

New Spot on Jupiter.

ON April 10 I observed Jupiter in sunshine and noted the red spot central at 5h. 43m., longitude=30°.o. I soon remarked that the north equatorial belt curved abruptly north in the region north of the red spot and hollow, and that at the following end of this slanting attachment there was a very conspicuous dark spot which was quite new to me. It became central at 6h. 58m., longitude=75°.3, and seemed nearly as plain as the shadow of a satellite.

On April 12 the same region of Jupiter came under review. The red spot was central at 7h. 25m., longitude=31°.6, and the new north tropical spot at 8h. 33m., longitude=72°.7. The shadow of the first satellite was projected on the disc at the following end of the dark material forming the south tropical disturbance, and it appeared very little darker than the north tropical spot.

Observations were made on April 10 with 10-inch With-reflector, power about 220, and on April 12 with 12½-inch Calver-reflector, power 315.

During the present opposition of Jupiter the north equatorial and north temperate belts have been extremely faint, but the former recently developed a much deeper tone, and particularly in that section lying north of the red spot. The late outbreak of dark material in the north tropical zone will probably lead to the further intensification of the belts in this region.

It is hardly necessary to suggest that the new marking should be followed as critically and as long as possible during the short period remaining available for such observations before Jupiter's conjunction with the sun. Its rate of motion probably differs little from that of the red spot, and it may be looked for near the planet's central meridian on April 22 at 6h. 48m., April 24 at 8h. 26m., and April 29 at 7h. 37m. W. F. DENNING.

Bristol, April 14.

Oscillation of Flame Cones.

LIKE Prof. Smithells, who endeavoured to explain the phenomena described in Mr. Temple's letter to NATURE (March 29, p. 512), I have made many experiments with gas and air mixed by mechanical means and otherwise (Proc. Roy. Soc., vol. xxiv., and elsewhere), but am unable to agree with his conclusions in this case.

Assuming the mixture ascending the tube to contain 20 per cent. of gas by volume, and the relative densities of the air and gas to be as 1 to 0.5, then the head which produces the current is equal to a column of air 4.8 inches (0.4 foot) high, and, disregarding friction, the velocity = $\sqrt{2g} \cdot 0.4 = 5$ feet per second.

Again, assuming the average absolute temperature of the gases above the flame, when the latter has descended to a depth of 2 feet, to be 1500° F., and the corresponding temperature of the air entering the tube from below to be 520° F., the head becomes 18 inches (1.5 foot) and the velocity = $\sqrt{2g} \cdot 1.5 = 9.8$ feet per second.

According to Mallard and Le Chatelier ("Annales des Mines," 8^{me} Série, Tome iv., p. 326), the maximum velocity of translation of flame in a perfectly motionless mixture of lighting gas and air, contained in a glass tube of similar dimensions to that used by Mr. Temple, is 4 feet per second, but when the mixture is moving or agitated the velocity of translation increases, and may even assume the form of an explosive wave. The maximum velocity of 4 feet per second was obtained when the mixture contained 17.5 per cent. of gas, or, according to the authors, 2.5 per cent. more than is necessary for complete combustion.

Variations in the velocity of the current on the one hand, and of the flame on the other, appear to me to account for all the phenomena observed by Mr. Temple.

62 Park Place, Cardiff.

W. GALLOWAY.

Interpretation of Meteorological Records.

IN the interesting discussion of the records of Lander and Smith's instruments at Canterbury (NATURE, March 15) both Dr. Aitken (pp. 485, 524) and Mr. Omund (p. 512) appear to have overlooked the fact that no rain fell, but only snow to the depth of more than 1 inch. This snow was mixed with a little hail at the commence-

ment of the storm, but no rain fell as assumed by both your correspondents. The records state that the 0.26 inch of rainfall consisted of snow melted as it fell. The first sign of the storm was distant thunder and a darkening of the sky in the north-west. The glycerin barometer commenced its usual sharp rise before the first hail arrived and the storm was directly overhead. It is a curious fact that the rain or snow with a thunderstorm occurs with the sharp barometric rise, and not with the fall as one might expect. I think the great fall in temperature was due to the snow, and not as described by your correspondents. The rainfall curve did not begin first as suggested by Dr. Aitken, but the barometer as explained above. It is another curious fact that, although my house is the highest here, and has my anemometer on top of 30 feet of iron tubing above roof, and wireless telegraphy aerial 80 feet above street (with which I was busy at time of storm), yet no damage was done; but within 100 yards much lower houses had chimneys and walls thrown down and roofs split, &c., and people were seriously injured. Many houses, windmills, and a church in the district were set on fire.

A. LANDER.

Canterbury.

Effect of Solar Eclipse on Fish.

DURING the partial solar eclipse observed in England on August 30, 1905, I was taking a holiday, and fishing in Slapton Ley (Devonshire). All the morning the sport had been indifferent, but as the eclipse neared its maximum the fish suddenly became ravenous, and I took more in that hour than all the rest of the day. My experience was also that of all the other boats out there at the time. The explanation, I presume, would be that the fish imagined night was approaching, and therefore prepared for supper; and as every fisherman knows, the last half-hour, when dusk is gathering, is the time that fish are mostly on the feed, and will readily take any bait.

A. MOSELY.

Union Bank Buildings, Ely Place, London, E.C.
April 10.

Sea-sickness and Equilibration of the Eyes.

IN connection with the above subject (p. 511) it may perhaps interest your readers to know that German sailors recommend as a cure for sea-sickness to take a looking-glass and look steadily at your own eyes in it. Every motion of the ship is shared by the looking-glass, and consequently by so doing your own eyes follow the motion of the ship.

GEOFFREY MARTIN.

Edinburgh, April 13.

AN ETHNOLOGICAL SURVEY OF THE PHILIPPINES.¹

WITH characteristic energy, the Americans have made a good beginning with the study of the multifarious natives of the Philippine Islands. Dr. A. E. Jenks, who is chief of the Ethnological Survey for the Philippine Islands, has recently published a substantial volume of 266 pages, and 154 plates, on the Bontoc Igorot, who live in the centre of the northern end of Luzon. Judging from the short account of their physical characters, they, like so many other peoples in the East Indian Archipelago, are a mixture of Indonesians and Proto-Malays; a few are distinctly narrow-headed, about three times as many are broad-headed, and somewhat less than two-thirds are intermediate. The average stature of the men is 5 feet 4½ inches; the women average nearly 7 inches shorter. There is no trace of Negrito blood. The

¹ "The Bontoc Igorot." By Albert Ernest Jenks, Department of the Interior. Ethnological Survey Publications, vol. i. (Manila, 1905.)

"Negritos of Zamabas" By William Allan Reed. *Ibid.*, vol. ii., part i. (Manila, 1904.)

"The Nabalozi Dialect." By Otto Scheerer. *Ibid.*, vol. ii., parts ii., iii. (Manila, 1905.)

"The Bataks of Palawan." By Edward Y. Miller. (Bureau of Public Printing.)