CORRESPONDENCE

The Secretary, Royal Aeronautical Society, 7, Albemarle Street, London, W.1, England.

Department of National Defence
(Office of the Chief Aeronautical Engineer),
Ottawa, Canada,
January 23rd, 1932.

Dear Sir,—

1. I have read with considerable interest the excellent paper by Mr. Sutton on The Protection of Metal Parts of Aircraft against Corrosion. This paper covers a number of important problems which arise in the maintenance of aircraft.

2. It is considered, however, that sufficient prominence has perhaps not been given to corrosion, which occurs in the presence of dissolved oxygen. In his publication, "The Corrosion of Metals," Evans refers to this very important phase of corrosion, and his key experiment described on page 80 is of particular interest. In this experiment Evans shows that when two plates of the same material are immersed in a liquid and arranged so that one plate is aerated an electric current is set up.

3. On page 93 of the same book Evans states in part "corrosion is likely to persist most readily in places to which oxygen has less access, provided that these inaccessible places are not far removed from places to which oxygen can penetrate freely. An important feature of the type of corrosion set up by differential aeration is that the anodic cranny is often small compared to the cathodic area, and thus the whole effect is concentrated on a small area."

4. This type of corrosion seems to have particular bearing upon a trouble which we have experienced for a long period, that is, the corrosion of the bottom rear longerons of tubular fuselages. As originally constructed these fuselages have the fabric in contact with the longeron, with the result that not only does this position collect moisture, but also the metal in this position is deprived of air.

5. The life of a fuselage of this type has been found to be improved by welding small pieces of plate on edge to the longerons and placing a strip for holding the fabric outside these small distance pieces. The fabric strip can be made of wood or duralumin, and deterioration of this strip is not important, whereas deterioration of the longeron is prevented, because it is given free access to the air throughout its whole length.

Yours very truly,
E. W. STEDMAN,
Group Captain,
Chief Aeronautical Engineer.

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