

He was raised to the priesthood, and recalled to Rome some time during the course of the year 1850. Soon after his arrival, at the demand of Pius IX, he completed satisfactorily the trigonometrical survey of the Papal States already begun by Boscovich. He also executed successfully a commission to bring a supply of water to Rome, from Frosinone, 48 miles distant. He was now to begin the great work of his life. The Jesuits reopened the Roman College in 1851, and, in re-modelling the curriculum, it was determined—happily in touch with the requirements of the times—to materially strengthen the scientific department. The small observatory, where Boscovich and Vico had already acquired celebrity, gave place to a large and splendid edifice which was fully equipped with the latest and best astronomical instruments. Father Secchi was placed at its head; his first observations published, those on the solar eclipse on the 20th July, 1851, gained him the praise of astronomers the world over for the remarkable ability he proved himself to have in comprehensively grasping and dexterously recording the details of phenomena visible but for a few minutes.

Astronomy has objectively two great and very different divisions; the first, the "Old Astronomy," treats of the distances and motions of the heavenly bodies; the second, the "New Astronomy," considers their physical constitution, cosmogony and influences on one another. An eminent scientist comparing the respective development of those sister sciences says that, the first, originally a poor Chaldean shepherdess, has long since become well known, and dwells now in state in princely observatories supplied by government or private benefaction; the second, the younger sister, though bearing every mark of her celestial birth is unendowed, portionless and unknown. This comparison was, indeed, true until about 1860, when there appeared in the field a new and powerful instrument of astronomical research, the spectroscope. The essential part of this apparatus, given to the world by Fraunhofer, is a train of prisms capable of dispensing light rays; the observer viewing a distant point of light, as a star, gets a *spectrum*, a colored band of light which may show markings that will give valuable information, and thus solve many problems as to the nature and constitution of the

heavenly bodies, which forty years ago did not not seem even open to investigation. Kirchhoff, in 1859, first proved beyond dispute, from analysis of the solar spectrum, the existence in the sun of iron, calcium, sodium, aluminum, &c.

Father Secchi, if not the first, was at least the most ardent observer to turn his attention to studying and continuing the investigations of Fraunhofer and Kirchhoff. His thorough knowledge of physics and natural rapidity and dexterity in observing, specially fitted him for the work. In a short time he greatly improved the methods of observation—his contemporary scientists do not hesitate to say that he soon surpassed in satisfactory results all who had preceded him. In a paper like the present, space does not permit, and the unprofessional readers would find it difficult and tedious to follow the great Roman astronomer through all his discoveries. His notes on observations of the sun alone fill two large volumes, the most celebrated of his works. A mere digest of these would furnish ample material for an article of goodly length. Let it suffice to say here, basing on the frequency with which he is cited by his brother astronomers, that he contributed, more than any one else, to the building up of the best received theory of our day regarding the physical constitution of the sun. A brief notice of the bearing of his observations and opinions as to the cosmogony and probable extent of the universe might not be uninteresting to those who have perused the elegant article on the Nebular Hypothesis which appeared in last month's OWL.

The spectroscope enables the observer to determine, with certainty, whether any particular body towards which it is directed is entirely gaseous, or has by condensation become liquid or solid. Father Secchi's investigations, it is claimed, prove that these different transformations are met with in the nebulae stars and planets. There are, he contends, still to be found in space, and not too distant for instrumental observation, great masses of the incandescent vapor—nebula—from which, according to the Nebular Hypothesis, the heavenly bodies have been successively evolved. The actual data of astronomy, he says, leave not the least room for hesitation in admitting that the solar system is due to the condensation of a nebulous