

above the surface while his lungs are fully inflated. (Fig. 2)

Floating and swimming also depend upon proper breathing. Due to the energy output while in the water, more oxygen is needed by the recruit during water activity than when he is out of the water. During relative inactivity the volume of air which is exhaled or inhaled has been approximated at 25 to 30 cubic inches. Obviously, when there is an increase of physical exertion and, a greater energy output, the exchange of oxygen in the lungs and blood stream must be carried on at a faster rate and in a great quantity. For this reason, and also the fact that water often blocks the nasal passage, mouth breathing is prescribed for swimmers. Through mouth breathing while swimming the oxygen intake can be increased from 25 to 30 cubic inches to about 200 to 225 cubic inches. This will be sufficient to take care of the increased physical activity, and to help maintain buoyancy. (Fig. 3)

The air is inhaled through the mouth and retained for about two seconds. (Fig. 5) After the complete inhalation a full expiration should follow. (Fig. 6) Inertia will maintain body buoyancy during the time between this expiration and the next inhalation. Inertia is a physical law that states that a tendency of a body at rest will be to remain at rest, or if in motion, to remain in motion. Therefore, if the recruit is floating (at rest) and exhales, some lapse of time and considerable force is required to start him sinking. However, by quickly inhaling, he will eliminate the time element and, remain above the surface because of the fresh supply of oxygen.

Besides maintaining buoyancy this oxygen intake is necessary to help overcome the fatigue products which accumulate in the body. If