

seen. The camera may be located under the fuselage or in some other convenient place, with means to turn it in any direction in which the aviator may wish to "look." Mr. Adams' invention is covered by patent 2,288,871.

Science News Letter, July 18, 1942

Chemicals from Garbage

THE PRESENT national drive to get value out of all manner of scrap and waste materials might be aided by a garbage-reducing system on which patent 2,288,757 was issued to R. J. Thompson of Michigan City, Ind. In it the garbage is first ground fine, then digested by bacteria. The end-products of this fermentation, principally gaseous, are treated with sulfuric and nitric acids. Mr. Thompson states that his process recovers nitrates for explosives and fertilizers, also useful dyestuffs and other chemicals. He further claims that the apparatus is kept so completely gas-tight that the process is completely odorless.

Science News Letter, July 18, 1942

MILITARY SCIENCE

Wire-Dangling Rocket Not a New Weapon

BRTAIN's newest anti-aircraft weapon, a rocket that trails long tentacles of entangling wires, is no new thing under the sun. Its essential idea was proposed during the first World War by Prof. R. W. Wood, noted Johns Hopkins University physicist, who was then overseas in war service. His idea was to have the wires spun out of an anti-aircraft shell. Ordnance men were interested in what they termed the "spaghetti shell," but the war ended before it could be developed to the field-test stage.

Since 1918 the general idea has persisted, and a number of inventors have had a go at it. Shells, rockets, balloons and airplanes have been among the means proposed for getting the menacing steel tentacles into the air. It has also been proposed to string small bombs at intervals on the wires, to act like miniature mines when the aircraft struck them or pulled them into contact by winding up the wire on its propeller.

A Swiss inventor, Erich Bickel of Baden, has been especially active in this field. He holds several U. S. patents, two of them issued in January and February of this year.

Science News Letter, July 18, 1942

INVENTION

Ideas From Talent Search Winners Given to Government

Ten Suggestions from Nine of the Forty Who Won Trips to Washington Forwarded to Inventors Council

IDEAS as to how science can help win the war received from boys and girls just graduated from high schools throughout the nation are being forwarded to the National Inventors Council by Science Service as a result of the first annual Science Talent Search conducted by Science Clubs of America.

Ten inventive suggestions are being sent to the government from nine among the 40 winners of the Science Talent Search.

All the suggestions deal with specific ways in which scientific methods and principles can aid the fighting forces of the United Nations.

An electronically controlled bomb sight is suggested by Paul Joseph Barthel, aged 18, from the Reitz Memorial High School, Evansville, Ind.

Buoys equipped with listening devices and radio apparatus would detect the sound of a submarine's engines and send out a warning, according to the plan of William Dorrance Worthington, 17, from Camden High School, Camden, N. Y.

Robert Edward Phillips, 18, of Herbert Hoover High School, Glendale,

California, would use the sound of a boat's engines to explode mines, while his school-mate, William Denman Calhoun, aged 16, has detailed plans for a rocket bomb.

An incendiary bomb using the principle of the "oxygen lance" was designed by Wolf Karo, 18, from Utica Free Academy, Utica, N. Y. Homer Frederick Davis, 18, of the Frewsburg, N. Y. High School, has submitted the design of an internal combustion engine different from those in general use, and Robert Greiff, 16, of the Brooklyn, N. Y., Technical High School, plans to run machine shops by photo-electric cells.

Making alcohol from materials common in the United States is the ambition of Gilbert Dehnkamp, 16, of the Hinsdale, N. Y., Central High School, who submits a detailed scheme of the chemical process he has chosen.

Hugo Korn, 16, from Tuley High School, Chicago, Ill., has two ideas, one for a detector to be used in airplanes to spot factories in enemy country by infrared radiation, the other for an aerial camera which would be used in bad weather conditions.

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PUBLIC HEALTH

Smallpox Now at Lowest Ebb; Danger Seen in War Shifts

AN ALL-TIME low record for smallpox in the United States was set in 1941, but health authorities of the Metropolitan Life Insurance Company warn against overconfidence about the smallpox situation.

An increase in smallpox cases can confidently be predicted, they point out, if people generally get the false notion that vaccination against smallpox can be dispensed with. In that case the growing number of unprotected persons will provide a new fertile field for a resurgence of the disease.

The shift, because of the war, of thousands of families of war workers from smallpox areas to cities previously free of smallpox may lead to outbreaks in these cities. The best protection against this danger is a widespread and vigorous campaign for vaccination, including re-vaccination of adults.

Only 1,432 cases of smallpox were recorded for the entire country for the year 1941. Chief center for smallpox in the United States in past years has been in the northwestern corner of the country. Montana, Washington, Idaho, and

Oregon have generally been the states with the highest incidence, with the adjacent states having next highest rates.

Outstanding exception to the rule of low smallpox incidence in the rest of the country is Indiana. During the past

20 years this state has had about four times the number of smallpox cases recorded by all of the New England and Middle Atlantic States plus Delaware, Maryland and the District of Columbia.

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CHEMISTRY

Possible Rubber Substitutes From Soybean Oil Tested

They Don't Have Quite So Much Stretch and Bounce As Real Rubber, But Will Serve Many of Its Purposes

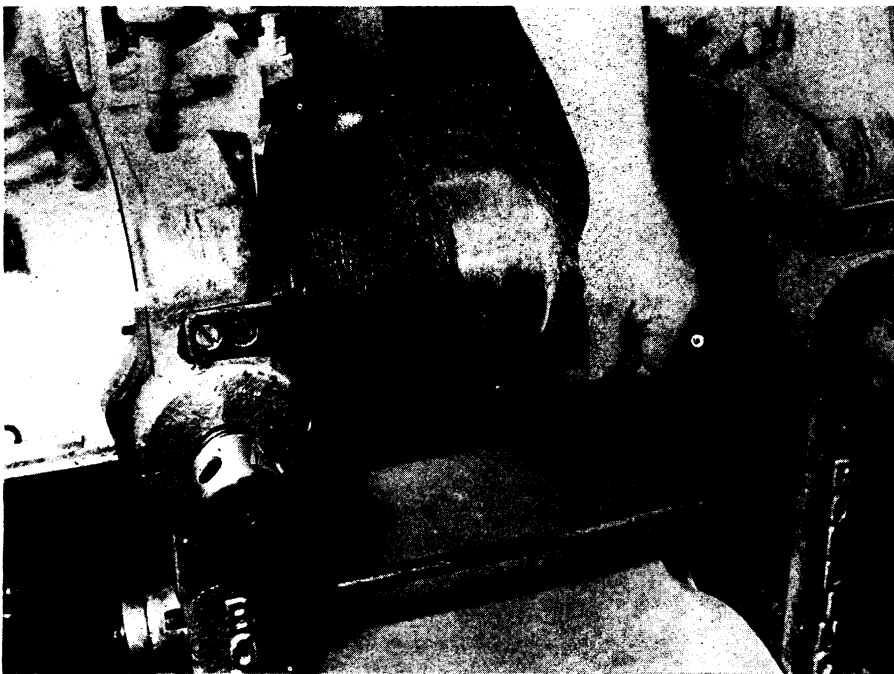
RUBBER-LIKE substances, with at least part of the stretch and bounce of real rubber, have been prepared from soybean and corn oils at the Northern Research Laboratory of the U. S. Department of Agriculture at Peoria, Ill. Some of these products will stretch 200% or more and return to original shape; they show tensile strengths of about 500 pounds per square inch. Natural rubber averages a 600% stretch, with a tensile strength of 3,000 pounds or more.

The substitutes are thus only approxi-

mations of real rubber in these respects. However, they may be able to do part of rubber's job in such things as water-proofing, resistance to abrasion and cracking, etc. In these ways they may be able to eke out the country's short supply of natural rubber.

Up to now, most of the research has been on laboratory scale only, but some of it has proceeded to the pilot-plant stage. If results there are still promising, the next step would be commercial trials.

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IT STRETCHES

This is not rubber but it does have some stretch and bounce. It can be used for such purposes as water-proofing or resistance to abrasion and cracking. Great advantage is that it is made of soybean oil.

GEOLOGY

Russia's Frozen Expenses Have Lessons for U. S.

PERPETUALLY frozen ground covers 40% of the area of the Soviet Union. This is more area than the vast expanse of the whole United States. Alaska, just across the way from Siberia, has similar territory where the soil is icebound the whole year round. But Alaska has not been developed in these frigid regions to the same extent that Soviet scientists, engineers and developers have established colonies and industrial enterprises and mines on the frozen ground.

War brings added interest in the permanently frozen areas of the North American continent. The new defense highway from the U. S. A. through Canada to Alaska has to cross some such ground. Engineers at work on this project need all the information and help that can be given them. They need to know how to handle this ground that always has a fresh supply of ice and water in its depths. There are engineering tricks that can be used to keep houses and other structures from being damaged by the failure of the ground beneath. Often building upon such a foundation is worse than building on sand.

One of the Soviet's leading authorities upon frozen ground is the President of Leningrad University, Dr. K. I. Lukashev, a geologist who is deputy chairman of the Soviet Government Purchasing Commission in Washington. Although primarily engaged in getting American supplies to the Soviet's war effort, Geologist Lukashev has discussed mutual problems with American geologists. Russian technical literature, including an authoritative book by Dr. Lukashev himself, have been made available for American use.

For at least 300 feet, perhaps deeper, the soil is frozen in some places in both the American and Asiatic arctic regions. How long the ground has been frozen is not known, since in the more northern regions the ice age was continuous. The recurrent sweeps of great glaciers, by which geologists are able to do some dating in northern U. S. latitudes, are lacking. Geologic time is less important in wartime than immediate engineering problems. As geologists learn more about this icy area, there will undoubtedly be more accurate details about the happenings in the hundreds of thousands of years of recent geologic time, millennia before man came to the western world.

Science News Letter, July 18, 1942