

## MEDICINE

**Irritate Any Cell Result—Cancer**

**A**NY cell in the living body can become a cancer if it is sufficiently irritated.

This is the latest scientific conclusion from studies upon mice and rats by Drs. W. F. Dunning, M. R. Curtis and F. D. Bullock of Columbia University's Institute of Cancer Research.

The prevalent idea that avoiding irritation is one of the best methods of cancer prevention is upheld in their report in the *American Journal of Cancer*.

Neither age, sex nor heredity had any effect on the development of cancers following injection of two cancer-causing chemicals, dibenzanthracene and benzpyrene. Cancer developed, instead, by the chance exposure to these chemical irritants of various types of body cells.

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## ASTROPHYSICS

**Ailments of Old Man Sol Diagnosed by Scientists**

**T**HE SKIN and internal troubles of Old Man Sol are being studied by National Bureau of Standards physicists, who are achieving distinction as long-range doctors able to examine sun-caused symptoms at least 65 miles up in the earth's ionosphere.

Old Man Sol's troubles are solar eruptions, magnetic storms and great outpourings of energy, which are partly invisible and partly visible as sunspots. Moreover, the figurative aches and pains of the sun have lately been found to cause radio fadeouts or times when it is impossible to obtain any radio transmission on high frequencies.

It is this last discovery, made by Dr. J. H. Dellinger and his co-workers in the radio division at the Bureau, which provides the diagnostic medium for the sun's energy ailments.

At least two different and distinct types of solar radiation have been disclosed by the radio fadeout investigations. There is a sudden effect that produces visible solar activity and practically simultaneous radio fadeout. This, in medical analogy, might be called a twitch of sharp pain which passes quickly.

And there is a longer, more chronic type of solar happening which causes the so-called magnetic storms on the earth lasting a day or two.

The sudden effect appears to be

caused by electromagnetic radiation of ultraviolet wavelength below the limits of human seeing. These rays penetrate down to the so-called E reflecting layer about 65 miles above the earth.

The more lasting effect, which causes magnetic storms and the aurora, appear to be due to a different type of solar emission, possibly of the charged particle class. The scene of the effect is much higher above the earth in the F<sub>2</sub> layer at about 200 to 250 miles up.

Dr. Dellinger has been comparing his radio fadeout phenomena with daily bulletins from Mt. Wilson Observatory on solar activity and has an additional world-wide check in the twice yearly compilations made in Switzerland from observatories everywhere. His technical report appears in the *Physical Review*. (Dec. 15, 1936.)

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## METALLURGY

**Metals Are Influenced by Unfavorable Environment**

**S**OME of the almost human characteristics of metals—susceptibility to environment, resistance increased by inoculation, bathing, mating, and long life—were described at the symposium on corrosion-resistant metals of the American Society of Mechanical Engineers.

A metal and the environment in which it has to live must be mated so as to get along peaceably, or at least until the owner gets a reasonable return on his investment, declared Dr. F. N. Speller of the department of metallurgy and research of the National Tube Company, Pittsburgh, Pa., in his introductory remarks.

"It should be remembered," he explained, "that metals are, in a way, quite like human beings; although they are susceptible to unfavorable environment, their resistance can be built up by inoculating them with alloying elements and by keeping their surfaces reasonably clean and free from foreign deposits."

Pointing out that one single metal can hardly be the final solution to corrosion under the myriad of existing conditions, Dr. Speller emphasized that the problem for the engineer is to select a metal that will best serve any specific purpose at the lowest ultimate cost. Too often first cost is the determining factor, he declared.

Nickel, stainless steel, cast iron, zinc, lead and aluminum shared the spotlight in the corrosion symposium.

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**IN SCIENCE**

## ENTOMOLOGY

**Dispositions Differ—Some Wasps Much Meaner**

**W**ASPS are not all alike. Some of them are meaner than others. They aren't all mean, so far as that goes. Some are relatively placid.

A study in insect individuality was made recently by Austin H. Clark of the U.S. National Museum. A mason-wasps' nest was brought to him for identification, and when the insects hatched out he studied them one by one.

The first one out was small, dark, and wicked. She lurked in a dark corner of the jar in which the nest was kept, ready to show fight against any of her sister wasps or anything else that offered. The second wasp out was bigger and really very good-natured. She wouldn't even offer to sting Mr. Clark's finger when he offered her the chance.

Other wasps that emerged varied between the truculence of the first and the placidity of the second. Only one male appeared. At first he was dull and uninterested, but he "pepped up" when he found there were ladies present.

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## CHEMISTRY

**Paper Replaces Test Tube In Microchemistry**

**P**APER is replacing the time-honored test tube in the new field of microchemistry, it was revealed at Washington Square College of New York University. Microchemistry uses only the tiniest specks of reagents and solutions in place of the ordinary quantities.

Harold W. Hermance, in charge of the microanalytic laboratory of the Bell Telephone Laboratories, explained how paper replaces the test tube. The paper, forming a medium, is impregnated with the chemicals and the reaction takes place directly in its fibers. One thousandth of a cubic centimeter can be handled accurately in this way. This small amount may be contrasted with a drop, which usually contains about a fiftieth of a cubic centimeter.

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# E FIELDS

PHOTOGRAPHY

## Fugitive Beauty of Snow Captured by Camera Skill

See Front Cover

ONLY a little snow, in the branches of a little tree; but it was exactly the right kind of snow, in exactly the right place, with exactly the right light behind it, seen with the eye of an artist and bound to a photofilm, so that its beauty might endure after its substance had been blown down by the wind or melted by the sun. W. C. West of Chicago, who made the picture on the front cover of this week's SCIENCE NEWS LETTER, calls his composition "Trans-lucence."

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MEDICINE

## Find Better Treatment For Toxic Goiter Cases

NEW, better methods of diagnosing and treating thyroid gland disease, especially toxic goiter of Graves' disease, were described by Dr. David Henry Poer of Emory University, Atlanta, Ga., at the meeting of the Southern Medical Association. This is the condition characterized by popping eyes, extreme nervousness and often rapid pulse.

The old method of determining whether a patient suffered from over-activity, or underactivity of the thyroid gland was to fit a mask over his face through which a measured amount of oxygen was supplied. From the time needed to use up the oxygen, the physician could determine the patient's oxygen consumption and from that his basal metabolic rate, or the speed at which his thyroid gland was driving his body in its various activities.

This test, Dr. Poer said, has turned out to be rather unsatisfactory. A new test, pleasanter for the patient, though it takes longer, is now available. This test is made by taking a sample of the patient's blood and determining the amount of iodine in it. As iodine is part of the chemical which the thyroid gland makes and by which it influences body activity, this test for the amount of

iodine in the blood tells the physician whether the gland is making too much or too little of the active chemical.

The new trend in treatment of toxic goiter is really a return to an earlier method. Instead of removing the over-active gland all at one time, Dr. Poer finds the older method of performing the operation in two or more stages is safer and better. This is especially true in patients with extreme thyroid disease and in older patients. They seem better able to stand the strain of several short operations than a single long, extensive one.

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ARCHAEOLOGY

## Bishop Told How Indians Got Clothes Free Off Trees

HOW Indian women of Florida got their clothes free off the trees (not fig trees) is revealed in a rare letter by a Spanish bishop, 1675, a translation of which has just been issued by the Smithsonian Institution.

This letter, sent by Bishop Calderon of Cuba to Queen Mariana in Spain, is pronounced one of the few eye-witness accounts of conditions in aboriginal Florida.

"The women wear only a sort of tunic that wraps them from the neck to the feet," wrote the bishop, "and which they make of the pearl-colored foliage of the trees."

He added it "costs them nothing except to gather it."

Reporting statistics carefully to his queen, he said:

"Four thousand and eighty-one women, whom I found in the villages naked from the waist up and from the knees down, I caused to be clothed in this grass, like the others."

There were 13,152 Christianized Indians in the four provinces he visited, the bishop reported. He found them fleshy and large of build, but not much interested in work. They were clever, however, and quick to learn any art they saw done, and had made large churches of wood, with careful workmanship.

These old Florida Indians, described in detail by the letter, were soon to die out, and it has not been supposed that they had so high a culture as the bishop's observations now reveal.

The letter has come to scientific attention through discovery of a copy in archives of the North Carolina State Historical Commission.

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ANTHROPOLOGY

## Famous Bones to Travel to Session on Ancient Man

AN INTERNATIONAL symposium on early man is to be held in Philadelphia, March 18 to 20, when scientists will gather and bring famous ancient remains to celebrate the 125th anniversary of the Philadelphia Academy of Natural Sciences.

Bones of Minnesota's oldest inhabitants, unearthed by Dr. A. E. Jenks of the University of Minnesota, will be shown. Casts of Peking Man, China's oldest man, will be brought for exhibit from that country by Dr. Pierre Teilhard de Chardin. A cast of the earliest datable human fossil, *Homo Modjokertensis*, will be brought by Dr. Ralph Von Koenigswald.

Foreign and American scientists will present papers on the latest evidence regarding man's prehistory. A Hall of Prehistory will contain exhibits of ancient man that have been found in all parts of the world, and will show how our ancient ancestors lived.

The Academy, once known to European scientists as the "Lyceum of America," is the oldest institution of its kind on this continent.

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PLANT PHYSIOLOGY

## Incompatibility Troubles Plants as Well as Humans

INCOMPATIBILITY, frequent source of marital wrecks among human beings, has a biological analogue among plants. Evidence to this effect has been worked out at the New York Botanical Gardens by a corps of WPA researchers, under the supervision of Dr. A. B. Stout.

Incompatible human couples frequently fail to have children, though if they are divorced and find themselves new mates the new marriages may be fertile. Similarly, some of the plants investigated in the present research could not produce seed when crossed with each other, but when used in hybridization experiments with different plants reproduced quite normally.

This physiological difficulty between particular strains of plants has been given the technical name, protoplasmic incompatibility. A graphic display illustrating these conclusions has been prepared for display by the Women's and Professional Division of the Works Progress Administration.

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