of attack beyond that giving the maximum lift, the dynamic lift naturally decreases. At the same time the downward thrust on the elevators is increased. The gain in the upward component of the propeller thrust at reversing speed or below will not compensate for the loss in lift just described and the airship will be under the action of a greater resultant downward force than at the start.

f. The opposite effect to that described in *e* above occurs when an airship is trimmed tail heavy and the elevator is depressed. In this case the whole airship will rise.

g. It might appear that reverse control would be a source of great annoyance to the pilot. This is not the case when the phenomenon is

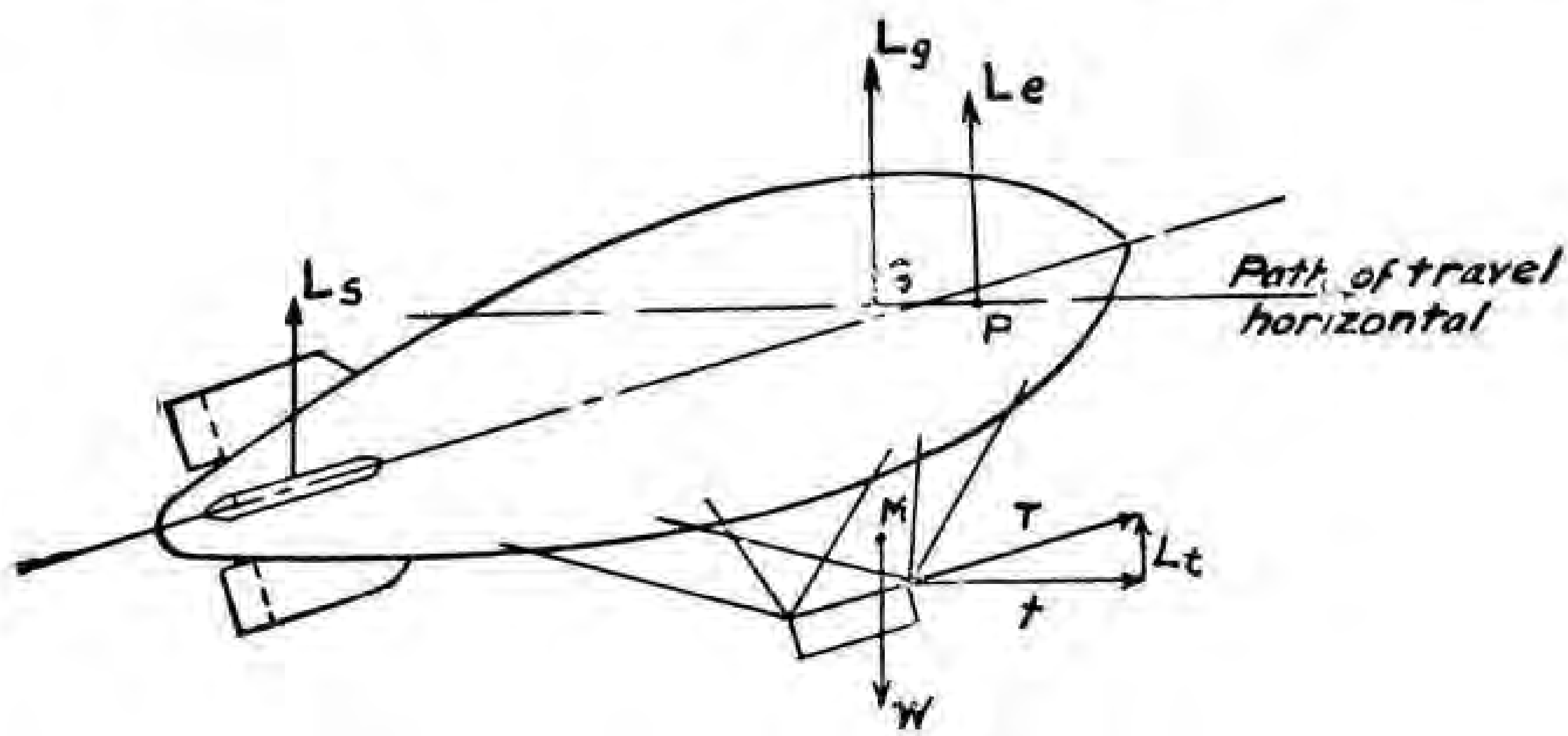

FIGURE 24.—Flight at constant altitude (airship statically heavy, trimmed tail heavy, elevators neutral).

properly understood. In fact, many maneuvers are executed by intelligent use of reverse control, for example, heavy take-off. This is described in paragraph 37.

37. Application of dynamic control to operation of airships.—*a*. The three major maneuvers in airship operation which are assisted by dynamic control are—

(1) Flight at constant altitude.

(2) Take-off.

(3) Landing.

These operations are fully covered in TM 1–310 and are discussed but briefly here to bring out the aerodynamic principles involved therein.

b. As soon as the take-off is completed and the obstacles in the immediate foreground cleared, the pilot climbs to the altitude at which he desires to cruise. He then trims the airship so that with the controls in neutral the algebraic sum of the vertical forces is zero. Since the airship is almost never in static equilibrium, one of two situations will prevail, static heaviness or lightness.