between 100 and 10,000 kilometers from the explosion an accuracy of at least one-tenth of one percent can be attained.

Another simple experiment could compare light velocities at various frequencies. Of course, according to relativity there should be no frequency-dependence whatsoever. This fact has been verified by observing supernova explosions in neighboring galaxies. The signals in the various colors appear to arrive simultaneously in agreement with the prediction of relativity. A nuclear explosion would be much closer and much more sharply defined in time and would result in a comparison of the velocities of similar accuracy as obtainable from the supernova. But while the light from the supernova as observed from the earth covers frequencies of no more than a factor of 2, a nuclear explosion would permit observations reaching from the gamma-ray region to beyond the infrared. As one proceeds farther into radar and radio frequencies the actual propagation velocity will be influenced by the few free electrons which are found in interplanetary space. Thus the precise measurement of radio propagation can be used as a measurement of obtaining electron densities along the path.

While there can be almost no doubt about the outcome of the simple light velocity experiment, a further modification of this experiment might be valuable in connection with the theory of gravitation. General relativity predicts the same propagation velocity independent of the frequency even in case the propagation occurs in a strong gravitational field. However, the experimental basis of the beautiful theory of general relativity is less broadly based than Einstein's special relativity. Therefore, observation on a nuclear explosion carried out in the neighborhood of the sun would have the interest of supplying a direct confirmation of one of the basic postulates on which Einstein's theory of curved space is resting.