to whom the New Orleans physicians gave these tablets got only one week's supply at a time. The second week they were given a supply of tablets that looked just like the Perazil but did not contain any of it or any antihistaminic chemical. The following week they again got Perazil tablets, and so on for 14 weeks. The patients did not know they were getting different tablets every other week. They were also given a chart on which to record the time of onset of each attack of hay fever, hives or rhinitis, the duration, and whether it was mild, moderate or severe.

Although there was no significant difference in the mild and moderate symptom groups while on Perazil and the dummy tablets, the attacks lasted longer when patients were taking the dummy tablets.

There was, however, a marked difference in severe symptoms, 26 hours per week, roughly, when taking Perazil, compared to about 171 hours on the dummy tablet. Also, the number of hours of all kinds of symptoms, mild, moderate and severe, averaged 209 per week for each patient taking Perazil and 521 for the patients while taking the dummy tablets.

The scarcity of side reactions "is worth noting," the doctors pointed out. Of 30 patients, only four reported drowsiness and and one headache.

Science News Letter, November 26, 1949

ENGINEERING

Football Players' Device

➤ FOOTBALL coaches and fans, attention: have you heard of the ammonia gas-filled earpiece inside a helmet by which a quarterback on the field could receive instructions from the bench?

Such a device has actually been patented by Dr. W. D. Hershberger of the engineering department of the University of California at Los Angeles.

The U. C. L. A. engineer, who helped to devise the fabulously accurate atomic clock, says that the principle on which the clock works can be utilized in a practical bench-to-huddle "intercom" system.

This principle is the absorption of microwaves by the ammonia molecule. Put a narrow-beam voice-modulated microwave generator on the bench and the ammonia gas-filled earpiece in the quarterback's headgear and the coach could communicate with the huddle at will.

"It might save penalties against the team when substitutes are illegally sent in with instructions from the coach," he suggests.

The scholarly research engineer, who spends most of his time on more serious applications of this principle, has conceived of other gridiron applications of the same idea.

Fill the pigskin itself with ammonia gas, says Dr. Hershberger, and the quarterback wouldn't even need an earpiece in his helmet. When the ball was cocked behind his ear he could get such instructions from the bench as "the end going wide to the left is now open for a pass" or "beware of the opposing tackle coming in on your right."

One other variation is this: when the ammonia-filled ball was in the air, the coach could speak directly in code to the end going down field. Thus he would have more time to fake the defensive halfback instead of twisting his head around to look for the ball.

Science News Letter, November 26, 1949

CHEMISTRY

Better Shoe Soles Made

➤ BETTER soles for shoes result from impregnating leather with natural rubber in a process developed by the National Bureau of Standards just revealed.

Tests already made show that the rubber-treated leather soles have improved wearing qualities over untreated leather and are better able to resist abrasion and water.

Sub-standard leather, such as "belly-cuts" from steer hides, make satisfactory soles after the rubber treatment and can now be used for the purpose.

The new treatment process was developed by Rene Oehler, Timothy J. Kilduff and Sverre Dahl of the Bureau staff. The impregnation is accomplished by simple immersion of the naturally porous leather in a solution of natural rubber. Solutions have been made with guttapercha gum, Hevea, and Castilloa rubber. Hevea smoked sheet rubber proved to be the best of the group for the purpose.

After impregnation the deposited rubber may be vulcanized at 80 degrees Centigrade with the aid of an accelerator of the dithiocarbamate type without harming the leather.

In the development work it was found that if the grain layer of the leather is split away and the body of the leather is allowed to remain in solution overnight, the penetration and distribution of the rubber are greatly improved.

Tests show that water transmission and absorption of the rubber-treated leather are only 50% as much as untreated specimens, and that abrasion resistance of vegetable-tanned crust leather is improved from 50% to 100%, depending on the type of rubber treatment used.

Science News Letter, November 26, 1949

Words in Science— CATHODE RAY TUBE

➤ THE cathode ray tube is a bulb of glass that contains a high vacuum. Electrons are shot out by a heated filament at the base of the tube toward an anode. A narrow beam of electrons passes through a small hole in the anode and continues on to the end of the tube which is a screen coated on the inside with a substance which fluoresces (glows) when the electrons strike it.

The cathode ray tube is the heart of your television receiver. In use, the bright spot caused by the stream of electrons sweeps rapidly over the screen while its brightness is controlled to match variations in brightness of the object televised.

Persistence of screen fluorescence plus persistence of vision make you have the illusion of an image on the television screen.

Science News Letter, November 26, 1949

MEDICINE

More People May Soon Be Vaccinated Against TB

➤ MORE people may soon be getting vaccinated against tuberculosis as a result of action by the National Tuberculosis Association.

That organization's medical section, called the American Trudeau Society, recommends that commercial firms be licensed to produce BCG, the anti-TB vaccine, as soon as suitable standards for its production can be set up.

BCG, short for Bacillus Calmette-Guerin, is made from cow tuberculosis germs that have lost their virulence, or ability to produce disease. The vaccine is the most practical known material for giving immunity to tuberculosis and has been widely used in Europe.

In the United States the vaccine has been restricted to use in controlled, scientific studies because of many unanswered questions about its value. It is given only to persons who do not react to a tuberculosis skin sensitivity test.

Science News Letter, November 26, 1949

On This Week's Cover

➤ THE gentle pitter-patter of raindrops is an illusion of the eye and ear, for each raindrop smashes into the soil like a bomb, scattering bits of shattered earth. This explosive action is demonstrated in the picture, shown on the cover, made with a stroboscopic camera by W. D. Ellison, soil conservationist with Navy's Bureau of Docks and Yards, in cooperation with a Naval Research Laboratory photographer. The effect of exploding raindrops on the soil known as splash erosion is a prime force in soil displacement.

Science News Letter, November 26, 1949