f=25 w=17 graus

.,). In most cases, however, a more general approach must be used.

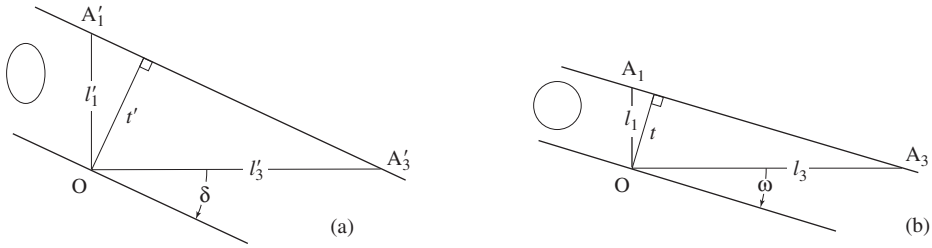

Figure 12.24 Sedimentary bed: (a) deformed thickness t'; (b) restored thickness t.

Problem

- The thickness of a deformed layer is $t' = 1.30$ m. If the S_1 direction is vertical and $S_1 = 1.25$, and $S_3 = 0.80$ what was the original thickness?

Method

1. Arbitrarily locate a point O on the trace of the inclined lower boundary of the layer. Then draw rays parallel to the principal direction to intersect the upper trace at points A'_1 and A'_3 (Fig. 12.24a).
2. Measure the lengths of the vertical and horizontal segments $l'_1 = OA'_1$ and $l'_3 = OA'_3$. Divide these two lengths by the corresponding principal stretches to give original lengths $l_1 = l'_1/S_1$ and $l_3 = l'_3/S_3$.
3. With these restored lengths l_1 and l_2 locate new points ~~A_1 and~~ A_3 on these same rays (Fig. 12.24b). These fix the relative position of the upper boundary of the layer before deformation, and the perpendicular distance between this trace and point O is the original thickness t.

Answer

- The thickness of the layer before deformation was $t = 1.10$ m. It should be especially noted that if the line of measured thickness t' were unstrained directly the result would be in error because t and t' are not generally marked by the same material line. Schwerdtner (1978) described an analytical solution.