

**THE TRANSIT OF
VENUS
IN 1874, PP. 10-105**

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The Transit of Venus in 1874, pp. 10-105 by Robert Grant

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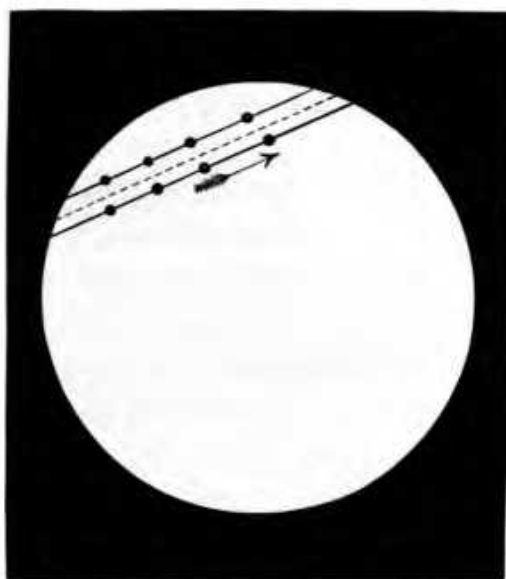
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TRANSIT OF VENUS, 1874.



THE TRANSIT OF VENUS

IN 1874.

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According to the science of modern astronomy, the Sun occupies the centre of the planetary system, and the Earth is a planet, revolving round the Sun like the other planets of the system; on the other hand, the innumerable stars are supposed to be situated in space at a remote distance apart from the planetary system. But the Earth is a round body several thousand miles in diameter. We may therefore reasonably infer that the other planets are similarly bodies of vast dimensions, and this conclusion applies with still greater force to the Sun, the central body of the planetary system. Furthermore, the theory of modern

astronomy, which places the Sun in the centre of the planetary system, assigns to the stars of the celestial vault the rôle of so many resplendent suns, each constituting the centre of a retinue of revolving bodies. In like manner, then, as we are led to suppose that the Sun is a body of great magnitude, so we infer, by a similar train of reasoning, that the stars are also bodies of vast dimensions.

But in order to ascertain the magnitudes of the celestial bodies, we must know their distances from the Earth. We are thus led to consider the supreme importance of the astronomical problem

which is to form the groundwork of our explanations. When we have once made some progress in a knowledge of the distances of the celestial bodies, we are in a position to form a conception of the amazing extent of the physical universe. We thus come to learn that the Sun is a stupendous globe more than 800,000 miles in diameter, and that its distance from the Earth is more than ninety-one millions of miles. We learn, furthermore, that the planets are bodies of immense size revolving round the Sun, that the extreme planet of the system, the planet Neptune, revolves at a distance of two thousand eight hundred

millions of miles from the central body, and that the orbits of many comets extend even much farther into space. Finally, we arrive at the conclusion that the stars are in reality suns, exceeding in many instances the great central body of the planetary system in magnitude, and traversing space at an almost inconceivable distance from the Earth.

*Researches of the Ancient Astronomers on the
Distances of the Celestial Bodies.*

THE Greek astronomers made some ingenious attempts to determine the distance of the Sun from the Earth, but in no case was either the method of solution or the

existing state of astronomy adequate to meet the requirements of a problem of such difficulty. In the case of the Moon they were more successful. The method employed by them was exactly the same in principle as that used by modern astronomers, and forms indeed the basis of all researches having for their object the determination of the distances of the celestial bodies from the Earth. A brief explanation of it will presently be given.