CONSERVATION

Seven-Point Plan Offered For Mineral Conservation

VOLUNTARY cooperation between private enterprise and government conservational activities will solve the problem of America's dwindling supplies of indispensable minerals, in the opinion of Dr. C. K. Leith, professor of geology at the University of Wisconsin and member of President Roosevelt's National Resources Board.

In a recent communication to the American Association for the Advancement of Science he expressed his belief that "private industry has successfully developed the minerals of the United States to an extent never before approximated in the world," and his opinion "that the record of the mineral industry in the United States warrants the presumption that it should continue to develop so far as possible under private initiative."

"However," he continued, "we also believe that our mineral heritage is vested with a public interest in those specific conditions which are distinctly detrimental both to the public and to the industries themselves to remedy. Rugged individualism, with all its merits, seems ill-adapted to realize, unaided, the present political and economic requirements of conservation."

To realize these requirements, Dr. Leith offered a seven-point program:

(1) Continuance of technological and scientific improvements already under way.

(2) The balancing of supply and demand in our so-called surplus industries at a price level which will permit of proper conservational practice; this to be accomplished by voluntary cooperative efforts of the industry under government supervision, through legislation which will exempt them from the anti-trust law; the exemptions from the anti-trust law in the interest of conservation to be specifically defined and public supervision to be provided to make sure that the wastes on the basis of which exemption is claimed do exist and will be eliminated.

(3) The legalization of some method of coordinating the highly chaotic efforts of the individual states under their police powers, and support any collective efforts the states may attempt. Much of the authority necessary for production control now exists only in the police powers of the states. Since the Supreme Court decision, Washington is now struggling with the problem of finding authority for any national control. On the outcome of this major issue of federal versus state rights will depend largely the success of any effective program of conservation.

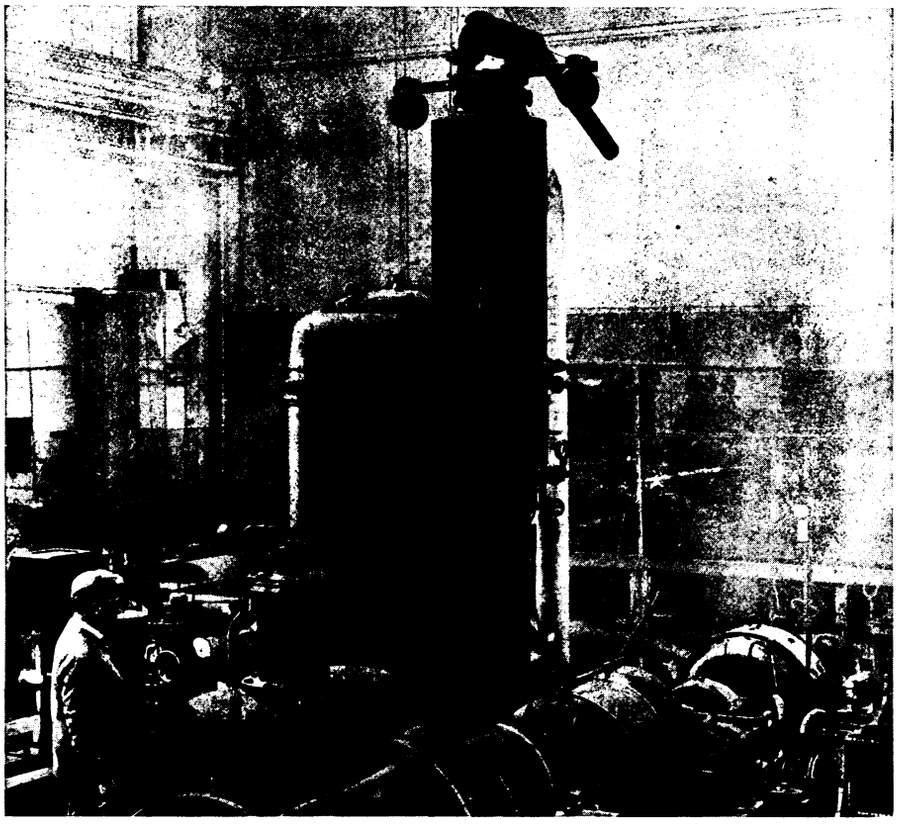
(4) Federal control of interstate shipments of minerals shipped in excess of quotas set by the state police powers.

(5) Possible abolition of ad valorem taxes in favor of taxes of one kind or another on current production.

(6) The use of tariffs for the surplus group which will protect any domestic economy built up in the interest of conservation, which may result in some further sacrifice of our already dwindling export trade because of the necessary maintenance of domestic prices above the world level.

(7) For the deficient group of minerals derived in part or in whole from foreign sources, to desist from a tariff program which merely hastens the exhaustion of our limited high-grade supplies, and to substitute direct expenditure by the government on the problem of finding additional supplies.

Science News Letter, August 17, 1935



STEAM'S ANSWER TO DIESEL

Compact, powerful, economical, quick to raise steam, this boiler promises a revolution in naval engineering.

FISHERIES

Echo-Sounding Device Locates Schools of Fish

ECHO-sounding apparatus, now widely used on ships to make continuous records of bottom depth, can also be turned to good account in the fisheries industry, in locating large schools of commercial fish.

Oscar Sund, well-known Norwegian fisheries scientist, reports (*Nature,* June 8) on four instances when the apparatus on the research vessel Johan Hjort disclosed the presence of large numbers of codfish, spawning in midwater. The records demonstrated clearly the hitherto unsuspected fact that when codfish lay their eggs they pay no attention to the bottom, but maintain a position at a uniform depth beneath the surface.

Information of this kind is of great importance in conservation work, and it is presumably quite feasible also to use the echo-sounding device for the location of schools of fish in proper condition for catching.

In locating the fish schools, the apparatus worked in exactly the same manner as it does for showing bottom depth. Sound waves sent out from the ship's bottom were reflected off the fishes' backs and returned to the listening device just as they do from the rocks or mud of the sea bed. The length of time between the start of the sound and its return as a submarine echo indicates depth.

Science News Letter, August 17, 1935

PHYSIOLOGY

Severe Vitamin Lack Causes Nerve Breakdown

VITAMIN lack in diet, if severe enough, causes an actual breakdown and "death" of nerve tissue, experiments on rats by Dr. Charles Davison, of Montefiore Hospital, New York City, have demonstrated.

Rats were fed diets adequate to sustain life, except that each diet wholly lacked one or another of the vitamins, from A to E. The animals became ill, finally losing the use of their hind limbs.

When they were chloroformed and dissected, it was found that the nerves leading to their muscles were abnormal in appearance and structure, with an actual breakdown of the nerve substance itself, and in some cases brain hemorrhage.

Science News Letter, August 17, 1935

SEISMOLOGY

South American Quake Almost on Equator

THE EARTHQUAKE that caused destruction and death in the Colombian city of Pasto and in neighboring towns, on the morning of Wednesday, Aug. 7, had its center almost on the equator, near the Colombia-Ecuador boundary, U. S. Coast and Geodetic Survey seismologists announced after examining data transmitted through Science Service.

The location of the epicenter was given provisionally as one degree north latitude, 78 degrees west longitude. Time of origin was 4:02.2 A. M., Eastern Standard Time.

Stations reporting were those of the Jesuit Seismological Association at St. Louis University, St. Louis, Mo., and Georgetown University, Washington, D. C., and of the U. S. Coast and Geodetic Survey at San Juan, Puerto Rico.

Science News Letter, August 17, 1935

PHYSIOLOGY

Suspended Animation Possible Even to Human Beings

"Freezing" and Revival of Animals Merely Special Cases Of Inanition, Phenomenon Long Known to Physiologists

WITH LATE summer hot weather comes another nine-days'-wonder to press, radio and newsreel. Animals are being "frozen to death" and subsequently resurrected by laboratory miracles. In Hollywood, 180 persons are said to have offered themselves as human subjects for one of these super-chilling experiments. Maybe there was a hot wave in the California foothills at the time.

Although the animals used are of a higher zoological order than have figured in previous experiments of somewhat similar nature, the wonders now being reported are not wholly without precedent. At the bottom of the animate scale, bacteria and protozoa are notorious for their resistance to extreme cold. They even stand prolonged immersion in liquid air without apparent prejudice to their subsequent reproductive powers.

Interstellar Immigrants?

It has been suggested, by speculative philosophers, that evolution started with one-celled immigrants of this kind, floating in somehow, from some unknown elsewhere, through the unimaginable cold of outer space.

Higher in the scale, similar freezings have been inflicted on fish and frogs, with at least short-time survival after thawing.

Of course, all such creatures are not really frozen to death. If they were dead, they would stay dead, no matter how carefully thawed out. They are really in a state of low metabolism or life-process, known as "inanition" to scientists. With life-fires thus banked, organisms can exist for surprisingly long periods without visible signs of life.

Hibernating animals, like bears, woodchucks, ground-squirrels and turtles, display the phenomena of inanition in quite typical form. Their muscles are limp, their breath has practically ceased, there is no readily detectible heartbeat, their other organs seem to be without function. Their temperatures, even in the case of warm-blooded animals, drop to very little above that of the surrounding air. You can shake them, poke them, stick pins in them, without getting any response. Only a gradual warming-up brings them to life again.

Inanition is an organism's response to extreme conditions against which it has no other defense. It is a feigning of death to defeat real death.

We do not commonly think of man as a hibernating animal, and he is not, under normal conditions. Yet he also is capable of invoking voluntary inanition in times of stress. Prof. Sergius Morgulis, of the University of Nebraska College of Medicine, tells of a hibernation-sleep resorted to by Russian peasants in famine times. They huddle together on the tops of their great flat stoves, by families, even by whole villages. Covered with all the fur coats available, drawing warmth from the stove and from each other, they conserve their life energies to the utmost, and with only a few unavoidable interruptions, wait for spring in practically continuous sleep.

Science News Letter, August 17, 1935

PHYSIOLOGY

Radium Never Stimulates; Effects Always Lethal

RADIUM'S effects on living cells are always in the direction of breakdown and death; its powerful radiations, principally of alpha particles, never act to stimulate more rapid growth.

These are the conclusions reached by Prof. Frederick B. Flinn of the College of Physicians and Surgeons, New York, as the result of experiments on tissue cultures from living embryo chick hearts, checked up with other animal cells and with one species of primitive one-celled plants.

Prof. Flinn's interest was aroused by the tragic fate of a number of women workers on radium-illuminated watch faces, who suffered breakdown of their bones, particularly of their jaws, from the effects of radium unwittingly taken into their systems.

In his researches, the New York physiologist used chick heart tissues, cultured in the way developed many years ago by Dr. Alexis Carrel, of the Rocke-