

A vaccine which protects against the disease has been developed and is prepared in large quantities each year by the U. S. Public Health Service. So far, the disease has not been sufficiently prevalent in the East to warrant widespread use of the vaccine, but it has been used in the West to protect sheepherders, foresters and others whose work takes them into infested regions.

For those who may only occasionally be exposed to the disease, protection against it depends chiefly on special vigilance against ticks.

### Remove Them Soon

Infected ticks do not usually transmit the infection until from two to eight hours after they attach themselves to the body, so if you are alert to watch for and remove them, you may save yourself from the ailment. Use a tweezers or piece of paper, not the bare fingers, to remove the ticks, because you can get the disease from handling crushed infected ticks.

If possible, stay out of tick infested areas, health authorities advise. If you must go into such regions, wear high leather boots or socks outside of trousers (women as well as men) to keep the ticks from getting a foothold and crawling up the clothing to the neck or arms. Inspect the bodies and clothing of yourself and your children at least twice daily, if you are in tick infested areas.

Do not depend on feeling the tick crawling on you, health officers warn. Ticks are especially apt to fasten themselves on the back of the neck and along the hairline. In some cases they have even been found in the ear canal.

### Derris for Dogs

Pet dogs should also be inspected for ticks. Derris, used either as a powder or a wash is effective in destroying ticks already attached to dogs, U. S. Department of Agriculture scientists have found. The powder should be used every two or three days, the wash or dip every five or six days. The derris powder should have a rotenone content of at least two per cent. An effective wash can be made by dissolving an ounce of soap in a gallon of water and adding two to four ounces of derris powder with a rotenone content of four per cent.

For further protection against ticks, the government scientists advise clearing away undergrowth and keeping grass closely cut near houses, camps and other places frequented by humans.

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#### BIOLOGY

# Electricity Exists Wherever There is Life, Scientists Find

## If It Behaves in Living System as It Does Elsewhere The Electrical Field May Determine Nervous Structure

By **DRS. H. S. BURR and PINCKNEY J. HARMAN, JR.**

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*(Electricity is the architect of the human body. Experiments by Drs. Burr and Harman, reported to the American Neurological Association, hold important implications in the understanding of health and disease in the human body, including perhaps even cancer.)*

**I**T IS becoming increasingly clear that wherever there is life there is electricity. Apparently, a portion of the energy absorbed by a living thing from food and air and sun, is converted into electrical energy.

This energy is present in a relatively steady state just as in a battery there is a relatively steady voltage between the two poles of a battery. Some organs of the body, as for example, the heart and the brain, modify this direct current electricity to form an irregular alternating current which we recognize in the heart waves and in the brain waves. Studies of the direct current characteristic of the electricity found in living beings show that these are relatively stable but may be changed by fundamental biological activities such as menstruation, ovulation, cancer, growth, and wound healing.

However, it is well known that whenever electrical energy flows through a conductor, an electrical field can be found surrounding the conductor. Since electrical energy does flow through the living system, one should expect to find a field in that living system, unless electricity in living things is different from electricity in physical things.

### May Play Major Role

If such a field can be demonstrated experimentally, it is by no manner of means impossible that it plays a major role in determining the pattern of organization in the living system. It has been possible to demonstrate the field experimentally by rotating a salamander on a revolving turntable under certain conditions. If this is done, the salamander produces a sine wave alternating

current output analogous in every way, except in frequency and magnitude of output, to that of the ordinary electric dynamo. This suggests that voltage gradients in the nervous system may be responsible for the presence in the nervous system of a field which determines the location of nerve cells and the direction of growth in nerve fibers.

Voltage gradients in the nervous system of the white rat have been determined in some forty animals and show that the brain is positive to the spinal cord and to the peripheral nerve. The voltage rises as anesthesia deepens, and lessens as anesthesia lightens. In no case is there any reversal of polarity. When the animal dies the voltage drops slowly to zero, usually within an hour. However, the voltage between the spinal cord and the nerve may persist for several hours.

### Infer Nervous System Field

Since these voltages in the nervous system are analogous to those found in the whole living animal, and since the whole animal possesses an electrical field, it is logical to infer that the nervous system also possesses a field and it may well be that this field determines the structural arrangement of the parts of the nervous system.

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#### ETHNOLOGY

## Indians Use Airplane To Round up Wild Horses

**U**SING an airplane to round up wild horses is just "horse sense" the way Yakima Indians of Washington State see it. They tried hiring a pursuit plane, piloted by a white man, last year and directed the pilot by flags planted on the ground, to head off the horses.

Delegates from the tribe, conferring with Indian Service officials, said they might try it again this year.

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Speedmeters have been devised which record the exact speed of every vehicle passing selected points on a highway.