The articles *The Real Ladder Paradox, The Acceleration Law* and *Acceleration Dynamics* show how energy participates in acceleration experiments. In Newtonian physics, forces act only upon material mass. In Relativistic physics, energy also has mass. When the mass of energy is accelerated, there must also be a force associated with this acceleration.

The Light Experiment
Figure 17 shows a platform floating in free space with an observer at each end.

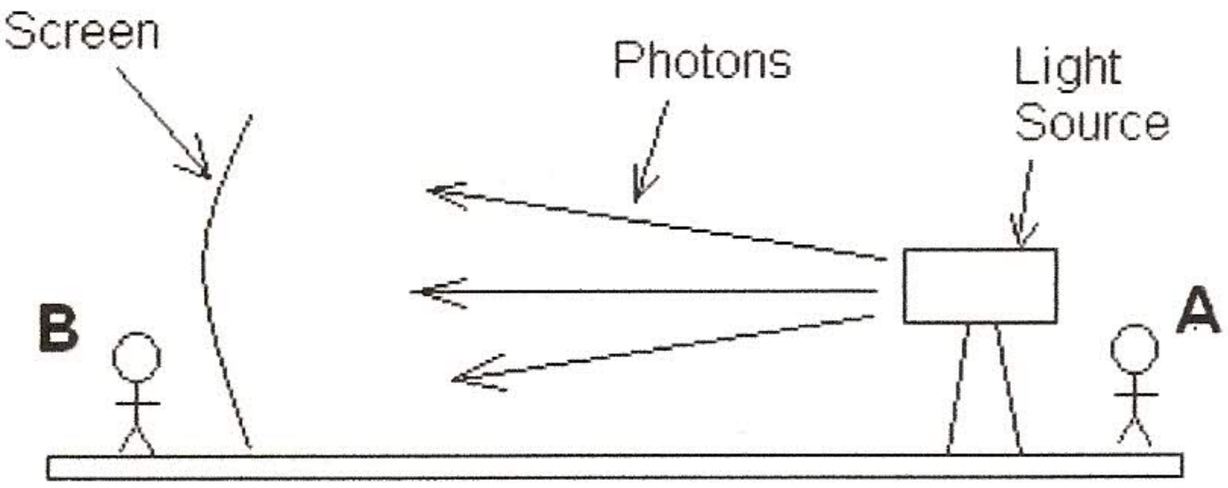

Figure 17. Light shines from the source to the screen.

The observer A has a powerful light source (with battery). The light source is initially off, then is turned on for a period of time, then is turned off again. The observer B has a screen that absorbs light energy at 100% efficiency. Real experiments have shown that during the time that the light is on, the platform will experience a force that is a reaction to the momentum of the photons emitted by the light source (radiation pressure effect) and will experience a similar force caused by the photons being captured by the screen.

If the total energy emitted by the light is E, then one result of the experiment is a movement of energy E from a position near observer A to a position near observer B. Therefore, mass E/c^2 has moved left from observer A to observer B. The platform begins the experiment with no velocity (seen by our primary reference frame) and must have no velocity at the end of the experiment. The Law of Conservation of Momentum requires that the platform move during the experiment so that the center of mass of the system stays in the same place as the light energy changes location. This is possible because the photons produce a force on a material when they are emitted, reflected or absorbed. The movement of the platform can be separated into three steps.

1. When the light source is turned on, the photons have a momentum to the left and impart a force on the platform to the right. Before the photons get to the screen, this force accelerates the platform to the right.
2. When the first photons hit the screen, the force on the screen equals the force