Snow crystal morphology as a source to enrich contemporary ceramic pendant design

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Abstract:
Naturalism is an important topic for many fields of scientific research, including the field of art and design, and nature is a source of inspiration that the artist resorts to, which he fuses with his ideas and creations. The artist and designer derive from nature it's structural, formal, organizational, and aesthetic systems, so we find that he does not stop at a certain limit with what he deals with ideas and topics, but searches for what is new. The morphology of snow crystals is one of these natural phenomena, hence the main idea of researching how to take advantage of nature represented in the morphological structure of snow crystals under the microscope to create contemporary designs for ceramic pendants.

Keywords:
Snow crystals ؛Morphology؛ Contemporary design ؛Ceramic pendants

Introduction:
Nature is one of the sources of inspiration in plastic art, and through it it can provide us with many plastic and artistic formulations. It enriches the external shape, which can be employed in the field of design, and opens up new and varied horizons and different sources to enrich the design process. Snow crystals are one of the natural phenomena, and it is considered a type of rain in the form of very fine crystals of frozen water vapor atoms, which are solid bodies that are always found in certain geometric shapes and are many It is fragile and affected by heat and humidity, and this is what causes it to form in different forms. This phenomenon occurs in the winter season in some cold areas, and the abundance and density of snow increases as we move closer to the North and South Poles.

Research problem:
The research problem is defined in the following two questions:
How can the morphology of snow crystals be used to enrich contemporary decorative designs?
- How can previous designs be used in the implementation of innovative ceramic pendants?

research importance:
- Emphasis on the relationship between natural sciences (morphology) and plastic arts, and between the forms of natural phenomena (snow crystal) and the artist's innovations stemming from them.
- Shedding light on the aesthetics of the formal structure of natural phenomena (snow crystals).

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- The extent of benefiting from the plastic values of the decorative units of ice crystals and using them in ceramic pendants.
- Emphasis on deepening the visual vision by applying the concept of morphological analysis to the formal structure of ice crystals as one of the natural phenomena and employing them in the design and artistic fields and benefiting from them in contemporary visions and solutions for the ceramic spoon.

research aims:

- Benefiting from the morphology of snow crystals in the production of contemporary decorative designs.

Employing decorative designs inspired by the morphology of snow crystals in the production of contemporary ceramic pendants.

Research hypotheses:

- The two researchers assume that studying the morphology of ice crystals contributes to finding and developing new design visions that can enrich the design of contemporary ceramic pendants.

Research Methodology:

The research follows the descriptive, analytical and experimental method:

First: The theoretical aspect:

A descriptive study of the morphology of ice crystals.

Analyzing the aesthetic values and morphological features of ice crystals.

Second: the applied framework:

Analyzing the plastic structure of a selection of ice crystals to discover the chromatic, linear and texture systems as well as the values of rhythm, balance and unity.

- Discovering plastic systems that can be used in implementing decorative designs inspired by analyzing a selection of ice crystals.
- Producing contemporary designs inspired by the morphology of snow crystals, suitable as ceramic pendants.

search limits:

First: Objective Boundaries:

- Morphological analysis of a selection of ice crystals (research sample) and their number (5 units).
- Producing contemporary designs inspired by the morphology of snow crystals, suitable as ceramic pendants.

Second: spatial boundaries:

- Using digital programs for computer design (Adobe Illustrator).

Implementation of virtual ceramic pendants that are suitable for various purposes.

search terms:

Design:

"Planning, design, plan, destination, goal, technical design, the art of designing, an artistic effect." (9- p. 268)

A simple plan, project, purpose, intent, objective.

While Ismail Shawky Ismail mentions that design in plastic arts is:

“The whole process of planning something and creating it in a way that is satisfactory from a functional or utilitarian point of view only, but it also brings pleasure and joy to the soul, and this is a fulfillment of a person’s need both utilitarian and aesthetically at the same time.” (1-p. 43)

What is meant by the word design in this research is to plan and organize the vocabulary and elements of a selection of ice crystals and reformulate them to create innovative decorative designs to produce contemporary ceramic pendants.

Morphology:

Formation science is a term that refers to the science of the study of shape and structure. In biology, the study of the shape and structure of animals and plants. In geology, the study of the structure of rocks. In natural phenomena, the study of the structure of shapes. (3-p. 4)

Morphology analysis:

The procedural analysis of morphological analysis in this research means: It is the study of the structure of the apparent structural shape to know the morphological characteristics of ice crystals from tactile and linear morphological values, and to realize and comprehend their structure and study them scientifically and then reformulate them in an innovative design form stemming from the basis of their formation and directed them with a contemporary design vision for the production of ceramic suspensions (5- pg. 46)

Recommendations

It is a homogeneous solid body defined by flat surfaces formed by natural factors under appropriate conditions of pressure and heat. The flat surfaces that define crystallization are known as crystal faces, and crystal faces are an expression and manifestation of the atomic arrangement of the crystallized material, and the process that produces crystals for us is known as the crystallization process, and there are several Crystalline factions, each of which includes what is known as crystal systems, and the snow crystal belongs to the family of hexagonal crystals. In cold countries, rain water freezes due to the low temperature, and a hexagonal ice crystal is formed. (7- pg. 31)

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