containing this substance could be used to stop reproduction of the parasites in new infections.

This seems to be an entirely new kind of "antibody" action. Generally, seru anti-toxins, and like substances act either by destroying the disease producing crganisns or neutralising their poisons. With this newly discovered substance, however, the case is different; it tolerates the existence of a few organisms, but literally forces race suicide on them by preventing them from multiplying.

It remains now to discover whether in human sleeping sickness a similar action exists or can be induced. This problem Dr. Taliaferro is attacking.

African sleeping sickness is due to a microscopic animal known as a trypanosome and is closely related to the organism found in rats' blood. There are two varieties of tropical sleeping sickness in Africa, the Gambian and the Rhodesian; and one variety in the tropical parts of South America. The Gambian variety of Africa is the more serious one. All of the tropical sleeping sicknesses are carried by insects, just as malaria and yellow fever are carried by mosquitoes.

Besides the tropical sleeping sickness, there is another entirely distinct disease in the temperate zone, called by the same name. This ailment, Encephalitis lethargica, which has been making some trouble in northern countries for some years, has never been traced to its cause, though it is probably due to an ultra-microscopic germ that can pass through the pores of the fine filter.

TREES FED AND CURED BY HYPODERMIC INJECTIONS

Hypodermic injections are being used to feed and cure hungry and ailing fruit trees at the University of California.

Dr. C. B. Lipman wields a glorified hypodermic needle-like apparatus with which curative solutions and food are placed directly into the circulation of the growing plant. The natural method of providing the tree with its sustenance through the soil by menas of fertilizers has in a large measure been superseded by direct feeding and medical treatment.

Primarily the new method is being used as a first aid to sick citrus trees. Orange and lemon orchards are sometimes attacked by a disease called chlorosis which causes the leaves to become yellow and the trees to cease bearing fruit. Prof. Lipman and his associates attended some trees that had been in this nearly dormant condition for three years.

They bored holes into their trunks to about three-quarters the diameter. Then glass tubes were inserted and sealed tightly with a special wax. Reservoirs containing a solution of ferrous sulphate were attached and the trees were allowed to drink up the solution.

In three weeks the yellow leaves had been replaced by green ones and the trees had taken a new lease on life. They now give signs of fruiting.

Citrus trees are heavy users of calcium in which some soils are deficient and the University of California scientists have found that injection of calcium nitrate or chloride into their trunks will cure and prevent a harmful mottling of the leaves due to lack of this salt.

"We believe that this ushers in a new era in feeding plants," Prof. Lipman declared in commenting on the experiments that as yet have been reported only to the National Academy of Sciences. "We can ignore the soil completely and feed directly to the tree the nitrates, phosphates, calcium and magnesium salts necessary to its growth. Such direct injection of the nutrients allows us to avoid the troubles caused by the complexities of the various chemical reactions of the soil."

Although experiments have been performed on apricot, plum, lemon, orange and pear trees and on barley and wheat during the past two and a half years, no announcement of results has heretofore been made.

Trees can be pepped up as well as fed by the injections. Prof. Lipman says that calcium and potassium salts have a stimulating effect when injected. Large quantities of solutions can be absorbed by the trees. One pear tree was persuaded to soak up over 60 quarts of chemicals in 24 hours.

The insect menace is to be combated by the new injection method. Prof. Lipman plans to experiment with solutions of chemicals that are known to be toxic to injurious insects but not harmful to the trees. The trees injected with the poisonous liquid will become poisoned bait to marauding scale insects or other harmful pests and thus will become self-protective.

NOISE OF ELECTRONS HEARD BY HUMAN EARS

The smallest thing in the universe has made a noise and man has listened to it. Scientists have previously discovered and measured the electron but today Dr. A. W. Hull of the General Electric Company's research laboratory and Dr. N. H. Williams of the University of Michigan reported to the American Physical Society meeting that they have been successful in listening by radio to movements of electrons, the smallest particles of matter.

Using a vacuum tube radio amplifier, magnifying the sound a hundred thousand fold, the rain-like blows of many electrons on the plate of the tube produced a roar that sounded like Niagara in the distance. The sound is caused by bombardment of the plate by electrons, released from the hot filament. It is these electrons, which carry the current and which make the operation of the tube possible. Dr. Hull therefore believes the noise is a fundamental property of electron emission, a characteristic of the electron. The noise, due to the electrical oscillatio which is set up by the impacts of the individual electrons on the plate, is known as the Schrot effect and was predicted on theoretical grounds by Dr. Schottky of Berlin.

Listening to the electrons was merely incidental to more technical researches undertaken by Drs. Hull and Williams. They were primarily engaged in measuring the electrical charge on the electron.

This was first accomplished with great accuracy by Dr. R. A. Millikan of the California Institute of Technology at Pasadena and winner of the Nobel Prize for physics last year. Drs. Hull and Williams were attempting to obtain the same results by a method differing from that used by Dr. Millikan.

Dr. Millikan's method of measuring the charge of an electron is based on the influence of gravity and of electric charges on minute oil "droplets". These droplets are so small that the effect of gravity causes them to fall only a quarter of