

The conditions that increase the velocity of the turning movement, and hence increase the danger to the aviator when headway is lost are the reverse of these viz:-

1. The center of gravity far in front of the center of surface.
2. The front control near the main planes.
3. Small surfaces upon the front control.
4. The tail near the supporting aeroplanes.
5. The tail surface small, or omitted altogether.

A large front control well removed from the main aeroplanes, and a large horizontal tail equally far removed behind would give great longitudinal stability to the apparatus; and by this we mean in reality that the vertical turning movements would be slow.

It is desirable however, that when in motion we should be able to steer up or down quickly if we so desire; and by making the front control and the tail both moveable, we secure the very desirable combination of quick steering when in motion by moving both controls simultaneously so as to co-operate with one another, and slow turning when headway is lost by holding both fixed.

There is still another point about the front control. The location of the axis upon which it turns is important. We are accustomed to place the axis nearer the front edge than the rear, so as to secure the point that when the machine is in rapid motion the center of pressure of the front control shall fall upon the axis. This of course reduces the power