

## ENGINEERING

# Underground Coal Fires

► AN IMPORTANT step in coal conservation, and in the protection of health and property, is now underway by the U. S. Bureau of Mines in extinguishing underground fires in coal seams. The new work is made possible by an appropriation of \$250,000 by the last Congress.

There are some 50 such fires in coal beds in seven states that have been investigated by the Bureau in the past six months, James Boyd, director of the government agency, has revealed. Some of them have burned uncontrolled for years, he stated. An underground or outcrop coal-mine fire will be likely to burn as long as there is combustible material to consume and a supply of oxygen to keep the fire alive.

These fires, originating usually through carelessness, present a serious threat to buildings, surface property, and the life and health of persons near the affected area. Most of the outcrop fires are believed to have started from burning rubbish, forest fires, or workmen, hunters or others building fires near the outcrop of the coal bed. Fires in abandoned mines have often started in debris left in the mine. They travel from the abandoned mine to other locations.

Work in extinguishing underground fires has already been started in two locations, one in Pennsylvania anthracite area, the other in western Colorado, near the Bureau's plant at Rifle for recovering fuel oils from oil shale. If not checked, this burning will destroy over 1,500,000 tons of bituminous coal adjacent to a mine now abandoned because of this fire.

The job of extinguishing an underground

coal fire is not easy, and it costs a lot of money. The process usually consists of stripping along the outcrop of the coal beds that have been partly mined and abandoned, back-filling with an incombustible material, excavations, drillings, flushing, flooding the region, and in many cases the relocation of buildings that interfere with fire-control operations.

Fire control in an active mine is the job of the operator. In unopened mines and abandoned mines, it is usually too big and expensive an undertaking for the owner. The Bureau's work will be confined largely to the abandoned mines, particularly where the fire is a hazard to the neighborhood, and from which additional coal may some day be wanted even if mining costs will be much higher than was required to remove the more desirable seams.

Science News Letter, March 5, 1949

## BIOCHEMISTRY

## Anti-Clot Drug's Effect Tested by Student Winner

► THE experiments were a complete success, yet the rabbit came out of them alive and healthy. So everybody was satisfied—including the rabbit.

The experiments in question were on the effects of the spoiled sweet clover drug, dicoumarol, on the clotting time of blood, in living animals. The experimenter was petite brunette Helen Claire Oels, 17, senior at Little Flower Catholic High School for Girls in Philadelphia. The research job she had laid out for herself seemed away over her head, to an older scientist on the sidelines; but she showed that she was perfectly able to carry it through.

Dicoumarol's principal effect is greatly to diminish the blood's clot-forming capacity, through destruction of the clot-forming part of the blood, known as prothrombin. Miss Oels got her somewhat reluctant rabbit to swallow doses of dicoumarol by using a stomach tube, which she introduced by means of a simple but effective device of her own invention. Then she extracted small measured samples of its blood from the large blood vessel in one of its ears, and measured the now much-retarded clotting time with a stop-watch.

The anti-clotting effect of dicoumarol can be offset with vitamin K; and this Miss Oels proceeded to administer, again taking blood samples and checking the restored clotting time with the stop-watch.

Miss Oels' ambition is a research career in either medicine or biochemistry. As a good start, she has won a place among the 40 winners of the Eighth Annual Science Talent Search, and is attending with them the five-day session of the Science

Talent Institute in Washington, D. C., March 3 through 7. At that time, recipients will be named for \$11,000 in Westinghouse Science Scholarships. The Science Talent Search is an annual event administered by Science Clubs of America and Science Service, with the support of the Westinghouse Educational Foundation.

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## WILDLIFE

## Desert Skunk Uses Cactus As Barbed-Wire Defense

► A SKUNK that used a kind of natural barbedwire entanglement for defense, instead of its own chemical-warfare weapon, is described in the JOURNAL OF MAMMALOGY (Feb.), by Charles A. Reed of the University of Arizona and William H. Carr of the Arizona Wildlife Federation.

The two zoologists were driving through the desert when a hooded skunk crossed the road. Because it had very little white on it they decided they wanted a closer look, so they stopped the car and got out.

The skunk was not enthusiastic about being interviewed, but instead of standing its ground and preparing for action it ran away. The zoologists followed. After a chase of a quarter of a mile, both pursuers and pursued were tired—temperature at ground level was about 90 degrees.

Suddenly the skunk started working its way into a tangle of dried joints of the cholla cactus, which is about the spiniest, "orneriest" plant that grows. In the midst of the tangle was the opening of a wood-rat's nest, directly under the cholla tree itself.

Into this the skunk dived. Out of the burrow's second entrance popped the scared wood-rat, which climbed into the thorny branches of the cholla tree. Eventually it came down and went into another of the burrow's many entrances. The skunk, however, stayed underground as long as the two men remained in the vicinity.

Science News Letter, March 5, 1949

Radar location ability is said to be possessed by *electric eels*; they have poor eyesight and live in murky waters but seem always to be able to locate their prey promptly.

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