Layer," Doctoral thesis, May 1962, Massachusetts Institute of Technology.

[12] Goodwin, B. M., "The Transpired Turbulent Boundary Layer with Zero Pressure Gradient," Doctoral thesis, 1961, Massachusetts Institute of Technology.

[13] Butensky, M. S., "The Transpired Turbulent Boundary Layer on a Flat Plate," Doctoral thesis, 1962, Massachusetts Institute of Technology.

[14] Laufer, J., "The Structure of Turbulence in Fully Developed Pipe Flow," TR 1174, 1954, NACA.

[15] Klebanoff, R. S., "Characteristics of Turbulence in a Boundary Layer with Zero Pressure Gradient," TR 1247, April 1953, NACA.

[16] Smith, D. W. and Walker, J. H., "Skin-Friction Measurements in Incompressible Flow," TN 4231, March 1958, NASA.

[17] Clauser, F. H., "Turbulent Boundary Layer in Adverse Pressure Gradients," *Journal of the Aeronautical Sciences*, Vol. 21, No. 2, Feb. 1954.

[18] Dutton, R. A., "The Effects of Distributed Suction on the Development of Turbulent Boundary Layers," A.R.C. 20,036, F.M. 2671, March 27, 1958, Aeronautical Research Council.

Reply by Author to T. J. Dahm and R. M. Kendall

T. N. Stevenson*
University of Manchester, England

THE dimensional analysis in my Note was based on zero skin friction, a criterion used by Kutateladz and Leont'ev. In the discussion that followed I examined the implications of zero skin friction. The comment by Dahm and Kendall that "Fig. 2 demonstrates that C is obviously not constant" is incorrect. The figure does not prove the case one way or another; it was not intended to. If a breakaway had occurred, the value of the intercept on the horizontal would have continued to increase as it does on the plot of u/u_1 vs y/δ as it goes through separation in an adverse pressure gradient without injection. However, this type of separation is probably unlikely in the case of injection, and the skin friction probably approaches zero asymptotically.

Received May 27, 1968.

* Lecturer, Department of the Mechanics of Fluids.

Admittedly the accuracy of v_w/u_1 is important in the evaluation of the skin friction, but the errors in v_w/u_1 are more readily estimated than the hidden errors in $d\theta/dx$. The criterion on the error of $d\theta/dx$ which was used to plot the chain dotted line in Fig. 1 of my Note spans the scatter of the data in the main experiments of McQuaid[1]; however, I agree that the criterion is too low. Many of the comments on the Note rely on being able to disregard the experimental results of McQuaid.[1] It is stated that there is a discrepancy in the results. In fact the "discrepancy" does not seem to be in the main set of experiments but in an experiment on a boundary layer with a discontinuity in the injection rate. McQuaid[1] states that this particular experiment "should be regarded as no more than preliminary in nature" because "the velocity distribution along the test wall could not be adjusted to a constant value to the same precision as in the main experiments" which "rendered the determination of c_f from the measured growth of θ very inaccurate." To disregard the main experiments because of difficulties in the discontinuous injection experiment seems unreasonable.

Reference

[1] McQuaid, J., "Experiments on Incompressible Turbulent Boundary Layers with Distributed Injection," ARC 28735, 1967, Aeronautical Research Council, London.

Erratum: "Pressure Distribution on Cone-Cylinders in Hypersonic Flow"

K. J. Touryan,* G. E. Clark,† and D. J. Rigali†
Sandia Laboratory, Albuquerque, N. Mex.

[AIAA J. **6**, 739–741 (1968)]

IN the above paper, the computations for Fig. 2 included the effects of the boundary layer. For the calculations of Ref. 5 of that paper, the boundary layer was assumed to be turbulent, starting at about 25% of the cone length, but it was considered laminar in all other calculations (see Refs. 1–3 of above paper).

Received April 30, 1968.

* Supervisor, Re-Entry Studies Division. Member AIAA.

† Staff Member, Aerothermodynamics Department, Re-Entry Studies Division. Member AIAA.