

## GEOLOGY

# Steam Made Crater

**Volcanic explosion and not meteorite caused Arizona's famous landmark. Evidence supporting theory is another crater with cinder cone in center.**

➤ ARIZONA'S famous crater, usually referred to as Meteor Crater, was not caused by the impact of an enormous projectile from outer space at all, declared Dr. N. H. Darton of the U. S. Geological Survey before the annual meeting of the Geological Society of America in Pittsburgh. Persistent search for the supposed deeply buried meteorite, on which more than \$1,500,000 has been expended, has merely proved that it isn't there, he told his audience.

Dr. Darton has always believed that this remarkable crater was produced by a volcanic steam explosion. As supporting evidence, he pointed out the facts that it is in a volcanic region, and that a smaller but similar crater, Zuni Salt Lake, 120 miles to the east, has a cinder cone in its center. For this reason, Dr. Darton years ago gave the formation the name Crater Mound, and this name has been officially adopted by the U. S. Board of Geographic Names, thus becoming obligatory for use on all approved maps.

## How Ploesti Was Found

➤ AMERICAN geologists were able to help American fighters on all fronts in their world-wide war, through their detailed knowledge of the terrain and the rock and soil formations that lay under the surface. The importance of military geology was discussed in some detail at the meeting.

Nazi camoufleurs had succeeded in so thoroughly hiding the famous Ploesti oil center in Rumania that our bombers could not find it. Geologists showed them what the surrounding hills and fields looked like, by means of a new kind of map, known as a terrain diagram. By taking their bearings on this picture, our raiders made a second visit—and dropped their calling cards right on the tray.

Prof. L. Dryden of Bryn Mawr College told of some of the other questions American geologists were called upon to answer before raids could be made or beach landings attempted. Where were the best sites for airfields on the Solomon islands? What kind of terrain

would ground forces have to fight over on Madagascar. What camouflage equipment should be taken to Sicily? Quick answers were found for these questions, and many others.

Geologists also helped in getting roads, airfields and other installations built, Prof. C. S. Denny of Connecticut Wesleyan University told his colleagues. If engineers were told in advance whether the soil was soft or rocky, they would know how many bulldozers to take along, and how much dynamite for blasting. Drainage and water supplies were other important matters in which geological knowledge went in along with the first working crews, saving much time and effort.

## Hardest Grinding Wheels

➤ HARDEST grinding wheels in the world, useful in a score of industrial applications, were described before the meeting by C. R. Van Riper of the research laboratories of the Norton Company, well-known makers of abrasives. These are small wheels made of bits of diamond, bonded together with various substances, the hardest of all, and hence the keenest-cutting, being vitrified-bonded.

Such wheels are used for shaping and dressing tools whose very names have themselves become synonyms of harness, like cemented carbide tools, as well as hard gem stones, quartz and other resistant materials. Diamond wheels are also useful for precision work, especially in the production of lenses and small steel parts where dimensional tolerances are small.

## Fossil Pollen in Coal

➤ BACK ON their peacetime jobs, geologists are putting their best efforts into locating and evaluating new sources of ores, minerals and fuels. Robert M. Kosanka of the Illinois Geological Survey told how fossil pollen grains and plant spores, embedded in coal formations for a third of a billion years, are being

studied in the hope of locating new coal beds in the Midwest.

These minute fossils, which can be separated from the coal only by the most painstaking methods, came from the giant fern-like trees and enormous relatives of horsetail rushes that formed the forests of those days and left their remains in the coal seams. Abundance and distribution of pollen grains and spores may serve as guides to coal deposits still awaiting discovery.

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## SAFETY

## Explosion Probably Caused Kentucky Mine Disaster

➤ MOST PROBABLE cause of the Pineville, Ky., coal mine disaster, which entombed over 30 men, is an explosion of natural gas accumulated over the Christmas holiday, say officials of the U. S. Bureau of Mines.

While there can be no final confirmation of this fact until the mine is cleared, it is believed that the four-day work stoppage allowed the mine's usual 1% to 2% of methane gas in the air to exceed the 5% danger point.

Use of electrical equipment such as coal loaders and cutters may have caused an arc or flame to ignite a gas pocket. Ignition of only 150 cubic feet of gas would have been sufficient to set off concussions stirring up coal dust and causing numerous explosions to follow. Coal dust has been found to be highly explosive and precautions often do not overcome this danger.

"Relatively few states," Daniel Harrington, chief of the health and safety branch of the U. S. Bureau of Mines, said, "require electrical equipment of assured safety."

Much equipment is used which could easily cause an arc or flame to ignite the gas. Careless striking of a match might also have set off the explosion.

Great danger faced the rescuing crews attempting to reach the miners. If any gas remained trapped in the mine, movement of air with the renewal of ventilation may move the gas out of the trap and push it within explosive distance of the many fires that are being encountered in the tunnel.

This mine disaster, Mr. Harrington noted, will bring the total mine injuries for 1945 to some 80 or 90.

"Irrespective of this disaster," Mr. Harrington said, "1945 gives the lowest rate of accidents in coal mining history."

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