

THE SHADOW OF THE BALL OF SATURN PROJECTED ON THE RINGS, describing experiments made with an accurate drawing of Saturn and its rings. The line of the projection of the shadow appeared convex towards the planet, straight or concave according to the distance of the observer from the drawing. Five persons made accordant drawings of the appearance, independently of each other.

Mr. ASAPH HALL made remarks on

A BRIGHT SPOT WHICH HAD RECENTLY BECOME VISIBLE ON THE BALL OF SATURN.

(ABSTRACT.)

Mr. HALL stated that while observing one of the satellites of Saturn on Dec. 7th, he noticed a round and well-defined spot on the ball of the planet. The spot was 2" or 3" in diameter, and was of a brilliant white color. It was situated a little north of the rings, and in the direction of declination was near the middle of the disk. The spot came to the centre of the disk in the equator of rotation at 6<sup>h</sup> 18<sup>m</sup> Washington m. t. The next day letters were sent to the astronomers of the country, and although cloudy at Washington, the spot was observed on Dec. 10th by Professor MARIA MITCHELL at Vassar College observatory; by Mr. LEWIS BOSS at Dudley observatory; by Mr. D. W. EDGECOMB at Hartford, Conn., and by the Messrs. CLARK at Cambridgeport, Mass. The spot was again observed by Mr. HALL and Mr. EASTMAN at Washington on Dec. 13th, and by Mr. A. G. CLARK at Cambridgeport; and again by Mr. HALL at Washington on Dec. 16th.

From the observations thus far made it appears that the time of Saturn's rotation, assuming that the spot has no proper motion, is

10<sup>h</sup> 15<sup>m</sup>.0

This time, as given in the modern text-books, is

10<sup>h</sup> 29<sup>m</sup> 16<sup>s</sup>.8

and is said to be Sir W. Herschel's last and corrected determination. On the other hand, the time of rotation published by Sir W. Herschel in the Philosophical Transactions for 1794 is-

10<sup>h</sup> 16<sup>m</sup> 0<sup>s</sup>.44

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116TH MEETING.

JANUARY 13, 1877.

The President in the Chair.

Forty-nine members and visitors present.

Mr. G. K. GILBERT made a communication on

LAKE BONNEVILLE,

the great fossil lake of Utah. He described an ancient outlet of the lake at Red Rock Pass near the town of Oxford, Idaho, by which its waters were discharged into Snake River. During and since the desiccation of the lake, the land which it covered has been tilted to the northward, in common with the region of the Laurentian lakes and the eastern and western seabords. He further described a small movement along the line of the great fault at the western base of the Wasatch Mountains, by which the altitude of the mountains above the adjacent valley has been increased at a date far more recent than that of the ancient lake. (*A full account of his observations will appear in the publications of the U. S. Geographical and Geological Survey of the Rocky Mountain Region, in charge of Prof. J. W. POWELL.*)

Remarks were made by Mr. ANTISELL on the channel described by Mr. GILBERT as affording temporary drainage; and by Mr. ALVORD on the appropriateness of giving to this basin the name of BONNEVILLE, who was the first to make a scientific exploration of this region. Great Salt Lake for many years appeared on the maps as Lake Bonneville.

Mr. ALEXANDER G. BELL, of Boston, made a communication on

THE TELEPHONE,

which he had invented, exhibiting and describing its construction and explaining the principles on which it is operated. The sound of the human voice received on a small plate of thin Russian sheet-iron was conveyed by a telegraphic wire to a similar apparatus in another room and repeated by the vibrations of a similar iron plate. He stated that he made use of an undulatory, instead of an intermittent current, that no battery was necessary, but that the variations of intensity were produced by the vibrations of the soft iron plate, varying its distance from the poles of an electro-magnetic helix just behind it. He stated that the experiment had been successfully conducted, where the operator and hearer were 153 miles apart.

He referred also to an experiment made by Prof. HENRY many years ago, where an air played on one piano was repeated by another on the opposite side of the street, a rod of soft pine in contact with the sounding-boards of each forming the connection.

Mr. HILGARD and Mr. HENRY spoke of the value and astonishing character of Mr. Bell's discovery and invention.

Mr. BELL having spoken of the difficulty with such consonants as *p*, *t*, and *k*, Mr. MASON suggested that such an instrument, when perfected, might be used in analyzing linguistic sounds.

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117TH MEETING.

JANUARY 27, 1877.

The President in the Chair.

Fifty-three members and visitors present.

Mr. B. A. ALVORD made a communication on  
A TRIGONOMETRICAL FORMULA.

Gen. T. L. CLINGMAN, of North Carolina, communicated

FACTS RELATING TO THE FALLING OF WATERSPOUTS IN  
NORTH CAROLINA;

speaking of the large number which had occurred in the southern and western portions of that State on the elevated plateaus or mountain sides, particularly in Jackson and Macon counties. He had visited the localities of fifty or sixty, and described particularly one in Fish-hawk Mountain, where a large hollow, 75 feet across and in the middle 15 feet deep, had been scooped out apparently by a sudden fall of a large quantity of water. The streams of the mountain were suddenly swollen to a destructive extent.

Mr. ANTISELL described a genuine waterspout, attributing the phenomenon to warm and cold currents of air in opposite directions, by friction occasioning electricity; and made further explanations of such appearances and their mode of formation.