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TERRESTRIAL BRADLEY ABERRATION CANNOT BE OBSERVED

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Because terrestrial sources radiate in all directions, collimation cannot produce a beam fixed in direction relative to absolute space. Therefore, terrestrial aberration, even though present, cannot be observed; and terrestrial aberration cannot be used to measure the absolute velocity of the closed laboratory (contradicting a prior claim in this journal). In other words, the large parallax of terrestrial sources frustrates the observation of aberration.

Key words: measuring absolute velocity, Bradley aberration.

Apparently the proposed experiment [1] using Bradley aberration in the closed laboratory to measure the absolute velocity of the laboratory will not work. The principles already stated remain valid; but an additional effect, an artifact, which was overlooked in the original proposal, will frustrate a positive result. In particular, it is apparently impossible to obtain a terrestrial source that will radiate in a single direction fixed relative to absolute space. All known atomic and molecular light sources radiate in all possible directions. The velocity of light emitted is not affected by the absolute velocity of the source. However, to obtain a unidirectional light beam, that might be used to simulate starlight in the laboratory, a mask, a collimator, or cavity (such as in a laser) must be employed; and these devices unfortunately move with the

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absolute velocity of the laboratory. When the source and the collimating device move, the light that can pass through the setup emanates in different directions from the original source. The situation is made clear by reference to Fig. 1.

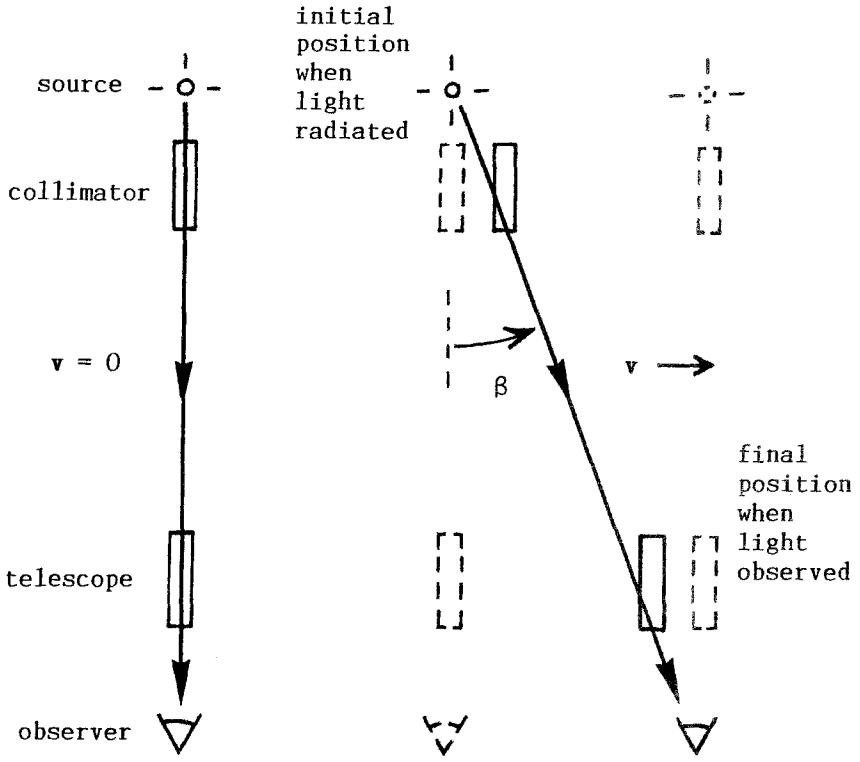

Fig. 1. Diagram indicating that, because sources radiate in all directions, collimation cannot produce a beam fixed in direction relative to absolute space. Terrestrial Bradley aberration, although present (the angle β), cannot be detected; and the absolute velocity of the laboratory cannot be measured in this way.

Since the source radiates in all directions; there will always be some angle of emanation β from the original source that will allow light to pass through the setup. The source is, therefore, always seen without having to change the orientation of the telescope quite independent of the

absolute velocity of the laboratory. Despite the fact that Bradley aberration does occur (the angle β shown in Fig. 1), the telescope remains in precisely the same direction, pointing at the source as seen in the laboratory; and no Bradley aberration can be detected. This artifact then frustrates the observation of terrestrial aberration and the possibility of measuring the absolute velocity of the laboratory by this method. Another way of stating the situation is: The effect of parallax exactly masks the effect of aberration.

A true unidirectional light source at the atomic level would, of course, permit Bradley aberration to be observed in the laboratory, as discussed in the previous paper [1].

REFERENCES

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