

## Explosives Need Brisance

► **HIGH BRISANCE** may become as familiar a term in this war as high octane has already become. It is the quality that makes the bazooka's little rocket projectiles so deadly even to the biggest German tanks.

Brisance made its bow to the American non-military public in an interview granted to the press by Maj. Gen. C. M. Barnes, chief of the technical division office of the chief of ordnance, a featured speaker at the dedication of the new Goodyear Research Laboratories.

Brisance is the suddenness with which an explosive acts as contrasted with its total power. Smokeless powder, for example, is powerful, but it is slow in action. Its brisance is low.

The still-secret explosive used in the bazooka's projectiles, on the contrary, has extremely high brisance; so high, indeed, that it only needs to burst outside even the thickest of tank armor to blast a hole in it, shooting white-hot tongues of flame through the opening to set off the tank's own ammunition supply and perhaps also its fuel tanks as well, and reducing the whole business to a fiery wreck. Gen. Barnes saw tanks to which that had happened on a recent tour in North Africa.

Gen. Barnes had high praise for the cooperation of American scientists, technologists and industrial leaders with the Army and Navy in developing new weapons since the beginning of the war crisis. As a single instance that had important effects in the African campaigns, he cited the rubber tank-tread blocks with which American tanks alone are equipped. The steel pins that link the elements of the track together are embedded in rubber so that nowhere does steel rub against steel. The destructive sand of the desert cannot cut these tracks to pieces as they did tracks of Axis tanks. The rubber-footed American weapons could therefore travel fast and far while their "opposite numbers" suffered frequent breakdowns.

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## Rubber for Post-War Needs

► **SYNTHETIC RUBBER** is now beginning to be turned out in large enough quantities to meet the present emergency, and it is of good enough quality for present purposes, too. But it definitely is not good enough for a peaceful victorious America, and it will be a big job of post-war research to make it good enough.

Such improvement will be one of the undertakings of the new Goodyear Research laboratory, Dr. L. B. Sebrell, manager of research and new products for Goodyear, told the audience of scientists, industrialists and newspapermen gathered for the ceremonies.

In substantial agreement with him was Dr. R. P. Dinsmore, manager of the development department, reviewing progress of the synthetic rubber program to date.

Present-day synthetic rubbers do not have molecules of the same size and shape as natural rubber, which is the basic reason why they fail to come up to the tree product in many respects, Dr. Sebrell pointed out. Studies by X-ray have revealed this much, and further studies, with the more powerful X-ray and electron microscope equipment of the new

laboratory are expected to show much more.

One difficulty with the synthetic rubber molecule, Dr. Sebrell mentioned, is its tendency to stick out branches while it is being combined with other molecules. Longer, straighter strings of atoms, forming molecules more like those of natural rubber, may be the ultimate answer.

But even though improvements are desirable and necessary, it is not to be inferred that American synthetic rubber is inferior.

"We believe," the speaker concluded, "that the type of rubber now being used in this country is equal or superior to that developed by any country in the world and that such development may, in time, make us independent so far as the supply of rubber is concerned."

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### MEDICINE

## Skin Grafting With Ice

Refrigeration anesthesia has been successfully used to banish pain when removing skin to be grafted in new place on the body.

► **SUCCESSFUL USE** of refrigeration anesthesia to banish pain during skin grafting operations is reported by Lieut. Harry E. Mock, Jr., of the U. S. Army Medical Corps (*Journal of the American Medical Association*, June 26).

Ice bags are tied or bandaged over the area from which the skin is to be taken. They are left in place for two hours. This chills the skin so thoroughly that it is completely insensitive to pain. The pain-deadened condition lasts for about 20 minutes after the ice bags are removed, giving the surgeon time to remove the skin which is then put in its new place and the wounds bandaged. The procedure is so simple that for small grafts the operation can be carried out in the patient's bed without having to use the operating room.

Only three of 27 patients felt anything with the refrigeration anesthesia. These three complained of a burning sensation when the graft was cut but it was not so acute that any other anesthetic had to be used.

In 23 of the 27 cases successful grafts were obtained. In the four failures, the cause was attributed to error in judgment about the extent of infection and not to the refrigeration anesthesia.

The idea for using ice bags instead of anesthesia to make skin grafting painless

came from an observation in amputation cases. Refrigeration was also used in these cases. Some who have been using this method discovered that the pain of the tourniquet which has to be applied before amputation of an extremity was decreased by previously chilling the tissues with ice bags. Lieut. Mock and associates, corroborated this finding and noticed that the ice bags were completely anesthetizing the skin.

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### ZOOLOGY

## Baby Brazilian Tapir Born In D. C. Zoological Park

► **THERE'S** a new Brazilian tapir at the National Zoological park in Washington—a baby, born to a pair brought here from Rio de Janeiro in 1938. It differs strikingly from its parents in coat-color, being covered with spots; but these will disappear as it grows older, leaving it a uniform gray-brown like them.

Director William M. Mann made the new arrival welcome—because it belongs to an herbivorous species. "We're glad to have new animals so long as they're grass-eaters," he commented. "Meat-eaters we're not too keen about nowadays."

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