## ITEMS

DR. R. W. BROWN, paleontologist of the U. S. Geological Survey, in a report given before the Geological Society of Washington stated that the Hell Creek beds of Montana and North Dakota, long a puzzle to paleontologists because they seemingly contained dinosaur bones and plant remains which belong to an age when dinosaurs were extinct, should be classified as two separate formations. Now, with the fossil-containing beds reclassified, Dr. Brown puts the Hell Creek formation in the Cretaceous age, along with the other dinosaur-containing beds of North America, and the overlaying beds, formerly such a puzzle, in a new age, the Paleocene, a period of transition from the age of reptiles to the age of mammals.

NATURAL color slow motion pictures of the electric arc, which appears to the naked eye as sputtering brilliant sparks, reveal one of the least understood of natural phenomena to consist of brilliantly colored flames, slowly pushing out tiny flashing globules of molten metal. Taken by Dr. C. G. Suits, of the General Electric Company, the film shows differently colored flames for different gases. The flames wander gracefully around the edges of the electrodes for an interval before becoming more or less stable at the electrode tips. One thousand frames per second, with exposures of 1/10,000 of a second for each frame, were taken by Dr. Suits to show what goes on in the arc.

A NEW device for measuring the thickness of coatings, like tin-plate, on iron or steel surfaces, has been developed at the National Bureau of Standards. The merit of the method is that the surface or sample is unharmed by the magnetic apparatus. Developed by Abner Brenner, of the electrochemistry section, the method depends on the decrease in attraction of a permanent magnet by steel when the two are separated by a non-magnetic coating. Coatings only fifteen thousandths of an inch thick can be measured by the method. Accuracy within an error of ten per cent. is claimed. In 1936 a patent was granted to three Pittsburgh inventors for a somewhat similar device which utilized a small electromagnet, contained in a pencil like device, as the source of the magnetism. Mr. Brenner's newer apparatus uses a permanent magnet. In the patented article the "pencil" was moved over the coated surface and changes in electric current, induced by the changing degree of magnetic attraction, were calibrated with coating thickness.

RADIOACTIVE minerals in a rare ore sample from Jimtown, Colo., were recently determined without destroying the mineral by Dr. E. N. Goddard, U. S. Geological Survey mineral expert, by a new use of the test by which radioactivity was discovered. Placing a polished face of the ore sample on a sheet of film, and leaving it untouched for some time, Dr. Goddard was able to determine, after the film was developed, the presence of pitchblende, a strongly radioactive ore of uranium, by its intense black markings on the film, and cerite, a weakly radioactive ore of cerium, from its gray markings. Substances that were not radioactive left no marks on the film. Later analyses of this ore sample showed that it was about 940,000,000 years old, placing it among the oldest rocks known, formed during the long eras before life appeared on earth.