BACTERIOLOGY

Color Identifies Germs

➤ GERMS can now identify themselves by the color they give off under ultraviolet light, Dr. Arthur M. Silverstein, Armed Forces Institute of Pathology, Washington, D. C., reported to the Society of American Bacteriologists meeting in Detroit, Mich.

The basis for the new method of identification, which could be lifesaving because of its speed, is the phenomena that different bacteria will glow with their own distinctive color when properly treated.

One type of bacteria can be made to glow a yellow-green, a second type an orange color, and so on, Dr. Silverstein said. He believes, though, that only three basic colors will be used in combination or singly.

To produce the colorful germs, antibodies to them are first "labeled" with fluorescent dyes of contrasting colors. Then the antibodies, once labeled, are mixed with germ-carrying specimens taken from sick humans.

The fluorescent dye-labeled antibody, which has the ability to attach itself to the germ, will then specifically "light up" the infectious germ and cause it to glow when observed under an ultraviolet microscope. By observing the color given off, the pathologist can quickly identify the germ responsible for the disease.

The standard identification methods used today can seldom do the job in less than 24 hours, and may often take days or weeks. But color identification can do the same job in 20 minutes in some cases.

Disease-carrying organisms will give off a specific glow even in mixtures and can be easily "picked out" and identified, Dr. Silverstein reported.

He has worked on the technique for over two years and has been assisted for the past year by Col. Warren C. Eveland and Capt. John D. Marshall Jr., Medical Service Corps, U. S. Army.

Use of the color identification method was also reported by Drs. Carrie C. Winter and Max D. Moody, Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga.

They labeled antibodies to plague germs and were able quickly to identify the organisms in the blood of a human bubonic plague victim.

Science News Letter, May 11, 1957

METALLURGY

Atomic Rays Control Titanium Ingot Level

➤ ATOMIC radiation has been given a new job—detecting and controlling the level of molten titanium in a new "cold hearth" arc furnace, Dr. Daniel Alpert, associate director of the Westinghouse Research Laboratories, reported.

Gamma rays from radioactive cobalt are beamed through the walls of the furnace and a 12-inch titanium ingot inside, Dr. Alpert explained. This permits scientists to "see" the actual level of the titanium and use the information to automatically raise or lower the ingot to its correct operating level.

The new atomic radiation control was developed by P. R. Malmberg, Alexander Mester and Dr. K. H. Sun of the Westinghouse Laboratories.

Science News Letter, May 11, 1957

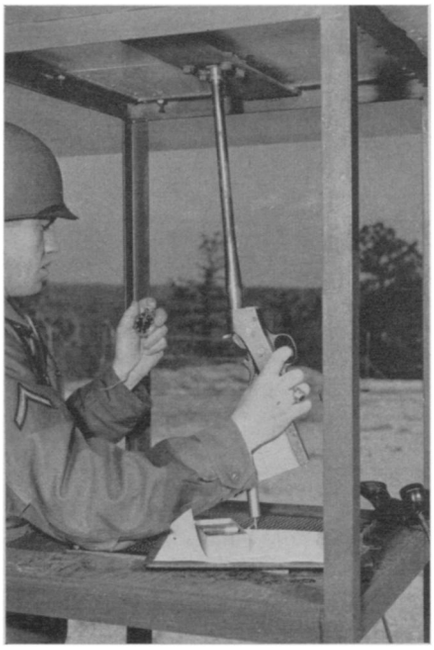
PHYSICS

Find Abrasive Is a Good Semiconductor Material

➤ SILICON CARBIDE, best known as an abrasive, has been given a new role as a high-temperature semiconductor material. A silicon carbide rectifier has been operated at temperatures up to 1200 degrees Fahrenheit, more than twice the heat withstood by other semiconductor materials, General Electric scientists in Schenectady reported.

Still in the laboratory stages of development, the silicon carbide rectifier has also been operated at temperatures down as low as 100 degrees Fahrenheit below zero.

Science News Letter, May 11, 1957



BREEZE BUSTER — This experimental test model of a new Army weather gun literally "shoots the breeze" as it measures low-altitude wind velocity. Pfc. John Eaton of Ripley, Mass., is shown firing the gun, officially called a "Shooting Sphere Anemometer."

BIOLOGY

Skin Grafts Point To Organ Replacements

➤ THE TRANSFER of skin or body organs from one person to another to replace diseased or damaged parts, a long-sought dream of medical men, is a little nearer realization.

Research at the University of California at Los Angeles Medical School has demonstrated that tissue from one animal may adapt itself to that of another under certain conditions.

Skin from day-old chicks can be successfully cross-grafted. But when the chicks mature, grafts involving their "former skin" will not take. This suggests the donor skin has adapted itself so that it is now specific to the host.

The experiments further indicate tissue specificity, which causes an individual to reject tissue from another, may be a function of the immune mechanism. Until the immune mechanism is fully functioning, tissue specificity may not exist.

Since the major research emphasis to date has been on making the host tolerant to the graft, the investigators suggest the possibility of tissue adaptation to the host should be further investigated.

The studies were carried out by Drs. Jack Cannon, Paul Terasaki and William Longmire.

Science News Letter, May 11, 1957

METEOROLOGY

Weather Gun Measures Low-Altitude Winds

➤ A WEATHER GUN to measure low-altitude winds for more accurate launching of missiles is being tested at the Army's Signal Engineering Laboratories in Fort Monmouth, N. J.

Since even relatively low winds can significantly affect a missile's course, winds quite close to the ground must be accurately known. The gun, nicknamed "breeze buster," gives this information after a small steel ball is fired upward into the wind at an angle calculated to make the ball fall back into or close to the gun's muzzle.

Before firing, the gun is angled into the wind. The greater the wind speed, the greater the angle. When the steel ball hits the gun from which it is fired, the gun's tilt is checked with a table to obtain the wind velocity.

The device is simply constructed and easily operated by one man. Its advantages over the small weather balloons now used for low-level wind measurement include the fact that it measures wind speed at the missile-firing point, the inexpensive steel spheres cannot be spotted and shot down by the enemy, and it can be used under poor visibility conditions.

Plans are under way to build a portable model of the weather gun.

Science News Letter, May 11, 1957

Science Service, Inc. is collaborating with JSTOR to digitize, preserve, and extend access to *The Science News-Letter.* www.jstor.org