

Figure IV.8 Two typical developed metacentric curves of sections with simple forms, (a) metacentric height decreases from the start, (b) metacentric height increases initially and then decreases. The two positions of the centre of gravity in relation to the metacentric curve are also shown. In (a)  $G$  is outside the curve, and righting moment is always positive. In (b)  $G$  is inside the curve; righting moment is maximum where a line from  $G$  is perpendicular to the  $M$  curve ( $M$  maximum), and nil where the line from  $G$  is tangential to the curve,  $M_{\text{capsize}}$ .

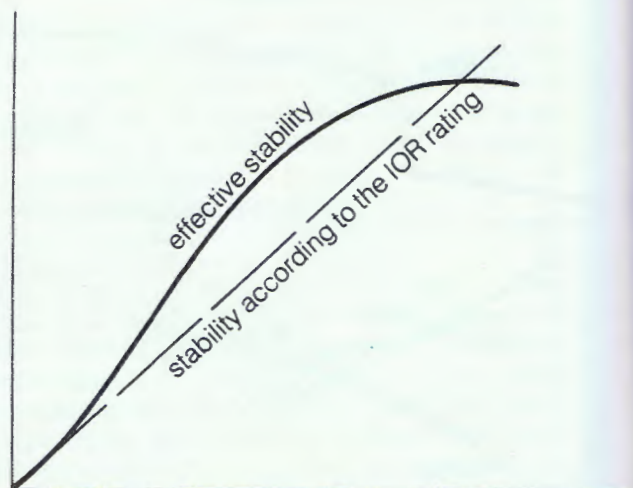


Figure IV.9 When a boat has a narrow waterplane, like those designed for an IOR rating, the curvature at the start of the stability curve indicates that initial stability is poor; this gives a false idea of actual stability at heeling angles up to  $30^\circ$ .

Figure IV.10 Graph showing lowered CG heights plotted against metacentric axes; full line shows positive stability, dashed line shows negative stability. The tangent of these two curves through CG exactly represents the capsize angle.

