

ENCKE'S COMET.

This little comet, the nearest to the Sun in average distance, and consequently the most frequent in its periodical appearances of all that have been observed by astronomers, has been on hand again. Professor Young, of Dartmouth, writes in the "Boston Journal of Chemistry" that its diameter is between forty and fifty thousand miles; that he saw it on December 1 pass centrally over a little star of the ninth magnitude, the brightness of which was not apparently dimmed in the least; showing, like other similar observations, that the substance of comets is inconceivably rare. The spectroscope shows it to be gaseous, and probably gaseous only. The spectrum indicates carbon. Like the most of the smaller comets, it carries its tail before it in approaching the Sun.

The doctrine of a resisting medium filling the interplanetary spaces was deduced by Encke, with much laborious calculation and able reasoning, from the observed gradual shortening of the periods of this comet, which he averred could not be accounted for by any known action of the planets. The frequency of its returns, which occur in a little less than three years and four months, makes the phenomena of retardation comparatively easy to determine; but the most moderate and the most accurate observations do not seem to have been discussed with reference to this point. Professor Young says the other comets show nothing similar as yet, and that the whole question needs investigation.

The Connection Between Light and Magnetism.

When the Sun's atmosphere is violently agitated and its brilliancy undergoes sudden transitions, the motions of the magnetic needle show that the magnetic equilibrium of our world is at the same time disturbed. Thus the astronomers Hodgson and Carrington, one in Oxford, the other in London, were on September 1, 1859, at the same instant observing a large group of Sun spots, when, on a sudden, two intensely bright patches of light appeared in front of the cluster. At the very moment these brilliant patches appeared, the self-registering magnetic needle in the Kew observatory swung from its ordinary position, with sharp and sudden jerks; and it was subsequently found that, at the very same time, the whole globe was thrilled by a strange magnetic power; for the needle was observed to be powerfully agitated throughout North America, Europe, Northern Asia, and even in Australia. These phenomena did not immediately disappear. During the first five minutes the Sun spots extended over a space of thirty-four thousand miles; and hours passed away before the Earth regained its ordinary magnetic state.