



SOLOMON'S HEXAGRAMS



by Dr. Eric Solomon An artistic shape-puzzle by the inventor of Black Box, Sigma File, Thoughtwave, Balloon Race, Spellmaker and Alaska

THE humble hexagon has many fascinating properties, and probably has many yet to be discovered. Whilst playing around with ways of sub-dividing hexagons the author found the set shown in Figure 1. These represent all ways of joining the edges of a hexagon and shading some, or all, of the regions produced. In fact, the divisions which produce four regions are not included in the set for technical reasons.

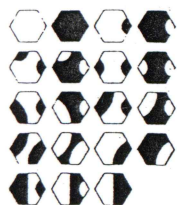


Fig. 1



Fig. 2

The puzzle is to fit all the 'elements' of the set onto the hexagonal board shown so that all the edges in contact match up properly. That is, black edges touch black edges, white edges touch white edges, and so that mixed edges match up in the same way.

The whirlpool design of Figure 3 shows one solution. It generally takes about twenty minutes to obtain a solution if the puzzler is concerned only with getting all the pieces onto the board, and not with producing any particular shape. Figure 4



Fig. 3



Fig. 4

shows an interesting type of solution in that it is symmetric, or more correctly anti-symmetric. Every black area is exactly balanced by a similar white area on the other side of the board.

Look at the basic set in Figure 1 again. The pieces occur in pairs with the second piece of each pair being black where the first is white, and vice versa. There is just one exception — the last piece shown is its own 'dual'. That is, after reversing the colours it could be rotated to look exactly the same as it was! The easiest way to produce a solution is to put this self-dual piece in the middle of the board and arrange the dual pairs symmetrically around it.

Some thematic designs are shown in the other figures. Note that the principal 'object' of the hexagram can be in black, as for the Octopus in Figure 5, or in white, as for Bambi in Figure 6. The board can be viewed in one of two directions, of course.

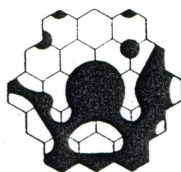


Fig. 5



Fig. 6



Fig. 7



Fig. 8

There is much fascination in producing artistic work subject to severe limitations such as those imposed by these hexagrams. Despite these limitations, designs of considerable power and elegance sometimes result. The beautiful 'Breakwater' of Figure 7 is reminiscent of a detail from a Japanese print. Figure 8 shows how the edge of the hexagram can be used to 'suggest' parts of a design which are not actually present on the board.

There is plenty of scope for humour, as can be seen in Figures 9 and 10. Wellington at Waterloo (Figure 9) displays his bi-corn hat and suggests the famous Wellington nose; the picture is completed with flying cannon-balls and the smoke of battle. Why is the dipsomaniac weeping in Figure 10? Look at this bottle and you will see why!

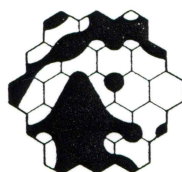


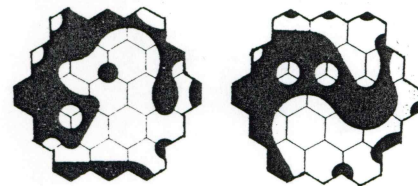
Fig. 9



Fig. 10

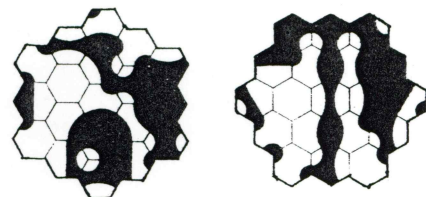
Some further designs:

Animal designs:



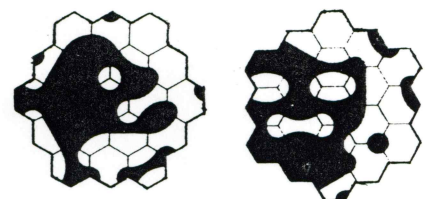
- 1) Puppy with ball (G. Downes)
- 2) Elephant enjoying a bun feast (R. Jerome)

Thematic designs:



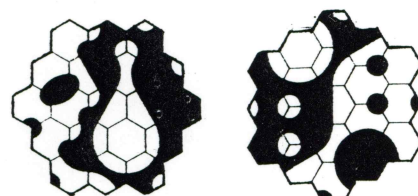
- 1) Arabian night (D. Jones)
- 2) Ballet dancers (J. May)

Humorous designs:



- 1) Where has Grandma put her teeth this time? (Miss G. Oakes)
- 2) Blowing bubbles (D. Jones)

Abstract designs:



- 1) Skittle Alley (G. Downes)
- 2) Circles (G. Downes)

SOLOMON'S HEXAGRAMS

The ideal puzzle for the young genius, or for anyone.