HYPERSYMMETRICS by JENS W. BEYRICH

Expect the Unexpected

The exhibition presents artwork as a result of a seemingly inexperienced synergy: collecting art and antiques with the passion of developing complex equation systems – mathematics being the universal base of science and philosophy.

Visiting hundreds of museums, exhibitions and fairs over several decades gave me an overview and insight in which geometric systems for decoration have been used by the earliest cultures until modern times.

Quite complex geometric decoration can be found on stoneware and ceramics from the site of Uruk in Mesopotamia, 3000 B.C., coinciding with the dawn of the Pharaonic Empire. The most sophisticated designs have been developed in the Arabic world for the decoration of mosques, before 1000 A.D.. Nonetheless, I have not found a graphical artwork of regular, symmetric and repetitive geometries with components that are all *individually different and dissymmetric* in their colour arrangement.

Modern art lets think first of M. C. Escher, who developed the famous „Metamorphosis“ in the 1930's. The continuous surfaces are two-colour arrangements showing a *continuous shift* of regular surfaces into different shapes (fish, birds, etc.). M. C. Escher and I have in common that we both developed bank note designs.

Victor Vasarely developed a vast range of geometric paintings but symmetries are mainly the result of the underlying patterns (visuals of spheres and cubes for instance) showing inherent axes of symmetry. The colour arrangements are a matter of pure taste or continuous, following different grid structures and being therefore visually "easy" to understand. The very first signed lithography in my art collection was a classic sphere of Vasarely.

Max Bill, Swiss architect and artist, made use of some mathematical formulas to create sculptures, as for example the set of „hemispheres“ in front of the Institute for Mathematics at the University of Karlsruhe. These sculptures play with aspects of symmetry, but as a mere result of the mathematical equations applied, and are quite evident to visualise. We share interest in architecture and design and are Swiss born.

The fractals of Mandelbrot, developed in the late 1970's, are visually the most impressive generated by applying mathematics and incomparable to any former graphical presentations. The underlying formula(s), though "recursive", show *one degree of freedom*. Any application of the formulas leads to exactly one determined result.

My graphical artwork basically consists of hexagonal (star shaped) *symmetric* structures („stars“) that differ by their colour arrangement. With three colours unevenly applied (3 points show one colour, 2 points a second colour and 1 point a third colour), just ten possible solutions (permutations) can be obtained. Since the colour arrangement is *dissymmetric* (3-2-1, not 2-2-2), each colour of each solution can be exchanged against another and generates an individual colour arrangement, in which there are *60 different solutions.*

Given any field sized X times Y = 60, for example 5x12 or 6x10, the first star can be placed on any of the 60 positions, once the first is set, the next has 59 options free etc.), and each

star, as being a hexagonal symmetric structure, can be rotated at any field in six different positions. Such that there are not one but 60 x 6 = 360 *degrees of freedom*

The total possibilities to arrange these 60 stars therefore are 60! x 6^60, around 10^126 – a one followed by 126 zeros! The number of Avogadro, the number of atoms in the known universe, is approx. 10^78 – we have billions of billions of billions more different solutions for the graphical arrangements than atoms in the universe. Staggering.

Once certain rules are set how the stars need to be placed on any given field of 60, the - more than astronomic - quantity of solutions gets reduced at an equally fantastic pace. For instance, as for the graphic „spiral flower", only ONE solution is possible, which, by the way, can be perpetuated to the centre or infinity. As for the graphic „tower", more than fifty (!) rules are generating the particular design.

Needless to say, the most sophisticated of all are the spheres and the icosahedrons. Rules of placement for the stars are not only to be met locally on the surface, but qualify for complex symmetries over the poles – truly tricky.

Circumstances seemingly unprecedented, since October 2012 some of my graphics are exhibited at my business school INSEAD on campus.

One sphere I am in discussion with the Dean, Dipak C. Jain, and his staff to donate to the school. I believe no other work of art may reflect the philosophy of the school better – bring together equally high level distinct individuality of its participants, develop structures generating a complex network and new perspectives to its graduates.

I let the visitors of the exhibition discover the rules generating the beauty and harmony of the graphics and sculptures; some rules are easy to find, others hidden and reveal only to whom is committed to meditate in order to discover a new choreography based on individuality.

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Venue: The Gallery in Cork Street
28 Cork Street, Mayfair, London W1S 3NG

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Exposition from 17th June till 22nd June
Opening hours to be communicated later

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