The calculation of losses or frictional energy cannot be done with so great generality as the lift coefficient and the secondary parameters ε, φ and i, since it depends fondamentaly of the aerodinamical characteristiques of the airfoil used in the blades. The next Chapter gives the method I have developped ~~for the~~ when the airfoil used is the Göttingen 429. A similar method can be utilised for any other airfoil, though some of the assumptions might have to be different.

II.

Relationships between Profile loses, airfoil characteristics; average profile drag of blades, lift coefficient, solidity, $\frac{D}{L}$ and $\frac{\Omega}{V}$, for rectangular flat blades with Göttingen 429 airfoil section.

Assumptions.

a) Cosine of the incidence of the disc assimilated to 1.

b) Component of wind speed perpendicular to disc, ignored

c) Coning angle, ignored.

d) The assumed characteristics of the Göttingen 429 airfoil are those shown in Appendix II Figs. 1 and 2, and are averages of wind channel tests at different VL, both in Germany and England. The number of Reynolds being decreasing generally when incidence increases, an average profile drag curve is chosen for the calculations, approaching the optimum values for minimum incidence and high values for high incidences. That average curve, corresponds to the equations $\bar{\sigma} = \bar{\sigma}_0 + K t_g^2 \alpha$ below stalling and $\bar{\sigma} = \bar{\sigma}_0 + \bar{\sigma}_s + K t_g^2 \alpha$ above stalling.