

A FURTHER NOTE ON SIRIUS B

By Laurie Ryan

Sirius A, the brightest star in the northern hemisphere has an apparent magnitude of -1.42. Sirius B has an apparent magnitude of 8.7. The apparent magnitude of a star is a measure of its brightness due to light from it reaching the earth. The lower the number, the brighter it will appear when seen from the earth. The limit that the naked eye can see is 6.5, although this is usually achieved in very dark areas. The limit is raised to 10 with a pair of binoculars and 13 with a small telescope. The position of Sirius in the sky from an observer in Mali is approximately 50-55 above the horizon within 700 years to the present. With an instrument only as powerful as binoculars Sirius B should be visible, except that it would be flooded by light from Sirius A. Perhaps they had a more powerful telescope, but even without one more powerful than binoculars, information on Sirius B could be obtained. In 1844, before Sirius B was discovered, Friedrich Bessel discovered a "wavy" motion of Sirius A, a sign that a companion star was disturbing its motion. He examined this sinusoidal motion to be 50 years, without ever seeing Sirius B. From continuous observations of the motion of Sirius A, the elliptical orbit and position of Sirius B can be inferred.

In examining their observations of the solar system, there is additional evidence that the Dogon may have been able to see Sirius B. The four largest moons of Jupiter have apparent magnitudes of 5-6 at their farthest position from Jupiter. Although this is within range of seeing with the naked eye, a flood of light from Jupiter may prevent this, but both the moons of Jupiter and the rings of Saturn can be seen with a small telescope. Galileo easily assembled his first telescope of three power magnification followed quickly by other instruments of up to 30 power magnification. The date of the principle of combining two lenses to magnify an object is not certain, and claims for discovery of this go back to Roger Bacon in the thirteenth century. Since all of the observations of the Dogon were within the range of the same small telescope, and it was possible for them to have such an instrument, their observations of the position and period of Sirius B must be valid.

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