

## VETERINARY MEDICINE

# Find Brucellosis Vaccine

► A HIGHLY effective vaccine against brucellosis in goats, and possibly sheep, has been developed for the first time.

Dr. Sanford Elberg, University of California bacteriologist, has reported his live vaccine protected all goats tested in three years of experiments against a highly infectious dose of the disease agent, *Brucella melitensis*.

The results have just been confirmed by the Ministry of Agriculture and Fisheries Laboratory at Weybridge, England.

Mediterranean countries and Latin America, where goats and sheep are of major importance in the economies, will be the chief beneficiaries of the new vaccine. Although the vaccine has not yet been tested in sheep, it should be effective, since the same organism attacks both goats and sheep.

Brucellosis also occurs in cattle and hogs, although different species of the *Brucella*

organism attacks these animals. A cattle vaccine has been in use for some years, but was not useful in sheep or goats.

Dr. Elberg also hopes the vaccine will protect humans, who contract the disease when they come into contact with infected animals or their milk.

In man, the disease is sometimes known as Malta Fever or undulant fever. Treatment with combinations of antibiotic drugs, including streptomycin, is fairly effective.

Dr. Elberg's is a live vaccine, developed by producing a mutant of *Brucella melitensis* that is not virulent but still causes a mild infection producing immunity.

After preliminary success in protecting small animals, Dr. Elberg tested his vaccine in female goats. One of two groups of animals was vaccinated in August or September, then both groups were bred in October-December. A month after breeding, all animals were given an infecting dose of a virulent strain of *melitensis*.

Beginning about 30 days later and continuing all during the remainder of the gestation period of 150 days, all the unvaccinated goats aborted, abortion being the most striking symptom of the disease.

All the vaccinated animals gave birth to healthy kids, and both mothers and kids were uninfected.

Dr. Elberg will test his new vaccine under field conditions in the near future, in both goats and man.

The scientist and his associate, Dr. Mendel Herzberg, now at the University of Florida, began working on the vaccine about seven years ago. In recent work he has had the assistance of Kenneth Faunce, technician.

Science News Letter, June 29, 1957

## MEDICINE

## Fast Test for Diabetes In Doctor's Office

► A FAST, simple test for diabetes that can be made in a doctor's office in five minutes is reported in the *Journal of the American Medical Association* (June 15).

Very accurate results are obtained by a technician experienced with the test, Dr. James M. Moss of Georgetown University School of Medicine has found. He ran blood sugar level determinations by the method, known as Dextrotest, and compared results with the standard, more lengthy method for more than 900 patients.

"The simplicity and economy of this test make it useful in the detection and control of diabetes when more precise tests are unavailable, too inconvenient or too expensive," Dr. Moss concludes. The method is also valuable in emergency situations.

The amount of sugar in blood is shown by the color that a concentrated, deproteinized blood filtrate turns when treated with certain chemicals, then boiled and shaken. A blue color indicates a sugar level below 100 milligrams for each 100 cubic centimeters of blood, an orange color, more than 200 milligrams.

A normal person usually had a blood sugar level below 125 milligrams per 100 cc, except during the first two hours after a meal. A level higher than 150 milligrams suggests diabetes, Dr. Moss found.

Since in patients with mild diabetes, the blood sugar level may be elevated only after meals, a correct diagnosis may not be made if only the fasting level is measured.

Dr. Moss suggests routine tests should be made two hours after a patient has eaten a large meal in order to detect more persons with diabetes while the disease is still in its early stages and before complications have developed.

Science News Letter, June 29, 1957

## ● RADIO

Saturday, July 6, 1957, 1:45-2:00 p.m., EDT. "Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Mr. Hugh Odishaw, executive director, IGY Committee of the National Academy of Sciences, will discuss the "International Geophysical Year."

## AERONAUTICS

## Jet Engine Powers Plane Twice Speed of Sound

► A JET engine, small and light yet capable of powering an aircraft twice the speed of sound, has been developed by the General Electric Company.

Called the J79, the engine is in the 10,000-pound thrust class and has been flight tested in the B-58 bomber and the F-104 and F11F-1F fighter planes. It will also be used to power the Regulus missile.

The main advantage of the new engine comes from its use of variable pitch stator blades in the compressor.

They overcome a major problem in jet engine design called the "stall barrier" problem. This exists because at varying speeds the front part of the compressor must spin at a different speed than the back part. Otherwise air will be recirculated in the engine rather than being forced out the tail pipe.

Conventional U. S. jets now use a dual rotor system to get around the problem, but this requires added weight.

The J79 is approximately 17 feet long and has the highest thrust to weight ratio of any engine ever developed by an American manufacturer, the company reported.

Science News Letter, June 29, 1957



**INFLATABLE AIRPLANE**—Great Britain's newest airplane is blown up like a balloon. The wings of the ML Utility airplane are composed of a single delta-shaped inflated rubber fabric envelope, in which pressure is maintained to provide a stiff aerodynamic surface. The wings can be detached after use and rolled up into a bag. The aircraft can cruise at 50 miles per hour and its take-off run is only 90 yards.