

CHEMISTRY

**Antibiotic Discovered
In Wood of American Tree**

► ROT-PROOF qualities in the heartwood of Western white cedar or arborvitae may possibly be due to an antibiotic, or penicillin-like compound, newly discovered in this American tree species by two Swedish chemists, Drs. Holger Erdtman and Jarl Gripenberg, of the Royal Institute of Technology, Stockholm, and reported in *Nature* (May 8).

From an oil which two American chemists had extracted from this wood the Swedish scientists obtained a crystalline substance which forms ring-shaped molecules of the formula $C_{10}H_{12}O_2$. This seems to possess high germ-stopping powers. There are three varieties of this compound, differing only in the arrangement of the atom-groups within the molecule.

Drs. Erdtman and Gripenberg have named the newly identified substance "thujaplicin", from the botanical designation of the tree, which is *Thuja plicata*. It is a native to the west coast of North America, from Alaska to northern California. The three slightly different varieties of the compound they have named alpha, beta and gamma thujaplicin.

Science News Letter, June 19, 1948

VETERINARY MEDICINE

**DDT May Be Effective
Against Mange on Dogs**

► DOGS afflicted with a particularly bad kind of mange may be cured by DDT, if results in early trials are confirmed.

The idea for using this anti-insect chemical for mange comes from Dr. Emilio Estrada, veterinarian of Guatemala City, C. A. He reports his experiences with DDT for mange in the *Journal of the American Veterinary Medical Association* (June).

The first case was in a two-year-old dachshund. That was three years ago and Dr. Estrada could not get rotenone to treat the condition. So he made up a 2.5% ointment with powdered DDT in vaseline and tried that daily for 10 days. By that time the hair was beginning to grow on the spot where it had fallen out and scrapings of the spot did not show any of the *Demodex* mites that were causing the condition.

Good results were also obtained in two other dogs after daily treatment for 15 days or every other day treatment for

20 days. A commercial rotenone preparation, when again available, was tried in several cases but in some had to be used for more than six months. In many of these cases the owners became dissatisfied and stopped the treatment or had the dog sacrificed.

While Dr. Estrada does not draw any conclusions from three cases, he thinks the DDT formula has merit. The one he now uses contains oil of thuja and zinc oxide as well as DDT. He thinks these help relieve the irritation and promote healing of raw surfaces, but he urges caution in treating large areas. No symptoms of poisoning were seen. He considers this especially noteworthy in the second case, since this dog licked much of the ointment off his lips.

The mange for which the DDT treatment was tried is called follicular mange. It is an intractable form due to the presence of mites in the hair roots.

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INVENTION

**Batting Practice Machine
Trains for Safe Hits**

► YOUNGSTERS aspiring to be the Ted Williamses and Joe DiMaggios of tomorrow might do well to take some swings at an invention on which Robert V. Fessler of Indianapolis has received U. S. patent 2,443,131. It is a practice machine intended to train you into having your bat moving in that safe-hitting horizontal direction during the critical moment when it connects with the ball. Fellows who persist in a down-and-up-again swing are very likely either to top the ball for an easy grounder or to clip it underneath for an easy pop fly.

Mr. Fessler's invention provides a series of white-painted spots the size of a standard baseball, backed by rubber cushions, all mounted on a solidly planted and braced hardwood post. Rods from behind these targets ring a bell if you hit squarely. There is a whole vertical series of targets, representing all possible heights of fair pitches.

Just to make sure you don't get off any of that down-and-up-again stuff, the machine has a series of long rubber rods, reinforced with coil springs inside, sticking out between the targets. There is just enough space between any two of them for a bat to get in, if your swing is strictly on the level. If it isn't, these stiff rubber fingers give your bat the brush-off—and you don't ring the bell.

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IN SCIENCE

ENGINEERING

**Diesel Locomotives May
Haul Most Trains Soon**

► DIESEL locomotives within a decade or less will haul most of the American railroad trains, the Society of Automotive Engineers, meeting in French Lick, Ind., was told by President J. W. Barriger, of the Chicago, Indianapolis and Louisville Railway Company.

Diesels already surpass steam locomotives in virtually all respects, he said, and rapid future progress in design and development will establish the diesel as definitely superior. While the diesel locomotive is the most expensive motive power unit, it can make even transcontinental runs with ease and dependability, and be ready for the return trip with only routine servicing.

Every four years, he stated, the railroads spend the equivalent of their original investment in steam locomotives in repairs to them. The gross annual expenses of owning and operating steam locomotives represent about 75% of the original cost of these machines. The low cost of diesel maintenance is greatly in their favor, he indicated.

Science News Letter, June 19, 1948

ENGINEERING

**Auto Brake Adapted from
Hydraulic Airplane Brake**

► HYDRAULIC BRAKE for the automobile, a radically new type adapted from a wartime airplane brake, is claimed to have greater braking surface and more positive action than previous car hydraulic brakes.

The new automobile brake was developed by the Glenn L. Martin Company, of Baltimore, aircraft manufacturers, from its improved airplane brake. It has already proved satisfactory under actual road conditions but is not yet ready for marketing.

This Martin brake, which has no wheel cylinders, pistons and linkages, involves use of a continuous ring seal that fits in a groove in the shoe brake support. Hydraulic fluid, actuated by the brake pedal, enters this groove under the seal, forcing it outward and causing the brake shoe to make a continuous contact with the drum.

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FIELDS

ORNITHOLOGY

Investigate Family Life Of Elusive Curlew

► THE only bird in North America whose nest and young have never been seen will have its family life intensively investigated this summer by an expedition that recently left for Alaska, under the leadership of Prof. A. A. Allen of Cornell University.

The bird is the bristle-thighed curlew, one of the numerous family of rather small shore birds with long, curved beaks. This particular species was first discovered in 1785 on Tahiti, and long was considered strictly a South Pacific bird. Then it was seen in 1869 in Alaska, and it is now considered certain that its breeding ground is in that territory.

Prof. Allen and his colleagues will use planes in seeking the nests of the elusive curlew. First establishing a base at one of Alaska's regular air fields, they will fly to the shores of upland lakes, then do their searching on foot. The first man to find a pair of the birds will pass the word to his scattered companions, and all will converge on that one area for more intensive hunting for the hidden nest.

The expedition is sponsored jointly by Cornell University and the National Geographic Society.

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ASTRONOMY

Five-State Search on for Persons Who Saw Fire-Ball

► A great fire-ball flashed in the early evening dusk of Monday, June 7, at 8:05 p.m. CST.

Spotted by an 18-year-old state Science Talent Search scholarship winner, Thomas Scott, who reported his observation to the American Meteor Society, the meteorite left a smoky train lasting four minutes as seen from Nauvoo, Ala.

Dr. Charles P. Olivier, director of the University of Pennsylvania's Flower Observatory at Upper Darby, Pa., believes that thousands of people must have seen the brilliant sight in the skies of western Tennessee, western Kentucky, southeastern Missouri, northeast Ark-

ansas and southern Illinois. Reports from all who saw it are requested by Dr. Olivier.

The piece of rock from outer space must have entered the earth's atmosphere about where Missouri, Kentucky and Illinois come together. People closer to it than the young observer, saw it more brilliantly and with a train lasting longer.

Scott, who is described by Dr. Olivier as the "best amateur meteor observer" in the society, will use his scholarship money, won in the Alabama State Science Talent Search, conducted by the Alabama Academy of Sciences with the cooperation of Science Service, to study with Dr. Olivier beginning next fall.

Scott is the son of a retired telegraph operator who now runs a truck farm. He lives in a small town of about 500 population and his favorite scientific hobby is watching and recording meteors from a hill near the town.

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ORNITHOLOGY

Birds Found to Use Tools In Search for Their Food

► SOME birds find that tools help them secure a juicy meal.

An outstanding example of a tool-using bird is the woodpecker-finch of the Galapagos Islands. In searching crevices for insects, the bird is handicapped by its rather short, thick bill. To offset this the woodpecker-finch picks up a slender, short length of stick or the spine of a prickly pear and with it pokes into cran- nies, states Dr. Austin L. Rand, curator of birds of the Chicago Natural History Museum. When the insects thus disturbed run out, the stick is dropped and the food seized.

The European song thrush feeds in part on snails and winkles. To get the soft edible animal out of its shell, it carries or drags the snail to a favorite rock and hits it against the rock until the shell is broken and its contents exposed.

A few other species bring shellfish to special places. "Herring gulls on our northeastern coast pick up mussels and clams and, flying over a rock or some other hard surface, drop the shellfish and follow it down," Dr. Rand states. "If the shell is broken, the dish is ready for the gull; if the shell is not broken the gull takes the shellfish up to a higher altitude and tries again."

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PUBLIC HEALTH

Blockade Is Deadliest Weapon in Anti-Rat War

► RAT-KILLING drives are all to the good, but for permanent results in the war on rats the blockade is the deadliest weapon, declared Albert M. Day, director of the U. S. Fish and Wildlife Service. Mr. Day spoke as guest of Watson Davis, director of Science Service, on Adventures in Science, heard over the Columbia network.

Depriving rats of free lodgings at man's expense is the first objective in the fight, the speaker pointed out, quoting the three-pointed slogan: "Build 'em out, starve 'em out, and finally kill 'em off." To deny rats living space, he continued, all buildings should be either on rat-tight concrete or masonry foundations or on two-foot concrete piers, higher than a rat can jump. All openings big enough to admit a rat should be securely closed. Backyard accumulations of rubbish should be cleared up.

Rat-proofing was learned the hard way in San Francisco, when rat-borne bubonic plague hit that city at the beginning of the century. All sorts of half-way measures were tried, but the plague kept on claiming victims. Finally an object lesson carried conviction: in rat-proofed Chinatown the plague stopped; in the nearby Italian settlement, which had not been rat-proofed, it persisted.

The "starve 'em out" objective can be realized partly through "build 'em out" measures, as these are applied to places where food is stored and handled. Requirement that all grain bins be metal-lined is being written into many municipal codes nowadays. Finally, every householder must do his share by putting all garbage in solid containers with tight metal lids which are carefully kept closed.

For the "kill 'em off" part of the campaign, safest effective rat poison is still red squill, since this is deadly to rats but not human beings and pet animals. ANTU may be used, though if a quantity is taken by accident it may make you sick. The most toxic of the newer rat poisons, 1080, is available only for specially trained professionals.

But however the rats are killed, emphasis returns to the "build 'em out" part of the campaign. For other rats will only move in after the original rat population has been exterminated if the premises are left in condition to invite such invasion.

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