sufficient energy to cause fission of 28. The "slow" ones have energies below the 28 fission threshold, which is at about 1 mv. The values which have been used here for the various cross sections of 25 and 28 for "fast" and "slow" neutrons follow. The cross sections are given in units of 10^{-24} cm^2:

Fission cross section of 28 for "fast" neutrons:	σ_{f8}	= 2/3
" " " " 25 for "fast" " :	σ_{f5}	= 4/3
" " " " 25 " "slow" " :	σ_{s5}	= 3
Inelastic " " " 28 " "fast" " :	σ_8^i	= 3.3
" " " " 25 " "fast" " :	σ_5^i	= 2.0
Absorption* " " " 28 " "slow" " :	σ_r	= 0.3
Transport " " " U " "fast" " :	σ_{ft}	= 5
" " " " U " "slow" " :	σ_{st}	= 8
Number of "fast" neutrons emitted per fission :	w	= 1.3
" " "slow" " " " " " :	w'	= 0.9

The inelastic cross section is defined as the cross section of a scattering process in which the incident neutron is fast but the outgoing neutron is slow.

The inelastic scattering cross-section of 28, $\sigma_8^i = 3.3$, was chosen so as to be compatible with experiments by Snell's group in Chicago and with an absorption cross-section σ_r not greater than 0.3. The corresponding 25 cross section was made smaller primarily because in this case a larger fission cross-section competes with the inelastic scattering. When compared to the geometric cross-sections, these inelastic cross-sections may seem large and, therefore, doubtful. It is however on the safe side to assume for inelastic scattering large values since this tends to increase the proportion of "slow" neutrons, and these can take advantage of the large fission cross-section of 25 for "slow" neutrons. Of course, at the same time the fissions of 28 are lost, but that has importance only when the 25 concentration is small and the critical amounts safely large.

The "transport" cross-sections signify those cross sections which govern the diffusion. Thus the diffusion mean free path λ is connected with a transport cross section σ_t by $\lambda = 1/N\,\sigma_t$ where N is the number of nuclei per cm^3. The values given for the transport cross sections are measured total cross sections somewhat diminished properly to eliminate the elastic forward scattering.

Fluorides (UF_n). The entire molecule is treated as a single U nucleus having inelastic and transport cross sections which consist of the sum of the corresponding cross sections of each of the atoms in the molecule. Thus the apparently most reliable measurements yield values for the total cross section of fluorine about equal to 2 for "fast" neutrons and 3 for "slow" ones. Accordingly,

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* The absorption cross section for fast neutrons is zero.