DESIGN IN THEORY AND PRACTICE: A SERIES OF LESSONS: BY ERNEST A. BATEY: NUMBER IX

"The spontaneity of undeveloped faculty does not count for much. It carries us only a little way. Let no one believe that without study and practice in design he can recognize and appreciate what is best in design."—Denman Ross.

It may be noted that in following a course of study along the line of abstract compositions of lines, forms and tones for the sake of defining the elementary principles of design that we are limited to three typical problems;—figures enclosed on all sides, as the square or circle;—figures enclosed on two sides, as the border; figures adapted to indefinite extension on all sides, as the surface repeat. This limitation serves well to simplify matters and enables the student to concentrate attention upon the definition of principles. To each of these typical problems some consideration has been given. For the purpose that these problems aim to fulfill it is unnecessary to demonstrate the number of ways in which a design within a circle may be arranged, whether the details shall radiate from the center, from a point on the circumference, or, as in the examples shown last month, shall be in rhythmic relation to the circumference. The same elementary principles are applicable to whatever method may be chosen, and as the circle was but a means to an end, one method was quite as convenient as another.

The question of a surface repeat was briefly touched upon in an earlier number of this series. Let us now give a more detailed discussion to this type of abstract design. Many difficulties quite unnecessary to an understanding of the essentials in the construction of a repeated surface pattern have been thrown in the way of stu-

PLATE FORTY-EIGHT.
surface design that is adapted to the technique of weaving or printing is quite another matter, involving questions that cannot be learned from a book or through practice on paper.

In experimental solutions of the problem it may be attacked from two points of view. We may build up a pattern by grouping lines and forms into a unit, then by the repetition of this unit at regular intervals, watching carefully at each step the relation of all of the elements of the pattern, both within the individual units and from unit to unit. Or we may start with big masses related in a common movement and proceed to a gradual breaking up of the areas into smaller divisions down to the last detail. The former method is the simpler and will be explained first.

Problem.—Let us build up a surface repeat, assuming as a unit a motif that may be expressed by the words: three berries and two leaves. Now in accepting the limitations imposed by this motif we are not bound to any particular specimen of natural growth, though nature may furnish various types of berries and leaves that will serve to stimulate invention. We may indeed prefer to proceed at once to the construction of an imaginary unit. In the demonstration that follows this latter method was adopted. The forms suggested in Figs. 60 and 64 are merely adjustments of lines and forms in black and white. Let us begin with the first detail. Fig. 60-A. Any one of various forms might be chosen as the type of berry to be employed. The grouping of the three berries might also vary considerably. The bottom group, considering these three groups without the addition of other details, seems to possess greater variety in the relative positions of the berries than the top one, and suggests a more consistent growth than the middle one. Any of these groups might be justified, however, in the arrangement of other details of the unit. Let us choose the bottom group. With this simple suggestion as a start it is now desirable to bring the two leaves of the motif into some rhythmic relation to the berries.

A few tentative lines might result in some such movement as is shown in B. There is now a reciprocal relation of these minor details. In completing the symmetrical adjustment of these elements, as in C, it must of course be decided whether the widest
part of the unit shall be at the top or at the bottom; for sake of variety it seems better that it should be at one or the other rather than at the center. It must also be kept in mind that the symmetry of white within the unit is just as important as the symmetry of black formed by the leaves. In the present case it is perhaps the more interesting of the two. So much for the unit; its lines and forms have been determined.

It is now necessary to gain a reciprocal relation from unit to unit with a space and mass composition that will bind the repeated pattern together into a unity of effect. Experience enables the designer to foresee, in the shaping of the unit, the possibilities that it may possess for a repeated pattern. He shapes the details with the whole in mind. But the present aim is experimental in character. As a next step, draw the center line of the unit as indicated. Then on a full sheet of the transparent paper draw another center line. Place the unit in the center of the paper, underneath, with the two lines coinciding; trace the result. We now have the first element of the pattern. How can the unit be repeated at regular intervals to furnish the most satisfactory result? In the various diagrams shown in Fig. 61 it may be assumed that the first unit is represented in each diagram by the figure 1. It becomes necessary to decide upon the position of the second unit of the repeat. By moving the original unit about under the transparent paper the relation of the two units as well as
a forecast of the final effect may be obtained. For sake of illustration it may be assumed that a decision is made as in the diagram A. A second center line should be drawn on the paper and the second tracing made. A symmetrical unit almost invariably demands a symmetrical repeat; hence an indefinite number of center lines may next be drawn on the paper with the distance between these two as a key. Now when the units numbered 3-4 have been given position the solution of the problem as a design has only begun. The two questions of most importance are to be solved now. The units must be bound together into a compact whole, with some rhythmic interrelation of all elements; the space, indicated in each diagram by the figure 5, must be accepted as another element in the pattern,—its shape and measure must be developed as an integral part of the design. Fig. 62 represents the steps up to this point. It is readily seen that in the first section of this design the space 5 is too large and empty; the units are not well related. In the second section a simple line serves to break in upon the large area of white, and produces a better balance of space and mass; it also binds the units together into a common movement, relates the blacks and whites, and produces a third subordinate tone.
That is designing with an eye to the principles that these articles have been defining. The method of repetition may vary;—but the idea is exactly the same. In Fig. 63, for example, another development of this same unit is shown based upon the construction indicated in the diagram B of Fig. 61. It may appear that the unit is better adapted to this repeat than to the other; in which case the experiment has made it possible to look ahead, in planning another unit, to the completed result. It is thus that we learn,—by doing, by experiment, comparison, and selection.

It will be interesting to carry this unit through one or two more experiments, into results more complex, more important. The original unit may always be altered at will to suit the exigencies of repetition, as in Plate 45 for example. Here a slight additional enrichment given to the original unit, as indicated by the dark line in D of Fig. 60, furnished a new unit which was repeated on the structural plan shown in Fig. 61-B. The development was quite the same as before, namely an interrelation of the units and a breaking up of the background spaces in order to bring them into the best possible adjustment with the units. To this end slight additions were made to the unit as shown by the lighter lines in Fig. 60-D. In the final result each shape and measure of black and white is made to contribute some element of interest to the design. It is not a black design on a white ground; nor is it a white design on a black ground. It is a cooperation of black and white elements, of space and mass, of line and form, to a common purpose; all of which is a return to the original propositions with which these articles started.

In Plate 46 is a still more important effort developed from the same starting point. Here it has become necessary to discipline three tones, black, white and gray into a unity of effect to which each must contribute its share. If you will keep in mind the demonstration to this point the complexities of this pattern will be found to be more apparent than real. The first step is shown in Fig. 60-E-F. It
will be seen that the original unit with which the start was made has now become a mere incident in the breaking up of the space and mass areas of a more complex unit. Other experiments might, of course, produce units quite different in character from this one. The unit was repeated on the same structural lines as in the preceding plate, though the increased size of the unit naturally demanded a spacing at wider intervals. If a comparison is made between the unit as shown in Fig. 60 and the completed pattern, several additions or slight alterations may be noted. If the demonstrations have been clear the reasons that prompted each change in the unit will be clear. The mere repetition of the unit is a minor question; the means adopted to bring unity to the result is the important question. And if the principles of composition are understood the most prosaic and unpromising material may be developed into a pattern of interest and beauty. And, *per contra*, if these principles are not understood, material of rare beauty may be developed into a pattern devoid of any interest or distinction. Though the unit itself is comparatively unimportant, the use that is made of the unit being the important thing, the best design will always be one that shows a logical and distinctive construction down to the last minute detail, an interrelation to a definite end of every line and form employed.

Now, to return to the first statement of the motif, three berries and two leaves, Fig. 64 represents other units equally dependent for interest upon the relation of black and white elements. They are merely masses of black broken by spaces of white, the spaces of white being subdivided in turn by lines of black, all bound together into a compact and related whole. In one of these the squared paper of times past, again appears. In Plates 47-48 two of these units are repeated with such additions in each case as will best serve to bring to the result the character that is sought.
This character forms, here as in the past, the basis of our experiments. Fortunately there are no rules or receipts in design, no method that will enable a lazy individual to achieve distinction, no process that will supplant orderly thought, hard work and common sense. Such comparatively simple designs as those shown in Plates 47-48 demand orderly and concentrated thought. The finished product may, and should, have an appearance of spontaneity; the drudgery that its completion may have entailed should be eliminated. None but those who have learned the true significance of the little word study will discern beneath the surface the many experiments, comparisons and final selection. In other words, the ability to design results from long hours of thoughtful work more than from any unique inheritance.

To follow the path backward, then, through the analysis of a distinctive surface pattern we would ask: first, that its spotting of space and mass shall be interesting when viewed as a whole; that its structure shall be apparent to the eye; that each tone, measure and shape shall contribute something to the unity; that all of the lines and forms employed shall be intimately and organically related to the last detail.

Thus it is seen that the same constructive principles are involved in the planning of an abstract pattern as in the designing, for example, of an architectural composition. The beauty of either is dependent upon the refinement and enrichment of a logical construction. If the structural lines are weak or are ignored, are buried from sight under a mass of superficial details, then no amount of enrichment, whether it be “Greek style” or “Gothic style,” or however much skill may enter into its execution, will produce a result of character and distinction. If, for instance, it is proposed to produce a beautiful piece of furniture, let us first plan a piece of logical construction, and give to it such refinement of line and form as is possible under the limitations imposed by utility. If then, beyond this point, we are not quite clear as to what constitutes a beautiful enrichment, if we distrust, as we well may, the competence of our judgments in such matters, let us learn to appreciate—and remain forever content in that appreciation—a beauty that arises from frank construction, sound materials, honest workmanship, fine texture and color.

Any museum or gallery of industrial art furnishes material for a study of the development of constructive design. A unique opportunity is to be found in the rooms of the Society of Decorative Arts, adjoining the Louvre, in Paris. Here, through a series of rooms, one may pass in review the development in furniture, textiles, metal work, etc., from the time of the early Mediaeval craftsmen to the modern Art Nouveau. And the thoughtful person inevitably returns to the starting point with a sense of relief and satisfaction. Here there is a frank acceptance of constructive demands with very little enrichment. In the next room one finds evidence of a finer feeling for structural refinements with a more delicately executed enrichment. Further on the enrichment, though executed with consummate skill, is at the expense of construction. And still further, in the elaboration of ornament construction is buried from sight. In textiles, for example, the severe structural simplicity of the product of the early weavers gradually gives way to a hopeless potpourri of lovelorn swains, cupids, ribbons and flying garlands of flowers. The sep-
aration of designer and workman becomes apparent; we find the weavers vainly essaying the production of designs furnished them by painters who never saw a loom and knew little of its technical possibilities or limitations. In the repetition of such a simple unit as that shown in Plate 49 there is bound to be a refreshing simplicity. It is a symphony in lines, forms and tones. It has no pictorial interests, and needs none. There is a feeling of reserve strength throughout, however. The designer might have told more if he had chosen; but he preferred a simple structural treatment, in a broad, flat plane of light and dark. He broke his darks with areas of light, and broke his lights with areas of dark, each contributing to a unity. Of quite a different treatment, though of similar character, is the Japanese textile shown in Plate 50. Those who express a liking for Japanese work because it is “so informal” fail to understand the character of true Japanese art. All that was said of the preceding plate may be said of this wonderful textile. It is a simple, flat spotting of lights and darks, each contributing to the effect of the whole. Note how the legs break in upon the measures of dark,—the rhythmic movement of the bodies and necks. The measures of light are broken by the bills and wings. As in the other textile there is evidence of a definite idea, of orderly thought, and a treatment that is consistent throughout. It is the repetition of a unit on the structural lines of Fig. 61-A, the units in the vertical repeat being turned alternately to the right and left.

If the unit is unsymmetrical one may be justified in giving it an unsymmetrical repetition, as in Plate 51.
The structural basis of the repeat is always determined, in experiments of this kind, by the shape and measure of the unit. In other words the structure of the design is determined by the idea which it is desired to express in the repetition of the motif. In experimenting with this unit to the end that has been explained, it was found that the most interesting relations could be established by repeating it on the lines indicated in Fig. 61-D. Incidentally the motif chosen here was quite as simple as the other; it might be stated in these words,—flower, bud, leaf. Different individuals might render the motif in as many different ways as in the preceding demonstrations; and here as before one might seek assistance from nature or develop a motif from imagination. It is a matter of choice and does not affect, for good or bad, the fundamental character of the result.

In Plates 52-53 are two surface patterns in which motifs of a different type were sought. One is sufficiently rabbitlike to necessitate a study of that particular animal. It is a free translation, with such alterations as were found desirable in the repetition of the unit, of one of the little figures shown in the February Craftsman. If you will examine the construction of the pattern you will note similar rhythmic interrelations of line and form. In this design, by way of experiment, the space of white has been made as large as it would be possible to make it without its becoming an empty hole in the result. Even now one feels a desire to break in upon it with a line from some point or other of the mass.

In the final plate a creature of the imagination becomes an incident in a pure line design. This is quite as much a line problem, involving precisely the same propositions as the first two problems of our series. It may be "based on the camel"; perhaps it is! We are sometimes assured that all designs, however abstract they may appear, have been based on some natural prototype. If this be true the present case is of course no exception to the rule. Aside from the play impulse that prompted its execution the chief interest in this design is to be found in the various symmetries that are formed, in the interrelation of line from unit to unit, and in the massing of lines to gain a dominant tone of dark.