

Pattern in Nature and its impact on Wooden Artwork

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ABSTRACT: Patterns in nature are common phenomena of form found in the natural world. These patterns repeated in different styles and can sometimes be modeled mathematically. Wooden art design is the art of the application of design and aesthetics or natural beauty. However, wooden art design not only serves as the traditional visual art, but also it plays the advanced role that is extremely intimate and receptive for us in art conception. The definition of natural pattern goes beyond self-similarity per se to exclude trivial self-similarity and include the idea of a detailed pattern repeating itself. However, it is a revolution in science. Nature has used natural pattern designs for at least hundreds of millions of years and the present research is focusing on the work done by natural pattern in wooden art design. The early publication represents a survey of the significant advances on natural pattern art in wooden art design. This art can be used to generate unimaginable patterns which can increase the creativity of designers and give promising results to the wooden art industry. Results of our initial work in same direction are shown in this research.

Key words: Wooden art, Pattern in Nature, wooden art industry

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I. INTRODUCTION

Statement that summarizes a pattern found in Nature is called "Scientific law". It is a description of an observed phenomenon in nature. Nature abounds in numerous colours and very complex shapes - the rainbow mosaic of a butterfly's wing; the delicate curl of a grape tendril; the undulating ripples of a desert dune. Moreover, these miraculous creations not only delight the imagination, they also challenge our understanding. However, how do these patterns develop and what sorts of rules and guidelines, shape the patterns in the world around us. Wood carving is one of the oldest arts of humankind. Wooden spears from the Middle Paleolithic [1], such as the Clacton Spear, show that people have engaged in utilitarian woodwork for millennia. However the roots of the craft go so far back where at least timber is present, the use of wood exists as a universal in human culture as both a means to create or enhance tools and as a medium for artistry. Many are more concerned with the emotional, psychological and spiritual wellbeing of the individual. The oldest known surviving wooden structure is not house for the living [2] where hundred years ago in Europe and north America school children were equipped with a slate on which to write, as well as the Islamic boys 'schools in north Africa provide their students with a wooden board on which to copy out verses from Koran. The mosques of Morocco and Pakistan are adorned with carved quotation, while in China the aphorisms of Confucius or Lao Tse were once engraved on the wall of the temples.

All forms of life are constructed of nine basic designs [3,4] by which the nine designs are often combined as composite forms that can include all nine or just a few could be classified as follows:-

1. The sphere and spheroid.
2. The circle and ellipse.
3. The cube.
4. The cylinder.
5. The spiral.
6. The Undulate.
7. The Pyramid and Triangle.
8. The Lattice.
9. The frond.

Identifying the world's shapes can be a fascinating exercise. For example, conifer trees, such as the spruce and the balsam fir, illustrate how objects in nature can combine all of the forms.

1. The tree itself is a pyramid.
2. Its root system and boughs are arranged in dendritic patterns and fronds.
3. Roots and boughs spread outward from a cylinder of the trunk.

4. Around the trunk the branches rise in a spiral. (Spirals are common in nature as seen in the vine of a morning glory flower, in the scales of flowers and cones, and in the way leaves and needles wind around twigs and branches.)
5. A close examination of a pine tree’s needles reveals an undulate. In general, leaves have the undulated (i.e., toothed, notched, or wave edged) pattern.

II. PREVIOUS WORK

The word “pattern” is a term that typically describes repeating visual objects or events. An example is M.C. Escher’s 1938 [5] woodcut entitled “Sky and Water 1”. However it’s a series of repeating fish and birds. Each object is precisely placed by the artist into a static display. As such fixed and predictable patterns as Escher’s woodcut are, of course, never really found in Nature as in Fig (1). The design and placement of patterns in Nature do not come from an artist’s hand but from the connected and dynamic interactions of natural objects in both space and time. They interact with each other and are all components of yet larger patterns. These systems of interacting patterns that abound in Nature are called complex adaptive systems whilst in fig (2) the artist has used a piece of trunk to carving a pattern of tree. However in Fig (3) the artist has inspired his artwork from the actual tree pattern Fig (4) which applied by laser cutting.



fig (1)



fig (2)



fig (3)



Fig (4)



fig (5)

art wood



By using the fronds to form the laser cutting

fig (6)



fig (7)



fig (8)



fig (9)

Carving Wood spirit Walking Sticks Carving Wood spirit root faced (dendritic patterns)

However and by combine unmatched technical ability [6]with contemporary and traditional design and From ambient lighting and room dividing panels, by laser cutting the actual installations partition inspired from the balm tree leaves and fronds as shown in Fig (6).

Allen [7] has been carving and choosing to carve mostly wood spirits and caricatures by utilising the nature pattern of human beard with traditional hand tool as shown at Fig (7).The variety of interest to wood-carving could introduce by the plant forms. They make agreeable halting-places on which the eye might enjoyed with pleasure. The plant forms, in general, both beautiful in their shapes and associated with ideas which reveal strongly to the imagination, thus affording in masses of abstract ornament the pleasantest kind of relief by adding to it points of definite lineament and meaning.Fig (8, 9) is showing original wood spirit carving bamboo tree root wizard gargoye oak.

In different way the natural pattern [8] has been represented by the artwork of plant leaves Wall hanging Cornfield of Sunflowers, Bulgarian wood carving, room decor, country house, cottage chicas in Fig (10, 11) respectively.



fig (10)



fig (11)

The art of woodcarving, [9] however, lends itself to literary demonstration only in a very limited way, more especially in the condensed form of a text-book, which must be looked upon merely as a guide, of use only until such time as practice and study shall have strengthened the judgment of the student, and enabled him to assimilate the many and involved principles which underlie the craft development as shown in fig (12, 13, 14).



fig (12)



fig (13)



fig (14)



fig (15)



fig (16)



fig (17)

The acanthus [10] is one of the most common plant forms to make foliage ornament and decoration. In architecture, an ornament may be carved into wood [11, 12] to resemble leaves from the Mediterranean species of the Acanthus genus of plants, which have deeply cut leaves with some similarity to those of the thistle and poppy. Both Acanthus mollis[13] and the still more deeply cut Acanthus spinosus have been claimed as the main model, and particular examples of the motif may be closer in form to one or the other species; the leaves of both are in any case, rather variable in form. The artist stimulated the form of acanthus plant Fig (15) and its natural pattern to reveal this marvelous type artwork as shown in Figs (16, 17).

Artist has revealed the Christmas tree by the relief wood sculptures has been finished naturally with a clear wood sealer, and then selectively coated with hardwood floor wax. The 3-Dimensional Paintings and Relief Wood Sculptures are designed to hang on a wall inspired by the natural pattern of Christmas tree as well as the leaves vein as shown in Figs (18, 19).



fig(18) fig (19)

At different natural pattern [14] of the orange fruit Fig (20) the artist inspired his design and workout with lasercutting Fig (21) whilst in Fig (22) as was applied on treasure wooden chest.



fig (20)

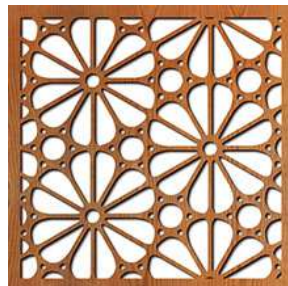


fig (21)



Fig (22)



fig (23)



fig (24)



fig (25)

Whenever could be looked at any living thing as a whole, it is made of many geometric shapes or patterns as composite. It's no need to know scientific names, economic value, or botanical details to appreciate any natural pattern. It could appreciate the hexagon shape simply because it is beautiful in many ways as such a Hexagonal box from Essaouira [15]. The inlaid geometric pattern is assembled from piece of cedar, lemon wood, ebony and mother of Pearle shell as inspired from the honeycomb hexagon shape as in Fig (23).

Designer has inspired wooden-art style from the honeycomb as light-creative personality-wooden-lighting pendant as shown in Figs (24, 25). The use of pattern leaves and different forms of flowers as natural pattern [16] have attracted the wooden carved designers and by using the abstraction theory as decoration of some pieces of furniture where the artwork as Figs (26, 27, 28) as Natural patterns of leaves or flowers represent a work of decorative furniture configurations.



fig (26)



fig (27)fig (28)



fig (29)



fig (30)



fig (31)

Woodcarving offers the home craftsman satisfying means of adding warmth and individuality to his surrounding where could add beauty to utilitarian objects, produce decorative focalpoint for everydaylivingorcreate carved and sculpturedart for the sheerer joy of it.

One of the simplest forms of wood-carving is that known as "chip" carving [17]. This kind of work as Figs (29, 30, 31) is by no means of modern origin, as its development may be traced to a source in the barbaric instinct for decoration common to the ancient inhabitants of New Zealand and other South Sea Islands. Technically, and with modern tools, it is a form of the art which demands but little skill, save in the matter of precision and patient

repetition. However as practiced by its savage masters, the perfection of these qualities elevates their work to the dignity of a real art.

In different technique of inspiration the wooden work art designer [18] has got his inspiration from the natural pattern from the Egyptian lotus flowers as Fig (32) and natural pattern of plant leaves mixed with the Cross and the holly Mary Fig (33).



fig (32)



fig (33)

III. EXPERIMENTAL WORK

Oak, however, is a heavy, strong, light coloured hardwood [19]. Prominent rings and large pores give oak a coarse texture and prominent grain. Oak also has conspicuous medullary rays which can be seen as "flakes" in quarter sawed oak lumber. Oak is the most popular wood used to craft American and English country designs. It is also used for Gothic and William & Mary reproductions, as well as many transitional and contemporary pieces.



fig (34)



fig (35)

Maple is so hard and resistant to shocks that it is often used for bowling alley floors. Its diffuse evenly sized pores give the wood a fine texture and even grain. Maple that has a curly grain is often used for violin backs (the pattern formed is known as fiddle back figure). Burls, leaf figure, and birds-eye figures found in maple are used extensively for veneers. The Birds eye figure in maple is said to be the result of stunted growth and is quite rare.

Many years ago craftsman have carved and machined wooden balustrade systems. Although the turning process has become automated, however the classical styles have remained the focus of interest. Based off of the classical furniture styles still adorn the most stylish of natural pattern, design as Figures(34,35) has inspired from abstracted design of flower leaves and sun flower shape as has been done by the students of interior design of faculty of applied arts Damietta university .

IV. THE FIRST APPLICATION

Practical applications designed and implemented by students of woodworking course in the Department of Art Education, Faculty of Basic Education in Kuwait. Figs (36, 37) Lighting unit revealed from fish scales where the dimension of the unit is (50x25 cm). The idea of the structure by using the natural pattern of the fish scales inspired by the repetition of a repeating scale unit in the shape of a semicircle forming.

The work piece was carried out by means of a center support in the shape of a 5 cm cylinder of muskwood by lath machine. The duplicating unit (half-circle) of the opposite wood (plywood) was implemented 1 cm thickness in vacuum style.



fig (36)



fig (37)

V. THE SECOND APPLICATION



Fig (38)



Fig (39)



Fig (40)



Fig (41)

A lighting unit inspired by the idea of the occupied body and the upper shape of the Sea Star and occupied three-part segment. The larger upper part illustrates the work's resemblance to the starfish, then an average part followed by a smaller third part. The dimension is 50x25x10 cm. It was carried out by replicating pre-fabricated wooden small pieces. The design is based on the octagonal shape as a geometrical basis for repeating the wood segment and minimizing the overlap area. The successive rows create the shape that suggests the starfish as shown Figs (38-41).

VI. THE THIRD APPLICATION



fig (42)



fig (43)



fig (44)

The artwork is inspired by the natural pattern of the plant in the time of vegetative growth. The growth of the upper parts of the art work is resemble to the new growing part of the plant. It could be vary in size and shape by its

structure. The Dimension of the artwork is 30x30 cm. It could be utilizing and employed in several aesthetic and utilitarian functions (for example, wooden vessel, vase or candle stick as shown in fig (42-44)).

VII. CONCLUSION

Natural Pattern in art is often based on the inspiration been gotten from observing the pattern that occur in nature. It could be seen in the shape of a leaf and the branches of a tree, the structure of a crystal, the spiral of a shell, the symmetry of a snowflake and the camouflage and signaling patterns on animals, fish. The past, the present, and the future of every animate and inanimate being in our universe are defined by its connection to everything. Human consciousness of Nature and the conservation of her interconnections are essential for the survival of humanity on this planet. A wonderful example of designs offers an organic and elegant look. Strong lines characterize this beautifully laser cut wall element designed to add elegance to home or office of carving designs could create a very unique pieces of wooden art-work. It could therefore be concluded that everything, including ourselves, is connected to everything else and it describes a connection between all things in our universe. The act of identifying and preserving these interconnections could make the life more lovable and Nature's inter-connectivity makes beautiful pictures to our life.

REFERENCES

- [1] L Allington-Jones, the Clacton Spear-The Last One Hundred Years. *Archaeological Journal*, 172 (2), 273–296 (2015)
- [2] B Sentance. *The world of woodwork and carven*. Thames&hidson lyd. London. ISBN. 0-500—51120-9pp140 (2003)
- [3] M Pollen. *The botany of desire; pattern in nature (beauty)* Pub.Random House Trade .ISBN 10: 0375760393 ISBN 13: 9780375760396
- [4] F Moussavi, M Kubo. "The Function of Ornament". Department of Architecture, Faculty of Architecture, Chulalongkorn University, 2006.
- [5] M.C. Escher: 29 Master Prints Escher, (Pub.Harry N Abrams Inc., New York, New York, U.S.A., ISBN 10: 0810922681 / ISBN 13: 9780810922686.1983)
- [6] I Bagaz. *Japanese Bamboo*. <https://lightwavelaser.com/pattern-japanese-bamboo/>
- [7] A Goodman. <https://classes.folkschool.org/Instructors.aspx?id=108303> (2018)
- [8] L Ilgenfritz. <https://www.etsy.com/listing/96892449/wall-hanging-cornfield-of-sunflowers>
- [9] G Jack. *Wood-Carving Design and Workmanship*. [EBook 22107] ISO-8859-1 (2007)
- [10] DLange. <https://www.pinterest.com/pin/480055641506292752/>
- [11] Ah Kan. *Acanthus mollis*. <http://www.finegardening.com/bears-breeches-acanthus-mollis>
- [12] M Bechlivanis. <https://www.pinterest.com/pin/374432156505021487/>
- [13] A Riegl, EKain. *Problems of style: foundations for a history of Ornament*. Princeton. pp. 187–206. (Trans) (1992).
- [14] D Woodard. *Original 3-Dimensional Paintings and Relief Wood Sculptures*. http://www.donwoodard.com/original_carving.html
- [15] B Sentanc. *wood the word of woodwork and carving*. pub.Thomes&Hudson. ISBN 0-500-5112. (2003)
- [16] H Shireef. *Plant Morphology and Environmental Designing (Backto Nature)*. JAS (journal of Applied arts and science) p229-253 (2015)
- [17] J B Johnston. *Woodcarving .Technique &Project*. Lane.Publishing. Menlo Park, California. ISBN 0-376-04805-0. (1971)
- [18] M Fare. *Sculpture Art and Fashion design*. 11th international conference on advanced materials& processing.
- [19] Sept 7-8-2017 Edinburgh–England. (2017)
- [20] L Narayana. *Timber*. <https://www.indiamart.com/proddetail/oak-wood-16066936691.html> (2017)