

## AERONAUTICS

**Jet-Propulsion Progress Behind Bomber Adoption**

► THE RAPID progress in aviation during the ten years since America's first jet-propelled airplane flight is probably responsible for the recent decision to build no more of what is now the nation's largest bomber, the B-36, and to adopt the new B-52 as its successor.

The B-36, a product of Consolidated-Vultee whose first version flew in 1946, was powered with six Pratt and Whitney reciprocating engines. The first production planes were similarly powered. Later production models still had the conventional engines but they were supplemented by four Allison turbo-jets.

The new Boeing B-52, which is to be the long-range international bomber, is powered solely by jets, eight in number, and has sweptback wings to increase its speed.

The fate the B-36 is facing is similar to that of the plane whose place it took in enemy bombing. That is the B-29, the superfortress that helped to bring the Japanese to their knees. Between September, 1942, when the first B-29 was built, and May, 1946, when the last came out of production, a total of 4,221 were constructed.

At the close of the war, many B-29's were put in "moth balls," but some of these came back into active service with the Korean activities and, with certain new equipment, are doing valiant service. But, like the B-17 it succeeded, the B-29 is no longer in production, and the B-36 is now following its trail into history.

Stopping production of the B-36, however, does not put its sister cargo plane into the same category. This is the C-99, the huge cargo transport that can carry some 100,000 pounds of freight or 400 fully-equipped men. It is a six-engine, long-range craft that in test made a non-stop transcontinental flight of 2,300 miles carrying 85,000 pounds of cargo.

It has wings, tailpiece and landing gear of the B-36 type, but its fuselage is longer and larger, and is a double-deck affair to provide extra space for a greater load. This type of craft has been in use now for three years, and probably will be for some time to come.

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## NUTRITION

**Consider Feeling Of Child for Food**

► THAT CHILDREN have feelings about food is known to every parent who has heard Junior shout, "I hate soup," or "I love ice cream."

Many parents, however, do not realize that these feelings about food start very early, and many do not know what the child's feeling is because he may not be old enough to explain it. When two-year-old Johnny does not want to eat certain of the nice dishes mother prepares for him, it may be that in

his secret life he is objecting to all red food or round food or soft food.

At that age color, form and consistency are vital issues, Drs. Ralph D. Rabinovitch and Joseph Fischhoff of the University of Michigan explained in a report to the American Dietetic Association.

Feelings about food change as the child grows older, just as his appetite changes at various ages, the Michigan psychiatrists point out. Many a mother is greatly disturbed when her baby, who has eaten well for the first year and a half, begins to lose his appetite and gets fussy about food.

Reason for the decrease in appetite is that the rapid growth of infancy is over and for a year or so the child will gain at a slow rate and eat less. If mother knows that this is normal, she can stop worrying and trying to force the child to eat.

But for parents worn out by the struggle to keep up with the latest scientific theories on child raising and feeding, perhaps the best advice is that, if the parents are happy and relaxed, they will enjoy mealtimes and the children will too and, as the Michigan doctors put it, the children "will some day be civilized."

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## INVENTION

**Insect Repellent Device Resembles Tiny Mailbox**

► FLIES, MOSQUITOES and other such pests can be chemically chased away from screen doors by an "insect repellent device" invented by Floyd J. Logan of Alabama City, Ala., and Oaty A. Trawick of Gadsden, Ala. Assigned patent number 2,606,065, the device resembles a tiny roadside mailbox often seen in the country. It is filled with cotton to hold the insect repellent and it can be clipped to screens.

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## ASTRONOMY

**New Star Spotted Behind Iron Curtain**

► AN "EXPLODING star" or nova has just been spotted from behind the Iron Curtain. It is in the constellation of Scorpius, the scorpion.

Observers looking at the star on Aug. 11 were amazed to find it had greatly increased in brilliance, being about 15 times as bright as the preceding night. It was of the ninth magnitude, however, and so too faint to be seen without a telescope.

Dr. B. V. Kukarkin of the Sternberg Astronomical Institute in Moscow, noted for his variable star observations, reports that the nova was found by Dr. A. V. Solovyev of the Astronomical Observatory, Stalinsk. News of the "new star" forwarded by Mlle. J. M. Vinter-Hansen of Copenhagen has just reached Harvard College Observatory, clearing house for astronomical news in the western hemisphere.

Science News Letter, August 30, 1952

**IN SCIENCE**

## AGRICULTURE

**Bluegrasses Bigger, Sodder Developed**

► NEW BLUEGRASSES that combine larger size with good growth and with sod-forming ability were reported to the Sixth International Grassland Congress meeting in State College, Pa., by Dr. Jens Clausen of the Carnegie Institution of Washington, Stanford, Calif.

About 30 hybrid strains are now being field tested under weather conditions found over the northern half of the nation and as far north as southern Alaska. The effect of altitudes from sea level to 10,000 feet is also being tested, Dr. Clausen said.

The new bluegrasses combine the larger size and ability of the California and big bluegrasses to grow during mild winters with the summer-growth and sod-forming habit of the Kentucky and northern bluegrasses.

Science News Letter, August 30, 1952

## MEDICINE

**In Mice, at Least, Work Prevents Cancer**

► IF MEN were mice they might get some protection against cancer by hard work or some other condition that produced the right amount of stress.

Experiments suggesting this are reported by Dr. Harold A. Rashkis of the University of Pennsylvania and the Wistar Institute in Philadelphia in *Science* (Aug. 15).

Stress from being forced to swim several hours every day for weeks slowed down two kinds of experimental cancers in mice, he found. In one experiment, 10 of 25 non-swimming mice died of the experimental cancer, an ascites tumor, within two weeks compared to three out of the 25 mice forced to swim long periods every day.

In another experiment, the cancer was induced by a chemical, methylcholanthrene. In this group the forced swimmers that survived the cancers longest were those that either had done the least forced swimming or had withstood the ordeal better. The first two to succumb were those that had endured the greatest amount of forced swimming.

This suggests that there may be an optimal amount of stress that gives the greatest protection against tumor development.

Since men are not mice, stress may not be as important in protecting them against cancers. But, Dr. Rashkis points out, many or all of the different agents that have been effective experimentally against cancers share in a general action as stressors to the system besides their individual effects.

Science News Letter, August 30, 1952

# FIELDS

## BIOCHEMISTRY

### "Sweat Blood" When Gland Produces Dye

► SOME PEOPLE really do seem to "sweat blood." The red color in their sweat comes from a pigment produced by their apocrine glands.

These skin glands normally exude unnoticeable quantities of milky white fluid, but sometimes they secrete a pigment, or dye, into the normally colorless fluid. When the perspiration dries, the pigment remains and attracts attention.

Discovery that the apocrine glands produce this pigment was made by Drs. Walter B. Shelley and Harry J. Hurley, Jr., of the Hospital of the University of Pennsylvania, Philadelphia.

Treatment of the condition consists in eliminating the apocrine gland function, which is difficult, the researchers state. Ordinary anti-perspirants do not help much. Local introduction of medications into the skin by electrical means has given some encouraging results.

Sweating red, or any other color, is known as chromidrosis. Some cases obviously are caused by chemicals or drugs taken into the body.

For hundreds of years it has been known that workers in copper mines may have green sweat, and that patients may show red sweat after taking certain medicines. In these instances, however sweating over the entire body is colored, and the external origin of the color has long been apparent.

The type of chromidrosis that remained unexplained until now is limited to small patches on the body. It usually occurs in the armpits, but may occur anywhere on the skin. It is seen only in adults, often in response to emotions. The sweat may be green, blue, black, yellow, brown or blood-red. In the latter case the condition has sometimes been regarded literally by laymen as "sweating blood."

Science News Letter, August 30, 1952

## TECHNOLOGY

### Chemicals From Alberta May Match Texas Output

► THE REMARKABLE growth of Texas during the past decade or so in the production of chemicals may be matched in the near future by the Canadian province of Alberta.

Its vast oil and natural gas fields can supply the same raw materials on which much of the chemical industries of Texas depend.

Although Alberta oil reserves were discovered only about six years ago, the province now has many hundreds of producing

wells and a pipe-line for crude oil stretching over a thousand miles to the Lake Superior area. Chemical companies have already moved into the production area. Heavy production of petroleum chemicals is promised.

One of the most recent plants to be put in operation was installed by the Shell Oil Company and is for the recovery of sulfur from natural gas. This gas, from wells in the Jumping Pound field, contains a considerable amount of hydrogen sulfide from which a high-grade sulfur is obtained. Capacity of the plant is about 30 tons of sulfur a day, an amount that will help considerably in the present sulfur shortage.

The great oil fields of Alberta are a score of miles or more south of Edmonton. To the north of this modern city are great deposits of bituminous sands, the Athabaska tar sands. Crude oil and other petroleum products can be obtained from them, although a commercial process for their extraction has not yet been developed.

When petroleum from other sources becomes limited, these Athabaska sands, together with bituminous sands in the United States, may play a big part in providing fuel oil, gasoline, chemicals and other bituminous products for North America.

Alberta has deposits of several minerals that may make it a chemical producing region. But perhaps of more importance, Edmonton is the gateway to the north to areas in which lead, zinc and nickel have been found. This northern country is also Canada's hopeful uranium country.

Geiger counters have picked up radioactivity in a region stretching from Lake Athabaska, in Alberta and Saskatchewan, north to Port Radium on Great Bear Lake. It is near Lake Athabaska, Sask., where the "boom town" Uranium City is developing as the center of uranium prospecting.

Science News Letter, August 30, 1952

## PLANT PATHOLOGY

### Tree Branches Take Up Nourishment

► THE STEMS and branches of trees can take up nourishment if the fertilizing material is sprayed upon them. So can the leaves.

This was shown in tests at Michigan State College's Department of Horticulture, East Lansing, with radioactive sources of potassium, phosphorus and carbon.

Foliage feeding, which is now being practiced to some extent, must, therefore, take into account the chemicals absorbed by the trunk, branches and shoots as well as the leaves.

But even the bark feeding is not new: among the first field applications of commercial nitrogenous fertilizers to fruit trees were sprays to dormant trees.

A team of Michigan State scientists, H. B. Tukey, R. L. Ticknor, O. N. Hinsvark and S. H. Wittwer, report their experiments with radio-carbon-containing urea in *Science* (Aug. 15).

Science News Letter, August 30, 1952

## PATHOLOGY

### Chest Acts as "Reservoir" for Blood

► THE CHEST may act as a "blood reservoir," holding as much as 40% of the body's blood, studies at the University of California at Los Angeles indicate.

Dr. Alvin E. Lewis, pathology section chief of U.C.L.A.'s Atomic Energy Project, finds that this reservoir may supply extra blood when another part of the body is injured or otherwise in pain. Routine functions that demand extra blood, such as digestion, also draw from the reservoir.

The reservoir is not adequate to cope with all emergency needs, however, says Dr. Lewis. Painful injuries may draw so much blood from the reservoir that not enough is left for other body functions. This condition is known as shock.

In one phase of the study it was noted that the volume of blood in the "chest reservoir" was reduced 90% when the chest was opened. This was due to the partial collapse of lungs and blood vessels.

Although these observations were made with rabbits, they would generally be true of human beings, Dr. Lewis believes. Such information may be valuable in treatment of shock and in developing new surgical techniques.

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## TECHNOLOGY

### Army Engineers Pour Hot Asphalt into Paper Bags

► THE ARMY is pouring hundreds of pounds of hot asphalt into paper bags. The idea is to find another shipping container to hold the paving material when temperatures soar to 165 degrees Fahrenheit or drop to a frigid minus 65.

Technicians at the Army's Engineer Research and Development Laboratories, Fort Belvoir, Va., say the bags are made of several layers of tough paper. They are lined on the inside with a clay coating that strips right off the packaged asphalt, making it easy to reach.

The bags seem to work "pretty well," and they have several advantages over the metal drums currently used to ship asphalt. Periodic scarcities of metal and also the higher cost of metal drums made it advisable to find another shipping container, laboratory technicians say.

The multiwalled paper bags, made by a commercial company, are easier to handle, are less expensive and are easier to open than the drums.

But sometimes when the asphalt becomes hot it expands, breaks open the bags and runs out. When the material becomes extremely cold, it becomes brittle. If dropped then, the bags sometimes burst.

Although the bags have not proved completely satisfactory in the Army tests, they do show promise. Army technicians have made some suggestions for improvement.

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