

MEDICINE

# Local Anesthetic Treatment Helps Arthritis Sufferers

## Not a Cure, But It Gives More Than Temporary Relief And Enables Patients to Regain Use of Crippled Parts

**C**RIPPLED, pain-racked arthritis sufferers may be freed of pain and helped to return to work and normal lives with the aid of local anesthetics, Dr. Otto Steinbrocker of Bellevue Hospital, New York, reported to the Congress of Anesthetists.

The treatment consists of injections of procaine, local pain-relieving agent akin to cocaine. The procaine is used in an oily solution, which makes the effect last longer. It is injected either into the painful areas or into the nerves alongside of the spine, which supply the painful joints.

The treatment is not a cure for arthritis, Dr. Steinbrocker emphasized, because it does not reach the underlying cause of the arthritis. It is palliative treatment, but the relief from pain is more than temporary and because the

patient is free of pain, he is able, by massage and graded exercise, to get back the use of his hands, legs or other affected parts.

If the treatment is started early, deformities can be prevented, Dr. Steinbrocker said, because these deformities are largely due to contraction of muscles to prevent pain on motion.

Dr. Steinbrocker has used the method to treat 134 patients but has only been able to trace 19 of these for learning final results. Of these, 17 were adequately or completely relieved from four months to two and one-half years after treatment.

The treatment is especially useful for acute conditions such as sprains. It shortens the time the patient must be laid up after a sprained ankle, for instance, by about two-thirds.

## Surgeons Attack Epilepsy

Cure of epilepsy by surgical operation on the brain was reported to the American College of Surgeons by Dr. E. Jefferson Browder of the Brooklyn, N. Y., Hospital. Sixteen out of 40 patients were cured by this operation which Dr. Browder demonstrated. Another 12 were improved, and 12 were unimproved.

The figures may not sound impressive but surgeons pointed out that surgeons have never been able to do anything for epilepsy in the past and that consequently this work and similar work by a few other surgeons elsewhere is a new and promising approach to the age-old problem of this ailment.

The operation is performed only on patients between 18 and 45 years of age and on those in this age group whose fits show some starting point such as movement of a thumb or hand. This starting point gives the surgeon an idea of which part of the brain may be diseased and causing epileptic fits. The exact area is determined by the patient's response to an electric current passed into the brain along a fine wire probe. Then an inch or two of brain in this region is cut out.

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BOTANY

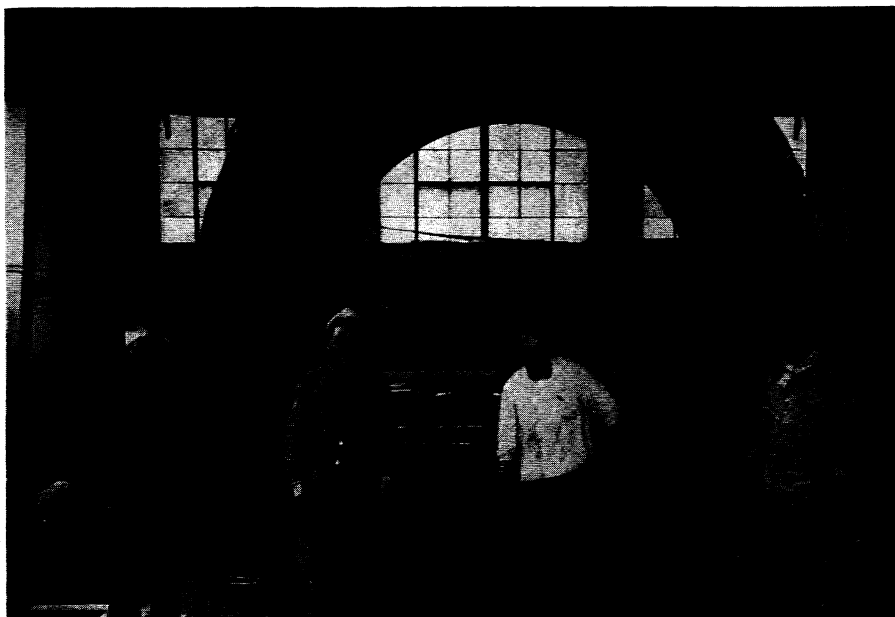
## Green "Scum" Has Value As Aquatic Source of Food

**M**OST of us, even though we may claim no great degree of botanical knowledge, can recognize the lesser plants, fungi and mosses, when we see them. But mention algae, another great group of the humbler, flowerless growths, and we feel a bit lost. We aren't quite sure what algae are.

To bring popular knowledge of this important but neglected province of the plant kingdom up even with that of plants in general is the task which Prof. L. H. Tiffany of the University of Illinois has set for himself in his new book, *Algae: the Grass of Many Waters* (Thomas).

Algae aren't grasses, in the strict botanical sense of the term, the author points out. They rank far below grasses in the hierarchy of systematic botany, indeed sharing with fungi the lowest rung of the evolutionary ladder. Yet styling them "grass" is justified from the ecological point of view, because of their function in the life-complex of the waters. If it is true on land that all flesh is grass, it is equally true in the water that all fish is alga.

Algae form the fundamental food in



JAPANESE BUILD CYCLOTRON

Here are Japanese scientists with one of the tanks in which will be immersed the 24-ton coils of the cyclotron they are building at the Institute for Physical Research in Tokyo. Dr. Yoshio Nishina, in charge of the erection of the huge atom smasher, which will be a duplicate of the one now under construction at the University of California, had the assistance of Prof. E. O. Lawrence, inventor of the cyclotron, who is at the University of California.

the long chain of eat-and-be-eaten that begins with almost invisible gnawers like minute worms and water-fleas and builds up at last into salmon and sturgeon, walrus and mighty whale. Most of us know algae mainly as the highly unappetizing green scums that form on stagnant ponds; we do not recognize in them the fish-fodder that eventually turns up on our tables after many digestive metamorphoses.

But algae aren't just fish provender. They come to our notice, and affect our lives, in a score of other ways. They form green mats and scums on the soil, and apparently cooperate with bacteria in fixing atmospheric nitrogen as free fertilizer. They form the green "moss" supposed to grow only on the north sides of trees. (Actually it grows on any damp side of the trunk). Fossil beds of their silica shells provide scouring powder. Algae have even been found inhabiting our own important interiors.

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#### PHARMACY

### League of Nations Sets Standards for Drugs

**T**HE LEAGUE of Nations may not be able to stem the "rule of might" disease that is creeping over the world, but it continues to have scientific appendages that play important roles in the lives of the peoples of various nations.

Antitoxins, sera, drugs, vitamins and sex hormones, about 30 useful substances the activity of which can be measured only through use of laboratory animals, are standardized through international action fostered by the League of Nations Organization.

Curiously enough, it was war-time experience that played a leading role in convincing that national standards are not enough.

"Many deaths could have been averted," an official report says, "if the sera used during the war had been assayed in relation to a single standard. Doctors would not have been betrayed by the unitage given on foreign ampoules into injecting quantities of serum which they had good reason to regard as sufficient, but which were in fact inadequate, since the assay had been effected in terms of a unit of lesser potency than that to which they were accustomed."

Because drugs and biological products are exported and imported in peace times as well, it would be easier for manufacturers and safer for physicians and patients if uniform, international standards were used. And without standardization,

how can therapeutic results on two sides of a frontier be compared?

It is not surprising that as early as 1921 the League's Health Committee called an international conference on this problem. Keeping pace with scientific progress, the sex hormones are the latest class of substances for which standards are set. Written standards are not enough; national laboratories in Copenhagen and London keep and distribute

international standard preparations on behalf of the League Health Organization.

Diphtheria, tetanus, staphylococcus, and gas-gangrene antitoxins, anti-dysentery and anti-pneumococcus sera, insulin, pituitary extract, vitamins A, B<sub>1</sub>, C and D, digitalis, salvarsan, neosalvarsan, and sulfarsphenamine are among the substances standardized.

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#### GENERAL SCIENCE

## Eye Is Electric Generator, Current Tiny But Measurable

National Academy of Sciences, at University of North Carolina, Hears Reports From Many Fields of Research

**"E**LECTRIC glances," favorite phrase of old-time romantic novelists, is closer to literal fact than they ever guessed. For the human eye is an actual electrical generator, Prof. Walter R. Miles of Yale Medical School told the National Academy of Sciences, at the opening of their autumn meeting on the campus of the University of North Carolina.

The front part of the eye, Prof. Miles said, is electrically positive and the back part, where the retina is, has the opposite or negative charge. These differences in potential can be detected and measured by sticking thin pieces of metal foil on the skin at either side of the eye and attaching the wires to sufficiently delicate voltmeters. When the eye is held still, the instrument indicates steady voltage. As soon as you turn or roll your eye, you bring differently charged areas under the little electrodes, and the changes in the current show themselves on the dial.

Differences in potential, measured during a wide turning of the eyeball, range from .0002 to .003 volt for each eye. The amount of light falling on the eye at the time of measurement makes only a small difference in the result. One eye may differ markedly from its mate, just as people differ among themselves. Minor visual defects seem to make little difference.

That the eyeball itself, and not the surrounding muscle, is the source of the current was demonstrated when the tests were checked on persons who had lost one eye. If the eyeball is not there no current is generated, regardless

of whether the socket is left empty or filled with a glass eye.

### Cotton Under Microscope

**C**OTTON, on which so much depends in the South and in the nation, was put under the ultra-microscope by Prof. Donald B. Anderson of North Carolina State College. The wall of the cotton fiber, he said, is composed of exceedingly small thread-like strands of cellulose that branch and interlace freely with each other, forming a close-meshed network.

In the oldest layer of the cell wall the cellulose strands lie in flat, close spirals, but in the parts formed later the strands wind in steep spirals. It is possible to control the rate at which the cellulose is laid down by controlling the environment. This may mean eventually a control of the quality and kind of cotton by suitable adjustments of the conditions under which it is grown, especially as regards temperature and light.

### Increase Seed Size

**D**DOUBLE the number of chromosomes in the cells of a plant and it will yield bigger seeds and show other changes in the direction of general gigantism, Drs. A. F. Blakeslee and H. E. Warmke of the Carnegie Institution of Washington told the meeting. They provoked extra-chromosome plant types into existence by treating the parents with the drug colchicine.

Other effects of extra chromosomes Dr. Blakeslee mentioned were larger