Chapter III

PEWTER IN CONTOUR AND TEMPO

SINCE the ancient designer-craftsmen in pewter used great care in planning their designs, it is imperative that the modern student, dealing with an art metal of excellent traditional standards of beauty, should try to equal the best ideals. The study of old pewter and silver in these chapters, and visits to museums will supply many ideas, but as in all crafts, there are poor as well as excellent examples in museum collections and books of reference. Just how is one to separate the good from the bad or indifferent?

It is necessary to consider with care the metal and its characteristics. Compared with silver and gold, pewter is soft, but it is harder than lead. The enrichment of any soft metal preferably is confined to the contours, or so adapted to the object that continued use will not destroy its beauty. High surface enrichment and extensive carving on pewter in time would wear away and become unsightly or disappear.

Good proportioning and simply designed contours will last until the ware is discarded, thus making fine proportions and simple robust contours prime essentials. By robust contours is meant curves or straight lines which appear to give strength to the structure, as in Illustration 30, page 79. But in certain designs, robust curves and good proportions do not give beauty; the object seems to be clumsy and awkward. This factor introduces the need of the third element in britannia design—delicacy—which will save a soft metal from appearing thick and heavy. Small curves, mouldings, and other devices mentioned in other chapters, supply this fineness, but it should be kept in mind that a delicacy which interferes with utility is false enrichment. Britannia metal enrichment must be so planned as to avoid sharp contours and delicate curves on exposed surfaces subject to wear.

Contours must have character—distinguishing marks which are typical of the metal. Feeble, infirm curves must be supplanted by vigorous, robust lines which, by their almost physical strength, support the structure; wriggling or writhing contours of the earth-worm school, rhapsodies of the undisciplined hand, must be simplified into quiet unity, while clumsy proportions are to be refined to classic ideals.

While it is not the aim of this book to deal intensively with the subject of design, it seems worth while to devote the remainder of this chapter to the explanation of simple and new methods particularly applicable to the art of pewter. Of course, no method will guarantee perfect design, but certain suggestions make for a clearer pathway towards that end.

PRELIMINARY PLANNING

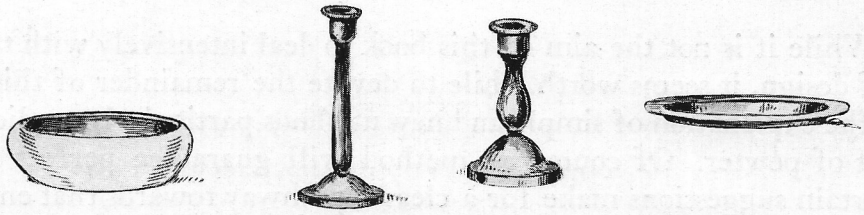
Step 1. Naturally, the first thing to do is to select a problem which is termed a *theme* or subject. From data secured from sources mentioned, make several sketches of the desired object, preferably in perspective, as in Figure 1, Plate 4. Select the best design, basing judgment upon (1) proportions, (2) structural relationship, (3) robustness, (4) delicacy, (5) unity and variety of contours, (6) unity of contours and appendages, (7) special data applicable to each problem, (8) service.

TYPES OF THEMES

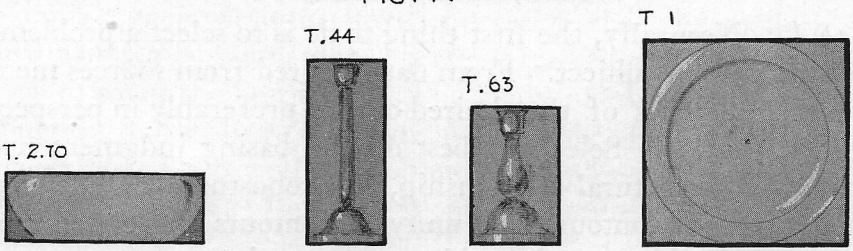
Step 2. Draw a full size rectangle enclosing the greatest height and width of the selected preliminary sketch, now to be considered as in orthographic projection. This rectangle should enclose the view which shows the most important contours, as in Figure 2, Plate 4. Bowls, candlesticks, pitchers, and similar forms show to advantage in side elevation. To show surface decorations of a round plate, a top view is used, but to design the basin contours, a side view is required.

In the study of the rectangular or other form of enclosure, called a primary mass, it may readily be analyzed as vertical, horizontal, or square in character, depending upon which dimension is longer, the width or the height. In the square, naturally these dimensions are equal. This mass analysis is important, as contours are *extremely sensitive* to slight changes of width and height. In Figure 2, Plate 4, there are two types of candlesticks, both designed within vertical masses. The right-hand pattern would not fit into the long vertical rectangle on its left. If we were to try it, the short full curves when stretched out would appear lumpy and unsatisfactory, whereas a long, slender shaft is pleasing. Certain types of contours seem predestined for their allotted enclosures.

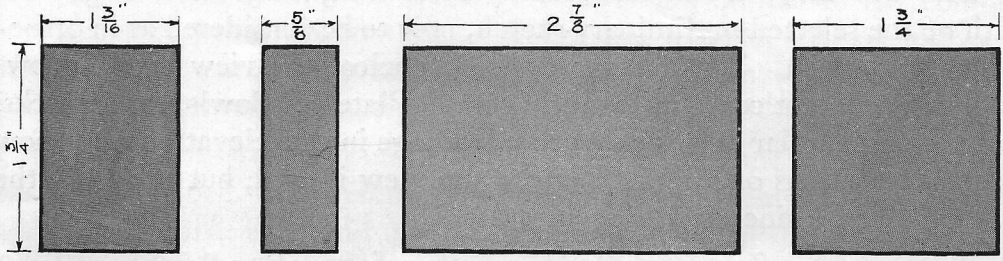
This contoural sensitiveness to slight changes of mass is due to what may be termed, for want of a better phrase, eye movement. If the short curves of the low candlestick of Figure 2, Plate 4, were to be extended vertically with their bulbous nature preserved, the eye in its attempts to grasp the design would become confused, and would register dissatisfac-



THE THEME OR SUBJECT TO BE CREATED
FIG. 1.

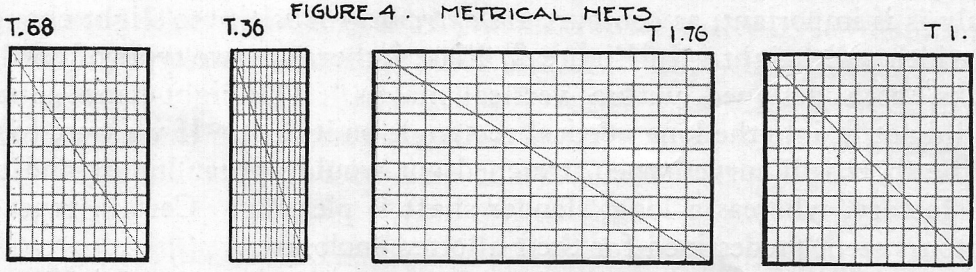


THE THEME ENCLOSED WITHIN ITS LOGICAL AND PLEASING VERTICAL HORIZONTAL OR SQUARE PRIMARY MASS
FIG. 2



ILLUSTRATING THE TEMPO OR DEGREE OF MOVEMENT (RHYTHM) FOR DIFFERENT THEMES
FIG. 3

FIGURE 4. METRICAL NETS



METRE IS THE RHYTHMIC ARRANGEMENT OF SYLLABLES IN VERSE. A METRICAL NET IS THE RHYTHMIC ARRANGEMENT OF HARMONIOUS AREAS WITHIN THE THEME EACH AREA IS EQUAL IN TEMPO TO THE MAIN THEME OR PRIMARY MASS.

tion; but in the left-hand candlestick, the eye comprehends the design readily enough with pleasing results. The same aspects are true with regard to horizontal masses. A design can be made so long that the eye refuses to take it all in with any degree of satisfaction.

TEMPO

Step 3. Cannot then the amount of eye movement in a given vertical or horizontal mass be determined, thus making our design details fit the eye movement for that particular mass? This can be done, and the result is called the *tempo*, or the *degree of movement in a given mass*. In music, tempo is the time, or degree of movement in a composition. As music has borrowed many terms from art, it seems fair to use tempo as designating *the sense of movement generated by the character of the primary mass of the design.*

Arithmetically, the tempo of any primary mass, or other rectangle, is found by dividing the height into the width, the quotient or ratio being the degree of movement for the design. If the mass is square, the tempo is 1 and there is no eye movement, the area being termed static or lifeless, as in Figure 3, Plate 4. Look at this mass. The eye moves neither up nor down, nor to the right nor left. All vertical masses have arithmetical tempos of less than 1. The left-hand illustration of Figure 3, Plate 4, measures one and three-fourths inches by one and three-sixteenths inches. Divide the height in sixteenths of inches as 28 by the width in similar divisions, and the tempo is .68, giving a rather broad vertical form with a pleasing upward eye movement. The next form of Figure 3, with its tempo of .36, has a livelier vertical movement. Thus, it is seen that the more slender a vertical mass becomes, the less is its arithmetical value.

On the contrary, horizontal masses increase their arithmetical value as they increase their length. In Figure 3, Plate 4, the third rectangle, a horizontal mass measuring two and seven-eighths inches by one and three-fourths inches, has a tempo of 1.76. It is unwise to exceed 2.76 in tempo unless utility demands greater length. It is an easy matter to construct a primary mass of given tempo. For example, determine the *height* of a given object, such as a water pitcher, ten inches high, multiply the height by the tempo as .68, and the product is 6.80 inches, or approximately six and thirteen-sixteenths inches. By using the metric system, fractions are eliminated, and figuring results becomes much easier.

By experiment, it has been ascertained that certain tempos are better than others. Mr. Jay Hambidge in his work on "Dynamic Symmetry"

originated the idea of letting the ratio or, as termed in this chapter, the tempo, represent the height and width relations of areas. Furthermore, he discovered the repeated use of certain ratios by Greek designers. The most popular ratio used with frequency by both Greeks and modern designers is 1.618 for a horizontal mass and .618 for a vertical mass. This is the tempo of the well known Golden Oblong. Other Greek tempos selected from many are 1.11 — 1.23 — 1.38 — 1.854 — 2.236 — 2.47 — for horizontal masses; and vertical themes, .894 — .76 — .69 — .55 — .447 — .382 — .309 — .22. Tempos between .95 and 1.05 are too lifeless for attractive eye movement or interest, and should be avoided, unless the object's use requires tempos within this range.

THE METRICAL NET

Step 4. The next process is refining and perfecting the curves and spacings of the preliminary perspective or orthographic sketch. For this purpose, it is necessary to prepare what is to be known as the designer's *metrical net.* In poetry, metre is a rhythmical arrangement of syllables in verse, while a *metrical arrangement pertains to the measurement of movement or rhythm.* If the primary mass or theme can be filled with small areas similar to each other and to the theme in tempo, there results a unified and rhythmic series of *measures of movement.* These may be considered scaffolding upon which to develop the theme of the design, drawing it into complete sympathy with the tempo of the mass, and the tempo will be repeated or echoed through many details of the design, which are unified by the movement common to the design as a whole.

Figure 4, Plate 4, illustrates a number of nets for different tempos. To form these nets, divide one vertical primary mass boundary into a number of equal divisions. For large pewter projects, one-fourth inch divisions are satisfactory ; for smaller problems, three-sixteenth inch are necessary. If the metric system has been used, division will be more simple. Draw one diagonal of the primary mass, and extend the division points by horizontal lines completely across the rectangle. At the points where the horizontal members of the net cut the diagonal, extend verticals, and the net is complete, being almost like syllable division in metre construction.

Each small rectangle partakes of the general movement of the theme; each contributes its quota to the movement of the mass, forming a perfectly articulated whole. Let the eye move over the various forms of Figure 4, Plate 4, and feel the movement inherent in each. T .68 is a slow vertical; T .36 is a quick lively vertical; T 1.76 is a restful quiet horizontal;

and T 1 is without movement or a square. To make the following step easier, it is best to ink in the net, and place over it a tough but transparent tracing paper through which the net may be seen.

DEVELOPMENT OF THE THEME

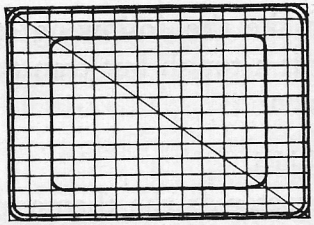
Step 5. If the net has so much of the character of the theme, developing the subject by using the meshes of the net as turning, beginning, and ending points for contours and spacings, is bound to impart to the design, a refinement and beauty in the spirit of the chosen tempo, repeating again and again the major theme as in music. Taking as an example the simple tray of Figure 1, Plate 5, notice the beaded or reeded rim. Usually the corners are quarter circles. By designing the corners within the boundaries of one space of the net, a curve is created which fits the character of the horizontal theme, and is more attractive in subtlety than the customary arc. Likewise, the rim of the tray varies in width at the sides and ends, sustaining the tempo of the theme and is proportionately related to the whole. There is a slight connection between the uses of the parts of the net for contoural curves and proportioning, and the architectural use of modules, both sanctioned by the architectonic or structural nature of the problems.

MOTIVES

Terminals and contour turning points of Figures 2 and 3, Plate 5, are clear—each with its element of robustness and of delicacy. At this time it is well to consider the emotional and aesthetic qualities of the lines composing the design, the *motives* of the tempo. A design composed mainly of straight lines is termed a *rectilineal* motive, and gives the feeling one of honesty of construction, of permanence, and of solidity with strength. Figure 1 of Plate 5, expresses this feeling. Figure 2 is composed principally of curved lines and surfaces, and the motive is called *curvilineal*, with grace and lightness of construction, and accentuated motion. Figure 3, Plate 5, is a fusion of two motives, as both straight and curved lines appear in the design. This motive is known as the *eclectic*, and appears to give both sense of strength and grace of line.

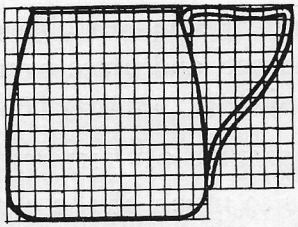
In Figures 1, 2, and 3, Plate 5, the main lines as well as the shorter or subordinate lines support the vertical or horizontal tempo of the theme. The more clearly to feel this influence of the net upon contours, study Figures 4, 5, and 6, Plate 5, and realize the peculiar sensitiveness of curves to changes of tempo. In these figures, we have a set of similar curves placed in nets of different tempos. The horizontal tempo of 1.61 tends to gener-

FIG. 1.



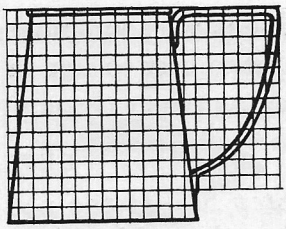
THEME- HORIZONTAL TRAY
TEMPO " 1.47
METRICAL MOTIVE MAINLY RECTILINEAL IN CONTOUR

FIG. 2.



THEME - CHILD'S VERTICAL MUG
TEMPO . 86
METRICAL MOTIVE - CURVILINEAL IN CONTOUR

FIG. 3.



THEME - CHILD'S VERTICAL MUG
TEMPO . 86
METRICAL MOTIVE - ECLECTIC IN CONTOUR

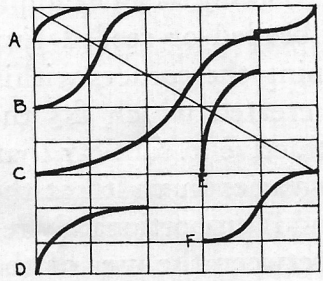


FIG. 4.
TEMPO 1.61

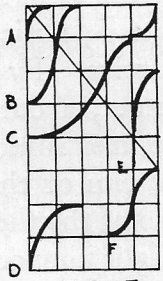


FIG. 5.
TEMPO .77

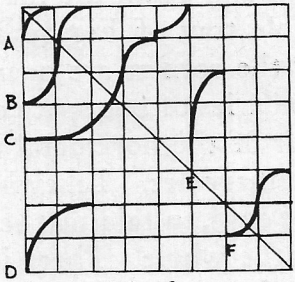
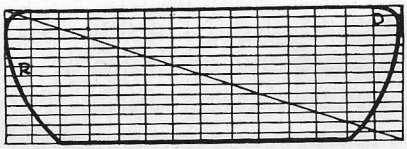
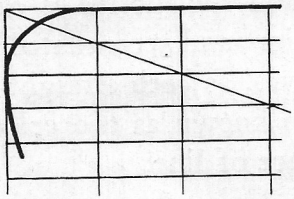


FIG. 6
TEMPO 1

CURVILINEAL DETAILS BASED ON METRICAL NETS OF DIFFERING TEMPOS

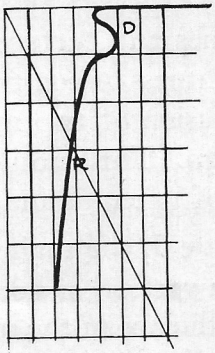


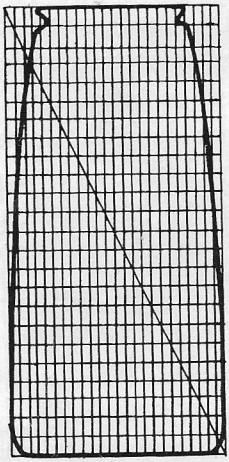
CURVILINEAL CONTOURS FOR HORIZONTAL THEME
TEMPO " 3
FIG. 7.



DETAILS OF FIGS. 7 - 8

ROBUST CURVES " R - R
DELICATE CURVES " D - D





CURVILINEAL CONTOURS FOR VERTICAL THEME
TEMPO .47
FIG. 8.

Plate 5. Themes, Tempos, and Motives.

ate curves of like spirit, while the vertical tempo of .77, Figure 5, Plate 5, gives the same types of curves an upward trend. The square net of Figure 6 encourages curves resembling grouped arcs of circles, mechanical in nature, and without the movement which is of charm and interest in contour design.

By this time, even the novice in design must begin to realize the aid supplied by the metrical net, enabling the designer to catch the spirit of his design and his tempo. Figure 7 of Plate 5 illustrates a low bowl with controlled beginning, terminating, and turning points for contours. Avoid monotony by beginning and terminating contours in different sections of the net, taking care to make bounding curves turn either decidedly above or below the middle mesh of the net. Figure 8, Plate 5, with its vertical .47 theme makes for an entirely different type of curvature, varying radically from the horizontal mass of Figure 7. Notice the quick lively vertical tempo of spirited design, and imagine the types of floral growth to which it is best adapted.

Plate 6 is designed to show further applications of the metrical net applied to britannia projects. It is not at all necessary to make curves in their transit pass through net intersections; it makes for better design, however, to begin, turn, and terminate them at *definite net crossings*. Let it be further understood that every detail need not fit into the net. Catch the spirit of the tempo, maintain the structural lines, avoid monotony, strive for simplicity and continuity of curvature, and use contrasts of direction with caution.

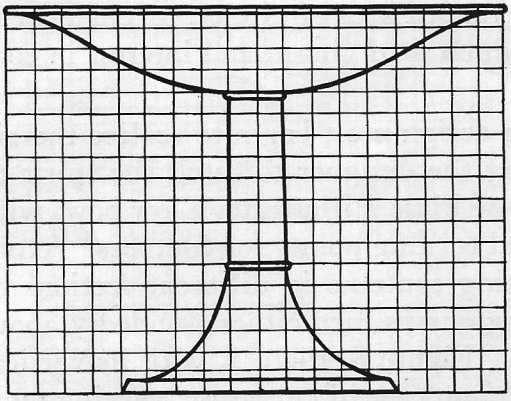
As the designer increases in skill, various rhythms will be discovered. Notice the measure intervals of Figure 3, Plate 6. The height is divided into measures of 1-2-3-14-2-4, showing freedom from monotonous repetitions. The large central area, space 14, gives the eye a moment of pleasing rest.

APPENDAGES

The appendages of Figures 2 and 3, Plate 5, and Figure 4, Plate 6, show them as designed upon continuations of the net of the primary mass. If the appendages are large, it is well to include them in the primary mass, as in Figures 1 and 2, Plate 6.

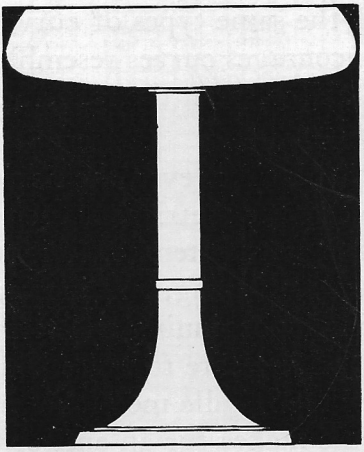
Plate 7 illustrates a variant of the preceding practice. The problem is to design a number of pieces of the same tempo—.90. The tea pot in the upper left-hand corner of the plate became the key note, with its primary mass 1-2-3-4 designed in accordance with that theme. The creamer

FIG. 1.



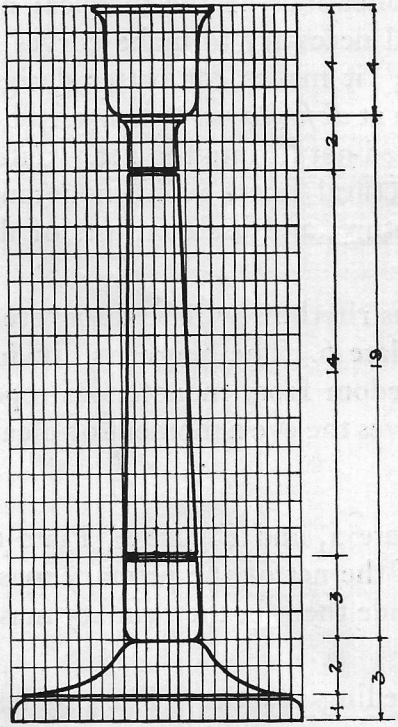
THEME • COMPOTE HORIZONTAL IN SPIRIT
MOTIVE " CURVILINEAL
TEMPO " 1.30

FIG. 2.



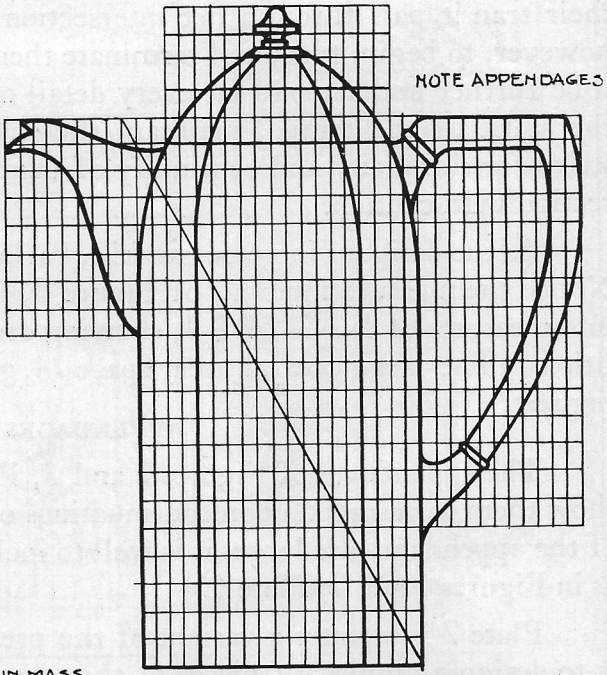
THEME " COMPOTE VERTICAL IN SPIRIT
MOTIVE " CURVILINEAL
TEMPO " .80

FIG. 3.



THEME • TURNED CANDLESTICK VERTICAL IN MASS
MOTIVE " CURVILINEAL " TEMPO .41
W.H.V. des.

FIG. 4.



THEME • VERTICAL AFTER DINNER COFFEE POT
MOTIVE • ECLECTIC TEMPO .53

Plate 6. Themes and Their Appendages.

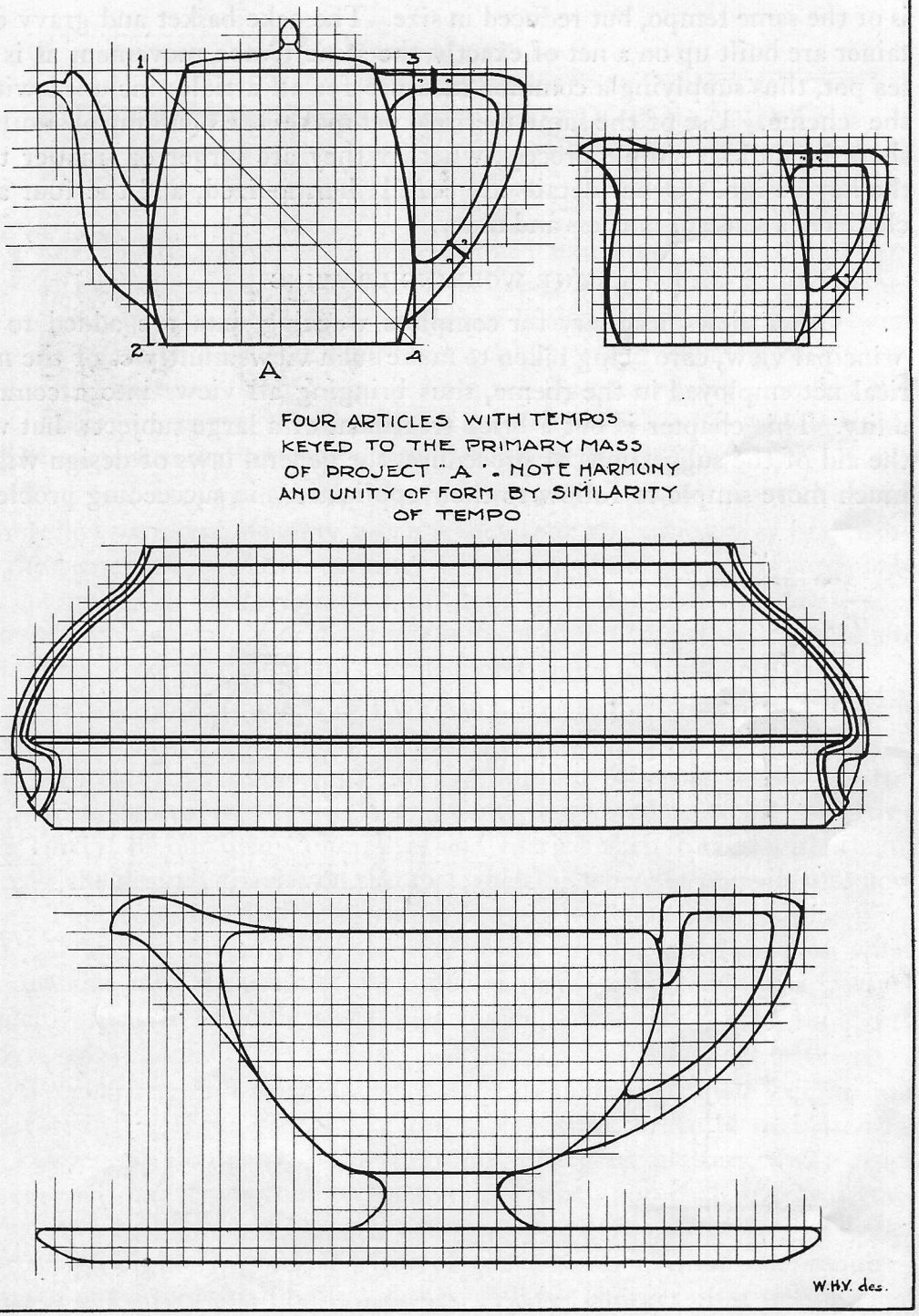


Plate 7. Use of Tempo .90 for Different Objects.

is of the same tempo, but reduced in size. The cake basket and gravy container are built up on a net of exactly the same tempo movement as is the tea pot, thus supplying a common measure for all articles included within the scheme. Use of the same metrical net makes the planning of similarly shaped handles a simple process, whether they are larger or smaller than the key design. Other details are readily harmonized, and the four articles have a sense of oneness and unity.

THE WORKING DRAWING

Other views necessary for complete working data are added to the principal view, care being taken to make such views multiples of the metrical net employed in the theme, thus bringing all views into a common unity. This chapter is but a brief treatment of a large subject; but with the aid of the suggestions of procedure, the general laws of design will be much more simple to follow to their applications in succeeding problems.

PEWTER DESIGN AND CONSTRUCTION

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