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THOMPSON'S Educational AND INDUSTRIAL
SYSTEM OF DRAWING



ÆSTHETIC MANUAL

TO ACCOMPANY THE ÆSTHETIC SERIES OF DRAWING BOOKS
AND TO BE USED INDEPENDENTLY

BY

LANGDON S. THOMPSON, A. M., Pd. D.

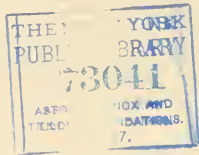
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1893
H. R. T.

D. C. HEATH & COMPANY
BOSTON, NEW-YORK AND CHICAGO

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P R E F A C E .

THE author believes that the average child needs the cultivation of the æsthetic taste more than that of any other artistic faculty. (See first page in this *Manual*, and "Historical Ornament" on page 13 of the *Primary Freehand Manual*.) To aid in this cultivation the following *Manual* and accompanying Drawing-Books of the *Æsthetic Series* have been prepared.

There are several ways in which the books may be used. Probably the best way in most schools is to have the pupils draw freehand some of the simplest examples of Historical Ornament from copy, while other examples that are very complex, or that require much time for execution, may be copied by tracing. In this way the eye and the hand become accustomed to follow graceful forms.

In the department of Decorative Design, the pupils should be required to make some designs of their own. How much of this kind of work should be required must depend much on circumstances. When some of the pupils make almost an utter failure of this kind of work for want of encouragement and proper instruction from the teacher, they may be permitted to copy some of the printed examples. It is far more important for the average child to be able to appreciate and enjoy good designs than to invent them. (See "Design or Composition" on page 13 of the *Primary Freehand Manual*.)

To make Decorative Design a complete success, as in composition writing, the pupils must have their thoughts stimulated, and then they must be *encouraged* to express them freely, without expectation of harsh criticism for honest failures. Give the pupils plant forms for units similar to those found on pages 65 and 123 of this *Manual*, and commend every earnest effort, however crude at first, and the power of invention and creation will grow as a plant having proper moisture and sunshine.

Usually the best results will be secured by giving out the lesson a day or two before the result is required, explaining just what is to be done. Let the trial designs first be made on slates or loose sheets of paper, and handed in to the teacher for criticism and suggestion before they are drawn in the books.

With careful teaching the *Æsthetic Series* may be used as low down as the fifth school year, or first year of the Grammar grade, especially if the author's plan for Inventive Exercises has been used all through the Primary grades. This plan will be found developed in *Primary Freehand Manual*, *Manual Training No. 1*, and *Manual Training No. 2*. The Inventive Exercises in *Manual Training No. 2* would constitute a very suitable introduction to the *Æsthetic Series*.

Teachers who desire to have the pupils draw from objects in connection with the cultivation of the æsthetic taste can use the *Model and Object Manual* of the *Model and Object Series*, and have the pupils draw on the blank pages of the *Æsthetic Series*.

Again, those who would prefer to carry along lessons in Mechanical or Working Drawings can use the *Mechanical Manual*, and have the pupils draw on the blank pages of the *Æsthetic Series*.

In all the series of the *Educational and Industrial Drawing*, the teacher can use the *Manuals* only, and have the pupils draw on blank paper, thus securing the greatest possible liberty to the teacher. The publishers of this *Manual* have prepared blank pads of drawing-paper suitable for the work required in all the *Manuals* of the various *Series*.

It only remains to say that the order of subjects in the *Æsthetic Series* need not necessarily be followed. The teacher who prefers to do so can begin with Historical Ornament or Color rather than with Decorative Design.

LANGDON S. THOMPSON.

SCHOOL OF PEDAGOGY,
UNIVERSITY OF THE CITY OF NEW YORK,
March 28, 1892.

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ÆSTHETIC SERIES.

DECORATIVE DESIGN.

PART I.—THEORETICAL.

GENERAL INTRODUCTION.

WHY STUDY THE SUBJECT?

In a civilized state of society, Decorative Design, or Ornament, is intimately connected with every-day life. It meets us in the parlor, on the street, and in our daily business transactions.

In our homes we demand that our carpets, oil-cloths, matting, rugs, wall-paper, curtains, chairs, sofas, stoves, tables, table-cloths, napkins, dishes, lamps, etc., shall be tastefully ornamented. In the streets, monuments, statues, and architecture administer to our desire for the beautiful. In the business world tasteful ornamentation is money in the pocket of the carpenter, cabinet-maker, potter, glass-blower, paper-stainer, weaver, dyer, silversmith, blacksmith, and all dealers in and purchasers of the products of these trades.

We may avoid picture galleries, but we cannot avoid ornament. One may find it in the rib of his coat, the knot of his neck-tie or hat-band, the shape of his hat rim, or the style of his watch chain. In poverty or wealth we come face to face with it, good or bad, at every turn of life.

Ornament is as old as the human race. If we hunt for the beginning we shall be led back to Eden. All along down the corridors of time, through Egypt, India, Assyria, Greece, Rome, and the Middle Ages, as well as among the Aborigines of Mexico, Peru, New Zealand, and the South Sea Islands, mankind has craved ornament.

Since it thus makes demands on all classes of society, it should be studied by all:

not to the extent of becoming expert designers, but that all may know good designs from bad, and be able to select ornaments, dress, furniture, and home embellishments, in accordance with the established laws of good taste.

Definitions and Explanations.

The word *Design*, when unqualified, is a very comprehensive one:

1. It may have reference to the *construction* or *building* of an object, since we may rightly speak of the design of a house or of an engine, when we only mean its shape, or the manner in which its parts are put together.

2. It may refer to the *drawing* of an object, or its *representation*, as practiced in the *Fine Arts*. Hence a *School of Design* is understood to be a school for teaching drawing, painting, sculpture, and other branches of an art education. Some writers on the fine arts have still further restricted the use of this word to "the representation of a beautiful *human figure* in a graceful attitude."

3. This term *Design* may refer to the *ornamentation* of an object. It is in this last sense that we shall use the word, qualifying it, however, by the word *decorative* as at the beginning of this introduction.

Constructive Design, then, is the art that gives to an object its form or shape, and strength, and hence it has for its aim *utility*.

Decorative Design is the art of applying lines, figures, or colors to an object so as to make it more pleasing in appearance, its sole aim being *beauty*.

Decorative and Fine Art.

Although the general principles of decorative art and pictorial or fine art are the same, it is proper here to notice their difference in aims:

Generally the decorator wishes to preserve the flatness of his surfaces so that they shall neither *appear* to advance nor recede, while the pictorial artist wishes to make the flat surface, the canvas on which he works, *appear* to recede, and his forms *appear* to project forward.

Decorative art is subordinate and has no independent existence, while pictorial art is generally independent and is its own *reason to be*.

Decorative art is *ornamental*, while fine art is *pictorial*. The first is *conventional*, the second *natural*; the first is *geometrical*, the second *perspective*; the first is *idealized*, the other more *imitative*.

A picture can be best viewed from some particular point or position, while an ornament should appear equally well from every intended point of view. A decoration will bear repetition, while a picture will not.

General Divisions.

Decorative design is naturally divided into two leading branches:

1. *Flat*, or Superficial.
2. *Sculptured*, that is, raised or sunk.

Flat Ornament includes: 1. That which is drawn or *Painted* on the surface. 2. That which is *Inlaid*. 3. That which is *Textural*, or woven on the surface.

Sculptured Ornament includes: 1. That which is cut into or below the general surface, called *Intaglio*. 2. That which is modeled or raised above the general surface, or that which is *Relieved*. 3. That which is *Structural*, or ornament "in the round."

We shall first attempt to explain the general principles applicable to all of these divisions, reserving some remarks concerning modifications necessary when applied to any particular division for later pages.

General Principles.

There are those who object to principles of art or design on the ground that "they are artificial receipts for making pictures." They say that there are no principles the observance of which will insure beautiful designs, and that many pictures and designs are "beautiful without being composed on any known laws."

While it is true that geniuses compose designs and pictures without having learned any principles of design, and without being conscious of the existence of any such principles, yet this fact does not prove that such principles do not exist, nor that such principles may not be indispensable to the mediocre. A man may speak a language somewhat correctly and forcibly without having learned the rules of its grammar, yet these rules exist, and most of us must study and apply them if we would be master of any language, either to speak it or to interpret it.

The principles of a language are derived from the usage of the best writers and speakers of that language, so likewise the principles of design are derived from the practice of the best designers in all ages of the world, and from nature.

Let it be understood, then, that we shall make no attempt to *create* new principles nor to *invent* ornamental art. Ornamental art has existed for hundreds and even thousands of years, and it is only our purpose to *teach* it as it has been practiced in the best periods. With this aim in view, in this "*Esthetic Series*" of the "*Educational and Industrial System of Drawing*," we carry along with *Decorative Design* a parallel course of *Historical Ornament*, to which reference will be frequently made.

Principles Derived from Nature.

To the superficial observer it may at first appear that the principles about to be explained are arbitrary, or the mere whims of those who pretend to instruct others in this subject. A little investigation, however, will prove to us that these principles are all exemplified in the works of nature. A few illustrations will now be given:

Geometrical Forms are nature's own selection as a foundation for her superstructures. This is so evident that even the ancients supposed geometry to be, not only the typical science of the Deity, but also His chief recreation. In Plato's time some one asked, "What does God do when He is at leisure?" Plato answers, "He geometrizes."

Many kinds of fruit give us examples of the sphere, the circle, and the ellipse. Cut

an onion, or the stem of a tree horizontally, or look at the sun, or the moon, or the iris of the eye, or a daisy or a sunflower, and we see *circles*. Cut the stem of the sedge-grass in the same way, or look at the snowdrop and we see they are formed on the plan of a *triangle*. The stems of the dead-nettle or the willow-herb are formed on the plan of a *square*. The common bramble and the stoncrop give us the *pentagon*. Crystals of snow, the honey-comb, and the lily give us the *hexagon*, or double triangle. The pilewort or crow-foot is on the plan of the *octagon*. The crystals of all minerals give us solid geometrical forms.

Contrast is shown in day and night, land and sea, mountain and plain, storm and sunshine, massive and streaky clouds, etc. *Even Distribution*, as well as uneven, is also suggested in the works of nature around us. Nature very often *diapers* her surfaces; as in the case of scales on fishes, feathers on birds, the markings on the surfaces of shells, etc. The sky is *powdered* with stars and the fields with flowers.

When nature would impress us most powerfully she often does it by *Repetition*, and frequently of something in itself quite insignificant. A drop of water is of little account by itself, but when sufficiently repeated we have a destructive flood or the great ocean. A moment of time seems as nothing, but being sufficiently repeated we may have endless ages.

In the arrangement of the parts of many flowers, as the buttercup, for example, the petals do not fall over the sepals, but between them, thus producing striking examples of *Alternate Repetition*. So likewise the leaves of many plants are arranged alternately on their stems.

We also learn the value of *Radiation* from nature. Many animals of the lower orders are constructed on the principle of radiation, as the star-fishes. It is by radiation that the sun sends light and heat through the Solar System and manifests its dazzling splendor. The beauty of radiation is taught us by the *Aurora Borealis* as it shoots forth its luminous colors through the darkness of the night. The spider web, the dandelions, the daisies, and most other flowers are examples of the effect of *Radiation*.

Nature not only teaches us the idea of radiation, but the use of *Center-pieces* also. The lowliest flowers furnish examples as well as those that are given above as examples of radiation.

Nature teaches us all kinds of *Symmetry*. In many cases her parts are "symmetrical in themselves, arranged in a symmetrical manner," or "her unsymmetrical parts are arranged to make a symmetrical whole." Most plants and trees and some flowers, when undisturbed in their growth, and nearly all animals and insects are bi-symmetrical. Many flowers and some of the lower orders of animals are multi-symmetrical. Bi, or lateral symmetry, is of a higher order of beauty than multi-symmetry. We see this exemplified in the higher orders of animals and in man.

In the human figure, wherever a member of the body is single, as the head, the nose, the mouth, the chin, it is bi-symmetrical; but when there are two equal members, as the hands, the arms, the feet, the ears, each one by itself is non-symmetrical; but since these members balance each other, the bi-symmetry is still preserved.

Two Opposite Schools of Art.

In the artistic world, whether of fine art or of decorative art, there are, and there long have been, two schools, or theories, which are quite opposite to each other and each of which has had strong advocates. These schools or parties may be called :

1. *The Natural, Real or Imitative.* 2. *The Conventional or Ideal.*

The imitative, or realistic school of ornament advocate the strict following of nature, and they seem to think that ornament is governed by no fixed laws or principles. They appropriate flower and plant forms just as they find them, without modifying or *adapting* them to the new situations they are to occupy. They affect to despise science because they say it is too rigid, or too artificial.

On the contrary, the conventional, or ideal school *adapt* plant and other natural forms to their purpose by *conventionalizing* them. They claim that "Flowers or other natural objects should not be used as ornament, but conventional representations founded upon them, sufficiently suggestive to convey the intended image to the mind without destroying the unity of the object they are employed to decorate."

Our own preference is for the *Ideal* school, not only on account of the impossibility of always using absolute imitations in manufactures, especially articles made by machinery, but because we believe the tendency of the laws of nature itself is toward the ideal.

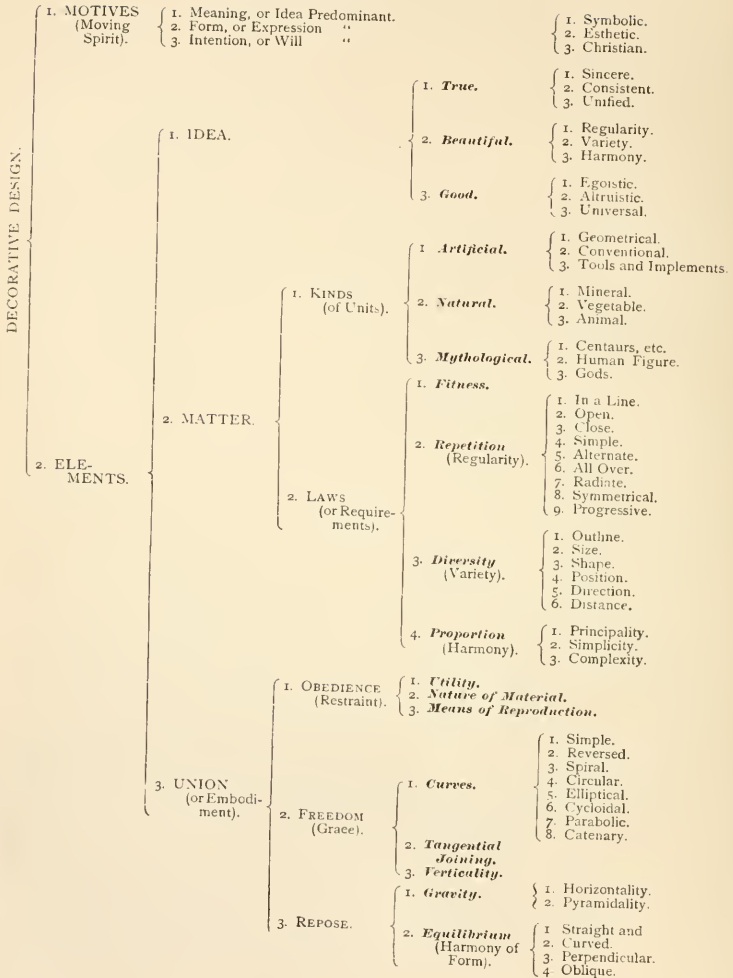
In the present state of nature, however, she is never permitted to work out her own ideals, being obstructed by winds and storms, heat and frost, floods and droughts, and other accidents as well as diseases. Hence to draw or imitate nature is only to draw circumstances, the accidents and disturbances of growth only, and not its perfection.

Still another reason for the preference of the ideal or conventional style of ornament is the fact that more thought is required in this style than in the naturalistic treatment, and thought or purpose is that which should give value to any design.

Realism in art, then, is the imitation of nature with all her accidents and defects. *Idealism*, which we think is the true idea for ornamental art, is the representation of nature in her most perfect imaginable form. In this sense the highest *ideal* beauty is *general*, the medium or compromise between all extremes, and gathered from the entire field of nature.

We have said that if one make a literal copy of nature, he must copy her defects as well as her beauties ; but if he is allowed to select one perfection here and another there, and combine them into a symmetrical whole, he may form an ideal that would somewhat approach the perfection of nature when unobstructed in her workings.

ANALYTICAL SYNOPSIS.



SYNTHETICAL SYNOPSIS.

1. Symbolic.	}	1. Meaning, or Idea Predominant.	}	1. MOTIVES (Moving Spirit).	}		
2. Esthetic.		2. Form, or Expression				"	
3. Christian.		3. Intention, or Will				"	
1. Sincere.	}	1. <i>True.</i>	}	1. IDEA.	}		
2. Consistent.		}				2. <i>Beautiful.</i>	
3. Unified.							
1. Regularity.	}	}	}	}	}		
2. Variety.						}	3. <i>Good.</i>
3. Harmony.							
1. Egoistic.	}	}	}	}	}		
2. Altruistic.						}	1. <i>Artificial.</i>
3. Universal.							
1. Geometrical.	}	}	}	}	}		
2. Conventional.						}	2. <i>Natural.</i>
3. Tools and Implements.							
1. Mineral.	}	}	}	}	}		
2. Vegetable.						}	3. <i>Mythological.</i>
3. Animal.							
1. Centaurs, etc.	}	}	}	}	}		
2. Human Figure.						}	1. <i>Fitness.</i>
3. Gods.							
1. In a Line.	}	}	}	}	}		
2. Open.						}	2. <i>Repetition</i> (Regularity).
3. Close.							
4. Simple.	}	}	}	}	}		
5. Alternate.						}	2. LAWS (or Requirements).
6. All Over.							
7. Radiate.	}	}	}	}	}		
8. Symmetrical.						}	3. <i>Diversity</i> (Variety).
9. Progressive.							
1. Outline.	}	}	}	}	}		
2. Size.						}	4. <i>Proportion</i> (Harmony).
3. Shape.							
4. Position.	}	}	}	}	}		
5. Direction.						}	1. <i>OBEDIENCE</i> (Restraint).
6. Distance.							
1. Principality.	}	}	}	}	}		
2. Simplicity.						}	}
3. Complexity.							
1. <i>Utility.</i>	}	}	}	}	}		
2. <i>Nature of Material.</i>						}	}
3. <i>Means of Reproduction.</i>							
1. Simple.	}	}	}	}	}		
2. Reversed.						}	1. <i>Curves.</i>
3. Spiral.							
4. Circular.	}	}	}	}	}		
5. Elliptical.						}	2. <i>Tangential</i> <i>Joining.</i>
6. Cycloidal.							
7. Parabolic.	}	}	}	}	}		
8. Catenary.						}	3. <i>Verticality.</i>
1. Horizontality.	}	}	}	}	}		
2. Pyramidality.						}	1. <i>Gravity.</i>
1. Straight and	}	}	}	}	}		
2. Curved.						}	2. <i>Equilibrium</i> (Harmony of Form).
3. Perpendicular.							
4. Oblique.							
					2. ELEMENTS.		
					3. UNION (or Embodiment).		
					3. REPOSE.		

DECORATIVE DESIGN.

Systematic Theory of Design.

On the two preceding pages we have presented a systematic classification of the various elements and qualities that enter into Decorative Design in general, and from a theoretic standpoint. The first arrangement gives an *Analytical* view, and the second a *Synthetic* view. The study of the subject, according to the first synopsis, as will be seen at a glance, is analytical in process, and is adapted to the use of teachers and older pupils. The second synopsis shows a synthetic arrangement of the same topics, and is adapted to the use of young pupils. But the analysis of a subject is only half knowledge—perfect knowledge requires the synthetic process also. Hence, in this “*Æsthetic Series*,” parallel with the study of the laws derived from an analysis of the works of nature, and an analysis of “*Historical Ornament*,” we carry along a series of synthetic lessons or *Practical Exercises* for the pupil to work out in original designs.

Analytical Exposition.

Every Decorative Design, as every work of art, is a composition—something made up of parts. First may be considered the general

a. Motives.

These are of three different kinds, as (1) *Symbolic*, (2) *Æsthetic*, or *Classic*, and (3) *Christian*. These expressions are explained under the head of “*Historical Ornament*.” For the meaning of Symbolic design, see Egyptian Ornament, page 57; for *Æsthetic*, see Greek ornament, page 74; for *Christian*, see Byzantine Ornament, page 105. Without further notice of the kinds of ornament, we proceed at once to the elements of decorative design.

β. Elements.

Every work of art, from the lowest to the highest, must have three elements:

1. There must be some thought, sentiment, or desire to be expressed. 2. There must be some medium or material through which this idea is to be revealed to us. 3. The actual embodiment, or the organic union of the idea with the material. The first is spiritual, the second is material generally, and the third is the result of the organic union of the first and second. The first may be called *Idea*, the second *Matter*, and the third *Form*, or embodiment.

I. Idea.

This *Idea* may be any expressed thought, feeling, purpose, or disposition. It may be an idea of intelligence, power, freedom, or love. Its attributes must be spiritual, and to be of the highest order they must be (1) *True*, (2) *Beautiful*, and (3) *Good*.

1. The True in Idea.

When we say the idea of a design should be *true* we mean:

1. That it should be *sincere*; that it should not attempt to make a false impression;

that it should conform to the laws of nature. Generally, then, but not always, the "graining of wood," or the "marbling" of it; making an oil-cloth look like a carpet; making a printed fabric imitate a woven one; making a jug imitate wicker work; making fictitious columns having no weight to bear; or in general making one material appear like another, for the purpose of deception, would violate the idea of sincerity. Where there is manifestly no deception, the objection may not be one of untruthfulness; but in either case there is generally a poverty of idea.

2. We mean that the idea of a design should be consistent with itself—not contradictory in its parts.

3. We mean that the idea should have *Unity*. Unity means oneness or wholeness; or it is that which out of many things makes one harmonious whole. The idea of a design, then, should be a distinct and perfect whole, or unit, in the imagination of the designer, and yet full of intelligence, feeling, and energy. Unity may be (1) *Subjective*, as unity of thought, of purpose, or some other influence that acts equally on all parts of a design. (2) There is the unity of *Origin*, as shown by Radiation, Symmetry, and Tangential Joining, which see, further on. (3) There is unity in *Order*, or *Arrangement*, as shown by Regularity, Repetition, Gradation in the parts of the material through which unity is expressed. See these terms under the proper headings. (4) Unity is secured by *Relation*, or *Membership* of parts as shown by Proportion, Dominancy, Simplicity, and Complexity, which see.

2. The Beautiful in Idea.

Beauty is perfect form. Beauty requires that the idea be specific, general, universal, typical—not individual, or accidental. The principal sensuous elements of beauty are (1) *Regularity*, (2) *Variety*, and (3) *Harmony*, expressed in the material through which the idea is to be revealed.

Regularity is that which is simply recurring in the same order. It is the lowest sensuous element in beauty, but the easiest to be apprehended by human intelligence, and one deeply seated in the same. It corresponds to rhythm in music and rhyme in poetry. The expression of it may be secured by simple *Repetition*, which see.

Variety, with regularity, is of a higher order of beauty than mere regularity. It includes the idea of difference, along with that of sameness, both of which are made to accord with each other. The mode of its expression will be explained under the head of Diversity, which see.

Harmony is the proper balance of regularity and diversity. Regularity and variety "furnish only the elements of art, and must be subordinated to a higher principle," and brought into unity by harmony. "The unity of harmony," however, "is not a unity of sameness, nor of correspondence merely, but a unity of adaptation to end or purpose." "Harmony is the agreement of the inner and outer, of the will and the body, of the idea and its expression, so that the external leads us directly to the internal of which it is the expression." To secure this harmony the designer "must induce in each of its component parts (suppose two only, for simplicity's sake) such imperfection as that the other

shall put it right. If one of them be perfect by itself, the other will be an excrescence. Both must be faulty when separate, and each corrected by the presence of the other."

3. The Good in Idea.

By the good we mean (1) benevolent, *Egoistic*, or not self-destructive; (2) that which is worthy to be sought by reason and in harmony with it; (3) that which is *Altruistic*, unselfish, seeking the good of others, seeking *Universal* good. The true, the beautiful, and the good, when united in the same idea, make it complete.

II. Matter.

The matter of a Design is whatever may receive the impress of spirit. It may be visible, or invisible. Sound is the invisible medium through which musical ideas are expressed. Wood, stone, iron, and glass are materials through which the architect expresses his ideas. Language is the medium through which poetical and oratorical ideas may be revealed. Light, shade, forms, and color are some of the materials used to express ideas in decorative design. Under the head of Matter we may consider (1) *The Kinds* of matter of which *Units* may be composed, and (2) *The Requirements* for their composition in design.

1. The Units of Matter.

A unit, or a repeat, in ornamental design is that material form, or figure, which is repeated or arranged so as to form a decoration. A unit may be anything that has shape. It may be (1) *Artificial*, (2) *Natural*, or (3) *Mythological*, or *Spiritual*.

(1) Artificial Units.

Under this head it is convenient to arrange (1) Geometrical Forms, (2) Conventional Forms, and (3) Tools or Implements.

Geometrical Forms may include:

1. Straight lines in groups, either vertical, horizontal, or oblique. These may be combined: (1) in groups of parallel twos and threes, as in Figs. 1 and 2, on page 37; or (2) in the form of angles and frets, as in Figs. 3, 4, 6, 7, and 8, on page 37.

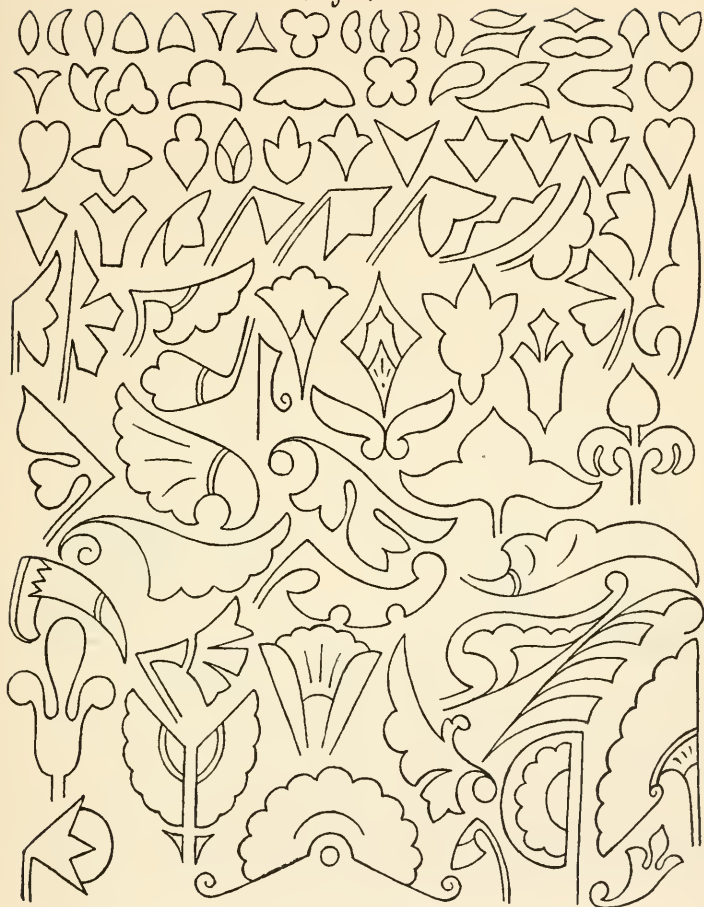
2. Disconnected curves, simple or compound, in groups of twos and threes, as in Figs. 1 and 2, on page 39.

3. Small geometrical or regular figures used as dots or spots.

Conventional Forms include symbolic figures used as units, and many other forms, once perhaps imitative of natural objects, but now so far removed from them by repetition as to have lost their original likeness and identity, such as those seen in Fig. 1 on the next page.

Tools and Implements include things of human origin and use, as: (1) Pots, vases, labels, pateræ; (2) Tools, musical instruments, trophies, arms, helmets, shields, candelabra, altars, medallions, masks, scepters, fasces, and ribbons.

Fig. 1.



(2) Natural Units.

Natural units, or those derived directly from nature, may be conveniently divided into three classes: (1) *Mineral*, (2) *Vegetable*, and (3) *Animal*.

(a) Mineral.

From the mineral kingdom we get only a limited number of desirable units, as from snow and ice crystals, and suggestions from the crystals of other minerals. These are mostly bounded by straight lines, and from their lack of grace and freedom, must be said to exhibit only a comparatively low order of beauty.

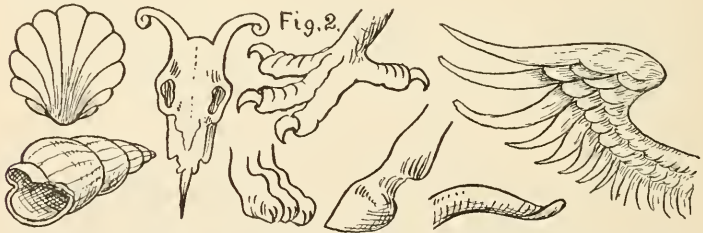
(b) Vegetable.

The vegetable kingdom is much more highly organized than the mineral. It is here we first meet life and organic growth, indicated by the almost infinite variety of exquisite curves in connection with lines comparatively straight. It is with the vegetable kingdom that the ornamental designer finds himself at home.

(c) Animal.

In the animal kingdom, the highest and most completely organized of all, we find intelligence, will, and self-activity, which give us curves of supreme beauty with the entire absence of the straight line.

The animal forms used as units may be thus classified: Shells, horns, skulls, claws, wings, snakes, lizards, fishes and dolphins, birds, eagles, owls, horses, lions, or any of these combined with foliage.

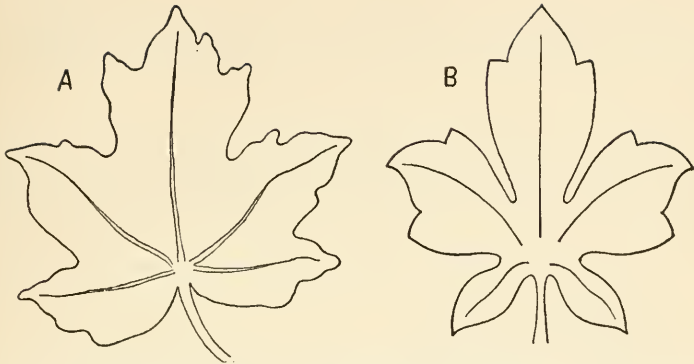


The realistic school of decorators are inclined to use these mineral, vegetable, and animal units very much as they find them; but the idealistic school, for reasons already given, say these natural units must undergo a process of preparation called

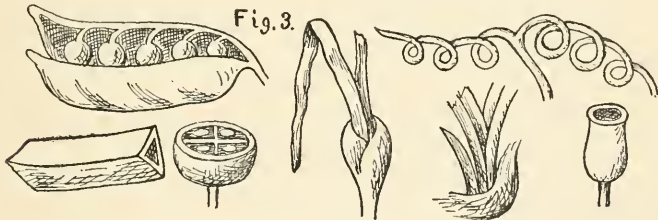
Conventionalization.

This word, though long, simply means the process of modifying some natural object, as a flower, or a leaf, a sprig, or a whole plant, so as to preserve only its general character, omitting unimportant details. It means adaptation, or preparation of an object or a form for a space or position not originally occupied by it. Such modification, however, should be in accordance with the laws of growth and the ideal form of the object.

Figure A on the next page represents the natural form of a maple leaf, while figure B represents a conventional form of the same leaf.



All parts of plants may be used as elements in ornamentation: 1. Stalks, straight, curved, fluted, reeded, twisted, spiral. 2. Joints, leading to sheaths and nests. 3. Foli-



age. 4. Flowers. 5. Fruits, berries, seeds, pods, beans, heads of grain. 6. Wreaths and festoons made from any or all of the above.

Directions for Conventionalization.

No exact rules can be given in each case for conventionalizing a leaf, a flower, or the fruit of a plant. Different persons might obtain different results from the same object, depending somewhat on the purpose in view. We can only say that usually the general form of the object should be preserved.

There are degrees of conventionalization which may be somewhat definitely classified. Sometimes but little change is made; at other times, when the ornament is to occupy a position very remote, or unlike its situation when a growing plant, it may be idealized a great deal. In fact, the process may be carried so far that we can only say that the result suggests plant growth of some kind, as in Saracenic Ornament.

These different degrees of conventionalization may be classified as follows: 1. *Natural*; 2. *Semi-natural*; 3. *Conventional*.

The first follows nature as literally as possible, and belongs to the *Naturalistic School* of art. The second is only slightly varied from the natural form. The third is idealized, made regular, or otherwise adapted to its place and purpose. This belongs to the *Ideal School* of art, while the second is a compromise between the two schools.

General Rule.

The two sides of a natural leaf, flower, fruit, plant, sprig, or branch are not exactly alike in shape, but in conventionalizing them we would usually make them so; that is, we would render the object bi-symmetrical, or, in the case of a front view of a flower, it might be multi-symmetrical. See *Symmetry*, on page 17.

Special Rules for Beginners.

1. Give a front view of the leaf.
2. Give a back view of the leaf.
3. Give a side view of the leaf.
4. Give a front view of the flower.
5. Give a back view of the flower.
6. Give a side view of the flower.
7. Give a vertical section of the flower.
8. Give a horizontal view of the seed vessel.
9. Give a side view of the calyx.
10. Give views of the stamens, pistils, buds, bracts, etc.
11. Give front and side views of the fruit.
12. Give a side view of the branch or of the whole plant.
13. Give a top view of the branch or of the whole plant.
14. Make an ornamental, a geometrical, or a symmetrical arrangement of some of the parts above mentioned.
15. Make an original design from one or several of the preceding parts used as elements.

Not all of the above rules are applicable to the same plant. The pupil is expected to follow only such rules as will apply in the case under consideration.

(3) Mythological Units.

These consist of (1) *Composite forms* made up of the human and some lower animal forms, as Centaurs, Sphinxes, Tritons, etc.; (2) *The Human Figure*; (3) *Gods*.

The human figure may be used in several ways in ornamental art:

1. Parts of the figure, as the head and body, may be combined with other ornament, or the limbs may be changed into foliage.
2. The figure may be arranged so as to produce only a modified symmetry, called *Balance*.
3. The figure may be used with backgrounds, which should be unobtrusive and evenly distributed.

4. The figure may be used without backgrounds.

In Italian ornament very frequent use is made of *boys*, or *Amorini*. They are simply small humans of a fuller and plumper growth than men; "that is, humans conventionalized."

Kinds of Units for Different Grades.

For children in Primary Schools (including the first four years of school life) the units ought to be geometrical or conventional forms, and furnished by the teacher.

For those in Grammar Grades (including the second four years of school life) the units generally ought to be conventional, and either derived from natural forms or from historical ornament.

For High School Grades (the third four years of school life) the pupils may conventionalize, or invent, their own units, and make designs for particular purposes.

In all grades the unit of the design should be repeated by some mechanical means, as by tracing, or cutting out the form of the unit from a piece of stiff paper, and then marking around the outer edge. All assistance that can be obtained from the use of rulers, compasses, or other instruments, should be freely employed.

2. The Laws or Requirements of Matter.

These laws pertain to the fitness of the material and to the order and arrangement of the several parts of a design, through which the ideas of the true, the beautiful, and the good shall be expressed.

The Idea, the spiritual, or the subjective element of ornament requires that the matter shall have certain qualities, or obey certain laws, in order that it may become a medium for expression. These qualities are (1) *Fitness*, (2) *Capability of Repetition*, (3) *Diversity*, and (4) *Proportion*.

(1) The Law of Fitness.

The first requirement is *fitness*, which means that the material should be suited to the ideal to be revealed, and to the capability and means of the artist. If the idea be one of motion, it may be expressed in sound or by music, discourse, or the histrionic art; if an idea of space or repose, it may be expressed in wood, stone, and similar materials, by one of the graphic arts, as architecture, sculpture, or painting; while "ideas of affection or tenderness, sympathy, kindness, and the like, are more perfectly expressed in color, and those of skill and power in outline."

Delicate material, like lace, requires delicate design. If the material is yielding in its nature, as woven or textile fabrics, the design must be graceful. If the material is rigid, as iron, for example, more angular designs may be appropriate. "Wood which is fibrous, and stone and marble which are granular, must be differently treated in design." Each must be treated so as not to destroy its strength or its utility.

(2) The Law of Repetition.

The Repetition of a Unit is the simplest and the most universal method of securing regularity and order in decorating a surface. In ornament it means that the element or unit is repeated one or more times. The basis of repetition is always a geometric plan. The extent of repetition that may be allowed, depends somewhat on the nature of the unit. A unit that is uninteresting in itself, frequently becomes interesting by repetition; for by repetition we are forced to take notice of it, and we thus see what had previously escaped our notice. Also a multitude of small things may suggest thoughts that a single thing would not have originated.

As a general rule, we may say the simpler the unit the greater the necessity, or rather the permission for repetition. Units that mean nothing, may be repeated without being tiresome. But as the unit rises in the organic scale, the less it will bear repetition. A plant form will bear it less than a mineral or a geometric form; an animal form still less than a plant form; and the human figure, or other spiritualized forms, less than any lower forms.

As to directions, the repetition of units may be:

1. *In a Line*, which may be horizontal, vertical, oblique, or curved, as seen in pages 37, 39, 41, 43, and 67. This kind of repetition may be called *Line Repetition*, and it is the essential principle in all borders, margins, moldings, enriched bands, friezes, cornices, frets, string-courses, etc.

2. *Open*, as in Figs. 13, 15, and 16, on page 39, where the units are separated from one another.

3. *Close*, as in Figs. 8, 12, and 14, on page 39, and Figs. 3, 4, 5, 7, and 8, on page 41. In close repetition the units are joined together or overlap.

4. *Simple*, as in Figs. 9 and 10, page 41, where there is but a single unit in each border.

5. *Alternate*, as in Figs. 1, 2, 14, and 15, on page 41, where there are two units alternated. More than two units may be also alternated. When the unit is so shaped that, when repeated, each space between two units is of the same size and shape as the unit inverted, we have a peculiar kind of alternate repetition called *counterchange*. See Figs. 11 and 12 on page 39; also 15 and 16, on page 41.

6. *All-over*, or *In Every Direction*, horizontal, vertical, and oblique, as on pages 85, 87, and 89. This kind of repetition produces what are sometimes called "All-over" or "Diaper Patterns," and it is used to ornament surfaces of indefinite or unlimited extent.

7. *Radiate*, or *Around a Center*, as seen on page 101. This is sometimes called Radial Repetition, and it is adapted to the filling ornamentally of regular, geometrical, and fan-shaped figures.

8. *Symmetrical*, consisting of two or more co-ordinate units arranged on two sides of an axis, vertical, or horizontal, or Around a Center. Symmetrical repetition is a superior kind of radiation as well as repetition, and it deserves careful and extended treatment. Most of the drawings in the "*Æsthetic Series*" are symmetrical.

Symmetry may be defined as the harmony of quantity of the several co-ordinate parts of a design; or it is the similarity in form and equality in size of one-half of a design to the other half, when it consists of only two parts; if there are more than two parts it is the similarity in form, and equality in size of one part or division of a design, to each of the other co-ordinate parts or divisions, similarly situated with reference to a common or fixed point, or line.

When there is only a general balancing of the right and the left sides, or other parts usually made perfectly symmetrical, the result is called *Equilibrium* or *Balance*. See Figs. 2 and 4, on page 117, and 2, 3, and 4, on page 129.

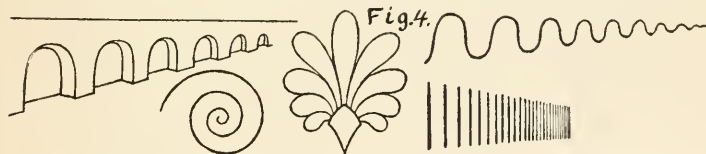
Symmetry contributes to unity, and it "is *par excellence* the ornament of civil and religious ceremonies; it lends a national sublimity to the combined movements of a squadron, and to the evolutions of an army." Ruskin says: "A form may be symmetrical and ugly, yet not so ugly as it would have been if unsymmetrical."

When a design consists of only two similar parts, that is, two co-ordinate units, right and left, or upper and lower, it is said to be *Bi-symmetrical*. It is also sometimes called "Bi-lateral Symmetry." In expression it is simple, stately, dignified, and aspiring, and hence of the highest rank or order. See Figs. 19 and 20, in Book No. 2, and Figs. 24 and 25, in Book No. 3.

If a design consists of three similar parts, divisions, or co-ordinate units, arranged around a center, it is said to be *Tri-symmetrical*. See Figs. 6, 8, and 10, on page 99. If it consists of more than three similar parts, divisions, or co-ordinate units, arranged around a center, it is said to be *Multi-symmetrical*. See Figs. 1, 2, 3, 4, 5, and 6, on page 97, and Figs. 1, 2, 3, and 5, on page 101. The last two kinds of symmetry are sometimes called "Central Symmetry." When a design, or a unit, is neither bi-, tri-, nor multi-symmetrical, it is said to be *non-symmetrical*. The units in Figs. 7, 8, 9, 10, 11, and 12, on page 67, are non-symmetrical.

The *Axis of Symmetry* is a line, real or imaginary, that separates the two halves, or other co-ordinate parts of a symmetrical design. Depending, then, on the number of axes of symmetry in a design, we may say it is *bi-, tri-, or multi-axial*. Figs. 1, 2, 3, 4, 5, 7, and 9, on page 99, are bi-axial. Figs. 6, 8, and 10, on the same page, are tri-axial. Figs. 1, 2, 3, 4, 5, and 6, on page 97, are multi-axial.

9. *Progressive*, or graded, repetition is that kind in which the unit gradually in-



creases or diminishes in size. Hence progressive repetition may be increasing, decreasing, or both.

Applications of Repetition.

Surfaces to be decorated are of various positions and forms, or shapes. Generally, they may be included under one of the following heads, or cases:

1. The surface or space may be comparatively long and narrow, as a border, and this space may be horizontal, vertical, or oblique, considered as to its length.
2. The surface may be horizontal or vertical in position, and of indefinite or unlimited size or extent.
3. The surface may be of some regular geometrical form of limited extent.
4. The surface may be of some irregular form of limited extent.

Case First.—Borders.

The long narrow space, of case first, includes all borders, stripes, margins, moldings, enriched bands, friezes, cornices, frets, string-courses, etc., whether vertical, horizontal, or oblique.

A border is a line, or a comparatively narrow ornamental arrangement of units, generally used to inclose a surface of some definite shape.

The simplest of all borders is a single line, straight or curved. The next in simplicity is a double line. That variety of borders called a fret has been and still is used more universally among all nations, civilized and barbarous, than any other class of ornament. The zigzag in some form or other is also exceedingly common.

As to direction, borders are horizontal, vertical, or oblique. In all elementary exercises in border-making it is well for the student to inclose the units by two parallel straight lines on each side, making the outer lines considerably heavier than the inner ones, as in Figs. on page 37.

Horizontal Borders.—To make a horizontal border generally requires horizontal repetition of the unit, or alternate repetition of two or more units. The unit, or repeat, of a horizontal border is generally bi-symmetrical, though it is not necessarily so. The axis of the unit may be parallel with the length of the border, or at right angles to it. In classical borders the unit is usually bi-symmetrical and at right angles to the axis, or greatest length of the border. See Figs. 1, 2, 3, and 4, on page 69. Gothic borders frequently have non-symmetrical units, and arranged in the direction of the border. See Figs. 1, 2, and 4, on page 71.

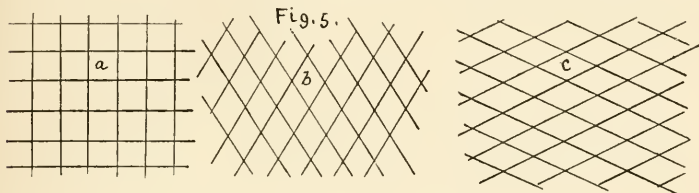
Vertical Borders.—In vertical and oblique borders, non-symmetrical units are frequently used. See Figs. 8, 9, and 10, on page 43; and 7, 9, and 12, on page 67.

Case Second.—Diapers.

Surfaces of indefinite or unlimited extent are either vertical or horizontal planes, or they have the characteristics of these, so far as ornamentation is concerned. The patterns formed under this case are generally called "*Diaper*" or "*All-over Patterns*," and there is probably no species of ornamentation for flat surfaces more grateful to the eye when properly done.

A Diaper is a kind of ornamentation by a repeated pattern, carved, painted, woven, or printed, generally in squares or other regular geometrical forms, representing flowers, arabesques, or conventional forms.

The simplest method of ornamenting such surfaces is by the repetition, concurrently or alternately, of units in all directions, horizontally, vertically, or obliquely. Fig. 5



shows the usual directions the repetitions may take. Plans *b* and *c* are the most fertile and practical in results.

First, inclose a square or oblong space, of any convenient size, by a double line, as a kind of outline or border, and then cover the surface inclosed evenly, keeping in mind the following general principles:

1. When the surface is supposed to be vertical, or to have an upward tendency, the unit may be bi-, tri-, multi-, or even non-symmetrical, although bi-symmetrical units are generally more appropriate on account of their aspiring tendency.
2. If the surface is horizontal, or is to be viewed as such, bi-symmetrical units are less appropriate than the others, because the others appear about the same from every point of view.

Particular Methods for "Diapers."

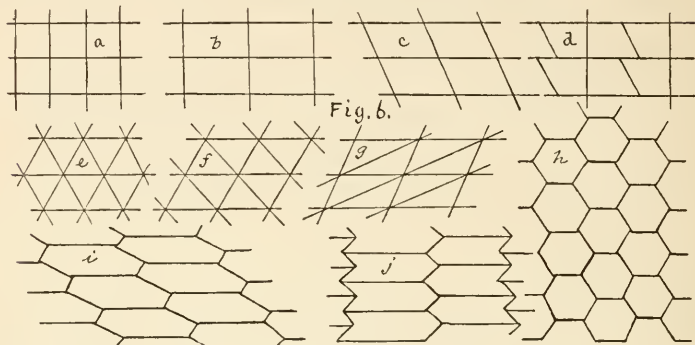
Keeping in mind the above general principles, the following particular methods by which a surface of indefinite extent may be evenly covered, or by which a plan for ornamental effect may be blocked out, are recommended for careful study and practice:

1. By means of stripes, vertical, horizontal, or oblique, which may be constructed on the same principles as any of the preceding borders. See pages 73 and 83.
2. (*a*) By means of squares; or (*b*) By any four-sided figures. See page 20.
3. (*a*) By means of equilateral triangles; or (*b*) By any triangles. See page 20.
4. (*a*) By means of regular hexagons; or (*b*) By any six-sided figures, having their opposite sides parallel. See page 20.
5. By an unlimited variety of straight line figures founded on the above geometrical forms. See page 85.
6. By an unlimited variety of curved line figures, founded on the above geometrical forms. See page 87.

We will now take up these methods and illustrate them separately.

First, *By Stripes*. See page 73. From a study of this page it is evident that horizontal and oblique stripes may also be used to cover any indefinite flat surface.

Second, *By Means of Squares and Other Four-sided Figures*. See *a, b, c,* and *d* in Fig. 6. Of course, any of these spaces might be indefinitely extended.



Third, *By Triangles*, equilateral or other kinds. See *e, f,* and *g*.

Fourth, *By Hexagons, Regular and Irregular*. See *h, i,* and *j*.

It will be noticed that in the preceding examples, the surface in each is completely covered, no open spaces being left between the squares, triangles, hexagons, etc. These squares, oblongs, rhombs, triangles, and hexagons are not necessarily units, but they are a convenient method of securing the orderly arrangement of units, since any unit that will conveniently fill one of these geometrical spaces enumerated above may be used for filling out the whole design to any extent.

Fifth, *Straight Line Figures Founded on the Preceding Forms*. (*a*) *Straight Line Figures from the Square*.

Such figures may be discovered or invented by taking a number of adjacent squares and cutting out straight line figures from one side of a square and attaching it to some other side, opposite or adjacent, of the same square. See Figs. 1 and 2, on page 85. In Fig. 1 an isosceles triangle is cut out of opposite sides and placed on the two other opposite sides. In Fig. 2 a right-angled triangle is cut out of adjacent sides and placed on the two other adjacent sides. In both cases the size or area of the squares remains unchanged. This method of covering a surface is sometimes called "giving and taking," because what is taken from one side of a geometrical figure is given to some other side. The result is called a *Counter-change*.

(*b*) *Straight Line Figures from the Equilateral Triangle*. See Figs. 5 and 6, on page 89. In the case of triangles, whatever is cut out of one side is put on the same side.

(c) *Straight Line Figures from the Hexagon.* The rule for equilateral triangles, whatever is cut out of one side is put on the same side, or an alternate side, applies to the hexagon. Let the student work out a few examples for himself.

Sixth, *Curved Line Figures Founded on the Preceding Forms.* (a) *Figures from the Square.*

These are constructed on the same principles as those for straight lines, that is, by cutting out figures from one side and attaching them to the same side or to some other side. See page 87.

(b) *Figures from Rhombs.* See page 89.

(c) *Figures from Triangles.* See page 89.

Case Third.—Regular Geometrical Forms.

This problem is to cover ornamentally a surface of regular geometrical outline, such as squares, oblongs, rhombs, rhomboids, triangles, pentagons, hexagons, heptagons, octagons, circles, ellipses, and many other figures founded on these.

The first step in elementary exercises is generally to inclose the given geometrical space with two parallel lines as a provisional border. For the sake of *Unity* and *Radial Repetition*, this case usually requires that there shall be but one single place of attachment or point from which the parts or units of the design spring, or take their rise. This point of radiation may be at the center, or at some convenient place on the outline or border of the geometrical surface.

When this point is on the outline or border, the design is generally bi-symmetrical; when at the center, the design is generally tri- or multi-symmetrical, and requires radial repetition around what is called the *Center-piece*.

This center-piece should generally be of some conventional or geometrical shape, and it should contain as many points of attachment as the design is to have parts or units repeated. It should be about one-fourth or one-fifth of the diameter of the design, in size, or large and strong enough in appearance to hold the radiating parts well together.

When the geometrical form has been fixed upon and a border drawn around it, draw lines from the center to the angles of the border so as to divide the surface into 2, 3, 4, 5, 6, 7, 8, 9, 10, or more equal parts. Select, or design a center-piece with the proper number of points for attachment. Now design or fix upon the unit or element that is to fill $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{7}$, $\frac{1}{8}$, $\frac{1}{9}$, $\frac{1}{10}$, or a less fraction of the whole geometrical space, and repeat it by tracing, or other mechanical means, the required number of times.

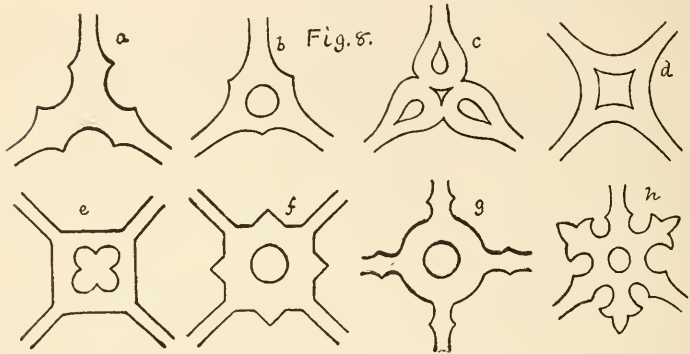
If the geometrical outline is an isosceles triangle, or in the shape of a pediment of a building, as in Fig. 7, the principle of Progressive repetition, that is, the increasing or decreasing gradually the size of the unit repeated, may often be used with happy effect.



The Square.

For the first lesson under this case third a square is the most suitable. It is one of the most common and useful forms or outlines to be ornamented. If two sides are vertical, a bi-symmetrical or multi-symmetrical arrangement may be adopted. The diameters and diagonals intersecting at the center form the natural divisions. If the sides are oblique, a bi-symmetrical arrangement is very appropriate.

SUGGESTIONS FOR CENTER-PIECES (CASE THIRD).



Case Fourth.—Irregular Forms.

When the space is irregular in shape, no specific rules can be laid down, and much will depend on the ingenuity of the designer. See page 127 for irregular inclosing forms.

(3) The Law of Diversity, or Contrast.

Diversity, or Contrast, is the bringing together of different or even opposite qualities, whether of outline, size, shape, light, shade, or color, to increase the liveliness, brilliancy, picturesqueness, force, or grandeur of a composition. These opposite qualities are not necessarily contrary to unity, although there may be diversity without unity, and unity

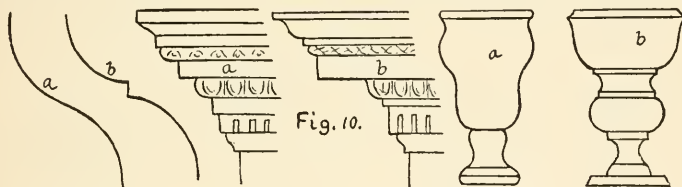


without diversity, each of which conditions is unsatisfactory. A harmonious combination of unity and diversity produces the most pleasing result.

Contrast unrestrained or carried to excess produces disorder and confusion. It should be held in check by the laws of regularity. Fig. *a* is an example of diversity without regularity; *b* shows sameness or monotony without diversity; *c* is an attempt to combine diversity and regularity in the same design. Diversity may find expression in a design (1) through *Relative Outline*; (2) *Relative Size*; (3) *Relative Shape*; (4) *Relative Position*; (5) *Relative Direction*; (6) *Relative Distance*.

(a) Law of Relative Outline.

A due regard to variety or contrast requires that outlines should not be so continuous in direction as to be monotonous. Long curves should sometimes be interrupted

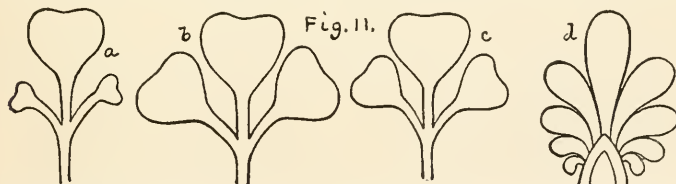


by straight lines, and abrupt changes which continue only for an instant. In Fig. 10, examples *a* are too uniform; they may be called weak outlines. Examples *b* are better, being varied by contrast.

(b) Law of Relative Size.

If there are several units in the same design, or several parts in the same unit, not co-ordinate, they should not be of the same size, nor should there be one very small part and another very large one, without some intermediate size to link them together, that is, there should be gradation or progression.

One object, or one part, should not be exactly one-half, one-third, or one-fourth of another. The relation of one part to another is more pleasing generally when its exact



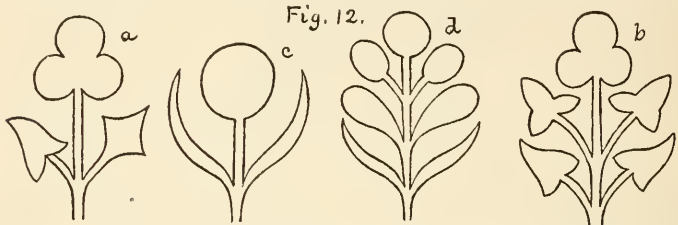
proportion is not seen at the first glance. The relation of two to five, three to five, three to seven, four to seven, four to nine, five to nine, or three to eleven, etc., is generally preferable to the proportions first mentioned. In Fig. *a* the diversity is too great—there

is no proper gradation from the small to the large. Fig. *b* lacks diversity—there is too much sameness and no proper subordination of parts. Fig. *c* is much better. Here we have Diversity, Principality, Subordination, and Gradation in due proportion. Fig. *d*, the Greek Anthemion, also unites all these qualities, while the gradation is more perfect than in Fig. *c*.

(c) Law of Relative Shape.

The forms or shapes of the elements of a composition should be somewhat similar; or, if they are very unlike, the intermediate space should be bridged over by intermediate forms, such as will appear to diminish the diversity.

Generally, then, but one plant form should be used in the same ornament. The shamrock, the rose, and the thistle are perhaps too diverse to be used with the best effect in the same design. Also the recognized styles of historical ornament should not be intermingled in the same design, as Greek with Roman, Egyptian with Roman,

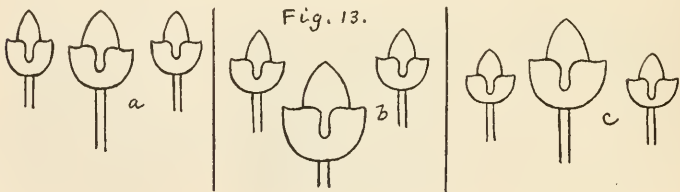


Moorish with Greek, etc. In Fig. *a* the forms are too incongruous, too unlike. If for any reason such forms must be brought together, their diversity should be diminished by intermediate forms as in Fig. *b*. The same remarks will apply to Figs. *c* and *d*. Figs. *b* and *d* have more gradation, more harmony, and more unity than *a* and *c*.

(d) Law of Relative Position.

Generally, the larger the unit relatively, or the more important it is for any reason, the more prominent should be its position; *i.e.*, it should be higher, more central, or nearer in front.

In Fig. *a* principality is weakened by placing the small figures as high as the central



and larger one. Fig. *b* is still worse, unless it should be regarded as a perspective drawing. Fig. *c* is better. Prominence in size is emphasized by prominence in position. There is thus more harmony, more unity.

(e) Law of Relative Direction.

The direction of the leading lines of a design are very important, as they contribute to or detract from unity, repose, harmony, contrast, etc.

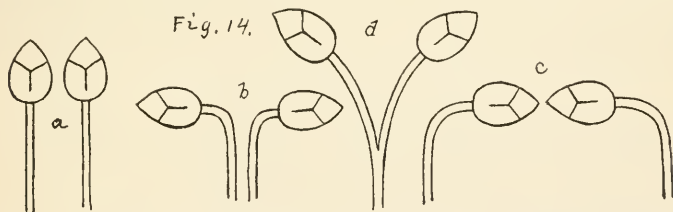
By the direction of the elements of a design, one can control the attention of the observer unless he absolutely refuse to look. If he yields even this much, he is helpless, and his eyes must follow the direction of the lines or elements.

Generally speaking, *Vertical* direction means life, strength, aspiration. *Horizontal* direction means death, repose. *Drooping* directions imply weakness, feebleness. *Parallel* directions are monotonous and not generally pleasing, and yet the directions of like parts of a design should usually be the same.

Two lines are in the greatest *harmony* when coinciding or parallel. They are in the greatest *contrast* when at right angles. In design, and especially in pictorial art, both these directions should generally be avoided, except when they are necessary for construction, stability, or use.

Rule 1.—The direction of the elements or units of a design should not lead the eye and the mind *out* of it, but should retain it willingly *within*. Direction is properly used to suggest *origin, motion, or repose*.

Rule 2.—Opposite directions are generally too abrupt to be pleasing. Fig. *a* is unsatisfactory, because the directions are parallel. Figs. *b* and *c* are also displeasing,

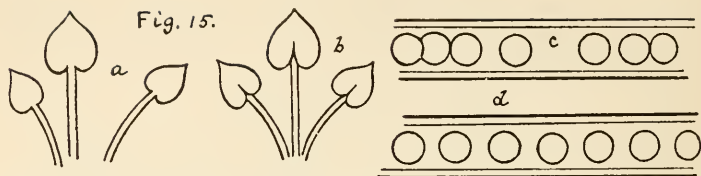


because the directions are too abrupt. Fig. *d* is better as to direction, but it lacks principality to make it still better.

(f) Law of Relative Distance.

In decorative design the *distance* between like parts, or between the subordinate parts and the prominent parts, should be the same. The distance between units must also have some reference to their size and shape.

Relative distance is a necessity to regularity and even distribution. In Fig. *a* the leaves 1 and 2 are equally subordinate to the principal leaf 3, and hence they should be



equally distant from it. Fig. *b* is better. In Fig. *c* the circles are equal units, and hence there should be equal distances between them, as in Fig. *d*.

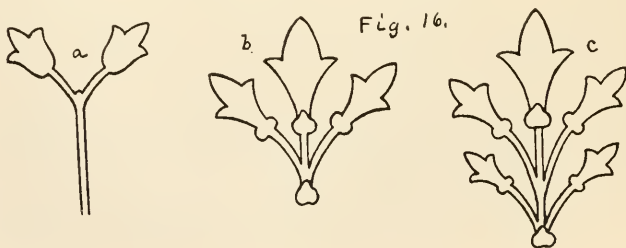
(4) The Law of Proportion.

Proportion and Symmetry both relate to quantity, and they are closely related to each other. Proportion is the harmony of the quantity, or magnitude, that any one part of a design, or of a unit, bears to the whole, or "a harmony of a whole with any of its parts." In symmetry the parts are equal or co-ordinate, in proportion they are unequal; hence, proportion is the connection or union of unequal quantities, and there must be at least three parts. Symmetry is harmony of quantity from right to left, while proportion is harmony of quantity in a vertical direction. Hence this contiguity of parts, this correspondence of the several members or parts of an object with the entire figure, has been called *Harmonic Proportion*.

The laying out of the human figure into so many faces or heads or feet was called by the ancients *Numerical Proportion*. Some writers have supposed that the most beautiful division of a line is in *extreme* and *mean* ratio; that is, so that the lesser part shall be to the greater as the greater is to the whole line; as $382:618::618:1000$. Some of the requirements of good proportion are (1) *Principality*, (2) *Simplicity*, (3) *Complexity*.

(a) The Rule of Principality.

Principality consists in making one part of a design or of a unit more prominent in size, position, or color than the others, and in grouping the others about it in such a way as to indicate their subordination. It is an aid in securing unity. In the fine arts



also, good pictures generally have "one light larger or brighter than the other lights, or one figure more prominent than the other figures, or one mass of color dominant over all the other masses." Fig. *a* is not satisfactory—there is no leading or prominent part. Fig. *b* is better, as it has a principal and subordinate parts. Fig. *c* is still better, as leadership is assisted by gradation or progression and preparation.

(b) The Rule of Simplicity.

Since the human mind can easily take in or understand only a limited number of parts or of units, whether of lines, forms, colors, or sounds, the law of simplicity in proportion requires that there should not be too many parts, and that the relations of parts or units to the whole should not be too obscure to be easily noticed. Some metaphysicians have fixed the limit from four to seven; but whether or not the limit can be definitely fixed, it is quite certain that a great multiplicity of parts is perplexing and confusing to most minds.

(c) The Rule of Complexity.

On the other hand, while the mind is offended by great multiplicity, which it finds difficult to gather into a whole and comprehend as one, *Complexity* requires that the simplicity should not degenerate into sameness or monotony. The mind delights in some complexity if there is only a clew to its unraveling.

III. The Union, or the Embodiment.

The law of expression requires that idea and matter be equally considered, and that a perfect equipoise be maintained between them. The idea should not be permitted to overwhelm the capabilities of the matter, nor the matter to belittle the idea which is expressed in it. The embodiment is not the idea by itself, nor the matter by itself, but it is the idea revealed in the matter, the organic union of the two in one harmonious synthesis. The union of these elements must be brought about so as to show (1) *Obedience*, or Restraint; (2) *Freedom*, or Grace; and (3) *Repose*.

I. The Law of Obedience.

Restraint, or mutual respect for law, on the part of idea and matter is that quality of a design or composition which makes it appear that each part is submissive to the other, in its boundary, for instance, having no desire to break over its prescribed limitations. No part should look as though it were cramped or ill at ease in its assigned duty or place, but that it renders willing obedience to necessary conditions. Ruskin says restraint or self-command "is the girdle of beauty" and "the most essential of all." Especially must there be obedience to the demands of (1) *Utility*, (2) *the Nature of Materials*, and (3) *the Means of Reproduction*.

(1) Utility. .

As all ornament, with reference to the thing decorated, is accessory or subordinate to it, it follows that ornamentation must not interfere with use. It must not usurp attention

to itself, but it must promote the importance of the principal form. Ornament, as such, has no independent existence. "Apart from its place and purpose and the process of its doing, there is no such thing as ornament."

(2) The Nature of Materials.

All material, whether visible or invisible, light or heavy, fibrous or granular, delicate or coarse, must be used according to its nature. See the Law of Fitness, page 15.

(3) The Requirements of Manufacture.

The mechanical process by which an article is to be reproduced, whether by plaiting, netting, knitting, weaving, hammering, carving, casting, chiseling, sawing, or what not, must always be considered, since these processes have always left their impress not only on the individual articles made, but also on the leading historical styles of ornament. We have good authority for saying that "wherever the historic style is marked, its character is to be traced to some mode of workmanship which, if it did not actually inspire it, made it advisable." Still more, then, in this age, in which machinery is supreme, must decoration be such as can be readily manufactured.

2. The Law of Freedom.

Freedom, or Grace, requires the expression of the idea in the material without apparent effort. The expression should be free, natural, graceful. Freedom is the expression of a free will. The perfect absorption of body or matter in the idea is gracefulness. When the idea is not at ease in the material, but appears as something separate, gracefulness departs, and grotesqueness takes its place. The expression of freedom is assisted by the use of (1) *Curves*, (2) *Tangential Joining of Parts*, (3) *Verticality*.

(1) Curves.

Curves, as a class, are more beautiful and interesting than straight lines. They express more freedom and grace, but less strength. They exhibit more variety as well as more perfect gradation, but less contrast.

For our present purpose, curves may be divided into two classes: 1. *Limited*; 2. *Unlimited or Infinite*. Limited curves are those that return upon themselves or repeat themselves when continued, as the *circle*, the *ellipse*, the *oval*, the *cy cloids*, and some others, as seen in Figs. I, J, and K.

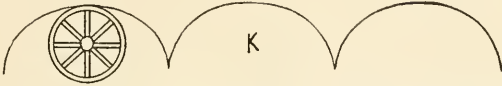
The infinite curves are those that move on forever without repetition, as the *parabola*, the *hyperbola*, the great family of *spirals*, and many others.

The *circle* is an interesting curve. In modified forms it is a favorite of nature, and is frequently suggested in vegetables, fruits, and other plant forms. It is sometimes used to express or symbolize eternity, because it has neither beginning nor end; but being a monotonous return upon itself, it cannot suggest a progressive eternity.

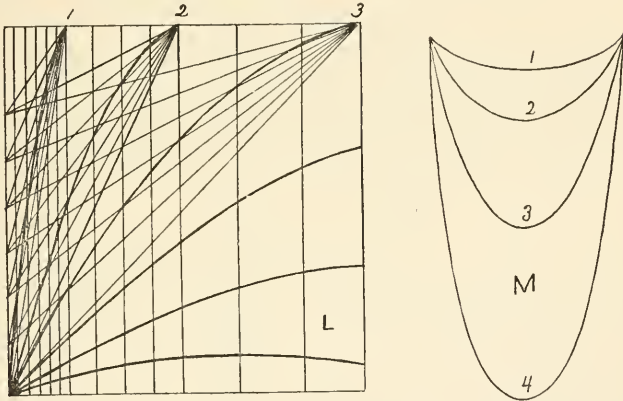


The *ellipse* has more beauty than the circle, having two centers, and hence it has more variety of outline.

The *cycloids* and other limited curves are still more varied. If a wagon wheel or a



circle roll on a level or plane surface, any point on its circumference will mark a cycloid for each complete revolution, as shown in Fig. K.

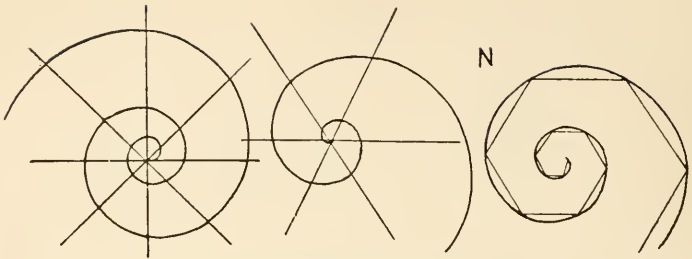


Among the infinite curves we frequently find the parabola, the hyperbola, the catenary curve, and the spirals exemplified in plant growth.

The *parabola* is the curve described by a ball, or similar object, when thrown through the air. Curves 1, 2, 3, and so on, in Fig. L, are parabolic.

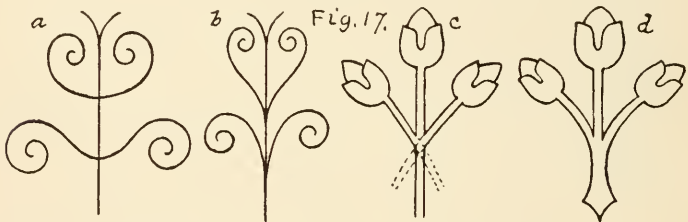
The *catenary* curve is seen when a chain, or rope, or anything of this kind that is of uniform thickness, weight, and flexibility, is supported at two points so as to hang loosely between the points of support, as shown in Fig. M at 1, 2, 3, and 4. The word *catenary* is from the Latin *catena*, a chain. It is a beautiful curve, often seen in hanging vines and drapery.

No curves, however, can exceed the beauty of some of the *spirals*, whose governing line changes every instant, and yet the spiral moves on forever. As these curves sweep around their centers, they may arise and swing off into space, with varied degrees of rapidity, and thus carry the thoughts of the observer into a never-ending but always widening and progressive infinity.



(2) Tangential Joining.

This phrase refers to the manner in which the parts of a design are joined together, as curves with straight lines, curves with curves, and forms with forms. If lines or forms are to be joined, it requires that they meet so as to glide or run into one another, and form a single line or figure after meeting. If they meet in such a way as to intersect if continued, they are called *secant* lines or forms, and the principle of tangential



joining is violated. Figs. *a* and *c* illustrate secant joining, while *b* and *d* are examples of tangential joining. Tangential joining *harmonizes* lines and forms; secant joining *contrasts* them. Tangential joining is an aid to unity, gradation, grace, harmony, and repose.

(3) Verticality.

Freedom means life, activity contrary to opposing influences. So also verticality denotes life, aspiration, upward-tending thought and purpose. It is the prevalence of the vertical direction that gives a noble and graceful bearing to a lofty tree, an airy freedom to a Gothic cathedral. Man's freedom and dominion over the earth and over the beasts of the field is at least emphasized by his upright position.

3. The Law of Repose.

The artistic union of the idea and the material must secure the appearance of Repose. Not the repose of death in which the idea has departed from the material, but an

indwelling vital activity, not so much at rest as in loving harmony with its material. It is the "agreement of the inner with the outer," of the idea with its matter, and its expression therein, "so that the external leads us directly to the internal, of which it is the expression." The expression of repose is assisted by (1) *Obedience to Gravity*, (2) *Equilibrium of Lines and Forms*.

(1) Obedience to Gravity.

This principle practically applied means that whatever has weight should appear to have proper and adequate support. It is not enough that there be actual support, but artistic design requires that every part appears to be adequately supported. The appearance of secure gravity may be assisted by (1) *Horizontality*, (2) *Pyramidity*.

Horizontality. Lines and objects in a horizontal position denote repose, stability, sameness, monotony, or death. Such forms seem to have ceased their struggle with gravity, and are in the repose of death rather than in an equilibrium of opposite forces. Horizontality is the prevailing direction in the broad ocean, the wide plain, the foundations of the earth, and whatever to us seems most fixed.

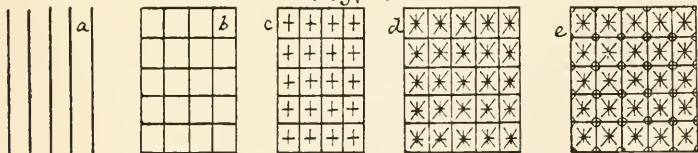
Pyramidity. Objects that have a wide base and a comparatively small or narrow top may be said in a general way to be pyramidal in form. They conform to our feelings for security against the tumbling force of gravity, and assist the sense of repose.

(2) Equilibrium.

Abstractly speaking, a perfect ornamental design should generally contain both straight line forms, horizontal, vertical, and oblique, and curved line forms, the grace and weakness of the curves being contrasted with the stability and strength of the straight lines. This "proper balancing and contrast of the straight, the inclined, and the curved" has been called the *Harmony of Form*.

Fig. *a* is generally an unsatisfactory manner of ornamenting a surface, that is, covering it with stripes running only in one direction. The eye wanders back and forth along the lines without finding any resting place. Fig. *b* is more satisfactory, because

Fig. 18.



the direction at least may be changed, and the intersections of the vertical and horizontal stripes form places of slight repose. Fig. *c* is still better, because the small crosses form additional points where the eye may rest. Fig. *d* introduces another element of variety, the oblique line, without destroying the unity or repose previously secured. Fig.

e is probably the most satisfactory of all, as it includes straight lines in their three principal positions, and also curved lines, thus illustrating somewhat the meaning of harmony of form, as previously defined.

Applied Design.

In the preceding exposition we have been speaking of the principles of Decorative Design in the abstract or in general. When we come to make designs for some particular fabric, object, or purpose, we need to apply these rules as previously stated with discriminating judgment, and according to the circumstances; or in case any of these principles seem to conflict, we must decide which shall prevail. The student may be assisted by the following

General Hints.

1. Decorative Design should always be subordinated to constructive design; hence, it should never be applied so as to interfere with the use of an object.
2. The distance from which ornament is to be viewed must be consulted. A design to be seen at a distance or on some elevated position, should have but little detail, and its leading lines or forms should be made prominent.
3. No line or stem should run for a long distance without interruption, that is, without being covered or concealed in places by some other part of the design.
4. Perspective effects should seldom be used in flat ornament.
5. When plant forms are used, the laws of plant growth should be observed; that is, leaves should not grow out of stems in opposite directions, and a leaf stem should not be larger than the branch from which it springs. See also "Some Special Laws of Plant Growth," in the *Graphic Skill Series*.
6. Avoid over-elaboration, or "a profusion of minute parts," which generally causes confusion.

Classification of Objects to which Decorative Design may be Applied.

Flat Ornament may be applied to the following classes of objects:

1. *Printed fabrics*; as calicoes, wall-papers, oil-cloths, etc.
2. *Woven fabrics*; as carpets, shawls, laces, embroidery, bed-spreads, table-cloths, wall tapestries, plaids, portières, etc.
3. *Mosaics*; as tile-covered floors, pavements, marquetry, inlaid-work, Boule-work, etc.
4. *All kinds of Diaper-work*; as stained glass.
5. *Enameling*; as glazed ware.

Sculptured Ornament may be applied as follows:

1. *For building purposes*; as in carved stone-work, moldings, window and door caps and casings, cornices, window-tracery, capitals, columns, friezes, etc.
2. *Hardware*; as in the ornamentation of stoves, grates, fenders, gas-fittings, lamps, bronzes, etc.
3. *Furniture*; as in carved chairs, sofas, dressing-cases, bedsteads, cabinets, side-boards, book-cases, etc.

4. *Jewelry*; as cameos, silverware, necklaces, watch-cases, repoussé-work, etc.
5. *Pottery*; as Limoge ornamentation and all kinds of raised work in fictile ware.

It would be contrary to our purpose in an elementary work, to undertake to apply the preceding abstract principles to the actual designing of ornament suitable for all the above classes of objects. Such a task would require the careful study of many different kinds of material and their methods of treatment in manufacture, and would fill a volume or many volumes, depending on the degree of details entered into.

Some observations will be made as to the practical application of these principles to floor coverings, from which as a kind of model the student may study out the requirements of design for other classes of objects.

Floor Coverings.

Floors are made to walk over and to retain their furniture in stable positions. For these purposes they must be level and flat. Utility now being satisfied, how shall we ornament these floors?

Floors may be covered with mattings, oil-cloths, carpets, tiles, or marquetry. The first requirement of the *Analytical Synopsis*, on page 6, is *truthfulness*. The floor is flat, hence it must *appear* flat, after it is ornamented. The representation of fruits, floral bouquets, animals, sections of architecture, waterfalls, or landscape views, violate this law of utility and sincerity as well as the first requirement of matter, that is, fitness. This law of fitness would also exclude natural and mythological units, and tools and implements, since none of these objects should be trodden under foot. We are thus limited to geometrical units and conventional plant forms as the most suitable to preserve the flatness and usefulness of the floor.

Now, we are required to make our floor covering beautiful, if we can. We may call in the assistance of regularity, variety, and harmony, as secured by repetition, diversity, and proportion. Under repetition we reject *in a line*, unless the floor is a long gallery, or narrow passage-way. A little further thought will convince us that an *all-over* pattern will best preserve the apparent flatness and evenness of the floor, as well as contribute to repose of mind. We must reject bi-symmetrical units, because on a floor they would frequently be viewed upside-down. Units formed by radiate repetition appear alike from all positions in the room and for this reason are the most satisfactory.

Under proportion, the size of the units should be governed somewhat by the size of the floor, but the units should never be so large as to be difficult of observation, on account of the presence of furniture.

Again, the ornament must be obedient to the nature of the material, whether woven, painted, or burnt clay, and to the means of manufacture. And since the floor covering is to be a background for all that is in the room, its ornament should not be obtrusive by angularity, or want of repose in outline or color.

Let the pupil write out the requirements for wall-papers, or wall-coverings, for halls, parlors, sitting-rooms, dining-rooms, bed-rooms, etc. Also the requirements for table-cloths, napkins, curtains, calicoes, stoves, etc.

Books on Decorative Design.

Students who desire to become practical designers, or who wish to pursue the subject of Decorative Design farther than it has been presented in this MANUAL, will find it profitable to study the following:

"A Manual of Decorative Composition," for designers, decorators, architects, and industrial artists, by Henri Mayeux (New York, D. Appleton & Co.). "Every-day Art, or Short Essays on the Arts not Fine"; "The Anatomy of Pattern"; "The Application of Ornament"; "The Planning of Ornament": these four books are by Lewis F. Day, and published by B. T. Batsford, 52 High Holborn, London. They are imported by Charles Scribner's Sons, New York.

PART II.—SYNYHETICAL EXERCISES.

BOOK NO. I.—ÆSTHETIC SERIES.

INTRODUCTORY.

As previously stated, Part I. is analytical or theoretical, in which the principles of Decorative Design are systematically presented and illustrated. This method of procedure is suitable for the general student or teachers of experience. In Part II. the subject is to be taken up in synthetical order, but frequent reference will be made to the principles explained in Part I. Younger pupils, then, should begin with Part II., and only learn the principles as they may be needed for their application to the work in hand.

For instance, Part II. begins with the designing of simple borders. While on this topic let the pupils, and the teacher if necessary, familiarize themselves with the different kinds of units, and the directions for designing borders found on pages 10, 11, 12, and 18.

Usually the best results in design, or composition drawing, will be secured by giving the lesson a day or two before the result is required, explaining just what is to be done. The designs may at first be made on slates, or loose sheets of paper, and handed in to the teacher for criticism and suggestion, before they are drawn in the books. Each pupil may then draw his own design in his book, or the teacher may select the best design from all those handed in, and then have all in the class draw it.

It is not intended that the invention of decorative designs should be made an exercise in freehand drawing. Perhaps the original unit will require freehand drawing, but all repetitions of it should be effected by tracing, by means of a pattern, or some other mechanical means. For tracing, lay a piece of tracing-paper (a thin, transparent paper) over the unit, and trace it or mark over it with a soft lead-pencil. Now lay this tracing, face downward, on the place where it is to be repeated, and rub over the back of it with some hard, smooth substance; a faint impression will thus be made, which may afterwards be strengthened with the pencil.

For the following exercises the pupils may use blank drawing-paper, or the regular drawing-books made to accompany this *Manual*. The blank drawing-paper is put up in the form of pads, and may be had of the publishers of this book. If blank drawing-paper is used, the pupils can rule their own spaces, *A, B, C, D*, etc.

Lesson 1.—Straight Line Horizontal Borders.

Space A, Plate 1.—Design a horizontal border with detached or separated straight lines as the unit to be repeated, similar to Figs. 1 and 2. The straight lines may be vertical, horizontal, or oblique, and used singly, or in groups of two or three. After the border is designed it should be drawn in space **A** on Plate 1. As space **A** is wider than the spaces 1 and 2, the lines used as elements may be much thicker and broader. Rulers and all other mechanical aids may be used in the designing and in the drawing.

Remember that Figs. 1, 2, 3, 4, and so on, are not to be copied in the drawing-book. They are made small in size, and are only intended to assist the learner in making up *his own designs*, which must then be drawn in spaces **A, B, C**, and so on.

Space B.—Design a horizontal border with detached or separated right angles as the unit to be repeated, similar to Figs. 3 and 4, and draw the result in space **B**. The lines should be made thick or broad, as in space **A**.

Space C.—Design a horizontal border containing as the unit to be repeated obtuse or acute angles, similar to those in Figs. 5 and 6, and draw it with broad lines in space **C**.

Space D.—Design a horizontal border with detached units composed of right, acute, or obtuse angles, or two of them combined, as in Figs. 7 and 8, and draw it with thick lines in space **D**.

Space E.—Design a horizontal border composed of a continuous broken line, or connected units, as those in Figs. 9 and 10, and draw it in space **E**.

Space F.—Design a horizontal border composed of two continuous broken lines intersecting or crossing each other at regular intervals, as in Figs. 11 and 12, and draw it in space **F**.

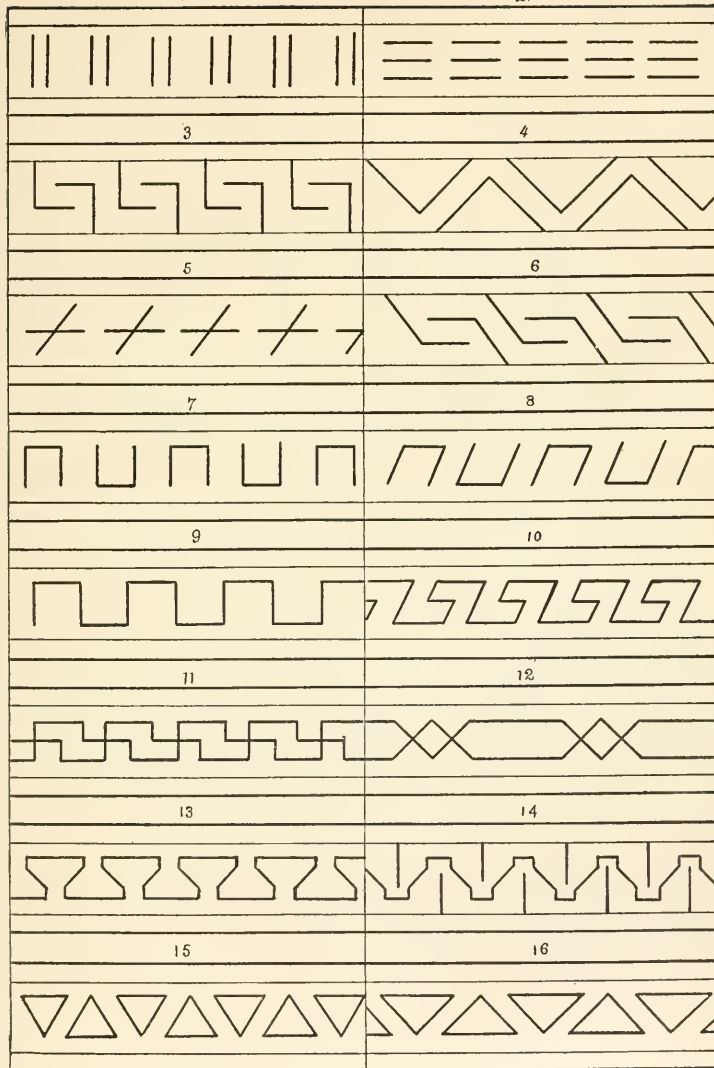
Space G.—Design a horizontal straight line border in *counterchange*—that is, by making the unit repeated and the space between units the same size and shape reversed, as in Figs. 13 and 14, and draw it in space **G**. See *counterchange*, on page 16.

Space H.—Draw a horizontal straight line border with a triangular unit, as in Figs. 15 and 16, and draw it in space **H**.

Review.—As the object of teaching Decorative Design to the general student is to cultivate the æsthetic judgment rather than great ability in designing, the pupils should not leave Plate 1 until they can begin to see a meaning in the lines or units used and the borders as wholes. For example, in No. 1 there is *unity* secured by the inclosing lines; it is made by *simple repetition* of two vertical straight lines used as a unit; there is *contrast* because the long lines have a tendency to carry the eyes right and left, while the short lines carry the eyes up and down in opposition to the first. In No. 2 there is more unity, but it is monotonous, there being but little contrast or variety. No. 3 has less contrast than No. 1, but more than No. 2. In Nos. 4, 5, and 6 there is contrast, but it is not so decided as in No. 1. Let the pupils point out the characteristics of the other borders and review the principles needed.

1.

2.



Lesson 2.—Curved Line Horizontal Borders.

Space A, Plate 2.—Design a horizontal curved line border with detached curves, vertical, horizontal, or oblique, used singly or in groups of two or three, as in Figs. 1 and 2. Draw it with thick lines in space *A* on Plate 2.

Space B.—Design a horizontal curved line border with detached units composed of curvilinear angles, similar to those in Figs. 3 and 4, and draw it in space *B*.

Space C.—Draw a horizontal curved line border with detached units, similar to those in Figs. 5 and 6, and draw it in space *C*.

Space D.—Design a horizontal curved line border with a continuous line, similar to those in Figs. 7 and 8, and draw it in space *D*.

Space E.—Design a horizontal curved line border with two continuous curved lines, similar to those in Figs. 9 and 10, and draw it in space *E*.

Space F.—Design a horizontal curved line border in counterchange, similar to those in Figs. 11 and 12, and draw it in space *F*.

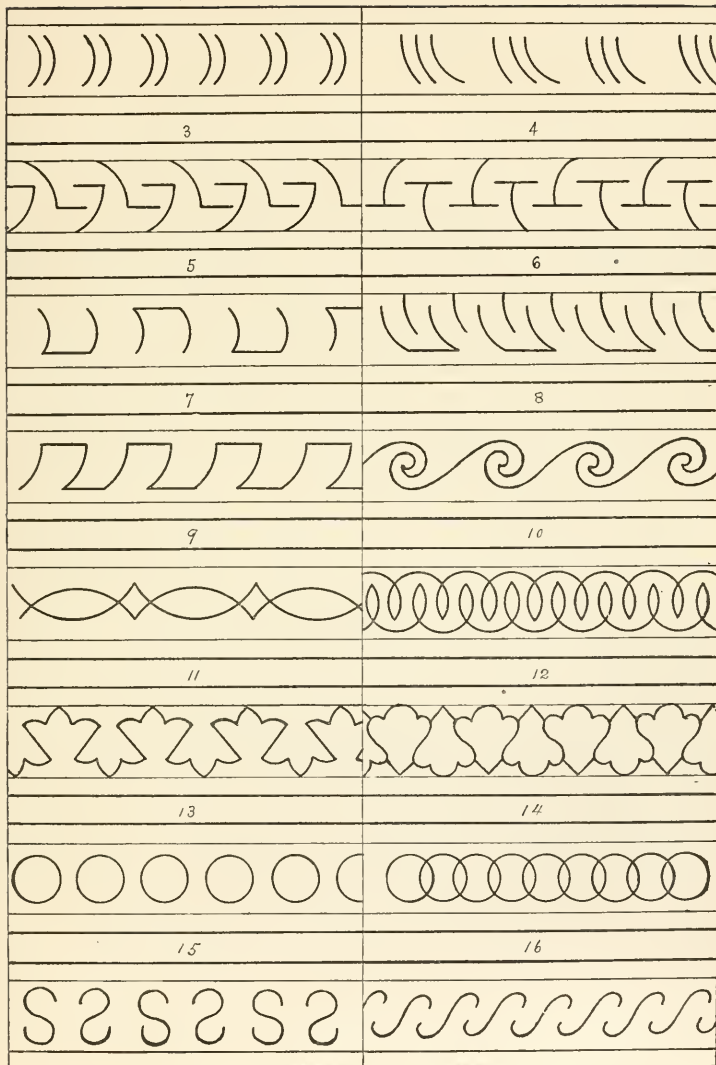
Space G.—Design a horizontal border with a circle as a unit, as illustrated in Figs. 13 and 14, and draw it in space *G*.

Space H.—Design a horizontal border, using reversed curves or wave lines as units, as shown in Figs. 15 and 16, and draw it in space *H*.

Review.—How many units in border 1? (Only one.) How, then, is the border completed? (By simple repetition.) What is the unit in this border? (Two vertical curves.) Is the repetition open or close? (Close.) Why are the first seven borders not suited for a flat surface? (Because the curved lines are so arranged as to make the surface appear raised or convex.) Let similar questions be asked concerning the other borders and those designed by the pupils.

1

2.



Lesson 3.—Horizontal Borders—Continued.

Space A, Plate 3.—Design a horizontal border composed of alternate units, similar to the arrangements in Figs. 1 and 2, and draw it in space *A* on Plate 3. For the meaning of *alternate repetition*, see page 16.

Space B.—Design a horizontal border expressing movement toward the right or left, as illustrated by Figs. 3 and 4, and draw it in space *B*.

Space C.—Design a horizontal border composed of non-symmetrical units, as shown in Figs. 5 and 6, and draw it in space *C*. For an explanation of *non-symmetrical*, see page 17.

Space D.—Design a horizontal border with units attached to a wave line, as shown in Figs. 7 and 8, and draw it in space *D*.

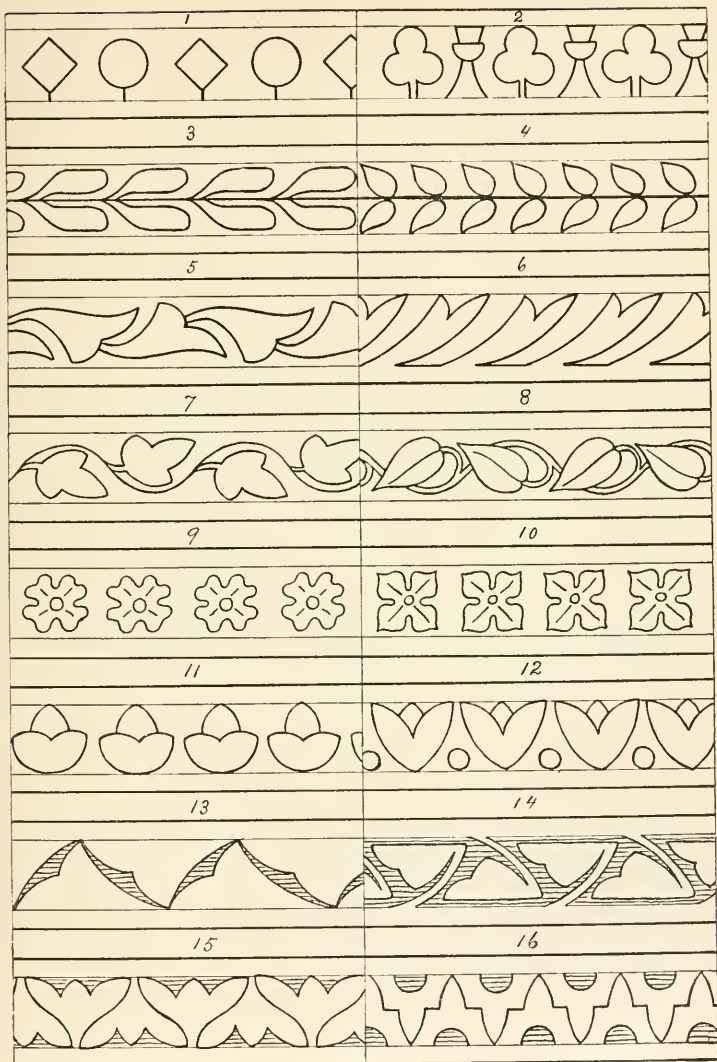
Space E.—Design a horizontal border composed of rosettes as units, as illustrated in Figs. 9 and 10, and draw it in space *E*.

Space F.—Design a horizontal border containing the ivy leaf as a unit, or use a similar leaf, arranged as in Figs. 11 and 12, and draw it in space *F*. For instruction in conventionalizing leaves, see page 14.

Space G.—Design a horizontal border containing the oak leaf, side view, or use a similar leaf, as arranged in Figs. 13 and 14, and draw it in space *G*.

Space H.—Design a horizontal border composed of a unit of the pupil's own selection, and draw it in space *H*. The border may illustrate counterchange, as in Figs. 15 and 16, or not.

Review.—Borders 3, 4, 5, 7, 13, and 14 would make good vertical borders. Why? As to shape, what kind of units in Nos. 3, 4, 5, 6, 7, 13, and 14? How could 9 and 10, or 11 and 12, be united in a single border? When so united, what would each be called? The teacher should ask other similar questions.



Lesson 4.—Vertical Borders.

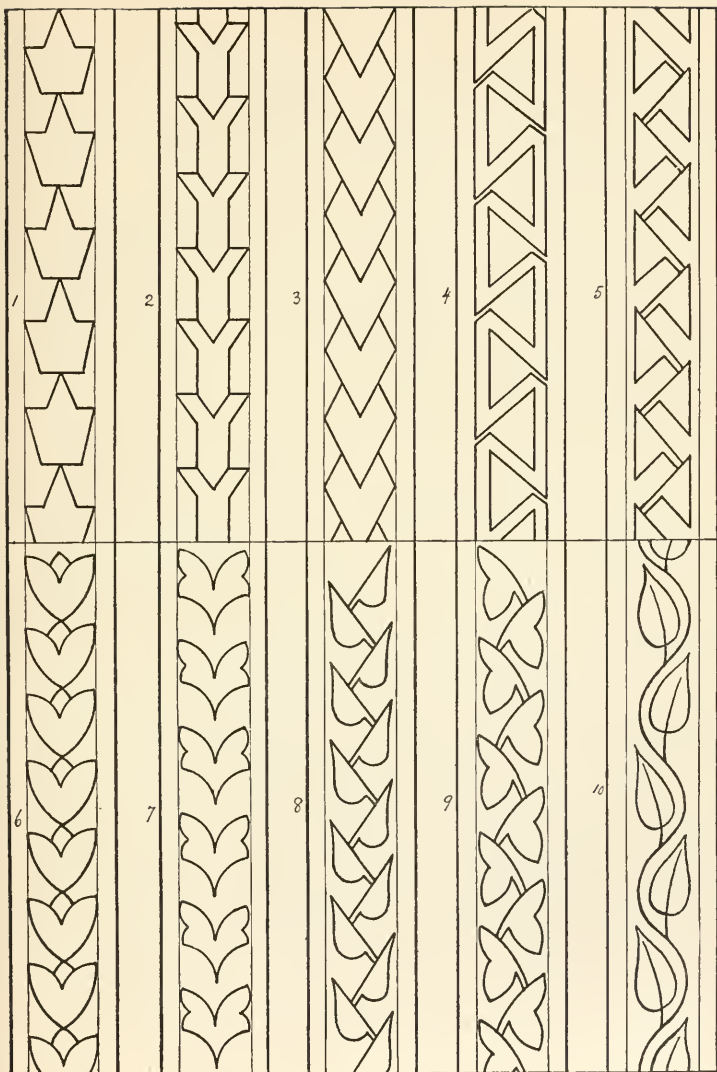
Spaces A and B, Plate 4.—Design two vertical straight line borders with bi-symmetrical units, similar to those in Figs. 1, 2, and 3, and draw them in spaces *A* and *B* on Plate 4. For explanation of *bi-symmetrical*, see page 17.

Space C.—Design a vertical straight line border containing a non-symmetrical unit, as illustrated in Figs. 4 and 5, and draw it in space *C*.

Spaces D and E.—Design two vertical curved line borders with bi-symmetrical units, similar to those in Figs. 6 and 7, and draw them in spaces *D* and *E*.

Space F.—Design a vertical curved line border containing a non-symmetrical unit, as shown in Figs. 8, 9, and 10, and draw it in space *F*.

Review.—What kind of repetition in Nos. 1, 2, 3, 6, and 7? What kind of repetition in Nos. 4, 5, 8, 9, and 10? Which kind of repetition shows more variety or contrast? How many units in No. 1? How many in No. 9? Let the pupil make up and answer similar questions about his own borders.



The Theory or the Principles of Color.

What we call *Pure Color*, which generally excludes white and black, is supposed to be the result of the decomposition of solar light, or light from the sun. This separation of sunlight into various colors is conveniently effected as follows: If we admit a small beam or stream of sunlight into a dark room and cause it to pass through a triangular prism of glass, two marked results will follow:

1. The beam will be bent considerably out of its previous course by the prism.
2. The beam on leaving the prism is no longer white, but when received on a white surface it appears in the shape of a long and slender streak of most beautiful colors very gradually blended and arranged in the order of the colors of the rainbow. This streak of decomposed light is called the *Solar Spectrum*; or, in other words, we may say the Solar Spectrum, sometimes called the *Prismatic Spectrum*, is the image of a ray of light when separated or decomposed by a prism; or, again, it is that series of colors into which a ray of white light coming from the sun is broken by allowing it to pass through a transparent prism.

These prismatic colors, or colors of the spectrum, are far more brilliant and pure than any colors obtained by paints or from natural objects. Hence they are the standard of comparison for all pigments or paints which are called material colors.

The number of colors composing the Solar Spectrum is almost infinite, but red, orange, yellow, green, blue, indigo, and violet were for a long time given as the principal ones. But the modern, and perhaps the more accurate, names are red, orange, yellow, green, blue, and violet, which for convenience may be called the six *Standard Colors*. From these standard colors there may be derived many others, among which may be mentioned orange red, red orange, yellow orange, orange yellow, green yellow, yellow green, blue green, green blue, violet blue, blue violet, red violet, and violet red.

Classification and Definition of Colors.

When we look at the spectrum as a whole there are three colors, near the beginning, middle, and end of it, which are deeper or stronger in hue than others, and attract particular attention. These are *red*, *green*, and *blue violet*, and they are called *Primary Colors*, because of their importance and their attractiveness. But when we attempt to mix paints, the name *Primary Colors* is given to *red*, *yellow*, and *blue*, because from these three nearly all other colors can be produced.

When the primary colors are combined together, two and two, the results are called *Secondary* or *Binary Colors*. Thus the red and the blue violet of the spectrum when thrown together produce *pink*; the red and the green produce *yellow*; and the blue violet and the green produce *sea-green*, or a bluish green. But when red and blue paints are mixed together the result is *purple*; red and yellow produce *orange*; while blue and yellow produce *green*.

When two secondaries, or a primary and a secondary, are combined together, the results are called *Tertiary Colors*. Among tertiaries may be mentioned maroons,

russets, browns, citrons, olive-greens, sage-greens, stone, slate, and lavender colors in all their varieties of light and dark.

Broken Colors is only another name for tertiaries; or it is a name applied to colors mixed with gray, that is, with both black and white.

Warm or Luminous Colors are those that are found toward the red end of the spectrum; as red, orange red, orange, orange yellow, yellow, light green, and perhaps the lighter tones of some of the other colors.

Cold or Somber Colors are those that belong to the blue or violet end of the spectrum, as violet, blue violet, blue, cyan blue, and some of the broken tones of the luminous colors.

Complementary Colors. If all the colors of the spectrum be separated into any two portions, the combined colors of each portion or division will be complementary to the other. Hence we say that any two colors which, when combined together, will produce white light are called *Complementary Colors*. Thus red and sea-green, green and pink, blue and yellow, dark violet blue and light greenish yellow, sea-green blue and orange, and many others that might be named, are complementaries, because when combined, two and two, in the order named, the result is white light. Of course the number of complementaries is almost infinite, because every color has a complementary, which is what it lacks to form white light.

Tones are the series of gradations of a color from its greatest intensity, weakened by the addition of white or darkened by the addition of black.

Tints are the tones of a color produced by the addition of white to the normal or pure color.

Shades are the tones of a color produced by the addition of black to the normal or pure color.

Hues are the changes produced in a color by the addition to it of a smaller portion of another color (not black nor white); but the original color must always be the greater, otherwise the compound will become a hue of the color added to the first.

A Color-scale consists of all the different hues and tones of any given color, arranged in an orderly manner.

Colors Associated by Contact.

A color when placed in contact with another may experience many modifications, so as to appear very different from what it really is. Thus red, for instance, may appear many different reds, according to its surroundings. In contact with blue it appears yellower; in contact with yellow it appears bluer; in contact with green it appears brighter; with black it appears duller; with white it seems lighter and brighter, etc. Other colors are modified in a similar manner.

Colors may not only be modified in hue as above stated, but also in intensity or tone. Thus, if a dark color be placed beside a different but lighter color, the dark color appears deeper and the light color appears lighter. These modifications are said to be caused by

Contrast.

Contrast of colors may be of three kinds:

1. Simultaneous Contrast of Color: (*a*) of Tone and (*b*) of Hue.
2. Successive Contrast of Color: (*a*) of Tone and (*b*) of Hue.
3. Mixed Contrast of Color: (*a*) of Tone and (*b*) of Hue.

Simultaneous Contrast.

The meaning of these different kinds of contrasts will be made clear by the following: If we place side by side, or in contact, two stripes, not too wide, of the same color but of different tones, or two differently colored stripes of the same tone, and examine them carefully in this position, we shall discover changes both in the quality, or hue, and intensity, or tone, of the colors; that is, they both look different from what they do when seen separately.

First, the tone of each stripe will appear changed, the light tone will appear lighter and the deep tone deeper, commencing at the line of contact, where it will be greatest, and gradually diminishing as it recedes from it: this is called *Contrast of Tone*.

Second, the color of the different stripes will appear changed, each appearing as different in hue as possible from the other: this is called *Contrast of Hue*.

These modifications, contrast of tone and contrast of hue, when taken together, constitute what is called *Simultaneous Contrast of Color*, which may be formulated thus: When the eye sees at the same instant two colors in contact, they will appear as unlike as possible, both in hue and tone; that is, "the difference of two colors in brightness and hue appears greater than it really is." The effect of simultaneous contrast is to change each hue as if the complementary of the neighboring color was added to it.

Example. If red be placed by the side of yellow, the red will appear bluer and the yellow will appear greener than when viewed separately, because the complementary of red is green and blue, which, added to the yellow, makes it greener, while the complementary of yellow is blue and red, which, added to the red, makes it bluer.

Successive Contrast.

When we look steadily for a few moments at a given color, and then look away from it or at a white surface, the eye spontaneously sees the same outline as before, but having the color complementary to the color first looked at. This calling up or following of the complementary color after the original color is called *Successive Contrast*.

Examples. If we look steadily at a red circle for a few moments and then look toward a white surface, we shall see a circle of a greenish hue, which is the complement of red. If we look at a blue circle in the same way and then look at a white surface, we shall see a circle of an orange hue, which is the complement of blue.

Mixed Contrast.

When we look steadily for a few moments at a given color and then look away from it toward another color, the complementary called up by looking at the first color

is mingled with the color of the second, so that we do not see the second as it really is, but a combination of it with the complementary of the first. This combination of a color with the spontaneous complementary of another color is called *Mixed Contrast*.

Examples. If we look steadily at a yellow circle for a few moments and then look at a blue circle, it will look redder than it really is, because the complement of yellow, which is purplish in hue when added to the blue, will give it a reddish tinge. Again, if we look at a red circle and then at a green one, the latter will look greener than it really is, because the complement of red, which is of a greenish hue, when added to the green makes it still greener.

A close analysis of all these contrasts will show that *Simultaneous Contrast* includes both *Successive* and *Mixed Contrast*.

Association of Colors.

Complementary Colors, when placed side by side, generally mutually improve and strengthen each other, and the result is often good when the colors are not exactly complementary, or when they are tarnished with gray. *Non-complementaries*, when placed side by side, produce one of three different effects:

1. Sometimes they mutually improve each other. For example, yellow and blue when associated produce an agreeable impression, because they are so unlike as to produce a considerable contrast when the colors associated belong to different tones of yellow and blue.

2. Sometimes one is improved while the other is injured. For example, such a blue as would be improved by the side of yellow, when associated with a bluish violet may lose its beauty by assuming a greenish tinge, while the complementary orange which it adds to the violet neutralizes its blue somewhat and improves it.

3. Sometimes they mutually injure each other. For instance, a violet and a blue mutually injure each other, because the first makes the second look green, and the second neutralizes the blue of the violet and makes it look faded.

Influence of White on other Colors.

White substances in contact with colored substances appear modified when viewed together, but the change may not be noticed unless we understand the law of contrast. When white and red are associated, the white appears greenish, and the red appears deeper and more brilliant.

White improves all the primaries when in contact with them, but not all of them in the same degree, depending somewhat on the height of the primary. Thus light red and light blue make better contrasts with white than dark red and dark blue, because the latter arrangement produces too great a contrast in tone.

White beside any color strengthens it, because it has the effect of subtracting itself from the color. White and black, though not called colors in a scientific sense, may be said to be complementary. They differ more widely when in contact than when viewed separately. The white intensifies the black by contrast.

Influence of Black on other Colors.

Black may be associated with any of the primaries without positively bad effects. As white deepens the tone of a contiguous color, so black enfeebles or lowers the tone of its neighboring color.

Black, like white, or any color, is tinged with the complementary of the color associated with it, but it is not so noticeable as in the case of white, because the complementary is shown on a surface which reflects but little light.

Black combines well with the somber colors to produce what are called harmonies of analogy, while with light and brilliant colors it produces harmonies of contrast, as is shown by the works of some Chinese artists.

Black designs or figures on different grounds are affected as follows: On a red ground, they appear dark green. On an orange ground, they appear bluish black. On a yellow ground, they appear black with a feeble violet tinge. On a green ground, they appear reddish gray. On a blue ground, they appear orange gray. On a violet ground, they appear yellow gray.

Influence of Gray on other Colors.

All the primary colors gain in brilliancy and purity by contact with gray, but the effects are different from those caused by contact of the same colors with white.

Gray in contact with dark colors, such as blue and violet, and the deep tones in general, forms analogous harmonies; while with the luminous colors, such as red, orange, yellow, and the lighter tones of green, it forms harmonies of contrast.

Harmonies of Colors.

The harmonies of colors may be classified as follows:

1. *Harmonies of Analogous Colors.* Of these there are three kinds: (*a*) the Harmony of Tones; (*b*) the Harmony of Hues; (*c*) the Harmony of a Dominant Color.
2. *Harmonies of Contrast.* Of these there are also three kinds: (*d*) the Harmony of Contrast of Tones; (*e*) the Harmony of Contrast of Hues; (*f*) the Harmony of Contrast of Colors.

(*a*) *Harmony of Tones.* This is caused by placing in contact tones of the same color-scale that are only slightly different in intensity. Thus two blues, one a little darker or lighter than the other, or two reds, differing in the same way, are examples.

(*b*) *Harmony of Hues.* This is caused by placing in contact hues of different but closely related color-scales, and that are the same, or only slightly different in tone. *Examples:* red and orange red of about the same tone; also green and yellowish green of the same tone.

(*c*) *Harmony of a Dominant Color.* This may be caused by placing in contact different colors of agreeable contrast, but one of them predominating. *Example:* purple, yellow, and turquoise-blue, with purple or turquoise-blue predominant.

(*d*) *Harmony of Contrast of Tones.* This may be caused by placing in contact tones of the same color-scale that are very widely different in intensity. Thus two greens, one

very much lighter or darker than the other, or two yellows, different in the same way, are examples.

(e) *Harmony of Contrast of Hues.* This may be produced by placing together tones of different intensity, each belonging to related scales of color. *Examples:* rather dark purple with rather light green; rather light orange with rather dark ultramarine.

(f) *Harmony of Contrast of Colors.* This may be produced by placing together hues belonging to very different color-scales and also of different tones. *Examples:* light red and dark blue; dark violet and light yellow.

The preceding principles in reference to harmonies may be condensed somewhat as follows: We may have—

1. A harmony of the hues of the same color, including (a) a harmony of warm colors; (b) a harmony of the cold colors; (c) a harmony of light tones of various colors; (d) a harmony of dark tones of various colors.

2. A contrast of strong and delicate tones of dissimilar colors, including a contrast of the relative sizes of different masses.

Color in Decorative Design.

Generally, color is not supposed to add to the usefulness of an object. While there are exceptions to this statement, we may say, generally, that color is used in Decorative Art for the sake of beauty alone.

The elements of an ornamental design may be divided into two classes: (1) *Co-ordinate*; (2) *Subordinate*.

Co-ordinate or equivalent elements are those that are of the same size, shape, or artistic importance. Subordinate elements are those that are less prominent than others on account of their inferior size, shape, or artistic importance.

From co-ordinate elements we can only compose the simplest of designs, such as those made up of bands or stripes of equal width, squares and four-sided figures, equilateral triangles and other three-sided figures, hexagons or six-sided figures, and curved-sided figures founded on any of the above, as explained in Case Second, in *Part I. of Decorative Design*.

If we use octagons to cover a surface, we must also use squares as subordinate elements to fill the open spaces.

Designs composed of co-ordinate elements, however, give us unlimited choice of colors. If, however, we use different colors in co-ordinate elements, they cease to be co-ordinate, and the colors constitute the design.

When a design is composed of elements of different orders, or of subordinate and predominant elements, the relative importance of these elements must be indicated by the choice of colors. By elements of different orders we mean those that are entirely different in size, form, or position.

Examples. Surfaces and lines are of different orders. Surfaces of the same size may be of very different values, depending on their use as backgrounds or otherwise; they

may differ in size and thus differ in importance. Lines also may serve as bands, moldings, outline borders, etc.

Elements of Color.

In Decorative Design we may have not only elements of form, but also elements of color, and these elements of color may be of different orders. For purposes of decoration we may admit black and white into our list of colors.

First Order. In the first order of color elements may be included *gold* and *silver*, *black* and *white*, the white sometimes taking the place of silver, and yellow that of gold.

Second Order. The six standard colors of the spectrum and purple in their medium or natural degree of brightness. "These are represented by what are usually known as high colors, or, in other words, by the strongest pigments."

Third Order. This order includes three groups: the shades, the tints, and the tertiaries, or broken colors. The shades, as previously explained, are pure colors mixed with black; the tints are pure colors mixed with white; the broken colors are the changes from pure colors to gray.

A colored design is called *polychromatic* when different hues are used in it. It is called *monochromatic* when the different tones of only one color are used in it.

The tints, shades, and broken colors or hues were but little used by the ancients in polychromatic ornament. The Mahometans, and especially the Moors in Spain, depended mainly on the first two orders. It is not often that we meet with all three orders in the same composition, even in the richest examples of polychromatic design.

Some Practical Directions in the Use of Color.

In the use of colors nearly related, the following rule is to be observed: Combine a *light* shade of a *bright* color with a *dark* shade of a *dark* color, so that the bright color will always show as the lighter and the dark color as the deeper of the two. And in general when colors are brought near together, the warmer hue should be the lighter, and the colder hue the darker.

The following are generally considered bad combinations, because they are too different to be considered as modifications of the same color, and yet too nearly alike to show very marked contrast. Vermilion and yellow, yellow and green, green and turquois-blue, turquois-blue and bluish violet, bluish violet and purple, purple and vermilion. In such pairs the two colors each reduce the fullness of the other by contrast, and we have what has been properly called *injurious contrast*.

There is a general impression that combinations of the so-called complementary colors are the best; but this, perhaps, is not always the case.

Such pairs are indeed "never absolutely contrary to good taste;" but only a few of all the possible complementary pairs have been used to any great extent in the best ages of ornamental art. Such combinations as blue and its complementary yellow, especially greenish blue with yellow, have been avoided except when gold is used for yellow; also vermilion with its complementary bluish green.

Such complementaries as red and blue, violet and yellow, have always been favorites in ornamental design, while with purple, its complementary green harmonizes well.

Good Combinations. Purple and green, carmine and bluish green, vermilion and turquois-blue, orange and ultramarine, yellow and bluish violet, yellowish green and purplish violet. None of these are perfectly complementary except, perhaps, the first pair.

The pair that has been most used of all, especially in architecture, is vermilion and turquois-blue, or red and blue. It is found in the oldest surviving examples of art, in ancient Assyrian ornament, and in Egyptian wall decorations. It is frequent in Greek polychromy, in Pompeii and Moresque ornamentation, and also in Gothic art. The other pairs are not used so much in architecture, but more in textile fabrics.

East Indian carpets show us examples of purple and green, and carmine and bluish green, while yellow and bluish violet, and yellowish green and purplish violet, are favorite combinations for silk.

The history of colored ornamental design shows a decided preference for red. "It is *the* decorative color in an eminent degree." Blue seems to be the next favorite, followed by green. Yellow, at least in the form of metallic gold, is treated "differently, artistically speaking, from any of the other colors." In weaving and embroidery, "even of woolen textile fabrics," the yellow parts are usually executed in silk.

Why has red been so much preferred? Let us inquire of the works of nature. Here the green of the leaves and the grass seems to be "the fullest color" that prevails "in considerable quantity." The next in quantity is the blue of the sky, though its fullness is much lower. Only occasionally at sunrise or at sunset do we find the other colors in large quantities, while a full red is "the rarest of all colors."

Because red is so scarce, it is well fitted to relieve "an object in the open air from its surroundings." It also forms a good combination with either green or blue, which are prominent in out-door nature. These facts, perhaps, may help to explain why "red holds the first rank as a decorative color."

Another fact is in favor of the prominence of red: it is not much affected by lamp-light or other artificial light, while yellow fades away, and green, blue, and violet undergo considerable change.

Also the eye is very sensitive to red and is easily excited by it, perhaps because of its rarity, while "green, the fullest color to be found in nature," fatigues the eye the least.

Blue owes its importance, not because it combines well with the green of the leaves, for it does not, but because it combines well with red. Such colors as violet or bluish green, which combine poorly with the blue of the sky, are not suitable for out-door buildings.

Green does not harmonize very well with the blue of the sky, and it is a combination not often attempted in landscape painting even by the best artists.

Advancing and Retiring Colors. If a design be composed of similar figures, as four-sided ones, and if they be separated with rather broad black borders, and then painted red and blue alternately, the red spaces will appear to project forward and be nearer to the eye than the blue spaces. If these spaces are painted with two shades of

the same color, as "dark red and light red, or dark blue and light blue, or gray and black, the lighter parts will appear to advance." Hence the following rule:

"If the brightness of the colors is (approximately) equal, the warm hues advance while the cold retire; if the brightness is not equal, the light colors advance while the dark retire."

If we make some fine red lines and some fine blue lines on a piece of paper, or if we make a drawing with red lines and another with blue on the same paper, we cannot see both drawings at the same time, because the red seems to advance and the blue to retire, and the eye cannot adjust itself to both apparent distances at once.

This difference in advancing and retiring colors may be used by the artist in many ways. For instance, "a silhouette in a warm hue upon a cold ground shows much better than a silhouette of a cold color on a warm ground."

Triads. Two colors that combine well have been called a *Pair*. Likewise a group of three colors that make a good combination may be called a *Triad*.

The following triads are good: purple, yellow, and turquoise-blue; carmine, yellowish green, and ultramarine; vermilion, green, and bluish violet; orange, bluish green, and purplish violet.

"The first of these, purple, yellow, and turquoise-blue, was a great favorite with Paul Veronese." "The second, carmine, yellowish green, and ultramarine, is a combination which was very popular among the Italians of the best period." Their yellowish green, however, might be more properly called olive-green. This triad is supposed to have been used on the ceiling of the temple of *Theseus*.

The last triad, bluish green, orange, and purplish violet, was often used in "silken woven fabrics" of "the middle ages, which are ornamented with barbarous animal figures, and sometimes go by the name of *New Babylonian*." "All of these triads may be enriched by the addition of black and white, or silver, while gold can only be used in combination with those which do not contain yellow or orange."

If four colors, equivalent to one another are required, it may be effected by selecting two good pairs which are pretty closely related to each other, as, for example, purple and green for one pair, and deep scarlet (almost a carmine) and turquoise-blue for the other pair. "Another series of double pairs may be obtained by adding to two colors either a third color, or gold or silver, in such a manner that in the total impression produced the three will form mixtures." "This method of producing apparently new hues with only a few colors by means of true mixtures is to be highly recommended, especially for woven fabrics."

This arrangement of colors into pairs and triads is very useful in the manufacture of paper-hangings and in weavings, as "it affords a ready means for transposing a pattern which has given satisfaction in one set of colors into others by simply substituting other pairs, triads, or double pairs for those first employed."

The preceding principles apply to combinations of colors of the same order. Combinations of different orders are still to be considered. This is the principle that must be observed: Elements of color of different orders "must also be employed upon elements of form of different orders."

Outline. In *Painting* outline is only the line of contact where a surface of one color ends and a surface of another color begins. In *Decorative Art*, however, the outline is far more essential, and must be much more distinct and prominent. Outlines in ornament, perhaps, arose from the joints, the cementing, the seams, the hemming, trimmings, fringes, tassels, etc., of real objects.

An outline between two colors of the same hue should be "either lighter than the lightest, or darker than the darkest shade." When the ground and the ornament are of different colors, the outline should be a shade of one or the other of the two colors.

When the ground or the ornament is black, the outline may be omitted; also, the outline may be omitted when the figures are in light colors upon a ground that is considerably darker. This practice is common in Pompeian wall ornaments.

An outline is very necessary if the ground is light and the figures are executed in fine lines of a dark color; also, when "two full colors of different hues" join each other. When a color is placed on a gold ground, it should be outlined with a darker shade of its own color. When a gold ornament falls on a colored ground, it should be outlined with black.

When an ornament falls on a ground which is in direct harmony with it, it must be outlined with a lighter tint of its own color. Thus, when a red ornament falls on a green ground, the ornament must be outlined with a lighter red.

When the ornament and the ground are in two tints of the same color, if the ornament is darker than the ground, it will require outlining with a still darker tint of the same color; but if lighter than the ground, no outline will be required.

Where an unusually distinct separation of two colors is required, it may be produced by a number of gold or silver lines united with black used as a border, or by black and white lines used the same way.

Books on Color. Those who desire to pursue the subject of color further will find valuable assistance in the "Student's Text-Book of Color; or Modern Chromatics with Applications to Art and Industry," by O. N. Rood, Professor of Physics in Columbia College. Another book worthy of careful study is, "The Theory of Color in its Relation to Art and Art Industry," by Dr. Wilhelm von Bezold, Professor of Physics at the Royal Polytechnic School at Munich. Still another important book is "The Laws of the Contrasts of Colors and their Application to the Arts of Painting, Decoration of Buildings, Mosaic Work, Tapestry and Carpet Weaving, Calico Printing, etc.," by M. Chevreul, director of the dye works of the Gobelin. "Color in the School-Room, a Manual for Teachers," published by Milton Bradley & Co., Springfield, Mass., costs less than any of the preceding books, and contains much valuable information about the use of colored papers in the teaching of color.

We take pleasure in saying that we are indebted to all of the preceding works, more or less, in the preparation of the color division of this *Manual*.

PRACTICAL LESSONS IN COLOR.

BOOK NO. 1.—ÆSTHETIC SERIES.

INTRODUCTORY.

For practical lessons in color, colored papers, colored crayons, or water colors may be used. Colored papers suitable for the following exercises may be found in this drawing-book, or they may be had of Milton Bradley & Co., Springfield, Mass.

The teacher may find useful directions for border designing and the use of colors on pages 19, 20, 21, 28, 29, 39, 40, 42, 48, and 49 of *Manual Training, No. 1*; on pages 14, 15, 16, 17, 18, 21, 22, 36, and 37 of *Manual Training, No. 2*; and on pages 70, 72, 73, and 77 of *Primary Frechand Manual*.

All the drawing for color exercises may be done with instruments. For the proper use of the same, see *Manual Training, No. 2*, pages 3, 4, 5, 9, 10, 11, 12, 13, 14, and so on; for laying on water colors, see pages 14 and 15. All the color exercises of the above *Manual* may be worked out on the blank pages of this book.

Also the pupil may cut and paste colored papers on his own drawings of Figs. 3, 10, and 11 of Egyptian ornament, after he has drawn them.

Lesson 1.—On Plate 5 fill spaces *A* and *B* with oblique overlapping squares, each square having two corners at the centers of two other squares, the middle square showing its whole surface, and the others only three-fourths of their surfaces. See page 21, *Manual Training, No. 1*. Then cut out and paste on these squares red and blue paper squares, used alternately. Instead of colored papers, colored crayons or water colors may be used.

Lesson 2.—Fill spaces *C* and *D* with overlapping circles, the circumference of each circle passing through the centers of two other circles, the middle circle showing all its surface, and the others being partially hid. Cut and paste circles of two complementary colors, used alternately; or use colored crayons or water colors.

Lesson 3.—Fill spaces *E* and *F* with overlapping rhombs, each half as wide as long, two acute angles of each touching the centers of two other rhombs, the middle one showing all its surface, and the others showing three-fourths of their surfaces. Cut and paste rhombs of two complementary colors, used alternately.

Lesson 4.—Fill spaces *G* and *H* with overlapping lenses, each half as wide as long, the angles of each touching the centers of two others, the middle one showing all its surface, and the others being partially hid. Cut and paste lenses of two complementary colors, used alternately.

Lesson 5.—On Plate 6 fill space *A* as in Lesson 1. Make the middle square a full red, with tints of red above and shades below, using crayons, water colors, or colored papers.

Lesson 6.—Fill space *B* as in Lesson 2. Make the middle circle a full orange, with tints of orange above and shades below.

Lesson 7.—Fill space *C* as in Lesson 3. Make the middle rhomb a full yellow, with tints of yellow above and shades below.

Lesson 8.—Fill space *D* as in Lesson 4. Make the middle lens a full green, with tints of green above and shades below.

Lesson 9.—Fill space *E* as in Lesson 3. Make the middle rhomb a full blue, with tints of blue above and shades below.

Lesson 10.—Fill space *F* as in Lesson 1. Make the middle square a full violet, with tints of violet above and shades below.

HISTORICAL ORNAMENT.

CHARACTERISTICS OF HISTORICAL STYLES.

BOOK NO. I.—ÆSTHETIC SERIES.

INTRODUCTORY.

The history of art as an expression of man's æsthetic nature is not less important than other history, although it has been much neglected in our schools. In former times, and even at the present day, the history of kings and queens, and their intrigues with one another, the various wars they precipitated and forced on their helpless subjects, and the numbers slain on each side in a battle, seem to be regarded as the great objects of historical study.

Man has an æsthetic nature which in one sense is co-ordinate with his moral and intellectual natures, and which should receive positive and direct training. This can best be done by bringing the pupil so far as possible in contact with the best examples of historic art. "The eye can be trained only through the objects which it sees." It is with the view of assisting the young people in our schools in the study of the beautiful these books on Historical Ornament have been prepared.

The printed text may be studied and recited in connection with the drawing lessons; but the *elements* of each style should be so thoroughly studied as to be drawn from memory. Suggestive questions should be asked concerning all the figures; as, Why do you like or dislike this or that figure, this or that style? What causes it to be pleasing or displeasing? etc. Correct answers may not always be received, but such questions will stimulate thought on the part of both teachers and students. For a more systematic and orderly explanation of the laws governing the beautiful, see the subject *Decorative Design* in this "*Æsthetic Series*" and accompanying *Manual*.

Definitions and Divisions of the Subject.

Style in ornament or in art is similar to handwriting in penmanship, or to the peculiar features or manners of a race or a nationality. The characteristic of the art of an age or of a nation, or that which distinguishes it from the art of all others, is called a *Style*. It may be original, but it is oftener a development or an outgrowth of some preceding style.

There are two great or leading principles, one or the other of which seems to have been prominent in most styles of ornament, which may be called (*a*) the *Symbolic Style* and (*b*) the *Æsthetic Style*.

The object of symbolic ornament is to convey a meaning beyond its mere appearance, some hidden sense which may be suggested by the object or which may be arbitrarily fixed; as, a circle may be used as a symbol of eternity; a triangle, of the Trinity; a lion, of strength; etc.

In æsthetic ornament, the object is to express beauty alone, without attempting to teach or to portray any other idea or sentiment.

For the purpose of orderly instruction the following division of the principal Historical Styles of Ornament, though not exhaustive, is convenient:

1. The three *Ancient Styles*; as (a) the *Egyptian*, (b) the *Greek*, and (c) the *Roman*.
2. The three *Mediæval Styles*; as (a) the *Byzantine*, (b) the *Saracenic*, and (c) the *Gothic*.
3. The three *Modern Styles*; as (a) the *Renaissance*, (b) the *Cinque-cento*, and (c) the *Louis Quatorze*.

Egyptian Ornament.—Introductory.

Herodotus has said, "All Egypt is the gift of the Nile." This river, unlike most other rivers, is almost destitute of tributaries, and instead of increasing toward its mouth, it rather diminishes, because its waters are partially lost in feeding the canals.

Another peculiarity is its periodical overflow. It begins to rise toward the end of June, reaches its greatest height by the end of September, and returns to its original bed by December. Harvest time is in the month of March. The true cause of its annual rise, which was once so mysterious, even to the inhabitants of Egypt, is now ascertained to be the periodical rainy season inundating Upper Abyssinia, where the Nile rises.

Not only was the Nile the promoter of the wealth of Egypt, but also of the knowledge, science, and art of that land. It was not only the protecting mother that furnished food for the body, but it also furnished an incentive and even a necessity for study. Its overflow was at a particular season of the year. The study of the seasons led to a study of the stars, and hence of astronomy in general. This, again, required a knowledge of mathematics, and geometry in particular. And, still further, the study of geometry had its influence on the art of the country.

Characteristics.

The Egyptian Style is eminently symbolical, religious, and historical. It was probably original with the Egyptians. Its home was upon the banks of the Nile, from Meroe to Alexandria, but chiefly below the first cataract.

It is very old—so old, indeed, that we are unable to trace its origin and growth. It had reached its highest development, and it seems to be in its decline when we first become acquainted with it through history and its earliest preserved examples.

It is severely conventional and simple in form. In its great features it is massive, stable, dignified; and in its appearance grand, owing, perhaps, to the abundant use of the horizontal straight line. It is generally regular also, and without flowing lines. The spiral in any form is seldom used.

It is pastoral, elaborate in detail, highly colored, and makes use of animal, mythological, and human forms, as well as plant forms.

The Egyptian style when once fixed remained unchanged for a long time, because the rules which governed the Egyptian artist and sculptor were established by the priesthood, and it was a capital offence to violate them.

The colors used were red, blue, yellow, green, black, and white. These were used as flat tints without shading, and employed in a conventional manner. The Egyptian artists painted nearly everything, and generally in good taste as to combinations of color.

Elements.

The principal elementary forms of Egyptian ornament are the *lotus plant*, symbol of plenty; the *papyrus*, the symbol of knowledge and intelligence; the *winged globe*, or *disk*, denoting dominion or protection; the *scarabæus*, emblem of the resurrection or immortality; the *asp*, denoting wisdom; the *zigzag*, type of the Nile; the *wave scroll*, water in motion; the *feather*; the *cartouche*, containing hieroglyphics; the *sphinx*, union of physical and intellectual power; and the *fret*, denoting mystery. These elements were always conventionally drawn and symmetrically arranged. The following are ordinary representations of some of them.



Fig. 1, Lotus, natural form; Fig. 2, Lotus, conventional form; Fig. 3, Papyrus Flower; Fig. 4, Papyrus Flower, conventional form of it; Fig. 5, Winged Globe; Fig. 6, Wave Scroll; Fig. 7, Zigzag; Fig. 8, Scarabæus; Fig. 9, Asp; Fig. 10, Feather Ornament; Fig. 11, Cartouche.

Remains of Egyptian Art.

The objects that are of special interest to us in the study of Egyptian art are the *Tombs, Obelisks, Temples, Pyramids, Mummy Cases, Sphinxes, Rock-cut Temples,* and the *Hieroglyphics* carved on all of these structures.

In most cases, in treating of the art of any country, it would be convenient to arrange the subject under the heads of Architecture, Sculpture, and Painting; but in Egyptian art these are so intimately connected that, in speaking of any one of them, we must necessarily refer to the others. Sculpture and painting had no independent existence among the Egyptians as they have with us. They were merely accessory to architecture. Temples were not constructed to contain statues and paintings, but painting and sculpture were used to adorn the temples.

Egyptian Architecture.

Without observing the exact order of time, we may first speak of the *Pyramids*, and more especially of the *Great Pyramid* in the plains of Ghizeh, west of Memphis. Its dimensions are variously given by different travelers, but its base was probably about 764 feet square, and its perpendicular height about 485 feet. Its base covers more than 13 acres of ground.

Artistically speaking, a pyramid is not considered beautiful. It is generally viewed at a disadvantage as to its height, and it appears smaller than it really is. Though not beautiful, it is one of the most stable forms in existence, and one that is best calculated to resist the influences of time and other destructive agencies.

The *Obelisks* of Egypt are slender, truncated, square pyramids, generally cut from a single stone, the height being about ten times the diameter of the base. The truncated pyramid is finished at the top in the form of a low pyramid. They are made of granite polished and covered with historical hieroglyphic inscriptions.

The *Temples* of Egypt were the largest and the grandest the world has yet seen. Some author has divided these temples into the five following classes:

1. *Sanctuary Temples*, or those having but one chamber.
2. *Peripteral Temples*, or those having columns on all sides.
3. *Temples in Antis*, or those having two columns in a recess at the front.
4. Those with *Porticoes of Many Columns*.
5. Those with *Courts and Propylæa in front*.

A very remarkable rock-cut temple was that of *Aboosimbel*. On either side of the gateway was a gigantic statue in a sitting posture, 66 feet high.

Probably the most perfect type of an Egyptian temple is to be found at *Edfoo*. In front of most of these temples there stood two obelisks, such as have been previously referred to, one on either side of the gateway.

The temple of *Karnak* was of gigantic size. It was 1200 feet long and 420 feet wide. It had twelve entrances, lined on each side with rows of sphinxes. It contained 12 columns 12 feet in diameter and 66 feet high; also 134 columns 42 feet high and 9 feet in diameter. About two miles from Karnak was the temple of *Luxor*, also an im-

posing and beautiful structure. From one of these temples to the other there was a double row of colossal ram-headed sphinxes, each cut from a single block of stone.

Sphinxes. There were three varieties of sphinxes: (1) the Andro-sphinx (or man-headed); (2) the Crio-sphinx (or ram-headed); (3) the Hieraco-sphinx (or hawk-headed).

The body of the sphinx was that of a lion in a crouching or lying attitude, and without wings. They were always male.

The *Great Sphinx*, near the Great Pyramid, was about 100 feet high and 146 feet long—some say longer. The face, which was that of a man, was about 30 feet in length. A temple nearly 100 feet long stood between the two front feet of the sphinx.

Tombs. The tombs of Egypt were built to preserve the dead and embalmed bodies of the people. They were generally cut into the solid rocks in the sides of hills or mountains. The walls were profusely painted with ornamentation composed of the lotus, the papyrus, the scarabæus, etc.

Columns. The column was invented by the Egyptians. The Egyptian column was generally an idealized or conventionalized papyrus plant, the root representing the base of the column, the stalk the shaft, and the bud at the top, or the full grown flower, representing the capital. The height was from four to seven times the diameter of the base. Some authors have divided these columns and their capitals into the following eight orders:

1. The *Square Pillar*, or stone post.
2. The *Polygonal Column*, plain or fluted.
3. The *Bud Capital*—generally papyrus.
4. The *Inverted Bell*, or lotus form.
5. The *Palm Tree*.
6. The *Isis-Headed Order*.
7. The *Composite Order*.
8. The *Osiridi*—somewhat like the Persian.

Egyptian Sculpture.

Sculpture in ancient Egypt was subsidiary to architecture—that is, the sculpture was intended to adorn the temples. The subject of sculpture “was the embodiment of divine or superhuman beings.”

The Egyptian artist, perhaps, had no thought of beauty, but there is a sort of “mild sweetness” in the face of nearly all Egyptian statues, and a solemn, calm repose, never to be disturbed. The expression is unvaried for different emotions, and there is no bending of the neck nor turning of the head, which is generally represented in profile. The front of the body and the side of the head are generally turned toward the beholder, and a front view of the eye is placed on the side of the head. Generally the loins and the hips are made too narrow, thus exaggerating the taper of the chest.

There is no life in the figures. The hands, arms, and feet are generally very stiffly represented. If the statue is seated, the arms hang down motionless, or are straightened out on the knees. Every attitude, whether it be in working, hunting, or running, seems

stiff, motionless, and petrified. "There is no life, no elasticity, no thinking soul animating the body." Egyptian artists had not the benefit of anatomical study. It was considered sacrilege to cut or mar the dead body, except for embalming.

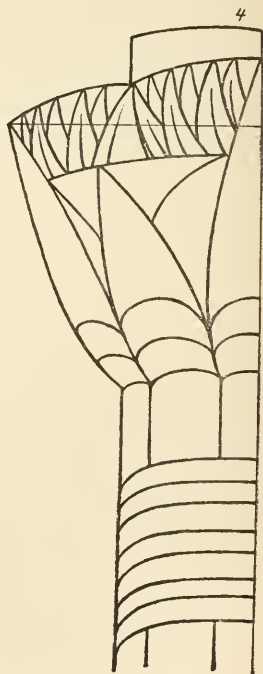
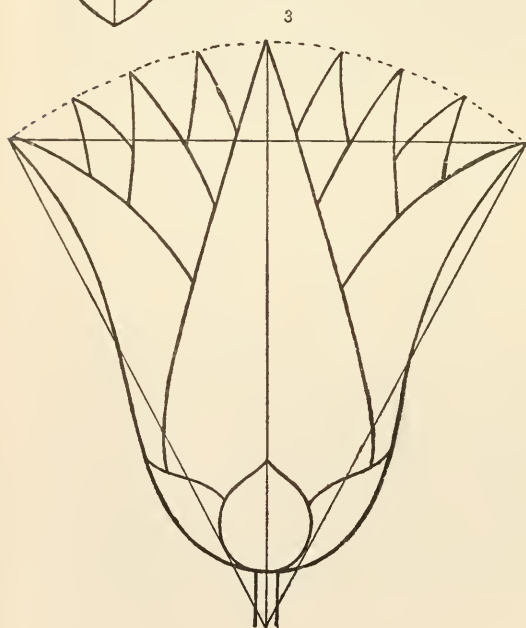
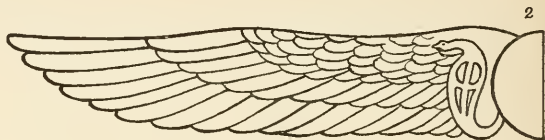
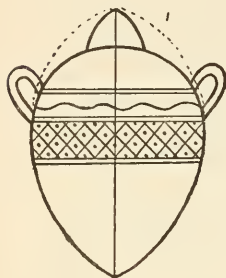
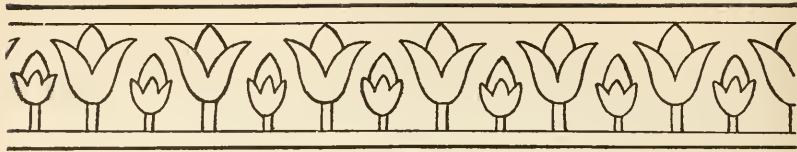
Egyptian Painting.

Egyptian painting cannot be called a fine art as we understand it. It only appears to be a record of social, superstitious, or political events. Some one has said, it was "more a symbolic writing than a liberal art—in a word, a colored hieroglyph." We have no evidence that this people had a knowledge of perspective, as their paintings were in the form of diagrams.

The paintings of the Egyptians may be divided into three classes: (*a*) Those on the walls of tombs, in the grottoes, etc; (*b*) those on the cases and cloths of mummies; and (*c*) those on papyrus rolls. The first class is the most numerous, and none are really imitative.

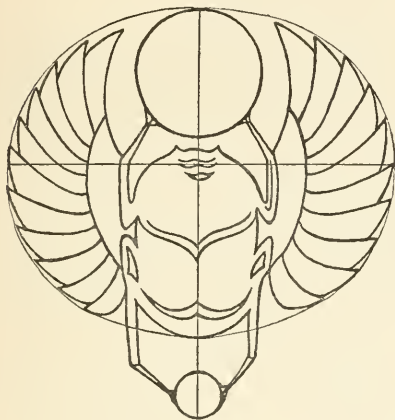
Egyptian painting is distinguished for the brightness and purity of its colors. Its subjects are burial ceremonies and various domestic occupations. The mummy cloths and other materials were covered with plaster, which served as a white paint.

Men and women were painted red, men redder and browner than women. Some captives were painted yellow, while some other foreigners were painted black. Animals were painted brown; cattle, brown, gray, spotted, and white; birds, blue and green; water, blue.

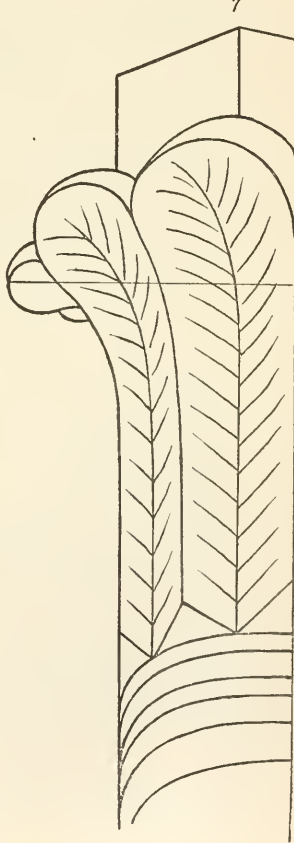




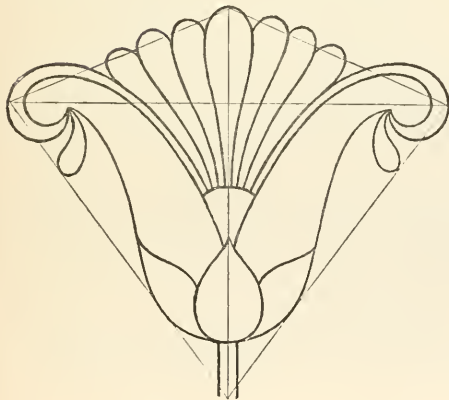
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BOOK NO. I.—ÆSTHETIC SERIES.

PRACTICAL LESSONS.

Lesson 1.—Egyptian Ornament.

The border at the head of Plate 7 of the drawing-book is formed on the principle of *Alternate Repetition*, being made up of a partly opened flower, and the bud of *The Lotus Plant*. The student may first extend the long double lines to the right end of the page by the use of a ruler, and then complete the border by the use of tracing paper or any other mechanical means.

Let the student point out the characteristics of this border: as the repetition, the alternation, the regularity, the contrast, the variety, the unity, the harmony, etc. The meaning of these terms will be found fully explained and illustrated under the title *Decorative Design* of the "*Æsthetic Series*." Fig. 1 on Plate 7 of the drawing-book is *An Egyptian Water Vessel* from an undulating frieze, to be drawn freehand the same distance from the top and the right end of the plate as it now is from the left end and the top. First draw a few guide lines as in the figure. All exercises in Historical Ornament are to be drawn *freehand* unless otherwise directed.

Fig. 2 on Plate 7 is one half of *The Winged Globe*, or *Disk*, which to the Egyptians was a symbol of protection or guardianship. The globe is supposed to represent the rising sun, and the wings are supposed to be those of the hawk, which was one of their sacred animals. It was placed usually over the doorways of the temples. Let the student complete the figure by drawing the right half just like the left half, except that it will be reversed so as to produce a bi-symmetrical figure. Complete the circle and block in the general form first.

Fig. 3 on Plate 7 in the drawing-book is a conventional form of a partially opened flower of *The Lotus Plant*, to be drawn freehand at the right end of the plate. Guide lines may be drawn as in the copy, and erased when the sketch is complete.

It will be an excellent supplementary exercise, and also a good language lesson, to allow the pupils to analyze this figure in writing as the Greek *Anthemion* is analyzed at the end of this lesson.

Fig. 4 is one half of *The Capital* of an Egyptian column, which in this case is a conventional representation of several lotus plants bound together, with their opening flowers and leaves, used for the column and capital. The student is to draw the right half the same as the left half reversed, so as to produce a bi-symmetrical figure. First extend the horizontal guide lines toward the right.

Model Lesson in Æsthetic Analysis.

The figure here chosen is a very common Greek anthemion form whose beauty has been acknowledged for several thousand years. The object of this lesson is to inquire

into some of the reasons for its beauty. In the first place, we may say it is *regular*, or orderly. The human spirit loves regularity and order, but when these elements exist alone there is unredeemable sameness and tiresome monotony to the educated taste. But there is *great variety*, also, in this figure. The different parts vary in form, size, position, direction, and distance. Variety by itself is distracting; but in this figure it is governed by law. Notwithstanding the variety in the shape, size, position, direction, and distance of its parts, they are symmetrically arranged and harmoniously combined so as to produce *unity*, not homogeneous unity, but *organic* unity, in which if one part is left out the unity is destroyed. There is *bi-symmetry*—the highest order of symmetry, because the right and the left sides are alike in form, but reversed and *contrasted* in position. There is *harmony*, because each part seems to have been fitted to every other, or to have been fashioned after some deep or unifying principle. The unity of this figure is partly secured by *radiation*; that is, the different parts seem to have a common origin and to radiate from it. The following figures will illustrate the several kinds of radiation found in Greek and other anthemion forms. (The word *anthemion* is from the Greek *anthos*, a flower.)

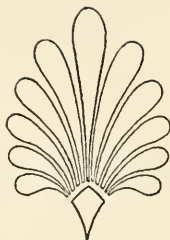


Fig. 1

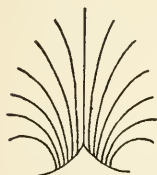


Fig. 2.

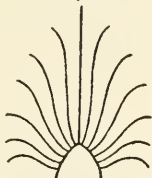


Fig. 3.



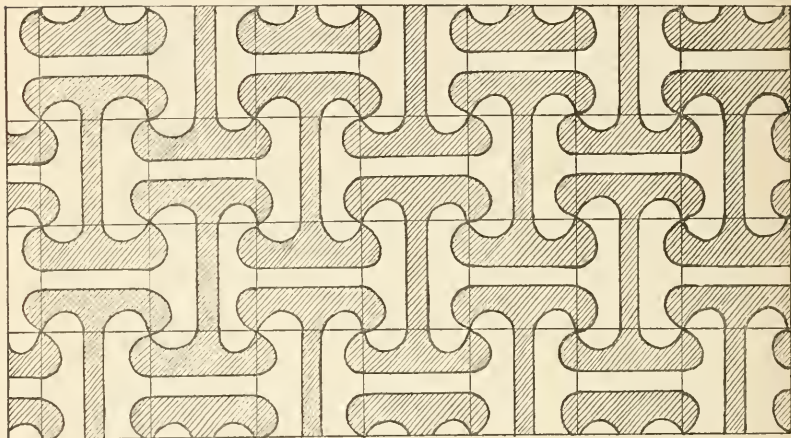
Fig. 1 is the foundation of the antefix of the Parthenon, and appears to be adapted from a shell form. Fig. 2 is made up of wave-lines instead of single curves; it is more graceful and less severe than Fig. 1. Fig. 3 is a modification of Fig. 2, made by reversing its curves.

In the figure at the beginning of the lesson which is under consideration, there is *gradation*, progression, or continuity in the gradual increase and diminution of its similar parts; there is *principality*, or subordination of parts, as shown by the central form exceeding the others in size and symmetry, as well as in having the most commanding position; there is *grace*, or freedom, expressed by the undulating curves, but no license since there is obvious *self-restraint*, or respect for law, in every part.

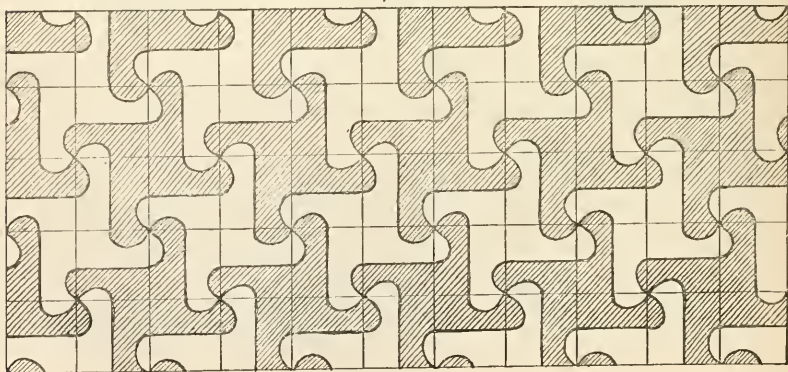
As a practical application of this lesson, let the pupil write out the characteristics of each figure after drawing it. In this way valuable language lessons may be united with the drawing lessons to the great advantage of both.

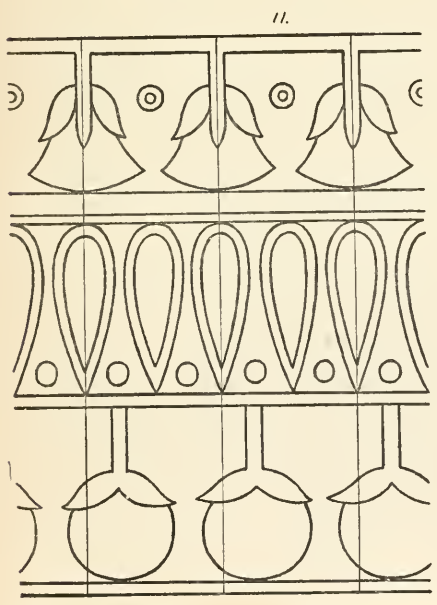
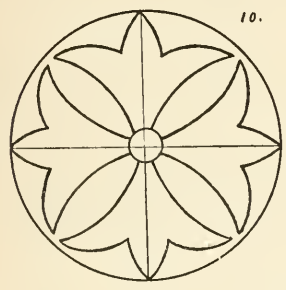
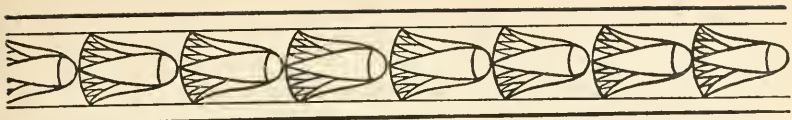


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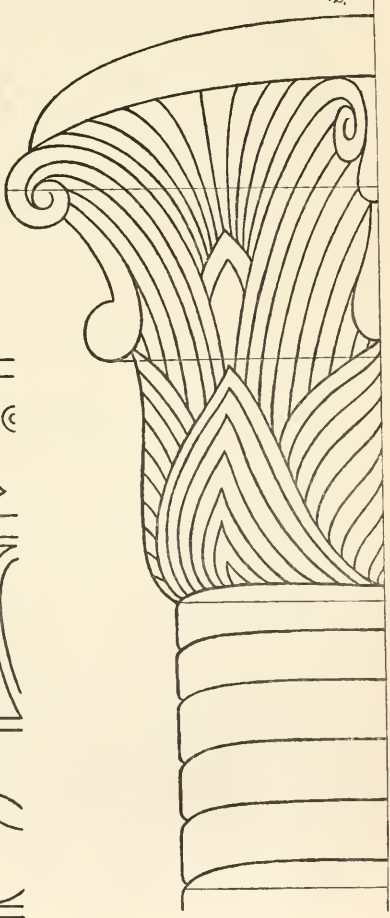


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12.



Lesson 2.—Egyptian Ornament—Continued.

The border at the top of Plate 8 of the drawing-book is what is called *The Wave Scroll*, which is supposed to represent running water, or in this case, perhaps, the flowing waves of the Nile conventionalized. It is from an undulating frieze. The forms between the scrolls are conventional lotus flowers. The student may extend this border to the right, as on Plate 7.

Fig. 5 represents *The Egyptian Scarabæus*, or beetle, which is a symbol of the resurrection, or life from death. It is taken from the tombs at Thebes, and is to be drawn freehand at the right end of the plate.

Fig. 6 represents a conventional form of a species of lotus. Draw this figure at the right end of the page, first sketching the guide lines as in the copy.

Fig. 7 represents the left half of *The Capital* of an Egyptian column, conventionalized probably from the palm tree. This example is from the portico of the temple at Edfoo, 145 B.C. The right half should be drawn freehand, and made like the left half reversed, except the plinth at the top should be drawn so as to represent the top of a square plinth.

Lesson 3.—Egyptian Ornament—Continued.

In the border at the top of Plate 9 of the drawing-book, we have *Alternate Repetition* of a flower and a bud of the lotus plant as elements. Use tracing paper and rulers in extending this border to the right.

Figs. 8 and 9 are both *Egyptian Geometrical Patterns* used to cover a surface of indefinite extent, and are taken from tombs at Thebes. They are constructed on the principle of "*Giving and Taking*," for an explanation of which, see *Æsthetic Manual*, page 20.

At the right end of Plate 9, lay off squares as in the copies, and in sketching observe where the lines of the design cross the sides of the squares.

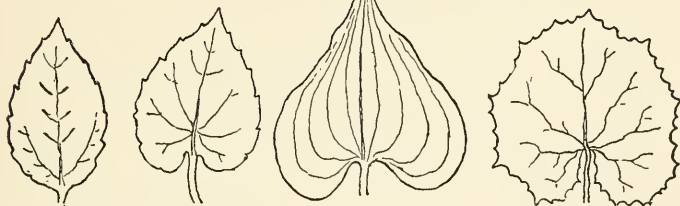
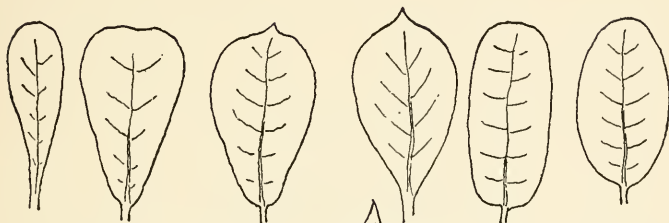
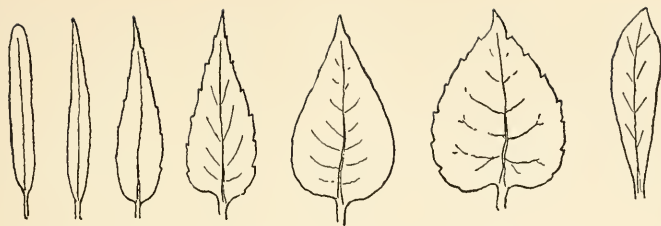
Lesson 4.—Egyptian Ornament—Continued.

The border at the top of Plate 10 of the drawing-book is Egyptian, and is formed by *Simple Repetition* of a lotus flower in a horizontal position. Extend the border to the right in the usual manner, but the element should be reversed.

Fig. 10, from a tomb at Thebes, is an *Egyptian Ornament*. It is an example of *Radial Repetition Around a Center*, and is composed of four lotus flowers, to be drawn at the right end of the plate. First sketch two diameters and a circle.

Fig. 11 is a triple horizontal border made up of conventional flower forms, perhaps from the lotus or the papyrus, to be drawn freehand at the right end of the plate. First draw the horizontal lines, and then the vertical guide lines. This example is taken from a mummy case, the flowers and buds being turned downward to suggest death.

Fig. 12 represents the left half of *The Capital* of an Egyptian column, conventionalized from the lotus flower, or perhaps the palm tree. It is from a temple in the oasis of Thebes. Complete the capital by drawing the right half freehand. Extend the horizontal guide lines and draw the principal parts first.



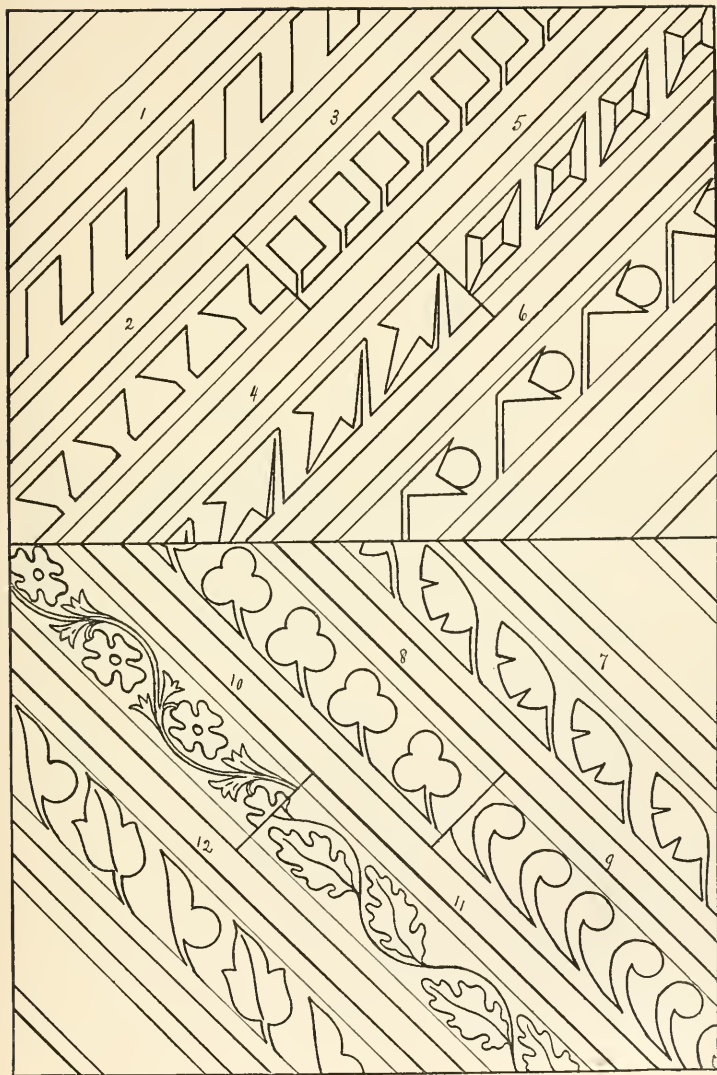
BOOK NO. 2.—ÆSTHETIC SERIES.

Lesson 5.—Oblique Borders.

Spaces A, B, C, and D.—Design four oblique straight line borders similar to those in Figs. 1, 2, 3, 4, 5, and 6, and draw them in spaces *A, B, C,* and *D* on Plate 1.

Spaces E, F, G, and H.—Design four oblique curved line borders similar to those in Figs. 7, 8, 9, 10, 11, and 12, and draw them in spaces *E, F, G,* and *H*.

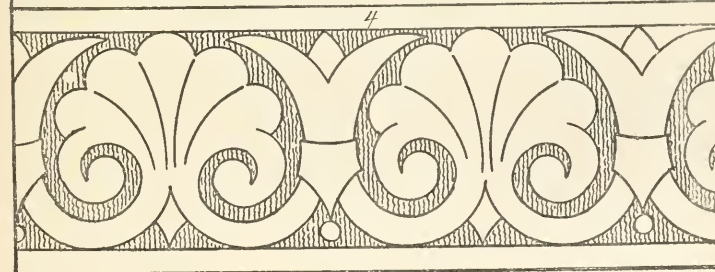
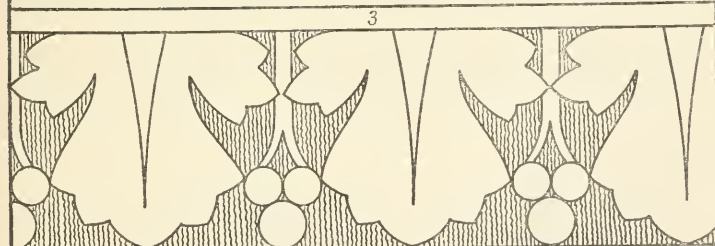
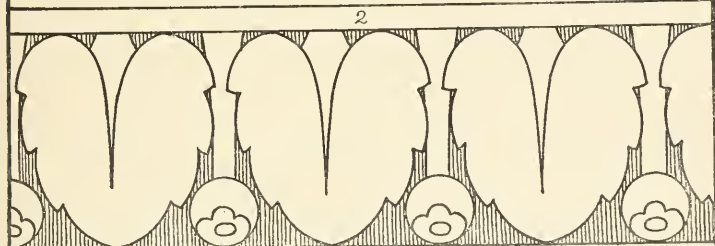
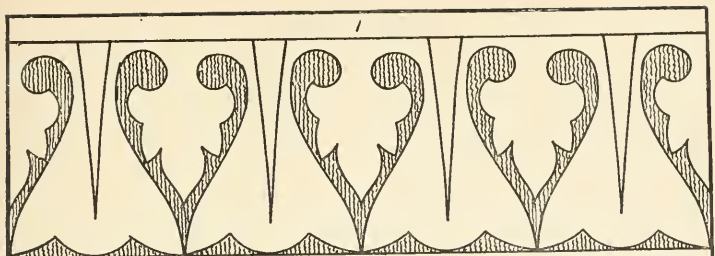
Note.—The exercises on borders have been made very full and complete, and it may be that for want of time some schools may not be able to do all the work provided for. If so, some borders on each page may be omitted, since the principles are similar for all the different kinds. It is a great advantage, however, to have at hand so many illustrations, since in most cases the pupils have no other opportunity of seeing good examples. For suggestive units, the pupil may examine page 11 of the *Æsthetic Manual*. Also see Plate 6 for plant forms.



Lesson 6.—Larger Borders.

Spaces A and B.—Design two large borders similar in style to those in Figs. 1, 2, 3, and 4, and draw them in spaces *A* and *B* on Plate 2. It will be noticed that the borders in Figs. 1, 2, 3, and 4 are classic in form, that is, the axis of the unit is at right angles to the length of the borders. For a classification of borders, see page 18.

Review.—Let the pupil look over all the borders in the preceding part of the book and those he has designed, and point out those that are classic in form.

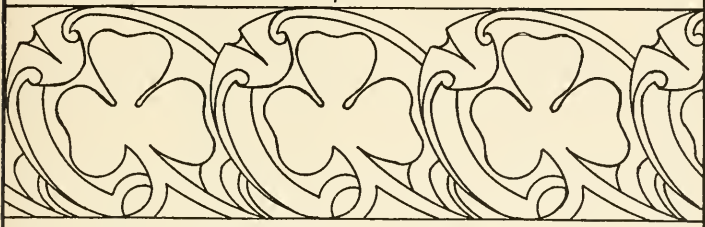


Lesson 7.—Larger Borders—Continued.

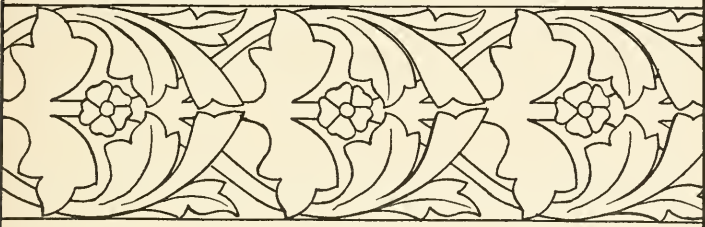
Spaces A and B.—Design two large borders for spaces *A* and *B* on Plate 3 similar to those in Figs. 1, 2, 3, and 4. Figs. 1, 2, and 4 are somewhat Gothic in form, in that they are formed by continuous lines in the direction of the molding.

Review.—Let the pupil point out those that have a similar arrangement on all the preceding pages, as well as those designed by himself.

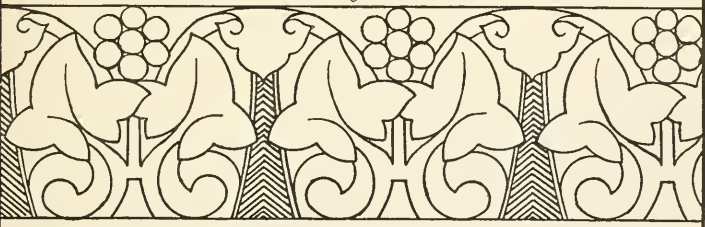
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4



Lesson 8.—Flat Surfaces of Indefinite Extent.

Spaces A and B.—Make two designs to cover a flat surface of indefinite extent by means of vertical stripes, as suggested in Figs. 1 and 2, and draw them in spaces *A* and *B* on Plate 4. These designs may be drawn with pen and ink, or with a very fine camel's-hair brush and India ink.

For an explanation of the different methods of covering a flat surface of indefinite extent, see page 19.

Spaces C and D.—Make two designs to cover a flat surface of indefinite extent by means of horizontal stripes, as illustrated in Figs. 3 and 4, and draw them in spaces *C* and *D*.

Review.—What would be the effect of vertical stripes, similar to those of Nos. 1 and 2, on a lady's dress? What would be the effect of Nos. 3 and 4? Which number shows the most contrast? Which one do you like the best? Why?

PRACTICAL LESSONS IN COLOR.

BOOK NO. 2.—ÆSTHETIC SERIES.

Lesson 1.—Let the student cover the figures of his own designs on Plate 2 with a standard color, such as red, orange, yellow, green, blue, or violet, and the background with a shade of the same color, using colored crayons, and a stump, or blender, or water colors. For an explanation of tints, shades, etc., see page 45, of the *Æsthetic Manual*.

Lesson 2.—On Plate 3, cover the ornaments with a standard color, and the background with a shade of the same, as in Lesson 1.

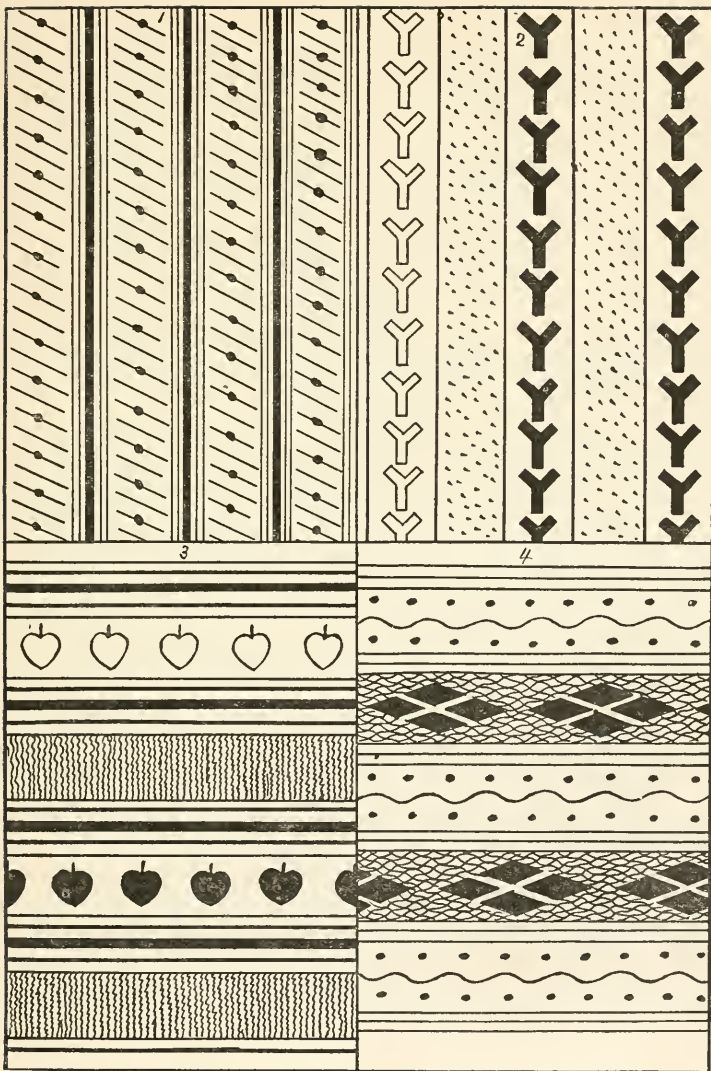
Lesson 3.—On Plate 4, cover the figures with a standard color, and the background with a tint of the same, so as to imitate striped calicoes, or other printed fabrics.

Lesson 4.—On Plate 5, cover space *A* with a very dark gray; then spaces *G* and *F* with a little lighter gray, and the spaces to the left of *G* and to right of *F* with still lighter grays, growing lighter as they advance toward the ends of the plate.

Cover spaces *E*, *B*, and *I* with blue, and the adjoining spaces with tints of blue, growing lighter toward the corners and the bottom of the plate.

Cover spaces *D*, *G*, and *H* with red, and shades increasing in darkness toward the corner and the top of the plate.

Lesson 5.—Paint with water colors the flower and plant on page 6, according to nature. Also bring leaves and flowers to the school-room and draw and paint them on one of the blank pages of the drawing-book.



HISTORICAL ORNAMENT.

BOOK NO. 2.—ÆSTHETIC SERIES.

GREEK ORNAMENT.

Origin.

Greek ornament was derived from Egyptian in its decline, and partly from Assyrian and other Oriental art. It was the result of an old idea developed in a new direction and unrestricted by religious laws.

Characteristics.

In place of the symbolism as the dominant idea of the Egyptian style is substituted the *æsthetic principle*; that is, an element or an ornament is now used for the sake of its beauty instead of its attributed meaning. This *æsthetic principle* was original with the Greeks, and no style, before or since, has reached so high a degree of perfection and *purity of form*. The culmination of Greek art was attained in the Parthenon temple, which was finished about 438 B.C.

Greek ornament was never imitative or representative, but always conventional and decorative. It was defective in this respect, that the ornament did not always grow out of the construction, or form a necessary part of it, as it did in the case of Egyptian ornament; it was applied to the construction.

The representation of natural foliage as ornament was very rare in Greek art. The Greeks studied and followed the laws of plant growth in ornamental designs, without, however, imitating the individuality of natural plants. The general laws of radiation, even distribution, and tangential curvature were strictly observed. Everything, in fact, was made to yield to symmetry and regularity. In the eloquent words of another, "even the white crests of the waves of the sea, so often frayed by the winds, seemingly essentially variable and capricious, are brought under the yoke of ornamental regularity."

Elementary Forms.

The decorative elements or ornaments used on Greek vases and buildings are the *zigzag*; the *wave scroll*, or *Vitruvian scroll*; the *labyrinth*, or the *meander*, or the *Greek fret*; the *anthemion*, or *honeysuckle ornament*; the *acanthus*; the *vine*; the *ivy*; the *echinus*, or the *egg and tongue*, or the *egg and dart molding*; the *astragal*, or *chaplet*, or *knuckle-bone*; the *guilloche*, or *cablè-molding*, or *spira* (plait); and the *bucranes*, or *ox's skull*, with festoons, wreaths, or garlands of flowers. Some of these are represented as follows:



Fig. 1, Honeysuckle, natural form; Fig. 2, Anthemion; Fig. 3, Acanthus, natural form; Fig. 4, Acanthus, conventional form; Fig. 5, Meanders, or Frets; Fig. 6, Astragal; Fig. 7, Guilloche, or Spira; Fig. 8, Echinus, or Egg and Dart Molding; Fig. 9, Laurel Wreath; Fig. 10, Vine; Fig. 11, Bucranes.

Pottery.

Among the earliest examples of Greek ornament that have been preserved are the terra-cotta vases, or painted pottery ware. Of these vases there are two classes:

1. *The Black Vases*; that is, those with black figures and ornaments and background of the natural color of the burned clay.
2. *The Yellow Vases*; those with black ground and figures of the natural color of the burned clay.

Of the first, or black-figured class, there are two varieties, one painted with animals and the other with human figures. The earliest variety is of the date about 600 B.C., and the second variety about a century later.

Of the yellow figured vases there are three varieties, the severe, the beautiful, and the rich. Their dates are respectively about 400, 300, and 200 years B.C. The finest examples of Greek pottery are of the date about 420 B.C.

There was a variety of vases not painted, but decorated with zigzags and frets, which

were perhaps older than the oldest black vases. There was also a variety of vases painted with encaustic pictures in all colors. These are quite rare, and belong to the date 200 B.C.

Greek Architecture—Characteristics.

In its general features it was *broad*, with *flat surfaces*, sometimes *highly colored*. A distinguishing feature was the *gable*, forming a low *pediment*, or tympanum; also the *frieze* and *parabolic curves* in the columns and the moldings, and the use of the lintel.

There are three principal parts of a Greek building that give it character or style:

(1) The *Columns*; (2) the *Entablature*, or table-capping; (3) the *Pediment*. Also the *Platform*, *Stylobate*, or ground steps are to be considered.

The parts of a column are three also:

(1) The *Base*, or foot; (2) the *Shaft*, or body; and (3) the *Capital*, or head. The base may be square or round, plain or carved.

The parts of the entablature are also three:

(1) The *Architrave*, from *arche* and *trabs*, a beam; (2) the *Frieze*; and (3) the *Cor-nice*, or corona.

The pediment, or tympanum, is formed by the upper part of the entablature as a base, and the sloping sides of the gable, or roof angle.

Among the Greeks there were three architectural orders:

1. The *Doric*, or severely plain style, which was the most ancient and massive. It had no pedestal and the shaft was fluted.

2. The *Ionic*, which was more graceful and of lighter proportions. Its capital was further distinguished by a volute at each side of the echinus.

3. The *Corinthian*, or acanthus order, was the most delicate of all the Greek orders. The shaft was generally fluted, and the capital was surrounded with two rows of acanthus leaves.

The Doric, or echinus capital, was a round, flat cushion called the echinus, surmounted by a large, flat abacus, or square plinth. It was so called because the echinus molding was the chief ornament.

The Ionic capital was developed in the second, or Alexandrian, period. In this period carving, instead of painting, was often used. The echinus molding was still retained in this capital.

The Corinthian capital is said to have been invented by Callimachus of Corinth, about 400 B.C. It was not very extensively used by the Greeks; it was really more of a Roman than a Greek order.

Greek Temples.

There were many styles of Greek temples, depending on the arrangement of porticoes and columns. The word style is from *stylos*, which means a pillar, or column.

The first or simple style was called a temple *in antis*, from *anti*, opposite, or against. In this style there are two columns in the portico, which stand in a recess in the gable front.

A second style has been called *prostyle*, which had a portico only in front. A third style was called *amphistyle*, because it had a portico at both ends. A fourth style is called *peristyle*, because it had a colonnade on all sides.

A temple having four columns in the front row of the portico was called a *tetrastyle*; if six, a *hexastyle*; if eight, an *octostyle*; etc.

A *monopteral* (from *monos*, alone, or one, and *pteron*, a wing) temple had a single row of columns on all sides.

A *dipteral*, or double-winged temple, had two rows of columns on all sides. If a temple had one row of columns and a row of pilasters, or half columns, projecting from the walls, it was called *pseudo-dipteral*, that is false double-winged.

A temple having an open or unroofed center was called *hypæthral*, from *hupo*, under, and *aither*, ether, or the air.

We have already stated that the Parthenon was the culmination of Greek art. Fergusson, in his "History of Architecture," says: "It is of all the great temples the best and most celebrated; the only octostyle, Doric temple in Greece, and in its own class undoubtedly the most beautiful building in the world. It is true it has neither the dimensions nor the wondrous expression of power and eternity inherent in Egyptian temples, nor has it the variety and poetry of the Gothic cathedral, but for intellectual beauty, for perfection of proportion, for beauty of detail, and for the exquisite perception of the highest and most recondite principles of art ever applied to architecture, it stands utterly and entirely alone and unrivalled—the glory of Greece."

This temple was in the form of a rectangular parallelogram, 228 feet long and 101 feet wide. At each end were 8 columns, 34½ feet high, and 17 columns at each side, forming a colonnade all around, called a *peristylum*. These columns supported the roof and pediments, also the frieze that ran all around the building. *Pheidias*, under the direction of *Pericles* was the general director and designer of this temple.

Greek Sculpture.

The Egyptians seemed to care but little for beauty. The Hellenic race, however, had a finer sense of beauty than any Asiatic race, and hence beauty became one of the ruling ideas of Greek plastic art. "Nothing in history is more remarkable than this spell of beauty which has hung for ages over the ruined masterpieces" of Greek art. "I swear by the gods," says Critobulus, "that I would prefer beauty to a kingdom." As in Egypt, so in Greece, the subjects of sculpture were their gods of ancient mythology.

The earliest examples of Greek sculpture are in relief and not in the round, and hence they show an Assyrian rather than Egyptian origin. Their draperies were stiff and archaic in form.

The greatest perfection in Greek sculpture, whether in bas-relief, high relief, or in the round, as well as of architecture, was attained in the Parthenon, and *Pheidias* was the master-sculptor. The friezes, the metopes, and the pediment were the parts of this temple especially devoted to sculpture.

The metopes were sculptured in high relief, while the frieze of the outer walls of the

cella was sculptured in rather low relief. This frieze ran all around the cella, and was 525 feet long, and "is acknowledged to be the grandest example of bas-relief existing."

The sculptures on the friezes and pediment of this temple consisted of processions of warriors, horses and their riders, victims for sacrifice, etc., and although there were hundreds of figures altogether, we do not find a single monotonous repetition. All are remarkable for freedom and naturalness of action. There seems, however, to be no attempt at any expression of feeling or passion in the faces.

Chryselephantine statuary, so called because made of gold (*chrysos*) and ivory (*elephas*), was a characteristic of the grand style of Pheidias. When Greek sculpture passed into the Impassioned, the Graceful, and the Pathetic styles, that is, when it became naturalistic, it began to decline.

Greek Painting.

There are about four steps or stages in the use of color, through which nations as well as individuals seem to pass before they arrive at the art of painting as understood in modern times.

1. The first step is merely to apply some simple gaudy color, as red, yellow, or green, so as to cover over evenly some outlined space representing some object. The Asiatic painter never advanced beyond this step.

2. The second step consists in the use of more than one simple color, applying one color to one object and another color to a different object; or painting one part of an object, as the coat of a man, with one color, and his hat with another. In this stage no attempt is made to use the appropriate color, but the object seems to be merely to distinguish objects or parts of objects by flat color. The Egyptians never advanced beyond this grade.

3. When a nation arrives at the idea of propriety in color—that is, that the face should be of a reddish hue, and that other objects should be represented in their natural colors—the third step in painting is reached. Many nations never passed beyond this stage.

4. The idea of *gradation* in color from light to dark, and *vice versa*, and from one color to another, constitutes the last step necessary to develop the art of painting.

No ancient nations seem to have arrived at this stage before the time of the Greeks. They developed the art of painting as they had previously done in the case of sculpture and architecture, beyond anything that had previously been produced.

PRACTICAL LESSONS.

Lesson 5.—Greek Ornament.

The border at the top of Plate 7 is Greek, and is called the *Echinus*, the egg and tongue, or the egg and dart molding. It may be extended to the right end of the plate by the use of rulers and tracing paper.

Fig. 13 is a Greek conventional *Lily Form* to be drawn freehand at the right end of the plate, using guide lines as indicated in the figure. Let the student compare this figure with the lotus in Book 1., and observe how greatly the Greek excelled the Egyptian artist in delicacy and purity of form. Let the student write an analysis of this form similar to that recommended for Fig. 3 of Book No. 1.

Fig. 14 is one of the numerous forms of the *Greek Anthemion*. It is to be drawn freehand at the right end of the plate, using the guide lines indicated.

Fig. 15 represents the left half of an ancient *Greek Antefix* in bronze. Sketch the guide lines and complete the right half, making it the same as the left half reversed. Let the student point out all the elements of beauty he can discover, and write out an analysis.

Lesson 6.—Greek Ornament—Continued.

The border at the top of Plate 8 is the *Greek Astragal*, chaplet, or knuckle-bone molding, to be extended to the right end of the plate, as usual. What kind of repetition in this border?

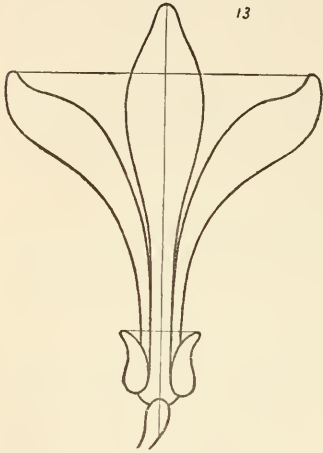
Fig. 16 represents a Greek conventional border, perhaps from the laurel, to be drawn freehand at the right end of the plate.

Fig. 17 represents a *Greek Anthemion* as found in the antefix of the Parthenon, at Athens. This building in miniature may be seen in the Metropolitan Museum of Art in Central Park, New York. Sketch the guide lines as in the copy, and draw the whole figure freehand at the right end of the plate. Much care will be necessary in drawing the spiral scrolls. This will be a good figure to analyze in writing, both as a language lesson and a lesson in æsthetic analysis.

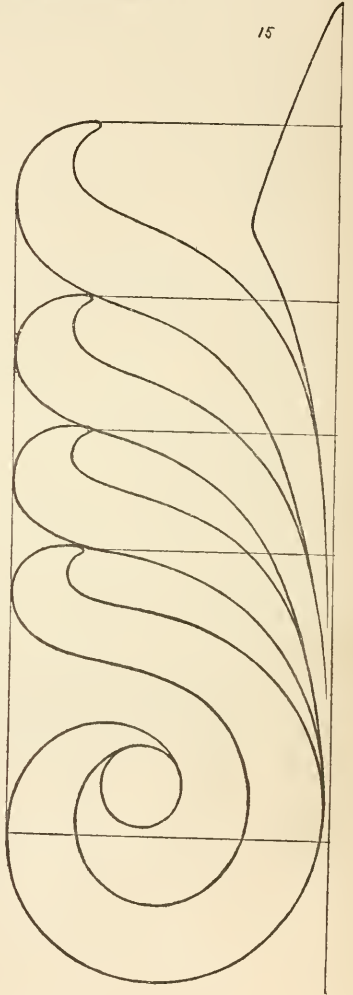
Fig. 18 represents the left half of another form of the *Greek Anthemion* and scrolls, found on a fragment of an ancient Greek capital. Extend the guide lines, and complete the right half of the figure the same as the left half reversed.



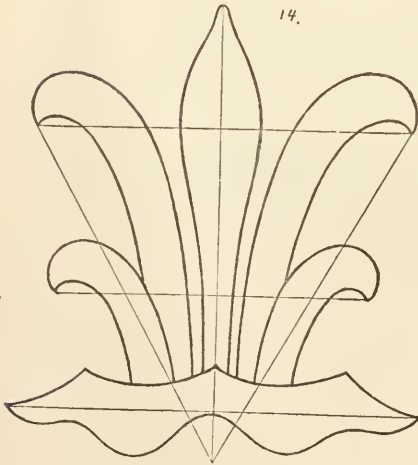
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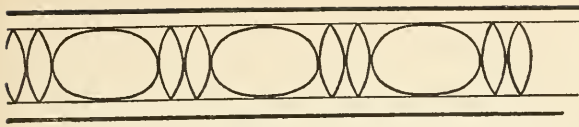


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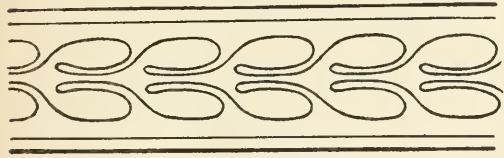


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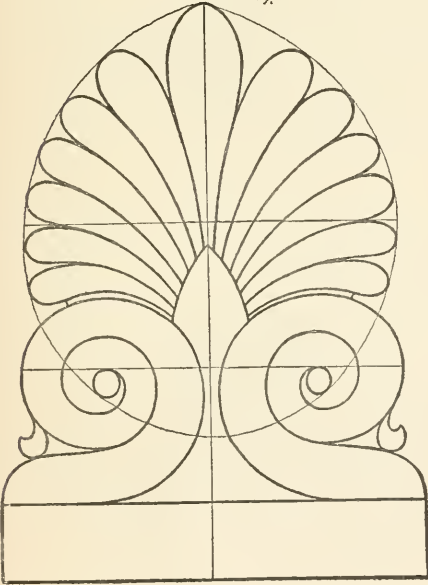




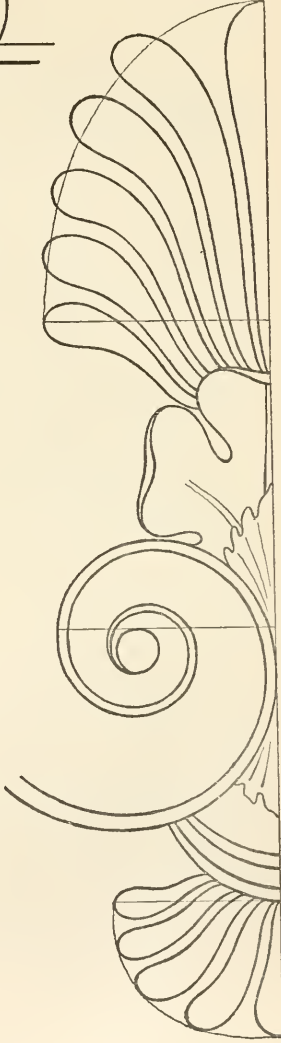
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17.



18.



Lesson 7.—Greek Ornament—Continued.

The border at the top of Plate 9 represents the simplest form of the *Greek Spira*, guilloche, or cable-molding, to be extended to the right end of the plate, as usual. For guide lines, draw complete circles.

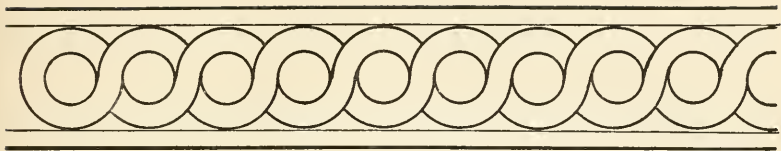
Figs. 19 and 20 are *Greek Anthemion* forms, alternated on the cornice of the Temple of Apollo at Bassæ. Draw guide lines as in the copy, and complete Fig. 20 first; then add Fig. 19 at the right end of the plate so as to connect with the right scroll of Fig. 20. Nothing in this book is more worthy of careful study than these Greek forms; and they will tax the student's skill to the utmost. They should both be carefully analyzed in writing, in the light of the principles explained and illustrated under the subject *Decorative Design, Part I.*, of the *Æsthetic Manual*.

Lesson 8.—Greek Ornament—Continued.

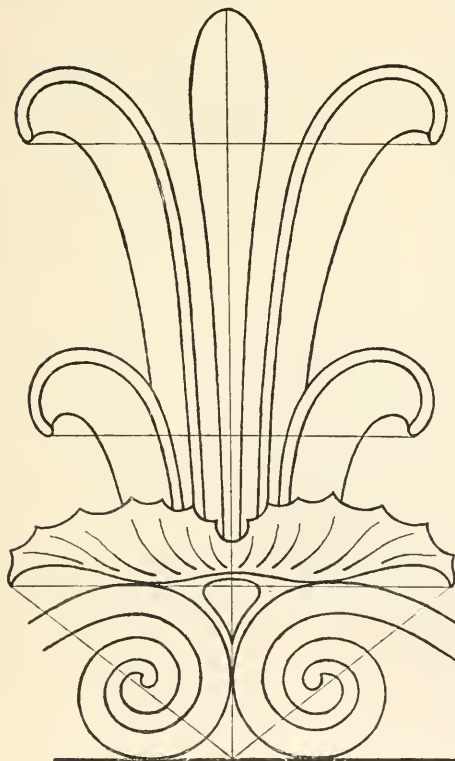
The border at the top of Plate 10 is one of the forms of the *Greek Fret*, meander, or labyrinth, to be extended, as usual, to the right end of the plate.

Fig. 21 represents a horizontal anthemion border, the elements being joined by wave lines. Draw it freehand and in a vertical position at the right end of the plate. After drawing the long straight lines, draw the long wave lines as guide lines.

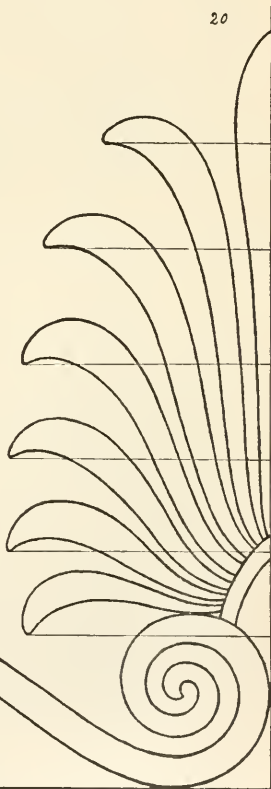
Fig. 22 represents the left half of the well-known *Ionic Capital*, or voluted echinus capital, from the Temple of Minerva Polias, at Pirene. If the upper part is thought too difficult for freehand work, it may be completed by tracing.

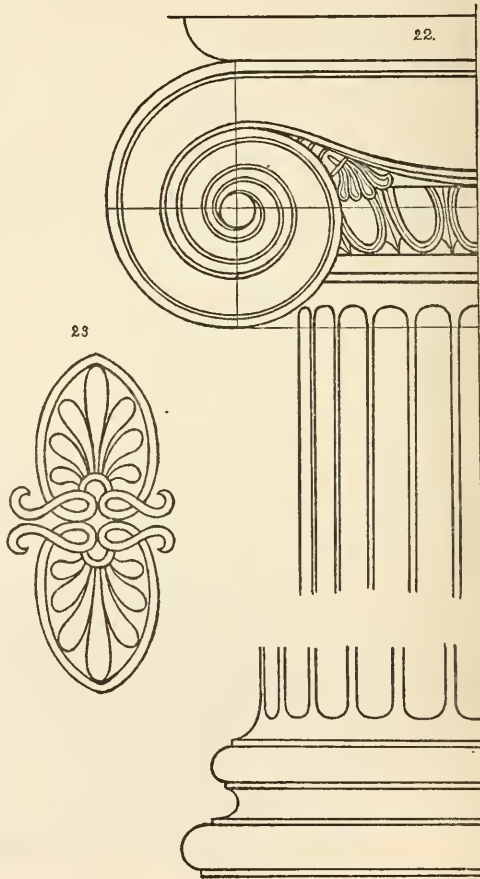
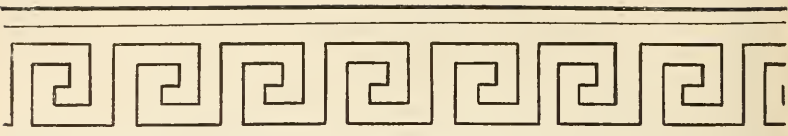


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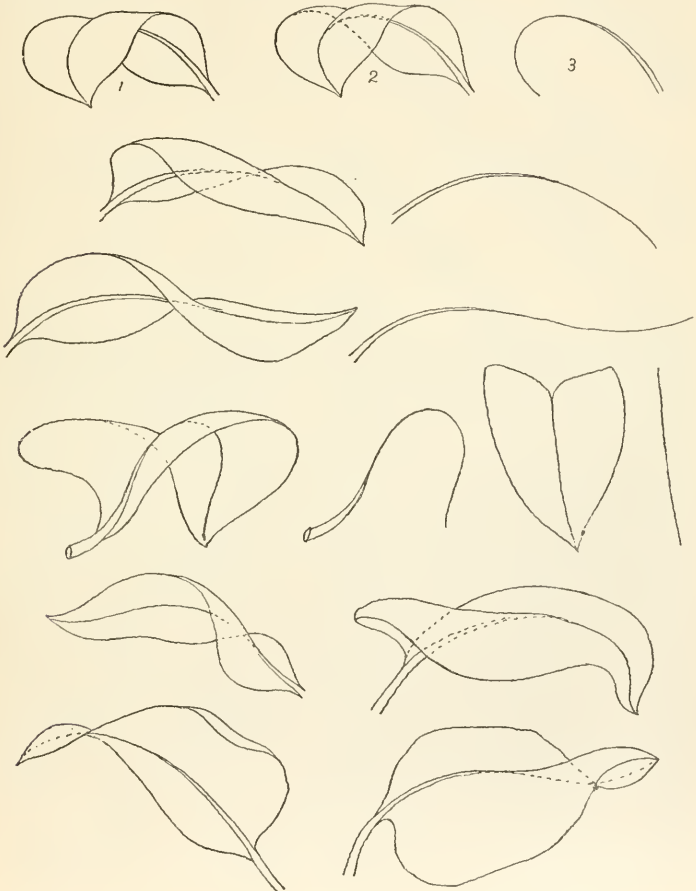
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Leaf Perspective.

The drawing below represents leaves in foreshortened positions. The first step should be to draw the midrib, as shown in Fig. 3. Fig. 2 shows the position of the invisible edges, and Fig. 1 the completed leaf. The student should follow this order in drawing from nature.



PART II.—SYNTHETICAL EXERCISES.

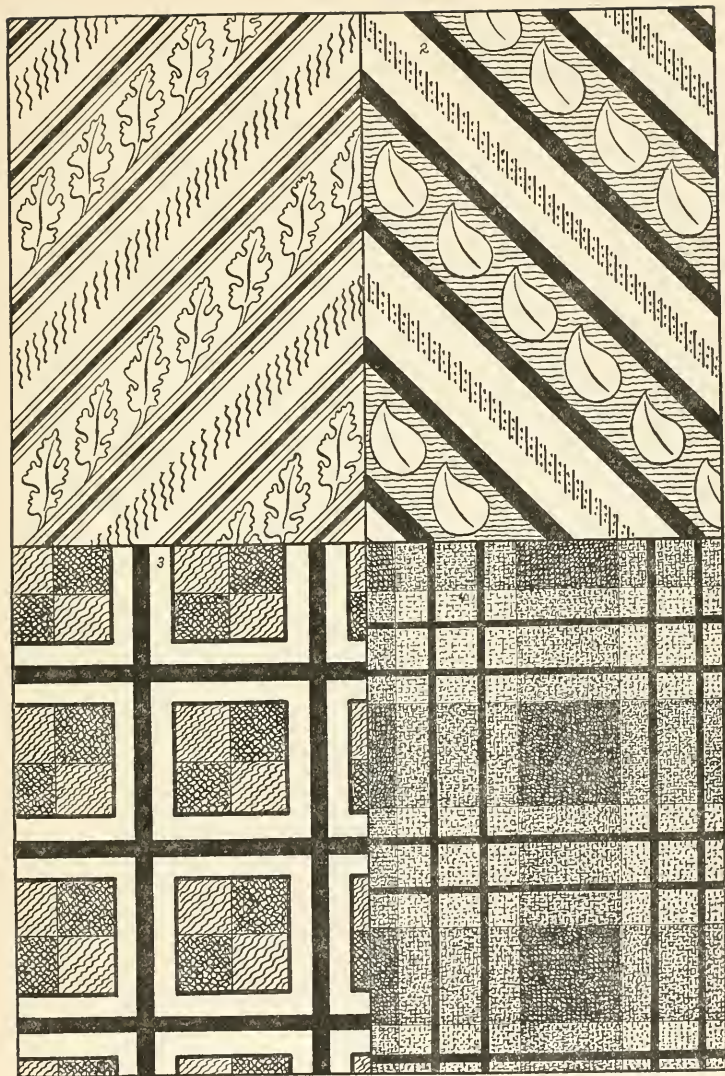
BOOK NO. 3.—ÆSTHETIC SERIES.

Lesson 9.—Flat Surfaces of Indefinite Extent—Continued.

Spaces A and B.—Make two designs to cover a flat surface of indefinite extent, by means of oblique stripes, as shown in Figs. 1 and 2, and draw them in spaces *A* and *B* on Plate 1.

Spaces C and D.—For spaces *C* and *D* make two plaid, or cross-barred, designs, as suggested in Figs. 3 and 4.

Review.—Which number do you like best? What colors would you suggest for No. 1? No. 2? No. 3? No. 4?

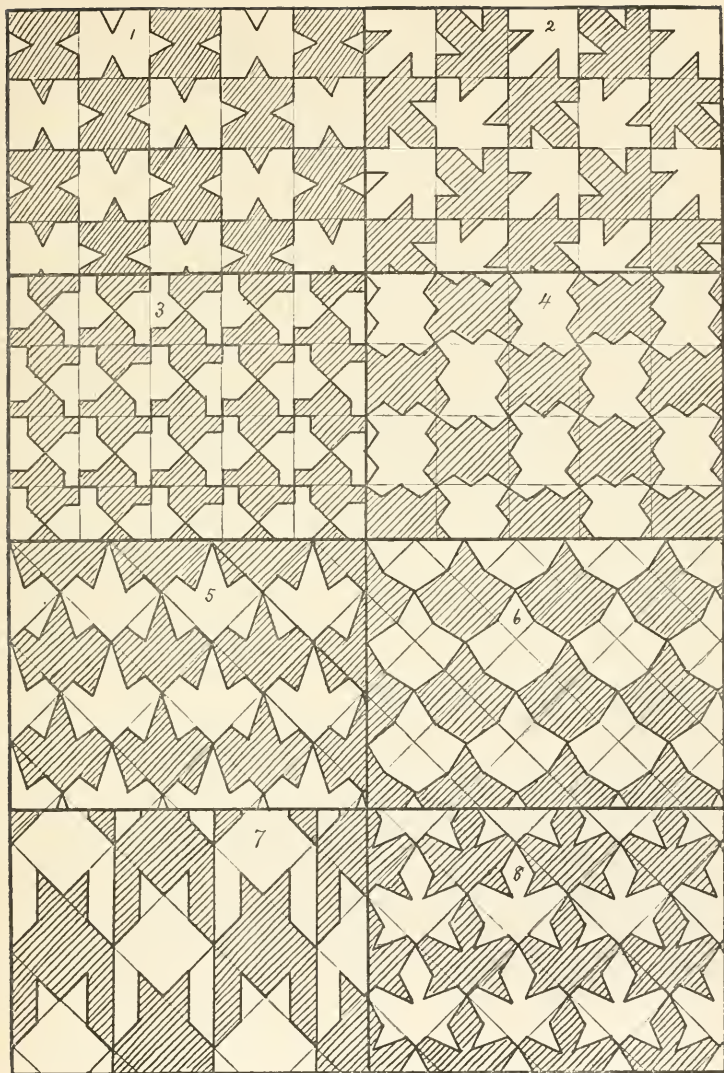


Lesson 10.—Flat Surfaces—Continued.

Spaces A and B.—Make two straight line designs to cover a flat surface, by “giving and taking,” and based on the upright square. That is, cut out a portion of the square on one side and attach it to the same, or the adjacent side of the same square, as suggested in Figs. 1, 2, 3, and 4. The result is sometimes called “counterchange,” that is, the unit and the background (or the unit in another position) are exactly the same size and shape, and they fit together without any intervening spaces. Draw the designs in spaces *A* and *B* on Plate 2. For further remarks on “giving and taking,” see page 20.

Spaces C and D.—Make two straight line designs to cover a flat surface, by “giving and taking,” based on the oblique square, as shown in Figs. 5, 6, 7, and 8. and draw them in spaces *C* and *D*.

Note.—In these and the remaining designs in this book, after the unit for repetition has been decided upon, it should be cut out of a piece of thick paper or cardboard so as to form a templet, or pattern. Then lay this pattern at the proper places and mark around it. In this way the time spent in drawing may be much shortened. *Remember*, that in *Design*, as much time should be spent in designing, and as little in mere drawing of lines or forms, as possible.

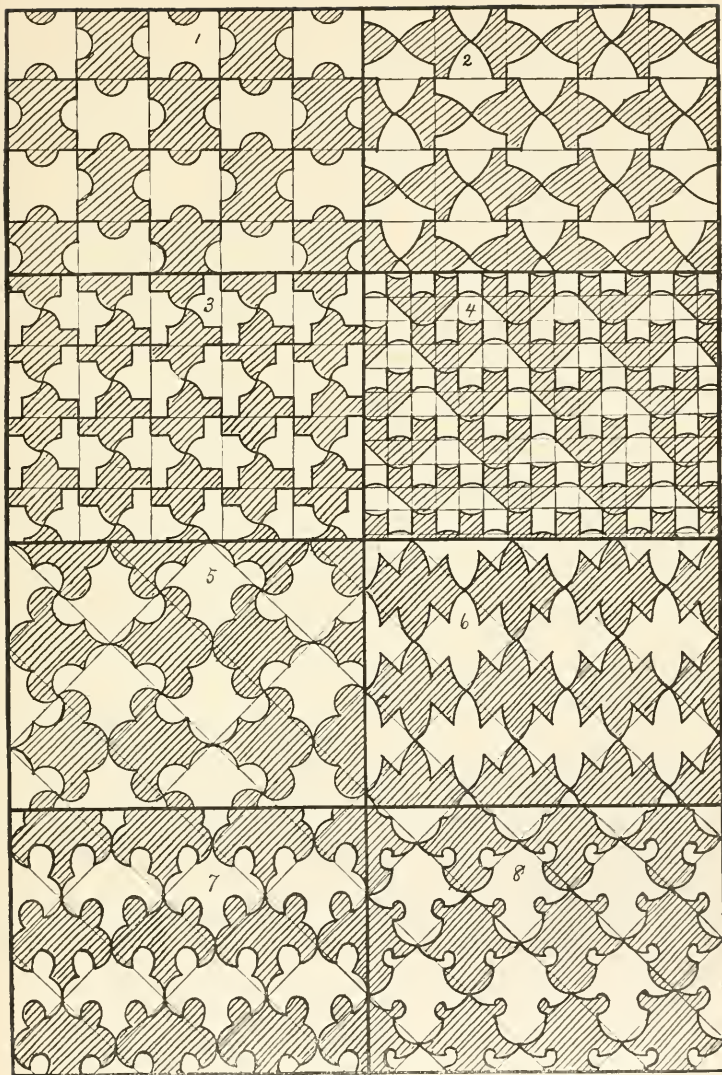


Lesson 11.—Flat Surfaces—Continued.

Spaces A and B.—Make two curved line designs to cover a flat surface, by “giving and taking,” and based on the upright square, as shown in Figs. 1, 2, 3, and 4. Draw them in spaces *A* and *B* on Plate 3.

Spaces C and D.—Make two curved line designs to cover a flat surface, by “giving and taking,” and based on the oblique square, as illustrated by Figs. 5, 6, 7, and 8. Draw them in spaces *C* and *D*.

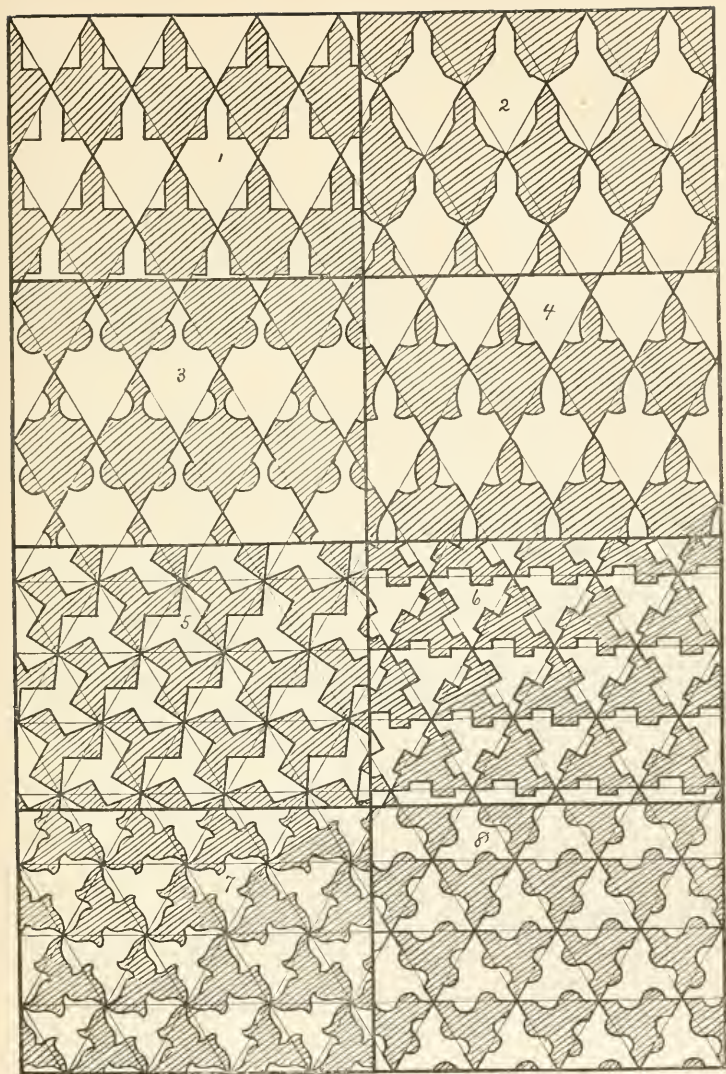
Note.—In Lessons 10, 11, and 12, the exercises may be much further elaborated by drawing them much larger, say three or four inches in size, and then filling each space or field with a suitable conventional form. By a harmonious combination of colors, the effect may be still further heightened.



Lesson 12.—Flat Surfaces—Continued.

Spaces A and B.—Make one straight line and one curved line design to cover a flat surface, by “giving and taking,” based on the vertical rhomb, as shown in Figs. 1, 2, 3, and 4, and draw them in spaces *A* and *B* on Plate 4. The principle for the rhomb is the same as for the square.

Spaces C and D.—Make one straight and one curved line design to cover a flat surface, by “giving and taking,” based on the equilateral triangle, as seen in Figs. 5, 6, 7, and 8, and draw them in spaces *C* and *D*. In the case of the equilateral triangle, the space cut out of one side is to be put on the same side from which it was taken.



PRACTICAL LESSONS IN COLOR.

BOOK NO. 3.—ESTHETIC SERIES.

Lesson 1.—On Plate 1 let the student color some one or all of his own designs, so as to represent striped or plaided calicoes, or other printed fabrics.

Lesson 2.—Let the pupil color the spaces on Plate 5 according to his own taste and the suggestions of the teacher.

Lesson 3.—On Plate 6 let the student draw leaves and plant forms from nature and color them. These forms can afterwards be conventionalized and used as units in original designs.

Lesson 4.—On a blank page let the pupil enlarge to double its length and breadth one of his own designs, as *A*, *B*, *C*, or *D*, on Plate 2 or 3, and fill the forms with suitable units, and then color them with complementary or other harmonious colors.

HISTORICAL ORNAMENT.

BOOK NO. 3.—ÆSTHETIC SERIES.

Roman Ornament.—Characteristics.

The period of Roman ornament is generally reckoned from 200 B.C. to 70 A.D. Strictly speaking, however, there is no separate Roman style of ornament. What is called the Roman style was simply an enlargement and a debasement of the pure Greek style.

Though not original, Roman art has some peculiarities which enable us to distinguish it from the pure Greek style. One of its chief characteristics is its elaborateness and magnificence. The most florid Greek example, which was the scroll on the choragic monument of Lysicrates, becomes tame when compared with even "an ordinary Roman specimen." It should be remembered, then, that Roman ornament was usually excessive even to extravagance in luxury. "A love of display and a spirit of pride are everywhere conspicuous."

It cannot be said to have added any important new elements, except what is called the shell ornament, but it enriched and elaborated the Greek elements. Hence it may be said that it is very probable that the best artists employed by the Romans were Greeks.

The Romans used a different variety of the acanthus plant from that used by the Greeks. The Roman variety was called *Acanthus Mollis*, or soft acanthus, while that of the Greeks was the spinous, or prickly variety.

In Roman ornament the curves are fuller or more circular than Greek curves, which were generally elliptic, or parabolic. The use of the continuous scroll, in which one part grew out of another and encircled a flower or a group of leaves, was very common, and may be called a characteristic.

Figures called *Termini* were also a Roman characteristic, as well as comic and tragic masks. Much of Roman art is worthy of careful study, but rather to avoid than to follow its teachings.

The use of animal monsters, as the *Triton*, the *Griffin* and *Chimera*, was a characteristic of Roman as well as of Greek ornament, but it was abundant in the Roman.

Some Roman Elements.

Triton. A sea divinity having the human figure in the upper part of the body, and in the lower part that of a fish.

Griffin. A fabled monster having the body and feet of a lion, and the head and wings of an eagle or a vulture, signifying the union of strength and agility.

Chimera. A fabled monster having the head of a lion, the body of a goat, and the tail of a serpent.

Term or Terminus. The human head, and sometimes the shoulders, finished at the bottom with feet, claws, or a plinth, while the middle part often consisted of a square portion, but often of some other shape, tapering downward. Or it may be defined as a pedestal widening toward the top, where it merges into a bust.



Fig. 1 represents a conventional form of the Acanthus Leaf; Fig. 2, the Chimera; Fig. 3, the Griffin; Figs. 4 and 5, Masks; Fig. 6, the Triton; Fig. 7, a Terminus; Fig. 8, a Continuous Scroll.

Roman Architecture.

Roman architecture was "characterized by stateliness in dimensions, and profuse elegance in ornamentation." The Greeks lived in and worshiped the ideal, the beautiful, while the Romans were eminently practical, and cared more for utility and strength. Being warlike and domineering in nature, they naturally turned their attention to military constructions, as bridges, aqueducts, and other engineering works.

The ground plan of nearly all Greek structures is rectangular, while the Romans oftener used a circular or elliptical form for the ground plot. The Egyptians and the

Greeks covered their hall and doorways and other openings with the straight horizontal lintel, laid across from one wall or column to another; while the Romans, if they did not invent it, made extensive use of the round or semicircular arch for such purposes; and from the manner and skill with which they used this arch, there arose a "new system of vaulting, which was developed into groins and domes."

To the Doric, the Ionic, and the Corinthian orders of the Greeks, the Romans are said to have added the Tuscan, which is a very plain order and only a modification of the Doric, and the Composite order, which was a union of the Ionic and the Corinthian orders, and was more elaborate and ornate than any Greek order.

The Romans needed more orders than the Greeks on account of the height of their temples. Grecian temples were only one story in height, while the Roman structures were sometimes three or four stories high, and each story, according to the Roman taste, required a separate order of columns. Generally the first or basement story was Doric, the second Ionic, the third Corinthian, and the fourth Composite.

The Romans exhibited their skill and originality more in architecture than in any other department of art. They also made more and varied use of it than any previous nation. While the Egyptians applied it only to palaces and tombs, and the Greeks to temples and theatres, the Romans applied it not only to these, but to aqueducts, fountains, basins, baths, roads, bridges, tunnels, harbors, basilicas, arcades, circuses, monuments, triumphal arches, memorial columns, etc.

Roman Sculpture.

The story of Roman sculpture is soon told. It was intensely naturalistic, and abounded in portrait statues and busts, and was often used for mere military records. The important statues were colossal in size.

The Romans had no especial love for art, but, after they conquered the Greeks by force of arms, they began to carry Greek statues to Rome as trophies of their victories. These they gilded and set up in the city of Rome. Although the Romans did not appreciate the beauty of the statues thus carried away from Greece, yet their capture was a means of their preservation.

The Romans should have the credit of being the first to erect columns with statues on top. The Column of Trajan was 127 feet high, 10½ feet in diameter, and had 2500 figures sculptured on its surface, besides horses.

As to Roman artists themselves, they had but little or no feeling for art, and being only imitators, they copied Greek statues. Under the Antonines there was a fashion of representing noble Romans and their wives as deities. On the removal of the capital from Rome to Byzantium many of the finest statues collected at Rome were removed to the latter place, where they were forever lost.

Roman Painting.

Painting was early practiced by the Romans, but in later times it was not done by polite hands, but by domestics, or slaves. Hence we find no Roman painters of great name.

At the close of the Republic, Rome was full of painters, but they were mostly portrait painters and decorators. Hence Roman painting was chiefly characterized by portraits, and also by the fact that in painting a portrait the artist was more anxious to make it beautiful than to make it resemble the original.

Three periods may be noticed in the history of Roman painting:

1. The first may be called the Greco-Roman period, when the artists were chiefly Greeks.
2. The second period extends from the Christian era to the latter part of the third century.
3. The third includes the period when Rome was despoiled of her great art collections in order to build up Constantinople, the new capital of the Roman Empire. This third period marked the total decay of the imitative arts among the ancients.

PRACTICAL LESSONS.

Lesson 9.—Roman Ornament.

The border at the top of Plate 7 is the *Roman Astragal*. It will be noticed that the egg part is much more circular and less oval in shape than in the Greek form on Plate 8 of Book No. 2. Extend this border to the right end of the plate as usual.

Fig. 24 represents a conventional form of the *Acanthus Leaf*. At the right end of the plate sketch the guide lines, and draw the leaf as in the copy.

Fig. 25 represents the left half of another form of the conventional acanthus leaf. Complete the right half by first drawing the guide lines and sketching the lobes as shown in the copy. The student will find this an excellent example to analyze in writing, as directed for some previous figures.

Lesson 10.—Roman Ornament—Continued.

The border at the top of Plate 8 is Roman in style, and formed from the acanthus by *simple repetition*. Extend the border as usual.

Fig. 26 represents a portion of a pilaster from the Villa Medici, Rome, designed from acanthus foliage. For ordinary pupils it will probably be too difficult or too tedious to be drawn freehand. Some ambitious ones may try it. The others may trace it and draw it at the right end of the plate.

Fig. 27 represents the left half of an *Acanthus Leaf* conventionalized and so universally used in Roman ornament. Sketch the guide lines, and outline the lobes as indicated in the copy. This, too, is an excellent subject for written analysis.

Lesson 11.—Roman Ornament—Continued.

The Roman border at the top of Plate 9 may be extended toward the right, as usual.

Fig. 28 represents still another conventional form of the acanthus leaf. The guide lines will indicate the method of beginning the drawing, which is to be placed at the right end of the plate.

Fig. 29 represents one form of the Griffin, which is to be drawn reversed at the right end of the plate.

Fig. 30 represents the left half of a *Corinthian Capital* and *Base* of the Roman style, from the Temple of Vesta, Tivoli. It being tedious to draw, the upper part may be traced, reversed, and drawn so as to complete the right half.

Lesson 12.—Roman Ornament—Continued.

The Roman border at the top of Plate 10 may be extended as usual.

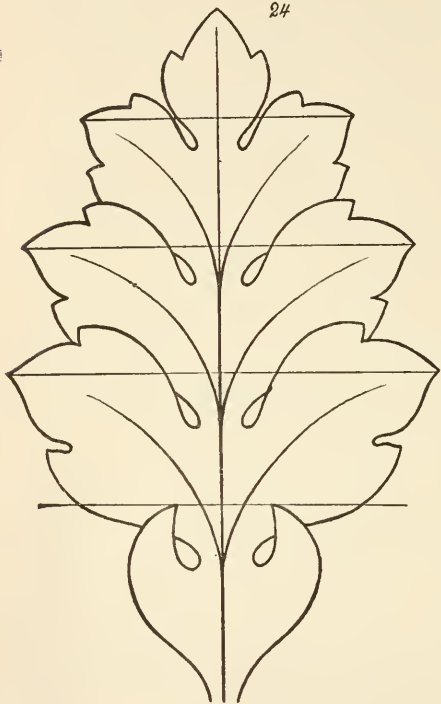
Fig. 31 is a *Roman Rosette*, which may be traced and drawn at the right end of the plate.

Fig. 32 represents *Acanthus Foliage* and a husk, or stem covering, all conventionalized, to be drawn freehand at the right end of the plate.

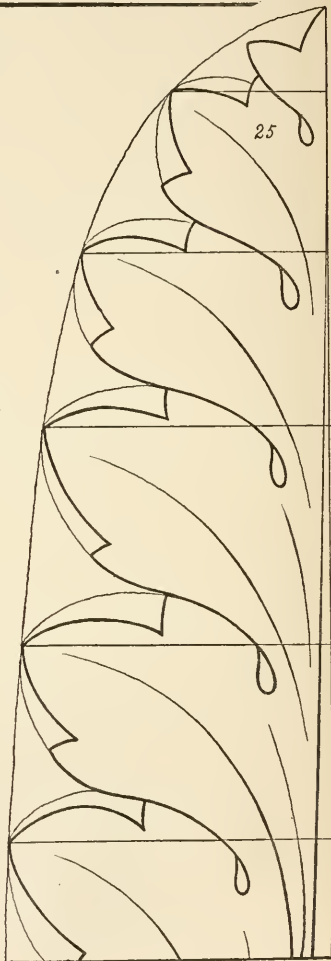
Fig. 33 represents the left half of a *Composite Capital*, of Roman style, from the Arch of Titus, at Rome. It may be traced, reversed, and drawn so as to complete the right half of the capital.

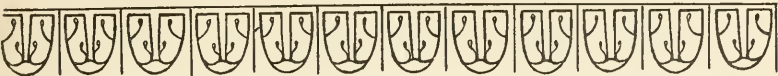


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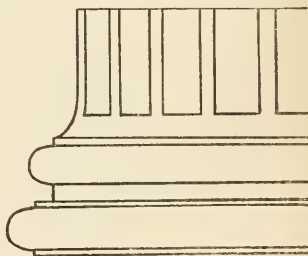
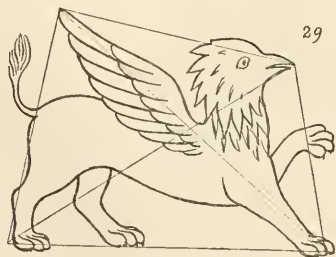
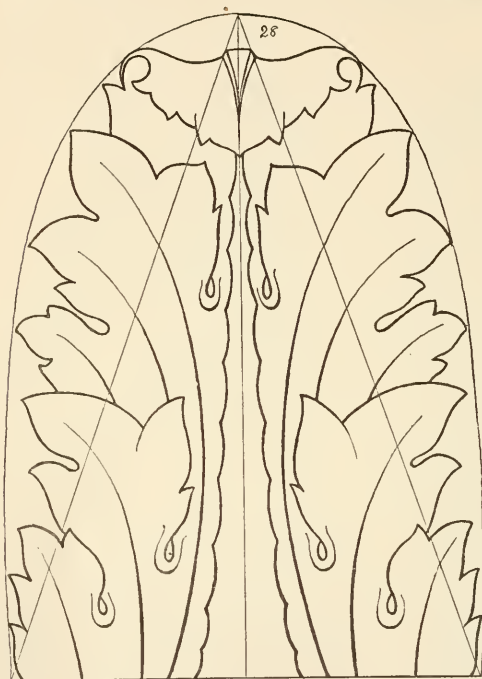


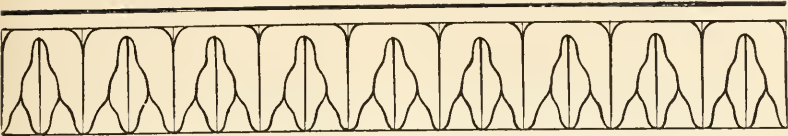
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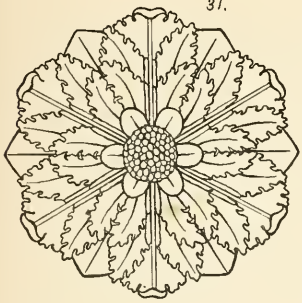
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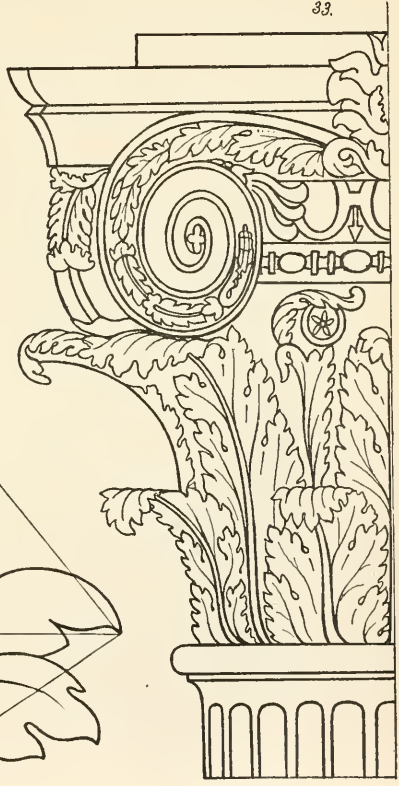




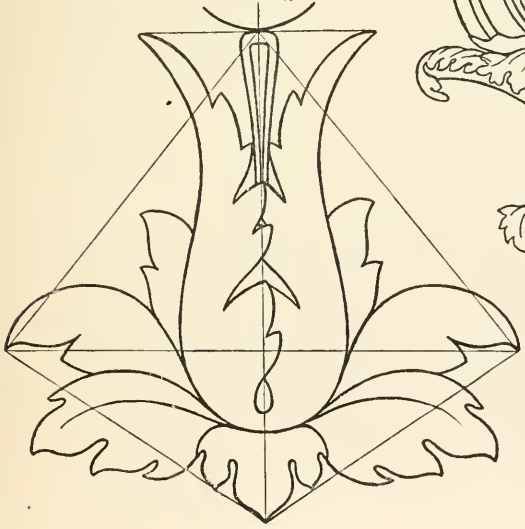
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PART II.—SYNTHETICAL EXERCISES.

BOOK NO. 4.—ÆSTHETIC SERIES.

Lesson 13.—To Fill a Square.

Space A.—Make a straight line design to fill an upright square, using a center-piece, as shown in Figs. 1 and 2, and draw it in space *A* on Plate 1.

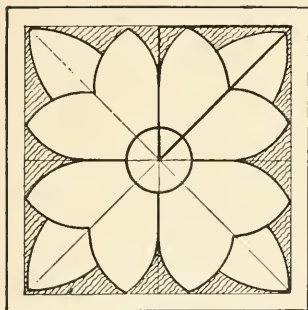
In making such a design having a center-piece, first draw a square the same size as space *A* on trial paper. Draw the diagonals and the diameters so as to divide the square into eight right-angled triangles. Then study up a form suitable for one of these triangles, and draw it eight times around the center. See the triangle distinctly marked out in Figs. 1, 2, and 3. Tracing paper, a pattern, or some mechanical means should be used for repeating the like parts of the design. For suggestions in reference to center-pieces, see page 22.

Space B.—Make a curved line design to fill an upright square, using a center-piece, as illustrated in Figs. 3 and 4, and draw it in space *B*. Make all these designs first on trial paper.

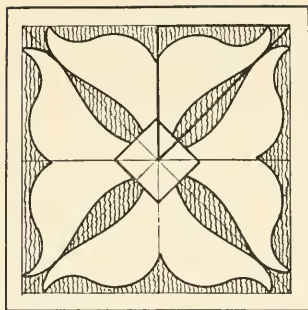
Spaces C and D.—Make two more designs, similar to those in Figs. 5, 6, 7, and 8, being a little more elaborate than the previous ones, and draw them in spaces *C* and *D*.

Review.—Which do you like better, No. 1 or 2? Why? No. 3 or 4? Why? No. 5 or 6? Why? No. 7 or 8? Why? Which one of all do you like best? Why?

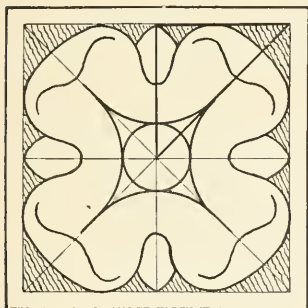
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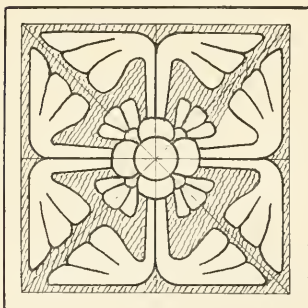
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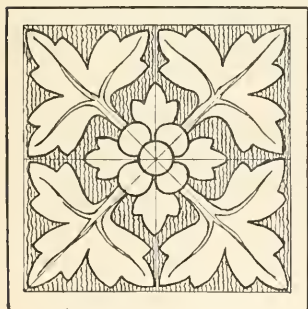
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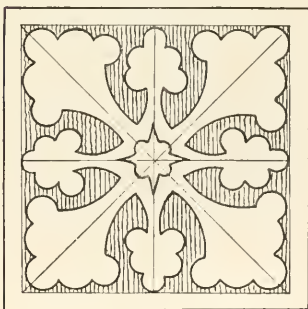
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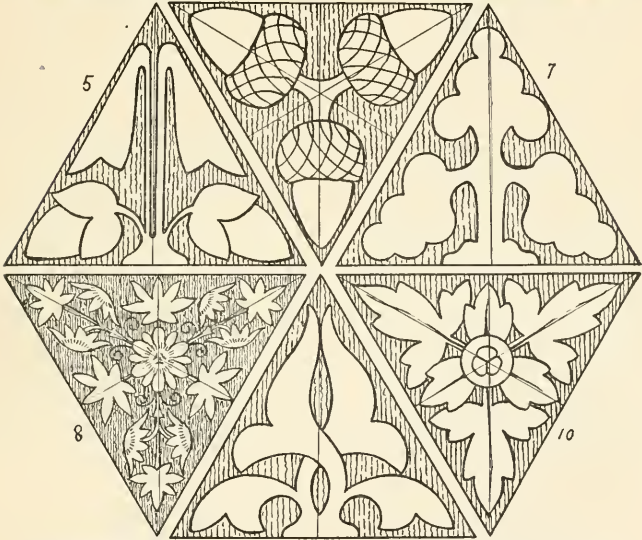
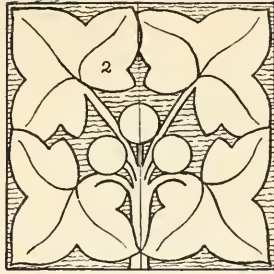
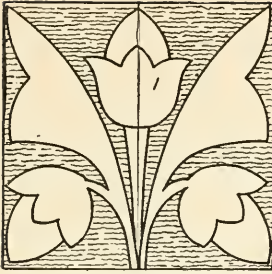
Lesson 14.—To Fill Squares and Triangles.

Space A—Make a design to fill a square, making the point of attachment at the middle of one side, instead of the center, as in Figs. 1 and 2, and draw it in space *A* on Plate 2. In this case first divide the square into halves by a vertical diameter, so as to form two oblongs. On trial paper, with a soft lead-pencil, draw the left half of the design; now fold the paper on the diameter of the square, rub on the back of the left half so as to transfer it to the right half. Go over the right half now with the soft pencil to make it distinct. Lastly, lay the trial paper, with the design downward, on the square *A* in the drawing-book. Rub over the back of the trial paper and transfer the design to the space *A*. It may then be finished up as usual. The tint lines in the background should be broad, soft gray lines, not thin, black, or wiry looking.

Space B.—Make a design to fill a square, making the point of attachment at one corner, as illustrated in Figs. 3 and 4, and draw it in space *B*. First divide the square into halves by means of a diagonal, so as to form two right-angled triangles. Make the design first on trial paper and transfer it as in space *A*.

Spaces C and D.—Make two designs to fill an equilateral triangle, using a center-piece, as shown in Figs. 6, 8, and 10, and draw them in spaces *C* and *D*. Divide each triangle into six right-angled triangles by drawing a line from each angle to the center of the opposite side.

Space E.—Make a design to fill an equilateral triangle, making the point of attachment at the middle of one side, as in Figs. 5, 7, and 9, and draw it in space *E*. Divide each triangle into halves, or two right-angled triangles, by means of a line from the upper angle to the middle of the base.



Lesson 15.—To Fill Pentagons, Hexagons, Heptagons, and Octagons.

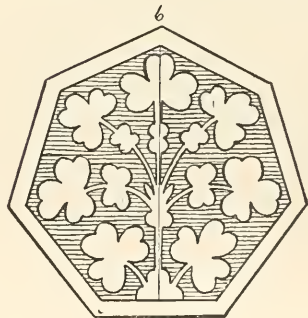
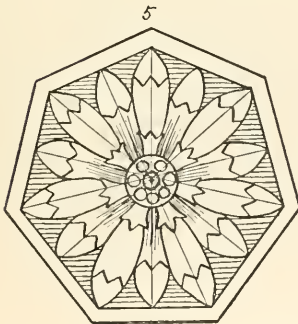
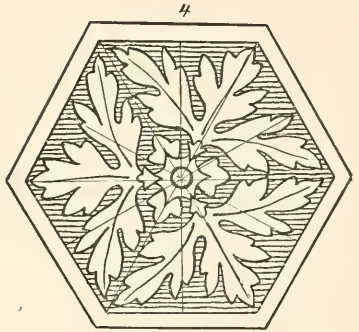
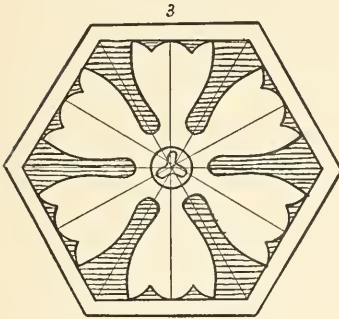
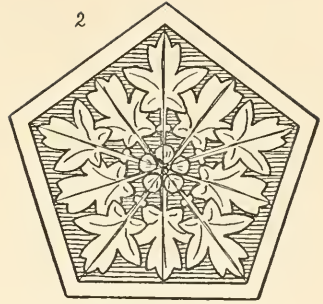
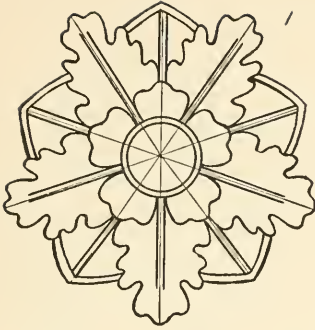
Space A.—Make a design to fill a pentagon, as seen in Figs. 1 and 2, and draw it on Plate 3. Divide the pentagon into ten right-angled triangles by drawing lines from each angle through the center to the middle of the opposite side of the pentagon.

Space B.—Make a design to fill a hexagon, as illustrated by Figs. 3 and 4, and draw it in space *B*. Divide the hexagon into twelve right-angled triangles by joining the opposite corners and the middle points of the opposite sides of the hexagon.

Space C.—Make a design to fill a heptagon, as shown in Figs. 5 and 6, and draw it in space *C*. Divide the heptagon into halves, as in Fig. 5, or into fourteen right-angled triangles, as in Fig. 6.

Space D.—Make a design to fill an octagon, as exhibited by Figs. 7 and 8, and draw it in space *D*. Divide the octagon into sixteen right-angled triangles.

Note.—The observing student will notice that in nearly all the regular geometrical figures, the surface is divided into right-angled triangles. Hence the ability to fill a right-angled triangle in a pleasing way goes far toward the making of pleasing designs for all the regular geometrical figures.

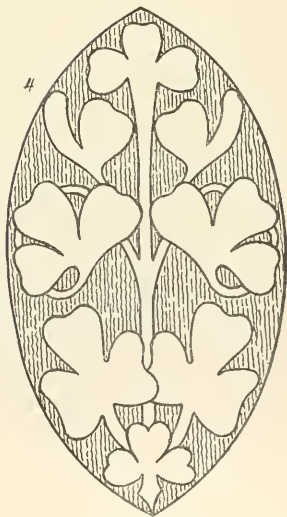
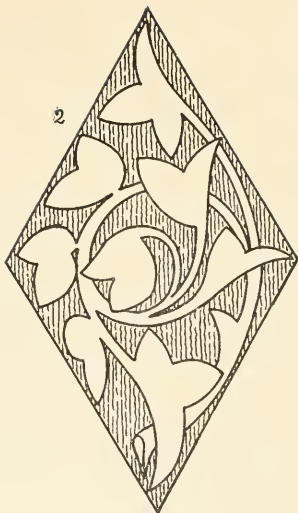
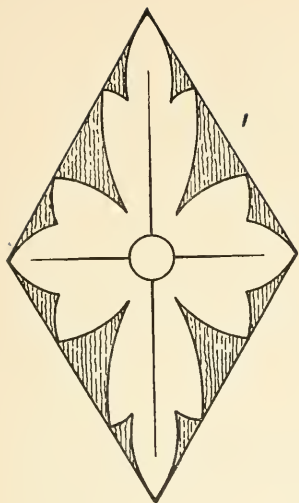


Lesson 16.—The Rhomb and Vesica.

Space A.—Make a design to fill a rhomb similar to those in Figs. 1 and 2, and draw it in space *A* on Plate 4. A center-piece may be used as in Fig. 1, or the attachment may be made at one angle. If a center-piece is used, divide the rhomb into four right-angled triangles.

Space B.—Make a design to fill a vesica, similar to those in Figs. 3 and 4, and draw it in space *B*. The vesica in art is that form or smaller segment of two circles when each passes through the center of the other. A center-piece may be used, or the attachment may be made at one end or at the middle of one side.

Review.—Which do you like better, No. 1 or 2? Which has more grace and freedom? Why? Compare Nos. 3 and 4 as to grace, strength, contrast, and other qualities.



PRACTICAL LESSONS IN COLOR.

BOOK NO. 4.—ÆSTHETIC SERIES.

Lesson 1.—Let the student color some one or all of his designs on Plates 1, 2, 3, and 4, according to the time that may be allowed for drawing. First let him select the colors he thinks to be suitable, and ask the teacher for suggestions before using them. Not more than two or three colors should be used in any one of these elementary exercises.

Lesson 2.—On Plate 5, cover the star at the center with gray, using water colors. Cover the series marked R with standard red for the complete rhomb, and tints of red growing lighter outward from the center for the underlying rhombs; cover the series O with standard orange and tints of orange; the series Y with standard yellow and tints of yellow; the series G with standard green and tints of green; the series B with standard blue and tints of blue; the series V with standard violet and tints of violet; the series R and O with red and orange and tints of their combination; the series O and Y with orange and yellow and tints of their combination; the series Y and G with yellow and green and tints of their combination; the series B and G with blue and green and tints of their combination; the series V and B with violet and blue and tints of their combination; the series R and V with red and violet and tints of their combination.

To make standard orange for series O, put a light wash of orange over the whole series, then put a little more orange in the mixture and cover all the rhombs except the upper one; again, put a little more orange in the mixture and cover all the rhombs except the two upper ones; add orange again and leave off one more rhomb at the top; proceed in the same way until a full standard orange is obtained in the rhomb O. Proceed in the same way for all the other series.

For a class exercise the teacher or some pupil can prepare a saucerful of color in the usual way from soft water colors in pans, and then distribute a teaspoonful of color to each pupil in a small dish used for water-color drawing, or a small butter-dish. This method will save time and annoyance.

HISTORICAL ORNAMENT.

BOOK NO. 4.—ÆSTHETIC SERIES.

Byzantine Ornament.

The three ancient styles of ornament, the Egyptian, the Greek, and the Roman, which have been explained in previous books, may be called in one sense *heathen* or *pagan*. In contradistinction to these, the Mediæval or Middle Age styles, the Byzantine, the Saracenic, and the Gothic may be called *Christian*.

The Byzantine system of decoration was named from the old city Byzantium, which is now called Constantinople. When Constantine became emperor of Rome and the seat of government was removed to Byzantium, its name was changed in his honor to Constantinople.

The Byzantine style, then, dates from about 330 A.D. to 1200 A.D., and reached its highest perfection about 562 A.D., in the rich mosaics of St. Sophia, at Constantinople.

As has been stated, Egyptian art and ornament was eminently symbolic; Greek art and Roman art were æsthetic. Mediæval art now returns again to the principle of symbolism—that is, forms for ornamentation are selected on account of their attributed meaning and not on account of their beauty, as in the æsthetic styles.

Byzantine, or Romanesque, ornament, the two being about the same, cannot be called an original style, although at first its elements and their arrangement were new; afterward, however, many ancient or pagan forms were modified and used. The forms used as elements were conventional as well as symbolic, in which respect the ancient usage was followed.

The Byzantine was at first a mixed style, being influenced in its formation and growth by the decoration of the neighboring countries, Rome, Syria, Persia, and other countries. In the best period of this style, "the running foliage is continuous and thin, and the leaves are broad-toothed, but acute-pointed." In sculpture the leaves are beveled at the edges, deeply channeled, and "drilled at the several springings of the teeth with deep holes."

Animal and other forms are but seldom used in sculpture, and in color animal forms are chiefly confined to holy subjects. Romanesque depends largely on sculpture for its effect. It is rich in light and shade, deep cuttings, massive projections, and geometrical mosaics.

Byzantine coloring is inclined to gaudiness. In the representations of angels, saints, and similar subjects, the colors were conventional and prescribed, each color having a symbolical meaning. The ground color is always gold. Serpents as the instrument of the Fall and one type of the Redemption figure largely in Byzantine art, and they are sometimes used as the ornament of a capital.

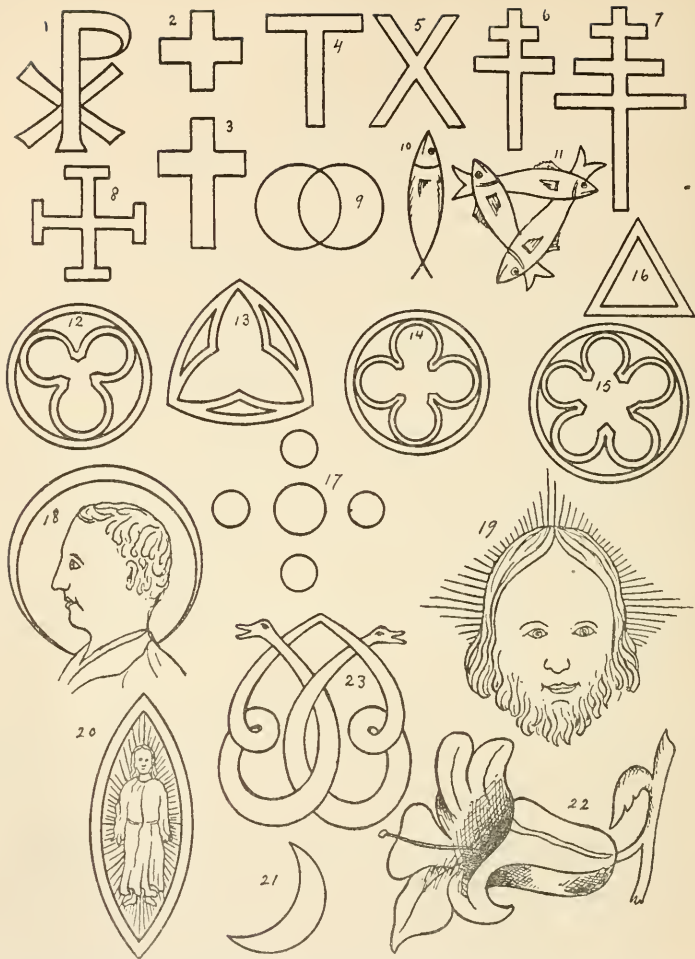


Fig. 1 represents the Monogram of Christ; Fig. 2, Greek Cross; Fig. 3, Latin Cross; Fig. 4, Egyptian Cross, or St. Anthony's Cross; Fig. 5, St. Andrew's Cross; Fig. 6, Patriarchal Cross; Fig. 7, Papal Cross; Fig. 8, Cross of Jerusalem; Fig. 9, Vesica Pisces; Fig. 10, the Fish; Fig. 11, a Trinity of Fish; Figs. 12 and 13, Trefoils; Fig. 14, Quatrefoil; Fig. 15, Cinquefoil; Fig. 16, Triangle; Fig. 17, Five Circles; Fig. 18, Nimbus; Fig. 19, Nimbus, or Glory; Fig. 20, Aureole, Vesica Pisces; Fig. 21, Crescent; Fig. 22, the Lily; Fig. 23, the Serpent.

Byzantine Elements.

The most important *decorative elements* were the monogram of Christ, the lily, vine, cross, serpent, fish, aureole, nimbus or glory, crescent, zigzag, nail-head, trefoil, quatrefoil, three, four, and five circles, the lion, ox, lamb, eagle, dove; foliations terminating in leaves of three, four, or five lobes. These symbols were not characteristic of the Byzantine period only, but they were used more or less all through the times of mediæval art.

Byzantine Architecture.

The leading constructive features of the Byzantine architecture were the *cross*, the *circle*, and the *dome*. The form of the Greek cross was generally used for the ground plan of the churches. The arches were semicircular, and the dome, it is said, had reference to the vault of heaven. Instead of the complete cross, the symbols of the five circles, or glories, in the form of a cross, were sometimes used as the ground plans of Romanesque and Byzantine churches, as in St. Marks, at Venice. In this church the domes above correspond in size and position to the circles on the ground or pavement.

Romanesque or debased Roman architecture and ornament are quite similar to Byzantine. The dome, the semicircular arch, and the circle belong also to the Romanesque style, and they distinguish them from the pointed arch styles. The ground plot of the Romanesque churches was that of the Latin cross, in which three arms are of equal length, and the fourth twice the length of the others. Church edifices were made to face the east.

Byzantine Sculpture.

We noticed that the Romans only imitated Greek sculpture; hence it continued to decline. Early Christian and Byzantine sculpture is a transition period between ancient and modern sculpture. The early Christians observed that Greek mythological sculpture, notwithstanding its beauty, was only the relic of an idolatrous worship. On this account and because of the command, "Ye shall make you no idols nor graven images, to bow down to them," they, like the ancient Jews, abhorred sculpture. They were inclined to be morose and melancholy, and were not attracted by beauty, as the Greeks had been. They even supposed that Christ, the Son of God, when on earth, had assumed features of ugliness instead of beauty.

Sculpture in all ages varies with the prevailing thought of the times. When heroes of physical strength were worshiped, sculpture was muscular and athletic, gigantic in size; when men grew more intellectual it became imitative, individual, and historical; but in all cases it is much governed by the religious feelings of the people. Hence, during the early Christian period, it continued to decline.

After a time, however, Christians began to distinguish between the use that might be made of statues to teach moral and religious lessons, and their use as images for worship, and so they began to look upon sculpture with some favor.

The first great difference, then, between the ancient and the Byzantine period was a total change of subject in sculpture. The ancients had many gods, the Christian but

one, and that one a Spirit; hence he resorted to symbols to represent the Deity and his attributes, although attempts were also made to represent him in human form.

Christ is generally represented as a teacher, youthful and beautiful in aspect, standing on a mountain, or seated on a throne, with the Apostles crowding around him. These representations were generally in relief, upon sarcophagi, independent statues being seldom employed.

At first Christian sculpture was rude but chaste, and somewhat free and life-like; the Byzantine style, however, when fully developed was impeded by arbitrary rules, and hence it was stiff and constrained. This style at last spread over Italy and the West, and gradually caused a further decline of plastic art.

Nicety and elegance of workmanship were a distinguishing feature of this style, as well as the prevalence of numerous smaller art works carved in ivory in the form of diptychs.

Byzantine Painting.

In early Christian times there was some prejudice against painting, but not so much as against sculpture. Just before the time of Constantine, some thought "that pictures ought not to be in the church, lest what is painted on the walls should be superstitiously revered and worshiped;" but two hundred and fifty years later Gregory the Great said: "Painting ought to be retained in the churches in order that those ignorant of letters may, as it were, read by looking on the walls what they are not able to read in the MSS."

In the fourth and the fifth centuries, art suffered great losses by fires and the misfortunes of war, and in the eighth century under Leo III., the Iconoclasts, or image-breakers, commenced a systematic and wholesale destruction of images, especially of Christ, the Virgin, and the saints.

Painting was much cultivated at Constantinople about the fifth and the sixth centuries, the monks being the principal artists. The principal monuments of early Christian painting are the mosaics of the old Greek churches in the East, and of the Christian churches in Rome, Ravenna, and other parts of Italy. Of the Byzantine style, the principal remains are the illuminations of MSS. and some portraits of the popes. These illuminations have been preserved partly because they were painted on vellum, and because they were part of MSS. that had a value beyond that of the illuminations.

In style the Byzantine painting was rigid in outline and excessive in coloring. It was Asiatic in race and Christian in sentiment. In design it consisted in single figures—no perspective or attempt at shadow or relief is seen—no background, no attempt at portrait.

In position the head was stiff—no expression in the features—cheeks, body, and limbs, thin, lank, meager, and lifeless. The dress was stiff and without grace. The colors were without gradation of shade or hue, the flesh color was cherry red, and the dress glaring yellow, blue, pink, or purple.

The Romanesque style of painting was *statuesque*—that is, the figure was more symmetrical and free in action than the Byzantine. The coloring also was more subdued. The Romanesque style reached its highest stage of development under Charlemagne.

Mosaic was a branch of decorative art practiced at this period.

PRACTICAL LESSONS.

Lesson 1.—Byzantine Ornament.

The Byzantine border at the top of Plate 7 is to be extended to the right end of the plate by rulers and tracing.

Fig. 1 is a *Byzantine Border* and corner-piece, or right-angular joining. Draw it freehand and reversed at the right end of the plate. Draw guide lines as in the copy, and notice the peculiarity of the foliage.

Fig. 2 represents the left half of a Byzantine circular ornament, perhaps from the *Fleur-de-lis*. Sketch the circle and the other guide lines, and complete the right half freehand.

Lesson 2.—Byzantine Ornament—Continued.

Trace and reverse the border at the top of Plate 8.

Fig. 3 is a Byzantine cruciform ornament. Arrangements consisting of four parts, indicating the four arms of a cross, were very common in mediæval ornamental art. It may be drawn freehand or traced at the right end of the plate.

Fig. 4, a stone sculpture from St. Marks, Venice, is another variety of the cross form, to be drawn freehand at the right end of the plate.

Fig. 5 represents the left half of a *Byzantine*, or Romanesque, *Capital*, to be completed freehand.

Lesson 3.—Byzantine Ornament—Continued.

Extend the border at the top of Plate 9 as usual.

Fig. 6, representing a stone sculpture from St. Sophia, Constantinople, is a cruciform *Byzantine Design* representing a foliated cross inclosed in a circle, to be drawn freehand or traced at the right end of the plate.

Fig. 7, representing a mosaic painting from St. Sophia, Constantinople, is a Byzantine design for covering a flat surface of indefinite extent. Draw it at the right end of the plate.

Fig. 8 represents the left half of a *Byzantine Capital*, from the church of St. Marks, at Venice. Trace, reverse, and complete.

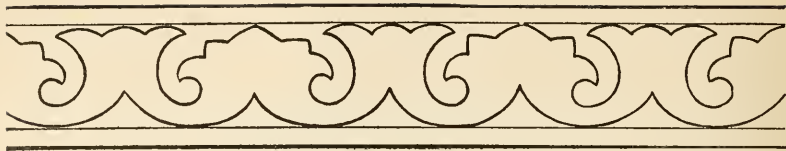
Lesson 4.—Byzantine Ornament—Continued.

Trace, reverse, and extend the Byzantine border at the top of Plate 10.

Fig. 9 represents a Byzantine geometrical ornament from the church of St. Sophia, to be traced and drawn at the right end of the plate.

Fig. 10, representing a Byzantine stone sculpture from St. Marks, at Venice, is to be drawn freehand at the right end of the plate.

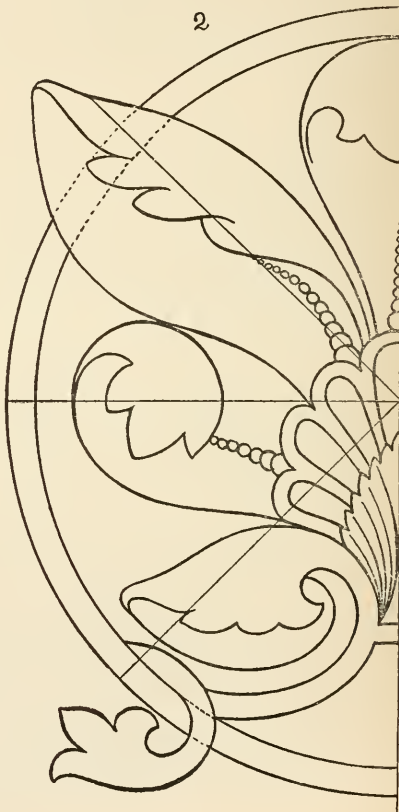
Fig. 11 represents the left half of a *Romanesque Capital*, from the church of St. Sebals, at Muremburg, to be completed freehand.

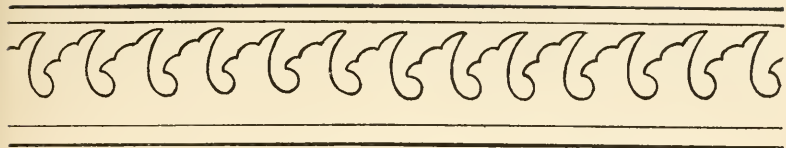


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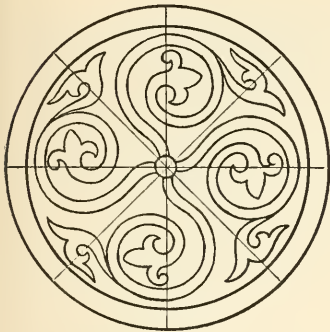


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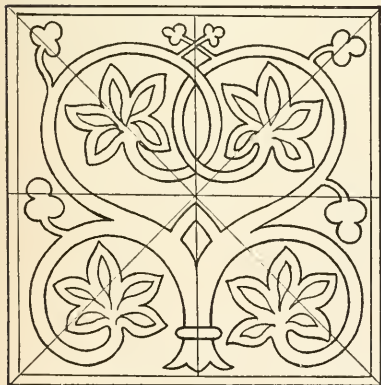




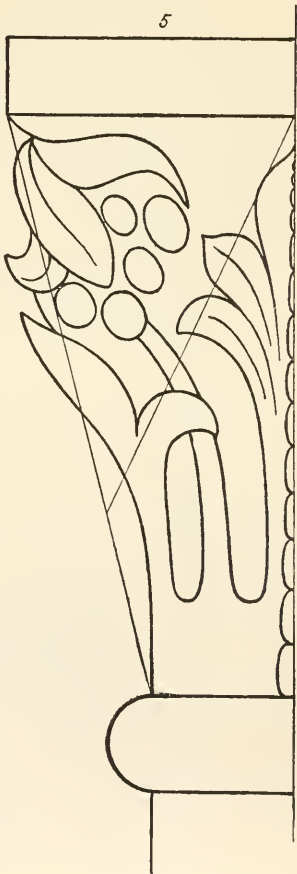
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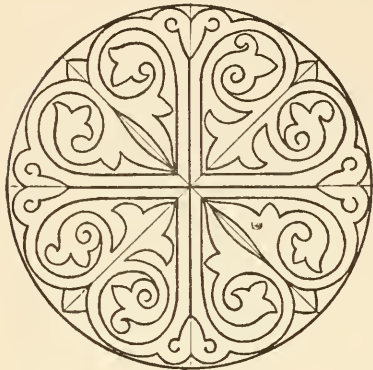


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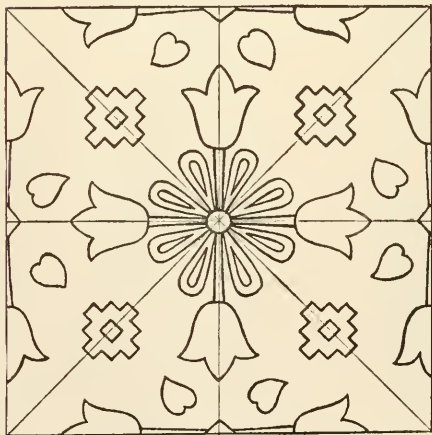
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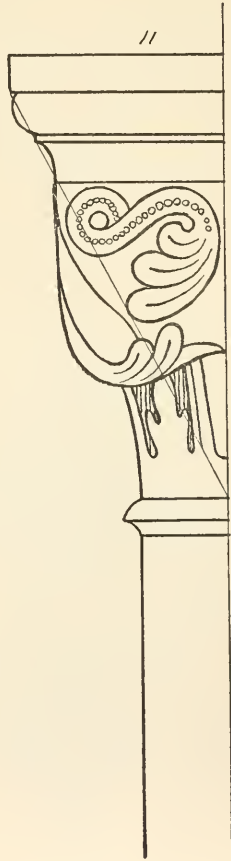
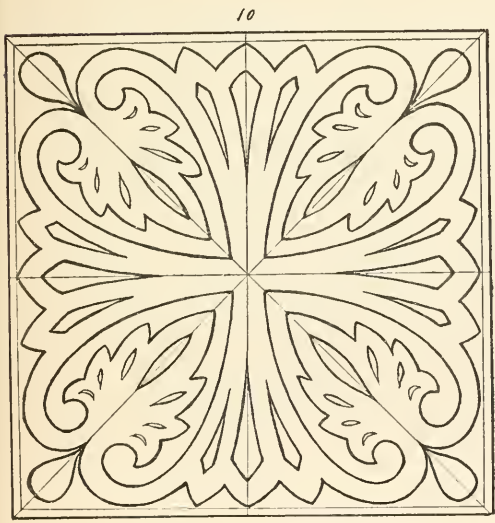
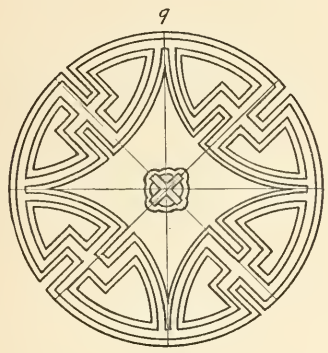
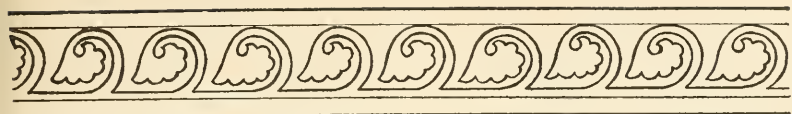


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PART II.—SYNTHETICAL EXERCISES.

BOOK NO. 5.—ÆSTHETIC SERIES.

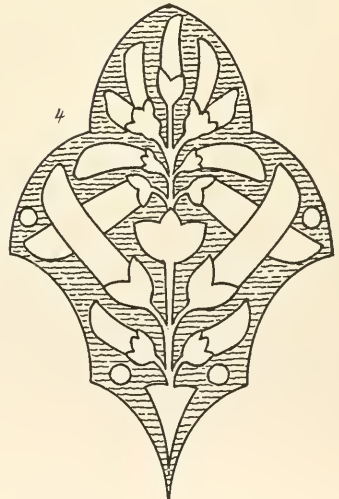
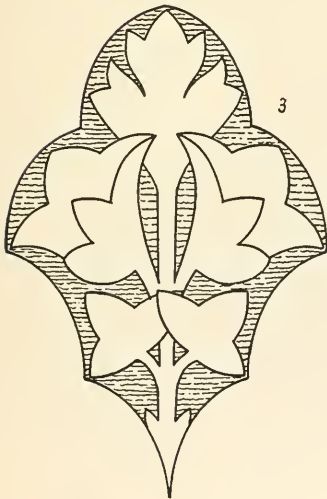
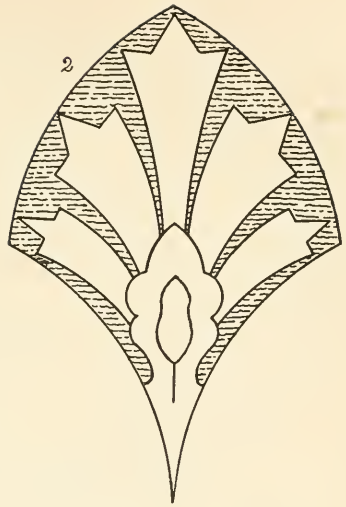
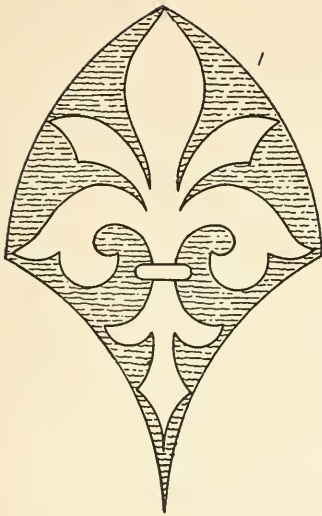
Lesson 17.—Geometrical Forms—Continued.

Space A.—Make a design similar to those in Figs. 1 and 2, and draw it in space *A* on Plate 1.

In such Figs. as 1 and 2, the most convenient point of attachment seems to be at the lowest angle.

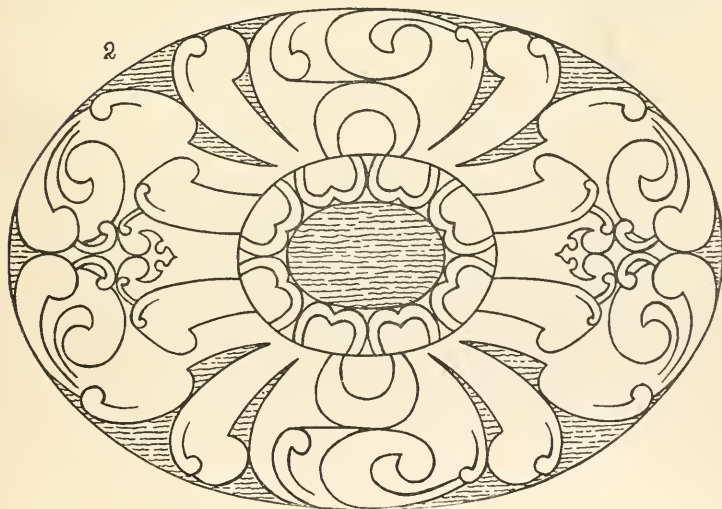
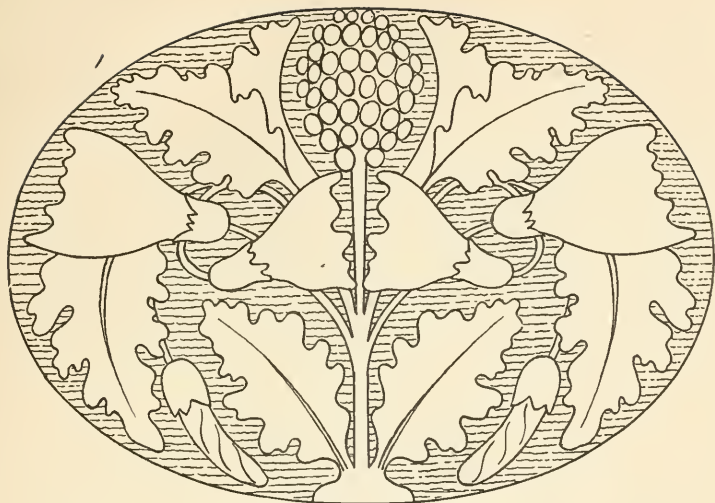
Space B.—Make a design similar to those in Figs. 3 and 4, and draw it in space *B*.

Note.—The observing student will notice that the forms 1 and 2, as well as 3 and 4, may be arranged side by side, and above and below, so as to cover a flat surface in the manner of any “give and take” design. Any of the units in Lessons 10, 11, and 12 may be enlarged and then ornamentally filled as are those in this lesson.



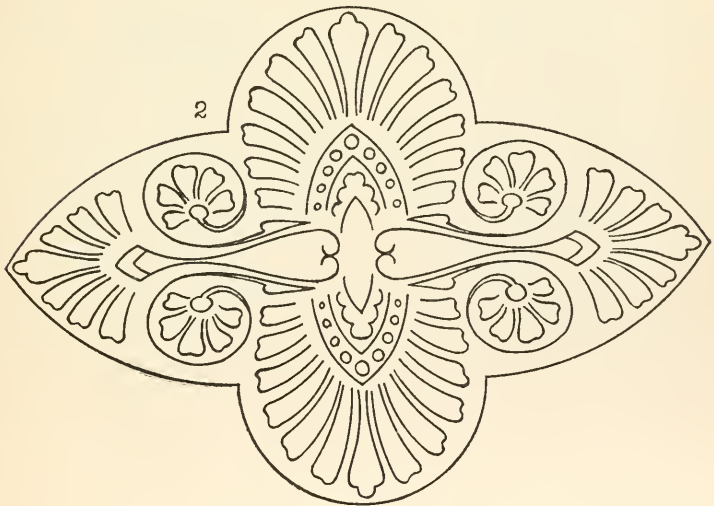
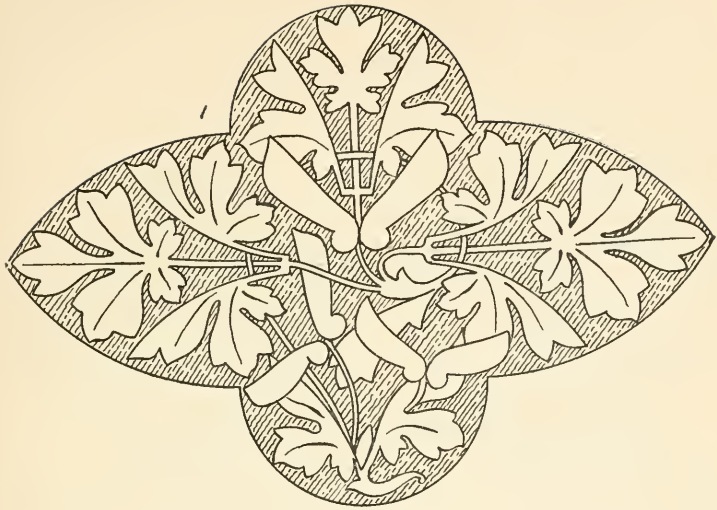
Lesson 18.—Geometrical Forms—Continued.

An Ellipse.—Make a design similar to one of those in Figs. 1 and 2, and draw it in the ellipse on Plate 2. The attachment of the parts may be to a center-piece to one end, or to the middle of one side.



Lesson 19.—Geometrical Forms—Continued.

Modified Vesica.—Make a design to fill the space on Plate 3 similar to one of those in Figs. 1 and 2, using a center-piece, or attaching the design to one end or to the middle of one of the semicircles, as may be preferred.

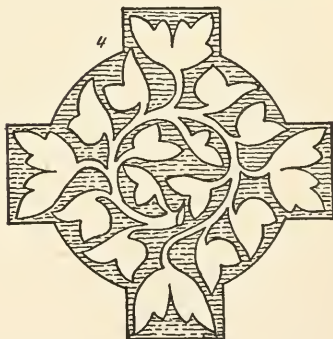
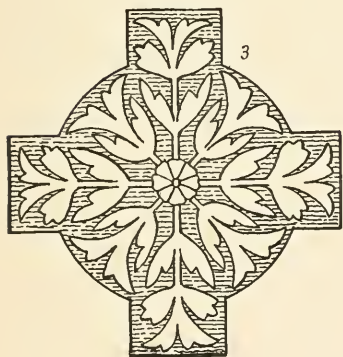
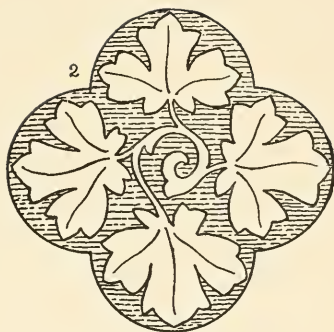
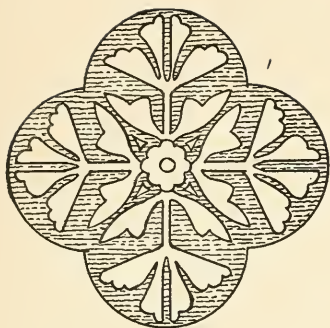


Lesson 20.—Geometrical Forms—Continued.

Space A.—Make a design to fill the space *A* on Plate 4 similar to one of those numbered 1 and 2. In No. 2 it will be noticed that the large end of the stem is drawn in the form of a spiral and made to do duty as a center-piece.

Space B.—Make a design to fill space *B* similar to one of those numbered 3 and 4.

Review.—Which do you like better, No. 1 or 2? Which has more grace? Which more regularity? Which more repose? Which more strength? Which more symmetry? Answer similar questions with reference to Nos. 3 and 4.



PRACTICAL LESSONS IN COLOR.

BOOK NO. 5.—ÆSTHETIC SERIES.

Lesson 1.—Let the pupil color some one or all of his designs on Plates 1, 2, 3, and 4, depending on the time that may be allowed for art work.

Lesson 2.—Let the pupil color Plate 5 in a manner suitable for a title-page for a volume of school work on any subject, intended for preservation or to be put on exhibition. See the subject "Outline," under the head of color in the *Æsthetic Manual*.

Lesson 3.—Let the pupil take the outline on Plate 3 (he may modify it if he chooses) and make of it a suitable design for a title-page, as suggested in Lesson 2, and draw and color the result on one of the blank pages. Fig. A on Plate 4 may be modified and treated in the same way.

HISTORICAL ORNAMENT.

BOOK NO. 5.—ÆSTHETIC SERIES.

Saracenic Ornament.—Characteristics.

The second of the mediæval styles, the Saracenic, whose date is about from 900 A.D. to 1350 A.D., includes the Arabian and the Moorish. The Arabs, coming as they did from the desert, had no artists of their own, but, having a taste for finery, they could not help admiring the gorgeous display found in such cities as Damascus. They pressed into their service the Byzantine artists, and ordered them to build rich mosques and palaces. The restriction placed upon their artists by the Mohammedans gave rise to a style of ornamentation having an individuality of its own. According to the law of the Koran, no living form, vegetable or animal, was permitted to be represented. Hence, the artist of this period was confined to a geometrical arrangement of conventional forms somewhat resembling plant forms, but so highly conventionalized, and so far removed from every individual plant as to be unrecognized.

The Arabian mind, being geometrical in tendency, found no difficulty in developing lines and angles into diaper patterns, frets, and a species of "tracery or interlaced strap-work," diversified by the introduction of inscriptions, ornamentally drawn, in their decorations.

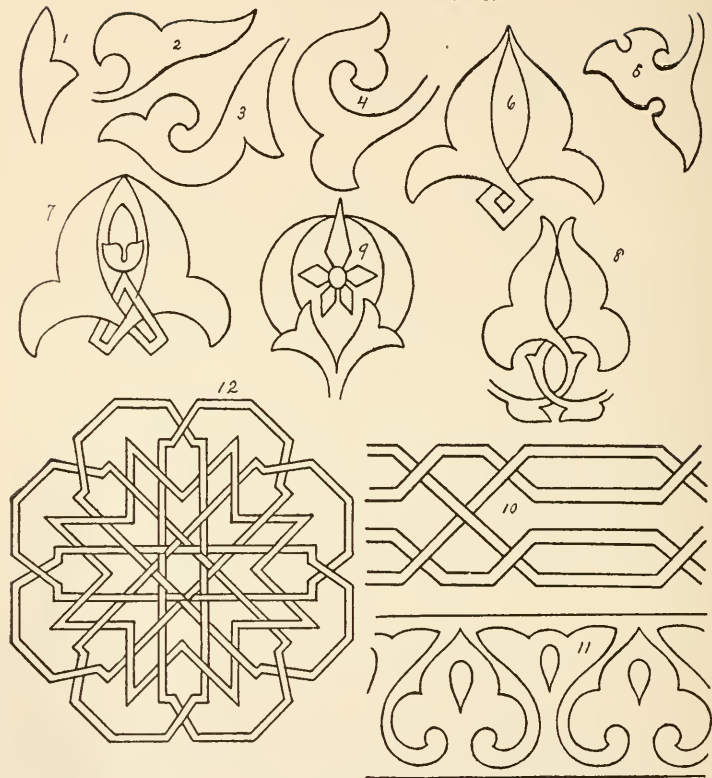
Other peculiarities of Arabian ornament are an elaborate style of rose work, the so-called Star of Solomon, the Arabian feather ornament, and a peculiarly disguised conventional foliage, most elaborately and beautifully drawn, and minutely and richly finished.

The Saracenic style is æsthetic. Instead of objects being used as symbols, the Saracenes used real writing. On one monument is to be found the whole Koran written in arabesque inscriptions.

The Sacarenic style of art grew in splendor as it moved westward, where in the Alhambra, in Spain, it developed into one of the grandest styles of ornamentation known in history. Gold, silver, blue, and red were the principal colors in use. The use of these colors gave a rich metallic luster inclined to gaudiness, but generally well controlled.

As to arrangement of forms, the following is the general order: "General form first; subdivisions of the general form; interstices; systematic; geometrical; harmonious flow of lines from a parent stem."

Some Saracenic Elements.



Figs. 1, 2, 3, 4, and 5 are ornamental elements, perhaps suggested remotely by plant forms; Figs. 6, 7, 8, and 9 are from the Alhambra; Fig. 10 is an example of strap-work; Fig. 11 is an Arabian border; Fig. 12, the Star of Solomon.

Saracenic Architecture.

The Caaba at Mecca is the only existing temple in which Arabians worshiped their idols. The mosques of Mecca and Jerusalem are about the only remains of ancient architecture of the Eastern Saracens. The earlier Mohammedan mosques were octagonal in plan, and they retained the Byzantine dome.

Several kinds of arches, as the ogee, crescent, and scalloped, were in use. Some have supposed the pointed arch to be of Gothic origin, but this arch makes its appearance among the early Arabian buildings. The horseshoe arch was also a form in common use. Some of these arches were also cuspidated on the inside.

The Saracenic architecture is also noted for extremely slender proportions; for a so-called honeycomb network and pendants hanging from the ceilings. Octagonal towers, acorn-shaped domes, interlacing columns, and intertwining arches were in use. The ornaments are generally composed of stucco painted in various colors and enameled terra-cotta.

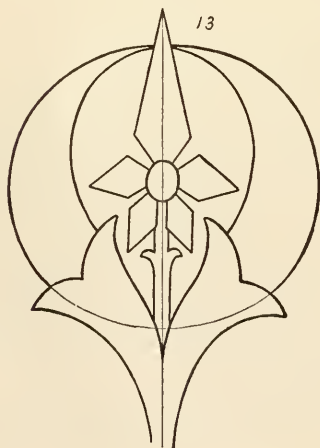
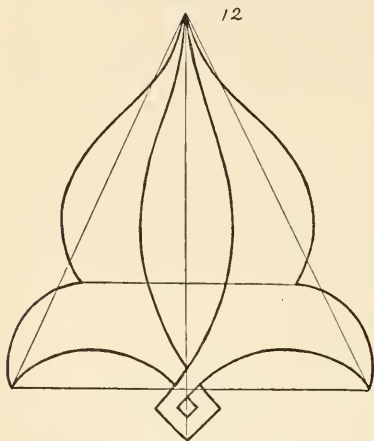
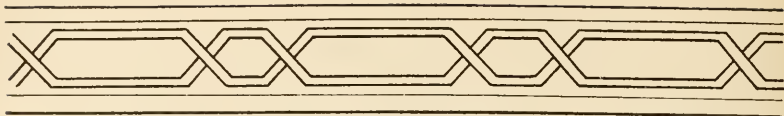
Moorish architecture extended from the Indus river, along the northern coasts of Africa and into Spain, where it attained its greatest excellence. The first mosque in Spain was that of Cordova, erected in the first century after the Moors were established there. This mosque was 620 feet by 420 feet, and it was divided into an open court and the body of the temple. The interior of the building appeared like a forest of columns, there being over 900, composed of jasper and other marbles. The enrichments were of stucco.

The Alhambra.

As the Parthenon at Athens marked the culminating point of Greek architecture, so the Alhambra stood at the summit of perfection of Moorish art. In the Alhambra we find "the speaking art of the Egyptians, the natural grace of the Greeks, the geometrical combinations of the Romans, the Byzantines, and the Arabs. The ornament of this palace wanted but one charm to make it perfect as a style, and that was symbolism."

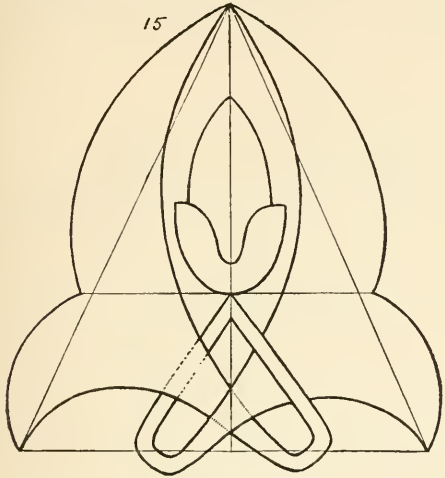
The Alhambra (which word means "the red") was built between 1240 and 1348 A.D., and it was the ancient fortress and residence of the Moorish kings in Spain, near the city of Grenada. An admirer of this building says:

"This palace stands unrivaled in the gorgeous splendor of its halls and the exquisite beauty of its decorations. Everywhere are evidences of the delicate taste and artistic luxury of the Moors. Spacious courts, with marble pillars and fretted ceilings, partitions, and gilded like the sides of a Stamboul casket, and filigree stuccos of veil-like transparency, all distinguished by airy lightness and grace, are among the main features of this palace of the voluptuous caliphs of Grenada, who held dominion over that sunny land which their poets described as a terrestrial paradise. The colors chiefly used are blue, red, and golden yellow. In the heyday of Moorish prosperity this palace must have been the most delicious of royal residences. Odoriferous gardens in which the orange and the myrtle bloomed alternated with sparkling fountains and soft couches inviting to a luxurious repose. Everything contributed to render the whole the splendid abode of Oriental magnificence, to which only the fantastic creations of the 'Arabian Nights' can be fitly compared."

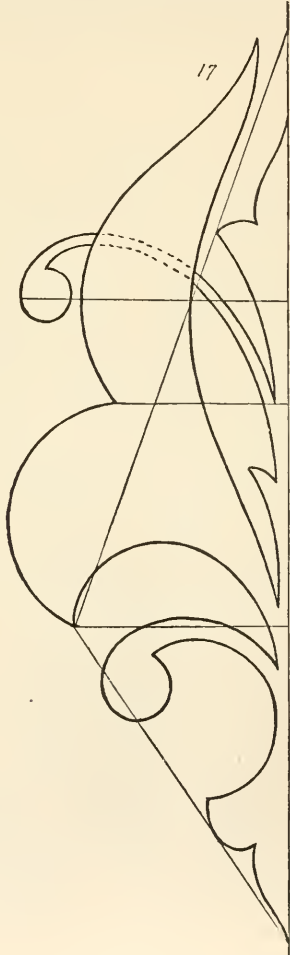




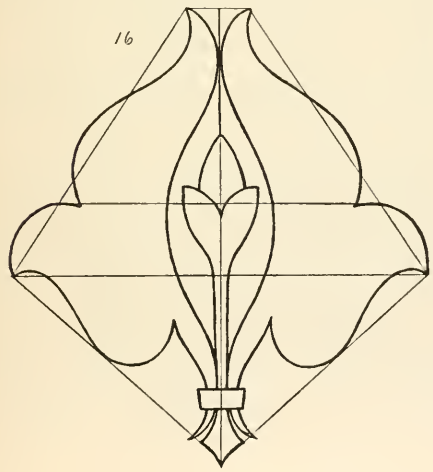
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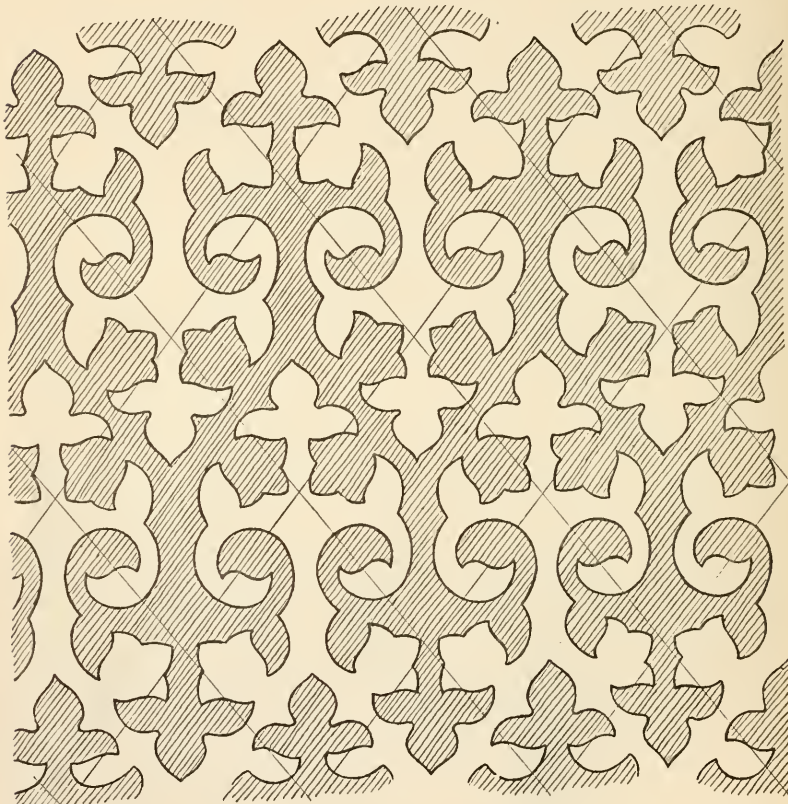


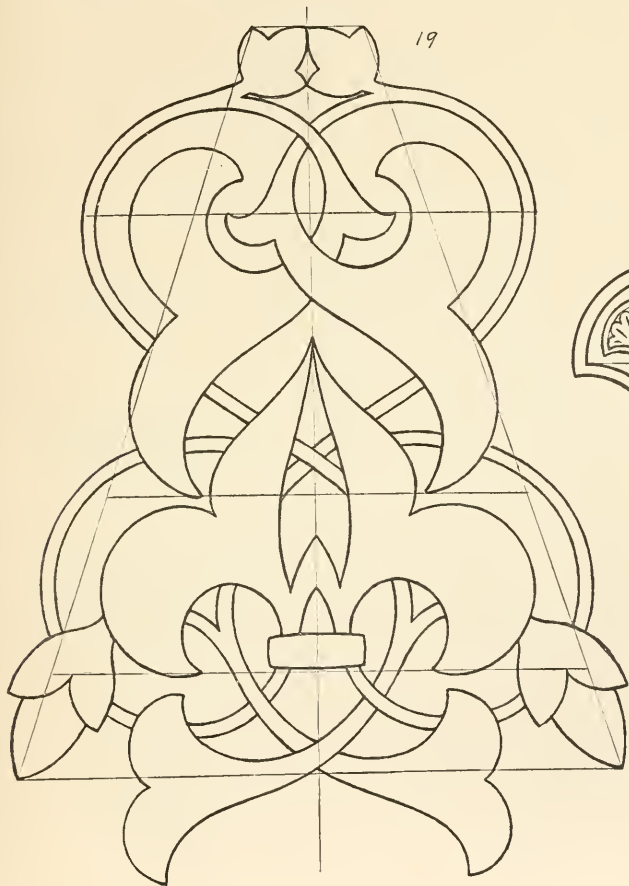
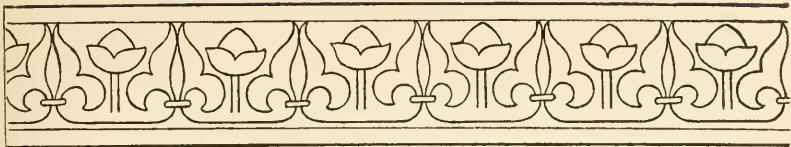
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PRACTICAL LESSONS.

Lesson 5.—Saracenic Ornament.

The *Moorish Border* at the top of Plate 7 is an example of the interlacing so common in Moorish ornament. Extend it in the usual manner.

Figs. 12 and 13 represent ornamental forms from the Alhambra, at Grenada, in Spain. They are so severely conventionalized that it is not known what plant, if any particular one, was intended to be represented. Draw these figures freehand at the right end of the plate.

Fig. 14 represents the left half of a *Moorish Capital* from the Alhambra. The right half may be drawn freehand or by tracing.

Lesson 6.—Saracenic Ornament—Continued.

The border at the top of Plate 8, from a mosque at Cairo, Egypt, is a *Moorish Counterchange*, which may be extended freehand.

Figs. 15, 16, and 17 are additional examples of ornament from the Alhambra. Draw Figs. 15 and 16 freehand at the right end of the plate, and complete the right half of Fig. 17 freehand. Any of these figures, but especially Fig. 17, are good examples for written analysis.

Lesson 7.—Saracenic Ornament—Continued.

Extend the border at the top of Plate 9 as usual.

Fig. 18 is a *Moresque Counterchange* for covering a flat surface of indefinite extent. Rule the guide lines, draw one element to be repeated freehand, and complete the figure by tracing, or by making a cardboard pattern and marking around it.

Lesson 8.—Saracenic Ornament—Continued.

Extend the border at the top of Plate 10 in the usual manner.

Fig. 19 is an elaborate Moorish ornament from the Alhambra, which building exhibits Saracenic ornamental art at its best. The drawing of this figure freehand will tax the student's skill. It is to be drawn at the right end of the plate, using guide lines as shown in the copy. This design is well worthy of a careful study by the student and a full written analysis.



Apple Blossom.



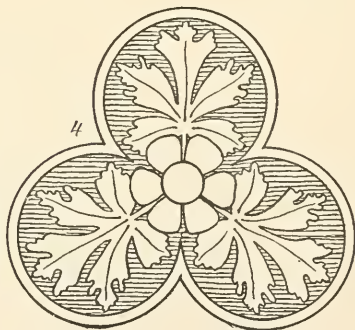
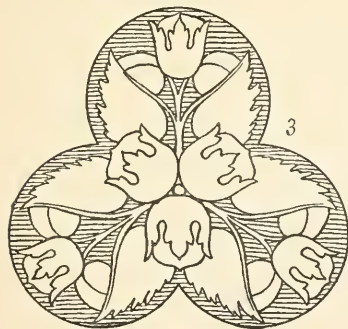
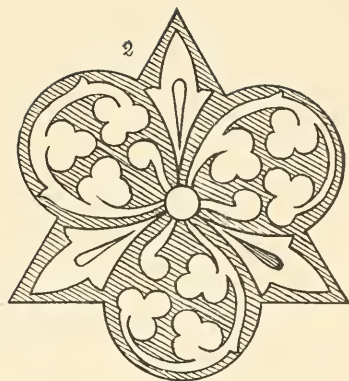
PART II.—SYNTHETICAL EXERCISES.

BOOK NO. 6.—ÆSTHETIC SERIES.

Lesson 21.—Geometrical Forms—Continued.

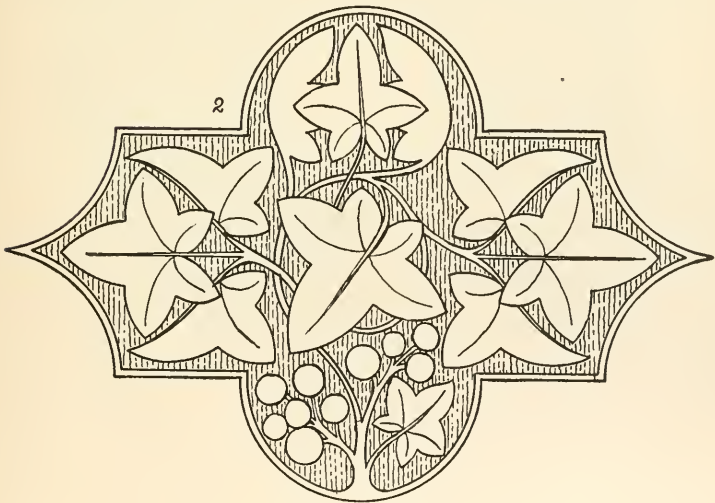
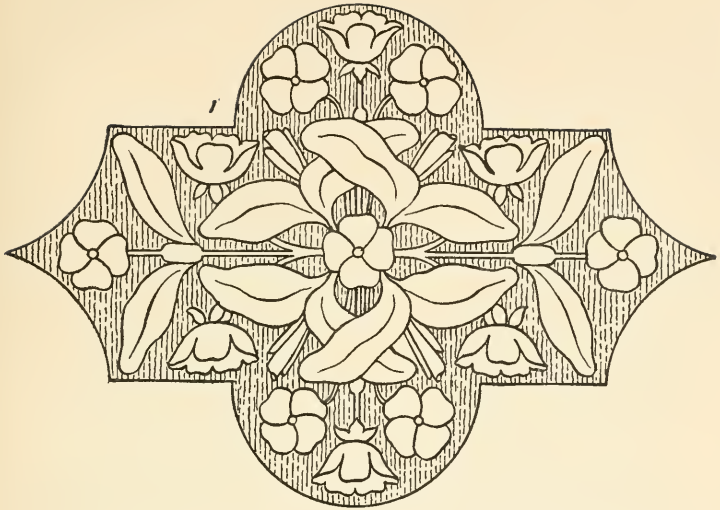
Space A.—Make a design to fill the space *A* on Plate 1 similar to one of those numbered 1 and 2.

Space B.—Make a design to fill the space *B* similar to one of those numbered 3 and 4.



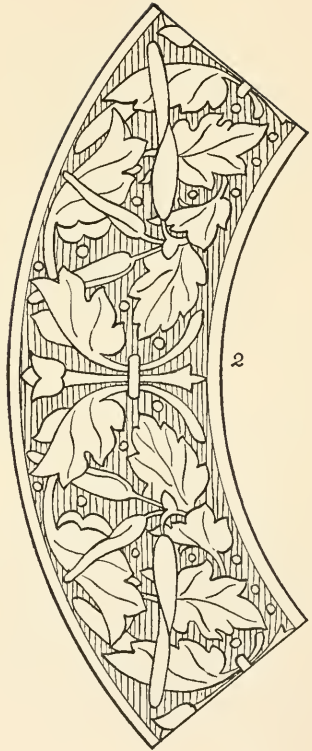
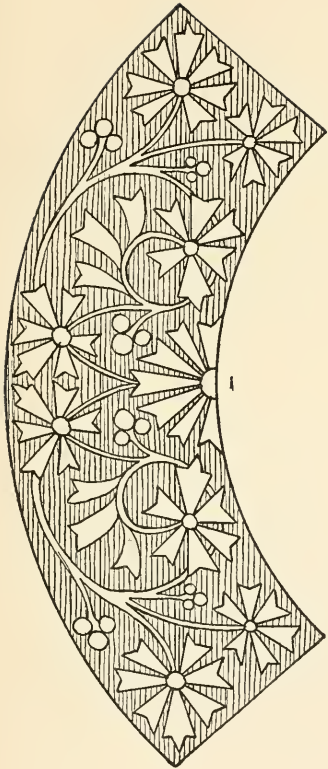
Lesson 22.—Geometrical Forms—Continued.

Space O.—Make a design to fill the space on Plate 2 similar to one of those numbered 1 and 2. Is No. 2 a symmetrical design? If not, what kind do you call it? Why?



Lesson 23.—A Collar or Circular Border.

Collar.—Make a design to fill the space on Plate 3 similar to one of those numbered 1 and 2. For a collar the best point of attachment seems to be at the middle of the smaller arc. For a circular border, a design moving toward the left or right would also be suitable.

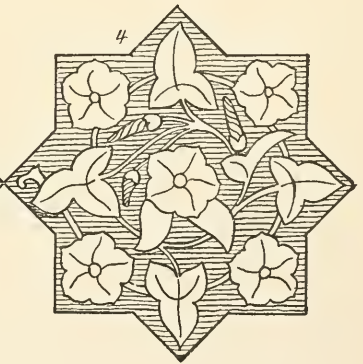
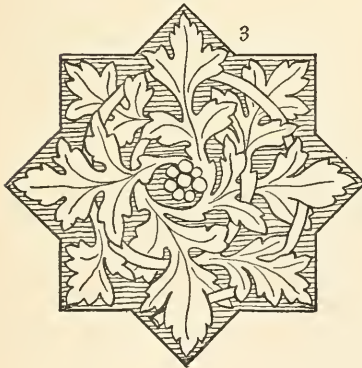
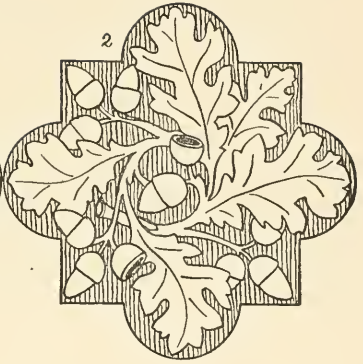
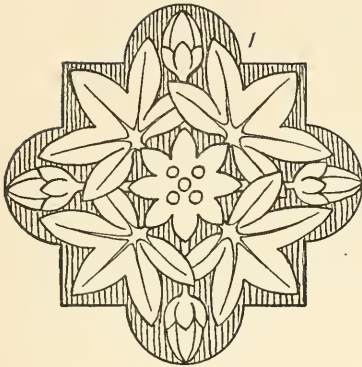


Lesson 24.—Geometrical Forms—Continued.

Space A.—Make a design to fill the space *A* on Plate 4 similar to one of those numbered 1 and 2. If a center-piece is to be used, divide the figure into eight equal parts by lines running through the center.

Space B.—Make a design to fill the space *B* similar to one of those numbered 3 and 4.

Review.—Point out the symmetrical figures. The balanced figures. Point out the grace, freedom, contrast, variety, regularity, strength.



PRACTICAL LESSONS IN COLOR.

BOOK NO. 6.—ÆSTHETIC SERIES.

Lesson 1.—The student's own designs for Plates 1, 2, 3, and 4 may all be used as color exercises, so far as time will permit.

Lesson 2.—On Plate 5 are two suggestive models to the pupil for the arrangement of conventionalized plant forms. Let the pupil select some plant, analyze it, and make an arrangement of the natural and conventional parts, for purposes of design, on some blank page. See "Directions for Conventionalization" on pages 13 and 14 of *Æsthetic Manual*.

HISTORICAL ORNAMENT.

BOOK NO. 6.—ÆSTHETIC SERIES.

Gothic Ornament.—Introductory.

The third and last of the mediæval styles is the Gothic. Its most congenial home was on the Rhine, in the north of France, and in England. It began in the eleventh century, and had considerable growth in the twelfth and thirteenth centuries; but it was not perfected until the fourteenth century. Having arrived at its height, it rapidly declined in the fifteenth century, and became almost extinct in the sixteenth century. Cologne Cathedral, which was consecrated in 1322 A.D., but which was finished only a few years ago, is perhaps its most perfect embodiment.

It was an outgrowth of Byzantine art, and not of English origin, as many suppose. It retains all the symbolic elements of the Byzantine style as heretofore explained, except the dome and the round arch. Gothic art is supposed to be eminently Christian; but whatever it possesses of this character comes originally from the Mohammedan mosque, and these "owe their forms to the early Christian symbolism as developed by the Byzantine Greeks."

Characteristics.

The principal points of distinction in Gothic art as a style are these :

It has a strong upward or vertical tendency, as shown in its pointed arch, pinnacles and spires pointing heavenward ; it is decidedly geometrical in its details, as shown in the forms of its openings, in its window-tracery, arrangement of its shaft clusters, bases and moldings ; in its wonderful elaboration of tracery, breaking out into "vesicas, trefoils, quatrefoils, cinquefoils, and an infinity of geometric varieties besides."

That which makes a design Gothic above every other characteristic, perhaps, is geometrical tracery. The Tudor flower, fleur-de-lis, crocket leaf, trefoil, or Early English leaf, and vine scroll, render a design still more Gothic in character. Gothic ornament at first was conventional, but afterward, in its decline, naturalistic representations of objects were introduced.

With regard to the relative worth of Gothic ornament, Owen Jones, who is good authority in ornamental art, says: "There is as much elegance and refinement in modulations of form as there is in the ornament of the Greeks. It is always in perfect harmony with the structural features, and always grows naturally from them. It fulfills every one of the conditions which we desire to find in a perfect style of art. But it remained perfect only so long as the style remained conventional. As the style became less idealized and more direct in imitation, its peculiar beauties disappeared, and it ceased to be an ornamentation of structural features, but became ornament applied."

As regards the use of plants, exotics, if not symbolical, tropical plants, and classical ornaments are excluded. Fruits, flowers, and leaves of northern countries or of the immediate region are very common.

The examples of Gothic art that still remain to us are cathedrals, churches, encaustic tiles, finials, illuminated MSS., stained glass, etc.

Gothic Elements.

The principal Gothic elements are window-tracery, trefoils, quatrefoils, cinquefoils, fleur-de-lis, crocket leaf, Tudor flower, ball-flower, zigzag, and gargoyles. Illustrations of these elements are shown on the next page.

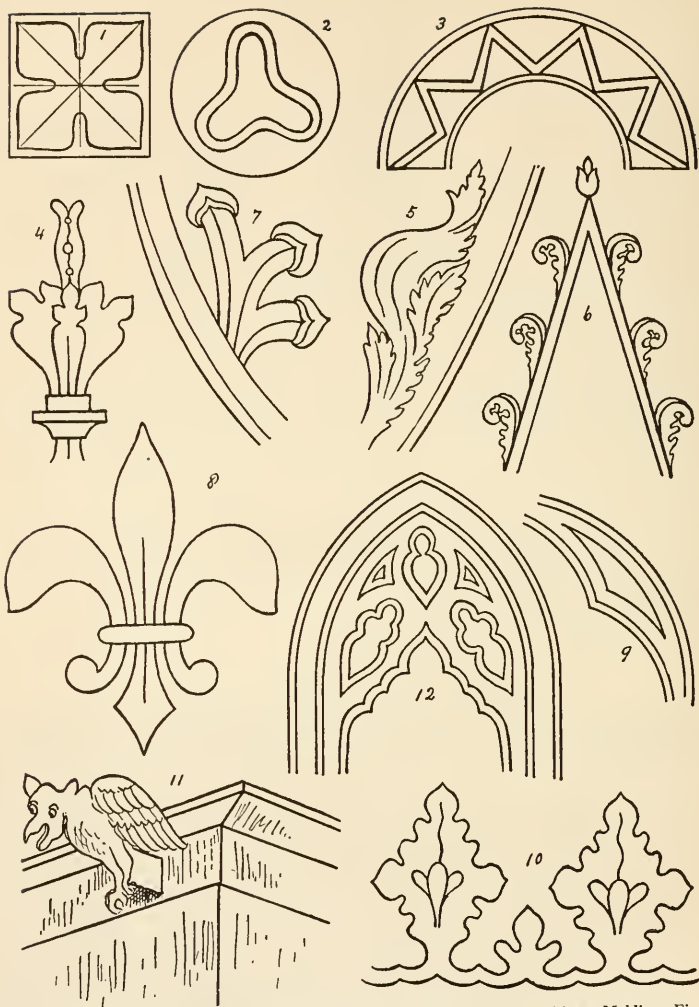


Fig. 1 represents the Dog-toothed Molding; Fig. 2, the Ball-flower; Fig. 3, Zigzag Molding; Fig. 4, a Finial; Fig. 5, Crocket Leaf; Fig. 6, arrangement of Crockets; Fig. 7, Square Crocket; Fig. 8, Fleur-de-lis; Fig. 9, Cusp; Fig. 10, Tudor Flower; Fig. 11, Gargoyle; Fig. 12, Window-tracery.

Gothic Architecture.

The cold and rainy climate of northern France and England as compared with southern Europe, no doubt, had something to do in developing the steep roof, the solid buttresses, and the narrow doors and windows; the steep roof being well adapted to throw off quickly the large quantities of snow and rain to which they were exposed, and the narrow openings to shut them out. The pointed arch is not, as many suppose, a peculiarity of the Gothic, although it is characteristic of it during a considerable period.

English ecclesiastical architecture embraces a period of about five hundred years, from 1066 A.D., the death of Edward the Confessor, to 1558 A.D., the death of Queen Mary. This period includes seven styles or variations, each extending over a period of about seventy years, as follows:

1. *The Saxon*, or simple round arch, which was essentially Romanesque, extending from about 1050 A.D. to 1125 A.D.
2. *The Round Norman*, characterized also by zigzag moldings, from 1125 A.D. to 1175 A.D.
3. *The Pointed Norman*, or transition period, in the time of Henry II. It is sometimes called the First Plantagenet, and it extends from 1175 to 1200 A.D.
4. *Early English Gothic*, in the time of Henry III. This is the first real Gothic style, and it is sometimes called the Second Plantagenet style, extending from 1200 to 1272 A.D.
5. *The Decorated Gothic*, in the time of the Edwards, which is called the Third Plantagenet style, extending from 1272 to 1377 A.D.
6. *The Perpendicular Gothic*, Sancerian, in the time of Henry VII., extending from 1377 to 1547 A.D.
7. *The Debased Perpendicular, Tudor*, or flat-arched style of Henry VIII.'s time, beginning at 1547 A.D.

The Early English, or first real Gothic, is distinguished by geometrical window-tracery, mullions instead of piers, windows of several lights, flying buttresses, crocketed pinnacles, complicated moldings, clustered columns and round capitals, also an extensive application of foliage of trefoil leaf design.

Decorated Gothic followed the Early English, and it is characterized by a magnificent elaboration of the Early English tracery; also the ogee arch, the so-called ball-flower, and waving vine-scroll are characteristic details of this period.

In the Perpendicular Gothic, as the name indicates, instead of flowering tracery we have perpendicular tracery, also abundant use of panelings and horizontal lines. The ornamental details become very formal or conventional.

The Tudor, or flat-arch style, is scarcely Gothic, and it returns to the Romanesque. Its features are the flat arch, the square drip-stone, and as a consequence the rectangular spandril.

Gothic Sculpture.

Owing to the great interest in architecture at this period, sculpture also began to receive increased attention. It was obliged, however, to conform to architectural laws. Sculpture still retained a touch of the antique, but in feeling and treatment of details it was actuated by a new spirit. In execution it was generally stiff, clumsy, and rude.

At first architecture and sculpture co-operate with each other. In Gothic architecture we see the portals and porches, the galleries of the façades, the baldachins of the choir-screens, prepared to receive enrichments through sculpture. The artists study nature more than the antique, and thus grasp some of the varying movements of the countenance. Interior sculptures were also colored to harmonize with the fashion in Gothic architecture.

As to subjects, the Redemption was common, preceded by the Fall of Man; also scenes from the New Testament side by side with those of the Old Testament. Christ, the apostles, saints, patriarchs, and prophets were depicted in sculpture. To these were added representations of the arts and sciences, and even the amusements of men.

Humor also found admittance. Consoles, capitals, and gutter-spouts were fashioned into fantastic dragons, monsters, and curious caricatures, exhibiting ridiculous positions and grimaces. Even coarse and obscene jests were not entirely excluded.

Christian sculpture began to decline in the fourteenth century. Christianity in this age favored the mortification and disdain of sensual beauty, and hence could not directly cultivate great excellence in the plastic art.

PRACTICAL LESSONS.

Lesson 9.—Gothic Ornament.

The Gothic border at the top of Plate 7 is to be extended as usual.

Fig. 21 is an example of a conventional Gothic form based on the palm leaf, to be drawn freehand at the right end of the plate.

Fig. 22 is a twelfth century ornament based on the palm leaf, also to be drawn freehand at the right end of the plate.

Fig. 23 represents the left half of a *Gothic Finial* based on the geranium, to be completed by drawing the right half like the left, reversed, and freehand.

Lesson 10.—Gothic Ornament—Continued.

Extend the Gothic border at the top of Plate 8 in the usual way.

Fig. 24 represents the *Gothic Bull-flower*, which is very common in this style. Draw it freehand at the right end of the plate.

Fig. 25 represents *Gothic Foliage* sculptured; it is perhaps based on the celery leaf. Draw it freehand at the right end of the plate.

Fig. 26 represents the left half of a *Gothic Capital*, from the church of Nôtre Dame, in Paris. The right half is to be drawn freehand. Let the student analyze this capital and try to find out the secret of its beauty.

Lesson 11.—Gothic Ornament—Continued.

Extend the Gothic border at the top of Plate 9.

Fig. 27 represents a *Gothic Crocket Leaf*, to be drawn freehand at the right end of the plate in a reversed position.

Fig. 28 represents the left half of a *Gothic Finial*, from the church of St. Andrew at Walpole. The right half is to be drawn freehand.

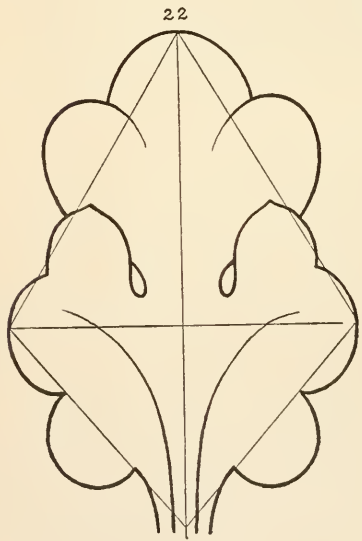
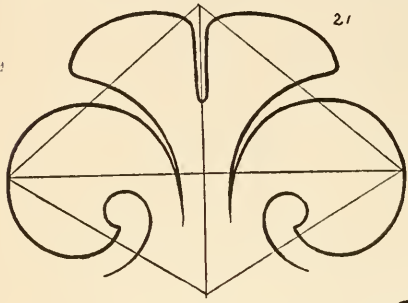
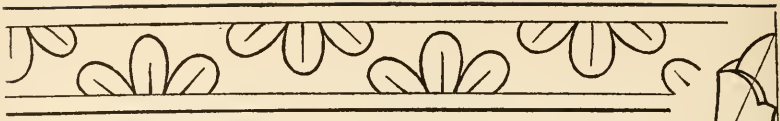
Lesson 12.—Gothic Ornament—Continued.

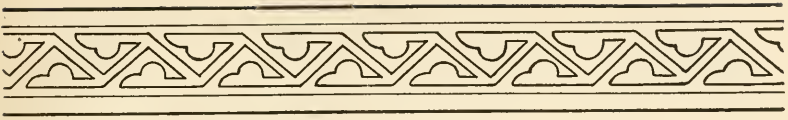
The Gothic border at the top of Plate 10 is to be extended in the usual manner, but reversed.

Fig. 29 represents a *Gothic Fleur-de-lis* conventionalized. It is to be drawn freehand at the right end of the plate; and it may also be analyzed in writing to discover why it is pleasing.

Fig. 30 represents a fragment of *Gothic Foliage* based on the celery leaf, to be drawn at the right end of the plate.

Fig. 31 represents the left half of a *Gothic Window*, from the church at Schorn-dorf, near Stuttgart. The tracery at the head of the window is of the style known as the "fish-bladder pattern." Draw the right half by tracing and reversing the left half.





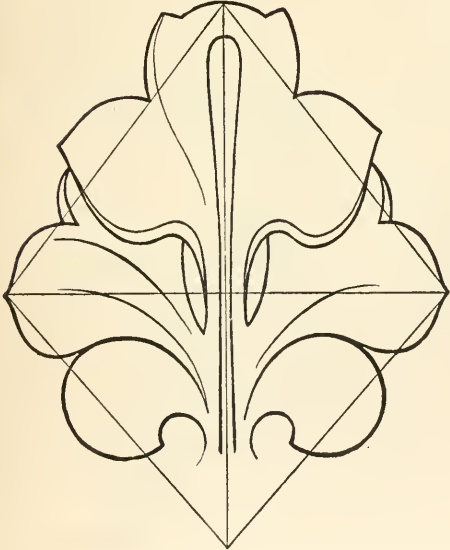
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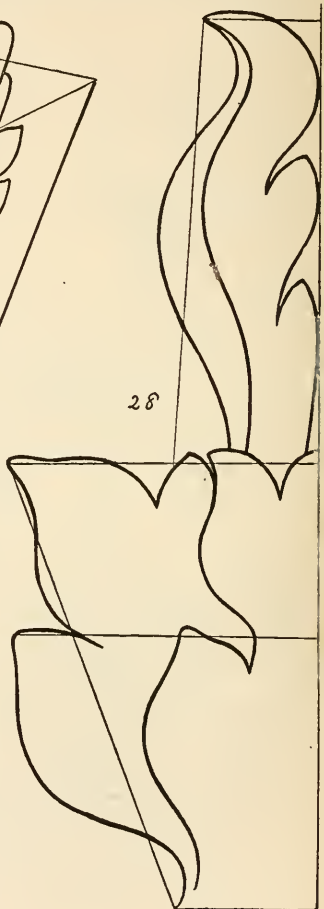
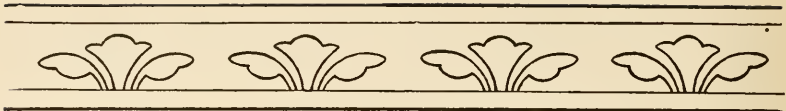


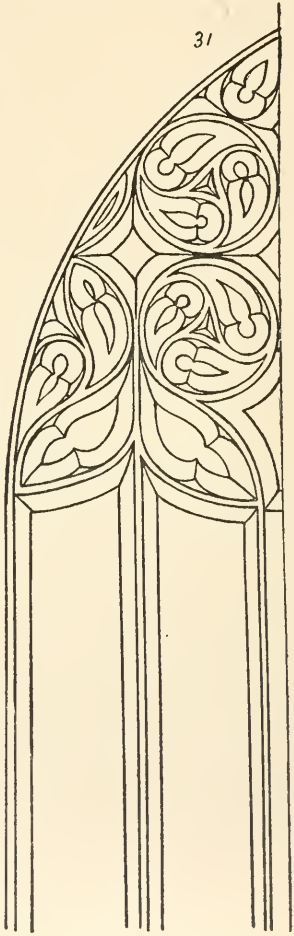
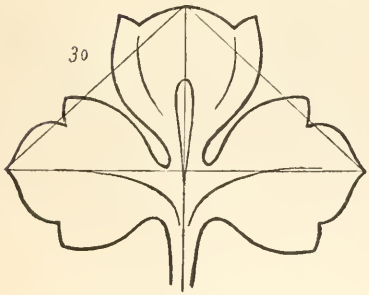
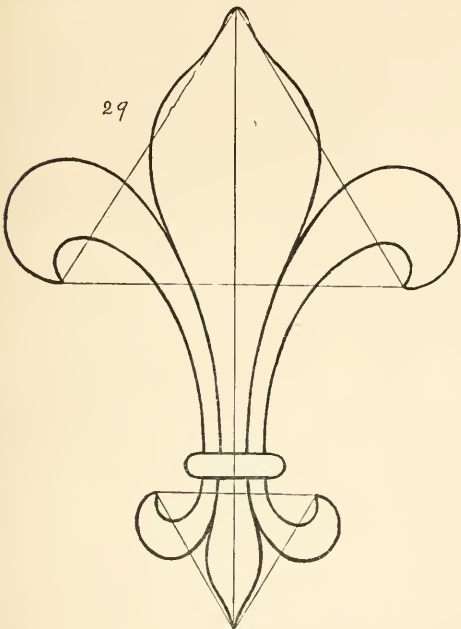
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