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1. On the SUS27-surface, the temperature, at which the phenomenon displaces from α to β, is about 280°C independent to the other conditions, but the other displacing temperatures are not defined yet.

2. With increasing Re. number and decreasing the velocity, L/Q (running-length/flow rate) decreases.

3. It seems that a solid surface, which has an excellent heat transfer coefficient, tends to be in "spheroidal state".

4. The correlations between L/Q and t (surface temperature) may be hyperbolic.

An Experimental Study on a Cultural Nozzle Ejector

Daitaro IKENOUCHI (池 内 大 太 郎)

Investigation of lifting jet engines has received an impetus in recent years from research and development studies of vertical take-off and landing aircraft. Augmentation of the lifting jet engines could result in significant savings of the power required and, hence, weight.

This report is concerned with the experimental performance of a quasi two-dimentional central nozzle ejector.

A summary plot of the variation of augmentation ratio with mixing tube length and width ratio denoted a relation between the width ratio of ejector to nozzle to the ratio of thrust augmentation ratio to the mixing tube length. And a relation between the mixing tube length to the width ratio of ejector to nozzle was also obtained.

The augmentation ratio was increased about 5% as the mixing tube diffusion angle was increased from 0 (parallel) to about 2 degrees. In the range of the diffusion angle from 2 degrees to 3 degrees, the augmentation ratio was almost independent on the diffusion angle, but decreased quite rapidly as the diffusion angle was increased beyond 3 degrees.

No significant effect on thrust augmentation was found on the range of the velocity of the nozzle.

The inlet shapes tested had no appreciable effect on thrust augmentation.

The Reynolds number, based on the primary nozzle width, varied from about 1.0×10^4 to about 1.6×10^4.