DESIGN IN THEORY AND PRACTICE: A SERIES OF LESSONS: BY ERNEST A. BATCH-ELDER: NUMBER I

"Though we travel the world over to find the beautiful we must have it with us or we find it not."—Emerson.

It is the aim of these articles to be helpful, not only to teachers and students who may be directly interested in the subject, but to the many others who feel the lack of some criterion or standard to assist them in forming a judgment in questions of design. A judgment is of little value unless we can back it with a logical reason. If we would judge wisely and discriminate well it must be on a more stable basis than personal whim or fancy. Hence we may consider as pertinent any serious discussion which aims to define the fundamental principles of design, touching upon a more sane, more artistic production on the one hand, and a more intelligent, more discriminating judgment on the other.

At the start then let us understand that the writer intends to treat the subject of design in as simple and practical a way as possible in order that its appeal may be to the largest number. The purpose is best accomplished by the presentation of a series of problems leading from the simple to the complex. In the development of these problems elementary principles will be defined, and the application of these principles to constructive work illustrated. We learn best by doing. In setting mind and hand to the solution of a definite problem we meet and overcome questions which no amount of reading can foresee. We may attend lectures and indulge in critical discussions of design in terms of language; we may become well versed in the history of art, and in the biographical data pertaining to the lives of artists; yet find ourselves quite at a loss when confronted by a simple, practical, everyday problem in constructive design. An art spirit which does not manifest itself in daily life and work, in the home and in the shop has little true worth.

Unfortunately, in the presentation of this work the value of personal contact is lost. On the other hand, though, this loss of personal contact may have a compensation in the necessity for a clearness and directness in the definition of terms and principles. Nothing can be taken for granted; it must be assumed that you are all beginners. Much will be given you at the start; little will be asked in return. The props will then be removed one by one, throwing you more and more upon your own resources, and finally leaving you, it is hoped, with clearer ideas and firmer convictions. Failing in this, the work has failed in the accomplishment of its purpose.

Mr. Ruskin says that "drawing may be taught by tutors; but design only by heaven." In other words we may be taught to observe things placed before us and to make an adequate, if not an artistic, representation of what we see. In the representation of a chair, for instance, we may prove that a certain line is right or wrong; it admits of demonstration. But in designing a chair we pass beyond questions of right and wrong into fields where other distinctions must be sought. A design for a chair may be interesting or uninteresting, worthy or unworthy; but no man shall say this design is right; that design is wrong. A chair must be comfortable to sit in, strong and durable in all of its parts. These demands alone necessitate certain constructive elements—seat, legs, back, rungs, possibly arms.
In the adjustment of these constructive elements we have the first step involved in the problem. Thus far distinctions of right and wrong may admit of demonstration. Now supposing it is our intention to make a beautiful chair: Our first clue will be furnished by the various constructive elements; in the adjustment of the lines and proportions demanded by utility. But in the refinement and enrichment of the lines and proportions we are faced by a problem answered only in part by utilitarian demands. Our chair may be structurally adequate, but stupid and altogether uninteresting in design. For the rest we must possess that subtle quantity commonly called good taste. It requires a sound judgment, an appreciation of fundamental principles, a criterion or standard, whether of natural intuition or acquired through long years of training and experience, which will lead us unerringly to the interesting expression of an idea. To stimulate and develop the creative faculty demanded in the production of a design for a chair is quite a different task from developing the faculty of observation required to make an adequate representation of a chair.

To design is to give tangible and definite expression to an idea. The term design implies an interesting, possibly a beautiful, at least an orderly, rendering of this expression. It may seem superfluous to say that we must first have an idea! Yet it is the very paucity of ideas, the lack of imagination, that forms the first stumbling block in the path which leads into our subject. In this age of acute specialization we are so dependent upon others for the things which we gather about us in daily life that few of us know the joy of creative work, of planning, building, completing things. Where, indeed, can one who uses no tools, practices no craft, attempts no creative work, expect to evolve ideas or find a stimulus to the imagination? The beautiful things which we treasure so carefully in our museums and galleries were designed and executed by men with tools in their hands in those bygone days when art was not afraid of the grime and soot, the din and clatter of a workshop. To such men ideas came without effort and were given expression in terms of wood, metal, stone and paint as part of the day's work. There were no artists then; nothing but craftsmen—some better than others. No one thought of studying design; much less of teaching it. Good taste and sound judgment came as a matter of course during the long years of apprenticeship at the bench. The principles of design were felt intuitively; but through succeeding generations of imitation and adaptation we have too often lost sight of principles and borrowed mere outward forms and symbols. We have drawn upon ideas which were once fresh, real and significant because they embodied in their expression something of the thoughts and feelings of the times in which they were used, but which now appear as misapplied finery.

First, then, we must have an idea. In our expression of that idea we commit ourselves at once to definite lines, forms and tones. The result will be beautiful in a direct ratio to our control of the tools and materials with which we are working, and our appreciation of the principles underlying line, form and tone composition.

What is beauty? How are we to know it when we have achieved it? Things may be pretty, rich, stylish, elegant, and still lack all of the essential elements of beauty.
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Beauty is undefinable, though it is universal. It has no style or period or country. It may appear in an Indian basket woven under the heat of an Arizona sun by one whose life has known no other horizon than the line of the desert mesa tops; it may be found above the plains of Athens in a form so enduring that time, war and pillage have been unable to efface it.

If beauty is undefinable we may at least learn something of the various ways in which it manifests itself. As we may know a man by the character of his acquaintances, so we may learn to recognize the beautiful in design through the associations with which it has always been found. The beautiful thing, whatever it may be, is invariably sane and orderly in arrangement, clear and coherent in expression, frank and straightforward in an acceptance of all the conditions imposed by questions of use, environment, tools, materials and processes. All of these things we can analyze; we can reduce them to simple terms for purposes of study, and endeavor to establish definite principles for our guidance. Then, from simple beginnings through a process of experiment and comparison, a never ending process, we may hope to express ourselves in an orderly, simple and coherent way. "We try for order and hope for beauty."

Where to begin; how to begin. These are questions which interest the student. "Go to Nature," one may says. "There you will find your inspiration and there you will discover all the clues to consistent ornament." But will you? Nature is indeed necessary to the designer, but not to the design. One is reminded of the old Spanish proverb, "He who would bring home the wealth of the Indies must take the wealth of the Indies with him."

What do you expect to find in Nature? What message do you expect she has for you? You may be sure she will return to you just what you take to her; nothing more. It is like seeing faces in the fire. To one the fire is living; the flames dance and laugh and whisper. To another the fire is merely a bed of sputtering coals shedding light and heat through the process of combustion. To each the fire is a reflection of the individual mind. Nature will not equip you with an imagination, furnish you with ideas or teach you how to use the wealth which she places at your hand. These must originate with you. If you have them not, you might as well seek the pot of gold at the end of the rainbow as to expect help from Nature. When we have learned to think in terms of line, form and tone, and have studied the possibilities and limitations of the tools and materials with which we are trying to express ourselves we may then turn to Nature for suggestions and assistance; she will never fail us.

"Go to Historic Ornament," another says. "In the various Historic Styles you will find the key to good ornament." And so we continue to build Gothic churches, and Greek convention halls, and Queen Anne cottages. Many of our designers boast of an ability to design anything from a chair to a house in any given period or style of ornament without an error of detail. What we most need are workers who can approach each new problem unhampered by traditions; though open minded to any structural suggestion which the past may offer, alert to all the possibilities of materials, tools and processes, finding here the stimulus for
their ideas, able to express without affectation, in a clear, straightforward way, something of our lives, our times and our environment. It is our continued study of Historic Ornament, our familiarity with so-called styles and periods, that has given us the characterless bog of modern work, a century of borrowed and misused finery. Is it not odd that we should resent plagiarism in literature and music, but complacently accept it as necessary in design? We are sometimes told that originality is no longer possible or desirable; that our best things have already been done for us. But do we not mistake the meaning of originality? It may result from a determination to be unique, eccentric, different; but we may be quite as original without departing from paths of order, simplicity and frankness.

The writer recalls a time when he was asked, in the course of events, to study Greek ornament. He gathered about him all the dry bones of Greek art which the archaeologists have reproduced with such deadly, unsympathetic accuracy. The problem to which this research led was the designing of an umbrella stand in the Greek style of ornament. Nothing was said of good, strong Greek art as distinguished from the weak, paltry efforts of decadent designers. It is less important that we should possess an accurate knowledge of the details of any style or period, than that we should have some standard of judgment to enable us to choose the good from the bad. If we would study Historic Ornament, then let it be as ornament and not as history. To this end, as in our approach to Nature, we must learn to think in terms of line, form and tone.

Our problems follow closely along the line of racial development in design. They did not originate in any theory that this should be so. It is something of a coincidence, the more interesting in that the work is the result of several years of observation and experience in constructive work with pupils of various ages. Briefly the racial development in design is as follows: In the early stages of primitive work geometric motifs dominate. This is not because primitive minds have a natural bent toward geometry, but because in the practice of their earliest crafts the materials used have necessitated an expression through geometric ornament. Weaving or plaiting is the first craft to offer an opportunity for a distinctive artistic expression. In weaving or plaiting strands of grass, bark or other materials, an accidental variation of line, form or tone may have been seized upon as a keynote. In an orderly adjustment of these variations, in a continued practice with the materials, and a wider application of the craft, the first simple patterns were improved and perfected. Later, when clay, wood, metal and other materials become more generally employed, the influence of geometric ornament remains; the familiar patterns are applied with gradual modifications to other forms.

In the meantime graphic expression was attempted; contemporaneous with the earliest work in design are rude sketches of animals, birds, men and women. The interest is in a depiction of animate life. It is the translation of animate life into terms of geometric design that we find the next interesting development. In many cases a mere symbol results; again the derivation is unmistakable. This interplay between the geometric and animate life brings us to the
final stage of primitive work. People do not find a source of suggestion and inspiration in inanimate life, leaves, flowers, etc., until they have passed into a stage of culture which cannot be designated as primitive. We shall start, then, under the restraints imposed by geometric ornament, seek a definition of elementary principles through that means, find our first suggestions from nature in animate life and gradually essay the production of work involving greater freedom and a wider play of the imagination.

For those who may wish to undertake the solution of the problems to be given the following list of materials is suggested:

1. Drawing board.
2. Pencil, medium.
3. Eraser.
4. Sheet of "squared-underlay" or engine ruled paper. That which is ruled into quarter-inch squares is best.
5. Several sheets of transparent Japanese watercolor paper.
6. Watercolor box of six colors and charcoal gray. For various reasons the "School Arts Color Box," manufactured by the Wadsworth, Howland Co., of Boston, is recommended as being best suited to the color problems which will be given.
7. Brushes: A large one for washes and a small one for lines.
8. Bottle of waterproof India ink.

Under the assumption that the tools and materials with which we are to work are not entirely familiar, a few words as to their use may be advisable. Pin a sheet of the transparent paper over a sheet of the squared-underlay. The paper should be tight and flat with a thumbtack in each corner and one in the center of each side. The object of the squared-underlay is to furnish a guide in the measures and directions of lines. It will be found of material use, helping in many ways, where a ruler or other mechanical device will hamper. Now take a small brush and try a few ink lines of varying widths. The paper should be in a horizontal position; the brush perpendicular to the paper. Press the brush down until a line of the desired width is gained; then using the little finger as a gauge drag the brush steadily across the paper. A well rendered line demands more practice and care than might be expected. It should be of approximately the same width throughout; but in no sense with the mechanical accuracy of a ruled line.

Problem: Proposition One:
There should be such an adjustment of the space and mass relations in a design that the spotting, as a whole, will be of interest. To this end there should be a dominant space and a dominant mass, with other spaces and masses subordinate.
Several explanations may be demanded. It will be our object, through a number of problems, to define the above proposition. For the present let us say that by space we refer to the part of a design that is left untouched. In Fig. I the space is the plain weaving of the basket; in Plate I the spaces in each design are the spots of white untouched paper, bits of silence, left as a background. By mass we refer to the portion of the design that is given up to the ornament, whatever it may be. In Fig. I we would call the mass the area of darker weaving; in Plate I the concentration of lines in each design furnishes a mass which, contrasted with the space, forms a spotting of light and dark. By a dominant space or mass we refer to a space or mass that dominates the design by reason of its tone, measure or shape.

In Plate I, Figures ii, iii, iv, v, we find an interest in the big, simple spotting of the designs. By way of comparison Fig. vi lacks force and strength. We may feel that we are beginning to exercise some command over our materials and tools when we can adjust these relations of space and mass at will, alter their tones, measures or shapes to conform to the idea we wish to express.

As a first effort in design we shall find our resources sufficiently taxed by a limitation to straight lines, vertical and horizontal. Stretch a piece of transparent paper over the squared-underlay; draw with light pencil lines a four-inch square, with another square one-quarter inch inside the first. Draw in the center a third square two inches in diameter with a fourth a quarter-inch inside of this. We shall then have a result similar to Plate I, Fig. i. From this starting point, under the limitations imposed, we will endeavor, by means
of additions and alterations, to break these areas into an interesting spotting of space and mass. As we work at the problem we find that by the association of two or more lines a tone or mass of dark is gained. The value of this tone varies according to the widths of the lines, or the closeness with which they are associated. It is also interesting to note the extent to which a parallelism of lines may be resorted to without becoming monotonous; how much opposition of lines may be employed without resulting in confusion. The balance between the two extremes will be of most interest.

Now let us see if we can throw a dominant tone or mass of dark onto the diameter of the square (ii), into the center (iii), to the corners (iv), to the outer sides of the square (v), and retain withal a contrasting opposition of space or silence. The space is quite as important in the design as the mass.

In order that we may get a right start Figures 2, 3, 4, 5 are added to show a possible development of such a problem. It is our purpose to throw the dominant mass of the design on to the outer sides of the square. This is accomplished at once in Fig. 2; but there is lack of interest elsewhere. In Fig. 3 the big areas are broken and the various elements are bound together. Let us see if we can give more interest to the corners (Fig. 4), to the center (Fig. 5), and still manage to keep them subordinate to the idea with which we started. We must also watch the areas of white in order to retain the necessary contrast of space and mass.

PROBLEM:—Let us clinch the idea of space and mass arrangement of lines by the solution of another problem which presents the same material in a slightly different form, the repetition of a unit through a border. We are just as much concerned with the grouping of lines and the contrasting spots of white as in the first problem. Fill in the spaces in any one of the designs in Plate 2 and note the immediate loss which the design suffers. We may then appreciate the value of the background as a factor in the result.

In a solution of this problem we are brought to another important consideration. The mere repetition of a unit at regular intervals is at the best a mechanical process; we can hardly distinguish it by calling it designing. But by interrelating or binding together the various units of repeat in such way that each unit supports or completes its neighbor we are really beginning to exercise our faculty for designing. By way of illustration, in Fig. 6 there is no
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particular merit in the regular repetition of a geometric figure. Each unit stands severely by itself, scarcely on speaking terms with its neighbors. But in the second section of the border we are imparting some thought to a solution of the problem by giving to the result a unity or wholeness through an interrelation of all the units of repeat.

Plate 2 shows several expressions of the idea. In the evolution of a piece of work of this character there must be many experiments and comparisons, and a final choice of the best expression. The result is not complete until we feel that no line, space or mass can be altered without destroying the unity of the result. A few trials will be sufficient to demonstrate the importance of each line and area; the slightest change at any point results in an entire change of effect or spotting in the whole. Each design becomes a carefully tuned symphony in straight lines, perfect and complete in itself.

(To be continued.)