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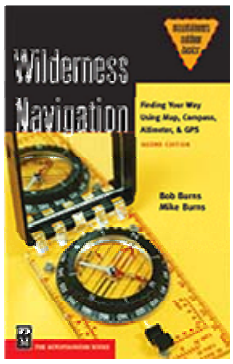

Wilderness Navigation
Extracts from Chapter 8 - The Altimeter

The altimeter, like a compass, provides one simple piece of information that forms the basis for a tremendous amount of vital detail: *elevation.* By monitoring the elevation and checking against the topographic map, we can keep track of our progress, pinpoint our location, and find our way to critical junctions on the route. On mountainous terrain, the altimeter can be a great help in orientation, navigation, and route-finding.

An altimeter is basically a modified barometer. Both instruments measure air pressure (the weight of air). A barometer measures air pressure on a scale calibrated in millibars. An altimeter measures air pressure on a scale calibrated in meters above or below sea level; air pressure changes at a predictable rate with changing altitude.

The accuracy of an altimeter depends on the weather, because a change in the weather is usually accompanied by a change in air pressure, which causes an error in the altimeter reading. A change in barometric pressure of 10 millibar corresponds to about 100 meters of elevation change.

If you are in camp during a day in which the air pressure increases by about 6 millibars, your altimeter will show a reading about 60m less than it was at the beginning of the day, even though you have remained in the same place. During periods of unstable weather, the elevation indicated on your altimeter may change by as much as 150m in one day even though your actual elevation has remained the same.

Because even the most precise and costly altimeters are strongly influenced by weather, do not be misled into trusting them to a degree of accuracy that is greater than possible.

Because of the strong influence of weather on an altimeter's accuracy, you cannot trust the instrument until you first set it at a known elevation, such as trail junction. Then it is important, when you are traveling, to check the reading whenever you reach other points of known elevation, so you can reset it if necessary or at least be aware of the error. Get to know your altimeter, use it often, check it and at every opportunity, and note differences of opinion between it and the map. You will soon learn just what level of accuracy to expect, and your altimeter will become a dependable aid to roving in the wilds.

An altimeter can be a big help in determining exactly where you are. If you are climbing a ridge or hiking up a trail shown on the map, but you do not know exactly where you are along the ridge or trail, check the altimeter for the elevation. Where the ridge or trail reaches that contour line on the map is your likely location.
Another way to use the altimeter to determine where you are is to start with a compass bearing to a summit or some other known feature. Find that feature on the map and plot a bearing line form the feature back towards your approximate location. This gives you a line position. Check the altimeter elevation and look for where the bearing line crosses the contour of this elevation. Providing the bearing line does not cross multiple contours with that elevation, you now know your likely location.

The altimeter can help in predicting the weather. The readings on an altimeter and on a barometer operate in opposition to one another. When one goes up, the other goes down. An altimeter reading that shows an increase in elevation when no actual elevation change has taken place means a falling barometer, which often predicts deteriorating weather.

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