

VETERINARY MEDICINE

Farmers Face Seven Cattle Reproductive Diseases

► FARMERS NOW must fight seven different causes of reproductive failure in cattle, Drs. S. H. McNutt and Joseph Simon of the University of Wisconsin reported at the meeting of the American Veterinary Medical Association in Atlantic City, N. J.

The seven are: brucellosis, vibronic infection, leptospirosis, trichomoniasis, hyperkeratosis, certain pleuropneumonia-like organisms, and possibly blood factors similar to the Rh factor.

The Wisconsin veterinarians urged careful diagnosis to distinguish between these conditions and so to make sure suitable treatment is used.

Ways by which cattlemen can help curb the present steady increase in vibronic infection, or vibriosis, were given by Dr. S. J. Roberts of the New York State veterinary college at Ithaca as follows:

"1. In purchasing cows or bulls avoid an animal positive on the blood agglutination test for vibriosis or an animal from an infected herd, or herd suffering from infertility with symptoms suspicious of vibriosis.

"2. Aborting cows suspicious or proven to have aborted due to vibronic infection should be isolated from the rest of the herd and not rebred for at least three months.

"3. All infected or suspicious cows should be withheld from breeding for a period of several months or be treated individually before being rebred."

Science News Letter, July 5, 1952

ENGINEERING

Engineers Experiment With House Cooling

► RESEARCH ENGINEERS at the University of Illinois, Champaign, are experimenting with a guinea-pig house, an old hot-air ventilating system and an undersized air cooler.

They want to help you beat the heat.

The number-one question is: Can ordinary warm-air heating ducts be used successfully to deliver cooled air in houses?

Since many American dwellings already have such ducts installed, air-cooled houses may be nearer many a layman's pocketbook than he may suppose. An air cooler would be the principal, if not the only, piece of new equipment he would have to buy.

Research engineers also want to find out what size of cooler would be required to make a house comfortable in the summer.

To get answers to their questions, University engineers turned to the Warm Air Research Residence which has 5½ miles of built-in wires that report temperatures from 274 points to a master switchboard.

An undersized cooler connected into the regular heating duct system chills the Warm Air Residence. It is considered one size too

small by air conditioning standards. While persons outside the house were sweltering in 95-degree heat recently, engineers inside were taking thermometer readings of 75 degrees.

Although it is too early to draw sweeping conclusions, the University seems enthusiastic. Full details of the current research will be made public in the future, the University promises.

Science News Letter, July 5, 1952

INVENTION

Note Paper and Pencil Packaged in One Unit

► THE PAPER to write notes on comes right out of the pencil with which to write the notes in an invention patented by Albert H. Walter, Brooklyn, Albert N. Florence and Robert H. Lendh, New York City. The pencil, the type with replaceable leads, has a roll of paper inside, a slit where it comes out and sharp edge on the slit for tearing off the desired paper. Patent number is 2,601,650.

Science News Letter, July 5, 1952

VETERINARY MEDICINE

A-Bomb Damage to Stock Takes Weeks to Show

► IN THE event of atomic bombing of this country, it may be days or even weeks before we know how much damage our meat and milk animals have suffered, Maj. Chester A. Gleiser of the Army veterinary corps told the American Veterinary Medical Association meeting in Atlantic City, N. J.

Animals that come through an atomic explosion without any visible signs of injury, such as wounds or sores, may nevertheless have suffered serious internal injury.

This was learned in tests in which groups of dogs were exposed to an atomic explosion in such a manner that they received total body radiation but were protected from heat radiation, shock waves, blast effects and flying missiles.

Seven major changes were observed in the dogs. These were:

1. Immediate and progressive degeneration of the lymphatic tissues, resulting in their defective growth. The tissues later became over-developed and swollen in those dogs which recovered.

2. Early and progressive degeneration of the blood-making cells of the bone marrow.

3. Early deterioration of the lining of the intestinal and stomach walls, but with subsequent regeneration.

4. Damage to sexual organs.

5. Immediate suppression of cell-division in tissues where this activity is normally extensive.

6. Early damage to the red blood corpuscles.

7. Early damage to the membrane lining of capillaries and small arteries.

Science News Letter, July 5, 1952

IN SCIENCE

FOREST PATHOLOGY

New Disease Threatens Nation's Sweet Gum Trees

► A NEW forest tree disease of unknown cause threatens one of the most important hardwoods of America, sweet gum.

Now known to be present in Maryland and Virginia, the gum disease was first discovered by Dr. Paul Miller, pathologist of the U. S. Department of Agriculture's Bureau of Plant Industry, on his own land at University Park, Md. Since then it has been found in other localities.

Since sweet gum is second or third among commercial hardwoods, depending upon the annual volume of cutting, the appearance of a new disease is alarming in the same way that oak wilt now in 18 states has caused concern. The rank of hardwood in commercial use is oak, and then either gum or maple.

The first sign of the gum disease is in twigs at the top of the tree which die back. The leaves dwarf, becoming half normal size. The second year there is a bunching of leaves along the branches and then in the third or fourth year the tree dies.

Whether the new gum disease is a virus or a fungus is not yet known but U. S. Department of Agriculture research is actively under way to determine the cause and how to combat this latest forest menace.

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ENGINEERING

Lightning Strikes Empire State 226 Times in Decade

► THE EMPIRE State Building in New York, the world's tallest structure, has been hit by lightning 226 times in the past 10 years. It has drawn lightning charges from as far away as 10 miles.

Reporting to the American Institute of Electrical Engineers meeting in Minneapolis, Minn., J. H. Hagenguth and J. G. Anderson, both engineers with General Electric Co., said that despite the tremendous power of the lightning strokes, there is little danger to office workers inside the building. The giant structure acts as a lightning rod.

The longest duration of a lightning stroke recorded by oscillographs and cameras was 1.5 seconds in 1937. The length of that stroke has not been exceeded "before, since or during the studies," the engineers said.

One stroke had a current peak of 58,000 amperes. That is enough current to light over 170,000 40-watt light bulbs.

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E FIELDS

VETERINARY MEDICINE

More Milk and Butter May Come From Hormones

► MILK AND BUTTER may be more plentiful as a result of sex hormone treatment of sterile cows and virgin heifers. This possibility appears in the success with the method reported to the American Veterinary Medical Association meeting in Atlantic City, N. J.

Milk was produced within four months after such treatment, Dr. E. P. Reineke, J. Meites, C. F. Cairy and C. F. Huffman of Michigan State College, East Lansing, Mich., reported.

"Five cattle brought into lactation by this method produced an average of 350 pounds of butterfat in 10 months. While under hormone treatment the cattle have gained on an average of approximately 200 pounds in body weight. One of the heifers was bred and conceived on the first service during her hormone-induced lactation, though others have remained sterile," the Michigan group reported.

Progesterone and estrogen are the hormones used in the experiments to simulate the hormone changes believed to occur during normal pregnancy. The hormones were compressed into pellet form and deposited just beneath the skin of the cow's neck. Two implants at 90-day intervals were made. Approximately 30 days after the second implant, the pellet residues were removed and milking was begun.

If the new technique proves practical under field conditions thousands of sterile cows that are now sent to slaughter annually might be made to produce again at savings of millions of dollars to American dairymen, the report suggested.

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ENTOMOLOGY

Chemicals Repel Chiggers, Mosquitoes and Other Insects

► YOUR CAMPING and fishing trips, picnics or other summer outings can be freed from the misery of chiggers, mosquitoes, biting flies and many other insects if you use one of the new insect repellents developed during World War II. The following are recommended as effective against a wide range of insects:

Formula 1: Dimethyl phthalate—3 parts, Indalone—1 part, Rutgers 612—1 part.
Formula 2: Dimethyl phthalate—1 part, Indalone—1 part, Rutgers 612—1 part.
Formula 3: Dimethyl phthalate—3 parts, Indalone—1 part, Dimethyl carbate—1 part.
In these formulas, from the U. S. Depart-

ment of Agriculture Bureau of Entomology, all parts are by weight.

Some repellents now on the market under trade names contain only a small percentage of the active chemical and a large percentage of alcohol or other diluting material. They may be pleasanter to use but do not give protection for as long.

The chemicals are poisonous if taken internally but are safe to use on the skin. A few persons may get a slight rash, but the number so affected is small. Keep them away from mucous membranes, eyes, eyelids, the groin and any cut places, as they will cause smarting if put on such places.

Smear the repellent evenly over exposed surfaces of the skin and repeat when insects start biting again. These chemicals will not hurt wool or cotton cloth, but they will damage rayon, sharkskin and other synthetic cloth, finger nail polish, plastic watch crystals and articles painted, varnished or made of plastics.

Science News Letter, July 5, 1952

INVENTION

Patent Paper Parachute For Plane Package Drops

► A PAPER parachute has been invented by Leif Gunnar Levin Thilen, Nissafors, Sweden. It is for dropping food or other articles from an airplane. The parachute seems about like a silk or nylon chute, only made of paper. Patent number is 2,601,343.

Science News Letter, July 5, 1952

BIOLOGY

Ornate Horned Frog Eats Other Frog Species

See Front Cover

► THE ORNATE Horned Frog has a huge mouth in proportion to its body and the amphibian uses it mainly to gobble up frogs of other species.

Known to biologists as *Ceratophrys ornata* Bell, the frog's name is based on a peculiar modification of the upper eyelid which forms a triangular, upright but flexible, horn-like appendage. It ranges from southern Brazil to northern Argentina.

These frogs habitually bury themselves almost completely in the ground, with only the top of the head and the large mouth exposed. This makes an effective trap that opens and shuts with great rapidity on any unsuspecting small creature, mostly other species of frogs, but also small lizards and mammals.

Even the tadpoles of the Ornate Horned Frog are somewhat unusual in that they feed almost entirely on tadpoles of other frogs. The call of the frog that is shown on the cover of this week's SCIENCE NEWS LETTER is deep and hoarse.

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VETERINARY MEDICINE

Shots of Cud Material Life-Saving for Calves

► MORE VEAL, or milk, butter and beef, may result from a life-saving treatment for barnyard calves reported and demonstrated on closed circuit TV by Dr. W. D. Pounden of the Ohio Agricultural Experiment Station at the meeting of the American Veterinary Medical Association in Atlantic City, N. J.

The method consists in putting cud material from healthy cattle into the rumen, or first stomach, of the calf. The treatment should be given weekly, Dr. Pounden says.

Calves may not have normal rumen function, he pointed out, because of unsuitable feed and an insufficient amount of microorganisms to help digest the food in the rumen. This may happen when calves are penned separately and contact with older cattle is prevented.

"Failure to provide satisfactory roughage at a very early age, appears to be a serious cause of the formation of hair and fiber balls in the rumen due to the eating of straw or shavings used as bedding, and licking hair from the animal's body," Dr. Pounden stated. "Also, calves fed rations containing half as much grain as the hay being eaten developed rough coats and 'pot bellies'."

The Ohio veterinarian recommended that farmers follow a high roughage calf-raising system. This includes the use of limited amounts of milk, liberal feeding from birth of good quality alfalfa hay, plus weekly rumen inoculations with cud materials.

"Improved health" he said, "has followed the use of this plan in herds where pneumonia, diarrhea and coccidiosis were causing trouble."

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PHYSICS

Atomic Device Shows Radiation Damage Risk

► AN IONIZATION chamber which indicates damage to human tissues from a source of radioactivity was one of 40 patents recently de-classified, the Atomic Energy Commission announced.

The ionization brought about by the impingement of gamma rays and neutrons is proportional to the damage which would be produced in human tissues.

It could be used, for instance, to measure the possible effects of radioactive isotopes used in research and treatment. Or it could be used to calculate the damage from a particular source of radioactive energy, such as an atomic pile or an atomic bomb.

The inventors are J. R. Raper and R. E. Zirkle, scientists with the AEC, and they received patent number 2,596,080. It is assigned to the AEC.

Science News Letter, July 5, 1952