

The solid state of the coal is analogous to the similar state of the slate in the small quarry near Siegfried, where workable slate is quarried immediately under glacial gravel. Both are on the line of farthest ice extension—of earliest extension—and speak of its recency.

EDWARD H. WILLIAMS, JR.

LEHIGH UNIVERSITY,  
May 11, 1896.

#### A METEOR.

TO THE EDITOR OF SCIENCE: A few days ago I observed a meteor of such size as apparently to merit record. At 7:30 p. m. of May 9th the object was first seen in the twilight descending in a straight course toward the northwest at an angle of about 20° with the plane of the horizon, moving rather slowly and shining brilliantly with a greenish light. It very soon after burst into numerous fragments, the position at rupture bearing about 30° west of south from the end of the Norfolk and Washington steamboat pier at Alexandria, Va., and being at an elevation of about 10° above the horizon.

THOS. L. CASEY.

#### X-RAY PHOTOGRAPHY BY MEANS OF THE CAMERA.

I HAVE recently succeeded in producing X-ray pictures, reducing them in their linear dimensions to one-fifth the size of the object. The method used was to produce on a tungstate of calcium screen the shadows of the object, the screen with its contents being then photographed by means of the camera in the ordinary way.

The photographs thus obtained reveal the details more clearly than the eye can see them on the screen, and, in fact, reveal details not visible to the eye.

There is some advantage in this method over that usually employed. The photographic plates may be made of reasonable size for large objects. The pictures gain somewhat in definition, as penumbral effects are reduced. The disadvantages are the difficulty of accurately focussing the faint images on the ground glass of the camera, and the longer time of exposure needed to bring out the picture. I think it

probable that these difficulties may not be very serious to those possessing the best facilities for making further study in this direction.

FRANCIS E. NIPHER.

WASHINGTON UNIVERSITY,  
St. Louis, May 11, 1896.

#### THE ROTATING CATHODE.

SINCE writing an account of my observation on the rotation of the cathode disc (p. 750) it has occurred to me that a circular or elliptical vibration of the cathode wire might possibly account for the observed effect. The tube on which the observation was made has been cracked, and now ceases to give the result, nor am I able to impart rotation in one direction only to the disc by familiar mechanical means that could have existed in the tube. The observation is one of such great interest that I think I should suggest the above possible explanation, which had not sooner occurred to me, in order to prevent experimenters from going on what may be a wild-goose chase. FRANCIS E. NIPHER.

MAY 13.

#### SCIENTIFIC LITERATURE.

*The Principles of Museum Administration.* By G. BROWN GOODE, LL. D. (Reprinted from the Annual Report of the Museum Association, 1895.) York, 1895. Pp. 73.

"The degree of civilization to which any nation, city, or province has attained, is best shown by the character of its public museums and the liberality with which they are maintained." The above sentence—the concluding sentence of the paper before us—sets forth in striking phrase the importance of the subject with which the paper deals. Superlatives are in general things which a cautious man views with suspicion, and it may well be doubted whether any one index of the state of civilization can be said to be the best. But that museums afford one of the most trustworthy indices of the progress of civilization cannot be doubted. The indication which they afford is decidedly flattering to our generation; for this is certainly preëminently the age of museums. In the number of museums, large and small, general and special, in the munificence with which they are sustained and endowed, in the knowledge,