

## BACTERIOLOGY

**Bacteria and Fungi Feed on Pure Rubber**

➤ BACTERIA and fungi with super-billygoat appetites are reported by Dr. Claude E. ZoBell of the Scripps Institution of Oceanography and Dr. Carroll W. Grant of Brooklyn College: they feed on pure rubber (*Science*, Oct. 23).

Drs. ZoBell and Grant first suspected microorganisms of this "rubberophagy" when rubber-stoppered bottles containing unsterilized sea water proved to have less oxygen in them than they should have. They then added cultures of sea bacteria to carefully sterilized water containing known quantities of chopped-up rubber, and again found evidence of bacterial hunger for this unlikely food.

Suspecting that it was the vulcanizing sulfur rather than the rubber itself that the bacteria were after, they repeated the experiment, this time using pure, unvulcanized, sulfur-free rubber. Once more came the indications of microbes at meals.

Not only bacteria but certain mold fungi have been found to be rubber-devourers. Garden soil as well as sea water have been found to harbor these hungry lower plants. Drs. ZoBell and Grant suggest that "such microorganisms may play an important role in the deterioration of rubber products. The life of rubber products which come in contact with moisture may be prolonged if ways can be found to retard or prevent the activity of rubber-oxidizing microorganisms."

*Science News Letter, November 7, 1942*

## PUBLIC HEALTH

**Waterproof Bags Designed For Wastes in Air Raids**

➤ A NEW METHOD of protecting health in case of air raids was presented by the Office of Civilian Defense at the meeting of the American Public Health Association in St. Louis. It relates to the little-discussed and unpleasant but highly important matter of sewage disposal.

The prompt removal of waste products is vital to the healthy existence of a densely populated community, the OCD points out, but when water service is interrupted by damage to water mains, water-carried waste disposal becomes impossible. In most cases it will not be practical to cart sufficient water to flush toilets and continue water-carried waste disposal.

The OCD's answer to this vital problem is a single-use container made of specially treated water-resistant paper. This bag, unsupported, is capable of holding one quart of water for over 10 days with no water stains showing on the outside. No special container or frame is necessary for support of the bag while it is being used. Disposal involves no special problem, as after use the top of the bag can be rolled down and tied into a small compact package with twine ready attached. The bag and contents may be incinerated or, in private homes, deposited in the garbage can for collection. Further advantage of this container is that it does not call for critical materials such as galvanized iron or other metal.

The city of Washington, D. C., has ordered 60,000 of these bags. Sanitary engineers from other cities attending this meeting are showing great interest in the device, as did the local manager of a large hotel chain. The design was worked out by engineers of the District of Columbia Health Department, the U. S. Public Health Service and a Milwaukee paper manufacturer. Cost of the containers on the pilot run is estimated at eight cents each, with a reduction to five cents likely after large-scale production starts.

*Science News Letter, November 7, 1942*

## ENTOMOLOGY

**Share Tent With Mosquitoes To Aid Scientific Search**

➤ A CHRISTMAS present for the men in the armed forces is being readied by six men in Canberra. Sharing their tent with a swarm of mosquitoes, they "keep 'em flying" to test repellents which members of the Scientific and Industrial Research Council hope to have perfected by the holidays.

Then the wet season in New Guinea will be at hand, and Allied Enemy No. 2, the deadly malaria-carrying mosquito, must be combated by the troops.

To date, oil from a Tasmanian tree is one of the best repellents for aerial attacks from the mosquito squadrons.

After biting a malarial patient, a mosquito must live ten days before the disease can be passed on. A repellent is one way to reduce the number of mosquitoes which have human contact after the ten-day period.

Citronella, the old standby, has the disadvantage of preventing perspiration and its odor may give away the position of troops in close jungle fighting.

*Science News Letter, November 7, 1942*

**IN SCIENCE**

## PLANT PATHOLOGY

**Chemical Kin of Aspirin Combat Fungus Diseases**

➤ ASPIRIN'S chemical cousins have been found effective means for combating the troublesome fungi that prey upon plants known collectively as the mildews. "Aspirin" is the proprietary trade name for acetyl salicylic acid, as used for a headache remedy and general ache-and-pain alleviator. The fungus killing compounds are various salicylates, among which bismuth subsalicylate, benzyl salicylate and zinc salicylate have been found most promising when tried on blue-mold disease of tobacco, according to a communication from Dr. E. E. Clayton of the U. S. Department of Agriculture in *Science* (Oct. 16)

Discovery of the fungicidal value of these compounds was due to the war-caused shortage in copper salts, hitherto used in sprays for holding mildew and related diseases in check. The salicylates were found to be actually superior to the copper compounds for which they were supposed to be only substitutes.

*Science News Letter, November 7, 1942*

## ENTOMOLOGY

**Cockroaches Killed by Touch of Poison**

➤ AN INSECT poison that kills cockroaches if it touches the outside of their bodies, though they can swallow it without harm, is described (*Science*, Oct. 23) by John W. Zukel of Iowa State College. The compound is phenothiazine, which has been under test for some time as a promising fungicide and killer of parasitic worms as well as an insecticide. It also has some uses in human medicine.

When it touches the outside of the cockroach's shell, phenothiazine passes through and is apparently converted into another compound, known as a conjugate of thionol, which is what really does the killing job.

Size of the particles of phenothiazine seems to have much to do with its fatal effect. The finer the particles, the smaller the size of the deadly dose needed.

*Science News Letter, November 7, 1942*

# E FIELDS

## INVENTION

### Bacteria Are Used To Find Petroleum

➤ GEOMICROBIOLOGICAL prospecting—that's what the inventor calls his method of putting microbes to work tracking down oil deposits.

Here is how this newly patented method works: A hole several feet deep is dug in the ground and a vessel containing a culture of bacteria is suspended near the bottom. The top of the hole is plugged and the bacteria are left there for a period of time which may amount to several weeks. Then they are hauled up, taken to the laboratory, and examined for the effects of soil gases, particularly on the rate of growth.

When oil is present deep down in the earth, certain heavy hydrocarbon gases percolate to the surface. Much research was necessary to find bacteria that would be strongly affected by these particular gases. *Bacterium alliphaticum liquefaciens* was found the most suitable. This method is like the device of using a canary to detect poison gases in World War I. Only it is a little more complicated.

*Science News Letter, November 7, 1942*

## PUBLIC HEALTH

### Syphilitic Heart Incidence Is "Appallingly High"

➤ THE DANGER of failing to treat rheumatic fever and syphilis adequately in young patients shows up strikingly in middle-aged heart patients coming to clinics, Dr. Bernard Schwartz of Cincinnati warned at the meeting of the American Public Health Association in St. Louis.

The number of patients with syphilitic heart and blood vessel disease is "appallingly high, because of interrupted or neglected early anti-syphilitic therapy," Dr. Schwartz declared. In the 1,500 middle-aged clinic heart patients he studied over a period of 15 years, 350 had this form of heart disease.

Arsenicals for treatment were well tolerated even in far-advanced cases, he said, pointing out that this gives re-

assurance to the practicing physician who was too conservative in the treatment of even the slightest syphilitic heart involvement.

The tragedy of the 150 middle-aged patients with rheumatic heart disease was that no one recognized the importance of vocational guidance for these patients when they were young. Nearly all of them, consequently, were unskilled workers, totally disabled in middle age for heavy work and yet untrained for semi-skilled work. As a result of the findings in this group, Dr. Schwartz reported, rheumatic fever and its complications has been made a reportable disease in Cincinnati.

Of the 1,500 patients, 300 had degenerative heart diseases. Disease of the heart's blood vessels such as angina pectoris, so frequent in the middle and upper economic groups, was infrequent among the clinic patients.

In 700 patients no organic heart disease was found, although they had symptoms referable to the heart. Some had neuro-circulatory asthenia or soldier's heart, some thyroid trouble and some obesity.

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## EDUCATION

### Manual Training Directed To Helping Army and Navy

➤ PRIOR to America's entry into the war, manual training teachers in our public and private schools taught students how to make tie-racks, book ends and waste paper baskets. Here and there, more advanced workers made desks, tables or even row boats.

Then came the requests from the U. S. Army and Navy for thousands of small, solid scale models of airplanes which were to be used for education and identification purposes. The Navy program was administered through the school systems. The Army program called upon volunteer workers to apply their model making skills to the production of needed wooden miniatures.

Overnight, manual training in the school systems was transformed from the making of gadgets to the building of units vitally helpful toward America's war effort. Even hobbyists, who once "toyed" with building flying models, suddenly discovered that their skills were in demand. Our air forces needed them as flyers or instructors; others not available for military service modified their home workshop programs to fit into the model building program.

*Science News Letter, November 7, 1942*

## INVENTION

### Device Prevents Enemy From Jamming Wireless

➤ A METHOD of sending secret wireless messages that cannot be jammed by the enemy is described in U. S. patent 2,298,562. The inventor is Francois Charles Pierre Henroteau of Ottawa, Canada.

Jamming wireless signals or a radio program is quite easy. All the malevolent spirit has to do is to send out a wave of precisely the same frequency as that on which the message is being sent, and howls and whistles in the receivers make it unintelligible. This can be done, the inventor states, with any of the secret message systems so far proposed except those using ultra-high frequency, and these are not of great value because of their short range.

His method of avoiding jam and still maintaining secrecy is to distort the sending wave by means of what he calls a key plate, which varies the frequency of the wave in an irregular way according to a pattern on the plate. A similar key plate at the receiving end removes the distortion. If an enemy should happen to find out the pattern being used, the key plates can be changed.

The sending wave cannot be jammed in this system because the enemy would have to vary the frequency of his wave in precisely the same way.

*Science News Letter, November 7, 1942*

## NUTRITION

### Boiling Fresh Yeast Increases Available Vitamin

➤ IF YOU are taking fresh yeast as a means of getting extra vitamins into your system, boil it before you eat it.

The human body apparently can extract two or three times as much thiamin or vitamin B<sub>1</sub> from boiled yeast as from fresh, Dr. Helen Parsons, of the University of Wisconsin, announced at the meeting of the American Dietetic Association in Detroit.

Boiling the yeast, though troublesome and likely to make it less palatable, also increases the amount of two other B vitamins (riboflavin and vitamin G) the body can get from the yeast. Dr. Parsons' pronouncements on boiled vs. fresh yeast were based on experiments with ten students and with laboratory animals.

Don't, however, boil the yeast for bread making, she cautioned. Boiled yeast cannot make bread rise.

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