PRACTICAL HINTS ON DESIGNING.

PART I.

To the amateur craftswoman there is always a peculiar fascination in working from her own designs; and, well knowing the technical necessities of her branch of art, she ought to be easily able, if a draughtswoman, to create good practical patterns, or to adapt ornament from other sources to her own requirements. Unfortunately, amateurs often fail entirely to produce pleasant effects, either from ignorance of the true principles of design, or else because they do not sufficiently recognise simplicity as

an essential part of beauty. The fundamental principles of design, whether applied to construction or ornamentation, are all founded on truthfulness, and are briefly these

That utility precedes ornament. That convenience should dictate shape. That the most obvious fitness entails the greatest beauty.

That all decoration should enrich without obscuring the original form.

That material should suggest treatment.

That any attempt to make one material assume the characteristics of another is false art. That all decoration loses its beauty when it is

felt to be superfluous. These laws, being of universal application, cannot be tampered with safely, while the amateur who obeys them is unlikely to make any serious mistake.

Many others, less important, but useful to bear in mind, deal with especial branches of art, or forms of ornamentation, and admit of exceptions.

In its widest sense, the design includes the form of an article, as well as its decoration, although, as a rule, it is only the latter with which amateurs are concerned.

In any case, it is a fatal error to imagine that delicacy and elaboration of detail can ever atone for weakness of composition; and to draw out a carefully considered plan ought always to be the artist's first proceeding.

All designs are founded on geometrical principles, although sometimes the main lines are so overlaid with ornament, that this fact is not at once apparent. A little consideration will show that, however irregular a figure may be in itself, its regular repetition brings it under geometrical laws; and, if the repetition be arbitrary, design itself is absent. It is obvious, therefore, that, before attempting to make any working plan, proper tools must be obtained, and their use understood.

A good-sized drawing-board, drawing-pins, some cartridge paper, charcoal, or a BB. pencil, a good F. pencil, a piece of brown india-rubber, a T square, a small set-square, a pair of compasses, fitted with movable arms for pen or pencil, a six-inch rule marked with inches and angles, and transparent paper for tracing are all necessities, and their use will be explained as we proceed.

One may sometimes draw a rough sketch of one's ideas in miniature, but it is important that even the most elementary plan should be of the same size as the space to be decorated, or the ultimate effect cannot be accurately judged.

The drawing-paper must be pinned tightly on to the board, with one edge of which its on the board of the particle state of the second of the board of the plan is to be a square, or parallel; and if the plan is to be a square, or parallelogram, a straight line must be ruled by the help of the T square's shaft, whose head should be held firmly against the side of the board.

On this foundation-line, the required length should be marked off, and at the points where the corners are to come, the corner of the set square should be placed, and upright lines ruled by its aid. These can be continued by use of the T square, as far as required, and the fourth side obtained in the same way.

To form a circular plan, the foundation-line should be ruled through the middle of the paper ; a place being fixed on for the centre, the point of the compasses should be inserted into the paper there, and the pencil end brought on to the line at the required "radius," which is half the diameter, or length through. Then, the point being firmly held, the circle must be described by swinging the pencil-arm round on the paper. The foundation-line divides the circumference, or line round, into two, and these semi-circles had better be again divided by the following method. Insert the point of the compasses where the diameter cuts the circumference, and stretch them to any length greater than the radius: describe with the pencil-arm a semi-circle; proceed in the same way from the other end of the diameter, and mark the exact points where these arcs intersect, finally ruling from one point to the other a line which, if all has been correctly done, must pass also through the centre. This divides the circle into four segments, and these can be subdivided on the same principle. In this way can be formed an octagon, or eight-sided figure, a straight line being drawn from each one of the eight points on the circumference to the next. By marking off the length of the radius on the circumference, the hexagon, or six-sided figure, is obtained.

To make a triangle, the length of the base should be measured on the foundation, divided into two, and at the middle a line r.i.ed at right angles by means of the set-square. The compasses should then be extended to the required length of the other sides; the point inserted at one of the bottom corners, and where the pencil cuts the upright line, is the apex of the triangle, whence lines must be ruled to the ends of the base.

These figures, the circle, triangle, square, hexagon, and octagon, are most generally used, and the formation of others, such as the pentagon and ellipse, is almost too complicated for an untrained geometrician to attempt.

To draw one line parallel to another, the compasses should be extended to the width of the required space, arcs made from different points along the first line, and a second ruled, touching, without cutting, all the arcs.

Such an elementary plan obtained, its filling up proceeds according to what sort of ornaborder, or frieze, to mention the most usual forms; and each demands compliance with certain fixed laws governing its construction.

A diaper consists of an ornamental square, or alternate squares, exactly repeated all over the surface to be decorated. Obviously, therefore, the space at command must, first of all, be divided on the plan into squares, into one or two of which the ornament must be fitted. It is not necessary, however, that the latter should itself be square ; in mediæval architecture, where the best specimens of diapers are to be seen, the pattern is generally founded on the circle, or is formed of a conventional flower, with any number of petals. If two similar or contrasting devices be used, they should unite at the corners, or leave a space between, which describes a more or less geometrical figure. It is well, therefore, to know the qualities of repetition which the different shapes possess. A square, for in-stance, repeats itself; that is to say, four equal squares joined together at the corners surround a space exactly corresponding to any one of them. In the same manner three triangles surround a triangle, and six hexagons a hexagon. But square spaces are also formed by the conjunction of four octagons, and in an irregular form, of four circles. The diamond, a four-sided figure with two angles greater than the others, repeats itself, and is also formed by the joining together of four hexagons. Circle surround only star-like spaces, whose points correspond in number to the circles employed. The triangle and hexagon likewise form each other, as do the square and oblong parallelogram.

Except the triangle, no polygon, having an unequal number of sides (such as the pentagon) can form a repeat, and, if used at all in "all-over" patterns, should be enclosed in a square or circle.

Although, strictly speaking, the repeat of a diaper can only be square, all the arrange-ments of single and alternating figures mentioned above are used in so-called "allover" designs, the essential law of which is that the ornament looks the same, whether viewed from one end or the other, in contradistinction to those which are called up-and-down patterns.

The division of a given parallelogram into squares for a diaper is easily done by measurg off the required size from one corner all along two sides, and ruling lines at right angles from the points obtained by means of the set-square.

If the surface to be decorated be not a parallelogram, two lines should be ruled across it at right angles to each other, and the plan based upon them. Whatever device occupy the square, it must start from a centre, and approach each side in a similar manner, therefore the centre spot must next be obtained by drawing diagonals from the corners, as already advised. The squares will thus be cut up into quarters, which, in one or two hence-forth to be considered as a field for experiments, should again be divided, thus providing eight equal sections. Then, by stretching the compasses to the length of the line between centre and side, a circle should be firmly drawn which will just touch each side. Should the chosen device be of six segments, the eight sections are not needed, the radius of the circle being measured off six times on the circumference, starting at one of the quarter divisions, and lines drawn from the centre to, the points thus obtained. On these plans we can test our decorative ideas with a soft pencil or charcoal, and, for the latter, the special rough paper is convenient, although ordinary cartridge does very well, and can be had in larger sheets.

The agreeable distribution of parts is so im-portant, that the design should first be drawn out in broad masses, these corrected until quite satisfactory, then carefully outlined with a chalk or HB. pencil, and the charcoal dusted off. For correction of charcoal and chalk, bread should be used ; for pencil, india-rubber. The details should then be put in with charink and a fine pen, or, for large work, the geometrical instrument called an ink-pen will be found useful, and makes a beautifully even line. When the pattern is to be light on a dark ground, the ultimate richness of effect, and the value of the contrasting masses, can be more accurately judged by doing the first sketch in white chalk on brown paper, and fixing the lines, when approved of, in white paint.

Next a sheet of tracing-paper should be tightly pinned over the drawing, so that it cannot shift, and every permanent line carefully traced through with an F. pencil.

Where no colouring is wanted, this is sometimes the last preparatory stage; but if, as is very likely, the many alterations should have made the original sketch dirty and untidy, it will be necessary to make this tracing of the main lines only, omitting anything doubtful, and then transfer the former on to a clean