



IDENTIFICATION FEATURES—This photograph from the U. S. Department of Agriculture will help you to identify the cork oak needed for war service.

PHARMACY

Remedy From Mushrooms

High blood pressure can be reduced by a compound found in the same table delicacy you eat on beefsteak. Not ready for use yet, however.

► **HIGH BLOOD** pressure can be reduced by a compound found in common mushrooms, the same kind you eat on beefsteak. However, you can't reduce blood pressure by eating mushrooms; the substance works only when injected into the blood stream. Moreover, it isn't ready for general use in human medicine, although preliminary clinical results are pronounced "quite encouraging." Further experimentation is still called for.

This new possibility of medicine from mushrooms was described before the American Chemical Society in Buffalo by two pharmaceutical chemists, Dr. H. Jensen and Dr. Leon E. Tenenbaum of the Upjohn Company.

The compound that actually does the work is an enzyme known as tyrosinase. Its existence has been known for some years, but its pressure-reducing properties are something new to medical science. It was thoroughly tried out on

dogs and rats with high blood pressure before even preliminary treatment of human cases was undertaken.

Drs. Jensen and Tenenbaum were led to their research by a rather widely held theory that holds high blood pressure to be due to the release by disordered kidneys of compounds containing the phenolic grouping of atoms—most familiar to the general public in carbolic acid. The phenol group has the effect of contracting the arteries, and hence of raising blood pressure.

Since it was known that mushrooms contain enzymes which will oxidize phenolic compounds, the researchers explained, it was thought that administration of mushroom extracts would be of benefit in combating high blood pressure. They developed new methods for getting these extracts in a high state of purity, and proceeded to "try them on the dog."

Science News Letter, September 19, 1942

ORDNANCE

Evolution of Rifle Shown By Smithsonian Exhibit

► **EVOLUTION** of the rifle, still the number one weapon of fighting men, is shown in vivid detail by the great collection of pioneer firearms at the Smithsonian Institution in Washington. Although the earliest beginnings of the rifle are German and Swiss, development to its present high state of accuracy and efficiency is principally an American story.

The idea of grooving the bore to insure greater accuracy of fire goes back almost to the beginning of hand firearms, but rifling was never generally used in Europe until it was brought to a high stage of development here. German and Swiss gunsmiths who came into the Colonies in the early eighteenth century brought the primitive European methods of rifling with them. However, their weapons were short-barreled and clumsy, with bores of three-quarters of an inch or more. The leaden bullets had to be hammered down the barrels with a heavy iron ramrod and mallet, which meant a very slow rate of fire.

Pioneers going into the backwoods beyond the Alleghenies, where they had to depend largely on game for their food, needed a totally different type of weapon. The rifle, as it was evolved to meet their requirements, was of much smaller bore, usually less than half an inch. This made for lightness in both weapon and ammunition. Smaller caliber, coupled with the American rifle's great barrel length of 40 to 44 inches, brought about more efficient use of the smaller powder charge, and greatly increased accuracy. Careful design and adjustment of sights was another special feature of early American rifles.

A really revolutionary innovation was the method of loading. Instead of using tight-fitting bullets forced into the grooves, the American long rifles took bullets just slightly smaller than their bore, wrapped in bits of greased cloth or thin leather. A really good frontier rifleman could load his long weapon while actually on the run. It is not too much to say that this patch-loading of the pioneer American rifle was the forerunner of the high-speed semi-automatic fire of today's Garand.

Science News Letter, September 19, 1942

One American *aircraft* organization has increased its personnel from 80 to more than 40,000, since 1936.