

## PUBLIC HEALTH

## Accidents Becoming Epidemic in United States

► ACCIDENTS are epidemic in the United States, taking more lives in every age group from one to 35 than any other cause.

It is time to study accidents as a public health problem and to evaluate their causes and "cures" the same way we do an influenza epidemic or any other epidemic.

This would involve extensive study of the problem, Dr. Albert P. Iskran said. Chief of operational research for the U. S. Public Health Service's accident prevention program, he addressed his remarks to the American Public Health Association meeting in St. Louis, Mo.

Statistics reveal several interesting aspects of the accident toll: age, sex, marital status, race, state of health, geography, season and time of day appear related to accidents.

The "deadly ages," when accidental deaths in general are most common, are under one and past 65. For the late teens and early twenties, automobiles cause about one-third of all deaths. In 1930 this figure was less than ten percent.

Men have a higher death rate than women; non-whites, both male and female, in general have a higher accidental death rate except when it comes to aircraft, machinery, electricity and falls.

Married persons have fewer accidental fatalities no matter what the cause or the age. Divorced persons have the highest rate in this category, with widows and widowers falling in between.

Automobiles, falls, fire and explosion, drowning, and poisoning account for the approximately 100,000 accidental deaths each year.

In 1956, cars caused some 40,000 deaths; poisoning caused the least number of deaths, more than 2,600.

"Analysis of death certificates available to health departments can reveal much information which helps to delineate the problem and assist in program planning" to fight the accident epidemic, Dr. Iskran concluded.

Science News Letter, November 15, 1958

## PHYSIOLOGY

## Electrical Impulses Sent To Brain Control Behavior

► WELL-FED rats can be induced to make pigs of themselves.

Scientists have found that they can control the eating, sleeping and other behavioral patterns of animals by electrically stimulating a portion of the brain in the hypothalamus.

Damage or destruction of one part of this portion of the brain can cause the animal to have a voracious appetite. In fact, the animal will eat twice or three times the normal amount of food. This can lead to a degree of obesity in which the body may contain 70% fat, Dr. C. N. H. Long of Yale University has found.

On the other hand, damage to a spot slightly adjacent to the appetite control

center of this portion of the brain can lead to ultimate starvation amidst an abundant food supply, he said.

Three other Yale scientists have also found another area of the brain that controls emotions. This center is located in the lower part of the brain, Drs. Jose M. R. Delgado, Neal E. Miller and Warren W. Roberts explained.

The scientists applied electrical stimulation to the emotion area of the cat's brain. The animal then learned to fear a white box it had previously preferred. It would jump out of the white box into a black box. Hungry cats also learned to control their appetites and avoid food when stimulated in the emotion area of the brain.

The first public showing of films of actual demonstrations with rats and cats proving that such emotions are deep seated in the brain will be on the science program, "Conquest," over the CBS television network on Sunday, Nov. 16. It has been prepared by CBS in conjunction with the National Academy of Sciences and the American Association for the Advancement of Science.

Science News Letter, November 15, 1958

## MEDICINE

## Bootleggers' Cocktail Produces Bizarre Effects

► BOOTLEGGERS have concocted a new drink composed mainly of rubbing alcohol and mothballs.

Nicknamed "scrap iron," the drink produces bizarre and serious mental effects, three South Carolina scientists report.

They reported 50 cases of severe intoxication within a three-month period from the mothball "cocktail." Those patients that were aware mothballs had been added to the mix stated the mothproofing ingredient added some "kick to the drink." Drs. R. Ramsey Mellette and William C. Miller Jr., assistant psychiatric residents, and Dr. Richard H. Gadsden, assistant professor of chemistry, of the Medical College of South Carolina, reported their study of the cases in the *Journal of the American Medical Association* (Nov. 1).

Other ingredients in the drink include yeast, cracked corn or corn meal, sugar, and sometimes the addition of Clorox, the bleaching agent. This last ingredient is added to speed up the action of the others.

The entire mixture is prepared in galvanized drums, which might account for the metallic taste and the name "scrap iron."

"Obviously this is a drink of 'voltage' rather than vintage," the scientists said. In addition, they suggested that steps be taken to hinder the sale of the toxic substance.

A majority of the victims exhibited symptoms of an acute or chronic mental disturbance "out of proportion to the amount of alcohol consumed." Some showed symptoms identical to those of delirium tremens from ethyl alcohol such as restlessness, hallucinations and illusions.

Most of the symptoms subsided within several days simply with the use of fluids, vitamins and tranquilizers.

Science News Letter, November 15, 1958

# IN SCIEN

## METEOROLOGY

## Weather "Cure" Seen Worse Than Ailment

► THE "CURE" of weather modification may be "worse than the ailment," the Weather Bureau's director of meteorological research has charged.

Dr. Harry Wexler said no attempts at making large-scale weather changes should be made until all possible effects have been evaluated.

His qualitative study showed, for instance, that making an artificial ice cloud over the Arctic Ocean to raise the temperature there would give persons living in the latitudes from 50 degrees to 65 degrees north winters with heavier precipitation than normal. In North America, the heavy snows would blanket an area roughly from the Canadian border north to the Arctic circle. They would also fall on most of northern Europe and virtually all of Russia.

Persons living in latitudes from 35 degrees to 50 degrees north, on the other hand, would likely have less winter precipitation than normal.

Dr. Wexler's views on the effects of a hypothetical ice cloud are reported in *Science* (Oct. 31). Dr. Wexler makes it clear he does not consider it very practical at this time to make and maintain a widespread artificial ice cloud over the Arctic.

If this could be done, however, the effects of an extensive polar cloud should be predicted using "the full resources of general-circulation and computational meteorology" to avoid undesirable results.

Science News Letter, November 15, 1958

## WILDLIFE

## Musk Ox Coming Back After Near Extinction

► THE OO-MING-MACK is no longer in danger of extermination.

Better known as the musk ox (oo-ming-mack is the Eskimo word), the animal is making a comeback in experimental herds in Alaska and Canada. A few years ago, the musk ox, which has been nearly killed off by hunters, was believed to have found its last home in northern Greenland.

Efforts to establish herds in northern Europe and Iceland have not been successful, Dr. Hartley H. T. Jackson says in the Annual Report of the Smithsonian Institution.

It is unlikely, Dr. Jackson, a retired biologist of the U. S. Fish and Wildlife Service, says, that the animal will ever be useful to man. While its wool is one of the finest known, comparing favorably with vicuna, it is mixed with coarse hairs. No economical separation method has been developed, the scientist points out. Also, although musk ox meat is nutritious, it too tough for most people.

Science News Letter, November 15, 1958

# CE FIELDS

## PHYSICS

### Very Precise Experiment Reconfirms Relativity

➤ A VERY PRECISE experiment measuring the variation in frequency of radio waves radiated by ammonia molecules during one day has given strong further confirmation of Einstein's special theory of relativity.

The experiment showed exactly what changes in wave frequency occurred when a stream of molecules travels in the same direction as the earth in its orbit and when the molecular stream travels in the opposite direction.

According to Einstein's theory, there should be no change in light velocity, or in radio wave frequency, when the molecular beam source travels with the earth's orbital velocity or against it.

Previous experiments, starting with the classic Michelson-Morley experiment, have confirmed Einstein's theory but not as precisely as the present test.

The results can be expressed in terms of the earth's velocity with respect to a fictitious ether, which was thought before Einstein's theory to pervade the universe. The present experiment used a maser, an acronym for Microwave Amplification by Stimulated Emission of Radiation. It showed that any velocity with respect to such an ether is 50 times less than the amount detectable by previous experiments.

The maser used is a tubular cavity through which flows a beam of ammonia molecules radiating waves at their natural frequency. It was first developed by Prof. C. H. Townes, J. P. Gordon and H. J. Zeiger of Columbia University in 1954.

In the experiment, J. P. Cedarholm, G. F. Bland and B. L. Havens of the International Business Machines Corporation's Watson Research Laboratory, and Prof. Townes used the maser as an atomic clock that measures molecular wave frequencies to an accuracy of one part in one million millions,  $10^{11}$ .

Science News Letter, November 15, 1958

## MEDICINE

### New Syphilis Test Proves Inexpensive and Fast

➤ A SLIGHT prick on the finger or toe is all that a person need suffer while undergoing a new screening test for syphilis.

This is because the new procedure, known as the PCT test, requires only a drop of blood. The test was developed by Dr. John J. Andujar and associates in the Texas Department of Health Laboratory at Fort Worth. Results of trials with 3,000 persons were reported at the meeting of the American Society of Clinical Pathologists in Chicago.

Since the test uses the drop of blood plasma that usually ends in the wastebasket when cell counts are made, it can be per-

formed along with routine blood tests.

It is also inexpensive, in the pennies-a-test class, depending upon the number of tests performed, the scientists said. Results appear rapidly, in as little time as eight minutes.

Since capillary blood from the fingertip is used, the new test does not entail the risk of infection, blood clot or pain occasionally associated with taking blood from a vein.

Hospitals will not need elaborate equipment, since most of them have on hand the disposable lancets, tubes and supplies required, the scientists said.

The test is reliable as a screening process because it may report false positives rather than errors of false negatives. It is for this reason that PCT is intended for screening and not as a positive test, they explained.

The key to the new test was the discovery that a combination of unheated plasma with choline chloride could be used to test for syphilis. Tests such as the famous Wassermann and its adaptations require blood serum from blood taken from a vein. The serum must be heated, a troublesome procedure.

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## BIOCHEMISTRY

### Cow Adrenal Extract Affects Insect Aging

➤ AN ABSTRACT from the adrenal gland of cows can prevent maturing in insects, two Cornell University scientists have reported.

Discovery of this adrenal cortex extract is believed to be the first chemical isolated from a vertebrate that has influenced invertebrates growth. While it does not seem to function as the "juvenile hormone" in vertebrates, the chemical extract mimics in detail the action of this hormone in insects.

Studies by Dr. Howard A. Schneiderman and Lawrence I. Gilbert have shown that the chemical also exists in other forms of life, even in the primitive jellyfish. This suggests, the scientists said, that the hormone may be a key life substance.

The chemistry of the juvenile hormone seems to point to its being a steroid. If this is true, Dr. Schneiderman said, "the juvenile hormone is not only widespread but is extremely ancient."

So far it is not known just what it is in the extract that affects insect maturation. It is not identical to the more than 50 cortical components and derivatives studied, the scientists explained. The extract "appears to be a unique and specific group of substances with juvenile hormone activity."

In previous research, also supported by the National Heart Institute of the U. S. Public Health Service, the juvenile hormone was identified as a secretion of the corpora allata, glands located behind the insect's brain. The location of the substance in jellyfish is still not clear.

Further studies of the effects of the hormone on other animals, including crustacea, rats and frogs, are being made.

Details of the research appear in *Science* (Oct. 10).

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## BACTERIOLOGY

### Phagocytosis Influenced By Bacteria Structure

➤ THE STRUCTURE of a bacterium, whether it is a smooth or rough form, makes a difference in its chances of being "swallowed up" by a white blood cell, or phagocyte, a group of Polish scientists reported.

Phagocytosis is the process by which amoeba-like cells, such as the white corpuscles or leucocytes, ingest bacteria and other foreign material. It is still a relatively unknown phenomenon, the scientists say. However, their experiments, reported in *Nature* (Nov. 1), pointed out several of the factors influencing phagocytosis.

Working with species of bacteria known as intestinal bacilli, the scientists mixed equal volumes of bacterial suspensions, washed leucocytes and inactivated horse sera.

(Blood serum, the clear, yellowish liquid that remains when the blood cells and fibrin are removed, is known to contain antibodies. It is therefore important to studies of how the body builds immunity against disease and infection.)

Results of the experiments suggest there is an "as yet unknown" factor in normal horse serum that is important in the phagocytosis of smooth bacterial forms. The phagocytic test also may be very useful, the scientists reported, in detecting differences between various bacteria since it shows up smooth and rough forms and those in between.

"New possibilities of studies on the antigenic structure of bacteria" were also suggested by their results.

S. Slopek, A. Skurski, E. Michalska and L. Dabrowski of the Institute of Immunology and Experimental Therapy's department of bacteriology, Polish Academy of Sciences, Wroclaw, reported the research.

Science News Letter, November 15, 1958

## MEDICINE

### Too Much Oxygen Can Slow Heart

➤ TOO MUCH OXYGEN during anesthesia may be responsible for heart failure, a doctor reported in Chicago.

Prolonged administration of oxygen-enriched air to animals brought instant cardiac arrest in what appeared to be healthy hearts, Dr. Sam E. Stephenson Jr. of the department of surgery and pediatrics at Vanderbilt University School of Medicine reported at the meeting of the American College of Surgeons.

Animals anesthetized with barbiturates breathed air in which the concentration of oxygen varied. As the amount of oxygen increased, the amount of carbon dioxide in the blood rose while the electrocardiogram registered rapid changes.

This evidence is "quite distressing," Dr. Stephenson said, when one considers the degree of hyperventilation, excess oxygenation and wanton changing of oxygen concentration that occurs during anesthesia for surgical procedures.

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