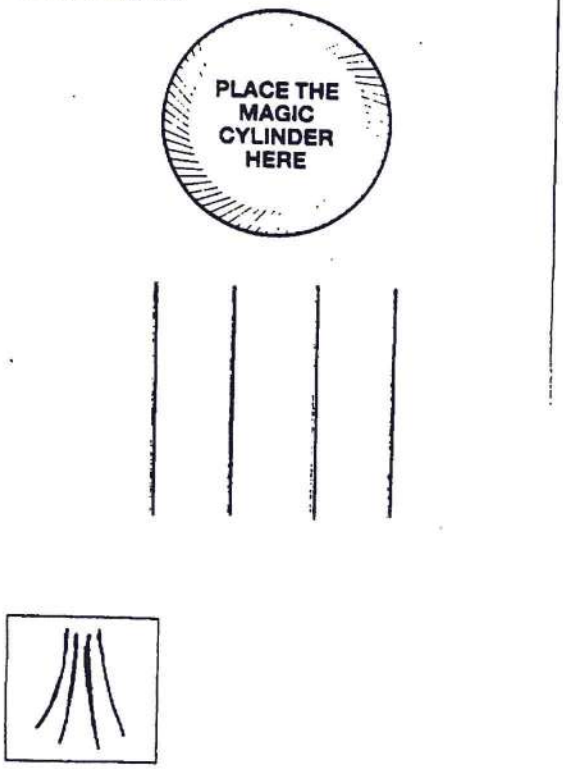
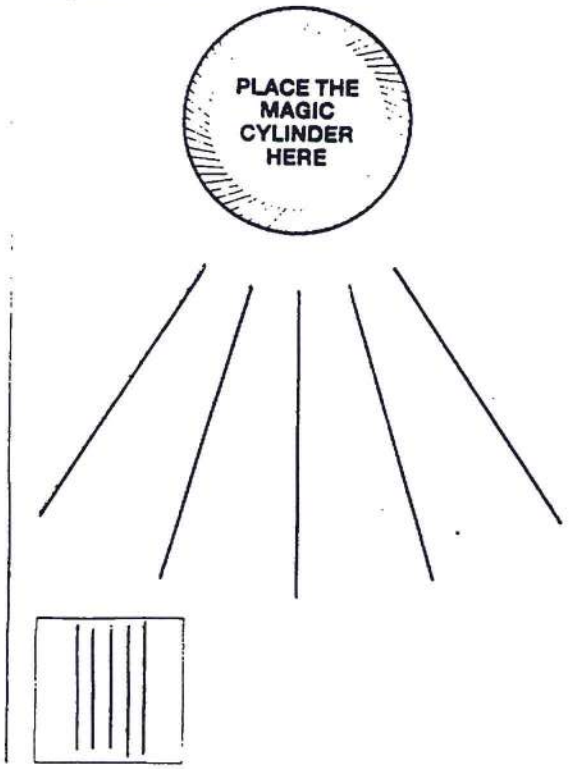
1. Notice how four lines drawn in this direction all appear as curves in the Magic Cylinder. See how they all appear to be roughly the same length, although on the page they are drawn longer the further away they are from the mirror.

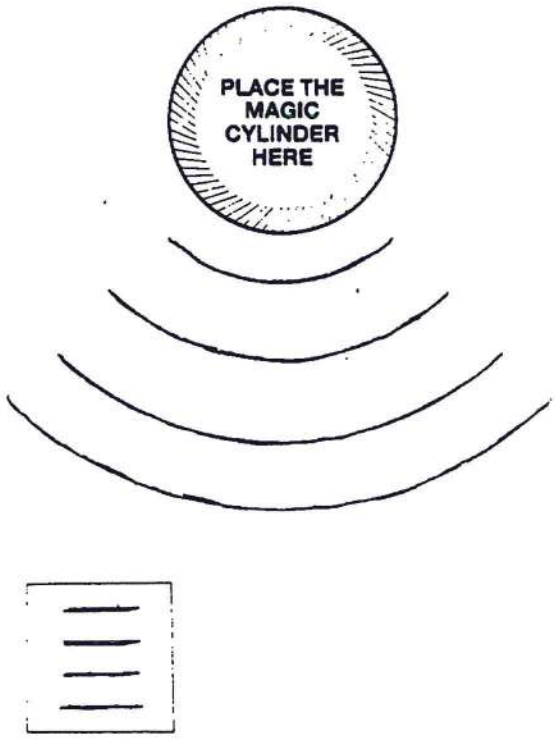
2. See how parallel lines drawn in this direction do not remain parallel when seen in the mirror. They curve together, but in a much more gentle fashion than those on the previous page.



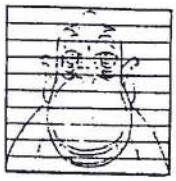
3. Notice how radial lines become parallel and vertical in the mirror. Any part of a drawing which needs to appear to stand upright in the mirror must be drawn on the base as part of a radial line.



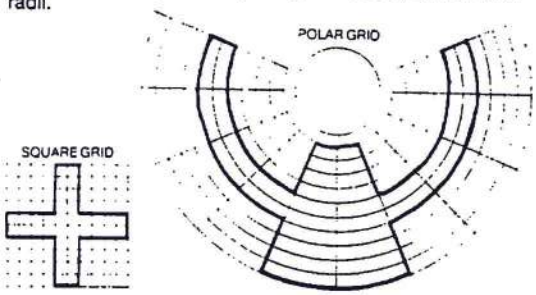
4. Arcs of circles which are centred on the centre of the magic cylinder appear as horizontal lines in the mirror. Notice how equally spaced arcs become equally spaced lines.



6. Now that we know how to make a chequer board pattern, it becomes easy to create any picture we wish.

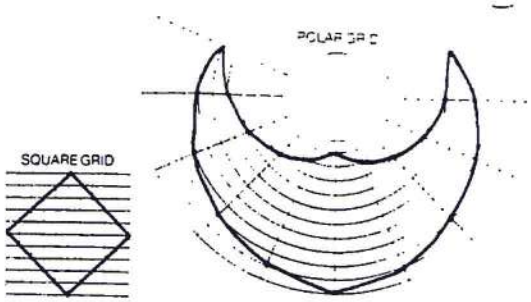


All we have to do is to draw the picture on to a square grid and so divide it into convenient pieces. This creates a coordinate system which we can use to transfer the picture point by point to a polar grid made up of arcs and radii.



On the polar grid, lines which are to appear vertical become parts of radii. Lines which are to appear horizontal become arcs of circles.

Lines which are not to be vertical or horizontal become curves. The best way to draw these curves is to mark some important points first and then to join them smoothly.



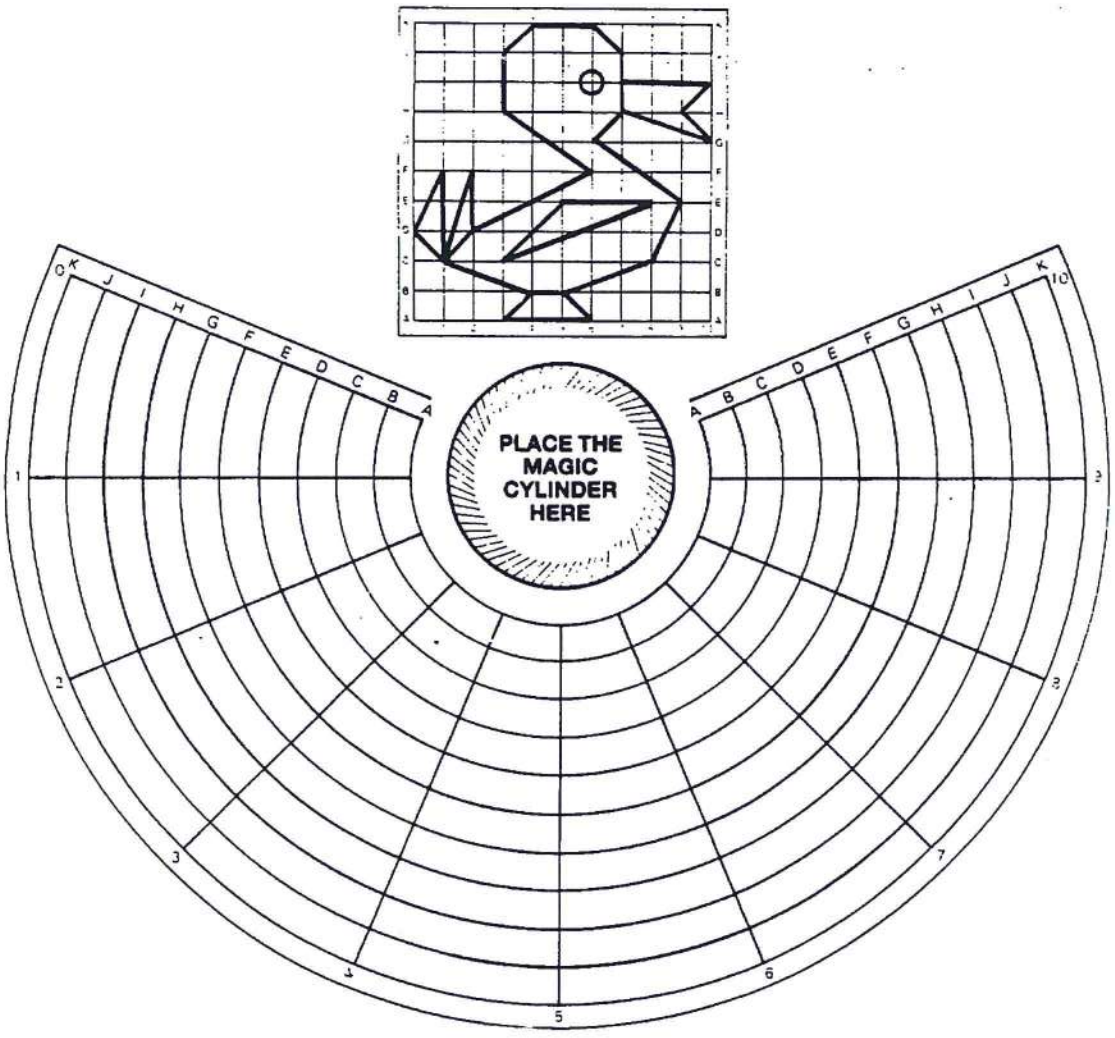
In this diagram, the four corners of the diamond become four points on the polar grid. Joining them with smooth freehand curves takes a little practice but is not difficult to master. And how nice it is to be able to test your work as you go along! As long as you are working full size, just put the Magic Cylinder on its circle and any errors show up immediately.

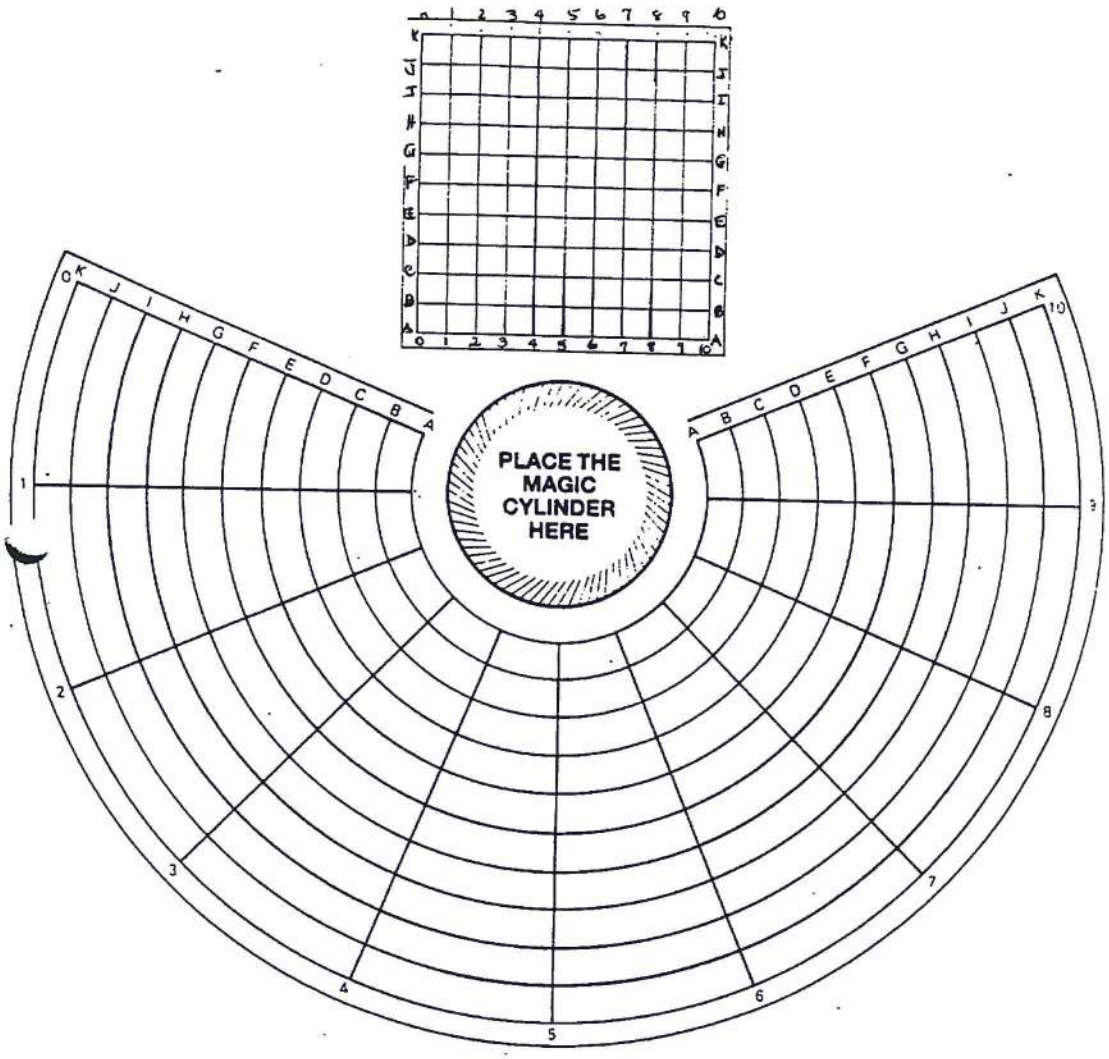
Using Co-ordinates

It becomes much simpler to transfer points between the square grid and the polar grid if you have a co-ordinate system of letters and numbers. Opposite, is an example of how it is done. Do check with the Magic Cylinder that what you see in the mirror is indeed what is drawn in the square.

On pages 28 and 29 are two examples to practise on. You might prefer to trace off your finished outline before colouring so that the grid is no longer visible.

On page 30 is a photocopy master of the grids with their letters and numbers in place. With these grids you can make some anamorphic pictures of your own or use some of the ideas on page 31. It is best to use bold, bright colours and strong lines as that kind of picture shows up most clearly in the Magic Cylinder.




PLACE THE MAGIC CYLINDER HERE