

MEDICINE

Technique Eliminates Doubtful Syphilis Tests

► AN IMPROVEMENT on a procedure originally developed at Johns Hopkins Medical Center, Baltimore, is eliminating doubt in 53% of the cases where positive Wassermann and Kahn tests for syphilis seem to conflict with case histories.

The new laboratory technique was developed by Dr. Ruth Boak, professor of infectious diseases, and her associates at the University of California at Los Angeles. It involves the reaction of spirochetes of syphilis from infected rabbits with the serum of patients being examined.

If the subject has syphilis, antibodies in the serum, formed in the course of the disease, will immobilize the spirochetes. If he is free from the disease, the organism will remain mobile.

"The technique cannot be used as a primary test for syphilis," Dr. Boak points out, "because it will not work in the early stages of the disease. Syphilis antibodies do not form until the subject has had the disease for several weeks."

The technique is being used in a cooperative program sponsored by the San Fernando Veterans Administration Hospital, the Los Angeles City Health Department, the State Health Department and the department of infectious diseases of the U.C.L.A. School of Medicine.

Science News Letter, January 24, 1953

INVENTION

Write Phone Numbers Right on Fixture

► EMERGENCY TELEPHONE numbers can be written on a fixture which clamps right onto the phone. The numbers come into view when the handle of the ordinary French telephone is lifted. Inventor is Dwight Griswold, West Hartford, Conn., and he received patent number 2,624,965.

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WILDLIFE

Indian Summer Hit Duck Hunting

► BALMY, INDIAN summer days, the delight of ordinary people, caused great anguish among that hardy race, the duck hunters, last fall.

Although there was no shortage of waterfowl during the 1952-53 season, which closed Jan. 10, the warm, sunny days with less than average rainfall last autumn resulted in gradual, spotty migration and poor bags for the hunters, the U.S. Fish and Wildlife Service reports.

Winter blizzards, beloved by all duck hunters, set in about Thanksgiving, leading to the largest mass migrations of the season. But by then it was too late in the season for hunters in northern states.

In the Atlantic flyway, there was an increase in both ducks and geese over last season. Along the Mississippi and Central flyways, where hunting was hardest hit by fair weather, waterfowl were slow in concentrating until mid-December. Mallards were seen in exceptionally large numbers in the Illinois valley. Waterfowl were present on the Pacific flyway in about the same numbers as last season.

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STATISTICS

Fewer Wedding Bells For Rest of Decade

► IT WILL be 1960 or later before the marriage rate in the United States starts climbing again. Until then, there will be fewer and fewer marriages, predict statisticians of the Metropolitan Life Insurance Company, New York.

The reason is high marriage rates during and immediately after World War II left relatively few unmarried men and women. When the war babies of that period reach marriageable age in large numbers, then the next upswing in marriages will occur.

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TECHNOLOGY

Tool Joins Broken Wires In Less Than 30 Seconds

► WITH TWO squeezes of a new tool developed under sponsorship of the Signal Corps Engineering Laboratories, Fort Monmouth, N. J., a GI can repair broken field communication wires in less than 30 seconds on shell-torn battlefields.

The lightweight wire splicer should save many lives. The job now takes about three or four minutes, and frequently occurs where the repairman will come within the gun sights of the enemy or within shrapnel range of the enemy's shells.

Resembling a pair of pliers, the splicer can, in triggerlike fashion, feed 10 repair cartridges to its "business end." The broken ends of the wire are squeezed in a specially designed wire cutter and stripper attached to the handle. Then they are put in an insulating repair cartridge and are squeezed again. That finishes the job.

At present, broken wires must be scraped by hand. The strands must be tied in a square knot and wires must be wound around the knot. Rubber insulating tape and friction tape also must be wound around the splice.

In cold weather the job takes longer because the repairman cannot wear gloves. But using the new device, he can wear gloves, or mittens if desired.

The tool comes with a carrying case with hooks on the repairman's belt. The case also has four pockets for spare magazines of connectors.

The splicer was developed by Aircraft-Marine Products, Inc., Harrisburg, Pa., and currently is undergoing field tests.

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BIOCHEMISTRY

Blood Plasma Proteins Carriers for Hormones

► CERTAIN BLOOD plasma proteins appear to serve as carriers for such steroid chemicals as sex and adrenal cortical hormones, which otherwise might have difficulty in reaching organs at a distance from the site of their formation.

Two University of California at Los Angeles scientists, Drs. Clara M. Szego and Sidney Roberts, find that the hormones, which are fatty in nature, combine with the proteins and are thus rendered more water soluble and can readily circulate in the watery medium of the blood.

In addition, the studies suggest that the protein-bound hormones may actually be the physiologically active form of the hormone. This activation by protein binding may be the mechanism by which such minute amounts of steroids, 1/100,000 of a gram in a quart, found in the blood are capable of exerting such profound effects on many body structures.

The studies have also indicated that the binding of the steroid hormones to the plasma proteins is another of the many functions carried out by the liver. It has been demonstrated that the capacity of damaged liver to perform this function is different from the normal. This work is being extended to include cancerous liver.

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ENGINEERING

Quaint Snow Fences May Yield to Paper Ones

► PAPER SNOW fences may replace those picturesque picket fences now often used to stop loose snow from blowing and drifting across highways.

Tests in Michigan showed paper fences did as good a job as regular wooden-slat fences, B. R. Downey, maintenance engineer of the Michigan State Highway Department, reported to the Highway Research Board meeting in Washington.

In the fall of 1951, two 12-inch strips of waterproof paper, like that which is used in curing concrete, were stapled to pieces of wood wired to steel posts spaced eight feet apart. In April of 1952, a field check showed the fences all were in good condition. They had withstood bad sleet storms, heavy rains, high winds and deep snows.

Only 300 feet of the five-mile total were damaged. The damage was attributed mostly to stray cattle and to thoughtless children. It was easily repaired. Most of the undamaged fence could be reused again this winter.

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CE FIELDS

BACTERIOLOGY

Develop "Diets" for Study of Spirochetes

► DEVELOPING "DIETS" for tiny creatures so small they can be seen only through a microscope is the unique job of Dr. Meridian R. Ball, University of California at Los Angeles bacteriologist.

Dr. Ball is especially interested in providing special "diets" for spirochetes, tiny, highly-sensitive organisms that cause disease among animals and human beings.

"Laboratory studies which make possible diagnosis and treatment of some of the diseases caused by the organisms depend upon cultures of the spirochetes grown in the laboratory," Dr. Ball points out. "The organisms will only grow when fed a highly complex 'diet.' Some of them have never been known to grow outside of living animals. For example, the syphilis spirochete has never been cultured."

Dr. Ball has recently devised a "diet" for a spirochete that causes leptospirosis, a disease common to cattle, dogs and swine and sometimes transmitted to men who work with animals. Her laboratory is one of the few places where this particular spirochete is maintained for diagnostic tests.

Work is under way in Dr. Ball's laboratory to develop a similar nutritional medium for the spirochete that causes relapsing fever, an organism not successfully cultured in the laboratory. Such an approach may also make it possible to culture the syphilis spirochete some day, she says.

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ANIMAL NUTRITION

Soap and Water Can Vie With Antibiotics

► SCRUBBING SOAP can compete with antibiotics as a growth stimulator for young chicks, experiments at the U. S. Department of Agriculture indicate.

Several antibiotics, when fed to chicks up to 12 weeks old, lead to very marked increase in rate of growth. But Agriculture Department research has shown that chicks raised in clean, new pens grow larger and faster than antibiotic-fed chicks kept in old, soiled pens.

The secret is that the cleaner the quarters, the fewer harmful bacteria there are around to retard the growth of the chicks. Scientists believe the beneficial effects of antibiotics come from their ability to combat harmful bacteria that infect the chicks. But using clean pens goes one step further, by eliminating the source of most of those infections, filth.

The double-barreled weapon of using both new pens and antibiotics operated bet-

ter than either of the two alone in stimulating growth, the Agriculture Department scientists said.

Chicks removed from new to old quarters and taken off antibiotics at the age of four weeks showed a slump in growth rate temporarily. This, the poultry specialists said, indicates that chicks not previously exposed to harmful bacteria must go through a period of adjustment, with a resulting loss in growth efficiency.

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VETERINARY MEDICINE

Dogs Poisoned Quickly By Auto Exhaust Gases

► DOGS ARE among the animals most quickly poisoned by the carbon monoxide in auto exhaust gases. Sportsmen should take extra precautions when carrying their bird dogs on hunting trips, otherwise the dog's field performance may be poor.

Dogs should not be carried in trailers or in the trunks of cars unless an extension has been added to the exhaust pipe so that the harmful gases do not swirl around the animal. Flexible hose makes a satisfactory exhaust pipe extender.

When trailers are used, the extension should run from the exhaust pipe to the upper rear part of the trailer. When auto trunks are used to carry dogs, the exhaust tube extension should run up the car's body so that exhaust gases trail from the auto well above the dog's nose.

Full details of the dangers of carbon monoxide poisoning to humans and dogs are reported by Andrew J. White, director of Motor Vehicle Research, in the booklet, "Carbon Monoxide: Your Car and You."

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PLANT PATHOLOGY

Killing Coffee Disease Foiled by New Hybrid

► OUR BREAKFAST cup of coffee and the one and a third billion dollar yearly coffee industry in Latin America has been saved.

Probably few of the Americans who drink 115 billion cups of coffee a year had any idea that their favorite brew was in danger of extinction. But a rust disease called "a killer" by experts threatened the coffee plants of the species *Arabica* grown in Latin America. This rust disease, *Hemileia*, virtually wiped out the coffee industry of the eastern hemisphere in the late 19th and early 20th centuries.

A coffee hybrid resistant to this rust disease has been discovered in South India by Drs. Frederick L. Wellman and William H. Cowgill of the U. S. Department of Agriculture. Seeds of this hybrid have just been received for propagation quarantine in the USDA plant introduction garden at Glenn Dale, Md. If they can be grown successfully in this hemisphere, coffee will have been saved, at least for the present.

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INVENTION

Helicopter-Airplane Combination Invented

► A COMBINATION helicopter-airplane, which uses its propeller as rotor blades for flying vertically or hovering, and as a propeller for forward flight, has been invented.

David C. Prince, Schenectady, N. Y., has assigned his patent, number 2,622,826, to the General Electric Co., Schenectady.

Before take-off, the plane or helicopter stands on its tail, on a sort of tripod landing gear. Its nose sticks straight up into the air. Wings stand out horizontally from the side of the fuselage. On the nose tip is mounted a huge propeller. The blades of this propeller can be variously warped or twisted and their pitch variously changed.

Before take-off, their pitch and warp are fixed in such a position that they make efficient helicopter rotor blades. The craft takes off going straight up. It hovers in the air. The pitch and warp are changed, the craft turns on its side and off it goes, flying like an airplane.

Two small propellers on the end of the wings provide torque control when the craft is performing like a helicopter. In another version, the nose becomes the tail and the propeller pushes the plane in horizontal flight, rather than pulling it.

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BIOCHEMISTRY

Coated Drug Better For Hodgkin's Disease

► A BETTER form of a drug for treating Hodgkin's disease and chronic leukemia is announced by Drs. Edith Paterson and P. B. Kunkler of the Christie Hospital and Holt Radium Institute, Manchester, England, and Dr. A. L. Walpole of Imperial Chemical Industries, Ltd., research laboratories, Manchester, in a report to the *British Medical Journal* (Jan. 10).

The drug is triethylene melamine, or T.E.M. for short. Instead of giving it by injection into the veins or in gelatin capsules to be swallowed, they tried giving it in tablets, or pills, coated to protect the T.E.M. from stomach acids before it reached the intestines where it is absorbed.

Although this medicine did not cure any of the far advanced patients treated, it brought "satisfactory remission," or let-up of symptoms in more than two-thirds of 22 patients with Hodgkin's disease. All but five of the patients showed improvement in general condition.

"Encouraging," state the scientists, is the fact that patients with chronic lymphoid leukemia responded, since most other drugs have been less effective in this than in the myeloid form of leukemia.

The trials show that with this form of the drug its effect is related with "reasonable consistency" to the size of the dose, so that doctors can prescribe it in more surely effective doses.

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