experimental values of νW_2 for $W > 1.8$ GeV and $q^2 > 1$ GeV^2. The upper limit is determined by choosing a missing mass W_m which is somewhat beyond the prominent resonance bumps and $2M\nu_m = W_m^2 - M_p^2 + q^2$. We find that in the range of q^2 from 1 to 4 $(\frac{GeV}{c})^2$ and W_m from 2.2 to 2.5 GeV the maximum deviation of J_2 from J_1 is 9%. This result is only weakly sensitive to modest changes in R.

The behavior of the inelastic cross-section has interesting implications with regard to the properties of the total absorption cross-sections for virtual photons, σ_t and σ_s. As has been discussed, σ_t is dominant in the scaling region. On the basis of the parton model, this is what one would expect if the constituents of the proton were spin 1/2 objects. Figure 11 shows the cross-sections σ_t and σ_s plotted for constant q^2 as functions of W^2. The dashed lines indicate the W^2 dependence of $\sigma_{\gamma p}$, which is the limit of $\sigma_t(q^2, \nu)$ as $q^2 \to 0$. For $q^2 \leq 3$ GeV^2 the cross-sections are consistent with a constant or a slowly falling energy dependence similar to the behavior of $\sigma_{\gamma p}$. For larger q^2, σ_t shows a rising energy dependence resembling a threshold type behavior. This rising behavior of σ_t at high energy is unique among the various total cross-sections that have been measured. The q^2 dependence of σ_t, shown in Figure 12, shows no pure power law behavior but varies in the region of the present data between $1/q^2$ and $1/q^6$ as indicated by the straight lines shown in Figure 12. The point $\omega' = 5$ roughly separates the threshold region of νW_2 from the flat, structureless region. The rising energy dependence of σ_t for large q^2 reflects the rising behavior of νW_2 for $\omega' < 5$. The $1/q^2$ dependence is correlated with the constancy of νW_2 for $\omega' > 5$, and the $1/q^6$ asymptotic dependence as ω' approaches unity corresponds to the asymptotic limit of the threshold behavior of νW_2.