the greater ease and speed with which the big wound or burn can be covered.

The extensive burns and wounds from high explosive bombs, blast and fires during the last war and the possibility of equally extensive burns and wounds in case of any future atomic bomb bursts, many of which would have to be dressed in a hurry by relatively untrained lay persons, led to development of this new type dressing by the Army Medical Service's research and development board.

Science News Letter, October 7, 1950

GENERAL SCIENCE

Gov't-Financed Research

➤ SCIENTIFIC progress in America will depend more and more in the future upon government-supported laboratories and research institutes, Dr. Selman A. Waksman, pioneer in the development of the "miracle drugs," the antibiotics, told a distinguished gathering of U. S. and foreign scientists in New Haven, Conn.

Dr. Waksman, who discovered streptomycin at the New Jersey Agricultural Station, spoke at 75th anniversary observances of the Connecticut Agricultural Experiment Station in New Haven, Conn., oldest in the nation.

He pointed out that the great capital investments and costs of modern research can often be met only by states or the federal government.

"Government-supported institutions . . . will serve as one of the most important fountains of research," Dr. Waksman said, "which will continue to be the fundamental base for stimulating industry and agriculture, and lead to improvement of public health and human welfare."

As examples of the scientific contributions of government-supported institutions, Dr. Waksman cited the development of hybrid corn, vitamin D, better understanding of the protein value of plants, and the overall study of soil fertility and microbiology. He also cited the study of the actinomycetes in the soil which led to the discovery of streptomycin, chloromycetin, aureomycin and many other new antibiotics.

"Today, in America alone, more than 1,000 investigators are said to be studying the actinomycetes," he said.

The present age may be designated either as the "atomic age" or the "antibiotic age," Dr. Waksman commented. In whatever field of science, however, "it is the coordination of the discoveries of individual investigators, on the one hand, and of the team of research workers on the other, that will yield the great secrets of nature, for the benefit of man. . . . Let us hope that modern society will learn to use these discoveries for its own well-being rather than for its destruction."

Other speakers at the anniversary symposium, who discussed the various non-governmental types of research institutions, included Dr. Edmund W. Sinnott, director of Sheffield Scientific School at Yale University, Dr. George O. Curme, Jr., vice-president of Union Carbide and Carbon Corporation, and Dr. Alexander Wetmore, secretary of the Smithsonian Institution.

Science News Letter, October 7, 1950

METEOROLOGY

Rain from Smoke Pall

➤ THAT Canadian smoke which covered a large part of eastern United States during the last part of September might have caused widespread rains. If the proper cloud conditions had existed, the extra amount of tiny particles in the air as a result of the fire could have changed the clouds into rain.

Dr. Vincent Schaeffer, the original rainmaker who works with Dr. Irving Langmuir of General Electric Laboratories, Schenectady, N. Y., told Science Service that there had been several local snow showers around Schenectady, which came from low clouds in a rather unusual manner.

Dr. Schaeffer, however, does not believe that the smoke particles themselves could have been the sublimation nuclei which are the trigger for rain. Heat from the fire, he explained, would cause a tremendous convection which would lift an abnormal amount of tiny mineral particles from the soil into the air. These would travel along with the smoke and could have been the sublimation nuclei.

While there might have been a great deal of rain along with the smoke if cloud conditions were right, there also is the possibility that the fire would have produced too many nuclei. This is known as "overseeding" to rainmakers and when that happens, either in deliberate attempts to make rain or in nature, it fails to produce the rain.

Weather Bureau experts in Washington, however, debunked the idea that the Canadian fire might have caused widespread rains. Dr. F. W. Reichelderfer, chief of the Bureau, told Science Service that it all depends on whether you believe in one of the two schools of thought about rainmaking or the other.

Most Weather Bureau meteorologists, he explained, believe that nature provides enough sublimation nuclei to make most of the rain that is going to come down. If that is the case, he explained, more nuclei will not help to any really noticeable extent. But, he went on, if you believe as the rainmakers do that nature many times does not provide enough nuclei, then you might have expected more rain, if cloud conditions were right, to follow the spread of the Canadian smoke.

Dr. Harry Wexler of the Weather Bureau explained that the smoke haze occurred, with or without its rainmaking potentialities, because the Canadian fire coincided with the beginning of the winter pattern of the weather. That winter pattern, he said, brought a strong flow of cold air down from Canada. The cold air was confined under a "lid" in the atmosphere two and a half miles high, caused when the temperature, instead of decreasing with height, either stayed the same or increased.

Science News Letter, October 7, 1950

ENGINEERING

Tiny Rocket Motor Tests Fuels for Full-Size Missiles

➤ ONLY two pounds of fuel per minute are consumed in a tiny rocket motor in laboratories of the Massachusetts Institute of Technology. This motor is used in studying fuels for full-size rocket-powered missiles which might use 12 tons of fuel per minute.

This "microrocket" has already proved its value in testing rocket engine fuel efficiencies. Its great advantage is the low cost of testing because of the small amount of fuel used. Also, because of its size, elaborate safety precautions are unnecessary.

The microrocket operates on exactly the same principle and with the same high efficiency as the rocket missiles being developed for warfare. The fuel testing is part of a comprehensive project under way at the Institute under the sponsorship of the U.S. Navy. The research is under the direction of Profs. Hoyt C. Hottel and Glenn C. Williams of the M.I.T. chemical engineering staff.

Although built to use any liquid fuels, this microrocket has to date been used chiefly with a combination of liquids that ignite on contact. When they come together inside the motor, the resulting flame makes a tremendous amount of heat and therefore power.

On two pounds of fuel it runs for one minute, builds up more than 300 pounds of pressure inside the motor, and shoots gas out its nozzle at a speed of about 5,000 miles per hour. The German V-2 rocket used 12 tons of fuel per minute. A testing engine that operates on very small quantities of fuel is important because some of the newer fuels are quite scarce.

Science News Letter, October 7, 1950