POSITION OF THE PLANETS IN JUNE.

JUPITER

is morning star. He wins the place of honor on the June annals for his brilliancy, more convenient position for observation, and lessening distance from the earth. He will rise about 11 o'clock in the evening when the month closes, and will lead the heavenly host through the summer and autumn, being more attractive than he was last season, on account of his greater northern declination. Jupiter passes one of the most interesting epochs in his course on the 7th at noon. He is in quadrature, being 90° west of the sun, and half way between conjunction and opposition. His period of visibility, or the time when he is most conveniently observed, extends from June to December, or from three months before his opposition on September 5 to three months after that time. Telescopes will soon be turned toward this king of the planets, his famous red spot will be investigated anew, the changes in his bands and their beautiful coloring will be noted, and the configurations of his satellites will afford an unending source of enjoyment. Telescopic observers are never discouraged, always hoping that patient research will be rewarded by some astronomical titbit to make them famous or for the good of science. The process of world-making is slow on this gigantic planet, equal in volume to 1,300 planets the size of the earth.

The moon is in conjunction with Jupiter the day before her last quarter, on the 27th, at 7 h. 24 m. A. M., being 4° 15′ south.

The right ascension of Jupiter on the 1st is 23 h. 10 m., his declination is 6° 29′ south, his diameter is 37″.6, and he is in the constellation Aquarius.

Jupiter rises on the 1st at 0 h. 47 m. A. M. On the 30th he rises at 10 h. 58 m. P. M.

SATURN

is evening star. He is in quadrature on the 1st at 6 h. 11 m. A. M., being 90° east of the sun. There are but six days' difference in the time of the quadratures of the two giant planets. Saturn is in quadrature on the 1st on the eastern side of the sun, and is on the meridian about sunset. Jupiter is in quadrature six days later on the western side of the sun, and is on the meridian about sunrise. One planet rises nearly at the time the other sets.

The moon is in conjunction with Saturn on the 13th, at 4 h. 44 m. A. M., being 3° 30′ north.

The right ascension of Saturn on the 1st is 10 h. 52 m., his declination is 9° 27′ north, his diameter is 16″.8, and he is in the constellation Leo.

Saturn sets on the 1st at 0 h. 42 m. A. M. On the 30th he sets at 10 h. 51 m. P. M.

VENUS

is morning star. She rises about an hour before the sun during the month, and is hard to find, as her luster fades in the blaze of light that precedes the near approach of the sun. Her light number is 58.2 on the 1st against 218.3 at the time of her greatest brilliancy, and 0.869 of her illuminated disk are turned toward the earth. Observers will note her rapid movement northward, as well as her decreasing size, lessening brightness, and nearer approach to the sun.

The moon makes a close conjunction with Venus two days before her change, on the 4th, at 6 h. 14 m. A. M., being 12′ south. The waning crescent and the planet rise on that morning about three hours before the conjunction takes place, the moon being southwest of the star and near it.

The right ascension of Venus on the 1st is 2 h. 45 m., her declination is 14° 13′ north, her diameter is 12″.0, and she is in the constellation Aries.

Venus rises on the 1st at 3 h. 7 m. A. M. On the 30th she rises at 3 h. 4 m. A. M.

MERCURY

is morning star. He reaches his greatest western elongation on the 5th, when he is 24° 2′ west of the sun. He is visible at and near that time to the naked eye, and his high northern declination is a favorable condition for success in finding him. He must be looked for at elongation, about 4° southeast of Venus, in the northeastern sky.

The moon is in conjunction with Mercury on the 4th, at 3 h. 39 m. P. M., being 2° 23′ south.

The right ascension of Mercury on the 1st is 3 h. 8 m., his declination is 13° 41′ north, his diameter is 8″.8, and he is in the constellation Aries.

Mercury rises on the 1st at 3 h. 31 m. A. M. On the 30th he rises at 3 h. 59 m. A. M.

NEPTUNE

is morning star. Traveling westward from the sun, he meets Mercury traveling eastward toward the sun, the conjunction occurring on the 18th, at 3 h. A. M., when the planets are but 19′ apart, Neptune being north. He next encounters Venus on the 22d, at 3 h. P. M., being 29′ south.

The right ascension of Neptune on the 1st is 4 h. 20 m., his declination is 19° 54′ north, his diameter is 2″.5, and he is in the constellation Taurus.

Neptune rises on the 1st at 4 h. 19 m. A. M. On the 30th he rises at 2 h. 30 m. A. M.

MARS

is evening star, but is of little account on the celestial calendar, setting at the close of the month about three-quarters of an hour after the sun.

The right ascension of Mars on the 1st is 5 h. 54 m., his declination is 24° 21′ north, his diameter is 4″.0, and he is in the constellation Taurus.

Mars sets on the 1st at 8 h. 43 m. P. M. On the 30th he sets at 8 h. 7 m. P. M.

URANUS

is evening star. His right ascension on the 1st at noon is 13 h. 44 m., his declination is 10° 10′ south, his diameter is 3″.8, and he is in the constellation Virgo.

Uranus sets on the 1st at 2 h. 23 m. A. M. On the 30th he sets at 0 h. 28 m. A. M.

Mercury, Venus, Neptune, and Jupiter are morning stars at the close of the month. Mars, Saturn, and Uranus are evening stars.

The Rainfall in Jamaica.

BY EUGENE MURRAY AARON, PH.D.

The historian Froude, after a tour of all the English possessions in the West Indies, as described in his delightful narrative, gives it as his opinion that nowhere are such rainstorms to be encountered as are known in the island of Jamaica. During my residence there, in 1890 and 1891, I had, as United States Signal Service observer, exceptional opportunities to note and gauge these wonderful down-pours, and to collect a few facts which may be of interest to the readers of the SCIENTIFIC AMERICAN.

May and October, respectively, are still called the central months of the rainy seasons, although the periods of excessive precipitation have, of late years, become very variable and uncertain. In 1889 and 1890, there were no well-defined rainy seasons, and yet the average rainfall throughout the island was near the normal standard. In 1886, on the other hand, while the total rainfall for the year was normal, the greatest damage was caused by water within a few days.

The distribution of the rains in Jamaica affords to the student of meteorology a highly interesting problem, and one that as yet remains unsolved. As an example: The Castleton Garden region and the Drax Hall estate, lying only thirty-five miles apart, in the parish of St. Ann, on the north coast, are separated by a range of hills averaging less than two thousand feet in height. Yet observations of the mean annual rainfall, taken for a period of fifteen years, show 108·55 inches for the one, and 67·15 inches for the other. Such discrepancies are to be found in many parts of the island, although its entire length is only 140 miles, and its average breadth 34 miles.

As a matter of course, great differences are observable between places of widely differing elevation. Thus, an average of only 43·18 inches in Kingston, at the sea level, is balanced by the excessive fall of 121·62 inches at the government cinchona plantation, at an altitude of 5,000 feet, although the two places are separated by only ten miles. But how shall we account for such a variation as exists between the two lighthouses of Plumb Point and Morant Point, both on the south side of the island, and only forty miles apart, both at the same level and in like wind and current systems, where the fall is 39·52 inches at the former, and 75·28 inches (almost double) at the latter?

The sudden and overwhelming down-pours, often amounting to what, in our southern Alleghanies, are called cloud-bursts, or "waterspouts," lead to some very peculiar and often distressing incidents. The mountain streams in most cases have to flow through several miles of arid plains, fully exposed to the burning rays of a tropical sun, before they reach the sea. They rarely arrive there except at times of excessive floods. The sun-baked earth and bowlders, and the evaporating force of a temperature of 125° in the sunlight, are too much for these shallow water courses. A single mile of such radiation is usually sufficient to cause a mountain torrent of considerable size to dissipate in vapor and to lose itself among the burning sands. The visitor sees a dry gully many yards in width, and is told that it is the bed of a mountain torrent which, in time of flood, becomes a river with a resistless current and a depth of many feet.

The "Dry River," which drains a large territory on the south side of the island, sinks entirely from sight into the sands of the valley of Vere, about fifteen miles from the sea. Yet so formidable did this stream become in June, 1886, after a few hours of rainfall in the hills, that it rose to a height of eighteen feet above its usually dry bed near the sea, and a torrent between 300 and 400 feet wide carried away in a single night government and private property to the value of $300,000.

In 1889, the Yallahs River, a stream which had not before been "down" (flooded) for many months, descended with such violence as to carry away a family of coolies living in a bamboo hut near its course, and to wash out to sea a mail carrier and his horse who had essayed to cross where a few moments before were only heated sand and rocks.

A cool mountain stream, after dashing over a rocky escarpment and falling into a vine-embowered pool, tempted me one day to a bath. When I made my first plunge a mere thread of water was trickling over from above. But while I was reveling in the change from air of 95° in the shade to water of refreshing coolness, without a thought of rain, or even a sign of cloud, suddenly a sheet of water, perhaps six inches in depth, leaped over the cliff above me. Every second saw its volume increase, and I had barely time to save my clothing, which I had placed a foot above the usual level of the pool. A storm in the upper hills had lent to the tiny streamlet above me the force and fury of a torrent.

So sudden and so heavy are these downpours that no amount of precaution is sufficient to save from a thorough drenching the wayfarer who is thus overtaken on the higher levels. One in which I was caught in Hardware Gap, at about 4,000 feet elevation, will serve to illustrate their nature. A perfectly clear sky was in five minutes overcast with fleecy clouds, and in five minutes more was sending forth ominous mutterings from inky heavens. With only this brief warning the scene was transformed from smiling sunshine to pouring rain. As I was more than a mile from the nearest hut, and as the storm was already causing landslides across my steep and rocky trail, there was nothing for it but to urge my horse to the partial shelter of some overspreading tree. Before such refuge could be found the atmosphere had come to be charged, as it seemed, with more water than air. The burdened lungs gasped and shuddered in the ordeal, and the temperature fell from about 115° in the sun to less than 65°. Those who have ventured into the Cave of the Winds under Niagara will realize the sort of breathing that fell to my lot for over forty minutes. Mackintosh, umbrella, overshoes, were as useless for protection as the gauze of my insect net.

During most of the three hours of the storm's duration the play of lightning was almost incessant, and the roll of thunder as it waked the echoes lurking in the gorges, or the crashing report when some near-by tree was struck, defied description. My horse was so terrified as to be quite unmanageable, if any attempt was made to hold him. Yet he would not stir a yard from me after I alighted, but stood trembling in every fiber. In my own excitement and breathlessness I almost forgot the risk I ran in standing under a large tree during the storm attended by such electric disturbance.

The abundant rainfalls in the favored parishes of Jamaica are among the chief agencies which have made the island famous for yielding a greater variety of fruits than any other spot of equal area on the globe. They are also one cause of the enormous tree-growths there. Readers of the SCIENTIFIC AMERICAN may be interested to learn that the immense silk-cotton and banyan trees growing in the Bahamas, as illustrated and described in a recent number, are far surpassed by trees of the same species now growing in Jamaica.

A Singular Railway Train Derailment.

Near Roslyn, L. I., on the evening of May 17, a locomotive with its tender and one car, running at a high speed, were wrecked in a most singular manner. A horse had broken loose from his pasture and wandered upon the track. In attempting to run, as the train approached, one foot caught between the rails of the main line and a switch, and the horse was hurled from the track against the switch target, snapping the bolts and bars connected with it. The switch was thus unlocked, and, after the engine had passed the points, they slid sufficiently to catch the flanges of the wheels on the tender, which, with the car, was thrown from the track and totally wrecked. The rear wheels of the engine were also derailed, and then the pin holding it to the tender broke, the engine going a few rods farther on the ties and turning over on its side. The engineer, who had stuck to his post, was killed, as was also a friend who had been riding with him in the cab.

Women's Building for the Columbian Exposition.

We notice with much pleasure that an award of $1,000 has been made to Miss Sophia G. Hayden, of Boston, for her design for the Women's Building at the Chicago World's Fair. A second prize of $500 was given Miss Lois L. Howe, also of Boston, and Miss Laura Hayes, of Chicago, received the third prize of $250. The awards were made by Mrs. Potter Palmer, president of the board of lady managers. The designs had previously been discussed and criticised by the chief of construction, Mr. Burnham, and by other members of the board of architects.

The event is of interest as indicating the hold that women are taking of the profession of architecture. In many respects they would seem pre-eminently suited for it. Their innate tact and taste and their appreciation of the domestic wants are elements which should tell in their favor, at least as designers of houses to be lived in. The field of women's work is rapidly broadening, and this competition emphasizes their entrance into the higher professions.