square. The method of transference is as follows—

Rub a soft lead pencil evenly all over a piece of cartridge-paper, and take off with an old rag all black that is thus removable, enough remaining for the purpose. Many people buy blue paper, but lead is far cleaner, and mistakes in its use can easily be obliterated with bread. This transfer sheet must be laid, lead or blue downwards, on to the clean paper, the tracing placed over that, exactly in the position which the new drawing is to fill, and all three fastened securely down with pins. Every line on the tracing should then be gone over with a "pointer," which may be either a piece of bone tipped with lead, a knitting-needle, or, as I prefer, a pointed stick of jade. This transfers the drawing faintly on to the new paper, but when the leaded and tracing sheets have been removed, all the inevitable errors of transference, broken lines, weak curves, and ugly joints must be corrected with an F. pencil, and the fuller details carefully drawn in. When colour is to be employed, Whatman paper must be used, and the tints put on now in clear washes with a sable brush.

Now a second tracing should be made, and every square filled up if required, but as a rule enough only of the surface need be covered to form a good repeat, this being the last stage before putting the pattern on to the material, which process varies with nearly every different handicraft.

I have described this method of transference thus fully, because it applies alike to all patterns.

"All over," and "up and down" designs must be planned in much the same way as diapers, the difference lying chiefly in the primary divisions. When these are triangles one should be formed of the desired dimensions in the way already described, and repeats of it transferred all along the horizontal foundation with their corners touching each other. Then a second horizontal should be drawn touching each apex, thus forming a line of triangles pointing alternately up and down, and a tracing being made of this repeat, it can be multiplied all over the field.

Circles, hexagons, and octagons are founded on the square, as already directed, but the squares may be either placed diagonally, or horizontally.

Powderings are figures sprinkled at regular intervals over the ground, differing from other "all overs" in being isolated, and must be planned for on the system of squares, or diamonds, the devices being placed on the intersections.

The fundamental law of a border is parallelism to an edge, which means that however much the ornament may twist and wave, it must be kept within two imaginary lines at different distances from the edge of the material, and must at regular intervals touch these lines. This rule is not infringed by simple repeats of a figure whose main stem is at right angles to the edge, because here the parallelism is suggested by the figures all springing from one line, actual or inferred.

Obviously the first thing to do is to make these two lines following the shape of the object for which the border is wanted.

When this is square the arrangement of a corner has to be considered. When circular, the main lines of the border must converge towards the inner edge, and all ornamentation being smaller on that side than the other it is impossible to use any pattern founded on a square.

Having ascertained the exact length and width required, the former should be divided up into equal spaces, each less, or but little longer than the width, for as a general rule, if the repeat be much longer than the width, the border partakes of the nature of the frieze or of panelling.

In a specimen plan a yard long by three inches wide, we could divide the former by the latter twelve times, each repeat being three inches square; but where alternate figures are to incline to either edge of the border, an unequal number of repeats is desirable, so that a complete device may come in the centre, instead of the boundary between two. In this case, therefore, it would be better to divide the above length into nine spaces of four inches.

Supposing that the yard has to include two corners, each three inches square, six inches should be deducted, and the remaining thirty divided either into ten spaces of three inches, or, in case of alternation, fifteen of two.

With an oblong article, the length of the shorter sides must also be reckoned for, so that a repeat may be obtained whose measure is common to all the dimensions. For instance, a mat of one yard by twenty-four inches, requiring a border of three inches, may be arranged in repeats of two inches, nine of these exactly filling the space left between the corners on each shorter side.

It is not essential that the corner should be the exact square of the width, and very often a narrow border has a very large and important corner. Still the principle of equal division of the sides invariably holds good.

To border a circle, an inner circle must be drawn at the desired distance from the edge and both divided into the necessary repeat by radii from the centre. For alternation the number of spaces must be even.

In octagonal or hexagonal borders, the corners may be cut off by lines at right angles to the sides from the inner angle to the outer edge. The parallelograms thus left can be divided into suitable spaces.

Some measurements will be more complicated than in these examples; but, however tedious, such accurate planning-out is imperative before the more artistic work begins.

The ornament of the border depends either on the fancy of the artist, or the existing decoration of the field which requires it; but its main features will either be a third parallel midway between the original two; diagonals drawn from side to side; right angular lines, as in the Greek frets or key-borders; circles contiguous or interlacing as in the guilloche; or arcs facing alternately one side or the other. For all these the geometrical plans must first be arranged.

Except in a guilloche the corner is seldom identical with the general repeat, but it ought to be only a variation caused by the necessary change of direction in the principal lines.

Sometimes the main line can be curved gracefully across the corner, and where the repeat is simply an isolated figure, this may be placed diagonally in the corner, or in its stead, a rosette used containing its elementary features.

Large and florid corner ornaments occasionally suffice for the entire border, when the stem or most elaborate figure should originate from the angle.

In the frieze, more independent in its nature than the border, the eye, instead of being carried along an edge, may rest on a central feature more conspicuous than the remainder. The frieze may certainly be a series of repeats, but these are generally so long in proportion to the width that the sight hardly takes in more than one at a time. Serving usually as a heading to something else, its upper half need not match the lower, and is better lighter; the best arrangement being a rich group of interlacing curves springing from a centre, and the lines on either side of this although not exactly corresponding, must make some show of symmetry. For repetition, the ends coming together, should compose a single device.

Panels of any shape are subject to the same laws as friezes, and symmetry is even more essential to their beauty. When two parts are to match, the main curves of one should be carefully drawn, traced, and transferred to the other before minor details are added.

Of course many beautiful examples of Eastern and ancient art have ornament composed without any reference to geometry, but such a method requires a master-mind to make it successful, and is not to be recommended to beginners.

Therefore I have devoted all my space in this article to geometrical methods of composition, intending in another to treat more especially of ornamental detail.

CONSTANCE JACOB.