Aberration

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The aberration of light was discovered by James Bradley in 1725. It is caused by the finite speed of light versus the orbital speed of the earth. This combination causes us to see the star or the sun in a retarded position. Many scientists conclude that the speed of gravity must be very high or else the planets would spin out of orbit. This paper suggests that the speed of gravity can be the same as the speed of light and that the planets will not spin out of orbit.

# Aberration of Light

In 1725 James Bradley was using a telescope to view the distant star named Gamma Draconis [1]. While observing the star, he noticed that the image did not pass through the barrel of the telescope in line with the axis of the telescope. In order to get the light to propagate in line with the axis of the telescope he had to point the telescope to the right by 20.5 arc seconds.

Bradley’s explanation is shown in Figure 1. Figure 1 uses the sun as the object rather than a distant star.



**Figure 1 – Positions of the Sun**

Figure 1 assumes the earth is fixed. Position A of the sun represents the physical sun that is straight overhead. When it gets to that point, it emits light that will arrive at the earth and the telescope 500 seconds later. In that same period of time, the physical sun will have moved 2.083 degrees to the west as shown in position B.

During the same period of time the earth will have orbited the sun in a counter clockwise direction. This causes the sun to appear to the east by 20.5 arc seconds. It would be very natural for anyone to point the telescope at the visible sun, position C. The light coming from that direction would not line up with the axis of the telescope because it originated at point A. In order to get the light to line up properly, he had to move the telescope forward to position A.

Gamma Draonis appears not to move, but the orbital speed of the earth still causes the visible star to star to appear to the left by 20.5 arc seconds as long as the earth moves in the transverse direction compared to the path of the light.

1. **Aberration of Gravity**

There are theories of gravity that suggest that the speed of light is finite or even the same as the speed of light. In my 2012 NPA paper titled “The Wang Eclipse” [2], I stated that the speed of gravity is about the same as the speed of light. When these theories are reviewed, one of the main objections is that the finite speed of gravity would cause gravitational aberration and the planets would spin out of orbit. If there is aberration of light, then there must be aberration of gravity for the identical situation.

Tom Van Flandern states in his paper “The Speed of Gravity – What the Experiments Say”, [3]. that if the speed of gravity is the same as the speed of the light then the planets would spin out of orbit. The assumption is that gravity propagates from the visible sun which is in position C. This would cause a transverse force on the planet and push the planet out of orbit. But this does not happen.

Mr. Van Flandern suggests that the only way to keep the planets in orbit is to have the speed of gravity very high. One of his estimates is that it is about 2\*1010 c. Although this is a finite number, it is so fast that the earth has not moved very far, and the aberration is not observable.

So he concludes that the speed of gravity cannot be the same as the speed of light.

# Visual Image

How often have you been told that the yellow ball in the sky is the sun? We have heard it over and over again. But now I am going to tell you that the sun is not there. Specifically, the sun is not in position C of Figure 1. The image of the sun that is in your eye and brain are telling you that it is in position C, but the physical sun is not there. It has moved on to position B.

Suppose the physical sun was at position C. And at the same time the image of the sun was in your eye. The only way that can happen is to have the speed of light to be infinitely fast. With this logic it is easy to understand why scientists would believe that the speed of gravity was infinitely fast.

So the physical sun is not at position C. Not only that, when the physical sun was at position A, we cannot see it. When it reaches position A it is just emitting light, so you can’t see it at that point. The same is true for Position B.

# Enter the Human

There are two basic requirements for the aberration of light. The speed of light must be finite and the earth must move in a transverse direction to the light. But if that were the only condition, there would be no visible light. The third requirement is that a human being must be present to see the visible image.

With the human gone there is no visible sun and therefore no aberration of light. Light will proceed from position A and arrive at the earth just as it should. To compensate for the missing human, build a self-aligning telescope that points the telescope such that the light rays are in line with the axis of the telescope.

When nature is left alone, aberration of light does not exist. If the aberration of light does not exist in nature then the aberration of gravity does not exist either.

1. **Conclusion**

There are gravity theories that suggest that the speed of gravity is finite and are being criticized because it will cause gravitational aberration. In my paper the “Wang Eclipse” [2], I suggest that the speed of gravity is about the same as the speed of light. Planets will not go out of orbit, because gravity does not care where we think the sun is. It only interacts with the physical sun, not with the image of the sun that is in your eye.

# References

[ 1 ] Bradley, James (1729). *An account of the new discovered motion of the fixed stars*. Phil. Trans. R. Soc.

[ 2 ] Robert de Hilster. *The Wang Eclipse,* NPA 17, 2012

[ 3 ] Tom Van Flandern, *The Speed of Gravity- What the Experiments Say,* Meta Research, 1998