

MEDICINE

**Find Anti-Tumor Activity
In Common Flower Bulbs**

► A TUMOR-DAMAGING substance has been found in the bulbs of some narcissus, daffodils and other flowers commonly grown in American backyards.

Substances from snowdrops, snowflakes, narcissus and other members of the plant family amaryllis exhibited anti-tumor activity in mice, D. B. Fitzgerald, biochemist at the National Cancer Institute, Bethesda, Md., reports.

Experiments revealing these anti-tumor properties consisted of grinding the bulb of each plant. Those few flowers which did not form bulbs were tested by grinding the tuber or fleshy root. The ground pulp was suspended in water and the mixture was injected into cancerous mice.

The mice were killed 24 hours after injection of the mixture. Their tumors were inspected for signs of damage, such as, hemorrhage and necrosis, death of the tumor cells. Results indicate some of the most common flower bulbs produced the greatest damage.

The experiment also established that there are at least two anti-tumor compounds in the amaryllis flower family. Scientists are now working on the complete isolation and identification of these compounds. One substance has already been isolated from a variety of the narcissus in concentrations 100 times the original strength.

These isolated substances will be studied to understand better the role they play in damaging mouse tumors.

This connection between cancer and the amaryllis flower family is not a new one. Folklore and medical writings since ancient times have repeatedly mentioned this plant family as a potent tumor fighter in man, according to the report of this project published in the *Journal of the National Cancer Institute* (April).

Working with Mrs. Fitzgerald at the National Cancer Institute on this project were J. L. Hartwell and J. Leiter.

Science News Letter, May 17, 1958

PHARMACOLOGY

**Antiseptic Compound
Eliminates Gum Infection**

► DEVELOPMENT of a local antiseptic that successfully eliminates painful gum infections caused by dental hypodermics has been announced.

The antiseptic, known as Betadine, is a combination of the chemical povidone and iodine. The use of iodine alone as an oral antiseptic is rare because it is irritating and bad tasting, Dr. James M. Jablon of the National Children's Cardiac Hospital and the department of medicine at the University of Miami, Miami, Fla., told scientists attending a meeting in Chicago of the Society of American Bacteriologists.

However, when iodine is combined with povidone, the rapid action and broad activity of iodine is retained while the combination eliminates the undesirable effects.

The hazard of gum infection is created by the number of microorganisms found in the mouth—streptococci, staphylococci, gram-positive and negative bacilli. When anesthetic is injected, these same microorganisms are sucked back into the hypodermic. They enter the gum when the same needle is used for multiple injections.

The combination antiseptic was swabbed on the gum with a sterile cotton pad before hypodermic injection in 31 patients. No bacteria were found on either the injection needles or the anesthetic cartridges in all 31 cases, Dr. Jablon stated.

Without the use of the antiseptic, 74% of the syringes used during 38 injections contained organisms.

Assisting Dr. Jablon in this project were Drs. Milton S. Saslaw and Doran D. Zinner, both affiliated with the hospital and university in Miami.

Science News Letter, May 17, 1958

SURGERY

**Emotions May Hamper
Recovery After Surgery**

► PERSONAL EMOTIONAL reactions play a major role in determining the rate of recovery following an operation.

These personal human reactions range from mild apprehension to "psychotic disintegration," the complete break-down of organized behavior. Anxiety and fragile personality organization are two more factors which can influence the outcome of an operation.

Children who have not been prepared for an operation are particularly susceptible to fear and anxiety. Yet many hospitals either forbid or discourage visits by parents. Children who seem normal in the hospital may have prolonged after-effects when they return home, Drs. Norman Chivers and Theodore L. Dorpat, University of Washington School of Medicine, Seattle, report.

Fear of death plays an important role in emotional reactions, they say. Some of the body's organs have a high symbolic life-and-death significance. One such example is the heart. In a study of patients about to undergo heart surgery, a high proportion showed emergency defenses such as immobilization and hysterical amnesia.

Knowledge of, or identification with, someone who died following an operation may lead to undue anxiety. Children particularly are disturbed at the prospect of facing a minor operation after hearing of a death in the hospital.

The doctors' report appears in *GP* (May), published by the American Academy of General Practice.

Apprehension and emotional upset can be reduced by offering a forthright explanation of the whole surgical sequence.

Drs. Chivers and Dorpat agree that special consideration should be given to maintaining the patient's ties with his home and family. A child feels more secure when he has his favorite toy with him in the hospital. The presence of a key member of the family following an operation is also helpful, they conclude.

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IN SCIEN

ORNITHOLOGY

**Fuller's Earth Saves
Oil-Soaked Birds**

► FULLER'S EARTH, a kind of clay now used mainly as a filter and a catalyst in chemical reactions, may soon be solving a serious wildlife problem, U.S. Fish and Wildlife Service biologists report.

The problem is what to do about birds that land on oil-topped water. The oil has a tendency to mat a bird's feathers and prevent flight. The oil-coated birds often starve or, if rescued, can seldom be saved by the usual "rehabilitation" methods.

However, absorbing the oil with fuller's earth seems to be the answer.

Ordinary washing with soap or detergent also removes natural oils. A well-scrubbed water bird, however, sinks if it attempts to swim and is susceptible to pneumonia. It takes about two weeks before its glands secrete enough oil to bring it back to normal.

An English naturalist, who has been corresponding with the Fish and Wildlife Service, said the fuller's earth treatment is getting results in rehabilitating the water birds.

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MEDICINE

**Some Stomach Cancers
Are Really "Phonies"**

► SEVERAL TYPES of stomach inflammation and irritation resemble cancer and are frequently diagnosed as such.

These "pseudo-cancers" are not malignant, although they are sometimes labeled as malignant lymphoma of the stomach, or cancerous invasion of the lymphatic system, Dr. J. Leslie Smith Jr. told a group attending the American Association of Pathologists and Bacteriologists meeting in Cleveland.

Many times the disease is caused by lymphoid hyperplasia, overproduction of lymph-like tissue, or gastric ulcers, both of which result in benign growth.

Cancerous tissue and the benign tissue resulting from the mentioned disturbances resemble each other. However, certain subtle differences can be detected under the microscope.

A recent study conducted by Dr. Smith and a colleague, Dr. Elson B. Helwig of the Armed Forces Institute of Pathology, Washington, D. C., also revealed malignant lymphoma of the stomach, when localized to this organ, has a marked biological difference from those lymphoma which spread to the stomach from other parts of the body. When this type of cancer is localized to the stomach only, the possibilities for cure are very good, Dr. Smith said.

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CE FIELDS

ENTOMOLOGY

Silica Dusts Control Cockroaches

► EXPERIMENTS at the University of California at Los Angeles may provide faster and surer control of cockroaches.

Assistant entomologist I. Barry Tarshis achieved "startling" results on the household pest by using an inert, non-toxic dust.

Sprinkled on the floor of cages, silica aerogels in the group known as Syloids killed 100% of the German cockroaches in three-fourths to one and three-fourths hours. The American and the Oriental cockroach died within four or five hours.

Currently used insecticides, on the other hand, required a much longer period to kill cockroaches, Mr. Tarshis notes. And results were not always 100%.

The powder kills by adsorbing an oily protective film that covers the entire body of the cockroach and normally prevents loss of water. Thus the powder kills through desiccation, literally drying the insect to death.

The three species Mr. Tarshis tested have been showing increasing resistance to common insecticides in recent years.

Because the finely ground dust has no chemical action, cockroaches may not develop the ability to resist it, Mr. Tarshis believes.

The treatment works either as a preventive or as a control. The insect has only to come in contact with the dust by crawling through it.

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ENTOMOLOGY

"Old Maid" Bees Do the Most Work

► "OLD MAID" bees work harder than mated bees.

Such "old maid" bees, with mouths worn and wings tattered from the hard work of pollen gathering, have been found in the nest of societies of bees in Brazil.

This is reported to *Science* (May 2) by Dr. Charles D. Michener of the University of Kansas, who worked on collaboration with Dr. Rudolf B. Lange of the Instituto de Historia Natural and Faculdade Catolica de Filosofia, Curitiba, Parana, Brazil.

During January and February, the height of the South American summer, between 15% and 20% of the females dissected were unmated, the entomologists report. In some cases this was because they were young, but others showed the wear and tear of age and presumably would not mate. Apparently, they were "old maids" from choice.

Some of these "old maid" bees showed the ravages of age and hard work to a much greater extent than did any of the fertilized bees of the same age.

Over half of the pollen collectors studied were unmated, and the scientists believe that most or all of the unmated bees of the species *Augochloropsis sparsilis* become pollen collectors.

"It is easy to see that the presence of such active, unfertilized bees might be an advantage to a colony, even though they are nonreproductive," the scientists say.

The scientists conjecture that the hard-working habits of the "old maid" bees served as a preadaptation that resulted in the evolution of a worker caste in bee colonies.

Like the human spinster, the "old maid" bees occupy the same nests with mated females and a division of labor is established, some females laying the eggs while others go out to work.

And it is the "old maid" who does the most work.

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AGRICULTURE

Paper Boxes and Wax Made From Sugar Cane

► HEAVY PAPER boxes and shoe polish may be the result of two new processes developed by U. S. Department of Agriculture scientists that promise to make use of a big waste—sugar cane residues.

Bagasse, the fiber-like residue left when the sugar is extracted from sugar cane, has been successfully made into heavy corrugated paper shipping boxes.

In laboratory tests, the U. S. Department of Agriculture reported, 75% of the bagasse boards were equal or superior to comparable commercial boards.

As part of a USDA research program, 12,000 bottle and can boxes were manufactured and given both laboratory tests and shipping durability tests. The bagasse board boxes were described as stiffer and not as soft as regular boxes.

New refinements in the screen separation of cane fiber and pith, developed at USDA's Northern Utilization Research and Development Division at Peoria, Ill., have removed a "major obstacle to economical and effective pulping of bagasse."

This use for sugar cane residues is expected to help satisfy the growing demand for boxes and containers. In 1956 about 7,000,000 tons of pulp and paper were used for this purpose. By 1965, the amount is expected to increase by 40%.

The development of a low-cost process for extracting wax from sugar cane also may give cane growers an added income.

The only wax-extraction process yet devised that is suitable for the small- and medium-sized sugar mills found in this country, it produces a hard, lustrous wax.

The new sugar cane product is similar to carnauba wax, which constitutes about three-fourths of the United States' vegetable wax imports which are valued at about \$10,000,000.

Large scale studies are needed before the new process will be ready for commercial use, USDA researchers report.

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SEISMOLOGY

Cut Earthquake Damage Through Maps and Codes

► EARTHQUAKE damage could be reduced through the proper use of zoning maps and building codes based upon soil conditions.

According to C. Martin Duke, professor of engineering at the University of California at Los Angeles, it is generally true that soft valley or seashore soil deposits amplify earthquake wave motions and make a riskier foundation than hard, hilly ground.

Prof. Duke, whose investigations have carried him to Japan and Mexico, cites as an example the 1957 earthquake which occurred 50 miles from Acapulco. Acapulco itself, built on granite, remained almost unharmed, while Mexico City, 200 miles from the quake's center but resting on a soft lake bed, was badly damaged.

Similarly, during the 1906 San Francisco quake, residents in the soft filled land section near the bay were much harder hit than those living on the rocky soil of the seven hills.

Japan has acted on these findings by zoning its major cities according to soil conditions, and requiring greater strength in structures on the soft soil sections.

California and other earthquake-prone states could well benefit by the Japanese example, Prof. Duke believes. He advocates more intensive theoretical and experimental research by engineers, which should lead to more realistic building coding in earthquake-prone zones.

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MEDICINE

Cosmetic Use of Tattooing Reported by Surgeon

► MEDICAL SPECIALISTS now have a new use for the ancient art of tattooing.

The technique of tattooing has been successfully applied to reshaping and redefining a distorted lip line. It also promises to be a beneficial technique in other problem cosmetic cases, Dr. Norman C. Lake, consulting surgeon at Charing Cross Hospital, London, England, reports in the *British Medical Journal* (May 10).

Dr. Lake describes improvement of an ugly scarred lip having virtually no red margin because the patient had undergone a hare-lip operation in infancy.

By applying a template, a metal plate defining the desired lip line, and tattooing with a mixture of red oxide R.93A and irgalite orange P, a lip was drawn that looked genuine.

Many such templates can be made to outline desired areas to be tattooed. In this manner, eyebrows, lips, and receding hairlines can be redefined, Dr. Lake says.

Other uses of the tattooing technique could include an imitation beard-stubble for dark-haired men with pale facial skin grafts or scars, and nails drawn after the amputation of the ends of toes or fingers.

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