

## MEDICINE

# New Attack on Paralysis Promised By Experiments

## Physicians Are Shown What Is Probably Best Microphotograph Ever Taken of the Motor Nerve End

**F**UNDAMENTAL attack on infantile paralysis and other paralytic diseases and on those ailments like myasthenia in which the patients cannot move their muscles may result from experiments by Dr. Eben J. Carey and Leo C. Massopust, of Marquette University School of Medicine, Milwaukee, which have won the American Medical Association's gold medal.

These scientists showed what is probably the best microscopic picture ever taken of the motor nerve end plate, that is, the very end of a muscle-moving nerve at its point of attachment to the muscle fiber it stimulates to contract. The picture, revealing to doctors details which the textbooks said existed but which few doctors or medical students ever could see, was taken of the tiny motor end plate of the muscle between the ribs of a white rat.

In a starving animal, the Milwaukee scientists found, the nerve fibers between the muscle fibers expand and finally lose their grip on the muscles. The expansion of the nerve results because the nerve chemicals which stimulate muscles are not being delivered to the muscles for some still unknown reason related to starvation. This leads to extreme restlessness and over-irritability of the nerve. Next, when the nerve has become detached from the muscle fiber, the latter contracts and relaxes aimlessly, seen in twitchings of the face and eyelid in the starving person.

Since the motor nerve end plate will make the muscle contract or expand and thus produce useful muscle motion, as a result of stimulation of the nerve, the investigative method developed by the Milwaukee scientists should be useful for testing the action of various medicines that might remedy paralytic conditions and muscular diseases.

The stripes of striped muscles, which are the kind you have in your arms and legs, are not always the same but result from various types of stimulations, Dr. Carey thinks. He has been able to produce, in a capillary tube of chemicals

in gelatin, stripes exactly like those seen in striped muscles. Varying the chemicals changes the width of the stripes or produces double or spiral stripes like those in muscles. The stripes in the muscles, he believes, represent the periodic energy changes that go on in muscle metabolism which involve chemical reactions.

The A.M.A. silver medal was awarded to Dr. Deryl Hart and Dr. Samuel E. Upchurch, of Duke University, for their exhibit on sterilizing air in operating rooms by ultraviolet, and the bronze medal went to Dr. Oscar V. Batson, University of Pennsylvania, for his exhibit showing that cancer spreads by the vertebral veins.

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## ENGINEERING

## Ship Protection Program Outlined by Chemist

**F**OUR-FOLD protection against gas hazards, fire, accidents, sabotage and other emergencies is required for wartime shipyard operation, John M. Tecton, chief chemist, Sun Shipbuilding Company of Chester, Pa., told the Greater New York Safety Council's 13th annual convention.

When a ship enters the yards for repairs, he said, she must first be thoroughly inspected for gas lurking in compartments or tanks. Signs and guards must be posted to keep workmen away until the ship is proved gas-free.

Next, inflammable materials are removed. Chief fire hazard, he said, is cork insulation, while cork dust is as dangerous as dynamite, due to the speed with which it spreads fire. Paint lockers, engine and boiler-rooms, bilges, manila rope lockers, carpenter shops, and store-rooms are fire hazards.

In repair of ships carrying ammunition, Mr. Tecton urged that the explosives be located, then marked or guarded, or moved to safe storage.

General safety precautions demand immediate connection of fire lines when

a vessel arrives in the yard, maintenance of pressure for fire lines from shore, installation of fire extinguishers on board, proper marking of all fuel tanks, making gas masks easily available, and careful and early inspection by trained safety men to eliminate all hazards before work begins.

Prevention of sabotage requires constant alertness, and prompt investigation of all unusual accidents. Mr. Tecton said yard organization for emergencies was similar to civil defense, the yard being in effect a community of 16,000 to 20,000 people. For their protection some 1,600 men as air-raid wardens, auxiliary firemen and guards, first-aid and maintenance squads are needed.

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## PALEONTOLOGY

## Amber-Entombed Ants Resemble Living Species

See Front Cover

**E**VEN Pharaohs of ancient Egypt cannot boast of the funereal glory—or the antiquity of sepulture, for that matter—that was unwittingly and unwillingly achieved by thousands of humble insects that lived in the conifer forests of the Baltic region in Oligocene time, some 40 million years ago. For whereas the dead kings and queens may have their sarcophagi crusted with gold and studded with gems, an ant-in-amber is actually entombed within a gem.

The ant pictured on the front cover of this issue of the SCIENCE NEWS LETTER is closely related to the Argentine ant, of recent years introduced into the United States and now a major pest in southern states, states Prof. C. T. Brues, Harvard University entomologist. Some of the amber ants belong to extinct genera and a number are related to forms now occurring in the Indo-Malayan region.

"Some of the Baltic amber ants," Prof. Brues adds, "are very closely related to living species, and the very abundant *Formica flori* is almost indistinguishable from *Formica fusca*, which is now one of the commonest ants in Europe and North America."

Ants and other insects are found embedded in amber because their last act in life was to step on sticky gum oozing from the trunks of trees. Overflowed with more gum, they perished and their bodies were preserved while the sticky stuff, buried in the shore ooze, hardened through the ages into the fossil resin we know as amber.

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