AERODROME TRUSSING:
by F.W. Baldwin.

A radical difference in function between a bridge and an aeroplane truss has apparently been largely if not quite lost sight of by those who have copied bridge designs and applied them without modification to aeroplanes.

In the first place a bridge is not built to be driven through the air. It is not particularly designed to offer as little resistance as possible to the wind. Lightness and strength, in other words economy of material, is the criterion of bridge design.

Not so with the aeroplane truss however. In this, one truss may be heavier than another, of equal strength, and yet be much more desirable. From data well established experimentally, we know that it is of prime importance to give what is known as a "fair form" to all parts of an aerodrome. It is obviously an advantage then to let each member of a truss be deep from fore to aft and narrow sideways.

If a strut of this cross-section be subjected to compression it is obviously weak one way, and superfluously strong the other. Having a greater moment of inertia about a lateral than a fore and aft axis, it will buckle laterally long before its strength is taxed in a fore and aft direction.

In bridge design economy is obtained with symmetrical compression members, but in aeroplane work it should be obtained with members of un-symmetrical cross-section, and this alone calls for an entirely new system from that employed in bridges.