Hardness and alloy are also very important. We have tested all the samples on the attached chart and find them consistent with one being softer than the rest.

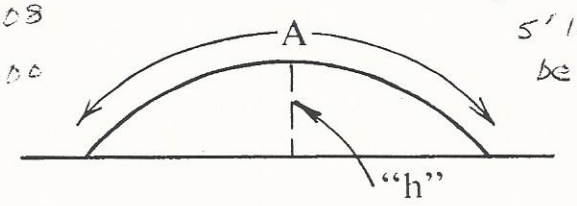
Since all rail is bought by the pound and sold by the foot, significant savings can be achieved by buying lighter rail. These savings however, should be viewed in light of the use the rail will see, as continuous usage on light rail by heavy locomotives could result in excessive wear or more importantly the rail might roll.

Rail Bending

In laying curved track, it is important to get a good arc for a continuous curve. A curve made by bending rail at the two ends results in a parabolic shape. Therefore, a rail bender is preferred: a drawing of the one we use is attached. The next question then becomes, how much of a bend does one put in a curve? Templates are often used, however, a simpler approach when bending 10 ft. rail is to measure the height of the arc "h" when the curved rail is placed against a wall or bench. A table follows for 10 ft. rail showing the arc height "h" for different radii.

72' Radius = 2.08

75' " = 2.00



60 Radius.
5' length of rail will be 3/4" offset.

FOR 10' RAIL SECTIONS			
Radius in feet	**Arc height in inches (to nearest .01")**	**Radius in feet**	**Arc height in inches (to nearest .01")**
10'	14.69"	40'	3.75"
12'	12.32"	45'	3.33"
14'	10.60"	50'	3.00"
16'	9.30"	60'	2.50"
18'	8.28"	80'	1.87"
20'	7.46"	100'	1.50"
25'	5.98"	120'	1.25"
30'	4.99"	150'	1.00"
35'	4.28"	200'	.75"

For those more mathematically inclined, the formula is

$$h = 12r\left(1 - \cos\frac{90a}{\pi r}\right)$$

where: h = arc height in inches
r = radius in feet
a = arc length in feet