

80 miles according to Herschel, or 2100 according to Schroeter, a period of 1703 days, and a distance from the sun of 205 millions of miles. On the 2d September, 1804, M. Harding of Lillionthal, discovered a third new planet, namely, Juno, with a diameter, according to him, of 1425 miles, a period of 1592 days, and 252 millions of miles from the sun. These strange and unexpected discoveries led Dr. Olbers to believe that the three planets were fragments of a larger one which had burst, and pursuing this idea, he discovered, on the 29th March, 1807, a fourth, namely, Vesta, 250 miles in diameter, 225 millions of miles from the sun, and revolving round him in 1155 days. From this time, it was always considered probable that other fragments would be found, and that meteoric stones were some of the lesser pieces that had been projected from the shivered planet. Many meteoric stones have fallen since that time, but, with the exception of a remark by M. Cacciatori in a letter to Captain Smith in September, 1835, that he had followed a small planet (which he suspected to be beyond Uranus), for three nights, and afterwards lost it, no hint of another planetary fragment had been given by astronomers. On the 8th December, 1845, however, M. Hencke of Driessen in Prussia, discovered a fifth small planet, viz., Astræa, belonging to the interesting group under our notice. It is situated at nearly the same distance from the sun as Juno, and has a period of about 1500 days.

From this quintuple cluster of small planets, which have, doubtless, originally formed one, and which have established, as we shall afterwards see, a law of planetary distances, we pass to still more remarkable bodies of our system. The next planet in order is Jupiter, a body of huge magnitude which revolves round the sun in 4332 days 14 hours, or about twelve years, at a distance of 485 millions of miles. His diameter is no less than 90,000 miles, a globe that would occupy nearly one half of the moon's orbit. This magnificent planet revolves round his axis in 9 hours, 56 minutes, and his equatorial diameter being to the Polar one as 14 to 13, it will exceed it by nearly 6000 miles. The disc of Jupiter differs from that of all the other planets in being crossed with a number of bands or belts of different degrees of shade, varying at different times. Dark and bright spots have also been seen on his disc, phenomena which indicate the existence of an atmosphere, and an equatorial arrangement of clouds, as if it were effected by an agency analogous to that of our trade winds. But the most remarkable feature in this planet is its possession of four moons or satellites, which, reckoning from the planet, are 2508, 2068, 3377, and 2800 miles in diameter, and revolve round their primary in 42, 85, 171, and 400 hours respectively. These satellites pass over the disc of Jupiter, and are eclipsed in his shadow, or behind his body. On the 2d of November, 1681, old style, Molyneux saw Jupiter without any of his attendants—"a conjunction," as Captain Smith observes, "which will require more than three thousand billions of years to occur again." Captain Smith has given us the following very distinct account of a phenomenon which has recently very much perplexed astronomers:—"On the 26th of June, 1828, I was watching the second satellite of Jupiter, as it gradually approached to transit its disc. It appeared in contact at about half-past ten, and for some minutes remained on the edge of the limb, until it finally disappeared in the body of the planet. At least 12 or 13 minutes must have elapsed, when I perceived the same satellite outside the disc, where it remained distinctly visible at least four minutes." Mr. Maclean, 12 miles distant from Captain Smith, and Dr. Pearson, 35 miles distant, saw the same phenomenon on the same evening.

The next step in our progress from the sun presents us with the planet Saturn, a world as far surpassing Jupiter in the novelty of its features, as Jupiter did the other planets. Its mean distance from the sun, is about 890 millions of miles; the length of its year, or period of revolution, 29 years and 155 days, and the time of its diurnal rotation 10 hours, 26 minutes. Its diameter is 76,000 miles; but his most remarkable feature is, that he is suspended in the middle of a broad luminous ring, the outer diameter of which is 176,418 miles, and its inner diameter 117,339 miles. This ring consists of two rings separated by an interval of 1791 miles, the inner diameter of the outer ring being 155,272 miles, and the outer diameter of the inner ring 151,690 miles. The distance of the ring from the body of the planet is 19,090 miles; but what is very remarkable,

the planet is not in the exact centre of the ring, but is nearer the west side of it, the left vacancy being 11,073", and the right one 11,288". The outer ring has been observed by several astronomers to be divided into two rings. Other observers, however, have been unable to see this second division in the ring, and we must, therefore, wait for Lord Rosse's observations before we can regard that division as an ascertained fact. Saturn has the form of an oblate spheroid, the equatorial being to the polar diameter as 12 to 11. The surface of his disc is diversified with belts parallel to the equator. Sir W. Herschel observed five, one of which was bright, uniform, and broad, and close to it was a dark belt divided by two narrow white streaks, so that he saw three dark belts and two bright ones, occupying a wider space than the belts of Jupiter. In addition to these splendid rings, which must furnish the planet with a blaze of light, he is illuminated by no fewer than seven satellites, placed at the distance of 120,000, 150,000, 190,000, 243,000, 340,000, 788,000, and 2,297,000 miles, and revolving in 23 hours—1 day, 9 hours—1 day, 21 hours—2 days, 18 hours—4 days, 12 hours—15 days, 23 hours—and 79 days, eight hours. The two innermost were discovered by Sir W. Herschel, the sixth by Huygens, and all the rest by Cassini. Captain Smith states, that he believes that "all the seven satellites were visible in Sir James South's great refractor in February, 1830."

Till the year 1781, Saturn was considered the remotest planet of our system; but Sir W. Herschel, on the 13th March of that year, discovered a new planet, now called Uranus, situated far beyond the region of Saturn. It revolves round the sun in 84 years, at the distance of 1800 millions of miles. Sir W. Herschel discovered six satellites, which revolve round the planet in 5 days, 21 hours, 8 days, 17 hours, 10 days, 23 hours, 13 days, 11 hours, 38 days, 2 hours, and 107 days, 17 hours, at the distances of 13,120 miles, 17,022, 19,345, 22,752, 45,507, 91,008 miles respectively.

THE PEN OF IRON.

When Bishop Latimer was on his trial, he at first answered carelessly. But presently he heard the pen going behind the tapestry, which was taking down his words.—Then he was careful what he said. There is an All-recording pen behind the curtain of the skies, taking down our words and acts for judgment.

It is a pen of iron. "The Sin of Judah is written with a pen of iron, and the point of a diamond." It graves deep its records on the imperishable tablets of eternity—a record of every thought, word and act.—How ought we to live, since we can almost hear the all-recording pen going every hour, since we know that every day we are filling a page in the books that shall be opened at the judgment, and the record is imperishable as eternity.

A rich landlord in England once performed an act of tyrannical injustice to a widowed tenant. The widow's son, who saw it, became a painter, and years after succeeded in placing a painting of that scene where their oppressor saw it. As his eye fell on the picture, the rich man turned pale and trembled, and offered any sum to purchase it, that he might put it out of sight. If every scene of wickedness through which a man passes, should be painted, and the paintings hung up about him, so that he would always see the portrait of himself with the evil passions expressed on his countenance, and himself in the very act of wickedness, he would be wretched. Such a picture-gallery there is; and in eternity the sinner will dwell in it; for every feature and lineament of the soul, in every feeling and act of wickedness, is portrayed imperishably, and will be exhibited to the gaze of the universe forever.

By the discoveries of modern science, the rays of the sun are made to form the exact portrait of him on whom they shine. We are all living in the sun-light of eternity, which is transferring to plates more enduring than brass the exact portrait of the soul in every successive act with all its attendant circumstances.

Interesting to the antiquarian, is the moment when he drags out from the sands of Egypt some obolisk, on which the 'pen of iron, and the point of a diamond' have graven the portraits, the attitudes, the dresses, and the pursuits of men, who lived and died 3000 years ago. But none can utter the interest of that moment when from the silence of eternity shall be brought out tablets thick-set with the sculptured history of a sinful soul,