Battle Against Pollution

(Continued from p. 55)

idly and more often when exposed to pollutants. Some of the biological specimens die from exposure, are stunted or malformed.

In 20 city areas, the U.S. has made a positive connection between air pollution and deaths from various diseases.

As to the lung cancer effect, a French newspaper recently estimated that a quarter-hour traffic jam at the Place de la Concorde generated as much toxic matter per individual as a week of smoking.

Dr. Luther L. Terry, Surgeon General of the U.S. Public Health Service, has claimed that one car exhaust produces enough poison in one year to kill several people.

All of these health findings are down on paper, in black and white, the result of years of research. Anti-smog devices may be the answer, but more engineering research and cooperation between car owners and manufacturers are needed before total control of air pollution can be found.

Although air pollution is a problem in most metropolitan areas, Los Angeles has always been pictured as the typical problem area because of its smog. It has also been particularly active in the fight to control auto exhaust, testing new devices as they come on the market and testing the effects of pollutants on plants and animals.

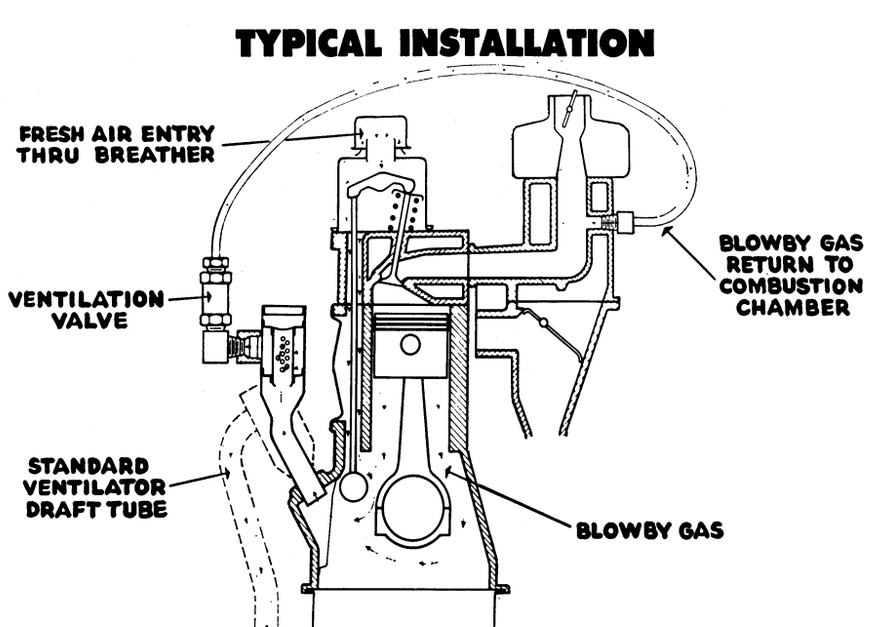
All exhaust devices approved by car manufacturers were first approved by the California State Board of Health and the city of Los Angeles.

Although Los Angeles smog is the prime reason why California health authorities are working on the problem, agricultural losses have also been a large factor. Damage to crops in southern California has risen from $500,000 in 1939 to more than $8,000,000 in 1958.

The two principal ingredients of smog are hydrocarbons from partially burned fuel and oxides of nitrogen (the products of combustion of almost any fuel). About twice as much hydrocarbon material is emitted as are oxides of nitrogen. There is also a large quantity of ozone (heavy oxygen) formed which burns the lining of the lungs.

When a warmer layer of atmospheric air forms over cooler air near the ground, it acts as a lid trapping the load of pollutants. Sunshine then triggers a reaction between the substances, and creates the well-known smog that is so common in several U.S. and foreign cities including London.

• Science News Letter, 82:55 July 28, 1962



BLOW-BY DEVICE—A typical blow-by device for a six-cylinder engine, used to control air pollution. An adapter (left) is placed on the crankcase to draw hot vapors from the car's system. These are returned (upper right) to the combustion chamber where they are further reduced after re-entering the system.

PHYSICS

Nuclear Reactor Used In Insect Pest Research

➤ A NUCLEAR REACTOR has proved a valuable new weapon for scientists battling the insect pests that take heavy toll of stored grains and other agricultural commodities.

A research project of the University of California at Riverside is aimed at establishing new standards for fumigating grains and grain products, providing maximum protection against insects, and extending storage life while holding bromine residues within tolerance levels set by the U.S. Food and Drug Administration. An ultra-sensitive technique, neutron activation analysis, is used to identify and measure elemental constituents of pesticide residues in quantities as small as one part per million. Fumigated samples of wheat and flour are being irradiated, under neutron bombardment, in a TRIGA research reactor at the laboratories of General Dynamics Corporation's General Atomic Division.

In contrast to chemical methods previously used in such research, neutron activation analysis is simpler, faster, more precise, non-destructive and relatively inexpensive.

Working with the University scientists is Dr. Vincent P. Guinn of General Atomic, one of the originators of the use of neutron activation analysis in determining bromine-containing pesticide residues.

In addition to the studies for the University of California, other foodstuffs are being analyzed. These include milk products, citrus fruits, vegetable oils and spices. They are being tested for chlorine and bromine residues and "traces" of sodium potassium, aluminum, vanadium, manganese, copper and tin.

According to Dr. David L. Lindgren, University of California entomologist, much of the food produced in the United States is fumigated with brominated or chlorinated organic compounds, including methyl bromide, which is used as an insecticide for grains, flour, bran and other grain derivatives.

• Science News Letter, 82:61 July 28, 1962

MEDICINE

Effectiveness of Oral Birth Control Pills

➤ BIRTH CONTROL pills taken by mouth seem highly successful, but undesirable side effects may discourage at least one out of every four women from using them.

This prediction made by Dr. Edwin J. DeCosta of Northwestern University Medical School, Chicago, was reported in the Journal of the American Medical Association, 181:122, 1962.

Many physicians are not entirely sold on the idea of oral contraceptives, according to an informal survey conducted by Dr. DeCosta. He found that "about half of the physicians find the side effects such a nuisance that they discourage the use of oral contraceptives."

One such side effect is the upsetting of and actually postponing the menstrual cycle for one month. This frequently causes anxiety and unhappiness in those women who fear they are pregnant.

Although more than seven years of experience with oral contraceptives have not revealed serious dangers, there is still much to learn.

Successful results of studies on the use of oral contraceptives in the Caribbean islands may be misleading, because side effects ignored by a Caribbean native may not be taken so lightly by a woman in the United States.

• Science News Letter, 82:61 July 28, 1962