3. Importance.—Airships are controlled in two ways, statically and dynamically. The former method is discussed in TM 1–325 and will be mentioned but incidentally in this manual. Because of the existence of static means of control, the study of aerodynamics may appear of minor importance to the operation of airships. This is untrue. Stability and control are constantly effected by a combination of static and dynamic forces. To insure safety of the airship and to preclude possibility of exposing it to dangerous conditions, the pilot must be aware of existing dynamic forces and their effects on the airship itself and on its flight path. Frequently airships, due to unavoidable causes such as leakage of gas or accumulation of moisture, have become statically uncontrollable but have been saved by the intelligent application of dynamic means of control.

4. Glossary of terms.—During recent years many terms have been introduced into the English language covering various aspects of aeronautical science. Report No. 240, National Advisory Committee for Aeronautics, defines the meaning of the most common of these expressions, from which most of the following definitions have been abstracted:

Aerodynamics.—Branch of dynamics which treats of the motion of air and other gaseous fluids and of the forces acting on solids in motion relative to such fluids.

Aeronautics.—Science and art pertaining to the flight of aircraft.

Aerostat.—Generic term for aircraft whose support is chiefly due to buoyancy derived from aerostatic forces. The immersed body consists of one or more bags, cells, or other containers filled with a gas which is lighter than air.

Airfoil.—Any surface designed to be projected through the air in order to produce a useful dynamic reaction.

Airfoil section (or profile).—Cross section of an airfoil made by a plane parallel to a specified reference plane. A line perpendicular to this plane is called the axis of the airfoil.

Air scoop.—Projecting scoop which uses the wind or slipstream to maintain air pressure in the interior of the ballonet of an aerostat.

Airship.—Aerostat provided with a propelling system and with means of controlling the direction of motion. When its power plant is not operating it acts like a free balloon.

Nonrigid.—Airship whose form is maintained by the internal pressure in the gas bags and ballonets (fig. 1).

Rigid.—Airship whose form is maintained by a rigid structure (fig. 3).