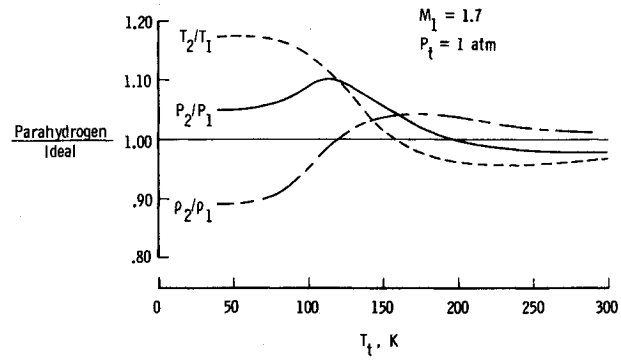

Fig. 4 Normal shock parameters vs temperature.

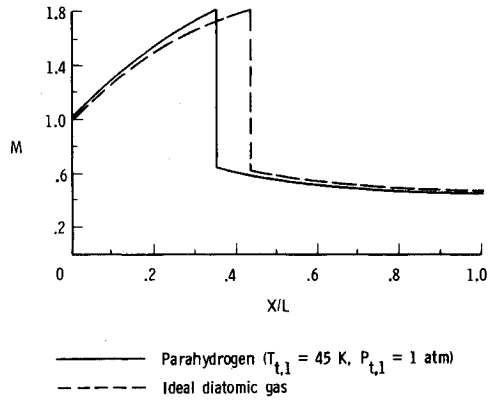

Fig. 5 Mach number distribution for a supersonic nozzle (one-dimensional inviscid flow).

differ from the ideal values by 10 to 20% (Fig. 4). For the case of the supersonic nozzle where the assumption is made that a shock occurs at a Mach number of 1.8 in both parahydrogen and an ideal diatomic gas, a difference in shock position of approximately 7% occurs. This magnitude of experimental error in the shock location on an airfoil would be completely unacceptable.

One of the causes of the much higher deviations in the flow solutions for parahydrogen is the influence of its high characteristic rotational temperature (85K). Below 85K, the rotational mode of the molecule is unexcited and the thermodynamic behavior is more like that of a monatomic gas. Above 85K, the rotational mode begins to be energized and the thermodynamic properties move toward those of a diatomic gas.

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The indexes of the five AIAA archive journals (*AIAA Journal, Journal of Aircraft, Journal of Energy, Journal of Hydronautics, Journal of Spacecraft and Rockets*) will be combined and mailed separately early in 1978. In addition, papers appearing in volumes of the *Progress in Astronautics and Aeronautics* book series published in 1977 will be included. Librarians will receive one copy of the index for each subscription which they have. Any AIAA member who subscribes to one or more Journals will receive one index. Additional copies may be purchased by anyone, at $10 per copy, from the Circulation Department, AIAA, Room 730, 1290 Avenue of the Americas, New York, New York 10019. **Remittance must accompany the order.**

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