

MEDICINE

Artery Hardening Delayed

Diet promises to delay hardening of the arteries. The diet is effective in removing the particular cholesterol molecule which is associated with atherosclerosis.

► WAYS of delaying or slowing down through diet the progress of hardening of the arteries are very hopeful for the future. More progress in detecting this number one cause of human death and disability is also being made.

In a paper delivered in New York before the New York Academy of Medicine, Dr. John Gofman of the University of California's Donner Laboratory reported further confirmation of results first made known several weeks ago.

Dr. Gofman's report is cautious and he warns that further long-range results are essential even though results seem more and more promising.

The disease studied is atherosclerosis, which causes all but about three per cent of hardening of arteries. Cholesterol has been long condemned as the villain in atherosclerosis. However, this was not previously certain, since some individuals with high cholesterol in blood never get hardening of arteries.

Dr. Gofman has determined that there are at least four types of giant molecules in blood containing cholesterol. The presence of three types seems to be associated with atherosclerosis. The fourth type is not so associated. The presence of the fourth type may explain how some people can have lots of cholesterol in their blood without hardening of arteries.

Dr. Gofman reported that in 230 men with coronary heart trouble (atherosclerosis occurs in 95% of these cases) 91% had the defective molecules. The figure was 97% in women.

All of 30 cases of angina pectoris, four cases of nephritis, 16 cases of hypothyroidism, in all of which atherosclerosis is common, showed high concentrations of defective molecules. Almost all hypertensives and diabetics, similarly plagued by atherosclerosis, were also found with high concentrations of defective molecules in the blood.

The picture is sharply different with a large number of normal individuals tested, all of whom had lower concentrations. Defective molecules appeared in lower concentrations, however, among some apparently normal individuals.

The incidence and degree of concentration of the abnormal molecules corresponds to the incidence of atherosclerosis in the general population. For example, concentrations are almost non-existent in women under 40 but show a sharp increase over that age. The incidence and concentration increased with age in men up to 60.

Dr. Gofman reported low fat and chole-

sterol dietary studies in both normals and those with arterial disease. He found that the defective molecules should be diminished considerably or eliminated entirely in a large percentage of individuals by such

AERONAUTICS

Extra Power from Engine

► A NEW powerful gas-turbine, propeller-type, airplane engine, a turbo-prop which has now completed shop-run tests and is ready for trial in the air, is featured by its ability to provide additional thrust by means of auxiliary jet power.

This new engine was developed for the U. S. Air Force by the Turbodyne Corporation, a subsidiary of Northrop Aircraft, Inc. It will be known as the XT-37 Turbodyne and is claimed to be the most powerful propeller-type engine in the world.

The engine has now successfully completed the official 50-hour endurance proving program, which means that it is fully qualified for preliminary flight tests. In tests

measures. The rate of elimination varied. In some moderate cases, diet eliminated them in two to three weeks. In other cases, a rigid diet for four weeks was required. In an overwhelming majority of cases considerable reductions were achieved. Resuming their former diet brought a restoration of defective molecules.

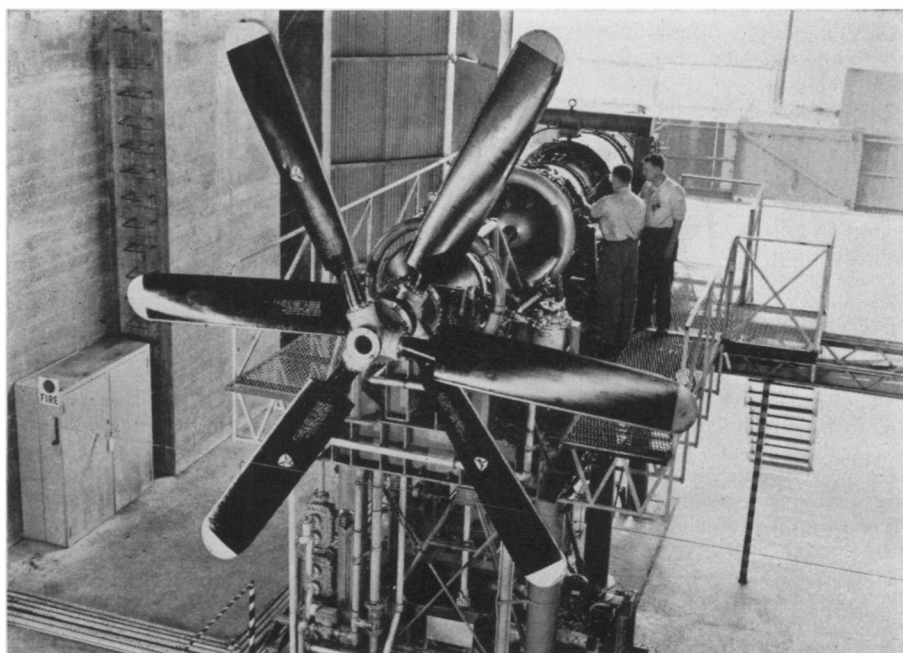
Nineteen patients on restricted diet following coronary attacks for three months to three years were found to have lower concentrations than either diseased or normal individuals of corresponding age and sex groups, indicating the efficiency of the diet in removal of the defective molecules.

Science News Letter, June 3, 1950

it has actually delivered more than 10,000 horsepower in thrust, Northrop officials state.

During this endurance test it was incorporated in a complete power unit consisting of the engine, reduction gears, propeller and single-lever automatic electronic control system. It set a record by delivering 7,500 horsepower continuously over long intervals of time.

In general appearances, the new turbo-prop resembles the axial-flow type of turbo-jet engine. Turbo-prop engines are similar to turbo-jets except that the power developed is used to rotate a shaft which in turn rotates conventional propellers. This new en-



RECORD-SHATTERING—The XT-37 Turbodyne, the world's most powerful propeller-type aircraft engine, promises to extend ranges considerably over that now possible with pure jets.

gine is designed to provide high speed and long-range for very heavy military bombers and transports. Turbo-props, it is expected,

will be widely used in the near future on most long-range commercial airliners.

Science News Letter, June 3, 1950

ZOOLOGY

Clue to Suicide Marches

► TINY insects may be the cause of the famed lemming suicide marches to the sea. Dr. Neal A. Weber, zoologist at Swarthmore College, has discovered that insects play an important role in the life cycle of the rodent-like creatures of the Arctic.

Every school boy has been told about the impetuous marches of the lemmings to drown themselves in the sea. These vast migrations, during which the number of lemmings actually increase by numerous births, occur at irregular intervals.

Studying lemming nests in Alaska, Dr. Weber discovered evidence that mites, flies and hard-shelled insects make their homes in the lemmings' nests. As the lemmings multiply, so do the insects. When the lemming population becomes too large to be supported on the vegetation of the area in which it lives, then multitudes begin to migrate. Dr. Weber studied the nests of lemmings known to zoologists as *Dicrostonyx rubricatus* and *Lemmus alascensis*.

Dr. Weber does not know exactly what effect these insects have on the growth of lemming populations. Mites, for instance, which carry diseases, might tend to inhibit population growth. But the hard-shelled insects might provide extra proteins for both the adult and the young lemmings, thus stimulating population growth.

The zoologist is going back to the Arctic regions of Alaska this summer to try to find out more about these furry members of the mouse family. Although the lemmings of Alaska do not take part in such vast or such extensive migrations as their cousins in Scandinavia, their living and breeding habits are similar.

Early stories about the European lemmings had it that they are not born here, but fall from the sky, and this legend still persists among some peasants in far northern Norway, Sweden and Finland. The story was first carried to Rome in 1522 by two archbishops from Trondheim in Norway.

The first dated suicide march of the five-inch long yellowish brown creatures was in 1579, when a mass of lemmings was seen near Bergen, Norway. The migrations are so vast that in 1868 a steamer entering Trondheim Fjord took a quarter hour to pass through a pack of swimming lemmings.

It was once believed that the lemmings were headed for the legendary "lost continent" of Atlantis, but some migrate toward the Arctic Ocean. Biologists believe that it is not where they are going that is important but only what they are going away from.

One book on the lemmings, by Charles Elton, says: "We begin to see this great

biological spectacle that has aroused such wonder and curiosity among naturalists and has been given a tinge of epic romance by two English poets laureate (John Masefield and Robert Bridges) as a rather tragic procession of refugees, with all the obsessed behavior of the unwanted stranger in a populous land, going blindly on to various deaths."

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MEDICINE

Increased Protection from Vaccine Plus Vitamin

► GIVING the vitamin, folic acid, mixed with shots of vaccines will increase the disease protection given by the vaccine, Dr. P. A. Little, of the Lederle Laboratories, reported at the meeting of the Society of American Bacteriologists. This is because the vitamin is used by the body to build the protein material for antibodies, or germ-fighting substances, in the blood.

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GENERAL SCIENCE

Zebra Street Crossings Improve Driver Behavior

► "ZEBRA" crossings at street corners improve the way both pedestrians and drivers act, and this improvement is lasting.

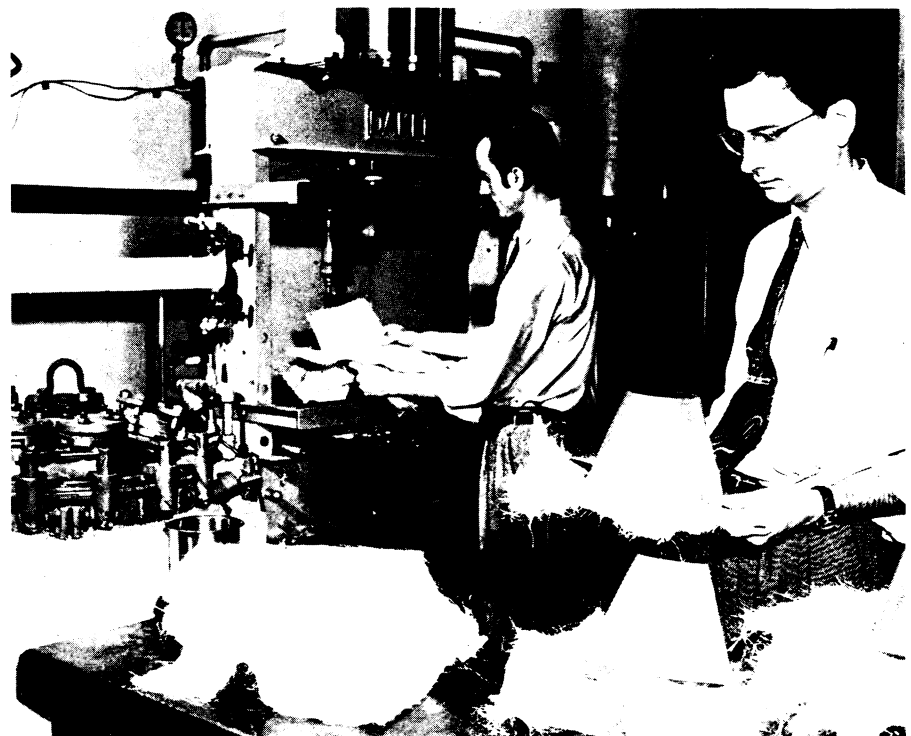
Tests made at Britain's Road Research Laboratory had shown that of all the possible ways of marking road surfaces, the pattern most easily seen by drivers was one consisting of black and white stripes laid parallel to the curb.

These markings were then made on certain crossings in London and in some outlying towns. The movements of pedestrians and drivers were observed at 25 zebra crossings and at an equal number of crossings marked only by the usual studs and beacons.

Observations were made at the time of Pedestrian Crossing Week in order to compare the effect of the markings with that of propaganda. They were continued at intervals for six months after that time.

The number of people using the zebra crossing was counted and then expressed as a percentage of the total number of people crossing the street within 20 yards of the crosswalk. Driver-behavior was assessed as the proportion of drivers who voluntarily gave way to allow pedestrians to use the crossing.

Science News Letter, June 3, 1950



MOLDING SHOP—The molding shop where new plastics are tested on production equipment was a highlight in the public tour which the Stamford Research Laboratories of the American Cyanamid Company recently staged. The laboratory technique for the preparation of molded pieces using fiberglass mat and polyester resins is shown above.