6.2: Curie laws

Curie extended the notion of symmetry to include that of physical phenomena and stated that:

- the symmetry characteristic of a phenomenon is the highest compatible with the existence of the phenomenon;
- the phenomenon may exist in a medium which possesses that symmetry or that of a subgroup of that symmetry.

and concludes that some symmetry elements may coexist with the phenomenon but that their presence is not necessary. On the contrary, what is necessary is the absence of certain symmetry elements: ‘asymmetry creates the phenomenon’. Noting that physical phenomena usually express relations between a cause and an effect (an influence and a response), P. Curie restated the two above propositions in the following way, now known as Curie laws, although they are not, strictly speaking, laws (Curie himself spoke about 'the principle of symmetry'):

- the asymmetry of the effects must pre-exist in the causes;
- the effects may be more symmetric than the causes.