changes with the brightness in such a way that the emission in the red appears to become important for fainter meteors. Ceplecha (1959) has suggested this spectrum change to explain the results on the color index that he obtained by using panchromatic emulsions, which attain maximum sensitivity for a wavelength equal to 6700 Å. Davis' (1963) photoelectric measurements confirmed this suggestion. A variation of τ with brightness was also predicted by Kallmann (1955), who concluded that the luminous efficiency should be proportional to a power of the duration of the individual meteors. Obviously such an hypothesis has absolutely no physical meaning.

Recently Ananthakrishnan (1960, 1961), trying to remove the disagreement between the theoretical beginning and end heights and the measured heights of the photographic meteors reduced by Hawkins and Southworth (1958), introduced the hypothesis that τ_p varies along the trail of an individual meteor in proportion to the atmospheric density ρ_a. Evidently this assumption has no physical basis either. The emitted light must be proportional to ρ_a because of the proportionality between ρ_a and the rate at which atoms leave the body and are responsible for the emission of light. Ananthakrishnan's hypothesis means that the emitted light is proportional to ρ_a^2, and this is absurd; of course the observational results confirm that such an hypothesis is wrong. Incidentally, the above-mentioned discrepancy between the theoretical and the observed heights is without any doubt an effect of fragmentation, as Hawkins and Southworth correctly stated on the basis of Jacchia's (1955) fundamental finding. That the experimental heights of the Super-Schmidt meteors seem to fit the curve computed with $\tau \sim \rho_a v$ better than the theoretical curve based on $\tau \sim v$ is solely the result of the upward shifting of the meteoric heights produced by the fragmentation. This has the same effect as would increasing luminous efficiency with ρ_a. Moreover, when Ananthakrishnan shows that the less fragmenting part of the Hawkins-Southworth meteors are not so far removed from the theoretical curve as the Draconids of Jacchia, Kopal, and Millman (1950), he finds only the very well known fact that the fragmentation of the members of the Draconid shower is extreme. The fragmentation index χ of Draconids is near to 2, while the average χ for all the Super-Schmidt meteors is 0.25 and that of the group selected in his paper is certainly even smaller.

Ceplecha (1958) and Ceplecha and Padevět (1961) have attempted to evaluate n by using Harvard data on small-camera meteors (Jacchia, 1952) and on Super-Schmidt meteors (Hawkins and Southworth, 1958). Their results are $n = -0.33 \pm 0.61$ for small-camera meteors and $n = -2.8 \pm 0.2$ for Super-Schmidt meteors. These values of n appear unacceptable. There are several reasons for this:

1. Ceplecha used the theoretical relationship between the intensity at maximum light I_m and the mass outside of the atmosphere m_∞. When there are flares—as there frequently are in small-camera bright meteors—or diffuse fragmentation, as in Super-Schmidt meteors, that relation ceases to be meaningful.

2. He wrote such a relation, following Levin (1956), in a form very similar to that of Herlofson (1948), which is known to be a rough approximation even in the cases in which the theory could be successfully used (Verniani, 1961).

3. In the same equation Ceplecha eliminated the mass m_∞ by making use of another equation of Levin (1956), obtained with the assumption that the velocity of the meteoroid does not change during the entire path. Moreover, that equation contains the atmospheric density of the end point of the meteor. Such a value is often meaningless because of the very irregular behavior of meteors in the last part of their recorded path, as a result of crumbling and fragmentation (Jacchia, 1955). It may differ from the corresponding theoretical value by an order of magnitude.

4. The Harvard small-camera material, especially the earlier Massachusetts meteors, is very inhomogeneous with regard to the accuracy of the data. Therefore a good analysis can be done not only by rejecting those meteors for which the time of appearance is poorly determined or the mass is not accurately known, but also by using a suitable system of weights, as Jacchia did in his 1952 analysis, for taking into account the accuracy of the