Discussion

R. Reimer.[5] The authors are to be commended for using the flow-factor technique of J. A. Perry. This is a bridge between compressible-flow theory and empirical flow-measurement methods.

The authors explain that all testing was performed on fittings having sharp entrance corners, which probably results in a region of separated flow near the walls. This is the reason for nonchoking of the fittings at high pressure ratio.

However, these fittings can be used in tubing runs behind piping that do not give separated flow into the fitting. Are the data in this report valid for such installations, and if not, how should they be applied?

Examination of Fig. 10 at a pressure ratio of 0.68, shows that the straight-through fitting passes 88 per cent of ideal flow and the orifice passes 70 per cent of ideal flow. At a pressure ratio of 0.92, the straight-through fitting passes 87 per cent of ideal flow. The orifice is behaving properly. The straight-through fitting geometry is similar to a nozzle except for the rounded inlet, so the reduction in flow is largely due to the lack of the rounded inlet. It would be very interesting to have data from A-N fittings equipped with rounded inlets.

[5] Major Test Facilities Operation, Aircraft Gas Turbine Division, General Electric Company, Cincinnati, Ohio. Mem. ASME.

Authors' Closure

The data presented herein are not valid for the condition of a nonnegligible approach velocity. Work has been completed wherein straight-through fittings have been connected to tubing (nonnegligible approach velocity) and will be submitted for publication in the near future. The present fitting data are not applicable to any conceivable piping arrangement but do represent an end-point for extrapolation when the data for nonnegligible approach velocity becomes available. At present no work is contemplated for A-N fittings with rounded inlets.