

We shall not present here the results of our detailed computations of the structure functions themselves. It will probably be some time before F_2 and F_3 can be experimentally determined in detail, as functions of x and large q^2 . Moreover, in particular for F_2 , the behavior near $x=1$ and $x=0$ has already been discussed in the literature. Instead, we shall display the structure functions in what are effectively partially integrated forms. Namely we consider the partially differential cross sections, $\partial\sigma/\partial y$ and $\partial\sigma/\partial x$ obtained by integrating $\partial^2\sigma/\partial x\partial y$ over one or the other of the two variables. For given beam energy E this requires knowledge of the structure functions for all q^2 up to the kinematic limit $2mE$.

The preceding discussion, given the basic assumptions adopted for this section, deals only with the asymptotic region $q^2 > q_0^2$, where, ideally, q_0^2 should be taken "large enough". In practice we are supposing that q_0^2 somewhere in the SLAC-MIT region will do; and we have somewhat optimistically taken $q_0^2 \approx 5(\text{GeV})^2$. To discuss the differential cross sections we must also know the cross sections for $q^2 < q_0^2$. Here we rely on the observation that scaling seems in fact to hold well enough for modest q^2 , say for $q_1^2 < q^2 < q_0^2$, where q_1^2 is perhaps of order a $(\text{GeV})^2$. It is stretching things, however, to suppose that the transition from scaling to asymptotic behavior sets in sharply, for all x , at some particular q_0^2 . Nevertheless, we are forced to this assumption. This introduces certain artifacts in the final results, especially for low beam energies E where both the $q^2 < q_0^2$ and $q^2 > q_0^2$ regions are