

INVENTION

# Inventors' Ideas Needed

Armed Services are asking help in solving many technical problems which affect national defense. Their needs reach into many fields of science.

► HERE ARE SOME THINGS the Armed Services need:

Storage batteries for the Polar regions.  
Smoke-producing mixture that will ignite and burn on wet ground.

Non-detectable ground mine.

New types of rocket propellants.

Improved metals.

Pneumatic tire substitute.

A bolt or cap screw that can be operated without the usual amount of turning.

New, non-magnetic compass.

Handwheels for vehicles that do not chill the operators' hands in cold weather.

These are only a few of several hundred technical problems affecting national defense which the Armed Services are asking help in solving. They are taken from an official list issued by the National Inventors Council, U. S. Department of Commerce. These lists are for circulation among inventors, in the hope that individuals will submit solutions or suggestions that may solve the problems.

All ideas and suggestions submitted to the Council are carefully screened by experts. When a proposal appears to be of constructive value, the Council refers it to the appropriate technical branch of the Armed Services for study. The judgment of the technical branch to which the matter was referred is communicated to the inventor as soon as possible.

Needs of the Armed Services reach into many fields, from those that might be solved by an ingenious mechanic to others that require the training and experience of high-grade research scientists. In the latter fields there are problems for chemists, metallurgists, physicists, engineers, mathematicians, aircraft experts and others.

In the fuel and lubricant field there is need for a diesel fuel oil which will not lose its physical and chemical characteristics at 65 degrees below zero Fahrenheit. There is need for lubricating oil which will maintain satisfactory viscosity and have a pour point of approximately minus 60 degrees Fahrenheit. Listed as an unsolved problem is the solidification of gasoline in order to improve packaging, transportation and storage under minimum temperatures of minus 65 degrees Fahrenheit.

A new type of electric storage battery, or improvements on present types, is essential to give efficient service under any climatic conditions within a temperature range of 130 degrees Fahrenheit above zero to 65 degrees below. It should not reflect any appreciable reduction in voltage and efficiency due to low temperatures. Applications range from locomotives to highway

vehicles and stationary engines.

For chemists to solve is the problem of a red tracer composition for artillery shells which will stand high velocities, function uniformly for any number of seconds, and is not affected by heat or moisture. Then there is the problem of an igniting composition which is not affected by heat or moisture with uniform action under all conditions of ammunition use. In addition, plastic materials for many uses under various climatic and other conditions are required.

For metal experts many problems remain to be solved. There is need for an easily worked alloy which will withstand temperatures above 5,000 degrees Fahrenheit; a satisfactory ceramic liner for rocket motors; non-corrosive metals; anti-friction bushings; a non-corroding, penetrating, alloying treatment for magnesium; and light alloy materials which will retain strength at temperatures up to 1,000 degrees Fahrenheit.

Unsolved problems in the Council list reach into nearly all branches of science. Electronic equipment of various types

might be mentioned. For mechanics there is the job of inventing a hydraulic jack that will not leak off under load or bind when operated to lower the load. Also wanted is a telescoping screw for elevating mechanisms, a substitute for the present wheel-brake system, and an air-brake system requiring only one hose.

The National Inventors Council has nothing to do with placing development contracts with private firms and laboratories for the solution of technical problems. It advises those interested in development contracts to discuss the matter directly with the Armed Services. The Council seeks only to bring the problems to the attention of individual inventors whose constructive thinking on them might not otherwise come to light.

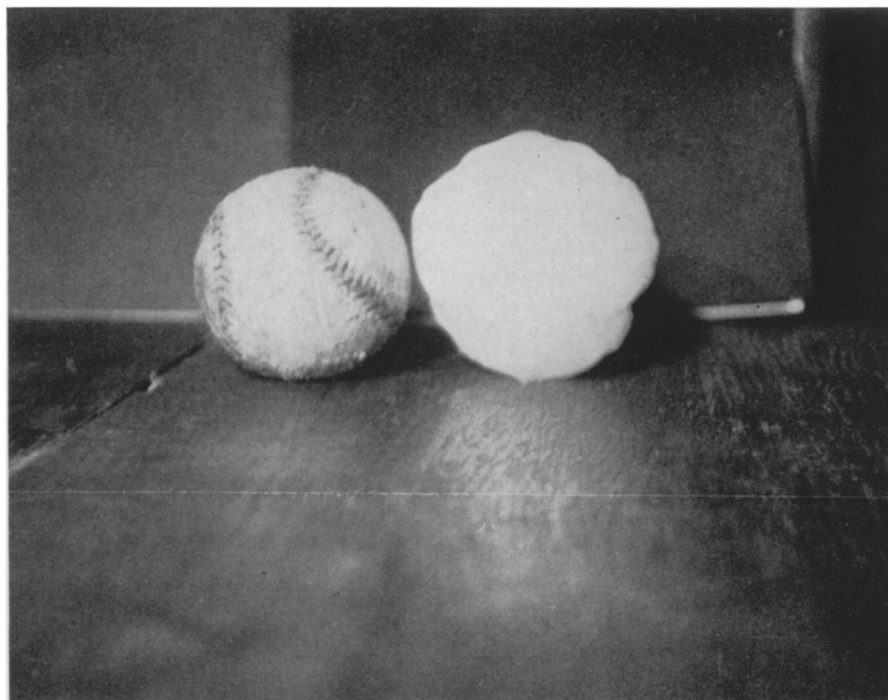
For the convenience of inventors, the Council publishes from time to time lists of needs of the Army, Navy and Air Force. However, some of the problems confronting the Armed Services are so highly specialized that it would serve little purpose to give them general publicity. Inventors may obtain lists from the Council.

Science News Letter, August 21, 1948

## METEOROLOGY

### Texas Hailstone Found Larger than Baseball

► A HAILSTONE larger than a regulation baseball has been added to the U. S. Weather Bureau's list of giant natural missiles from the sky.



**GIANT HAILSTONE**—The big chunk of ice shown here was compared for size with a baseball. It fell in connection with a tornado which cost three lives and injured 43 people last May in Texas.

The big chunk of ice was found in Texas last May by a Pittsburgh, Pa., scientist. Dr. R. A. Glenn of the Coal Research Laboratory of the Carnegie Institute of Technology, Pittsburgh, was visiting his parents at a farm outside McKinney, Texas, May 3. The hail fell in connection with a tornado which cost three lives and injured 43 people. But Weather Bureau records of the storm indicate no damage from the hail.

The biggest hailstone he found was photographed beside a baseball. The stone was

bigger. Dr. Glenn also reported that the hail had dented a corrugated sheet iron roof.

The picture is being added to the Weather Bureau's "rogues' gallery" of hailstones. But it is not the biggest one. The Texas stone was 11 inches in circumference, compared with one 17 inches around, which fell at Potter, Nebr., July 6, 1928. That one still rates as the largest ever recorded in the world.

Science News Letter, August 21, 1948

## Letters To The Editor

### 200-Inch Poem

On the completion of the 100-inch telescope on Mt. Wilson several years ago, Dr. Alfred Noyes was invited to be one of the first to inspect the new instrument. He wrote a wonderful poem on the occasion which is the introductory portion of his extensive poetic work on astronomy, *Watchers of the Sky*. I think it would be a splendid idea for the California Institute of Technology to interest Dr. Noyes at this time when the new 200-incher is getting itself ready for service.—Dr. Harold T. Mead, Head of Science Department, Rider College, Trenton 9, New Jersey. *Pasadena, please take notice.*

### Hillside Farming

There are a few points I would like to raise with regards to your comments on farming on hillsides (SNL, July 10).

First of all, I agree with you that it would be more rational to try to find some high yielding food plants that could be grown on hillsides. But this is only part of the story. There is a lot hidden behind the innocent sounding words "clean cultivation." William Faulkner in his *Plowman's Folly* (University of Oklahoma Press) showed that clean cultivation was the culprit behind erosion, decreased farm productivity, and floods. The simple fact is that plants and decaying plant materials act as

a sponge to absorb water, and also act as a binding agent to hold soil particles together. In fact the very concept of soil becomes meaningless as such without the presence of decaying organic materials. Plants will not grow in crushed stone or sand alone. It is important to note at this point that soilless farming (hydroponics) is a basically different method of farming and data applicable to one method is definitely not applicable to the other.

Returning to our original line of thought, clean cultivation is the real "force of habit" culprit and a little investigation discloses that it originated at a time when the soil was so rich in organic material of all sizes that the farmer had to drag tree branches and other large materials out of the way of his plow. The result of clean cultivation is that the materials necessary for plant growth are not replaced in the soil. This leads to a gradual decrease in farm productivity as the materials in the soil are used up. As the United States was being settled and the West was being opened up, a man was not a real farmer unless he had "used up" two or three farms in his lifetime. There was plenty of rich virgin soil to the west, so why should he conserve the farm he had? Our country is settled and the total acreage is relatively fixed, yet "force of habit" farm methods are unchanged. . . .—Fred J. Mocking, Chicago, Ill.

## Question Box

### ARCHAEOLOGY

What did Danish men wear in the Iron Age? p. 126

### ELECTRONICS

With what machine can you play chess and gin rummy? p. 123

### ENGINEERING

How is oil drilling made easier? p. 119

### GENERAL SCIENCE

What gain in welfare is resulting from the book translating program in Latin America? p. 117

**Photographs:** Cover, Dr. R. W. G. Wyckoff, National Institute of Health; p. 115, Dr. R. A. Glenn, Carnegie Institute of Technology; p. 117, Massachusetts Institute of Technology; p. 119, Humble Oil and Refining Co.

### INVENTION

What are some of the new inventions needed by the Armed Services? p. 115

### MEDICINE

What may cause many baffling fevers? p. 118  
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### PSYCHOLOGY

How can children's eating habits influence handedness? p. 121

### WILDLIFE

What is the status of the European bison? p. 114.

### Story of Grass

"The Blessed Meek" (SNL, Aug. 14) is an inspired piece of writing; its point is the very point of grass, which I am afraid many persons miss, and it pays honor to Mrs. Chase in a most heart-warming way.—Alfred Stefferud, Editor of the Yearbook, U. S. Department of Agriculture. *Thanks.*

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*Cashew trees* are important economically in the tropics where they grow; their decomposed leaves make good fertilizer, the wood is suitable for many uses, the sap yields a resinous gum and the bark contains a high percent of tannin.

The red color of *strawberries* is due to the presence of an anthocyanin pigment.

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