PROPOSED 1954 COLLIER TROPHY EXHIBIT

The exhibit is conceived as a single display consisting of an existing model, approximately 48 inches long, 24 inch wingspread, finished in red and silver, mounted above a solid walnut base approximately 30 inches wide, 20 inches deep and 18 inches high.

On the apex of the base the date 1954 is to be carved in intaglio. These numerals may be left natural or finished in gold leaf. On the main-base front, above

COLLIER TROPHY

AWARDED TO RICHARD T. WHITCOMB, LANGLEY AERONAUTICAL LABORATORY, NACA

FOR THE AREA RULE CONCEPT

(in small bronze relief letters)

below

An etched brass plate approximately 8 inches by 18 inches bearing the wording:

At transonic and supersonic speeds airplanes produce strong shock waves which greatly increase the drag. The area rule defines airplane shapes which greatly reduces the wave drag and thus allows greater speed or lower power requirements. In applying the rule, aerodynamicists have indented the fuselages and rearranged the various parts of a number of transonic and supersonic airplanes, as in the model above, to obtain these favorable effects. In one of the first applications of the rule, the fuselage of the Air Force F-102 was redesigned with an indentation. The reshaped version flew well beyond the speed of sound whereas the original airplane was limited to subsonic speeds.