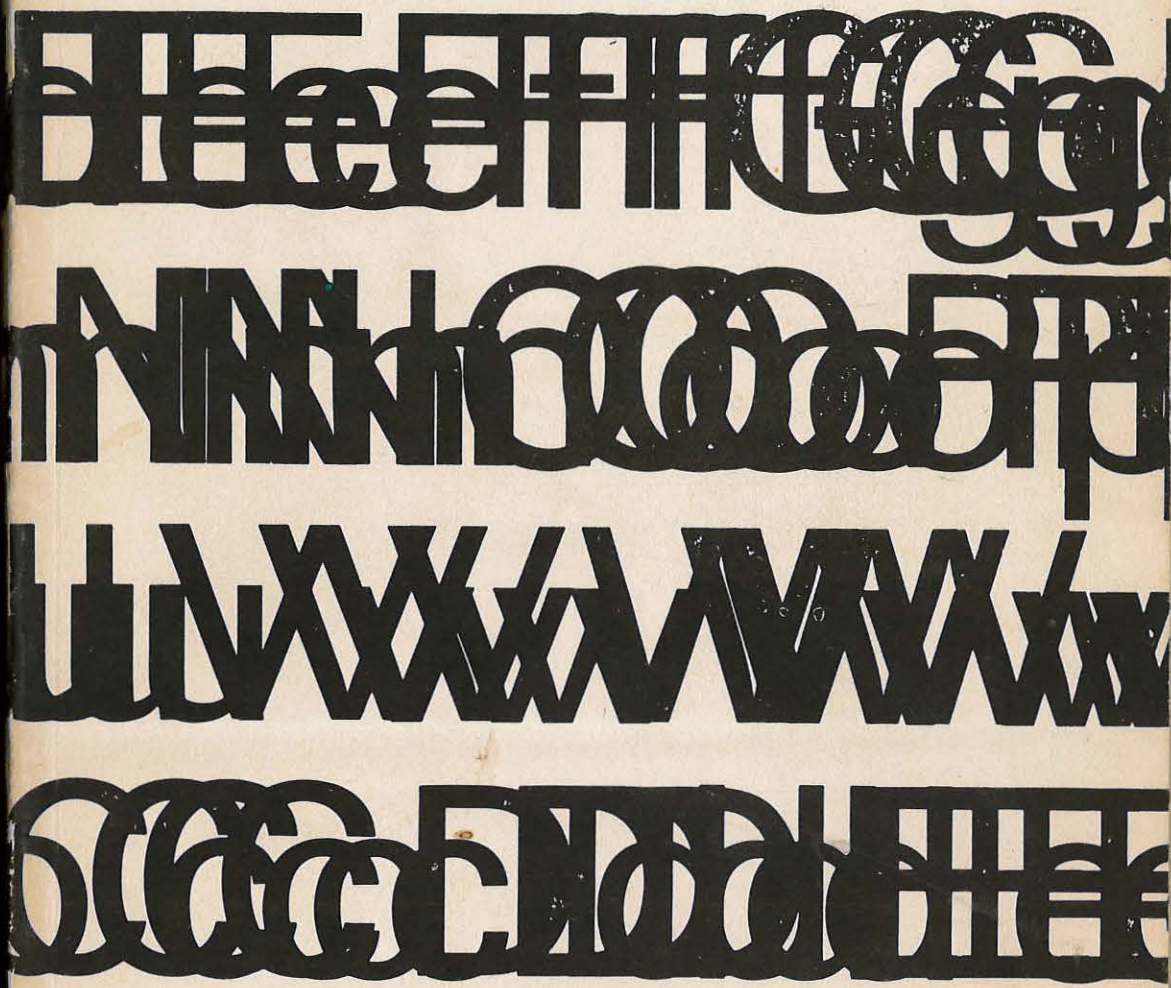


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41. The text of Musin-Pushkin's order is in Moscow, at the Central State Archives of Ancient Documents (Tsentral'nyi Gosudarstvennyi Arkhiv Drevnikh Aktov) among the papers of the Moscow Synodal Printing Shop, No. 1182/2, XLVII, 22. See A. Shitsgal, *op. cit.*, p. 259.
42. See T. Georgi, *Europaisches Bücherlexicon* (Leipzig: n.p., 1742), II, 206; III, 256; IV, 346.
43. The MS of the Russian translation of *Geometria* with Peter I's corrections is in Moscow, in the Central State Archives of Ancient Documents.
44. See *Pis'ma i bumagi . . .*, VII/2, 731.
45. The plates and frontispiece are missing in the copies of the first edition at the Lenin Library and at the Saltykov-Shchedrin State Public Library in Leningrad.
46. The gaps in the numbering of plates made Bychkov think that certain plates were missing in the copy he described. See A. F. Bychkov, *Katalog khраниashchimsia v imp. Publ'chnoi biblioteke izdaniiam, napechatannym grazhdanskim shriftom pri Petre Velikom* (Sanktpeterburg: n.p., 1867), p. 2.
47. See P. P. Pekarskii, *op. cit.*, II, 649; and *Pis'ma i bumagi . . .*, VII, 159, and IX, 50.
48. See Leningrad, Publ'chnaia Biblioteka imeni M. E. Saltykova-Shchedrina, *op. cit.*, I, 75; and also P. P. Pekarskii, *op. cit.*, II, 649.
49. See Peter I's letter to Musin-Pushkin of May 7, 1708.
50. This edition was probably the idea of Ia. V. Brius who repeatedly expressed his interest in gathering exercises to supplement the first edition of *Geometria* or to publish them as a separate volume. See *Pis'ma i bumagi . . .*, VI, 455.
51. See S. E. Fel', "Petrovskaia geometriia," *Institut istorii estestvoznaniia. Trudy.*, IV (1952), 140-155, or for special reference to the above hypothesis, see pp. 151-152.
52. See *Pis'ma i bumagi . . .*, VII/1, 144. The order was sent by the Tsar through A. D. Menshikov.
53. See *Pis'ma i bumagi . . .*, VII/1, 187.
54. *Ibid.*, VIII/a, 937.
55. *Ibid.*, VIII/1, 53.
56. *Ibid.*, VII/1, 159.
57. See *supra*, n. 4.
58. *Ibid.*, IX/1, 50.
59. A. Shitsgal, *op. cit.*, p. 41, refers to an undated *Primer* or rather specimen sheet in the Lenin Library collection.
60. *Ibid.*
61. See *Pis'ma i bumagi . . .*, IX/2, 1228-1229.
62. The Tsar sent his order to Prince M. N. Gagarin on November 8, 1708. See *ibid.*, VIII/1, 289.
63. See the Tsar's letters of October 10, 1708, November 11, 1708, January 4, 1709, and January 16, 1709.
64. See the Tsar's letters of October 10, 1708, October 31, 1708, and November 8, 1708.
65. *Ibid.*, IX/1, 370.
66. The Russian text of the note reads: "Simy litery pechatat at' istoricheskie i manufakturnyia knigi. A kotoryia podcherneny, tekh [v] vyshepisannykh knigakh ne upotrebliat'."

Visual Language from the Verbal Model

Colin Murray Turbayne

Hypothesis: the visible world is a script, presented in alphabetical form, which we have to learn to read. In looking at the ancient problem of how we see, we must first consider the conflict of common sense vs. illusion in our interpretation of what we see. Man learns to decode a complex code of vision, which includes bridging the gulf between a written language and a spoken language (both called, for example, "English") as well as between visuals and tactuals. Seeing is modelled upon reading; painting, sculpture, and photography are modelled on writing—and are forms of writing in visual language.

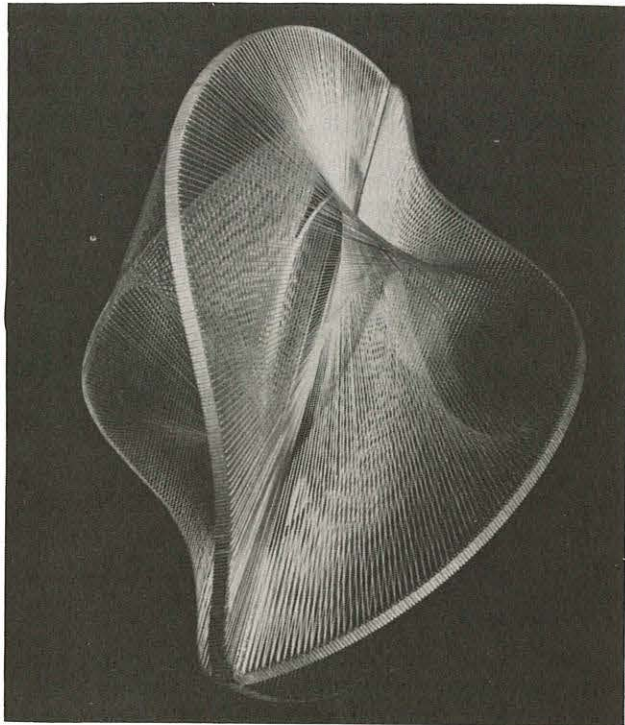
My hypothesis is roughly defined by a remark made recently by the sculptor, Naum Gabo: "Lines, shapes, forms, color, and movement have a language of their own, but reading takes time. It is not enough to look. You must see, and 'see' means 'read' "[1].* This hypothesis—that *to see* is to *read a language* whose elements are these lines, shapes, forms, color, and movement that Gabo talks about—is a development from some of the ideas of two philologists: Plato, who wrote shortly after the invention of the modern alphabet, and Berkeley, who wrote shortly after the invention of modern optics. They shared the view that the visible world is a script, presented in alphabetical form, which we have to learn to read. This conception I shall develop in order to suggest the main lines of a solution to the ancient problem of how we see.

The Problem

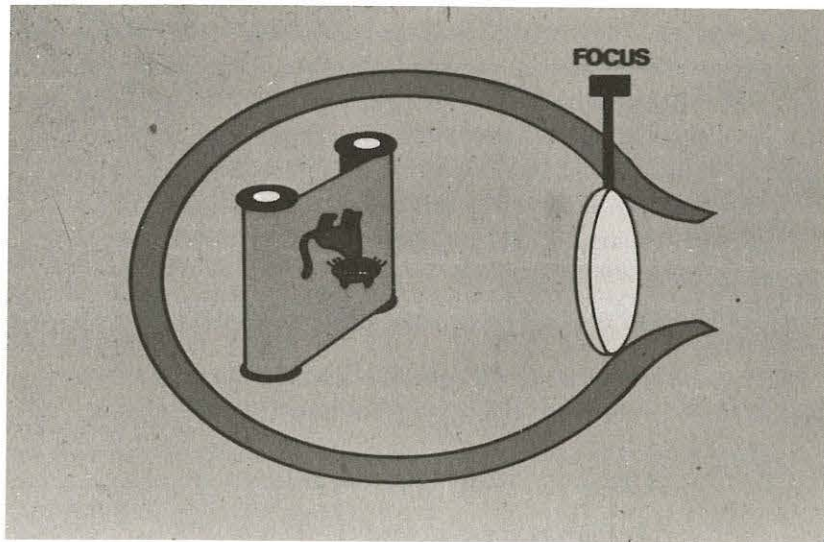
Any adequate solution must be able to accommodate two sorts of facts. It must be able to fit in the very ordinary facts of common

*Numbers in brackets [1] refer to the illustrations.

[1] Naum Gabo,
Linear Construction,
No. 2, plastic.



[2]



sense: those popular suppositions such as that sight gives us a direct intuition of physical objects, including their distance, sizes, shapes, positions, and movements. But it must also be able to fit in the apparent misfits: those not so extraordinary facts connected with illusion, for without these the whole problem of vision would never have been posed. Macbeth saw a dagger before him, but could not clutch it. We see a lake before us in the desert, but we dip our pannikins into sand. We see in the distance a small round tower, but we climb a large square building. We see a bent stick partly immersed in water, but we pull out a straight one. What, then, do we actually see? What explains our deception, and how do we avoid being deceived?

The Camera Model

Cases such as these prompted many theorists to ask such questions as "How can what we directly see be the same as the physical object, when the latter remains fixed though the former varies?" Their answers persuaded them to reject the popular supposition that sight gives us a direct intuition of physical reality, and to adopt the view that it gives us a direct intuition only of a copy or picture of reality. This view, styled the Copy or the Representative Theory, dominates our Western tradition. The model characteristic of this view is the camera. It was Kepler, the father of modern optics and the inventor of the first portable camera obscura, who specified its main features: The eye is a camera [2], a machine for taking photographs of physical objects. It is equipped with an aperture, a light-sensitive material, a converging lens, a focussing mechanism, and a screen on which the photograph is received.

Certainly the camera model brightly illuminates the dioptrics and structure of the eye. It shows the nature of clear and obscure, distinct and confused, vision, and it exhibits the process of accommodation. But it sheds little light upon how we see. We notice that the interpreter of the photographs is not built into the camera. In order to make it work we must suppose a mind and another eye behind the camera to look at and interpret the photographs, just as Kepler himself had to get inside his own camera obscura. Accordingly, we are back where we started: How do we interpret the photographs or, indeed, any visual object? The answer obviously is that the photographs are pictures or copies of their originals. But then how do we tell that they

are good or bad likenesses when we cannot compare the pictures with their originals? We are forever confined to the contemplation of our own private photographs. Moreover, many photographs are most unlike the objects they are supposed to copy.

In consequence of these factors the camera model cannot suggest an adequate account of illusions. Indeed, it seems that the camera does a good job in creating them! The camera is notorious for such things as turning a maiden's mini-feet into those of a mastodon [3]. The mind behind the camera may see the little upside-down pictures on the screen, but he cannot tell by sight that the originals are right side up. He may see the image of the crooked stick, but he cannot see that the stick is straight. He cannot tell which is bigger, his thumb or the Eiffel Tower. He must even be fooled by the images seen in the plane mirror. In all these cases he must be fooled unless he is a mind with a memory who can interpret the pictures in the light of additional *information*, a mind who can tell and often mis-tell what things *signify*, and who, aware of *contexts*, can see through the *ambiguities* of vision. In short, he must be fooled unless he has learned to *decode* the complex *code* of vision, i.e., to *read* the *language* of vision.

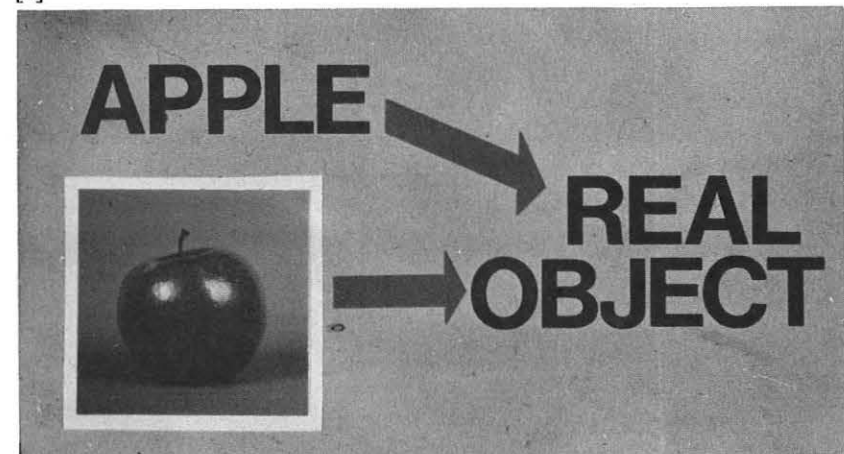
Dropping the Copy Theory

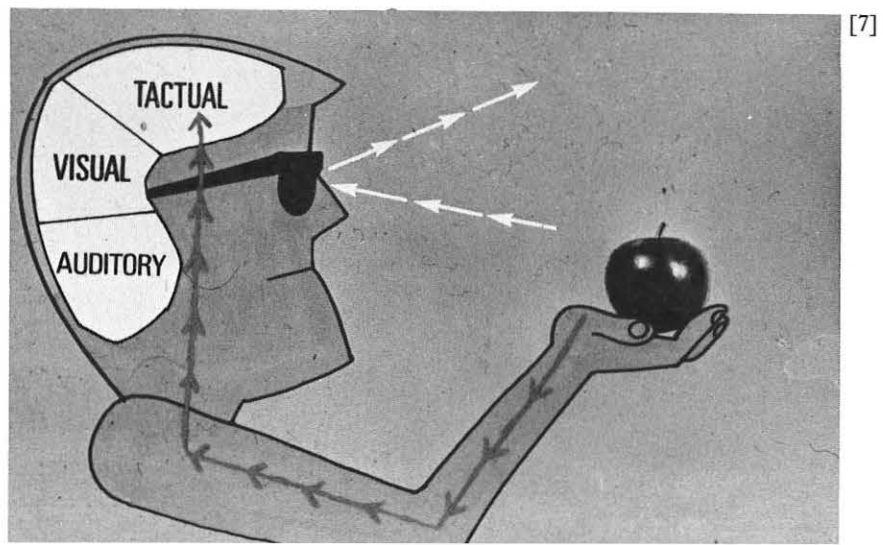
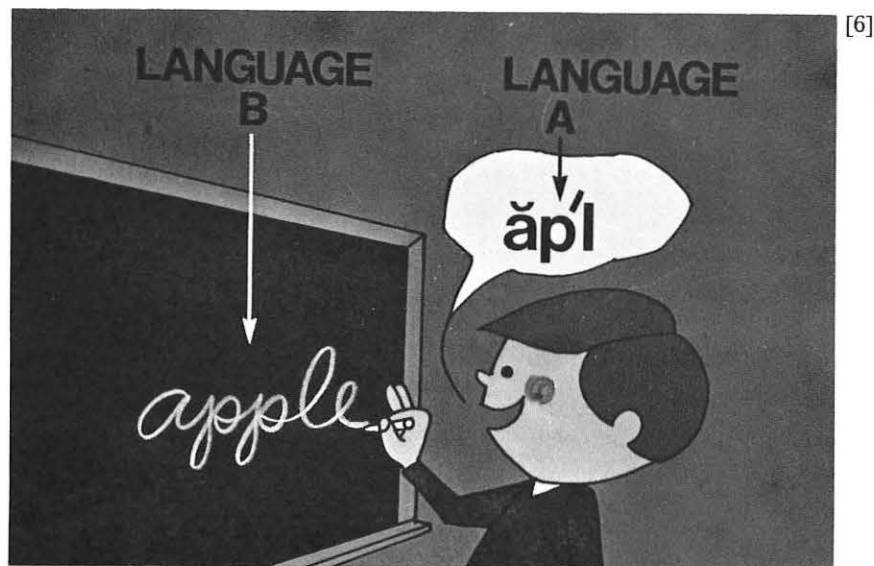
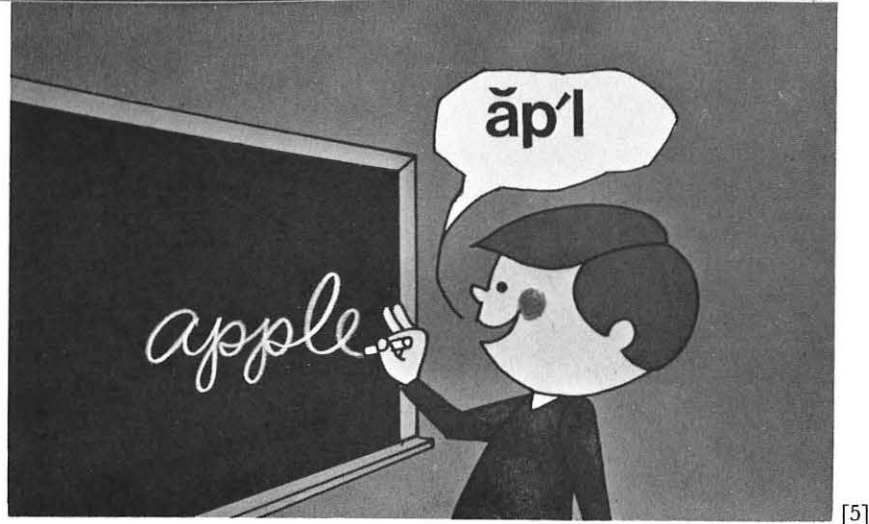
Equipped with the view that visual objects constitute *a language*, I could proceed to interpret the words of this language as visual objects and their referents as physical objects, leaving it unspecified whether the words are those of a written or a spoken language. Accordingly, visual objects would suggest, or function as signs of, physical objects, just as words suggest or signify their referents. By adopting this model I could deduce that physical objects are not objects that are directly or intuitively seen, for when we see or hear the word "apple," there is no need to see an apple [4]. We need only to think of it. This model has many merits.¹ By indicating a sharp distinction between the sign and the thing signified it suggests how we can accommodate illusions. Illusions are properly delusions, i.e., we make mistakes, not about the things that are the gifts of sight, only about the things they prompt us to believe. But it fails to suggest how we can accommodate common sense according to which we directly see physical objects. What is needed is a relation that is far more intimate than that between a word and its referent yet one that preserves their distinctness.



[3] Photograph: James Laragy, Rochester (New York) *Democrat and Chronicle*.

[4]





This desideratum is satisfied, so it seems to me, by that peculiar relation that obtains between the items of the written and the spoken languages of what we commonly call the same language [5]. When as children we learn to read and write, our aim is to bridge the gap between these *two different languages* [6]. It is strange that we now think them *one language*, for the gap between them is in some respects far wider than that between, for example, spoken English and spoken Italian, or the hieroglyphics and the Greek script carved on the Rosetta Stone. This is so because the elements of these two languages belong to two different sense realms. Presented with this new and unknown written language, which we have to read in order to be admitted into our exclusive literate society, we are, in fact, confronted with a decoding problem of enormous complexity. However, we come already equipped with a language that is old and known, namely, our own native but artificial tongue, the spoken language.

Let me then narrow the interpretation given above. Instead of assuming merely that visual objects constitute a language, I assume that visual objects constitute *a written language*. More specifically, I interpret the letters of this written language as visual sizes, shapes, positions, and movements, and the letters of the corresponding *spoken language* as the spatial properties of physical objects, i.e., their sizes, shapes, positions, and movements. These physical objects, I assume, could be known by us even if we had not been gifted with sight [7]. This is not an implausible assumption, for it appears that blind people possess spatial awareness. Indeed, the people in H. G. Wells' *Country of the Blind* knew more about the spatial features of their world than did the sighted intruder.

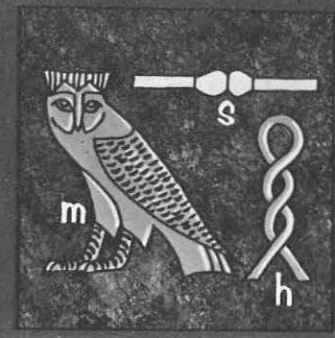
With this interpretation I can at once divorce myself from the most fundamental feature of the traditional Copy Theory of Vision. I deduce that visual objects—including photographs, paintings, and sculptures—are not copies or replicas of the objects they represent to us. This paradox is merely an easy application of an obvious feature of language. The written language, it is true, began with signs which were pictures, but it ended with alphabetical signs which are not. The hieroglyphs themselves nicely exemplify this paradox. Certainly the hieroglyphs look as if they are to be read pictorially or allegorically, and because of this they fooled the best philologists for more than two thousand years. There is little resemblance between a picture of

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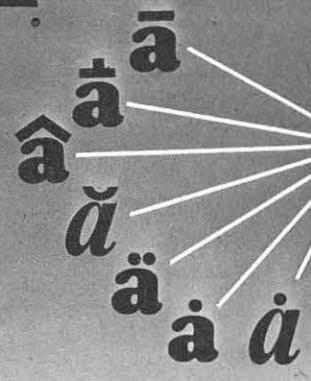
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language a reading
the spoken language and
for example, before he has learned
the first time with specimens of the written
marks CAT, the illiterate proves quite unable
them into the spoken word *kāt*, although he knows this
imately. But it produces a more exciting and not so obvious
truth in the terms of my theory. It is not so easy to give a foreigner to
visual language a reading test. We need someone new to vision and
old to touch, for example, a congenitally blind person who is suddenly
made to see. I can predict that such a visual illiterate, confronted
visually for the first time with such objects as a cube and a sphere,
will be unable to tell which is the cube and which is the sphere,
although he knows both of them well by touch. This prediction, so it
happens, turns out to be true. The test has been carried out on numer-
ous occasions. None of them, it seems to me, disconfirms my theory.
Three typical statements from the reports on these cases are as fol-
lows: "The patient is shown a sphere and a cube. . . . He realizes that
the two are distinct, but does not know which is round and which
cornered. . . ;" "He could not in the least say which was the cube and
which the sphere . . . ;" "He remains absolutely incapable of saying



M+S+H=
MISEH
(CROCODILE)

[8]

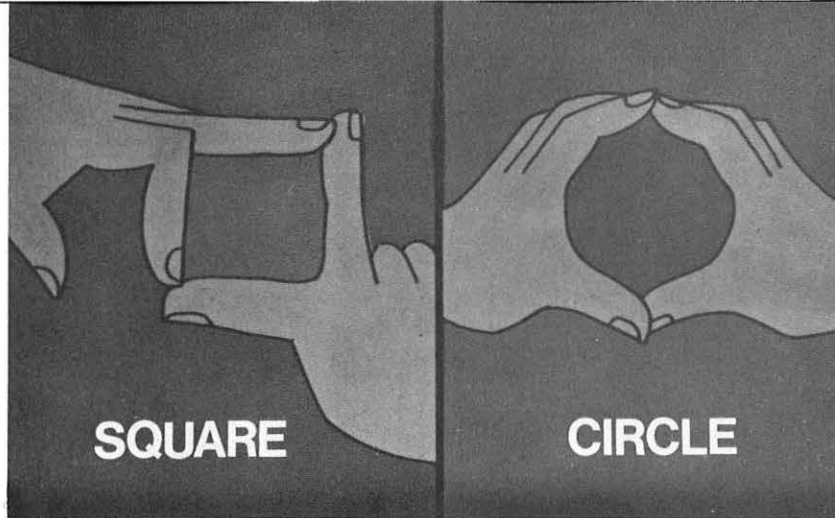


[9]

[10]

CAT

kăt



[11]

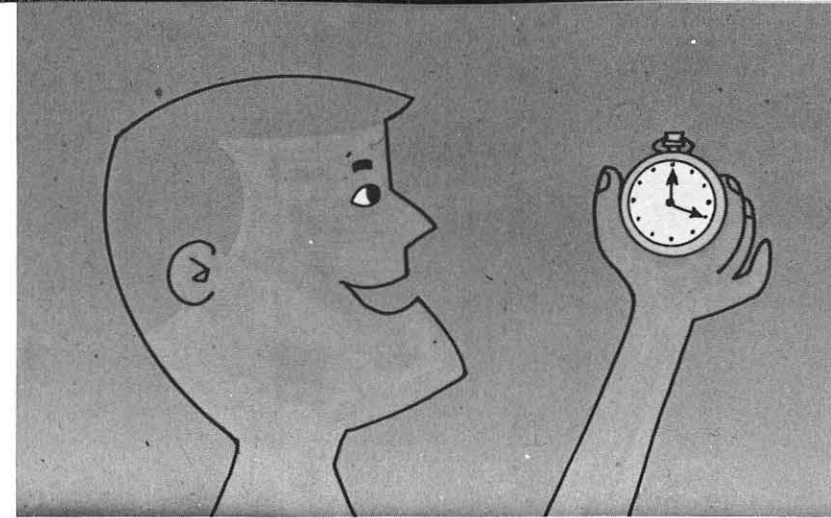
whether it is round or cornered.”² As one expects, these visual illiterates, confronted for the first time with those paradigms of the Picture Theory (viz., photographs of familiar objects) have no idea about how to read them. But as one does not expect, even visually literate persons who have not yet learned the code of photography, e.g., Australian aborigines from the heart of the Never-Never, can make nothing of photographs.

Thus by dropping the picture theory of language, I am able to drop the picture theory of pictures.

Reading Visual Language

If, however, we cannot have recourse to the picture theory, how, then, do we bridge the gap between visuals and tactuals?

Once more the answer is given for me by an easy application of the written-spoken language model. As children confronted with specimens of this mysterious writing, our aim is to break its code and to become readers or native decoders, able to translate these foreign marks into the sounds of spoken English. Our predicament is similar to that of Champollion when he began to decipher the hieroglyphics. Like him, we have to transfer our knowledge from a language that is old and known to another that is new and unknown. Fortunately, to help us in solving what is perhaps the second most difficult problem that we shall ever be called upon to face, we possess the all-important factor that Champollion lacked. We have a teacher who can teach us the letters and their proper names. These we learn by ostensive definition, the way we begin to learn any foreign language. This in-



[12]

volves the establishment of an association between entirely different things so that when tested by being *shown* a letter or a word we can *tell* its name. The process takes time and experience and repeated acts.

Parallel remarks apply to the beginning reader in visual language. Here is a student whose mastery of the letters of this new language is being tested. On the second day of testing, the once-blind man is shown a watch. “‘Is it round? Is it a round thing or a square one?’ No answer. ‘Do you know what a square is?’ He positions his two hands to form a square. ‘And a circle?’ He again bends his hand to produce a ring [11]. In looking at the watch at which his gaze is obviously directed he remains absolutely incapable of saying whether it’s round or cornered. However much I insist on an answer, none is forthcoming. On the following morning the same question, the same inability to answer. So I then let him feel the watch [12]. No sooner has he taken it in his hand than he immediately says, ‘That’s round, it’s a watch.’”³ After countless repetitions the beginner can tell the names of the letters of visual language and some of its words.

The remaining terms of visual language are learned in terms of the basic ones. A child who has learned his letters and a few basic terms can read words that are wholly new to him. For example, having read the word BAR, he is well on the way toward reading the new word BARBARIAN. Similarly the learner of visual language, equipped with a knowledge of the visual analogues of round, square, straight, curved, etc., can guess by looking, the names of wholly new objects. Eventually, with the help of analogies he may even be able to see the moon and flying saucers although he has never handled these objects.

He might even become as good a reader as Lady Macbeth when she said to her husband: "Your face, my thane, is as a book whereon men may read strange matters." She might have said: "Your intentions are written all over your face but I alone can read your writing."

The Complex Code of Visual Language

Unhappily the code of visual language is chaotic. It is this factor that introduces visual illusions and thus sets the problem of vision. In illusion [13], as the etymon suggests, we are *played against* or *mocked*. At times, being genuinely cheated or deceived, we lose the game; at others, having seen through the deception, we win. It is rare for such expert readers as we are now to be taken in for more than an instant, but, as theorists, we must try to become strange to the familiar. What then explains illusion? Why are we deceived, and how do we avoid being deceived?

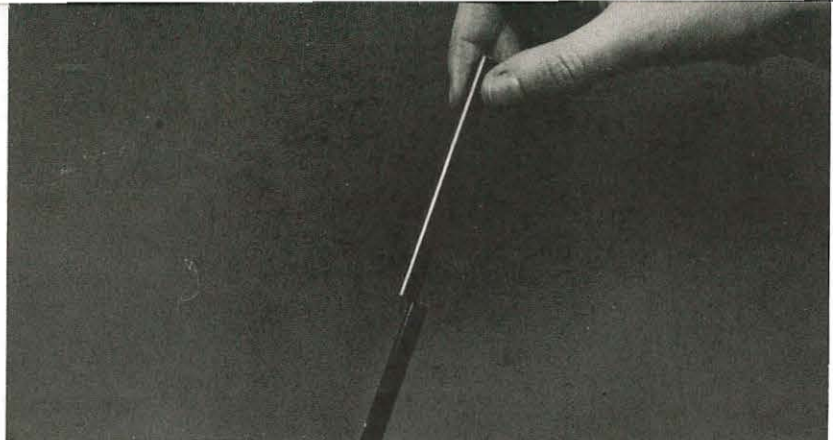
The model of the two languages is rich in its offerings here. The child learning to read English is baffled not merely by an enormously complex code but by one that is crazy. He cannot readily overcome the disparity between the sounds of his mother tongue and the symbols he sees on the page. There are only 26 letters in the alphabet but over 80 sounds in English. Thus one character may be translated into many different phonemes. There is nothing in the character O itself that tells him which translation to pick [14]: the sound *ō* represented in GO, or the one in ONE, or in DO, or in GONE, or in WOMEN. Conversely, many different characters may translate into only one phoneme. There is nothing in such different characters present in TO, WOO, FLEW, CANOE, and RHEUMATISM, that can tell the beginning reader to translate them into only one sound. Finally, how is the frustrated beginner to know that some characters, such as the B in COMB, the E in CAUSE, and the H in HERB [15] do not translate into sound at all? It is easy to see why the young player loses these language games. Thus, winning the game with the F in AFT, IF, and OFT, he forthwith loses it with the F in OF. Able to read the combinations MIGHT, RIGHT, LIGHT, and TIGHT, the shocking truth is revealed when he encounters the combination EIGHT.

The beginning reader in visual language is equally baffled. The explanation of his deception is much the same as that of the other reader. Finding that certain visual sizes, shapes, positions, etc., are

[13]

[14]

[15]



[16]



[17]

| | | | | |
|----|---|----|----|----|
| æ | j | t | th | i |
| b | k | ue | rh | o |
| c | l | v | jh | u |
| d | m | w | 3 | ω |
| ee | n | y | q | ω |
| f | æ | z | a | ou |
| g | p | s | au | oi |
| h | r | wh | a | |
| ie | s | ch | e | |

[18]

regularly translated into their tactual counterparts, he expects this regularity to continue. Encountering cases which to us are no longer extraordinary, the beginner is unavoidably mistaken. Thus having successfully translated blurriness into near distance, he mis-translates when he sees the same blurriness produced by an object out of focus behind a magnifying glass. Although one visual “character” may translate in two different ways, there is nothing in the visual bentness [16] itself to tell him it is really straightness. Although two or more different visuals may translate in only one way, there is nothing in the double visual itself [17] to tell him there is only one object; nothing in the elliptical and various other shapes to tell him it is only one circle. Some visuals do not translate into tactuals at all, but there is nothing in the mirror image itself to tell him there is nothing there, and there was nothing in the visual dagger that enabled Macbeth to translate it as “a dagger of the mind.” Mocked by the ambiguities and other irregularities of visual language, it is no wonder that the once-blind man asked: “Which is the lying sense, feeling or seeing?”

In spite of these defects many of us learn to read. How, then, do we avoid being deceived? Unfortunately, we have no analogue to Sir James Pitman’s Initial Teaching Alphabet⁴ [18]—a simpler code that we can break before we tackle the more complex code of vision. It is a simpler system than English although it contains more primitives: Pitman has almost doubled the number of letters of its alphabet and tripled the number of vowels. Nevertheless, each letter translates into only one phoneme of our old language. Thus before we start to decipher, all the defects of our present alphabet that I listed above have been eliminated.

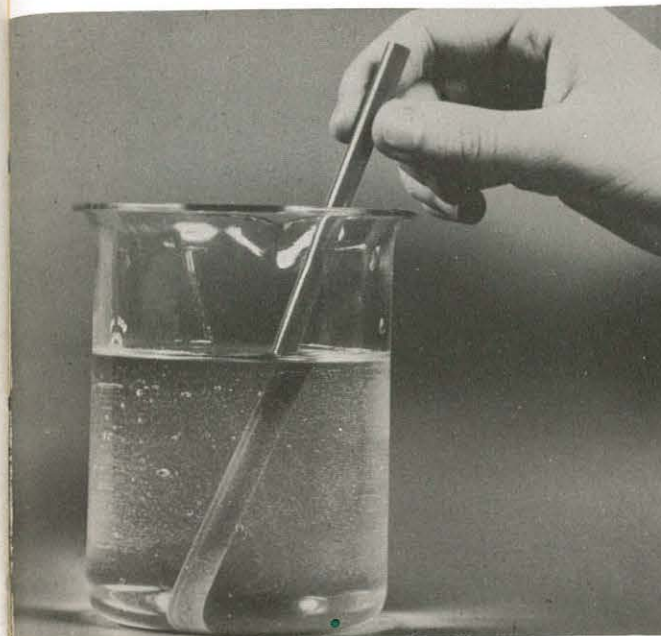
Fortunately, there are other devices to help in counter-acting the capriciousness inherent in either language. We rely upon two factors of great value, namely, our prenotions and context. Thus in reading the written language we tend to overlook the typographical sizes and shapes and pass on to the translation: Since the sizes of the marks **BIG** and **LITTLE** are not especially relevant to the translation, we ignore them. This factor parallels the well-known size constancy of visual language. Thus although the visual size of an object halves as its distance from the eye doubles, the mind ignores such information and relies instead on more massive cues such as its prenotions of the size of the object. A man, for example, looks just as big at a hundred

yards as at fifty. Indeed, the feat of returning to the old “innocence of the eye,” built into the camera and prized by the Renaissance painters, requires an effort of attending or a glance through a grid.

The context of the characters on the page, or of the visual objects we seek to interpret, supplements this factor. There is nothing in the combination READ [19] abstracted from its context, that enables us to choose between the translation *rēd* and *rĕd*. Nevertheless, we translate successfully when it is preceded by such marks as TO or HAD. This illustrates how we avoid being deceived by many illusions; we can see that the stick, crooked in the context of air and water [20], is really straight. It also illustrates how we put a stop to the ambiguities present in some amusing figures and pictures. The small square [21] in the diagram appears to flap in and out; what was a duck turns into a rabbit [22]. The interpretations are fixed for us, however, when we are given additional cues: when figures of appropriate sizes are inserted in the squares [23]; and when the duck’s body is added.

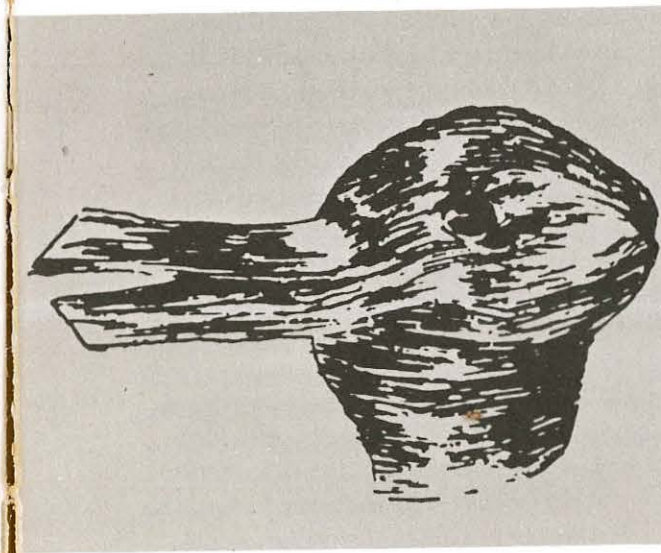
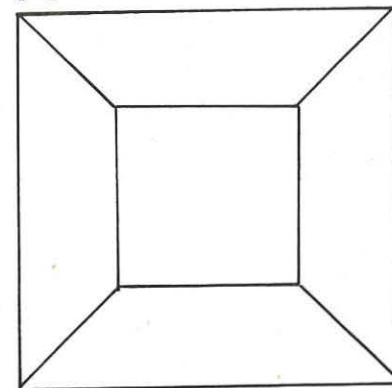
[19]

| | | |
|-------|------|------|
| READ | rēd | rĕd |
| TEAR | tēr | târ |
| ROW | rō | rou |
| WIND | wīnd | wĭnd |
| LEAD | lēd | lĕd |
| CLOSE | klōz | klōs |

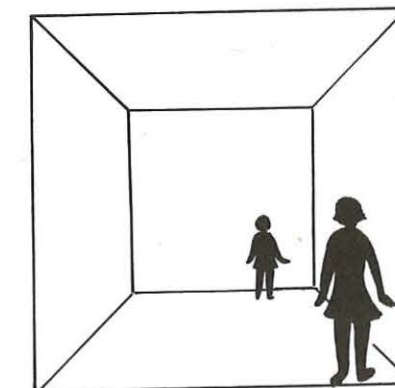


[20]

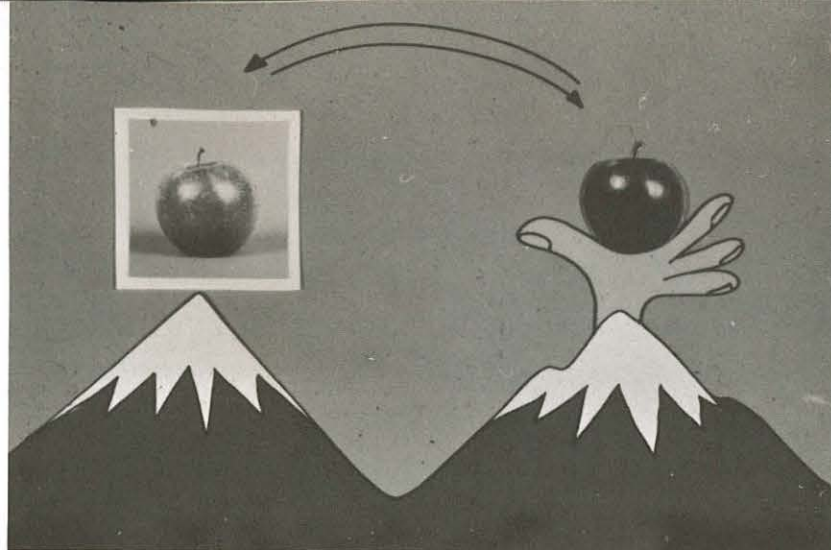
[21]



[22]



[23]



[24]

Word Magic

In the preceding account I showed first the nature of the gap between the visual and the tactual realms; then how, with the help of experience, we begin to bridge the gap [24]. This is still not enough, for most people do not think there is any gap to be bridged at all. We ordinarily say and believe that we see the same sizes, shapes, and positions that we feel. How, then, can my theory accommodate these popular suppositions?

It is customary to call a word of the written language and the corresponding word in the spoken language by the same name. We call, for example, the marks SQUARE and the sound *skwār* by the same name. We do the same thing with the characters and phonemes, using, for example, the name "Double-U" not only for the mark W but for the noise it translates into. The same custom is carried out with the specifically distinct sizes, shapes, positions, and movements of the visual and tactual realms. We use, for example, the same word "round" to refer to the shape that we see of a watch and to the shape that we feel.

This custom is highly convenient. It saves an endless number of new words, and it constitutes a translation link—a Rosetta Stone, as it were—between the members of each pair of languages. Although highly convenient, this custom leads us into error. There is a strong temptation to think that because we call them by the same names, the roundness, squareness, etc., that we see are the same roundness



[25] *Thoth*, Kestner Museum, Hanover.

squareness, etc., that we feel. Even though the correlations between written and spoken English were *not* learned in earliest infancy, we now not only call these two languages "one language," viz., "English", but we think of them as one. But the correlations between sight and touch were sucked in with our milk and the metalanguage established shortly thereafter. In this way visuals and tactuals are complicated, twisted, knotted, or concreted together. The products of such confusions or complications of the items of the visual and the haptic realms constitute our visible world.

Writing in Visual Language⁵

If seeing is appropriately modelled upon reading, then painting, drawing, sculpture, and photography are appropriately modelled upon writing. All these arts, then, are forms of writing in visual language, though each has its own special medium, its own vocabulary and code. The analogy between writing (*graphie*) and painting (*zographie*), also drawing and sculpture, was noted by Plato. Furthermore, Plato treated all these arts as forms of handicraft (*cheirurgia*). Finally, he used the legend of Thoth [25], the great inventor of writing, to make an important point: "What you have discovered is a recipe not for memory, but for reminder."⁶ What we are reminded of when we read the written discourse is the real thing, the spoken discourse.

Writing, then, in terms of the model, is the manipulation of letters



[26] *Seated Scribe*,
Louvre, Paris.

or other conventional characters to represent and remind a reader of items in the spoken language. A concrete symbol for this basic operation that we perform upon the spoken language is the Seated Scribe [26]. The scribe is taking dictation. Receiving a message in the primary language, he is in the process of translating it into another. Receiving, for example, the message *miseh* in plain text, he encodes it into the cryptograms of the owl, the bolt, and the twisted flax, and, according to the rules of syntax, puts them together in order in an invisible rectangle to make a well-formed formula. Thus he is able to bridge the enormous gap between the two languages in the reverse direction from reading, so that another reader can be reminded of the original. The bridge or translation link that he uses is spelling, which, like a scaffolding, is dispensable. By spelling the *names* of the items of

the message he is able to bridge the gap, for these names constitute a rebus: they sound like the names of the vocabulary of the secondary language, the letters of his alphabet, which he has already learned by ostensive definition. It is, of course, accidental that the words of his metalanguage are in the same language as the original message. The characters and their syntax are conventional, being based upon a compact between him and his reader. Otherwise they could not be decoded, and there could be no language. Nevertheless, within these conventions, he has his own unconventional writing style.

When appropriately interpreted this model illuminates how we write with visuals.

A simple form of writing is represented by the Australian aborigine who writes his message by breaking a twig, and thus informs his readers of the presence of an old-man kangaroo. Samuel Butler, in his "Thought and Language," uses the case of Mrs. Bentley to illustrate the same simple form. Mrs. Bentley used to send her snuff-box to the college buttery at Trinity College when she wanted beer, instead of an ordinary written order, and the butler was able to read her extraordinary writing just as readily in this style as in the other. This example satisfies the main features of the model. It will be observed that the convention or mutual compact, necessary for language, was made between only one writer and one reader, even though the author chose to encode in an unconventional type of cryptogram further designed to conceal the very existence of the message from any prying readers.

Although the camera model may not illuminate how we read visual language, the camera itself is a wonderful instrument for writing in it. The cryptograms into which we encode our messages from the visible world with this instrument are more readily decoded than typewritten or handwritten characters. An important feature about the photograph that we learned from our model is that it no more copies the visible world than the hieroglyph does its referent, and yet, again like the hieroglyph, it appears to do so. What explains this appearance? With the help of the model I concluded that the things we see are complications or concretions of visual and haptic items: we have long since bridged the gap between the two realms and, through our pre-notions and awareness of context, put a stop to ambiguity. Now the striking feature of the camera is that, without any help from the

photographer, it uncomplicates the complex which is our visible world. It achieves this by translating a three-dimensional view of the world into cryptograms of color on a flat surface. If there were colored pictures on our retinas, and if we could see them, they would be photographs. This is so because the camera and the eye (which, as we have seen, is just another camera) give us perspective. In my view, this should be the interpretation of the phrase "the innocence of the eye." In perspective, to adopt Berkeley's definition, we suppose that we are *looking through* a gridded window at the world: "The eye sees all the parts and objects in the horizontal plane through certain corresponding squares of the perpendicular diaphanous plane."⁷ The objects in the horizontal plane represent our visible world, while the images projected on the perpendicular plane represent a viewer's visual "window" (the word "field" is inappropriate), or what the camera "sees." The latter is no copy of the former, for what is projected as relatively large may translate into something very small, and conversely; what is "seen" as high up may be seen as only far away, and so on. Thus though the photograph may not copy our visible world, it does copy our visual window. While it does not imitate what we see, it does imitate what we "see."

What distinguishes painting and drawing, those more complex forms of writing in visual language, from photography? What techniques or rules of syntax does the artist follow in order to transmit his message? If he does not copy the visible world, does he then draw the images on his visual window? There is little doubt that since the Renaissance this has been the leading idea of most painters. It is as if the inventors of perspective drawing had invented the idea of writing with the camera. It would be a mistake to think, however, that perspective is purely geometrical. The painter can project on his canvas two pictures equally large, yet by making one fainter and higher up, enable his readers to translate it as something a hundred times larger. In this he follows the rules of perspective, as does the camera. But does he have to do so?

The camera, writing, as it were, according to fixed rules of syntax, is placed in an uncompromising position with regard to perspective. Just as it is very possible to write improperly through too strict an observance of grammar, so the camera (and some painters), governed by the rules of perspective, can run into mistakes. The skillful artist,

however, not so tightly bound, can make a compromise with perspective, and yet succeed in getting his message across to the reader. This begins to answer the puzzling question why a painting can be more "true to life" or more "convincing" than a photograph. To us and to the artist, equipped with a mind as well as an eye, a man looks just as big at a hundred yards as another at fifty, but the camera, fooled by its built-in perspective, "sees" and describes him as twice as small. The artist, however, can pick and choose. If he paints the man as he looks, the viewer reads him as a giant. If he matches the photograph, the viewer reads him as a midget [27]. Accordingly, he chooses the way of "understatement" with respect to visual size, perhaps "underscoring" faintness and situation on his canvas, and thereby produces a convincing reading.

What distinguishes painting from photography, then, is its flexibility or freedom from convention. Just as the writer can break some of the rules of grammar but not all, so the artist, such as the Egyptian scribe, Botticelli, and Chagall, can ignore the rules of perspective: While not free from all conventions (if so his work could not be read),



[27]

such unconventionality and other idiosyncrasies constitute his style or, as the etymon indicates, manner of writing.

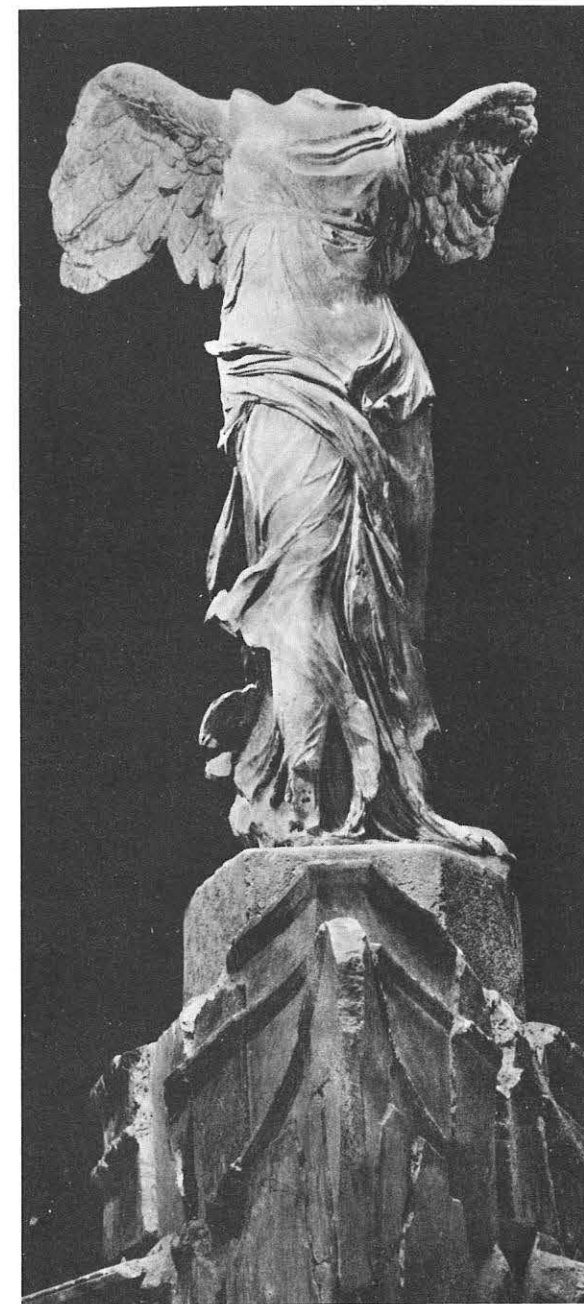
An apparently simple but highly complex form of writing with visuals is sculpture, the art of carving figures in relief, in intaglio, or in the round. Because of his medium, with the three dimensions built into it, the sculptor more so than other artists, appears to represent his three-dimensional subject by making a copy of it. If I am right, however, he no more makes a copy or replica of his subject than does the scribe when he encodes the spoken message into painted characters on a flat surface, or the photographer when he takes a photograph of a statue.

It may be granted that my thesis can accommodate those well-known symbolic compositions of the sculptor, e.g., Picasso's bronze *Head of a Woman* (1932) [28]. Just as the obvious reading of the hieroglyph I have been using is an owl, a bolt, and twisted flax (cf. the once-obvious reading of the letter A as a bull's head), and the correct reading is the phonetic sequence *miseh*, and through it, a crocodile, so the obvious reading of Picasso's composition is a smiling face with hard, prominent nose and soft, deeply modelled mouth, while the correct reading is a happy blending of the male and female sexual organs, and through it, the conception of the mutual subjectivity of sexual intercourse. This is to accept John Berger's illuminating account of the work in which "its secret is a metaphor."⁸ Although I present the sequence from the reader's standpoint, one has only to reverse it to obtain the writer's sequence from the conception to the set of cryptograms. Unlike the scribe, Picasso has to invent his metaphor.

It may not be granted, however, that my thesis can accommodate those better known and apparently less symbolic compositions of the sculptor, e.g., *Winged Victory of Samothrace* [29]. The reader of this work is impressed by its naturalness. We see her looking *as if* she were alive. We see what *looks like* soft cloth and the living flesh of her belly beneath the transparent drapery. However, all this is reader's talk after the artist has worked his magic upon us. We are talking about what has been suggested or conveyed to us, just as we talk about any magician's sleight-of-hand. Because it seems like living flesh we erroneously conclude that the artist tried to copy living flesh as he worked. In fact, with his reader in mind, this has been the artist's purpose. By

[29] *Winged Victory of Samothrace*,
4th century B.C., Louvre, Paris.

[28] Pablo Picasso, *Head of a Woman*,
1932, bronze, Museum of Modern Art,
New York.



his translation he has created the illusion of resemblance to cloth and flesh just as the Wizard of Oz created the illusion in Dorothy's mind that the Emerald City was really green, or just as a genius, by inventing a metaphor, can create the resemblance between all the world and a stage or between a political boundary and an iron curtain. All this is clinched for me by the Nike's most striking feature: She seems to move with astonishing lightness and grace. Yet this heavy block of marble has been stationary on its pedestal in the Louvre for decades.

A modified version of this paper, entitled "The Syntax of Visual Language" was presented at the first National Conference on Visual Literacy, at Rochester, New York, 27 March, 1969.

1. I used this model to illustrate vision in *The Myth of Metaphor* (New Haven and London: Yale University Press, 1962. Revised edition: University of South Carolina Press, 1970), Chapter V.

2. See M. V. Senden, *Space and Sight* (Glencoe, Illinois: The Free Press, 1960; tr. Peter Heath, from German edn., 1932), pp. 106, 108, 114.

3. *Space and Sight*, p. 108.

4. See John A. Downing, *The i.t.a. Reading Experiment* (London: University of London Institute of Education, 1964), pp. 5-25.

5. For another account of this topic, stressing different aspects, see John L. Debes, "Communication with Visuals," *ETC.*, XXV (March 1968), pp. 27-34.

6. *Phaedrus* 275A.

7. *Theory of Vision*, 55, in George Berkeley, *Works on Vision*, ed. C. M. Turbayne (New York: The Bobbs-Merrill Company, Inc., 1963), p. 145.

8. *Success and Failure of Picasso* (Penguin, 1965), p. 160.

Fashion in Type Design

G. W. Ovink

While "fashion" tends to have unfavorable connotations, "style" is interpreted as a favorable unity of the principles of form of a certain epoch. Questions of fashion in type design today are conditioned on different situations than before World War II, mostly due to the rise of photocomposition and easy reproduction of drawn lettering. Careful execution and self-discipline are no longer required; typographers prefer neutral types, creating their own expression through typographic design. We have today a dominance of the classicist tendency in typography: type is meant to be read. However, in printing types purely utilitarian forms hardly exist; type design has other subjective, emotional purposes. Type designers should be encouraged to create free forms.

The term "fashion," if not used for clothing in general, has a rather unfavorable meaning. It denotes a short-lived, superficial fancy in design, thought out with commercial, speculative aims for a spoilt, capricious public; or it may denote fantasies attached to utilitarian objects, for which a simple, durable form would be cheaper and more efficient and hence preferable for social reasons.

"Style," on the other hand, is taken as the mark of a definitely favorable unity in the principles of form of a certain epoch. This unity comes about naturally if these principles of form are not founded on the whims of the public at large, but on the philosophy of the cultural elite, using the best and foremost social, economical, and technical possibilities. "Style" is a title of honor, granted afterwards to a successful attempt at creating things that are right and of lasting value. Fashion seeks novelty deliberately and it is usually willing to sacrifice, for that purpose, the good things that are already there. Style originates unintentionally when artists wrestle seriously with the fundamental problems of a period and look for the correct solution. Fashions succeed each other every year: a style develops itself in the course of a generation at the least. Fashion, then, would be the ripple