The test liquid was a suspension containing 1.4 percent by weight of Milling Yellow dye. The E_{max} values were not determined for that portion of the flow fluid near the inlet of the jet because the strain rates were in the nonlinear range.

The velocity components calculated from the isochromates by the method previously described are plotted in Fig. 9 for four different values of X/D.

Discussion

The experimental results on the velocity field of a laminar expanding jet obtained in this investigation are reasonable, but it is not possible to justify completely the data by theoretical considerations. It has not been possible to solve analytically the Navier-Stokes equations for the specific boundary conditions. Numerical solution of the flow equations by finite-difference methods has been started, but no detailed results for comparison are available at this time.

Other investigations[3, 7] in which the photoviscous method has been employed to determine velocity profiles have shown that the velocity measurements can be made with an uncertainty of less than ±13 percent. It is expected the same level of confidence can be associated with measurements reported in this paper.

The method employed in the present work, in which complete data about the flow field were obtained from the isochromate optical data, possibly can be applied to photoelastic investigation of stress distribution in solids. It would seem that consistent use of compatible relations, known boundary conditions, a linear stress–strain equation of state with known material constants and the optical data would result in direct determination of the stress distribution from the isochromate data. However, the authors have been unable to locate references to such work from an examination of the literature on photoelasticity.

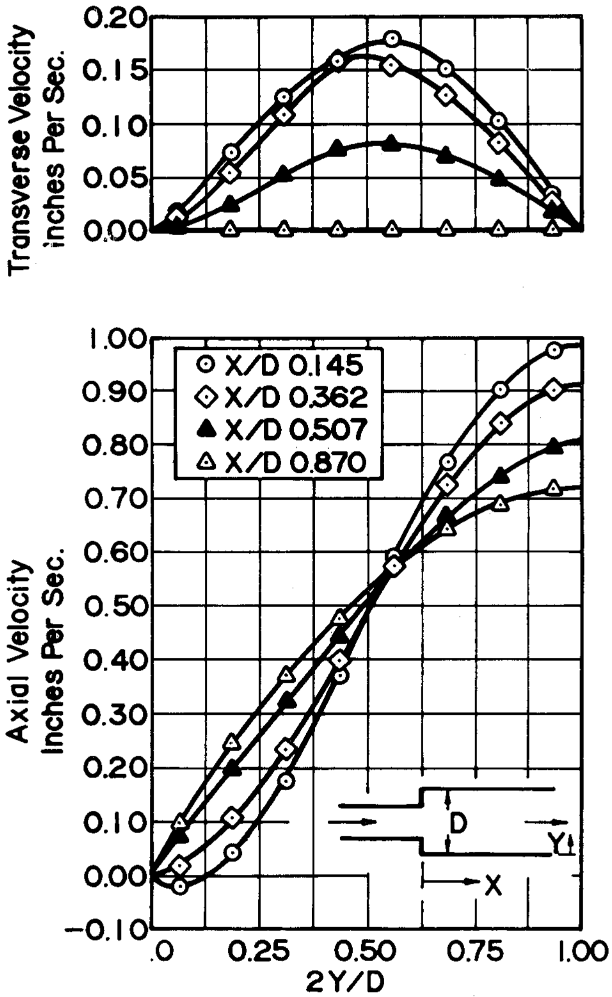

Fig. 9—Velocity profiles for expanding-jet flow

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ERRATA:

A Review of the Rheo-Optical Properties of Linear High Polymers

by Pericles S. Theocaris

We regret that an error appeared in Fig. 5 on page 110 of the April issue of E/M. The photographs in parts (a) and (b) should be interchanged.
The Editors