGHTTIME TRAP FOR CLUE TO SMOG

The Southern California Air Pollution Foundation is trapping night air in the Los Angeles Basin, subjecting it to artificial sunlight, then "dissecting" it chemically in the hope of determining the culprits responsible for smog.

The Foundation today announced a $126,000 contract with the Stanford Research Institute for this scientific inquiry after sundown. The contract is authorized for one year and will consist of five man-years of scientific effort.

A Foundation spokesman describes the purpose of this project as follows:

"Night air, which does not exhibit smog manifestations, will be subjected to artificial sunlight. In the past, such treatment has made the air smoggy. Different classes of chemicals then will be removed, one at a time, from this smoggy air. Then the air will be re-tested to see if it still produces smog effects. By this type of detective work, it is hoped the chemical culprits responsible for smog will be identified."

Dr. Fred Littman of the Stanford institute, whose pioneering work in air research is widely recognized, will conduct the experiments. SRI has had extensive experience in the studies of the atmosphere and its contaminants.

Dr. Lewis H. Rogers, Senior Chemist of the Foundation, is the project leader.

The objective is to determine the "parent substances" for smog. Under ideal conditions, contaminants would blow out of the basin during the late hours of the day and night. Because of sluggish wind conditions, this ventilation frequently does not occur. When the sun rises, the smog cloud is apt to appear simultaneously far inside the basin and in downtown Los Angeles.

"Going on the assumption that something in the Los Angeles air combines under the action of the sun to cause eye irritation and plant damage," said Dr. Rogers, "we also assume this 'something' is unstable, which, to all intents, disappears at night."

Dr. Littman further explains that the cause or causes of smog could be present much of the time, but due to their instability and minute concentration are difficult to analyse by conventional methods. Plant damage tests will be conducted and humans will be subjected to this nighttime smoggy air for fifteen minutes to a half hour at a time. Past experiments show eye irritation will usually come in the first fifteen minutes.

##

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING STREET ROOM 810
BURT LEIPER MADISON 6-9441

RELEASE DATE
SEPT. 8 AFTERNOON PAPERS
AND THEREAFTER

The U. S. Navy's lighter-than-air squadrons are patrolling the skies of the Los Angeles Basin for the purpose of determining the concentration, altitude and frequency of the contaminants blamed for smog in this region. The assistance of the Navy was secured upon recommendations of Charles S. Thomas, Secretary of the Navy.

The smog patrol is in addition to the routine training maneuvers of the U. S. Naval Air Reserve Training Unit at Santa Ana. Commander W. R. Peeler, USN, schedules flights in cooperation with the scientists of the Southern California Air Pollution Foundation. On specified days, when the winds are most sluggish, when the inversion layer is low, when conditions are most "favorable" for smog -- that is when the smog-sampling flight is added to the regulation patrol of Commander Peeler's airship squadrons. These blimp flights will continue through the month of November, in coordination with the overall ground and upper winds project now underway by the Foundation. This is another important leg of the Aerometric Survey.

Questions which the Foundation is asking on its Navy patrols through the Basin are these:

Do these contaminants, such as ozone and nitrogen dioxide, have a maximum concentration from the ground up to the base of the inversion, then decrease rapidly from the base of the inversion upward?

Or, to put it another way: Do the oxidants, or pollution formed by the action of the sun on the waste products of gasoline, auto exhausts and industry, show a marked decline above that temperature ceiling which locks contamination in the Basin?

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING ST. ROOM 810
BURT LEIPER MADISON 6-9441

RELEASE DATE
SEPTEMBER 8 AFTERNOON
PAPERS OR THEREAFTER

Is nitrogen dioxide in the air we breathe strictly a product of combustion engines; is there some other chemical or meteorological answer?

The log of a typical flight is as follows:

At 10 a.m. in the ready room at the Santa Ana base, Commander Peeler receives a report on the height of the inversion base, on visibility and wind conditions. A naval reserve unit is prepared to make the flight. In this case, Lieutenant Commanders James V. Priest of San Marino and Royal A. Lett, Jr., of Garden Grove are the pilots. Members of the crew are Donald L. Cameron of Westminster; Joseph W. Perry, Norwalk, Bob L. Cavness, Whiting, Indiana, and Lyle C. Miller, Corona Del Mar.

Foundation consultant on this flight is Dr. Morris Neiburger, senior meteorologist. Taking samples for this particular cruise is Maurice Ballas of the Truesdail Laboratories of Los Angeles. Dr. L. H. Rogers, Foundation's senior chemist, alternates with Dr. Neiburger.

"Our sampling flight pattern," says Dr. Neiburger, "is from Santa Ana out over the Los Angeles Harbor, then north to Dominguez, where we have a ground station. With the permission of the Civil Aeronautics Authority, we fly just below the airways.

"At 500 feet, over Dominguez, we take our first samples of oxidants and nitrogen oxides. The blimp is particularly apt for this purpose because of its ability to fly slowly and at low levels. Samples are taken over a relatively small area in the vicinity of the ground stations. Samples have been taken by air before, but not over a systematic period and location and with the frequency we contemplate.

"Each sample requires about seven minutes. A signal to the pilots and we rise to about 1,000 feet for our second sampling below the inversion layer.

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING STREET ROOM 810
BURT LEIPER MADISON 6-9441

RELEASE DATE
SEPTEMBER 8 AFTERNOON
PAPERS OR THEREAFTER

Then to 3,000 feet, where, on this particular flight we broke through the smog and haze where visibility was perfect.

"A sampling at 3,000 feet and then we set our aerial compass directly north on Figueroa Street for the downtown area. Our arrival over our downtown station, near City Hall and the Freeway "cloverleaf" is shortly before noon.

"Here, samples are taken in reverse order: at 3,000 feet, at 1,000 feet and at 500 feet.

"Then the blimp begins a series of up-and-down trips so we can determine the slope of the inversion layer from downtown to the ocean. Using Venice Boulevard as our marker, the blimp heads for the city of Venice. During each dip and each rise, we record time, temperature and humidity, which helps to fix the height of the base of the inversion layer."

From Venice, the Naval squadron carries out its routine training maneuvers. This particular day's smog mission has been completed. In two months or so, interpretation of data should be possible, Dr. Neiburger said. Findings will be related to the chemical and other observations and tests along the surface of the basin -- a part of the Summer and Fall program of the Southern California Air Pollution Foundation -- this part made possible by the U.S. Navy's lighter-than-air ships.

-0-

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING ST. ROOM 810
BURT LEIPER MADISON 6-9441

IMMEDIATE RELEASE

FOUNDATION ASKS QUESTION:

"WHAT IS AUTO EXHAUST"

The Southern California Air Pollution Foundation is asking the question: "What, exactly, is the makeup, or composition, of auto exhaust?"

The Foundation, granting that an exact chemical answer may never be found to this question, is placing the order for an alternative if such is found to be necessary. The order: to narrow the field of identification of components of that auto exhaust; to assess the evidence which, to a major degree, points the finger of responsibility for smog on the auto exhaust.

The Foundation anticipates many steps in seeking the answers; it is weighing the evidence on hand. It is making an independent check by contracting for the services of the Midwest Research Institute in Kansas City, Missouri. Chemists, mechanical engineers and plant pathologists, altogether a group of scientists at MRI whose combination of personnel has been selected by the Foundation as competent for the attempted task, will make this check on auto exhaust composition.

Dr. W. L. Faith, Deputy Director and Chief Engineer for the Foundation, announces the signing of a $37,850 contract with the Kansas City institute. This particular research, the first announced out-of-state project for the Foundation, initiates a much larger program concerned with the contribution of combustion to impurities in the Los Angeles air.

Dr. Faith said:

"We have very little information, actually, on composition of the auto exhausts. To a major degree we do have circumstantial evidence which points the finger directly at the exhaust as being responsible for smog, but we haven't the proof.

"Someone must develop better methods for analyzing exhaust gases under various conditions. We may never find out, chemically speaking, exactly which molecules of the auto exhaust lead to smog. If we find out, however, that certain parts of the exhaust gases are responsible, then we can go ahead with a program aimed at solution of the problem."

"Assuming that some material in the exhaust does cause our eyes to smart, that is does damage our plants and cut down our visibility, then we still must find the means to a device which reduces or remedies this problem."

"That is why the need still exists," Dr. Faith said, "for an independent check on the makeup of auto exhaust gases." He added that this is one purpose for the Foundation's August Conference on Vehicle Combustion Products and Other Emissions: to determine what industrial engineers know about the composition of these gases."

The August Conference will be clinical and technical, a concentration of scientific and industrial knowledge, men free to speak their minds at closed panel sessions at The Huntington-Sheraton in Pasadena on August 19, 20 and 21. Experts from all parts of the nation will study composition, analysis, the effects of fuels and additives, the engineering designs and devices, the chemical reactions in polluted atmospheres.

While this closed, clinical session is in progress, other experts will be working in Kansas City on the same problem. They will make use of test plants, plants which are excellent indicators of smog. They will use the pinto bean. They will subject this plant to combinations of auto exhaust and ozone, that high oxident content which is suspect in the atmosphere of the Los Angeles Basin.

They will probably take their samples from automobile engines operating under actual road conditions. One engine will be in excellent mechanical condition; another will have been driven upwards of 100,000 miles. Samples will be collected from engines at normal cruising speed, decelerating, idling. Gasolines will be used which contain additives; others will be free of additives.

Some of the methods will not be new. For instance, exhaust gases will be separated into classes, physically and chemically, for a lead as to the type of material causing plant damage. The theory: perhaps all classes of gas within that exhaust cause plant damage; perhaps only one. This is similar to work done previously by Dr. A. G. Haagen-Smit of the California Institute of Technology. There is a difference, however. Haagen-Smit's work was done with gasoline. The Midwest Research Institute will use fractions of auto exhaust instead of fractions of gasoline.

SOUTHERN CALIFORNIA AIR POLLUTION FOUNDATION
704 SOUTH SPRING ST. ROOM 810
BURT LEIPER MA-6-9441

RELEASE AUG.9 A.MS

'WORLD'S BIGGEST AIR

LABORATORY' TEST BEGINS

Smog is a criminal with many disguises. There are many suspects and many clues to its identity.

Today, the Southern California Air Pollution Foundation joined hands with the Los Angeles Air Pollution Control District to help narrow the list of suspects and corner the elusive clues. Together, they launched "Operation Aeromet" in the biggest air laboratory in the world, the Los Angeles Basin.

Simultaneously and continuously, on a twenty-four hour basis, for the next 120 days, Man and his scientific machines will work on what is technically known as an Aerometric Survey. A calculated scientific Summer and Fall program will test new techniques, confirm or discard old ones, gather hundreds of data on suspects such as oxidants in the air, metallic dusts, nitrogen oxides, hydrocarbons and others.

Today, the press, radio and television newsmen examined what will be the largest research project of its kind ever attempted. They saw a single portion of that project at the Control District Office in Vernon. Other stations will be located at Venice, in the Wilshire District, in downtown Los Angeles, Pasadena and Burbank; additional ones at Dominguez, Artesia, Rivera, Bassett and Azusa; stations outside the Basin will be located at Santa Barbara and Riverside.

Operation Aeromet is largely a teamwork proposition, proposed by Dr. L. B. Hitchcock, President and Managi Director of the Foundation; approved for County participation by Gordon P. Larson, Director of the District. Funds for the survey were approved by the County Supervisors. This will amount to $128,550 for the current year.

Dr. Hitchcock told newsmen the Foundation's program will cost $100,000 a month in addition to operation costs, for the next five months of this year. This cost figure includes other projects to be conducted in what Dr. Hitchcock calls the

"biggest air laboratory in the world." He said the Aerometric Survey alone will require from 550 to 700 measurements per day for the next 120 days. This huge pile of findings will be correlated and interpreted by scientific methods with the help of mechanical analyzers. Results of the survey should be available early in 1955.

The juggernaut of the operation is the oxidant recorder. Huge blue-gray boxes, pumping in air from the Basin, hour by hour, day by day, will operate along known wind currents. Ozone (an oxidant) is a known suspect in the smog picture. Oxidants in the air usually hit a high peak in the Basin around noon. Often, their presence coincides with watery eyes, bad visibility and bad-tempered Angelenos.

This recorder and other measurements and detectors may establish a relationship between the time-of-day, temperature, wind direction, humidity, the presence of other contaminants in the air--hopefully a lead to the 'how' and the 'why' of smog.

On certain specific days, to be judged by the meteorologists, an air tracer device will spout into action. Extremely small particles will be ejected from a machine somewhere in the Area of Palos Verdes. The dispersal points will change. Miles away, sampling machines will pick up these tracers by use of filters.

The samplers operate much as vacuum cleaners, picking up these minute quantities of pseudo-pollutants. The air tracer study may confirm a theory: that the paths of the wind along the surface of the Basin are true indicators of the movements of pollutants. This may not be so. The technique would be a valuable one if proved to be sound. The Foundation and the District are placing a great measure of hope in Operation Aeromet to give the answer.

Operation Aeromet has many parts and parcels. On display was a sampler for nitrogen dioxide, a suspect in combustion processes. A plant damage project is being conducted at six stations by UC at Riverside, as well as the extensive work now in progress there. It is already known that smog damages plants. These plants will be exposed during the tests as a measurement of damage. Other operations include a hydrocarbon project, tests of visibility, measurements of sulphur dioxide and carbon dioxide. All this is now underway, in addition to a systematic recording of eye-irritation in the vicinity of the oxidant stations.