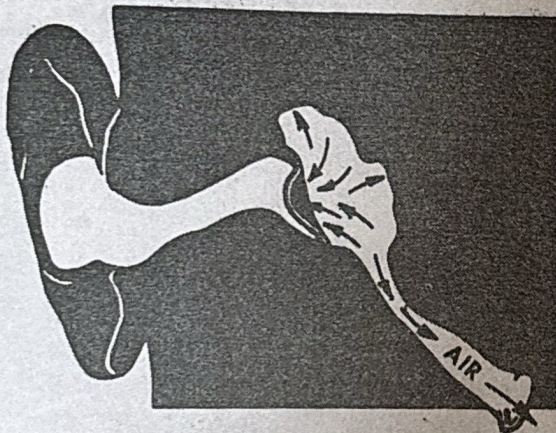


Middle Ear Discomfort or Pain

Certain persons (whether pilots or passengers) have difficulty balancing the air loads on the eardrum while descending. This is particularly troublesome if a head cold or throat inflammation keeps the eustachian tube from opening properly (Fig. 1-7). If this trouble occurs during descent, the person should try swallowing, yawning, or holding the nose and mouth shut and forcibly exhaling. If no relief occurs, it may be best to climb back up a few thousand feet to relieve the pressure on the outer drum. Then a descent should be made, using these same measures. A more gradual descent may be tried, and it may be necessary to go through several climbs and descents to "stair-step" down. If a nasal inhaler is available, it may afford some relief. If trouble persists several hours after landing, an Aviation Medical Examiner should be consulted.

ASCENT



DESCENT

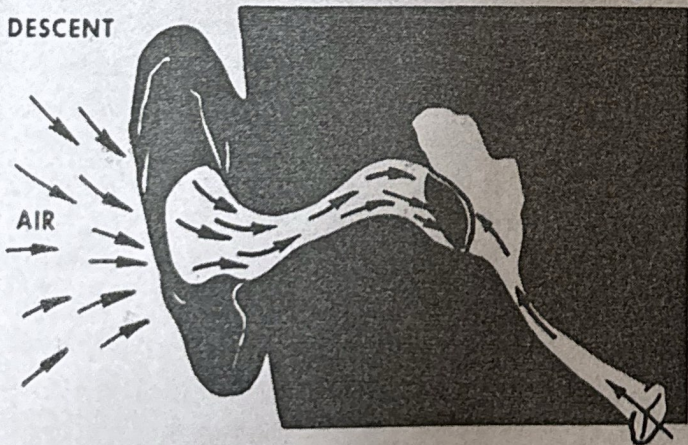


Figure 1-7 The Effect of Pressure on the Inner Ear

Disorientation (Vertigo)

The flight attitude of an airplane is generally determined by reference to the natural horizon. When the natural horizon is obscured, attitude can sometimes be maintained by reference to the surface below. If neither

horizon nor surface references exist, the airplane's attitude must be determined by artificial means—an attitude indicator or other flight instruments. Sight, supported by other senses such as the inner ear and muscle sense, is used to maintain spatial orientation. However, during periods of low visibility, the supporting senses sometimes conflict with what is seen. When this happens, a pilot is particularly vulnerable to spatial disorientation. The degree of disorientation may vary considerably with individual pilots, as do the conditions which induce the problem. Spatial disorientation to a pilot means simply the inability to tell "which way is up."

Surface references or the natural horizon may at times become obscured by smoke, fog, smog, haze, dust, ice particles, or other phenomena, although visibility may be above Visual Flight Rule (VFR) minimums. This is especially true at airports located adjacent to large bodies of water or sparsely populated areas, where few, if any, surface references are available. Lack of horizon or surface reference is common on over-water flights, at night, or in low visibility conditions. Other contributors to disorientation are reflections from outside lights, sunlight shining through clouds, and light beams from the airplane's anticollision rotating beacon.

The following are certain basic steps which should assist materially in preventing spatial disorientation:

1. Before flying with less than 3 miles visibility, obtain training and maintain proficiency in airplane control by reference to instruments.
2. When flying at night or in reduced visibility, use the flight instruments.
3. Maintain night currency if intending to fly at night. Include cross-country and local operations at different airports.
4. Study and become familiar with unique geographical conditions in areas in which the flight is intended.
5. Check weather forecasts before departure, enroute, and at destination. Be alert for weather deterioration.
6. Do not attempt visual flight when there is a possibility of getting trapped in deteriorating weather.