CHEMISTRY

War Super-Explosive Sets Off Dynamite Blasts

➤ RDX, super-explosive that powered blockbuster bombs and bazooka rocket projectiles, has been given a peacetime job. Too violent to be used directly as a blasting explosive, it will be used in the caps that set off dynamite charges.

The new RDX caps are only one and one-eighth inches long and less than a quarter of an inch in diameter. They are said to be the smallest blasting caps ever made.

In use, a hole is dug in one end of a dynamite stick and the cap inserted in it. When the cap is detonated, the violent shock of its explosion in turn detonates the dynamite.

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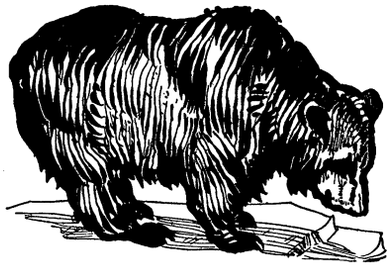
ZOOLOGY

NATURE RAMBLINGS by Frank Thone



Bedtime for Bears

➤ BEARS are beginning to go into winter quarters now up in Canada, and at the higher altitudes of their range in our own Rockies. At lower latitudes and altitudes they will remain active for a few weeks longer, but by the time snow flies they all will have retired for the winter. Only in the hammocks and canebrakes of the Gulf Coast region are you likely to find bears on the prowl the year round.

This long winter drowse of the bears is usually called hibernation. Actually, however, it is not true hibernation, claims J. R. Matson (*Journal of Mammalogy,* Aug.). True hibernation, such as is found in ground squirrels and marmots, is a state of death-like sleep, wherein the animal's breath and pulse almost stop and its temperature drops to a point very little above that of its environment. An animal in this state is exceedingly difficult to arouse: pinch it, poke it, even stick pins in it, and it just continues to lie limp as the proverbial dishrag.

A bear in its winter sleep is quite different, Mr. Matson points out. It breathes at about the normal rate for any sleeping animal and its body temperature remains high enough to melt snow that may sift down on its fur. It is not particularly difficult to arouse, and it may even wake up of its own accord and emerge for a shorter or longer period. This kind of winter sleep, he contends, should be called dormancy rather than hibernation.

Mr. Matson also has his own theory to account for the winter sleep, or dormancy, of bears. In his rather extensive experience as a bear hunter, he has frequently observed that bears retire for the winter before winter really sets in—that they may be found settled down for their long sleep while the weather is still rather mild and there is plenty of food available in the woods.

Invariably, he states, bears "going to roost," before cold weather comes are very fat. The winter-prowlers, he says, are very likely to be animals that did not succeed in putting enough fat on their ribs to induce a tendency to become dormant.

There is an internal index to this physiological drowsiness, he states. In dressing fat bears killed at the beginning of winter, he has found the stomach empty and contracted into a tight, hard knot, into which it would be impossible to get any more food. Apparently when the bear reaches a certain state of fatness it just becomes unable to eat anything more, so all there is left to do is sleep.

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BOTANY

Chemical War on Weeds Requires Varied Weapons

➤ PLANNING chemical warfare against weeds requires a good deal of botanical know-how, Prof. A. S. Crafts of the University of California College of Agriculture points out. Each plant family has its vulnerable spots and also its special resistances to poisoning, and the chemical campaigner simply has to know what these are in any given combination of weeds to be killed and desirable plants to be spared.

Easiest and now most familiar case is killing dandelions in a lawn with 2,4-D. Dandelions have broad, flat, easily wetted leaves, and exposed, highly sensitive growing points. Grasses have narrow, upright leaves with water-resistant coatings, and their growing points are covered by the leaf-bases. So although 2,4-D actually is harmful to grass, the weak spray that can kill dandelions is shed by grass without particular damage.

Suppose a near-reversal of the lawn case: a truck-grower's field of lettuce or endive, which are near relatives of the dandelion, with wild grasses invading as weeds. Obviously, 2,4-D won't serve here; it would only kill the paying crop. But lettuce is chemically resistant to certain oils that kill grasses. So a different weapon is indicated.

There are scores of potential chemical weapons in the plant scientist's armory, says Prof. Crafts. But each one must be given its proving-ground test before being released for general use.

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