Peter Lowe

Born in London 1938
Studied at Goldsmiths' College of Art under Kenneth and Mary Martin

Now teaching at Goldsmiths' College of Art

Some group exhibitions:

1963 *The Geometric Environment, AIA, London*
+ — inventions, AIA, London
1967 *Unit, Series, Progression, Arts Council*
1968 *Cinetism, Spectacle, Environment (collaboration with Philip Hodgetts and Kenneth Martin), Maison de la Culture, Grenoble*
Constructions, Greenwich Theatre Gallery, London
1969 *System, Amos Anderson Museum, Helsinki*
1970 *Space Dimensions, Groningen Schiedam*
1971 *Matrix, Arnolfini Gallery, Bristol*

Systems are present in all art. Art has always referred to systems outside itself. Ideas in art can be conveyed to a limited extent by mathematics. Conversely, mathematical ideas can be presented by means of diagrams and three-dimensional models. The current reorientation of art towards mathematics coincides with interdisciplinary activities in the arts and sciences. Extensive use of diagrams in recent literature on topology, particularly graph theory and combinatorial geometry, has been a stimulus to several artists.

Non-mimetic (abstract) art and the objective nature of its processes tended to realign artistic thought with that of other disciplines. John Ernest, Anthony Hill, Kenneth Martin and Mary Martin pioneered mathematical content in non-mimetic constructed art in Britain from the 1950s onwards. Their work and writings demonstrate considerable differences in their individual application and emphases on mathematics.

The extent to which order is perceptible in constructions for which order is claimed as a basis can serve to distinguish one work from another. I sometimes ask myself whether it is the responsibility of the artist to make his ideas explicit through his work or whether it is the responsibility of the public to inform itself. The answer seems to be that the artist owes it to himself to be aware of what he is trying to do. If his ideas are not clear in his works maybe something is wrong with both. My general classification of 'order-based' constructions into those in which order is apparent and those in which it is a matter of conjecture, suggests the observation that as factors increase in number so do the possibilities of order and disorder. The existence of few factors allows few possibilities of order and less risk of disorder.

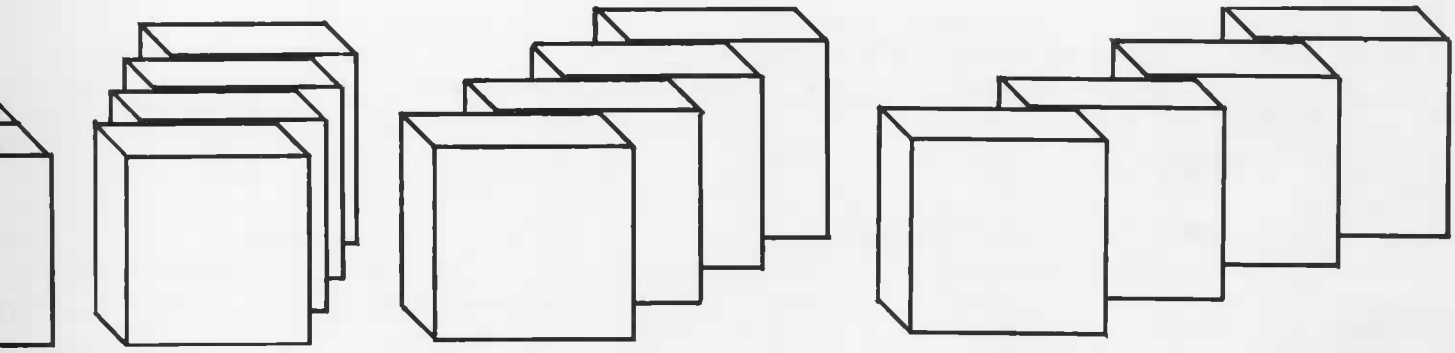
The geometry in mimetic painting is usually conjectural as far as its precise nature goes because it is, or has been, a part of the artist's skill to integrate it with his subject matter. Cubism disrupted the conventional syntagm associated with objects in painting by the introduction of multiple views and displacements. The cubist painter Juan Gris subordinated it still further to geometry. He is reported to have stated:[1]

'I consider that the architectural element in painting is mathematics, the abstract side; I want to humanise it. Cézanne turns a bottle into a cylinder, but I begin with a cylinder and create an individual of a special type: I make a bottle a particular bottle—out of a cylinder.'

Georges Vantongerloo was concerned with abstract art and mathematics as early as 1917. The following excerpt is taken from his book, *Art et son Avenir*[2]:

'I picture myself for a moment in front of the public who are asking me to tell them what is sculpture and what do I understand

1. *A. Kahnweiler*, Juan Gris: His Life and Work, *1947 p. 138*
2. *G. Vantongerloo*, Art et son Avenir, *1924 p. 13*
3. *Centre National d'Art Contemporain, Paris*, Max Bill. Oeuvres 1928-69 *p. 14*
4. *ibid. p. 39*
5. *T. van Doesburg, 'Film as Pure Form' 1926. Reprinted in* Form *No. 1 Summer 1966, p. 5*
6. *S. W. Golomb*, Polyominoes, *1966 p. 19*



by plasticity in the art of sculpture.
Numbers (for example the number 100) are going to furnish an example.
I assume that I am in the presence of people who do not know how to calculate.
Sculpture is x number of small juxtaposed sculptures which together form the unity of the work (head, fragment, group etc . . .) The number 100 is a number composed of a quantity of numbers running one into another: 1, 2, 3, 4, etc.

My listeners not knowing how to calculate will say to me: "I do not understand very well. Could this be a science that is beyond my understanding? Will you please go back to the question of the number 100?"
But I shall say: "That's enough for today." '

Max Bill first met Vantongerloo in 1933.[3] In an article called 'Mathematical Thought in the Art of our Time', Max Bill recalls a statement by Kandinsky who, in 1912, postulated the premises of an art in which the imagination of the artist will be replaced by the concept of mathematics.[4]

In 1930 Van Doesburg made a painting which he called 'Arithmetical Composition'. It is clearly based on drawings for an abstract film.[5] These drawings are given the descriptive title 'From Surface to Space. Six moments of a space-time construction (with 24 variations), formation of a diagonal dimension'. These drawings exemplify serial construction in abstract art, perhaps for the first time.

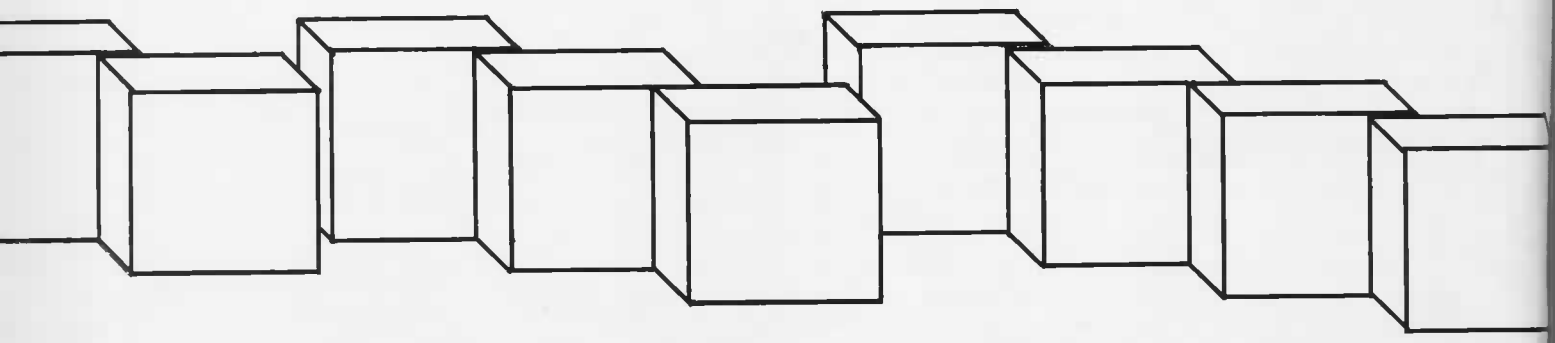
Combination is paramount in works which are constituted by the recurrence of identities. The individual act of invention is not in the forms themselves but in the particular ordering of them. Observation and classification precedes the mastery of form because it magnifies freedom of choice. Once certain forms have been selected and various possibilities and impossibilities realised, it becomes apparent sooner or later that subsequent arrangements are prescribed by known or unknown laws inherent in the forms and processes.

The selection of procedures and forms can initiate events and appearances which are not prefigured in the imagination. The unknown is present in the known and familiar. Its revelation in one's own work and other people's is an incentive to make further discoveries. Intuition is not ruled out by use of systems. Analysis of a few items of information offers the basis for predicting the most interesting line of study without having to attempt the impossible task of examining every option. In addition to the natural constraints imposed by the material means there are the artificial constraints imposed by the artist. These govern and are governed by the natural constraints of the means. It is the emphasis on the artificial order which characterises constructed art.

Serial thought is implied in my works separately and collectively. In serialisation, thoughts and acts take place one after the other in a single line. One of the characteristics of serialisation is its potential for infinite development. This poses the problem of where to stop.

The integers 1 2 3 4 can be represented by a cube cut into four equal strata. Progressive stratification of the cube can be signified by the serialisation of four discrete groups of one, two, three and four strata. Any arrangement which does not destroy the sequence is permitted. Thus 1 2 3 4 and 4 3 2 1 are the only possibilities. These sequences can be arranged as rows or as arrays within a grid or an 'L tetronimo'[6] (see figures).

In the arrays within the grid they become helical forms which are clockwise or anti-clockwise. The L tetronimo gives four groups. In fact there are two other types, the 'T' and the 'skew' tetronimo, giving another ten arrangements. The first two straight tetronimo configurations are seen strictly as rows. The helical arrangements may be seen as horizontal rows or vertical columns of spiral paths or obliques. Within the orthogonal there can also be the implied curve and oblique.



These arrangements can be permuted without destroying the original sequence or else it can be destroyed by permuting the four strata within each tetronimo. Permutation and serialisation can be applied to drawing, volume, colour or notation. Applied to notation it becomes remote from the particular attributes of these three things. A line for example can be divided into intervals to correspond to a number of units in the row of a permutation. Other lines might be joined to it at intervals determined by the corresponding elements in the permutation. A cube already has affinities with notations based on the number six. In other words, a form can be selected to fit a notation or a notation can be designed to fit the form. A single notation can be orchestrated in different ways. Recovery of a notation can, theoretically, be accomplished by analysis of the work itself.

The structure illustrated in orthogonal projections *a*, *b*, *c* and *d* stems from earlier themes on the stratification of the cube. In the final version, each stratum measures 8 x 8 x 2 inches. The four groups are fixed in line along a 16 foot wall. Serialisation, permutation and module all play a part in the structure. The notation derives from a particular permutation of the integers one to four.

1 2 3 4
3 1 4 2
2 4 1 3
4 3 2 1

In the first stages of this series of works the strata are shifted sideways forming steps (see figures). Using a module of the thickness of one stratum, four types of step are arrived at. One of these is rejected as unsuitable because it is not joined. I choose from the remaining three. In order to be as consistent as possible I also apply the sideways shift to each row in the notation making each number in turn into a vertical column. In the final structure this is a vertical trunk or stem for the horizontal branches which are stepped towards the spectator or towards the wall behind.

There are a total of four groups to which four groups of strata are made to correspond.

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        1 2 3 4
      3 1 4 2
    2 4 1 3
4 3 2 1

      1 2 3 4
3 1 4 2
        2 4 1 3
    4 3 2 1

      1 2 3 4
            3 1 4 2
    2 4 1 3
          4 3 2 1

1 2 3 4
    3 1 4 2
      2 4 1 3
        4 3 2 1
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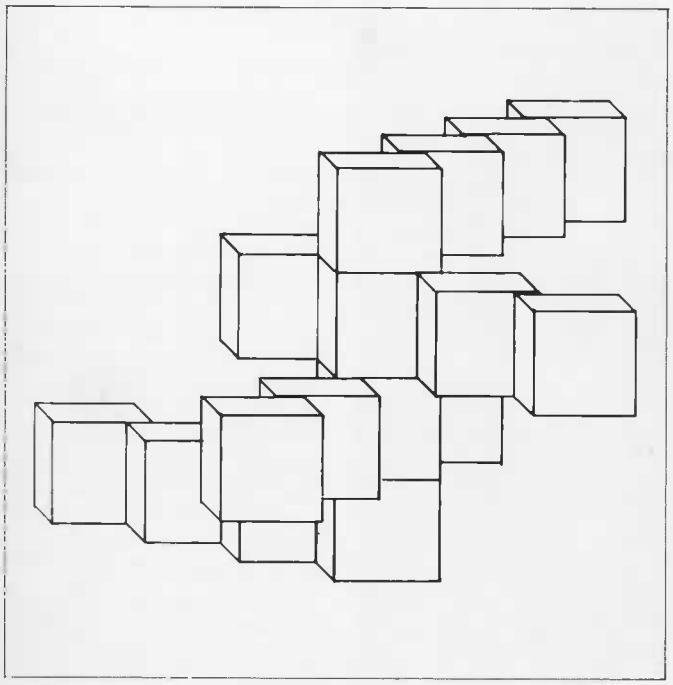
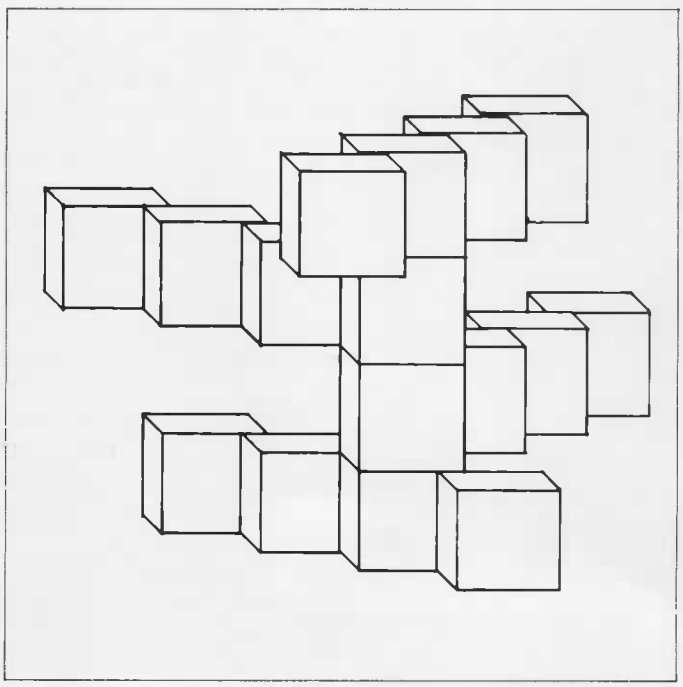
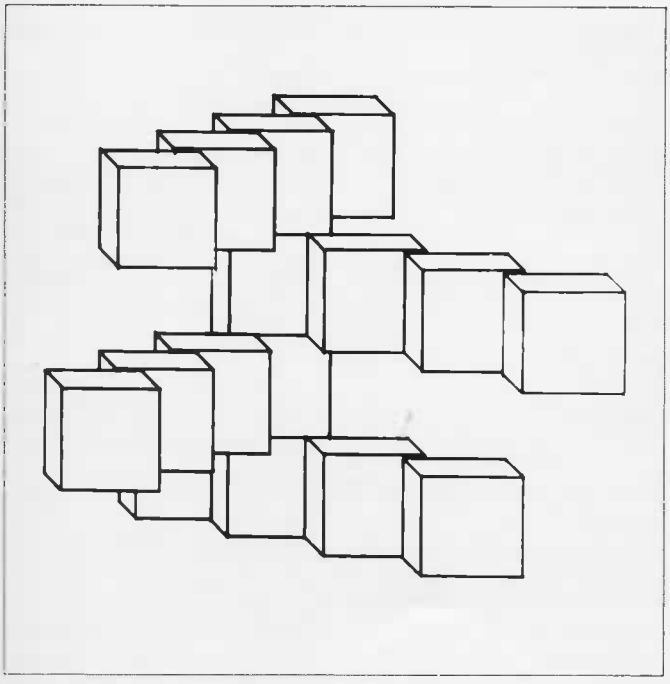
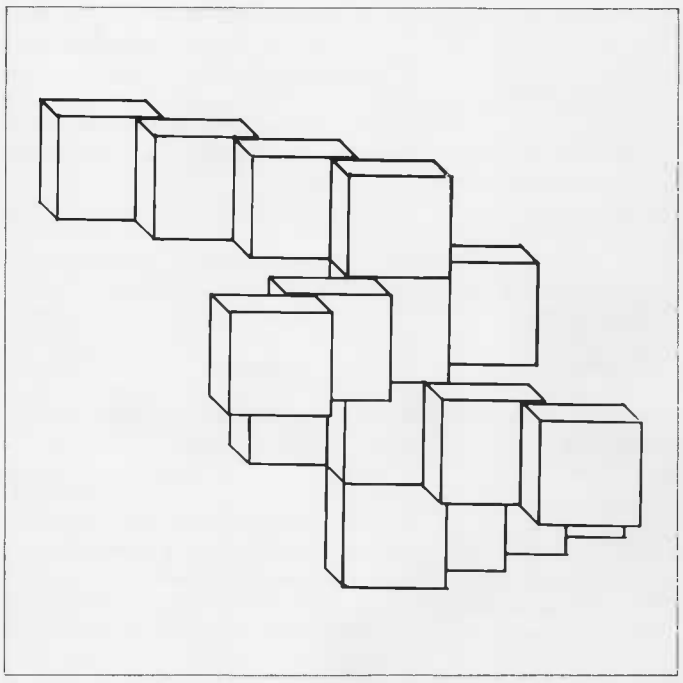
The order in this work can be seen in spite of perceptual complexities arising out of scale, materials, and three dimensions.









SYSTEMS

Constructivist art is the only direction of contemporary artistic activity which maintains an unbroken line of descent from the modern movement.

Since 1950 British artists have played an increasingly important role in the development of constructive art and theory.

The Systems group continue this tradition in:

- ☐ their use of systematic procedures in the construction of the work
- ☐ their interest in parallel procedures in the other arts (eg music, poetry)
- ☐ their willingness to explore the wider spatial possibilities offered by an exhibition of this kind

The exhibition is a statement of the present position but also suggests possibilities for the future extension of the constructive idea.