

movements of the heavenly bodies, and survey the distances and measure the dimensions and establish their weight; still we could never find out their material composition nor learn the actual chemical elements of which they are composed. They seemed to have found the limit of knowledge, when all at once everything was opened before them in a different light—the use of the spectroscope, the greatest triumph of modern Astronomy, was discovered.

Chemists had studied the composition of the earth for centuries but the only indications they had of the composition of heavenly bodies was obtained from meteorites which were found to contain no elements except those already known as existing on the Earth. But the origin of meteorites was at that time too obscure to enable any sound inference to be drawn concerning the composition of the celestial bodies generally.

The spectroscope by making use of the dispersive power of the prism enabled scientists to easily find out what elements existed on these bodies. They have shown that if the Earth were heated to the same temperature as the Sun it would have about the same composition.

By the spectroscope we are enabled to detect the motion of stars moving directly towards or away from us and we are able to calculate the speed of the approaching or receding star.

Another important and interesting discovery is that of the electric connection between the Sun and its planets. Great outbursts on the Sun have always been immediately followed by marked magnetic disturbances on the Earth, and the instances are too remarkable to be considered as mere coincidences.

But photography is also working wonders, and when all the Stars have been photographed and gazed at through the spectroscope we may expect some important discoveries or theories as to whether or no the Stars form a system, and many other contested questions. Also it is not impossible that Astronomers may be able to find out the form and extent of the visible Universe. According to present indications the great majority of Stars which are visible to the naked eye are situated in an immense sphere 20,000,000 times the distance of the Sun from the earth, in diameter. Of course we cannot conceive of such an enormous distance but it will show the small portion of the Universe occupied by the Solar System.

The science of this century seems destined to be famous throughout the ages. To Astronomers it is the age of photography and the spectroscope. What will be the character of Astronomical progress in the coming century? This is a question hard to answer. The spectroscope has given material for research for a long time to come and it is not impossible that some new method of research will be opened up as strange to us as the spectroscope was to those of the last century.

Contrast all the victories and acquisitions of Astronomers of the present century with those when the telescope was put under the ban of the Church because it permitted man to see further than God by the structure of the human eye intended him to see, and we will be surprised at the rapid progress we are now making and speculate eagerly as regards the future.

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