

CHAPTER 1: INTRODUCTION

What Is Design?

Many people would think of design as some kind of effort in beautifying the outward appearance of things. Certainly mere beautification is one aspect of design, but design is much more than this.

Look around us. Design is not just ornamentation. The well-designed chair not only has a pleasing outward appearance, but stands firmly on the ground and provides adequate comfort for whoever sits on it. Furthermore, it should be safe and quite durable, able to be produced at a comparatively economic cost, packed and shipped conveniently, and, of course, it should have a specific function, whether for working, resting, dining, or other human activities.

Design is a process of purposeful visual creation. Unlike painting and sculpture, which are the realization of artists' personal visions and dreams, design fills practical needs. A piece of graphic design has to be placed before the eyes of the public and to convey a predetermined message. An industrial product has to meet consumers' requirements.

A good design, in short, is the best possible visual expression of the essence of "something," whether this be a message or a product. To do this faithfully and effectively, the designer should look for the best possible way this "something" can be shaped, made, distributed, used, and related to the environment. His creation should not only be just aesthetic but also functional, while reflecting or guiding the taste of the time.

The Visual Language

Design is practical. The designer is a practical person. But before he is ready to tackle practical problems, he has to master a visual language.

This visual language is the basis of design creation. Setting aside the functional aspect of design, there are principles, rules, or concepts in respect of visual organization that may concern a designer. A designer can work without conscious knowledge of any of these principles, rules, or concepts, because his personal taste and sensitivity to visual relationships are much more important, but a thorough understanding of them would definitely enhance his capability in visual organization.

In the first year's curriculum of every art school or university art department, regardless of the fields of specialization the students are to follow later, there is always a course variously called Basic Design, Fundamental Design, Two-Dimensional Design, etc., which deals with the grammar of this visual language.

Interpreting the Visual Language

There are numerous ways of interpreting the visual language. Unlike the spoken or written language of which the grammatical laws are more or less established, the visual language has no obvious laws. Each design theorist may have a completely different set of discoveries.

My own interpretations, as unfolded in this book, may appear to be much on the rigid side and oversimplified. Readers will soon find that my theorization has a lot to do with systematic thinking and very little to do with emotion and intuition. This is because I prefer to tackle the principles in precise and concrete terms with maximum objectivity and minimum ambiguity.

We must not forget that the designer is a

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problem-solving person. The problems he is to face are always given. This means that he cannot alter any of the problems but must find appropriate solutions. Certainly an inspired solution can be attained intuitively, but in most cases the designer has to rely on his enquiring mind, which probes into all the possible visual situations within the requirements of individual problems.

Elements of Design

My theorization begins with a list of elements of design. This list is necessary because the elements will form the basis of all our future discussions.

The elements are, in fact, very much related to each other and cannot be easily separated in our general visual experience. Tackled individually, they may appear rather abstract, but together they determine the ultimate appearance and contents of a design.

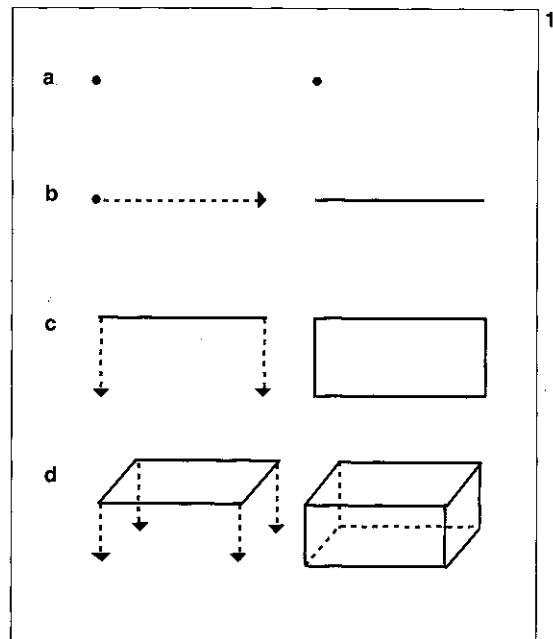
Four groups of elements are distinguished:

- (a) conceptual elements
- (b) visual elements
- (c) relational elements
- (d) practical elements

Conceptual Elements

Conceptual elements are not visible. They do not actually exist but seem to be present. For instance, we feel that there is a point at the angle of a shape, there is a line marking the contour of an object, there are planes enveloping volume, and volume occupying space. These points, lines, planes, and volumes are not really there; if they are really there, they are no longer conceptual.

(a) **Point** — A point indicates position. It has no length or breadth. It does not occupy any area of space. It is the beginning and end of a line, and is where two lines meet or



intersect. (Fig. 1a)

(b) **Line** — As a point moves, its path becomes a line. A line has length but no breadth. It has position and direction. It is bound by points. It forms the border of a plane. (Fig. 1b)

(c) **Plane** — The path of a line in motion (in a direction other than its intrinsic direction) becomes a plane. A plane has length and breadth, but no thickness. It has position and direction. It is bound by lines. It defines the external limits of a volume. (Fig. 1c)

(d) **Volume** — The path of a plane in motion (in a direction other than its intrinsic direction) becomes a volume. It has position in space and is bound by planes. In two-dimensional design, volume is illusory. (Fig. 1d)

Visual Elements

When we draw an object on paper, we

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employ a line that is visible to represent a line that is conceptual. The visible line not only has length but also breadth. Its color and texture are determined by the materials we use and the way we use them.

Thus, when conceptual elements become visible, they have shape, size, color, and texture. Visual elements form the most prominent part of a design because they are what we can actually see.

(a) **Shape** — Anything that can be seen has a shape which provides the main identification in our perception. (Fig. 2a)

(b) **Size** — All shapes have size. Size is relative if we describe it in terms of bigness and smallness, but it is also physically measurable. (Fig. 2b)

(c) **Color** — A shape is distinguished from its surroundings because of color. Color here is used in its broad sense, comprising not only all the hues of the spectrum but also the neutrals (black, white, and all the intermediate grays), and also all their tonal and chromatic variations. (Fig. 2c)

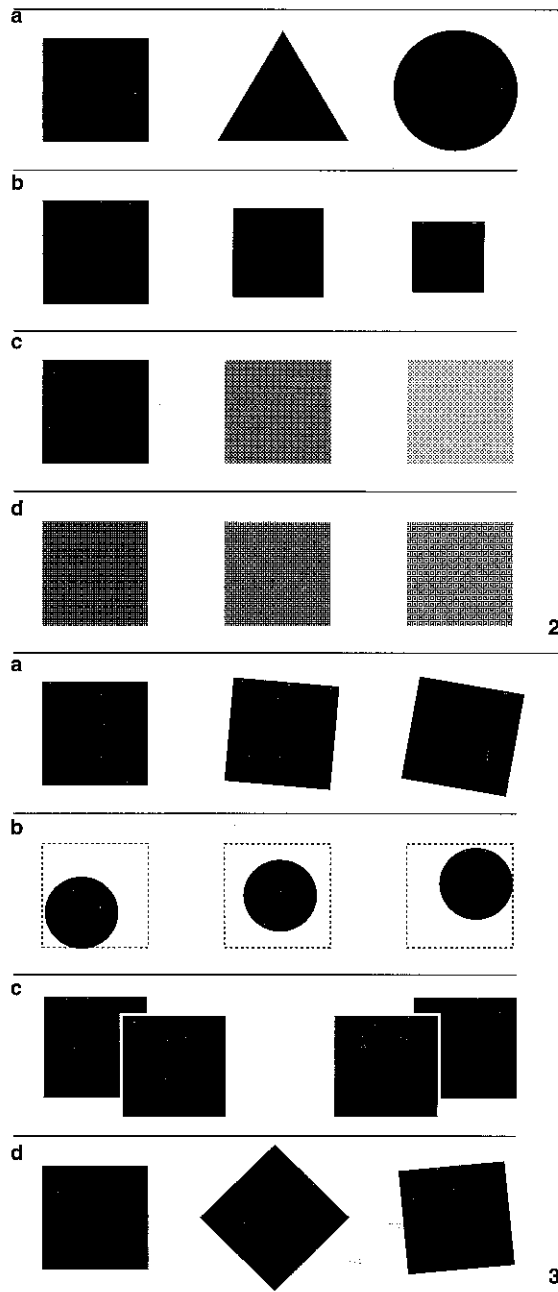
(d) **Texture** — Texture refers to the surface characteristics of a shape. This may be plain or decorated, smooth or rough, and may appeal to the sense of touch as much as to sight. (Fig. 2d)

Relational Elements

This group of elements governs the placement and interrelationship of the shapes in a design. Some are to be perceived, such as direction and position; some are to be felt, such as space and gravity.

(a) **Direction** — Direction of a shape depends on how it is related to the observer, to the frame that contains it, or to other shapes nearby. (Fig. 3a)

(b) **Position** — The position of a shape is



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judged by its relationship to the frame or the structure (see Chapter 4) of the design. (Fig. 3b)

(c) **Space** — Shapes of any size, however small, occupy space. Thus, space can be occupied or left blank. It can also be flat or illusory to suggest depth. (Fig. 3c)

(d) **Gravity** — The sense of gravity is not visual but psychological. As we are pulled by the gravity of the earth, we tend to attribute heaviness or lightness, stability or instability to individual shapes or groups of shapes. (Fig. 3d)

Practical Elements

The practical elements underlie the content and extension of a design. They are beyond the scope of this book, but I would like to mention them here:

(a) **Representation** — When a shape is derived from nature or the man-made world, it is representational. Representation may be realistic, stylized, or near-abstract.

(b) **Meaning** — Meaning is present when the design conveys a message.

(c) **Function** — Function is present when a design is to serve a purpose.

The Frame of Reference

All the above elements normally exist within a boundary which we call a "frame of reference." The frame of reference marks the outer limits of a design and defines an area within which the created elements and left-over blank space, if any, all work together.

The frame of reference is not necessarily an actual frame. If it is, then the frame should be considered as an integral part of the design. The visual elements of the visible frame should not be overlooked. If there is no actual frame, the edges of a poster, the page of a magazine, the various surfaces

of a package all become frames of reference for the respective designs.

The frame of reference of a design can be of any shape, though it is usually rectangular. The die-cut shape of a printed sheet is the frame of reference of the design that is contained in it.

The Picture Plane

Within the frame of reference lies the picture plane. The picture plane is actually the plane surface of the paper (or any other material) upon which the design is created.

Shapes are directly painted or printed on this picture plane, but they may appear to be above, below, or unparallel to it because of spatial illusions, which will be fully discussed in Chapter 12.

Form and Structure

All the visual elements constitute what we generally call "form," which is the primary concern in our present enquiry into the visual language. Form in this sense is not just a shape that is seen, but a shape of definite size, color, and texture.

The way form is created, constructed, or organized along with other forms is often governed by a certain discipline which we call "structure." Structure which involves the relational elements is also essential in our studies.

Both form and structure will be thoroughly discussed in the chapters to follow.

CHAPTER 2: FORM

Form and the Conceptual Elements

As already pointed out, the conceptual elements are not visible. Thus point, line, or plane, when visible, becomes form. A point on paper, however small, must have shape, size, color, and texture if it is meant to be seen. So must a line or a plane. Volume remains illusory in two-dimensional design.

Visible points, lines, or planes are forms in the true sense, although forms as points or lines are still simply called points or lines in common practice.

Form as Point

A form is recognized as a point because it is small.

Smallness, of course, is relative. A form may appear fairly large when it is confined in a tiny frame of reference, but the same form may appear rather small when it is put inside a much greater frame of reference. (Fig. 4)

The most common shape of a point is that of a circle which is simple, compact, non-angular, and non-directional. However, a point may be square, triangular, oval, or even of a somewhat irregular shape. (Fig. 5)

Thus the main characteristics of a point are:

- (a) its size should be comparatively small, and
- (b) its shape should be rather simple.

Form as Line

A form is recognized as a line because of two reasons: (a) its breadth is extremely narrow, and (b) its length is quite prominent.

A line generally conveys the feeling of thinness. Thinness, like smallness, is relative. The extreme ratio between length and breadth of a shape makes it a line, but there is no absolute criterion for this.

Three separate aspects should be considered in a line:

The overall shape — This refers to its general appearance, which is described as straight, curved, bent, irregular, or hand-drawn. (Fig. 6a)

The body — As a line has breadth, its body is contained within two edges. The shapes of these two edges and the relationship between them determine the shape of the body. Usually the two edges are smooth and parallel, but sometimes they may cause the body of the line to appear tapering, knotty, wavy, or irregular. (Fig. 6b)

The extremities — These may be negligible when the line is very thin. But if the line is quite broad, the shapes of its extremities may become prominent. They may be square, round, pointed, or any simple shape. (Fig. 6c)

Points arranged in a row may evoke the feeling of a line. But in this case the line is conceptual and not visual, for what we see is still a series of points. (Fig. 6d)

Form as Plane

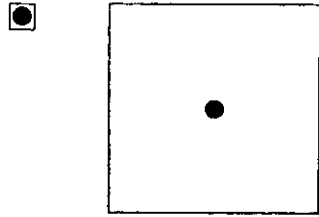
On a two-dimensional surface, all flat forms that are not commonly recognized as points or lines are forms as plane.

A planar form is bound by conceptual lines which constitute the edges of the form. The characteristics of these conceptual lines and their interrelationships determine the shape of the planar form.

Planar forms have a variety of shapes, which may be classified as follows:

- (a) **Geometric** — constructed mathematically. (Fig. 7a)

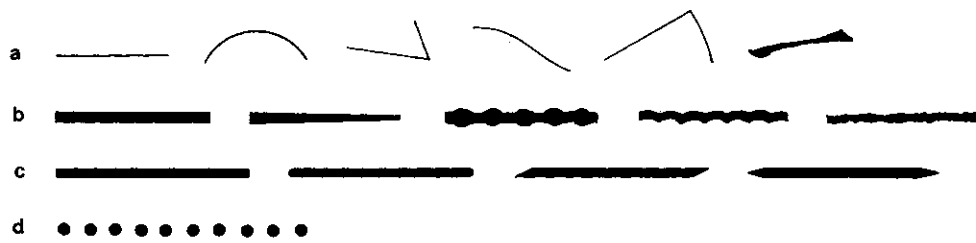
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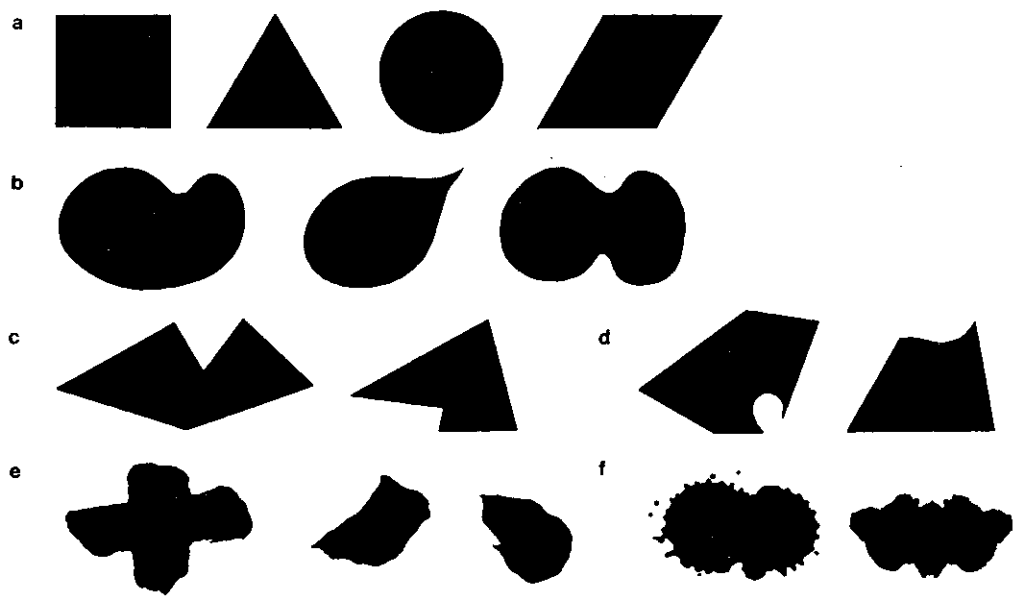
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(b) **Organic** — bounded by free curves, suggesting fluidity and growth. (Fig. 7b)

(c) **Rectilinear** — bound by straight lines which are not related to one another mathematically. (Fig. 7c)

(d) **Irregular** — bound by straight and curved lines which are not related to one another mathematically. (Fig. 7d)

(e) **Hand-drawn** — calligraphic or created with the unaided hand. (Fig. 7e)

(f) **Accidental** — determined by the effect of special processes or materials, or obtained accidentally. (Fig. 7f)

Planar forms may be suggested by means of outlining. In this case the thickness of the lines used should be considered. Points arranged in a row can also outline a planar form.

Points or lines densely and regularly grouped together can also suggest planar forms. They become the texture of the plane.

Form as Volume

Form as volume is completely illusory and demands a special spatial situation. A full discussion of this will be found in Chapter 12.

Positive and Negative Forms

Form is generally seen as occupying space, but it can also be seen as blank space surrounded by occupied space.

When it is perceived as occupying space, we call it "positive" form. When it is perceived as blank space surrounded by occupied space, we call it "negative" form. (Fig. 8)

In black-and-white design, we tend to regard black as occupied and white as unoccupied. Thus, a black form is recognized as positive and a white form as negative. But such attributions are not always true. Especially when forms interpenetrate or intersect one another (see the section on the inter-

relationships of forms later in this chapter), what is positive and what is negative are no longer easily distinguishable.

Form, whether positive or negative, is commonly referred to as the "figure," which is on a "ground." Here "ground" denotes the area surrounding the form or the "figure." In ambiguous cases, the figure-ground relationship may be reversible. This will be discussed in Chapter 12.

Form and Color Distribution

Without changing any of the elements in a design, the distribution of colors within a definite color scheme can have a large range of variations. Let us have a very simple example. Suppose we have a form which exists within a frame, and we can only use black and white. Four different ways of color distribution can be obtained:

(a) white form on white ground (Fig. 9a)

(b) white form on black ground (Fig. 9b)

(c) black form on white ground (Fig. 9c)

(d) black form on black ground (Fig. 9d)

In (a), the design is all white, and the form disappears. In (b), we have a negative form. In (c), we have a positive form. In (d), the design is all black, and the form disappears in the same way as in (a). Of course, we can have the form outlined in black in (a), and outlined in white in (d). (Fig. 10)

If the design increases in complexity, the different possibilities for color distribution will also be increased. To illustrate once again, we have two circles crossing over each other within a frame. In the previous example, we have only two defined areas where we can distribute our colors. Now we have four areas. Still using black and white, we can present sixteen distinct variations instead of only four. (Fig. 11)

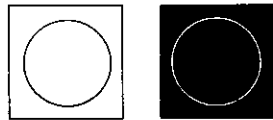
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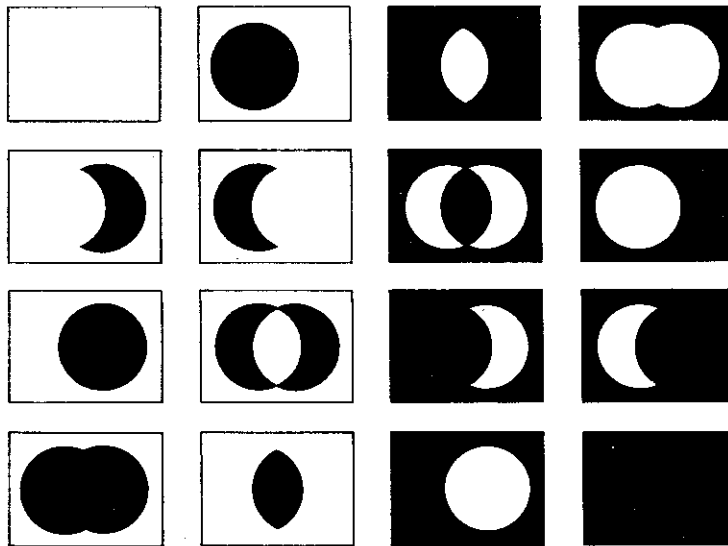
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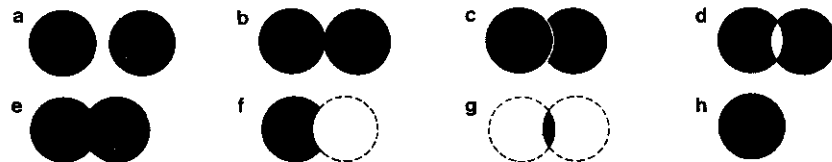
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The Interrelationships of Forms

Forms can encounter one another in numerous ways. We have just demonstrated that when one form crosses over another, the results are not as simple as we may have thought.

We now again take two circles and see how they can be brought together. We choose two circles of the same size to avoid unnecessary complication. Eight different ways of interrelationship can be distinguished:

(a) **Detachment** — The two forms remain separate from each other although they may be very close together. (Fig. 12a)

(b) **Touching** — If we move the two forms closer, they begin to touch. The continuous space which keeps the two forms apart in (a) is thus broken. (Fig. 12b)

(c) **Overlapping** — If we move the two forms still closer, one crosses over the other and appears to remain above, covering a portion of the form that appears to be underneath. (Fig. 12c)

(d) **Interpenetration** — Same as (c), but both forms appear transparent. There is no obvious above-and-below relationship between them, and the contours of both forms remain entirely visible. (Fig. 12d)

(e) **Union** — Same as (c), but the two forms are joined together and become a new, bigger form. Both forms lose one part of their contours when they are in union. (Fig. 12e)

(f) **Subtraction** — When an invisible form crosses over a visible form, the result is subtraction. The portion of the visible form that is covered up by the invisible form becomes invisible also. Subtraction may be regarded as the overlapping of a negative form on a positive form. (Fig. 12f)

(g) **Intersection** — Same as (d), but only the portion where the two forms cross over each other is visible. A new, smaller form

emerges as a result of intersection. It may not remind us of the original forms from which it is created. (Fig. 12g)

(h) **Coinciding** — If we move the two forms still closer, they coincide. The two circles become one. (Fig. 12h)

The various kinds of interrelationships should always be explored when forms are organized in a design.

Spatial Effects in Form Interrelationships

Detachment, touching, overlapping, interpenetration, union, subtraction, intersection, or coinciding of forms — each kind of interrelationship produces different spatial effects.

In detachment, both forms may appear equidistant from the eye, or one closer, one farther away.

In touching, the spatial situation of the two forms is also flexible as in detachment. Color plays an important role in determining the spatial situation.

In overlapping, it is obvious that one form is in front of or above the other.

In interpenetration, the spatial situation is a bit vague, but it is possible to bring one form above the other by manipulating the colors.

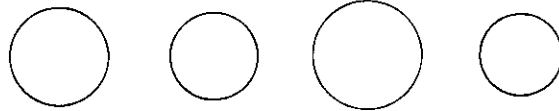
In union, usually the forms appear equidistant from the eye because they become one new form.

In subtraction, as well as in interpenetration, we are confronted with one new form. No spatial variation is possible.

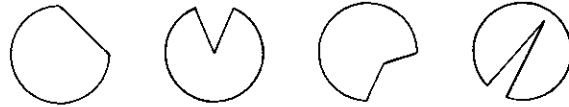
In coinciding, we have only one form if the two forms are identical in shape, size, and direction. If one is smaller in size or different in shape and/or direction from the other, there will not be any real coinciding, and overlapping, interpenetration, union, subtraction, or intersection would occur, with the possible spatial effects just mentioned.

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b



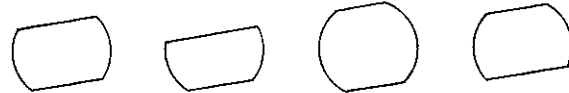
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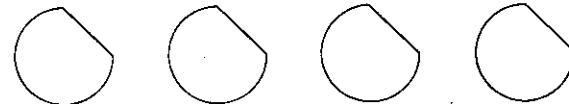


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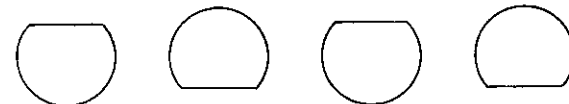
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d



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