A legacy of ancient times: So near, and yet so far...

In the 4th and 5th centuries BC the Greek philosophers are known for their efforts to understand the world and matter. Could the ancient geometers have been inspired by the geometric shapes of the stone around them?

The world by numbers

For Pythagoras, the world could be explained in numbers. Numbers were associated with geometric forms. Squares or cubes could be formed by arrangements of small pebbles or « calculi ».

The world as geometry

Plato went a step further. The world was all geometry to him, a world of shapes and ideas. Legend has it that it was the minerals in the Laurion mines that inspired Plato's theory of the five « Platonic solids ».

Atoms come onto the stage...

Democritus suggested that all natural forms are the result of the agglomeration of small particles or « atoms ». The idea didn't take on and disappeared until the Renaissance.

The four elements

Aristotle took a different view - he preferred to think in terms of the « four elements » (earth, water, air and fire). Inert matter cannot create form; it has to be shaped from the outside.

Aristotle's view prevailed for almost 20 centuries, slowing down research into the nature of crystals.

Crystal, an object of desire

In Aristotle’s view – in his physics therefore – he associates four causes (material, formal, efficient and final) and four qualities (heat, cold, moistness, dryness) with the four basic elements (fire, water, air and earth). He considered that inert matter - the mineral world - could not possess inherent form; only outside causes could give it form.