

discovery as presenting a miniature model of the solar system, and thus upholding their theory. The telescope soon made other discoveries. By its aid Galileo found that Venus presented the same phases, appearing at times as a narrow crescent, and then gradually becoming more and more illuminated, till at last it shone with an almost circular disc. It could not, however, be seen with a complete disc, as at such a time the earth must be in the part of its orbit exactly opposite to Venus, which would, therefore, appear in conjunction with the sun, and be lost in his brightness. This was a very important discovery, as it afforded a strong confirmation of the truth of the Copernicus system. In fact an objection had been raised against this system on the ground that these phases were not seen as they should be if the theory were true. The telescope, however, soon settled this difficulty, and silenced these objections. He made another discovery when he examined the planet Saturn. Instead of appearing with a circular disc, like the other heavenly bodies, he found it to be elongated, as if handles were affixed to each side of it. Owing to the imperfections of his telescope, Galileo failed to discover that this appearance was caused by a large ring which completely encircled it, and he imagined that the planet was in reality composed of three smaller ones. Both these discoveries were, according to the practice of scientific men in those days, made known in anagrams, only intelligible to those who possessed the key. It is thus seen what an important instrument the telescope proved to be, for not only these, but almost all celestial discoveries since, have been made by its use, and now nearly all our astronomical instruments consist either wholly or in part of a telescope. It is thus seen also to what important results the accident of a child playing with two spectacle-glasses has led; for such an accident, it is said, first originated the idea of the telescope.

The career of Galileo, though for the most part a splendid one, was somewhat marred near its close. The prominent position he had taken as an upholder and promulgator of the new doctrines had attracted the attention of the papal authorities, who regarded his views as heretical, and demanded of him a public recantation of his belief in the motion of the earth. This he reluctantly gave, though he is related to have said immediately afterwards: "It moves for all that." This was in several ways a sad scene! Not long after this, in 1642, he died. In the same year was born the illustrious Sir Isaac Newton, a man more celebrated than either Galileo or Kepler, and whom we have taken occasion to speak of before. From this time onward we come across the names of so many prominent astronomers that we can but refer to a few of the more celebrated. About the year 1658 Huygens, a celebrated mathematician and astronomer in Holland, using telescopes of a much larger size than those of Galileo, discovered that the phenomena connected with Saturn was in reality an immense ring surrounding that planet, and, as he thought, thirty thousand miles distant from every part of it. He at the same time discovered the