

MILITARY SCIENCE

Spiders Help Fight the War; Their Webs Make Cross-Hairs

In Telescopic Gun and Bomb Sights, Range-Finders And Optical Instruments Webs are Strong and Elastic

SPIDERS take their place in the strange zoo of war, along with carrier pigeons, canaries for detecting poison gas, police dogs, pigs that root out land mines, and the now vanishing Army mule. Their martial role is inconspicuous but vital; indeed, it is hard to imagine how modern war could be waged without their help.

For the so-called cross-hairs that you see in every telescopic gun and bomb sight, every range-finder, every telescope that clocks navigators' time by the stars, every optical instrument of precision whether military or civil, are not hairs at all, but filaments of spiderweb.

Spiderweb threads are ideal for the purpose because they are fine, stronger than steel wires of the same size, and elastic enough to hold themselves tight and therefore straight. The only other material ever used for the purpose is fine platinum wire, and that is usually too coarse.

Spiderweb filaments are "harvested" by only a few persons, who sell their product to the manufacturers of optical equipment. Each one has his own way of operating, which he usually tries to keep a secret of the craft, but basically the method consists in getting the spider to jump off one prong of a wire or wooden fork, and then turning the fork round and round, reeling up the silk which spiders always spin when they drop. The silk thus captured will keep for years if put away in dust-proof containers.

Skilled craftsmen stretch the spiderweb threads across the eyepieces of instruments in which they are to be used, making the ends fast with a drop of varnish, shellac or other adhesive substance. As a rule, the thread as spun by the spider is double; splitting it to obtain a single smooth, fine filament is another job calling for skill, good eye and steady hand.

Some spiders make thicker, rougher threads than others. The ones most favored by the instrument makers are the orb-weavers, that build the beautiful wheel-shaped webs common in gardens. Some of the spiderweb "harvesters" prefer to use the cocoons which certain kinds

of spiders spin around their eggs, unreeling them by much the same technique used by Japanese silk workers.

So strong are these spiderweb "cross-hairs" that breakage in the field is quite unusual. However, if it does occur, and replacements from base are not readily available, resourceful field officers simply catch a spider, put her on a forked twig, and let nature take its course—with a little human assistance. Then they unscrew the eyepiece and replace the broken filament. Such field repairs may not be as smooth and precise as those of the factory workbench, but they suffice.

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MINERALOGY

Quiet Hunt Begun in U. S. For Emergency Mines

A QUIET hunt is on for mineral deposits in this country that would not excite mining companies in business to make money. Uncle Sam's mining and geological experts are searching for emergency supplies of "strategic" minerals that are not produced in any large quantity in this country, although they are very necessary in peace and war.

Looking forward to the possibility that war conditions might interrupt over-seas supplies of manganese, chromium and tungsten so essential to making high-grade steels, Congress gave the U. S. Bureau of Mines and the Geological Survey half a million dollars to find and test reserves of deposits of such minerals in this country. Within a week after the money became available in August the Bureau of Mines crews were in the field beginning work on eight promising sites previously selected by government geologists. One is at an elevation of 10,000 feet in Montana where winter weather is closing in.

Deposits that promise large tonnages of metal regardless of grade are being explored as most suitable for emergency reserves, that will not be mined out in normal times.

Drilling, trenching, test pitting and other exploratory methods determine the extent of the deposit. Samples are sent to the metallurgical laboratory to determine extraction methods.

Since over \$10,000,000 has been spent on war minerals claims arising out of hurried and not very successful World War attempts to provide necessary minerals from American deposits, the chances are that this present mineral preparedness will save Uncle Sam money in the long run.

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MEDICINE

Sulfapyridine Helps Baby Recover From Influenza

A HUMAN baby and a group of laboratory mice have been helped by the new chemical remedy, sulfapyridine, to recover from severe illness and pneumonia due to infection with an influenza bacillus called Hemophilus influenzae, Bacteriologist Margaret Pittman, of the U. S. National Institute of Health, reports.

This bacillus or germ is not the same as influenza virus, generally considered the cause of influenza, and it is slightly different from the strain that causes meningitis. The bacillus is a larger micro-organism, but is often found in patients suffering with influenza and apparently is a nasty customer itself.

The baby, 8 months old, developed conjunctivitis, commonly called "pink eye." Both ears were next affected and then pneumonia set in. Very few pneumococci or true pneumonia germs were found, however, and the influenza bacillus seemed to be the chief cause of the trouble. Sulfapyridine was given by the attending physician, Dr. J. H. McLeod, of Washington, after the pneumonia set in. Within 24 hours the baby was much better and recovered completely in a short time.

This case started Dr. Pittman on her laboratory investigations with mice. Reporting the success of the drug in treating these animals, she says:

"The influence of sulfapyridine on the survival of mice parallels the rapid recovery of the baby following treatment with sulfapyridine. Although this may have been a coincidence, it is obvious that the drug enabled mice to survive. It, therefore, seems justifiable to suggest that the drug be given further trial in the treatment of non-type-specific Hemophilus influenzae infections."

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