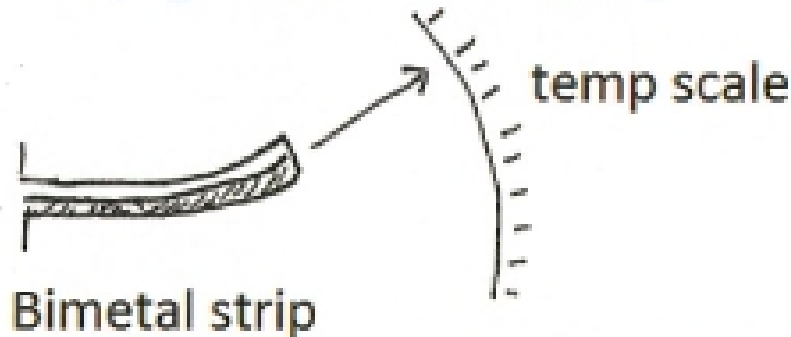


Thermal Expansion

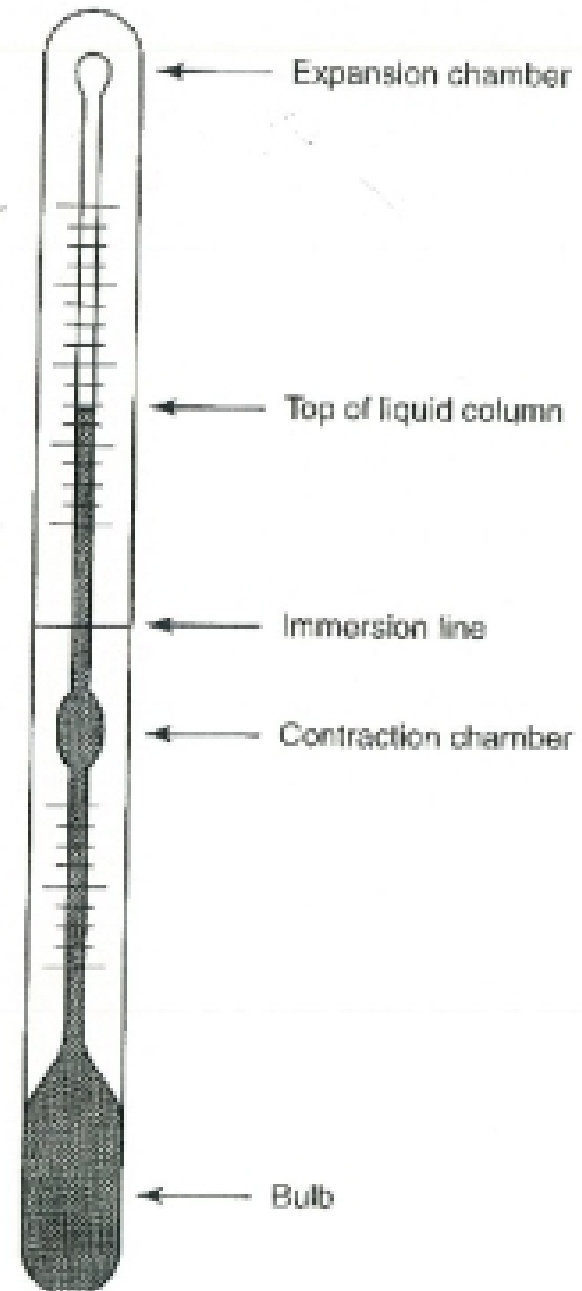
a) Liquid in glass thermometer
 as temp increases, greater expansion
 of liquid than glass, ht of rise
 used to measure temp

Mercury - high coeff. of expansion
 Linear temperature / displacement
 Relationship

b) Bimetallic element



← 2 strips have different thermal
 expansions which cause deflection
 Thermostats in homes



Changes in Electrical Properties

essentially a strain gage that never becomes strained, used to read temperature

■ Resistance Temperature Detector

A wire wrapped around a support

For. Ex:

platinum wire is common

wire length is cut so $R = 100 \Omega$
at 0°C

has a temperature coeff

$$\frac{dR}{dT} = 0.00385 \frac{\Omega/\Omega}{^\circ\text{C}}$$

• 385% change in R
per $^\circ\text{C}$

