

## PHYSICS

# Bat's Percussion Center

► AN INVISIBLE point inside some player's baseball bat may decide the winner of the 1954 World Series. The center of percussion, as this spot is called, may have been responsible for a historic homer during the 1951 pennant playoffs in the National League.

Remember when, in the last half of the ninth with the Brooklyn Dodgers leading 4-2, Bobby Thomson stepped up to bat for the New York Giants with two men on base? Remember his homer into the upper deck of the left-field stands? Remember the three Giant runs that came in while a bug-eyed crowd went wild?

It is likely that Thomson smacked the ball right on his bat's center of percussion.

This is the spot where the most energy in the batter's swing is transferred to the ball, Dr. Lyman J. Briggs, director emeritus of the National Bureau of Standards, told SCIENCE SERVICE. It is a theoretical point inside the bat and is a few inches from the bat's end.

Players can tell when they sock the ball on the center of percussion. The hit feels "solid," and the bat does not sting.

A ball struck at the center of percussion goes farther than if hit closer to the batter's hands or nearer the bat's end. Maybe the

added distance would put it over the fence.

If a ball is not hit on the center of percussion, the bat tries to spin around this point. It tries to wrest itself from the player's grip—and that is why the bat sometimes stings.

In terms of home runs, this may mean the difference between victory and defeat. For when the bat stings the player's hands, not all of the bat's energy is going into the ball. Some of it is wasted in trying to twist the bat.

The center of percussion may not be the same for two bats. The size, shape and weight distribution of the bat determines the location of this invisible point.

The physicist will tell you that:  $L=I/mr$ , and this is the formula that locates the point of percussion.

However, before you can figure the distance (L) from the bat's handle to the center of percussion, you must calculate the inertia of the bat (I) and weigh the bat to get its mass (m) and balance the bat to find the distance (r) from the handle to its center of gravity.

Dr. Briggs suggests that it may be easier just to take a few swipes at the ball until you can hit it without stinging your hands.

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## PUBLIC HEALTH

# Hunters Guard Against Tularemia

► TULAREMIA, OR rabbit fever, is one of the dangers that threaten hunters. The germs of this disease are not limited to rabbits. They have been found in other small wild animals from mice to opossums, squirrels, coyotes and skunks.

The disease can be contracted from handling an animal sick with it and from the bite of ticks, fleas and lice that have fed on infected animals. Eating improperly cooked meat from infected animals or drinking contaminated water have also been blamed for the disease.

Hunters and trappers are not the only ones exposed to this danger. Butchers and housewives who skin and clean infected rabbits can get the disease. The germs can go through little cuts or scratches on arms and hands and can even penetrate unbroken skin.

The wise thing is to wear gloves when handling the animals. If blood splatters above the gloves, wash it off quickly.

The sickness starts within three to five days after the germs get into the body. Headache, chills and fever are the first signs. Weakness, loss of weight, prostration, backache, joint pains and drenching sweats mark the acute stage, which lasts two or three weeks, after which the fever drops gradually.

The fever is always high, 104 or 105 degrees Fahrenheit. Because of the weakening effect of the disease, convalescence usually takes two to three months.

Even though modern medicines may get the patient well faster, an attack of rabbit fever is a pretty mean kind of sickness. The wise hunter will be alert to the danger and if he should get sick will call his doctor.

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## CHEMISTRY

# Fight Tropical Pests

► TROPICAL AGRICULTURE is being eyed by chemists as offering potential markets for pesticides and weed control chemicals.

Weeds, diseases, insects, rats and bacteria take their toll of crops in the warmer regions of the earth.

Coffee alone is ravaged by more than 60 diseases. Sugar, cacao, rice, bananas and citrus fruit are export crops from the tropics, just as are cotton and rubber, and each has its share of trouble that chemicals could help.

Better yields of food crops are necessary for better living conditions in many parts of the world, experts on population agree. Cutting down the waste that is now consumed by pests would go far toward giving the human inhabitants of backward countries a better food supply.

Many chemicals have been developed to combat the enemies that plague farmers in temperate zones. None of them is without some drawback, but together they offer a wide choice of methods of attack.

For tropical conditions these methods must be reviewed to see which can be carried over and which, for one reason or another, cannot be used.

Some are too expensive in the quantities needed. Some need to be formulated with adhesives to keep them on the plants dur-

ing the rainy season. Some find opposition from local farmers, due to custom, religion or superstition. Some farmers never get a chance to learn about the helpful discoveries they would be glad to use.

These problems were discussed at the meeting of the American Chemical Society in New York by chemists from the tropical Americas, taking part, with others, in a symposium on use of pesticides in tropical agriculture. Dr. Norward C. Thornton, United Fruit Co., presided at the session.

Dr. John S. Niederhauser and Dr. Douglas Barnes of the Rockefeller Foundation reported on the use of pesticides on basic food crops in the tropics. They concluded that, as knowledge of the control of insect pests and diseases in the tropics is increased, "it will be possible not only to lengthen the growing season of basic food crops, but almost certainly to diversify the crops.

"These two steps will create a more stable agricultural economy and give stimulus to agricultural progress" they think.

Factors influencing the demand for pesticides in tropical agriculture were reviewed by Dr. Edson J. Hambelton of the U. S. Department of Agriculture. Special problems of particular crops were presented by scientists from the tropical countries where these are grown.

Science News Letter, October 2, 1954

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