

ought, at the very lowest estimate, to contain 1,000 persons able and willing to subscribe \$1.00 towards a publication of this kind."

One member suggested advertising, but it was agreed that more could be done by individual effort. Another proposed employing a canvasser. This was more favorably received, provided the right person could be obtained. In the meantime it was decided that the paper must go on. The interests of the Association demanded it. Two or three members at once put down their names for extra copies.

Copies of *Smith's Planetary Almanac* having been on view at the Canadian section of the Intercolonial Exhibition, London, a medal and diploma, commemorating the same, had been received by President Smith. These were produced, and greatly admired.

A letter from Mr. Alex. M. Moore, Charleston, S. C., was read. It expressed appreciation of *ASTRONOMY AND METEOROLOGY*, and a hope that it would prosper. "As for the *Planetary Almanac*," the letter continued, "your predictions seem as if they were made for Charleston. Every change in the weather, changes as you have written it down this Winter and Spring thus far."

Vice-President Plumadore wrote thanking the Central Committee for its resolution of condolence with him, passed at a recent meeting, on learning that he had been burnt out and lost the whole of his household effects.

Associate Lepage wrote, enclosing a newspaper clipping concerning some peculiar astronomical theories of Mr. Rowley Patterson, of Dansville, N.Y.

The President remarked that he had written to Mr. Patterson and obtained a copy of his publication. The theories advanced were certainly remarkable.

The general dryness of April—in accordance with the forecast—"a scarcity of April showers," was noted; Mr. W. S. Wood reporting from Wisconsin, "Precipitation in April extremely light."

The Reading of Papers was now declared in order and several were produced. It being impossible to read them all at one session, two were selected and the remainder left over until an adjourned meeting, to be held on Friday evening, June 3rd.

President Smith was requested to read his paper first. It was entitled: "Some Recent Planetary Discoveries." Its reading gave rise to an interesting discussion. The paper was as follows:—

"Discoveries and additional notes concerning the physical appearance of the Planets are always welcome to astronomers, both professional and amateur. I have made a few notes, taken mainly from 'Ten Years' Progress in Astron-

omy,' recently published in the *Sidereal Messenger*, from the pen of Prof. Young, which I doubt not, will be received with interest.

The most interesting planetary discovery of recent years was, of course, that of Hall at Washington, of Phobos and Deimos, the tiny attendants on Mars. The second in interest was the 'Great Red Spot' on Jupiter, which has been so carefully watched and studied by Prof. Hough, at Chicago.

Taking MARS first, it is unnecessary to describe the discovery of his moons, the account of which is as familiar now as 'household words' to astronomers, it being one of the earliest achievements of the 26 inch equatorial at Washington. The planet's surface has been carefully studied lately, Schiaparelli in 1877 discovering numerous long narrow channels or markings, some of them a thousand miles or more in length, with a nearly uniform width of about fifty miles. From



Appearance of Mars, 1892, Feb. 3.

these observations, Schiaparelli constructed a map, which is different to the earlier chartings of Proctor, Kaiser, and Turby. In 1879 and 1881 these 'canals' were all noticed again by Schiaparelli, as well as seen by Burton and several other observers, so there is very little doubt as to their being permanent markings on our ruddy neighbor. Besides, Dawes, Secchi and others had seen them before in the same places. They were again seen (at Nice) during the last opposition.

The 'Great Red Spot' has made JUPITER the observed of all at every opposition since 1878. The spot was very conspicuous for three years, grew fainter in 1882, was partly covered in 1885 by a whitish cloud, but has since become as plain as in 1882. Prof. Hough has devoted much time to this planet, and believes that some of the phenomena seen on Jupiter will be found to be periodical, similar to the periodicity of the solar spots. He believes that the surface of Jupiter is in a liquid or plastic condition. In the first year of observation, the red spot drifted about 10,000 miles, in the second year 30,000. It is therefore not the solid portion of Jupiter by any means, but rather a great floating island, 29,600 miles long, by 8,300

broad. Prof. Hough has exploded the idea that sudden changes take place on this planet. All that he has noticed have been gradual.



Jupiter, dark transit of a Satellite.

The recent transits of VENUS served to bring her very prominently before the general public, especially during her transit of 1882, which happened at a time favorable for observation as regards the residents of North America. The results of the multitudinous observations and data are not yet ready, and it is still a matter of uncertainty as regards the exact distance of 'Hesperus' from her sister Earth. The most interesting observations recently, were those of Langley, who, during the 1882 transit, saw an illuminated point on the edge of the planet's disk; and those of Trouvelot and Denning, who have succeeded in figuring certain markings on the surface of Venus. Young, and the two last named astronomers, declare in favor of Gruithuisen's old observation of an ice cap, probably marking the pole, and proving that, despite the general belief, the equator of Venus has no such inclination as 50°, much less 60°, as some have imagined. The question of satellites may fairly be said to have been set at rest for good. They do not exist.

A white spot appeared in 1877 on SATURN, allowing Hall to determine the ringed planet's rotation yet more accurately. The result was 10h. 14m. 14s. Recent micrometric measurements do not confirm Struve's proposition that the rings are contracting on the planet. Hall has calculated the mass of the rings as not more than the thousandth part of Saturn, and probably less than the ten thousandth part.

The favorable oppositions of URANUS have allowed the planet to be carefully observed. Its form is decidedly elliptical (about 1.14) and faint belts have been seen by Schiaparelli as well as at Princeton, Nice and Paris. The most curious discovery seems to be that the belts—and of course the planet's equator—are inclined to the orbits of the satellites considerably.