MEDICINE

Brucellosis Test Devised

Method for diagnosing brucellosis in humans worked out using dots on paper treated with suspected serum. Disease ranks with TB in importance.

➤ A SIMPLE new test for the diagnosis of brucellosis in humans, easy to perform and accurate in a high percentage of cases, has been devised by Dr. Maximiliano Ruiz Castaneda, head of the Mexican Brucellosis Center of the World Health Organization in Mexico City.

Working in a modest laboratory in Mexico City, Dr. Ruiz Castaneda is one of the world's authorities on brucellosis, a mystery disease with many names: undulant fever, Malta fever, and milk fever. It often escapes diagnosis, for symptoms are confused with typhoid, malaria and tuberculosis. Or in less severe forms where the patient merely suffers from a general "not feeling well," it's dismissed as psychoneurosis.

The new test, the last of several developed by Dr. Ruiz Castaneda, is called the surface fixation test. It consists of testing suspected serum on a small square of filter paper at the bottom of which are three black dots. The dot on the left represents the positive reaction, and the one on the right the negative reaction. These are controls for the central dot on which the technician places the serum to be tested. The sheet is then suspended over a salt solution with the lower margin in the solution. As the liquid is absorbed by the paper, like blotting paper, the coloring matter in the negative reaction dot is diffused upward in a comet-shaped line, the positive reactor remaining a dot.

The presence of the disease is determined by the action of the central dot with the patient's blood compared to the negative and positive reactors and thus not only establishes the presence of the bacillus but the degree of infection.

In preparing the negative control dot Dr. Ruiz Castaneda has tried out a variety of substances to substitute for normal blood because after several days it is not soluble when moistened by the saline solution and thus will not travel upward on the filter paper.

To date, the only substance which he has found that reacts like normal blood and yet remains soluble for at least three months is a liquid extracted from the maguey cactus, from which pulque, an intoxicating drink, is made.

That brucellosis ranks with tuberculosis, syphilis and pneumonia in importance and incidence is not generally known. The brucella bacillus can be the cause of results as varied as arthritis, osteomyelitis, "muscular rheumatism," skin lesions, chest pains, colitis, generalized weakness, weight loss and pelvic pain.

For these reasons it has been imperative to find simple, effective tests which would demonstrate the presence of the bacillus in the body. The agglutination and skin tests which have been used for many years are not positive in a sufficient number of cases, and have the further disadvantage of not being standardized in either procedure or reading.

Dr. Castaneda reported on the problem of brucellosis to the joint Mexican-American Border Health Commission which met in Monterrey, Mexico.

Science News Letter, May 3, 1952

METALLURGY

Titanium Kit Available

➤ A SAMPLE of shiny titanium metal and materials to demonstrate how it was made can now be obtained.

A few years ago only a few pounds of titanium metal were in existence as laboratory curiosities. But demand for this promising metal for defense purposes and development of better processing methods have upped production so that this year several thousand tons are expected to be produced.

Most of the titanium production, however, is earmarked for defense use and experimental purposes. The current price is $5.00 per pound for sponge titanium in lots of 100 pounds or more, and $11.00 to $25.00 per pound for forgings, plate, sheet and strip titanium. Thus, a sample of titanium sheet is as valuable as if it were silver.

Titanium is valued for its great strength and light weight. It is about twice as heavy as aluminum, but almost three times as strong. It weighs about half as much as steel and is as strong as many steels. It is considered most promising for use in airplane frames.

The metal is resistant to oxidizing, chlorine and chloride reagents, suggesting great usefulness for chemical equipment. Titanium resists corrosion better than aluminum, stainless steel and all other metals and alloys generally used in marine construction.

Titanium is the ninth most common element in the earth's crust and the fourth most abundant structural metal, yet it is never found in pure form. Always combined with other elements, getting the pure metal from its ores is a major scientific challenge for chemists and metallurgists.

Common as titanium is, there are few ores from which it is commercially practical to extract the metal.

Few people in the world have seen and handled sponge titanium and sheet titanium such as are contained in the kit which SCIENCE SERVICE has collected for you. Black ilmenite sand such as that from which these particular samples were made is also contained in the attractive display box which is the current unit of monthly THINGS of science. It is available for the nominal sum of 75 cents. Just write SCIENCE SERVICE, 1719 N St., N.W., Washington 6, D. C., and ask for the Titanium Kit.

Science News Letter, May 3, 1952

MEDICINE

New Two-Way Bandage Stretches Around Joints

➤ A TWO-WAY-STRETCH cotton bandage that will fit neatly around knees, elbows and finger joints without being too constricting is now going into commercial production for the Armed Forces and may soon be available for civilian use.

The bandage was developed by the U. S. Department of Agriculture's Southern Regional Research Laboratory and has undergone tests in military hospitals in the United States and field hospitals in Korea.

The fact that it can be adapted readily to irregular contours of the body is its outstanding feature. This is achieved by a simple chemical treatment with caustic soda and subsequent neutralization. The treatment preshrinks ordinary open-weave gauze in a way that gives it a kind of permanent wave. The resulting kinkiness and crimp of the yarns gives the bandage elasticity in two directions. It is therefore essentially self-fitting and self-tightening.

Science News Letter, May 3, 1952