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PROGRESS REPORT

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(i) Suitable equations have been derived for the pseudo-transonic flow near the leading edge of a supersonic wing swept to the Mach angle. These equations give the non-linear correction to linearized theory in this case. The solution of these equations can explain why the measured wave drag is considerably less than that predicted by linearized theory. These equations are completely analogous to those for unsteady two-dimensional transonic small disturbance theory. (J.D. Cole)

(ii) Successful hodograph plane calculations have been carried out according to small disturbance theory for two-dimensional and axisymmetric jets in the range between sonic and choked jets. The problem according to exact gas dynamics has been formulated and shown to lead to a Monge-Ampere equation. (S. Rimbey)

(iii) The problem of design of a sonic airfoil in the hodograph according to the exact equations (Chaplygin) has been considered. The necessary free-stream singularity has been identified. A finite difference scheme of mixed type has been formulated. (J.D. Cole, Lin Baoyu)

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