

Fig. 11.75A.

Schell Creek fault (modified from Groshong 1989). **a** Data. **b** Interpretation if regional is at present-day location of NSRD (northern Snake Range detachment). **c** Interpretation if regional is above the present-day elevation

The hangingwall of the Schell Creek fault (Fig. 11.75) is an internally deformed half graben in which the deformation mechanism is brittle extension by conjugate normal faults and domino-block rotation. Oblique simple shear is an appropriate technique for predicting the depth to detachment. The original reference line that is assumed to have been horizontal prior to formation of the half graben is the NSRD, the northern Snake Range detachment. The strain (17.8%) in the part of the rollover with the most detailed interpretation (Fig. 11.75Aa) is assumed to be representative of the entire rollover. The shear angle computed from Eq. 11.48 is 66° . The rollover shape is found with the oblique simple shear construction (Fig. 11.75Ab,c). The shape of the rollover adjacent to the master fault is independent of the choice of the original regional, but the depth to detachment strongly depends on the choice. If the regional is at the current position of the NSRD, the lower detachment is at -4 km below sea level (Fig. 11.75Ab), the location inferred by Gans et al. (1985). If the regional was higher than the present-day elevation, the master fault continues to slope downward across the entire cross section as inferred from a deep seismic profile by Hauser et al. (1987).

