

Astronomy by means of Practical Activities  
2003 August 25-30 Hall in Tirolo, Austria

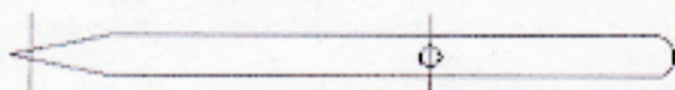


Fig. 9. Chart of hour lines for our Shepherd's Dials



Fig. 11. A Pillar Dial made from a drinks can

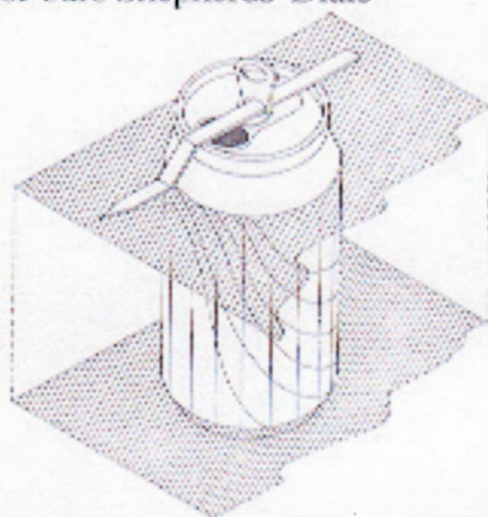
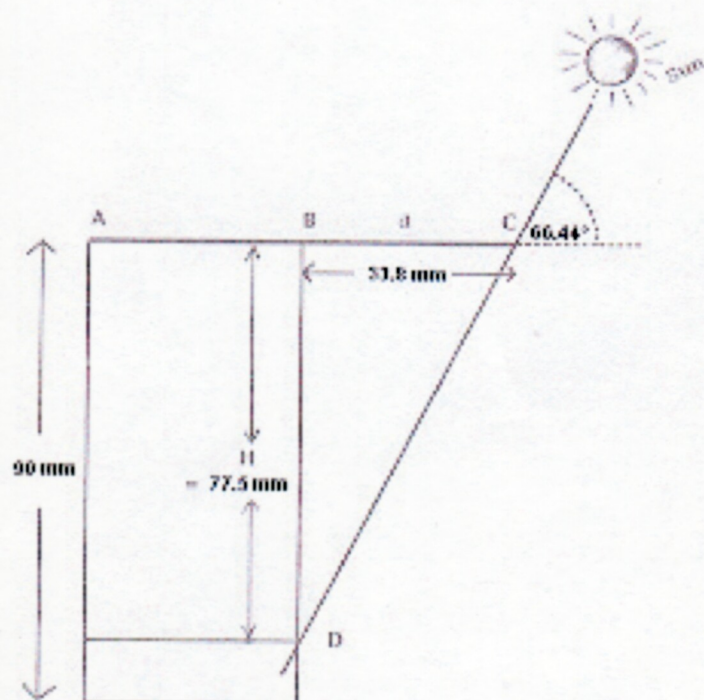


Fig. 12. Adaptation as a Pillar Dial of the most universal drinks can



Sun on 21<sup>st</sup> June, Dec  $-23.44^\circ$  on the Meridian at Latitude  $47^\circ$ .

$$\text{Altitude} = 90^\circ - 47^\circ - 23.44^\circ = 66.44^\circ$$

Let  $L$  = Maximum Length of Shadow on 21<sup>st</sup> June.

$$\text{BCD} = 66.44^\circ; \text{ then } \tan 66.44^\circ = \frac{BD}{BC}$$

$BD$  = Height of the can available for making = 90 mm

$$\text{So the length of the Style } BC = \frac{BD}{\tan 66.44^\circ} = 33.8 \text{ mm}$$

And  $BD = BC \tan \text{Altitude}$

Fig. 13. Calculating the length of the Gnomon on a Pillar Dial when the Sun is at maximum altitude of  $66.44^\circ$  at the Midsummer Solstice