

## MEDICINE

## Count Heart Beats By Blowing Smoke

➤ YOU can count your heart beats by blowing smoke rings. This discovery may lead to a new approach to study of the arteries, a scientist of Edinburgh, Scotland, has suggested.

C. A. Beevers of the Dewar Crystallographic Laboratory explains his discovery in the new issue of the British scientific journal, *Nature* (Jan. 10).

"Choose a quiet room, fill the mouth with tobacco smoke and blow gently out through a very small aperture between pursed lips," he directs.

The fine jet of smoke will pulse from between your lips at intervals corresponding to your heart beat.

"With a delicately controlled jet it is even possible to make the heart blow a smoke ring at each beat."

The Scottish scientist explains that the heart is giving a pulse of pressure to air in your mouth.

"The pressure pulse may be communicated directly through the heart wall, or perhaps it is given by way of the arteries to the throat and mouth."

Use of a quick-acting pressure-measuring device may make it possible to gain useful information about the conditions of the arteries responsible, he proposes.

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## AERONAUTICS

## Squatting Cargo Plane Makes Loading Easier

➤ A CARGO plane that squats down close to the ground for loading and unloading, instead of requiring the use of a heavy ramp or a mobile freight elevator, is a newly patented invention. The design is by Camille R. Lemonier of East Aurora, N. Y., and Samuel T. Payne of Kenmore, N. Y., who have assigned rights in their patent, No. 2,434,464, to the Curtiss-Wright Corporation.

On alighting at a landing field, the plane taxis up to a stack of waiting cargo. There the landing-gear is half-retracted, letting the fuselage down until its belly touches the ground. Then two segments of its nose fold upward on hinges, leaving a wide front entrance. At the same time a smaller part of the forward fuselage wall hinges downward until its free edge touches the ground, serving as a short, built-in ramp.

After the loading crew have stowed

and secured the cargo and the big front opening is closed, the hydraulically operated landing gear heaves the fuselage up to normal starting height and the plane is ready to take off. Once aloft, the landing gear is fully retracted, stowing the wheels into recesses that lie partly in the upper part of the fuselage and partly in the roots of the high wings.

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## MEDICINE

## Devil's Grip Catching, Doctors Find in Epidemic

➤ A STRANGE disease called devil's grip has been epidemic in Boston and Baltimore last summer and fall, Drs. H. M. Harvey, Philip A. Tumulty, Frederick R. Bang and Charles I. Leftwich of Johns Hopkins School of Medicine reported at the meeting of the Southern Medical Association in Baltimore.

Medical name for the disease is pleurodynia, meaning pain in the chest. In Dr. Harvey's opinion, this pain-in-the-chest disease is another form of a pain-in-the-neck condition which doctors call cervical myalgia. Both, he believes, are caused by a virus. They are catching diseases, probably spreading by direct contact. In the Baltimore epidemic the first patient seen was the wife of one of the resident doctors at the Johns Hopkins Hospital. The next two patients were friends of hers, one a nurse who took care of her.

The disease starts suddenly, without previous warning signs, with a severe pain in the lower chest. This pain is made worse by deep breathing, coughing and sneezing. The temperature suddenly rises to 102 or 103 degrees Fahrenheit and returns to normal within 12 to 48 hours.

After two or three days, there may be a second rise in temperature. The patient may also have a severe headache in the forehead region.

The patient usually is well in two to seven days, though occasionally the disease lasts as long as two or three weeks.

No deaths have ever been reported from this condition. The first reported epidemic was in Charlottesville, Va., in 1888. Almost all outbreaks have been in late summer and early fall and in the U. S. have been in eastern seaboard cities. Outbreaks in Sweden have usually been along the coastal area.

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# IN SCIENCE

## ENGINEERING

## Dual Fuel System for Use In Automobiles Suggested

➤ Dual fuel systems for automobiles and other motor vehicles were recommended at the Detroit meeting of the Society of Automotive Engineers by W. M. Holaday, Socony-Vacuum Laboratories, New York City. Two different grades of gasoline would be used.

One of the fuels in this dual system would be gasoline high in performance value and would be used for short periods. The other would be a lower-quality fuel for normal cruising operations.

Current spot shortages in motor fuel arise chiefly from lack of transportation and refining facilities in certain areas, he declared. Higher prices for petroleum fuels and lubricants must be expected because of the higher cost of production. Discovery costs of crude oil were estimated by him to have risen to an average of 54 cents a barrel in 1946, compared with 16 cents in 1936. The average investment in a new well approximates \$600,000, partly due to the necessity of drilling to lower depths.

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## ENGINEERING

## Porcelain May Replace Metal Blades in Turbines

➤ THE use of refractory porcelains as material for blades of the turbines of turbo-jet powerplants is a promising possibility, the Detroit meeting of the Society of Automotive Engineers was told by R. F. Geller of the National Bureau of Standards, Washington. Porcelains have been found which can replace metallic alloys at temperatures above 1,500 degrees Fahrenheit.

He pointed out that, at high temperatures, a porcelain blade with a tensile strength of 17,000 pounds per square inch would be the equivalent of a metal having a strength of 47,000 pounds per square inch. The new porcelains, he said, suggest ways and means of increasing the net efficiency of turbine powerplants by permitting operation at temperatures of 1,800 degrees Fahrenheit, and higher.

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# E FIELDS

## VETERINARY MEDICINE

### Nitrogen War Gases Used As Medicine for Chickens

► NITROGEN mustard war gases may turn out to be good medicine for chickens sick with the highly fatal fowl disease, leucosis, it appears from studies by E. P. Johnson at the Virginia Agricultural Experiment Station at Blacksburg, (*Science*, Jan. 9).

Fowl-leucosis is something like the group of human diseases which include leukemia, Hodgkin's disease and lymphosarcoma. Nitrogen mustards have been tried in these human diseases with results which Mr. Johnson thought "sufficiently encouraging" to warrant their trial on the fowl disease.

He injected the war gas chemicals into 33 birds artificially infected with the fowl leucosis virus. After one treatment, nine birds recovered completely. In another group of seven birds that got the disease through naturally acquired infection, the treatment helped one make a complete recovery that lasted eight months. The others were not helped.

The results, which Mr. Johnson terms "not highly impressive," show that if the compounds are given early in the disease they have a better effect and one which is more likely to be permanent. In advanced cases the effects were only temporary.

Besides apparently acting to check the too great multiplication of certain blood cells, the nitrogen mustards seem to kill the virus that causes the fowl disease.

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## POPULATION

### Population Increase in 1947 Sets New Record

► A NEW record for population increase was set in 1947. Thanks to an extraordinarily large number of births and to a low death rate, the excess of births over deaths exceeded 2,400,000 last year.

There may well be 150,000,000 people living in the United States by the end of 1950, statisticians of the Metropolitan Life Insurance Company estimate.

The natural increase in our population during 1947 is more than double that for

each year from 1930 through 1940, and is nearly three times that for 1936, figures compiled by the Social Security Administration show.

The excess of births over deaths during the year just ended was almost as large as the average number of babies born each year in the decade between 1930 and 1940.

About 3,900,000 babies were born in the United States in 1947. This was the first time in our history that the stork made more than 3,500,000 trips to homes in this country. It was the fourth time—each time being within the present decade—that more than 3,000,000 babies were born during any one year.

About 27 babies were born for every 1,000 people in the United States during the past year. This is the highest birth rate in at least 25 years, and is 50% above the figures for 1933, when the birth rate dropped to its lowest level.

In recent years there has been a remarkable improvement in infant mortality. The rate has been reduced by one-third since 1939 and by one-half since 1930. Although about as many infants died last year as in 1933, the number born was 70% higher. About 100,000 babies were saved by the reduction in infant mortality.

It is likely that the death rate in 1947 will prove to be the lowest ever recorded, the statisticians point out. This would result from making adjustments to take care of the increase in the number of babies and of older people. The general death rate in 1947 was slightly higher than in 1946, provisional figures indicate.

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## ASTRONOMY

### Astronomical Observatory To Be Built in Michigan

► NEW secrets of the sun and stars may be discovered through erection of an astronomical observatory at the University of Michigan. To be equipped with a 24-inch Schmidt-type reflecting telescope, this observatory is expected to be completed within the year.

One of the world's centers for solar research is the McMath-Hulbert Observatory, operated by the University near Pontiac. During the war, investigators at this observatory developed the bomb-sight used by the Navy. Today reports of solar activity secured here are vital in making up-to-date predictions as to whether shortwave radio broadcasts will come through clearly or be blacked out.

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## AERONAUTICS

### Safer Forced Sea Landings Provided by Hydro-Flaps

► SAFER forced sea landings by some of the new Navy land-based patrol planes will result from hydro-flaps installed on the belly of the fuselage. These downward, backward fin-like surfaces, closed into the plane ordinarily, will act like skis to keep the nose of the landing plane out of the water.

They are of assistance only in making the landing and during the ditching run. Their advantage is their ability to delay the immediate sinking that is apt to follow a nose dive. Also they will lessen the excessive strain when the aircraft hits the water that sometimes causes it to break in half.

These hydro-flaps are much like the so-called hydro-foils used on speed boats to lift their hulls completely out of water when traveling at high speeds.

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## PHOTOGRAPHY

### Improve Colored Prints With Chemicals in Films

► PHOTOGRAPHERS will get better colored prints by the use of chemicals called colored couplers in a film which give automatic color correction, it is revealed by Eastman Kodak Company. A coupler is a chemical which combines with others to produce a dye.

In a new color film, special types of couplers will be included in each of the thin light-sensitive layers. These are the blue, green and red sensitive layers. A yellow filter layer, also in the film, protects the green and red sensitive layers from blue light.

The problem of compensation for the unwanted absorption of light is now solved chemically. The new method is based on the discovery that azo dyes giving the proper absorption can be attached to couplers, and that during the coupling reaction the azo group is eliminated.

The result of the coupling reaction is, therefore, to destroy the inherent color of the coupler in the process. After color development there are present in the emulsion layer a negative image of the coupler dye and a positive image of the remaining unreacted coupler.

The new film containing the color couplers is not yet on the market. When it is, it will be known as Ektacolor.

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