

## ENTOMOLOGY

**Locusts Used Automatic Stabilizer Before Planes**

► LOCUSTS invented and used an automatic stabilizer that keeps them flying into the wind, and this insect did this long before the airplane was invented.

Dr. T. Weis-Fogh, a Danish scientist, has announced in the British journal, *NATURE* (Nov. 19), the discovery of this aerodynamic sense organ in the kind of insect which caused plagues noted in the Bible. The locust's "yaw-stabilizer" consists of hairs on the front and top of the insect's head.

If you shoot a jet of air at a locust, it will turn and fly into the wind.

Experiments by Dr. Weis-Fogh in Prof. August Krogh's laboratory at Oerstedte, Denmark, showed that patches of sensory hairs ranged around the front and sides of the insect's head not only keep it headed into the wind but also stimulates the movement of the wings. As long as the jet of air is directed at the insect, it beats its wings. As soon as the jet stops, wing movement stops. In this way the insect can remain in one place in "stationary flight" for at least an hour.

By means of these hairs the insect changes direction as wind direction changes. When the experimental air jet was turned from in front of the locust to the side, the insect immediately turned head-on into the jet.

The hairs are linked with a sensory nerve whose function was not understood till now. It is not yet known whether the hairs exert any control of the insect's up and down movements also.

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## MEDICINE

**Buerger Disease Victims Are Aided by Insulin**

► IMPRESSIVE improvement in 20 consecutive cases of the blood vessel and circulatory ailment, Buerger's disease, by treatment with insulin is reported by Dr. Henryk Mazanek of Warsaw, Poland, in the *LANCET* (Nov. 19), English medical journal.

The patients were given 50 to 100 units of insulin twice daily for 20 days. The abnormally low blood sugar that resulted was corrected after three hours with a sweetened drink and a meal of sweet and starchy foods. A 10-day interval without treatment followed each 20-day course of the insulin treatment.

Response to the treatment was slow but usually appeared during or after the first course of treatment. Improvement of collateral circulation, in blood vessels unaffected by the disease but supplying the same body tissues, was marked.

Marked relief of pain, warmer, more normally colored skin, markedly improved

ability to walk and almost normal finger movement occurred. Hand grip was stronger, ulcers healed rapidly and the general condition of the patients improved, Dr. Mazanek reports.

The improvement has been maintained up to the present, 14 months since it started.

Use of this treatment for Buerger's disease is a revival of overlooked work of French doctors 20 years ago.

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## MEDICINE

**"Chip Off the Old Block" Is True of Baby's Colic**

► WHEN Grandma predicts that the new baby will be colicky just like his dad, or mother as the case may be, she is probably right.

Such predictions can often be made from a careful study of the family past history, Dr. W. Ambrose McGee of Richmond, Va., declared at the meeting of the Southern Medical Association, Cincinnati, Ohio.

Colic is a symptom of allergy, Dr. McGee explained. If one or both parents had colic in early infancy or if they now have clinical allergy, especially the hay fever, asthma or digestive types, the baby "is an excellent candidate" for colic.

An earlier symptom of the allergy than colic is hiccoughing by the baby before it is born. At least half of the babies he attended who had hiccoughs while still in their mothers' wombs had colic later due to sensitivity to cow's milk.

When a baby gets colicky on breast milk, the trouble can usually be relieved by having the mother avoid some specific foods, though it takes careful questioning to discover the trouble-causing foods in the mother's diet.

The big problem is with cow's milk. Boiled, evaporated and powdered milks contain one of the milk proteins, lactalbumin, in denatured form, so that it will not cause allergic trouble. But the casein of the milk may. So other formulas with milk preparations or milk substitutes must be tried. A vegetable milk, called Mull-Soy, was suggested for such cases by Dr. McGee.

"This is the only form of vegetable protein that will sustain life indefinitely aided by vitamin C," he stated.

Sometimes all milk formulas and substitutes must be abandoned and strained meats fed instead. In such cases fats, such as olive oil, and sugar and calcium must be added.

Grandma's remedies for colic, such as hot water bottles, warm water by nursing bottle or by enema and whiskey "are still of value," Dr. McGee said, in attempting to relieve colicky symptoms. He also advised atropin and such modern remedies as the sleeping medicine, phenobarbital, and synthetic opium-like drugs as Demerol.

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**IN SCIENCE**

## ENGINEERING-MEDICINE

**GI's Can Swiftly Assemble Portable X-Ray Machine**

► PORTABLE X-ray equipment designed especially for rugged field use can now be put up at an instant's notice by soldiers in the field.

This was demonstrated at the National Naval Medical Center, Bethesda, Md. There are two of these light-weight "knock-down" X-ray machines. One is made primarily of sheet steel and the other primarily of sheet aluminum, in case the supply of either metal should become tight during the war.

Both machines incorporate most of the advanced and special features required to make a thorough diagnosis, such as a filter which moves back and forth during exposure to prevent scattered radiation which fogs X-ray films.

The different parts of the unit when packed in a special watertight, rigid corrugated sheet metal container, weighing about 500 pounds, will float.

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## MEDICINE

**"Dwarf" Bacteria Develop From Common Bacteria**

► "DWARF" bacteria, or germs in layman's terms, develop from some common bacteria after treatment with penicillin, Dr. Robert Tulasne, of the University of Strasbourg, France, School of Medicine, has discovered.

Their place in the disease and epidemic picture may be important, he suggests.

These dwarf bacteria are too small to be seen under the microscope and small enough to pass through fine-pored filters. They may, Dr. Tulasne suggests in a report to the journal, *NATURE* (Nov. 19), have quite different disease-causing powers than the visible forms of bacteria from which they sprang.

Dwarfs from one kind of bacteria, *Proteus vulgaris*, can revert to the normal form when grown on culture medium without penicillin. Others may be able to do the same.

Plague germs and one of the food poisoning family of germs also can develop dwarfs under certain circumstances.

The whole problem of the "filterable" forms of bacteria, especially those of the tuberculosis and syphilis organisms, may need reinvestigation, Dr. Tulasne thinks. Such reinvestigation may, in his opinion, lead to the solution of some outstanding general problems of disease and epidemics.

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# E FIELDS

## FORESTRY

### France's Scorched Forests To Supply Europe's Lumber

► PROPS for Europe's sagging lumber supply will come from an unexpected source this year: France's fire-scorched forests.

The salvaged remnant of some of France's most productive forest areas, ravaged by fire this summer, must be disposed of quickly if it is not to be a total loss. This source will supply enough commercially usable timber to "remove the danger of a serious European timber shortage in 1950," says the International Bank for Reconstruction and Development in an estimate of the European timber situation.

France's permanent loss is Europe's temporary gain. The one-year breathing spell, the Bank points out, has been bought with principal rather than interest. The lost principal, France's forests, will force France to become an even heavier importer of lumber than formerly, and beginning in 1951 Europe will once more face shortages.

The Bank announced this in connection with two loans totaling \$5,000,000 which have just been granted to Finland and Yugoslavia for the development of timber resources. Issued in connection with the Timber Equipment Project developed by the Bank, FAO and the UN Economic Commission for Europe, the loans will be used to buy wood-processing equipment.

It is hoped that by increasing timber production in the timber-exporting countries, which include, besides Finland and Yugoslavia, Austria, Czechoslovakia and Poland, Europe's dependence on lumber imports from abroad will be gradually lessened.

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## AGRICULTURE

### Tomatoes Grow in Tubes On Synthetic Food

► RED tomatoes, as tasty as vine-ripened ones, have been grown on synthetic food from a flower detached from the plant.

This is the first time that fleshy fruits have been grown by test tube process though such growth of isolated roots, stems and seed embryos has become classical.

The test tube tomatoes were grown by Dr. J. P. Nitsch of the Kerckhoff Laboratories of Biology at California Institute of Technology, Pasadena, Calif.

The tomatoes "tasted like usual tomatoes," he reports in the journal, *SCIENCE* (Nov. 11). They were seedless and small. Each was about one inch in diameter. But each flower had only about an ounce of food

supply at its disposal. The lack of seeds, Dr. Nitsch says, may have been due to lack of pollination, because the plants were raised in a greenhouse where pollination was very poor, or to killing of the pollen tubes by sterilizing chemicals.

The tomato flowers that yielded the test tube tomatoes were of the San Jose variety. They were cut from the plant, sterilized with calcium hypochlorite, and planted in glass flasks containing various chemicals. No growth occurred in a medium containing only mineral salts, sugar, vitamin B<sub>1</sub> and amino acid, cysteine. The addition of sterile juice from either green or red tomatoes caused the ovaries to develop.

A week after planting in the glass flasks, the ovaries became visible, pushing up the petals and stamens which had kept them hidden. They then enlarged regularly until about the 25th day after full bloom, when growth slowed down.

About the 35th day, fruits turned red and ripened at the same time as tomatoes left on the plant.

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## ENGINEERING

### Canals Leading to Mexico's Island Gardens Lack Water

► THE waterways of famed Xochimilco, tourist attraction and extensive truck garden region of Mexico's capital city, are suffering from a lack of water due to the severe drought this year. The water depth has dropped to only about a foot where a few years ago it was 15 feet deep. In places, traffic along Xochimilco's canal has been halted by the low water.

A drive by Xochimilco's 25,000 inhabitants is under way in cooperation with the federal district's office of hydraulic resources to raise the water level. The island gardens are their livelihood, and if the canals in this Venice-like settlement that dates back to the ancient Aztecs cannot be used, and if there is not water for growing of flowers and vegetables, the business of this Mexico City suburb will suffer greatly.

American tourists who are poled by the natives in flower decked boats along the canals do not often realize that Xochimilco supplies nearly all the flowers and four-fifths of the vegetables consumed in Mexico City.

Two rivers are being diverted so as to flow into the lake which contains the network of islands and canals so familiar as a tourist sight. Obstructions are being removed from the canals to allow the free flow of water, and the government engineers have found many accumulations of weeds, old tree stumps and roots in the waterways.

As a longer time aid to the water supply, hillsides nearby are being reforested with trees. The past summer more than 2,000 students planted 10,000 trees in Xochimilco and other small towns.

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## AGRICULTURE

### They Knew Their Oats And Saved Them, too

► HOW a small misfortune was turned into a blessing that saved a large part of the nation's oats harvest, was told by Dr. Karl Quisenberry of the Department of Agriculture's Plant Industry Station in Beltsville.

Government plant breeders were conducting experiments with a type of oats known as Victoria, Dr. Quisenberry said. Victoria oats and varieties developed from it are widely grown. Suddenly the experimental plot of Victoria oats was struck with a severe blight.

From this attack, the scientists knew that in time a similar blight could be expected to attack stands of Victoria oats throughout the Mississippi Valley. So they set right to work breeding a variety that was resistant to "Victoria blight". This head-start enabled them to supply seed of the resistant type to farmers in time. Thus a potentially serious crop failure was averted by what at first looked like a piece of bad luck.

Specialists in crop diseases, Dr. Quisenberry said, must be constantly on the alert for such danger signals, and they must be ready to take advantage of them. An example which he cited is a stem rust of wheat, known as Race 158. A vigorous search is now in progress to discover strains of wheat resistant to Race 158, before it cuts loose and does large scale damage to the all-important wheat crop.

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## ECONOMICS

### Economists Urged To Think In Terms of Human Values

► ECONOMISTS were urged to consider human values, such as health problems related to money and trade, instead of merely dealing with "abstract curves of choice in theoretical markets."

Dr. John M. Clark, economics professor of Columbia University, New York, told the American Philosophical Society in Philadelphia, that his profession should frankly investigate such questions as: "What should a wise government do about consumers' freedom of choice and why?"

Those lines and curves on the graphs economists draw should become zones or bands with widths that show how much the values being shown can be expected to vary, if Dr. Clark's ideas are followed.

"Economists used to tell politicians what must happen under economic law, despite political efforts to interfere," Dr. Clark said. "Now it seems more nearly true that politicians decide what is to happen, leaving economists speculating as to consequences, and whether or not actual policy is fatally unsound."

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