

Curiosity 15. Discovery of Oil Flow Surface Streamline Visualization?

W. H. Mason, May, 2017

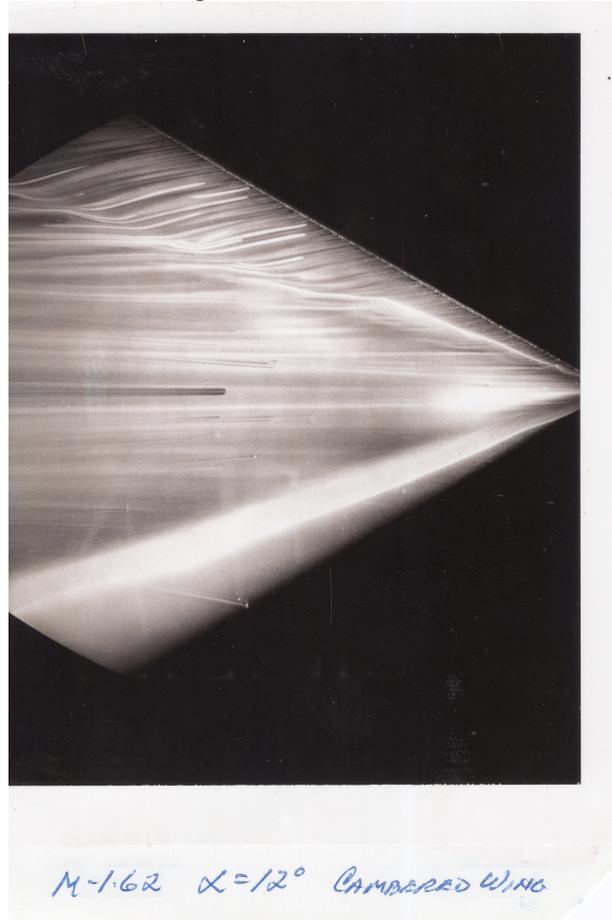
While looking for information on the wedges on the ailerons of the Bell X-1B airplane described in C14, I read this in *Supersonic Flight Breaking the Sound Barrier and Beyond* by Richard P. Hallion, 1997.

Hugh Dryden, Lyman Briggs and G.F. Hull were interested in testing airfoils to be used for high-speed propellers. They used an air jet from a turbine driven compressor at GE in Lynn, Mass. Here's the interesting part:

“ During bad weather tests, the men had covered the airfoils with oil to keep them from rusting. Serendipitously, they noted that oil moved in a pattern indicating separation of airflow at high speeds; likewise, they observed the classic decrease in lift and increase in drag...”

This was probably in 1923 or 1924. Can this really be the first use of oil flow surface streamline visualization in aerodynamics?

Just for fun here's an oil flow from my SC3 work, taken about 1980 in NASA Langley's Unitary Plan Wind Tunnel. I had a request for this in 2017 and found it in the basement!



Are you wondering why the photos is different on the two sides of the wing? On the top transition grit is applied, on the bottom there is no grit. It makes a big difference.